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Appendix B

Traffic Impact Assessment

Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung

Traffic Impact Assessment Report

Rev. A | February 2025

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 INTRODUCTION

1.1 Background

1.1.1 The Application Site falls within the "Comprehensive Development Area" zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung on the Approved Kwai Chung Outline Zoning Plan (OZP) No. S/KC/32. The location of application site is shown in **Figure 1.1**.

1.1.2 The Applicant submitted a S16 Planning Application No. A/KC/489 with a Master Layout Plan (MLP) covering the entire "CDA" zone with a pragmatic phasing strategy having due regard to the multiple land ownership pattern to increase certainty in realising the planning intention of the whole "CDA" zone. The comprehensive development proposed in the Planning Application No. A/KC/489 (hereafter referred to as the "**Approved Scheme**"), comprises 14 residential blocks with an overall PR of not more than 5 and maximum BH of not more than +120mPD.

1.1.3 The Planning Application No. A/KC/489 was deliberated in the TPB Metro Planning Committee Meeting held on 14 July 2023 (the TPB Meeting). During the TPB meeting, TPB members raised concerns on the provision of social welfare facilities and retail shops, as quoted from the meeting minutes[1]

- *"Some Members considered that retail facilities should be provided in the proposed development to cater for the daily needs of the future residents."* and *"Some Member shared the view that the provision of social welfare facilities in the proposed development was inadequate…"*.
- *"the development intensity of the proposed development could be increased for better land utilisation, e.g. provision of retail and more GIC facilities."*.

After deliberation, the Planning Application No. A/KC/489 was approved with conditions.

[1] Minutes of 722nd Meeting of the Metro Planning Committee held at 9:00 a.m. on 14.7.2023

1.1.4 The Applicant takes the initiative to review the **Approved Scheme** and endeavours to take forward the provision of more of social welfare facilities and retail shops. The **Proposed Scheme**, keeping the phasing strategy adopted in the **Approved Scheme**, comprises 15 building blocks (including 14 building blocks with residential use) with domestic PR of not more than 6 and maximum BH of not more than +147.55mPD. Non-domestic PR of not more than 0.5 is designated for proposed retail shops, existing historical buildings, and social welfare facilities to nurture an inclusive and liveable community in the convenient location of Kwai Chung Area.

1.1.5 Arup Hong Kong Limited (Arup) was commissioned to carry out a Traffic Impact Assessment (TIA) report in support of the Section 16 application for the application site.

1.2 Objectives of this Report

1.2.1 The purpose of this report is to evaluate the potential traffic impact associated with the proposed residential development and community facilities, in support of the Section 16 application for the application site.

1.3 Scope of Study

1.3.1 The tasks for this TIA study are outlined as follows:

- Carry out traffic surveys at critical junctions to appreciate current traffic condition;
- Update the inventory regarding traffic circulation patterns, traffic conditions, as well as the constraints of the existing and future committed road network in the vicinity of the application site based on the latest information available;
- Assess the volume of traffic likely to be generated by the proposed development;
- Set up the reference scenario with reference to the **Approved Scheme** at the site location, i.e. reference scenario with an overall PR of not more than 5;
- Identify the likely traffic generation should the application site be developed into proposed development;
- Compare the above two traffic scenarios for evaluation of the likely traffic impact, if any, associated with the proposed development;
- Assess future traffic condition, taking into account any future traffic growth, as well as the traffic generated by the proposed development and other planned/committed development, if any, to be built in the vicinity;
- Review the access arrangement for the proposed development and to make recommendation;
- Recommend car parking provisions and goods vehicle loading/unloading arrangements;
- Carry out pedestrian surveys at pedestrian facilities in the vicinity to appreciate current walking condition;
- Assess pedestrian walking condition, taking into account any future population and employment growth generated by the proposed

development and other planned/committed development, if any, to be built in the vicinity

- Assess utilization of public transport services, taking into account any future population and employment growth generated by the proposed development and other planned/committed development, if any, to be built in the vicinity; and
- Review the vehicular and pedestrian impact for the Interim Scenarios of the proposed developments to be developed by phases.

1.4 Structure of the Report

1.4.1 The structure of this TIA report is as follows:

Chapter	Title	Aims
1	Introduction	Provide project background and scope of the Study
2	Existing Traffic Condition	Review and appreciate the existing traffic condition
3	The Subject Development	Provide information of the Proposed Development
4	Traffic Impact Assessment (Full Development of Proposed Scheme)	Illustrate the results of Traffic Impact Assessment – full development of the CDA
5	Traffic Impact Assessment (Interim Scenario)	Illustrate the results of Traffic Impact Assessment – partial development of lots owned by the applicant
6	Conclusion	Summarize the findings of this Study

2 EXISTING TRAFFIC CONDITION

2.1 Site Characteristics

2.1.1 The application site is located in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung. It is bounded by existing village houses to the north, Lai King Hill Road to the south, Castle Peak Road – Kwai Chung to the east and Princess Margaret Hospital to the west. **Figure 1.1** shows the location and the environs of the application site.

2.2 Existing Road Network

2.2.1 The application site is well-served by a comprehensive road network to and from all districts. Some major roads in the vicinity of the application site are listed as follows:

- Lai King Hill Road is district distributor, in single two-lane configuration. It connects Kwai Fuk Road to the north and Lai Wan Road to the south. Lai King Hill Road serves traffic between Kwai Chung, New Territories West and Kowloon.
- Ching Cheung Road is an urban trunk road, in dual three-lane configuration running in east-west direction. It connects Kwai Chung Road to the north and Castle Peak Road to the south. It connects Kwai Chung and Kowloon.
- Lai Wan Road is local distributor running in north-south direction. It connects Mei Lai Road to the north and a private road of Mei Foo Sun Chuen to the south.
- Mei Lai Road is a district distributor with two traffic lanes in both traffic direction connecting Mei Foo Bus Terminus and Lai King Hill Road.
- Castle Peak Road – Kwai Chung is a primary distributor, dual two-lane carriageway running north-south direction. It connects Tai Wo Interchange to the north and Ching Cheung Road to the south.

2.3 Existing Junction and Link Performance

2.3.1 To appreciate the existing traffic conditions, comprehensive classified traffic counts were conducted at the following identified key junctions in the vicinity of the application site. Locations of these surveyed junctions are listed below and shown in **Figure 2.1**.

J1	-	Lai King Hill Road / King Lai Path	(Signalized Junction)
J2	-	Lai King Hill Road / Chung Shan Terrance / Estate Road	(Signalized Junction)
J3	-	Lai King Hill Road / Kwai Chung Interchange	(Signalized Junction)
J4	-	Mei Lai Road/ Lai Wan Road	(Signalized Junction)
J5	-	Mei Lai Road/ Cheung Sha Wan Road	(Signalized Junction)

2.3.2 The counts were undertaken on 12th March 2024 during the periods of 07:00-10:00 and 17:00-20:00 hours. The morning and evening peak hours were found to be 07:45-08:45 and 17:30-18:30 respectively. The observed traffic flows during these peak hours are presented in **Figure 2.2**.

Junction Capacity Assessment

2.3.3 Junction capacity analysis was carried out at the identified key junctions in the vicinity of the application site. Results of the capacity assessment are shown in **Table 2.3.1** below and detailed calculations are appended in **Appendix A**.

Table 2.3.1 Year 2024 Existing Junction Performance

Junction		Type	Performance (1)	
			AM	PM
J1	Lai King Hill Road / King Lai Path	Signalized	>100%	>100%
J2	Lai King Hill Road / Ching Shan Terrance / Estate Road	Signalized	>100%	>100%
J3	Lai King Hill Road / Kwai Chung Interchange	Signalized	29%	53%
J4	Mei Lai Road/ Lai Wan Road	Signalized	>100%	>100%
J5	Mei Lai Road/ Cheung Sha Wan Road	Signalized	64%	69%

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) in % for signalized junctions.

2.3.4 Results of the analysis indicate that the identified key junctions in the vicinity of the application site are currently operating satisfactorily during both morning and evening peak hours.

Link Capacity Assessment

2.3.5 The road link capacity assessment has also been carried out to examine the volume to capacity (V/C) ratio of the identified key road links. Locations of these identified key road links are shown in **Figure 2.1**.

2.3.6 Results of the capacity assessment are shown in **Table 2.3.2** below. The assessment framework for the road links is based on the ratio of surveyed traffic volume over the link capacity (V/C) to measure the utilization of the road link.

Table 2.3.2 Year 2024 Existing Link Performance (1)

Road Link (2)		Direction	Unit	Link Capacity	Traffic Flows		Volume/Capacity (V/C) Ratio	
					AM	PM	AM	PM
L1	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	1,090	1,085	0.46	0.45
			veh/hr	2,200	903	895	0.41	0.41
L2	Lai King Hill Road (8m wide section)	Two-way	pcu/hr	1,850	655	515	0.35	0.28
			veh/hr	1,700	544	427	0.32	0.25
L3	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	550	545	0.23	0.23
			veh/hr	2,200	452	452	0.21	0.21
L4	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	700	675	0.29	0.28
			veh/hr	2,200	568	559	0.26	0.25
L5	Kwai Chung Interchange (6.8m wide section)	NB	pcu/hr	2,800	885	525	0.32	0.19
			veh/hr	2,600	731	435	0.28	0.17
L6	Kwai Chung Interchange (6m wide section)	SB	pcu/hr	1,400	425	575	0.30	0.41
			veh/hr	1,300	353	475	0.27	0.37

Notes:

(1) Link capacity estimated according to TPDM Vol.2 Ch.2.4, for single 2-lane carriageway (for L1 to L4 with road width of 8m and 10m) or for dual 2-lane carriageway (for L5 and L6 with road with of 6m and 6.8m). Data in term of veh/hr and pcu/hr are converted according to survey pcu factor.

(2) For conservative approach, the road links are assessed based on the greatest traffic flows at the road sections of corresponding roads within AOI.

2.3.7 Results of the analysis indicate that the accessed road link has sufficient link capacity to cater for the existing traffic flows.

2.4 Public Transport Facilities

2.4.1 The application site is served by various modes of public transport services as shown in **Figure 2.3**. The MTR Mei Foo Station is located about 500m from the application site, which is estimated to be a 8-minute walking journey. There are also a number of franchised bus and Green Minibus (GMB) service routes operating within the surrounding road network. A summary of the public transport services operating in the vicinity of the application site is provided in **Table 2.4.1**.

Table 2.4.1 Existing Franchised Bus and GMB Services

Route No.	Origin / Destination	Peak Headway (mins)
Franchised Bus		
6	Star Ferry ↔ Lai Chi Kok	8-20
30	Tsuen Wan (Allway Gardens) ↔ Cheung Sha Wan	25-30
32H	Cheung Shan ↔ Lai Chi Kok	60
42	Tsing Yi (Cheung Hong Estate) ↔ Shun Lee	15-20
45	Kowloon City Ferry ↔ Kwai Chung (Lai Yiu Estate)	25-30
46	Jordan (West Kowloon Station) ↔ Kwai Chung (Lai Yiu Estate)	20-30
46X	Hin Keng ↔ Mei Foo	5-12
171	Lai Chi Kok ↔ South Horizons	10-20
171A	Lei Tung Estate → Lai Chi Kok	Weekday special departures
171P	South Horizons → Lai Chi Kok	Weekday special departures
904	Lai Chi Kok ↔ Kennedy Town (Belcher Bay)	18-30
905	Lai Chi Kok ↔ Exhibition Centre Station	8-23
905A	Exhibition Centre Station → Lai Chi Kok	Weekday special departures
905P	Lai Chi Kok → Wan Chai (Harbour Road)	Weekday special departures
N171	Lai Chi Kok ↔ Ap Lei Chau Estate	Night services only
N241	Hung Hom Station ↔ Tsing Yi (Cheung Wang Estate)	Night services only
GMB		
90A	Kwai Chung Hospital ↔ Mei Foo Station	Weekday special departures
90M	Highland Park ↻ Mei Foo Station	4-6 (circular)
90P	Princess Margaret Hospital ↔ Mei Foo Station	6-8
92M	Wah Yuen Chuen ↻ Mei Foo Station	5-10 (circular)

2.4.2 In summary, the subject development would have good accessibility to the public transport services via adjacent road network and the existing MTR Mei Foo Station.

2.5 Existing Pedestrian Condition

2.5.1 To appreciate the existing conditions, comprehensive pedestrian count surveys were conducted at the critical footpath in the vicinity, as shown in **Figure 2.4**. The pedestrian counts were undertaken on typical weekdays during the AM and PM peak periods on 12th March 2024.

2.5.2 In order to address the performance of the critical footpath, Level of Service (LOS) assessment of the critical footpath has been conducted.

2.5.3 LOS assessment is carried out based on the definitions presented in the Highways Capacity Manual 2000. **Table 2.5.1** shows the various LOS 'quantified' in terms of pedestrian flow rates.

Table 2.5.1 Level of Service (LOS) for Walkway*

LOS	Flow rate for Walkway (ped/min/m)	Description
A	≤16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 – 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 – 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33 – 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 - 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

*Source: Extracted from Exhibit 18-3 of Highway Capacity Manual (HCM) 2000

2.5.4 Footpaths with LOS A to C are considered as desirable with sufficient space for pedestrian to select normal walking speeds to bypass. For footpaths with LOS D represent freedom to select individual walking speeds and bypass other pedestrian is restricted. Unless there are any site constraints, improved measures should be sought for footpath with LOS D or poorer.

2.5.5 **Table 2.5.2** summarized the observed AM and PM peak pedestrian flow and LOS in surveyed footpath and crossing.

Table 2.5.2 Year 2024 Level of Service in AM and PM Peaks at Key Footpath

Footpath		Actual Width (m)	Effective Clear Width (1) (m)	Two-way Peak Hourly Flow (ped/hr)		Flow Rate (2) (ped/min/m)		LOS (Level)	
				AM	PM	AM	PM	AM	PM
F1	Lai King Hill Road Northern Footpath	2.5	1.5	90	55	1.2	0.7	A	A
F1a	Lai King Hill Road Northern Footpath (at bus stop)	3.8	1.8	90	55	1.0	0.6	A	A
F2	Lai King Hill Road Southern Footpath	2.8	1.8	225	140	2.5	1.6	A	A
F2a	Lai King Hill Road Southern Footpath (at bus stop)	3.5	1.5	225	140	3.0	1.9	A	A
F3	Wah Lai Path Footpath	9.5	8.5	220	130	0.5	0.3	A	A

Notes:
(1) Effective clear width = Actual width (on-site measurement) minus 0.5m dead width on both sides, and minus the width of passengers queuing at bus stops.
(2) Pedestrian flow rates are computed based on effective clear width, with 1.2 peak factor applied for the peak minute flow rate.

2.5.6 The results presented in **Table 2.5.2** revealed that the walking condition on the critical footpath in the vicinity of the application site is satisfactory during both AM and PM peaks hours in Year 2024.

Table 2.5.3 Year 2024 Level of Service in AM and PM Peaks at Key Pedestrian Crossing

Crossing Facility		Clear Width (m)	Cycle Time (s)		Green Time Proportion		Pedestrian Capacity (ped/hr)		Two-way Pedestrian Flow (1) (ped/hr)		Volume/ Capacity (V/C) Ratio	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
C1	Pedestrian Crossing Across Lai King Hill Road (South of the Proposed Development)	4.2	60	60	28%	28%	2,230	2,230	145	90	0.07	0.04

Notes:
(1) Pedestrian flow rates are computed based on effective clear width, with 1.2 peak factor applied for the peak minute flow rate.

2.5.7 The results presented in **Table 2.5.3** revealed that the concerned pedestrian crossing facility is operating satisfactorily during both AM and PM peaks in Year 2024.

3 THE SUBJECT DEVELOPMENT

3.1 Development Schedule

3.1.1 The Applicant intends to develop the application site into residential use with community facilities. The proposed development will comprise 4 phases, namely as follows:

- Phase 1A (P1A)
- Phase 1B (P1B)
- Remaining Phase A (RPA)
- Remaining Phase B (RPB)

3.1.2 The proposed development will be constructed in phases and the entire development is envisaged to be completed by Year 2032.

3.1.3 The proposed development schedule is summarized in **Table 3.1.1,** and the master layout plan is presented in **Figures 3.1**.

Table 3.1.1 Proposed Development Parameters

Proposed Development	Site Area (sqm)	Non-domestic Facilities	Domestic			
			Plot Ratio	No. of Blocks	Flat Mix	
Phase 1A	About 13,577.341	• Home Care Services (HCS) for Frail Elderly Persons (4-team size non-kitchen based) • School Social Work Office (SSWO) (Hong Kong Family Welfare Society) • Child Care Centre (CCC) (200 places) • 100-places Day Care Centre for the Elderly (DE) • Retail GFA: 2,285.323 sqm	6	5	FS≤40m²	1,221
					40m²<FS≤70m²	651
					70m²<FS≤100m²	109
					Total	1,981
Phase 1B	About 10,111.772	• Neighbourhood Elderly Centre (NEC) • Residential Care Home for the Elderly (RCHE) (100 places) • Retail GFA: 1,516.286 sqm	6	2	FS≤40m²	910
					40m²<FS≤70m²	485
					70m²<FS≤100m²	81
					Total	1,476
Remaining Phase A	About 7,934.713	• 60-place Day Care Centre for the Elderly (DE) • Office Base of On-site Pre-school Rehabilitation Services (OPRS) (Capacity: 125) • 120-place Day Care Centre for the Elderly (DE) (non-kitchen based) • Retail GFA: 1,437.357 sqm	6	2	FS≤40m²	714
					40m²<FS≤70m²	381
					70m²<FS≤100m²	63
					Total	1,158
Remaining Phase B	About 16,689.341	• 60-place Special Child Care Centre (SCCC) • Residential Care Home for the Elderly (RCHE) (150 places) • Child Care Centre (CCC) (100 places) • Retail GFA: 832.970 sqm	6	5	FS≤40m²	1,502
					40m²<FS≤70m²	801
					70m²<FS≤100m²	134
					Total	2,437
Total	**About 48,313.167**		**6**	**14**	**FS≤40m²**	**4,347**
					40m²<FS≤70m²	**2,318**
					70m²<FS≤100m²	**387**
					Total	**7,052**

3.2 Vehicular Access Arrangement

3.2.1 Two vehicular accesses are proposed for the CDA site along Lai King Hill Road, entering the site via P1A and P1B as shown in **Figure 3.2**.

3.2.2 The western vehicular access proposed at site P1A will have conflict with the existing pedestrian crossing and bus stop on Lai King Hill Road Eastbound. It is proposed to shift the pedestrian crossing eastwards and the bus stop to be relocated to the west, provide separation distance among the proposed pedestrian crossing, the proposed bus stop and the proposed vehicular access, as shown in **Figure 3.3_1**. Alternative relocation option for relocating both the pedestrian crossing and bus stop towards the east have been reviewed and shown in **Figure 3.3_2**. The implementation of the bus stop relocation scheme should be subject further review on the site constraints (DSD facilities / HyD structures etc.). On the basis that the vehicular access location of the application site to be maintained and the bus stop to be maintained on Lai King Hill Road, the relocation of bus stop will not constitute changes to the MLP.

3.2.3 The swept path analysis for 12m-long coach and 5m-long private car at vehicular access is shown in **Figure 3.4** and **Appendix C**.

3.2.4 The major ingress and egress routes for vehicular traffic approaching and leaving the application site are illustrated in **Figure 3.5** and **Figure 3.6** respectively.

3.3 Internal Transport Facilities Provision

3.3.1 The internal transport facilities provision for the proposed residential development will be provided in accordance with the high-end requirements of Hong Kong Planning Standards and Guidelines (HKPSG).

3.3.2 There is no standard requirement of internal transport facilities provision for the proposed GIC facilities under HKPSG, corresponding internal transport facilities provision is recommended with reference to operational need of projects with similar use.

3.3.3 The internal transport facilities provision for the proposed development are summarized in **Table 3.3.1** to **Table 3.3.7** below.

Table 3.3.1 HKPSG Required Internal Transport Facilities Provision – P1A

Type of Development	HKPSG Standard					Low-end Requirement (nos.)	High-end Requirement (nos.)
Private Housing ***Total Flat nos. 1,981*** **Block Nos. 5**	**Residential Parking Spaces**						
	Global Parking Standard (GPS)	1 car space per 4-7 flats			Flat No.		
	Demand Adjustment Ratio (R1)	Flat Size (FS) (m^2 GFA)	**FS≤40**	**0.5**	1,221	78.49	137.36
			40<FS≤70	**1.2**	651	100.44	175.77
			70<FS≤100	**2.4**	109	33.63	58.86
			100<FS≤130	4.1	-	-	-
			130<FS≤160	5.5	-	-	-
			FS>160	7	-	-	-
	Total				1,981	212.57	371.99
	Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		0.75		213	372
		Outside a 500m-radius of rail station		**1**			
	Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
			1.00<PR≤2.00	1.1			
			2.00<PR≤5.00	1			
			5.00<PR≤8.00	**0.9**			
			PR>8.00	0.75			
	Parking Requirement = GPS x R1 x R2 x R3						
	Visitor Parking Spaces						
	5 visitor spaces per block in addition to the recommendations, or as determined by the Authority.					**25**	**25**
	Total Parking Car Parking Spaces					**238 (*inclusive accessible parking spaces*)**	**397 (*inclusive accessible parking spaces*)**
	Accessible Parking Spaces						
	1 space for 1-50 total number of car parking space in the lot; 2 spaces for 51-150 total number of car parking space in the lot; 3 spaces for 151-250 total number of car parking space in the lot; 4 spaces for 251-350 total number of car parking space in the lot; 5 spaces for 351-450 total number of car parking space in the lot; 6 spaces for above 450 total number of car parking space in the lot					3	5
	Motorcycle Parking Spaces						
	1 motorcycle parking space per 100-150 flats excluding non-residential elements.					14	20
	L/UL Bay						
	Minimum of 1 loading / unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority.					3	5
Retail GFA: 2,285.323 sqm	**Private Car**						
	1 car space per 150 - 300 m^2 GFA					8	16
	Accessible Car Parking						
	1 space for total number of car parking spaces below 50					1	1
	Motorcycle						
	5 to 10% of the total provision for private cars					1	2
	Loading/ Unloading Bay						
	1 loading/ unloading bay for goods vehicles for every 800 - 1200 m^2 GFA					2	3
	LGV (65%)					1	2
	HGV (35%)					1	1

Table 3.3.2 HKPSG Required Internal Transport Facilities Provision – P1B

Type of Development	HKPSG Standard					Low-end Requirement (nos.)	High-end Requirement (nos.)
Private Housing ***Total Flat nos. 1,476*** **Block Nos. 2**	**Residential Parking Spaces**						
	Global Parking Standard (GPS)	1 car space per 4-7 flats			Flat No.		
	Demand Adjustment Ratio (R1)	Flat Size (FS) (m^2 GFA)	**FS≤40**	**0.5**	910	58.50	102.38
			40<FS≤70	**1.2**	485	74.83	130.95
			70<FS≤100	**2.4**	81	24.99	43.74
			100<FS≤130	4.1	-	-	-
			130<FS≤160	5.5	-	-	-
			FS>160	7	-	-	-
	Total				1,476	158.32	277.07
	Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		0.75		159	278
		Outside a 500m-radius of rail station		**1**			
	Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
			1.00<PR≤2.00	1.1			
			2.00<PR≤5.00	1			
			5.00<PR≤8.00	**0.9**			
			PR>8.00	0.75			
	Parking Requirement = GPS x R1 x R2 x R3						
	Visitor Parking Spaces						
	5 visitor spaces per block in addition to the recommendations, or as determined by the Authority.					**10**	**10**
	Total Parking Car Parking Spaces					**169 (*inclusive accessible parking spaces*)**	**288 (*inclusive accessible parking spaces*)**
	Accessible Parking Spaces						
	1 space for 1-50 total number of car parking space in the lot; 2 spaces for 51-150 total number of car parking space in the lot; 3 spaces for 151-250 total number of car parking space in the lot; 4 spaces for 251-350 total number of car parking space in the lot; 5 spaces for 351-450 total number of car parking space in the lot; 6 spaces for above 450 total number of car parking space in the lot					3	4
	Motorcycle Parking Spaces						
	1 motorcycle parking space per 100-150 flats excluding non-residential elements.					10	15
	L/UL Bay						
	Minimum of 1 loading / unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority.					2	2
Retail GFA: 1,516.286 sqm	**Private Car**						
	1 car space per 150 - 300 m^2 GFA					6	11
	Accessible Car Parking						
	1 space for total number of car parking spaces below 50					1	1
	Motorcycle						
	5 to 10% of the total provision for private cars					1	2
	Loading/ Unloading Bay						
	1 loading/ unloading bay for goods vehicles for every 800 - 1200 m^2 GFA					2	2
	LGV (65%)					1	1
	HGV (35%)					1	1

Table 3.3.3 HKPSG Required Internal Transport Facilities Provision – RPA

Type of Development	HKPSG Standard					Low-end Requirement (nos.)	High-end Requirement (nos.)
Private Housing ***Total Flat nos. 1,158*** **Block Nos. 2**	**Residential Parking Spaces**						
	Global Parking Standard (GPS)	1 car space per 4-7 flats			Flat No.		
	Demand Adjustment Ratio (R1)	Flat Size (FS) (m^2 GFA)	**FS≤40**	**0.5**	714	45.90	80.33
			40<FS≤70	**1.2**	381	58.78	102.87
			70<FS≤100	**2.4**	63	19.44	34.02
			100<FS≤130	4.1	-	-	-
			130<FS≤160	5.5	-	-	-
			FS>160	7	-	-	-
	Total				1,158	124.12	217.22
	Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		0.75		125	218
		Outside a 500m-radius of rail station		**1**			
	Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
			1.00<PR≤2.00	1.1			
			2.00<PR≤5.00	1			
			5.00<PR≤8.00	**0.9**			
			PR>8.00	0.75			
	Parking Requirement = GPS x R1 x R2 x R3						
	Visitor Parking Spaces						
	5 visitor spaces per block in addition to the recommendations, or as determined by the Authority.					**10**	**10**
	Total Parking Car Parking Spaces					**135 (*inclusive accessible parking spaces*)**	**228 (*inclusive accessible parking spaces*)**
	Accessible Parking Spaces						
	1 space for 1-50 total number of car parking space in the lot; 2 spaces for 51-150 total number of car parking space in the lot; 3 spaces for 151-250 total number of car parking space in the lot; 4 spaces for 251-350 total number of car parking space in the lot; 5 spaces for 351-450 total number of car parking space in the lot; 6 spaces for above 450 total number of car parking space in the lot					2	3
	Motorcycle Parking Spaces						
	1 motorcycle parking space per 100-150 flats excluding non-residential elements.					8	12
	L/UL Bay						
	Minimum of 1 loading / unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority.					2	2
Retail GFA: 1,437.357 sqm	**Private Car**						
	1 car space per 150 - 300 m^2 GFA					5	10
	Accessible Car Parking						
	1 space for total number of car parking spaces below 50					1	1
	Motorcycle						
	5 to 10% of the total provision for private cars					1	1
	Loading/ Unloading Bay						
	1 loading/ unloading bay for goods vehicles for every 800 - 1200 m^2 GFA					2	2
	LGV (65%)					1	1
	HGV (35%)					1	1

Table 3.3.4 HKPSG Required Internal Transport Facilities Provision –RPB

Type of Development	HKPSG Standard					Low-end Requirement (nos.)	High-end Requirement (nos.)
Private Housing ***Total Flat nos. 2,437*** **Block Nos. 5**	**Residential Parking Spaces**						
	Global Parking Standard (GPS)	1 car space per 4-7 flats			Flat No.		
	Demand Adjustment Ratio (R1)	Flat Size (FS) (m^2 GFA)	**FS≤40**	**0.5**	1,502	96.56	168.98
			40<FS≤70	**1.2**	801	123.58	216.27
			70<FS≤100	**2.4**	134	41.35	72.36
			100<FS≤130	4.1	-	-	-
			130<FS≤160	5.5	-	-	-
			FS>160	7	-	-	-
	Total				2,437	261.49	457.61
	Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		0.75		262	458
		Outside a 500m-radius of rail station		**1**			
	Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
			1.00<PR≤2.00	1.1			
			2.00<PR≤5.00	1			
			5.00<PR≤8.00	**0.9**			
			PR>8.00	0.75			
	Parking Requirement = GPS x R1 x R2 x R3						
	Visitor Parking Spaces						
	5 visitor spaces per block in addition to the recommendations, or as determined by the Authority.					**25**	**25**
	Total Parking Car Parking Spaces					**287** ***(inclusive accessible parking spaces)***	**483** ***(inclusive accessible parking spaces)***
	Accessible Parking Spaces						
	1 space for 1-50 total number of car parking space in the lot; 2 spaces for 51-150 total number of car parking space in the lot; 3 spaces for 151-250 total number of car parking space in the lot; 4 spaces for 251-350 total number of car parking space in the lot; 5 spaces for 351-450 total number of car parking space in the lot; 6 spaces for above 450 total number of car parking space in the lot					4	6
	Motorcycle Parking Spaces						
	1 motorcycle parking space per 100-150 flats excluding non-residential elements.					17	25
	L/UL Bay						
	Minimum of 1 loading / unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority.					4	5
Retail GFA: 832.970 sqm	**Private Car**						
	1 car space per 150 - 300 m^2 GFA					3	6
	Accessible Car Parking						
	1 space for total number of car parking spaces below 50					1	1
	Motorcycle						
	5 to 10% of the total provision for private cars					1	1
	Loading/ Unloading Bay						
	1 loading/ unloading bay for goods vehicles for every 800 - 1200 m^2 GFA					1	2
	LGV (65%)					1	1
	HGV (35%)					0	1

Table 3.3.5 Recommendation for Internal Transport Facilities Provision of the Proposed GIC Facilities

Site	Development	Facilities	Recommended Provision
P1A	Home Care Services (HCS) for Frail Elderly Persons (4-team size non-kitchen based)	Parking Space for private light bus (8m x 3m x 3.3m)	1
		Shared-use loading/unloading bay for HGV and private light bus (11m x 3.5m x 4.7m)	1
	Child Care Centre (CCC) (200 places)	Ambulance Lay-by (9m x 3m x 3.8m)	1
	Day Care Centre for the Elderly (DE) (100 places)	Parking Space for private light bus (8m x 3m x 3.3m)	5
		Shared-use loading/unloading bay for ambulance and private light bus (9m x 3m x 3.8m)	1
	School Social Work Office (SSWO) (Hong Kong Family Welfare Society)	N/A	N/A
P1B	Residential Care Home for the Elderly (RCHE) (100 places)	Accessible car parking space (5m x 3.5m x 2.4m)	1
		Light bus parking space (8m x 3m x 3.3m)	1
		Loading/ unloading bay for LGV (7m x 3.5m x 3.6m)	1
		Private car / taxi pick-up / drop-off space (5m x 2.5m x 2.4m)	1
	Neighbourhood Elderly Centre (NEC)	N/A	N/A
RPA	Day Care Centre for the Elderly (DE) (60 places)	Parking Space for private light bus (8m x 3m x 3.3m)	3
		Shared-use loading/ unloading area for ambulance and private light bus (9m x 3m x 3.8m)	1
	Office Base of On-site Pre-school Rehabilitation Services (OPRS) (125 places)	Private car parking space (5m x 2.5m x 2.4m)	3
		Accessible private car parking space (5m x 3.5m x 2.4m)	1
		Loading/ unloading bay for LGV (7m x 3.5m x 3.6m)	1
	Day Care Centre for the Elderly (DE) (non-kitchen based) (120 places)	Parking Space for private light bus (8m x 3m x 3.3m)	6
		Shared-use loading/ unloading area for ambulance and private light bus (9m x 3m x 3.8m)	1
RPB	Special Child Care Centre (SCCC) (60 places)	Parking Space for 48-seater coach (12m x 3.5m x 3.8m)	1
		Loading/ unloading bay for LGV (7m x 3.5m x 3.6m)	1
	Residential Care Home for the Elderly (RCHE) (150 places)	Private car parking space (5m x 2.5m x 2.4m)	1
		Accessible car parking space (5m x 3.5m x 2.4m)	1
		Light bus parking space (8m x 3m x 3.3m)	1
		L/UL for LGV (7m x 3.5m x 3.6m)	1
		Private car / taxi pick-up / drop-off space (5m x 2.5m x 2.4m)	1
	Child Care Centre (CCC) (100 places)	Ambulance Lay-by (9m x 3m x 3.8m)	1

Table 3.3.6 Transport Facilities Provision Summary Table

Proposed Use	Facilities	HKPSG Required Provision									
		P1A		P1B		RPA		RPB		Total	
		Low-end	*High-end*	*Low-end*	*High-end*	*Low-end*	*High-end*	*Low-end*	*High-end*	*Low-end*	*High-end*
Residential	Car Parking Space (5m x 2.5m x 2.4m) *including residential, visitor parking*	238	397	169	288	135	228	287	483	**829** ***(inclusive accessible parking spaces)***	**1,396** ***(inclusive accessible parking spaces)***
	Accessible Car Parking Space (5m x 3.5m x 2.4m)	3	5	3	4	2	3	4	6	**12**	**18**
	Motorcycle (2.4m x 1m x 2.4m)	14	20	10	15	8	12	17	25	**49**	**72**
	Loading/ Unloading Bay for HGV (11m x 3.5m x 4.7m)	3	5	2	2	2	2	4	5	**11**	**14**
Retail	Car Parking Space (5m x 2.5m x 2.4m)	8	16	6	11	5	10	3	6	**22** ***(inclusive accessible parking spaces)***	**43** ***(inclusive accessible parking spaces)***
	Accessible Car Parking Space (5m x 3.5m x 2.4m)	1	1	1	1	1	1	1	1	**4**	**4**
	Motorcycle (2.4m x 1m x 2.4m)	1	2	1	2	1	1	1	1	**4**	**6**
	Loading/ Unloading Bay for HGV (11m x 3.5m x 4.7m)	1	1	1	1	1	1	0	1	**3**	**4**
	Loading/ Unloading Bay for LGV (7m x 3.5m x 3.6m)	1	2	1	1	1	1	1	1	**4**	**5**
GIC Facilities	Car Parking Space (5m x 2.5m x 2.4m)	-		-		3 (OPRS)		1 (RCHE)		**4**	
	Accessible Car Parking Space (5m x 3.5m x 2.4m)	-		1 (RCHE)		1 (OPRS)		1 (RCHE)		**3**	
	Private car / taxi pick-up / drop-off space (5m x 2.5m x 2.4m)	-		1 (RCHE)		-		1 (RCHE)		**2**	
	Loading/unloading bay for LGV (7m x 3.5m x 3.6m)	-		1 (RCHE)		1 (OPRS)		1 (SCCC) 1 (RCHE)		**4**	
	Parking Space for private light bus (8m x 3m x 3.3m)	1 (HCS) 5 (DE)		1 (RCHE)		9 (DE)		1 (RCHE)		**17**	
	Shared-use loading/unloading bay for HGV and private light bus (11m x 3.5m x 4.7m)	1 (HCS)		-		-		-		**1**	
	Ambulance lay-by (9m x 3m x 3.8m)	1 (CCC)		-		-		1 (CCC)		**2**	
	Shared-use loading/unloading bay for ambulance and private light bus (9m x 3m x 3.8m)	1 (DE)		-		2 (DE)		-		**3**	
	Parking Space for 48-seater coach (12m x 3.5m x 3.8m)	-		-		-		1 no. (SCCC)		**1**	

3.3.4 The proposed internal transport facilities for each phase of the proposed development will be self-contained within the respective phasing boundary. Detailed allocations of the internal transport facilities are described as follows and shown in **Figure 3.7** to **3.8.** Highlighted plans of internal transport are shown in **Appendix B** and swept path analysis at critical movement are shown in **Appendix C**.

Car Parking Space Provision

3.3.5 A total of 1,396 nos. car parking spaces (including 18 nos. accessible car parking spaces) for residential development and another 43 nos. car parking spaces (including 4 nos. accessible car parking spaces) for retail use as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the corresponding car-ramp for each site.

3.3.6 A total of 7 nos. car parking spaces (including 3 nos. accessible car parking spaces) will be provided on ground floor for GIC Facilities according to the schedule of accommodation from Social Welfare Department.

Visitor Car Parking Provision

3.3.7 A total of 70 nos. visitor car parking spaces (part of total 1,396 nos. private car parking provision), as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the corresponding car-ramp for each site.

Motorcycle Parking Space Provision

3.3.8 A total of 72 nos. motorcycle parking spaces for residential development and another 6 nos. motorcycle parking spaces for retail use as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the corresponding car-ramp for each site.

Private Car / Taxi Pick-up / Drop-off Provision

3.3.9 A total of 2 nos. private car / taxi pick-up / drop-off spaces will be provided on ground floor for GIC Facilities according to the schedule of accommodation from Social Welfare Department.

Loading / Unloading Bay Provision

3.3.10 A total of 14 nos. HGV loading/unloading bays for residential development and another 4 nos. HGV loading/unloading bays and 5 nos. LGV loading/unloading bays for retail use as per HKPSG high-end requirement will be provided on ground floor.

3.3.11 A total of 4 nos. LGV loading/unloading bays will be provided on ground floor for GIC Facilities according to the schedule of accommodation from Social Welfare Department.

Parking Space and Loading / Unloading Bay Provision for Private Light Bus

3.3.12 A total of 17 nos. parking spaces, 1 no. loading / unloading bay to be shared with HGV, and 3 nos. loading / unloading bay to be shared-used with ambulance, for private light bus, will be provided on ground floor according to the schedule of accommodation from Social Welfare Department.

Parking Space and Loading / Unloading Bay Provision for Ambulance

3.3.13 A total of 2 nos. loading / unloading bay for ambulance exclusively will be provided on ground floor according to the schedule of accommodation from Social Welfare Department.

Parking Space Provision for Coach

3.3.14 1 no. parking space for coach will be provided on ground floor according to the schedule of accommodation from Social Welfare Department.

4 TRAFFIC IMPACT ASSESSMENT (FULL DEVELOPMENT OF PROPOSED SCHEME)

4.1 Trip Generation and Attraction of Proposed Development

4.1.1 The likely amount of traffic generated and attracted by the proposed development was calculated based on "Traffic Rates for Non-Residential Developments at 95% Confidence Level" adopted in the Transport Planning and Design Manual (TPDM) Vol.1 Table 1 of Annex D. The adopted rate and associated trip are shown in **Table 4.1.1**.

Table 4.1.1 Adopted Trip Generation and Attraction Rates for the Proposed Development

Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Private Housing: High-Density / R(A) (pcu/hr/flat) (1)	0.0718	0.0425	0.0286	0.0370
Private Housing: High-Density / R(A) (pcu/hr/flat) (2)	0.0888	0.0515	0.0356	0.0480
Private Housing: High-Density / R(B) (pcu/hr/flat) (3)	0.1887	0.0942	0.0862	0.1214
Retail (pcu/hr/100m^2 GFA) (4)	0.2296	0.2434	0.3100	0.3563

Note:

(1) Trip Rate based on "Traffic Rates for Residential Developments at 95% Confidence Level" in the Transport Planning and Design Manual (TPDM) Vol.1 Table 1, for average flat size 60m^2

(2) Trip Rate based on "Traffic Rates for Residential Developments at 95% Confidence Level" in the Transport Planning and Design Manual (TPDM) Vol.1 Table 1, for average flat size 70m^2.

(3) Trip Rate based on "Traffic Rates for Residential Developments at 95% Confidence Level" in the Transport Planning and Design Manual (TPDM) Vol.1 Table 1, for average flat size 100m^2.

(4) Trip Rate based on "Traffic Rates for Non-Residential Developments at 95% Confidence Level" in the Transport Planning and Design Manual (TPDM) Vol.1 Table 2.

4.1.2 The traffic generation and attraction trips for the design scenarios in year 2035 is estimated in **Table 4.1.2**.

Table 4.1.2 Traffic Generation and Attraction of Proposed Development (pcu/hr)

Proposed Development	Development Parameters		AM		PM	
			Generation	Attraction	Generation	Attraction
Phase 1A	FS≤40m²	1,221	88	52	35	45
	40m²<FS≤70m²	651	58	34	23	31
	70m²<FS≤100m²	109	21	10	9	13
	Retail: 2,285.323 sqm		5	6	7	8
		Sub-total	**172**	**102**	**74**	**97**
Phase 1B	FS≤40m²	910	65	39	26	34
	40m²<FS≤70m²	485	43	25	17	23
	70m²<FS≤100m²	81	15	8	7	10
	Retail: 1,516.286 sqm		3	4	5	5
		Sub-total	**126**	**76**	**55**	**72**
Remaining Phase A	FS≤40m²	714	51	30	20	26
	40m²<FS≤70m²	381	34	20	14	18
	70m²<FS≤100m²	63	12	6	5	8
	Retail: 1,437.357 sqm		3	3	4	5
		Sub-total	**100**	**59**	**43**	**57**
Remaining Phase B	FS≤40m²	1,502	108	64	43	56
	40m²<FS≤70m²	801	71	41	29	38
	70m²<FS≤100m²	134	25	13	12	16
	Retail: 832.970 sqm		2	2	3	3
		Sub-total	**206**	**120**	**87**	**113**
Proposed Feeder Service(1)			***12***	***12***	***0***	***0***
Total			**616**	**369**	**259**	**339**

Note:
(1) Detail of proposed feeder service refer to Section 4.7.

4.1.3 As indicated in **Table 4.1.2**, the total trip generated by the proposed development would be around 985 pcu/hr and 598 pcu/hr (two-way) during the AM and PM peak periods respectively.

4.2 Adjacent Developments

4.2.1 In addition to the development flow, the traffic generated and attracted by adjacent major planned/committed developments in the vicinity of the proposed development, including redevelopment of Princess Margret Hospital and Kwai Chung Hospital (S16 planning application No. A/KC/451), expansion of Princess Margaret Hospital Lai King Building, redevelopment of Salvation Army Lai King Home, and private residential development at Lai Kong Street were taken into account for the traffic forecast.

4.3 Future Traffic Growth

4.3.1 The proposed development is targeted for completion in Year 2032. In order to assess the traffic impact of the development-related traffic on the adjacent road network, Year 2035 (i.e. 3 years after completion) is adopted as the design year of the study.

Annual Traffic Census

4.3.2 Reference was made to Annual Traffic Census (ATC) on annual average daily traffic (AADT) at counting stations in the vicinity of the proposed development and the corresponding traffic flows are summarized in **Table 4.3.1** below.

Table 4.3.1 Annual Average Growth Rate by ATC

Station No.	2017 AADT	2018 AADT	2019 AADT	2020 AADT	2021 AADT	2022 AADT	2023 AADT	Annual Average Growth Rate from 2017 to 2023
5443	6,720	6,820	7,590	7,590	7,880	7,800	8,060	+3.08%
4623	10,140	10,260	10,310	10,160	10,610	9,070	9,500	-1.08%
3859	16,090	16,300	14,920	14,400	15,860	13,880	14,920	-1.25%
4628	3,520	3,680	3,580	3,500	4,050	3,720	3,940	+1.90%
5476	10,890	11,190	11,430	12,210	11,870	11,450	12,930	+2.90%
4003	56,220	57,820	57,520	54,350	56,080	53,180	56,820	+0.18%
Total	**103,580**	**106,070**	**105,350**	**102,210**	**106,350**	**99,100**	**106,170**	**+0.41%**

4.3.3 The ATC historic data indicates a growth of traffic in recent years in the region with around +0.41% p.a.

Territorial Population and Employment Data Matrix (TPEDM)

4.3.4 Reference was also made to 2019-based TPEDM published by Planning Department. **Table 4.3.2** below summarizes the estimated and projected population and employment data as well as their respective annual average growth rate of Kwai Chung District in 2019, 2026 and 2031.

Table 4.3.2 Annual Average Growth Rate by TPEDM

Year	2019	2026	2031
Population	319,150	315,800	319,700
Employment	195,950	192,350	183,600
TOTAL	**515,100**	**508,150**	**503,300**
Annual Average Growth Rate	**-0.19% (from 2019 to 2026)**	**-0.19% (from 2026 to 2031)**	

4.3.5 From the table above, the annual average growth rates from 2019 to 2026 and from 2026 to 2031 are -0.19% and -0.19% respectively based on population and employment data.

4.3.6 For conservative purpose, growth rate of **+0.5% p.a.** is selected to produce the traffic forecasts for 2024–2035.

4.4 Assessment Scenarios

4.4.1 To evaluate the associated traffic impact likely to be induced by the proposed development, two scenarios were analysed and compared. The first scenario (i.e. Year 2035 Reference Scenario) assumed the existing land lot to be developed as the **Approved Scheme** overall PR of not more than 5, whereas the second scenario (i.e. Year 2035 Design Scenario) assumed that the **Proposed Scheme** with domestic PR of not more than 6 and non-domestic PR of not more than 0.5 is in place.

Scenario 1

Year 2035 Reference Scenario

= Year 2024 observed traffic flows × growth factor during the period of year 2024-2035

plus traffic generations of adjacent major planned/committed developments in the vicinity

plus trips generated and attracted by the **Approved Scheme** overall PR of not more than 5 (Planning Application No. A/KC/489)

Scenario 2

Year 2035 Design Scenario

= Year 2024 observed traffic flows × growth factor during the period of year 2024-2035

plus traffic generations of adjacent major planned/committed developments in the vicinity

plus trips generated and attracted by **Proposed Scheme** with domestic PR of not more than 6 and non-domestic PR of not more than 0.5

4.4.2 The forecasted traffic flows for the above two scenarios are presented in **Figures 4.1** to **4.2** respectively. The development traffic flows are also presented in **Figure 4.3**.

4.4.3 Additional **Baseline Scenario** at the design year 2035, with traffic generations of adjacent major planned/committed developments in the vicinity but without trips generated and attracted by the development under A/KC/489, is setup as supplementary information for comparison. The forecasted traffic flows are presented in **Figure 4.4**.

4.5 Junction Capacity Assessment

4.5.1 Junction capacity assessment was carried out at the identified key junctions for Year 2035 Reference and Design scenarios. Assessment results are summarized in **Table 4.5.1** below and the detailed calculations are appended in **Appendix A**.

Table 4.5.1 Year 2035 Future Junction Performance

Junction		Type	Performance (1)					
			Baseline Scenario		2035 Reference		2035 Design	
			AM	PM	AM	PM	AM	PM
J1	Lai King Hill Road / King Lai Path	Signalized	>100%	>100%	>100%	>100%	>100%	>100%
J2	Lai King Hill Road / Ching Shan Terrance / Estate Road	Signalized	>100%	>100%	>100%	>100%	>100%	>100%
J3_a	Lai King Hill Road / Kwai Chung Interchange (2)	Signalized	21%	46%	3%	29%	-2%	20%
J3_b	Lai King Hill Road / Kwai Chung Interchange (3)	Signalized	-7%	7%	-21%	-5%	-25%	-11%
J3_c	Lai King Hill Road / Kwai Chung Interchange (4)	Signalized	18%	44%	15%	29%	15%	25%
J4	Mei Lai Road/ Lai Wan Road	Signalized	>100%	>100%	>100%	>100%	>100%	>100%
J5	Mei Lai Road/ Cheung Sha Wan Road	Signalized	56%	60%	38%	50%	34%	48%

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) in % for signalized junctions.
(2) J3 under existing junction configuration.
(3) J3 with TD planned improvement works.
(4) Junction modification scheme in approved planning application (No. A/KC/489) is incorporated for assessment.

4.5.2 The above results reveal that the identified key junctions would operate within capacity with the proposed development in Year 2035, with the junction modification scheme in approved planning application (No. A/KC/489). It is anticipated that proposed development would not induce adverse traffic impact to the surrounding road network. The approved junction modification scheme is shown in **Appendix D** for reference.

4.6 Link Capacity Assessment

4.6.1 Link capacity assessment was carried out at the identified road links for Year 2035 Reference and Design scenarios. Assessment results are summarized in **Table 4.6.1** below.

Table 4.6.1 Year 2031 Future Link Performance (1)

Road Link (2)		Direction	Unit	Link Capacity	Traffic Flows (pcu/hr)						Volume/Capacity (V/C) Ratio					
					Baseline Scenario		2035 Reference		2035 Design		Baseline Scenario		2035 Reference		2035 Design	
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
L1	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	1,160	1,145	1,712	1,475	1,855	1,562	0.49	0.48	0.72	0.62	0.78	0.65
			veh/hr	2,200	955	946	1,419	1,227	1,529	1,299	0.43	0.43	0.65	0.56	0.70	0.59
L2	Lai King Hill Road (8m wide section)	Two-way	pcu/hr	1,850	695	540	1,247	870	1,390	957	0.38	0.29	0.67	0.47	0.75	0.52
			veh/hr	1,700	575	450	1,035	725	1,144	799	0.34	0.26	0.61	0.43	0.67	0.47
L3	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	580	575	1,132	905	1,275	992	0.24	0.24	0.47	0.38	0.53	0.42
			veh/hr	2,200	477	477	937	752	1,046	826	0.22	0.22	0.43	0.34	0.48	0.38
L4	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	725	710	960	853	1,014	888	0.30	0.30	0.40	0.36	0.42	0.37
			veh/hr	2,200	601	591	798	713	844	743	0.27	0.27	0.36	0.32	0.38	0.34
L5	Kwai Chung Interchange (6.8m wide section)	NB	pcu/hr	2,800	935	555	1,123	729	1,165	773	0.33	0.20	0.40	0.26	0.42	0.28
			veh/hr	2,600	773	460	930	605	965	642	0.30	0.18	0.36	0.23	0.37	0.25
L6	Kwai Chung Interchange (6m wide section)	SB	pcu/hr	1,400	450	610	775	742	843	778	0.32	0.44	0.55	0.53	0.60	0.56
			veh/hr	1,300	373	501	643	613	699	642	0.29	0.39	0.49	0.47	0.54	0.49

Notes:
(1) Link capacity estimated according to TPDM Vol.2 Ch.2.4, for single 2-lane carriageway (for L1 to L4 with road width of 8m and 10m) or for dual 2-lane carriageway (for L5 and L6 with road with of 6m and 6.8m). Data in term of veh/hr and pcu/hr are converted according to survey pcu factor.
(2) For conservative approach, the road links are assessed based on the greatest traffic flows at the road sections of corresponding roads within AOI.

4.6.2 As shown in the table above, the identified road section would continue to have sufficient link capacity to cater for the future traffic demand with the proposed development by Year 2035. The proposed development would not induce adverse traffic impact to the surrounding road network.

4.7 Future Occupancy of Public Transport Services

4.7.1 The Proposed Development is targeted for completion in Year 2032. In order to assess the likely impact induced by the Proposed Development on public transport connection in Year 2035 (i.e. 3 years after the target completion year of the Proposed Development) is adopted as the design year of the public transport assessment, which is in line with the design year adopted in traffic impact assessment.

4.7.2 Increase in demand on public transport service is anticipated due to the Proposed Development, the anticipated population of the Proposed Development is approximately 19,038. According to "Travel Characteristics Survey (TCS) 2011" published by Transport Department, the daily mechanised trip rate is 1.83 trips per person and the morning peak and evening peak accounted for about 12% and 10% of the daily trips. Considering this travel pattern in TCS 2011, it is estimated that the proposed development would generate a total of 4,181 pax/hr (i.e. 19,038 × 1.83 × 0.12) and 3,484 pax/hr (i.e. 19,038 × 1.83 × 0.10) during the morning peak hour and evening peak hour

respectively. The anticipated trips generated is summarized in **Table 4.7.1** below.

Table 4.7.1 Passenger Trips Generated from Proposed Development

Development Parameters		
No. of Flats	7,052 flats	
Population	19,038 *	
Peak Hours Trip Generation	**AM**	**PM**
	4,181 pax/hr **	**3,484 pax/hr** **

* Person Per Occupied Flat (PPOF) of 2.7 is assumed based on the 2021 census of Kwai Tsing District

** According to "Travel Characteristics Survey (TCS) 2011" published by Transport Department, the daily mechanised trip rate is 1.83 trips per person and the morning peak and evening peak accounted for about 12% and 10% of the daily trips.

4.7.3 With reference to "2021 Population Census" published by Census and Statistics Department, the modal split of working population in Kwai Tsing District Council District and the corresponding passenger demand from the proposed development are estimated as summarized in **Table 4.7.2**.

Table 4.7.2 Modal Split and Passenger Demand from The Proposed Development

Mode of Transport	**Proportion**	**Passenger Demand from Proposed Development (pax/hr)**	
		AM	**PM**
MTR	40.0%	1,673	1,394
Bus	30.1%	1,258	1048
GMB	10.0%	417	347
PV & Taxi	4.7%	198	165
On foot	10.5%	439	366
Others	4.7%	196	163
Total	**100%**	4,181	3,484
Total in Public Transport	**80.1%**	**3,348**	**2,789**

4.7.4 According to the above table, it is estimated that the total passenger demand of public transport associated with the proposed development in the morning peak hour and evening peak hour would be approx. 3,348 pax/hr and 2,789 pax/hr respectively

4.7.5 To evaluate the associated impact likely to be induced by the Proposed Development on public transport, the future occupancy of public transport services with the Proposed Development where the estimated bus passengers, GMB passenger and MTR passenger demand associated with the Proposed Development are taken into account. It is also assumed that all passenger heading to Lai King or Mei Foo MTR station will take bus/GMB for interchange, therefore inclusive as the road-based public transport demand for conservative assessment purpose.

4.7.6 Similar to the traffic forecast, a growth rate of **+0.5% p.a.** is adopted for projecting the existing bus passenger demand to Year 2035 demand.

4.7.7 Occupancy surveys for the existing public transport were carried out on 12th March 2024 at the public transport facilities in the vicinity. The survey results and the peak hour trips of franchised bus and GMB routes in the vicinity are presented in **Table 4.7.3**.

Table 4.7.3 Peak Hour Trips of Franchised Bus and GMB routes

Route No.	Origin / Destination		Observed Peak Hour Trips (trips/hr)		Total Observed Capacity		Observed Occupancy Rate (%)		Remaining Capacity	
			AM	PM	AM	PM	AM	PM	AM	PM
KAU WAH KENG BUS STOP(LAI KING HILL ROAD EAST BOUND)										
Franchised Bus										
30	Allway Gardens	Cheung Sha Wan	1	2	90	180	11%	11%	80	160
32H	Cheung Shan	Lai Chi Kok	-	1	-	76	-	5%	-	72
42	Tsing Yi (Cheung Hong Estate)	Shun Lee	3	3	398	383	17%	20%	332	308
45	Lai Yiu	Kowloon City Ferry B/T	2	2	250	250	28%	37%	179	158
46	Lai Yiu	Jordan (West Kowloon Station)	3	4	339	501	36%	27%	218	368
46X	Hin Keng	Mei Foo	7	6	953	817	8%	11%	881	726
GMB										
90M	Highland Park	Mei Foo Station	5	5	89	83	38%	46%	55	45
90P	Princess Margaret Hospital	Mei Foo Station	21	17	372	299	15%	82%	317	53
92M	Wah Yuen Chuen	Mei Foo Station	5	4	80	64	36%	42%	51	37
KAU WAH KENG BUS STOP (LAI KING HILL ROAD WEST BOUND)										
Franchised Bus										
30	Cheung Sha Wan	Allway Gardens	1	2	68	158	9%	6%	62	149
32H	Lai Chi Kok	Cheung Shan	-	1	-	76	-	11%	-	68
42	Shun Lee	Tsing Yi (Cheung Hong Estate)	3	3	396	411	9%	7%	359	381
45	Kowloon City Ferry B/T	Lai Yiu	2	2	250	250	10%	10%	225	226
46	Jordan (West Kowloon Station)	Lai Yiu	3	2	340	215	7%	7%	315	199
46X	Mei Foo	Hin Keng	7	9	943	1228	13%	3%	820	1188
GMB										
90M	Mei Foo Station	Highland Park	6	4	99	67	74%	61%	26	26
90P	Mei Foo Station	Princess Margaret Hospital	18	13	309	223	86%	35%	43	144
92M	Mei Foo Station	Wah Yuen Chuen	5	3	80	48	64%	83%	29	8

Route No.	Origin / Destination		Observed Peak Hour Trips (trips/hr)		Total Observed Capacity		Observed Occupancy Rate (%)		Remaining Capacity	
			AM	PM	AM	PM	AM	PM	AM	PM
LAI CHI KOK BUS TERMINUS										
Franchised Bus										
6	Lai Chi Kok	Star Ferry	5	5	631	676	19%	10%	513	611
171	Lai Chi Kok	South Horizons	4	6	543	813	6%	1%	510	808
904	Lai Chi Kok	Kennedy Town (Belcher Bay)	2	3	268	375	3%	1%	260	373
905	Lai Chi Kok	Exhibition Centre Station	6	5	826	702	6%	0%	777	700
905P	Lai Chi Kok	Wan Chai (Harbour Road)	2	-	273	-	3%	-	266	-

4.7.8 The distance from the subject site to Lai Chi Kok Bus Terminus is approximate 350m which is within a reasonable walking distance. According to the interview survey conducted in July 2022, approx. 35% of residents of Kau Wah Keng Old Village and Kau Wah Keng New Village are currently using the franchise bus service at the Lai Chi Kok Bus Terminus. The composition 65% and 35% of estimated public transport demand would use the public transport services at Lai King Hill Road and Lai Chi Kok Bus Terminus respectively.

4.7.9 For conservative assessment purpose, only one traffic bound of the bus routes at the enroute stop at the Kau Wah Keng Bus Stop with Lai Chi Kok Bus Terminus are taken into account for the public transport assessment. The assessment results in AM and PM Peak are summarized in **Table 4.7.4** and **Table 4.7.5** below respectively.

Table 4.7.4 Year 2035 Public Transport Occupancy and Public Transport Demand Associated with the Proposed Development in AM Peak

Public Transport Service	2035 Design Scenario							
	On-street Facilities (Eastbound)		On-street Facilities (Westbound)		Lai Chi Kok Bus Terminus		PT Demand Generated by Proposed Development(1)	
	No. of trips	Total Spare Capacity	No. of trips	Total Spare Capacity	No. of trips	Total Spare Capacity	On-street Facilities	Lai Chi Kok Bus Terminus
Franchised Bus	16	1,690	16	1,781	**19**	**2,326**	**2,176**	**1,172**
GMB	31	423	29	98				
Total	**47**	**2,113**	**45**	**1,879**				

Notes:
(1) It is assumed that all passenger heading to Lai King or Mei Foo MTR station will take bus/GMB for interchange for conservative assessment of the public transport demand.

Table 4.7.5 Year 2035 Public Transport Occupancy and Public Transport Demand Associated with the Proposed Development in PM Peak

Public Transport Service	2035 Design Scenario							
	On-street Facilities (Eastbound)		On-street Facilities (Westbound)		Lai Chi Kok Bus Terminus		PT Demand Generated by Proposed Development(1)	
	No. of trips	Total Spare Capacity	No. of trips	Total Spare Capacity	No. of trips	Total Spare Capacity	On-street Facilities	Lai Chi Kok Bus Terminus
Franchised Bus	18	1,792	19	2,211	**19**	**2,492**	**1,813**	**976**
GMB	26	135	20	178				
Total	**44**	**1,927**	**39**	**2,389**				

Notes:
(1) It is assumed that all passenger heading to Lai King or Mei Foo MTR station will take bus/GMB for interchange for conservative assessment of the public transport demand.

4.7.10 Referring to **Table 4.7.4** and **Table 4.7.5** above, the results reveal that the overall spare capacity of the assessed franchised bus and GMB routes would not be adequate to cater for the public transport demand associated with Proposed Development in the AM Peak Hour.

Proposal of Feeder Service

4.7.11 According to the **Table 4.7.4** and **Table 4.7.5**, it is estimated that the passenger demand of public transport associated with the proposed development on street facilities would be approximate 2,176 pax/hr in the AM peak hour, which would overload the existing public service, with the available spare capacity of approximate 1,879 pax/hr (WB) and 2,113 pax/hr (EB) in the AM peak hour. Since there is less spare capacity on the WB traffic, WB is selected for comparison for conservative purpose.

4.7.12 To cater for the shortage in public transport services, the applicant proposed to provide feeder services to the nearby MTR station or bus interchange and to minimise adverse impact to the existing public transport services. Feeder service from the application site to Lai King Station is proposed. Detail of the proposed feeder service is summarised below in **Table 4.7.6.** The layby for the feeder service is shown in the MLP in drawing **Figure 3.1**.

Table 4.7.6 Proposed Feeder Service for the Application Site

Item	AM	PM
Routing	To/from Application Site and nearby MTR Station / Bus Interchange	
Average Handing Capacity	50 Passengers	
Headway	10 minutes (subject to road traffic condition)	-
Level of Service in Peak Hour	6 trips/hr	-
Hourly Capacity	Approx. 300 pax/hr	-

4.7.13 The proposed feeder service would provide adequate capacity (approx. 300 pax/hr in the AM peak) to cater for the exceeded peak hour passenger trip generation (approx. 297 pax/hr).

4.7.14 Subject to the actual demand, the proposed feeder service could be reviewed and adjusted accordingly.

4.8 Pedestrian Impact Assessment

Pedestrian Generation

4.8.1 Similar to **Chapter 4.7 Section 4.7.2**, pedestrian generation from the Proposed Development for AM and PM Peak is estimated with reference to "Travel Characteristics Survey (TCS) 2011" published by Transport Department and "2021 Population Census" published by Census and Statistics Department. The pedestrian generation is shown in **Table 4.8.1** below.

Table 4.8.1 Pedestrian Generation by the Proposed Development

Pedestrian Generation (ppl/hr) (1)	
AM Peak	**PM Peak**
3,787	3,155

Note: (1) Pedestrian generation by the Proposed Development is assumed to be people who will take MTR, road-based transport and walk. The pedestrian trip generation and attraction been derived based on the modal split in **Table 4.7.2**.

Assessment Scenarios

4.8.2 Similar to the traffic impact assessment, year 2035 is adopted as the design year of pedestrian assessment. Annual growth rate of +**0.5% p.a.** is adopted to produce the pedestrian forecasts for 2024–2035 to derive year 2035 peak hour background pedestrian flows. Additionally, the future pedestrian volumes generated by the proposed development are taken into account for year 2035 pedestrian flows.

4.8.3 Similarly, to evaluate the associated pedestrian impact likely to be induced by the proposed development, two scenarios were analysed and compared.

4.8.4 The first scenario (i.e. Year 2035 Reference Scenario) refers to the future pedestrian flows assumed the existing land lot to be developed as the **Approved Scheme** overall PR of not more than 5, while the second scenario (i.e. Year 2035 Design Scenario) refers to the future pedestrian flow with the **Proposed Scheme** with domestic PR of not more than 6 and non-domestic PR of not more than 0.5 is in place.

4.8.5 As mentioned in **Chapter 3.2**, it is proposed to shift the pedestrian crossing due to conflict with proposed western vehicular access of the Proposed Development.

4.8.6 Having considered the location of public transport facilities, it is expected the pedestrians generated by the development would mainly pass through the pedestrian crossing at Lai King Hill Road, then access to the bus stops at Lai King Hill Road westbound or to the Mei Foo MTR Station via Lai Yan Court. The assumed route for pedestrian flow generated and the locations of assessed pedestrian facilities are shown in **Figure 4.5**.

Performance of Pedestrian Facilities in Year 2035

4.8.7 In order to address the performance of the concerned pedestrian facilities, Level of Service (LOS) assessment of the critical footpaths have been conducted for Year 2035 Reference and Design Scenarios.

4.8.8 **Table 4.8.1** to **Table 4.8.4** summarized the peak pedestrian flow and the pedestrian assessment results at the critical footpaths under the Year 2035 Reference and Design Scenarios.

Table 4.8.1 Design Year 2035 Level of Service in AM and PM Peaks along Key Footpath under Reference Scenario

Footpath		Actual Width (m)	Effective Clear Width (1) (m)	Two-way Peak Hourly Flow (ped/hr)		Flow Rate(2) (ped/min/m)		LOS (Level)	
				AM	PM	AM	PM	AM	PM
F1(W)	Lai King Hill Road Northern Footpath	2.5	1.5	1,115	765	14.9	10.2	A	A
F1(W)a	Lai King Hill Road Northern Footpath (at bus stop)	3.8	1.8	1,115	765	12.4	8.5	A	A
F1(E)	Lai King Hill Road Northern Footpath	2.5	1.5	945	670	12.6	8.9	A	A
F2	Lai King Hill Road Southern Footpath	2.8	1.8	1,840	1,260	20.4	14.0	B	A
F2a	Lai King Hill Road Southern Footpath (at bus stop)	3.5	1.5	1,840	1,260	24.5	16.8	C	B
F3	Wa Lai Path Footpath	9.5	8.5	1,515	1,030	3.6	2.4	A	A

Notes:
(1) Effective clear width = Actual width (on-site measurement) minus 0.5m dead width on both sides, and minus the width of passengers queuing at bus stops.
(2) Pedestrian flow rates are computed based on effective clear width, with 1.2 peak factor applied for the peak minute flow rate.

Table 4.8.2 Design Year 2035 Level of Service in AM and PM Peaks along Key Pedestrian Crossing under Reference Scenario

Crossing Facility		Clear Width (m)	Cycle Time (s)		Green Time Proportion		Pedestrian Capacity (1) (ped/hr)		Two-way Pedestrian Flow (ped/hr)		Volume/ Capacity (V/C) Ratio	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
C1	Pedestrian Crossing Across Lai King Hill Road	4.2	60	60	28%	28%	2,230	2,230	1,755	1,430	0.79	0.64

Notes:
(1) Crossing Capacity (ped/hr) = K (1,900 ped/m/hr) x Green Time Proportion x W (width of crossing)

Table 4.8.3 Design Year 2035 Level of Service in AM and PM Peaks along Key Footpath under Design Scenario

Footpath		Actual Width (m)	Effective Clear Width (1) (m)	Two-way Peak Hourly Flow (ped/hr)		Flow Rate(2) (ped/min/m)		LOS (Level)	
				AM	PM	AM	PM	AM	PM
F1(W)	Lai King Hill Road Northern Footpath	2.5	1.5	1,235	1,145	16.5	15.3	B	A
F1(W)a	Lai King Hill Road Northern Footpath (at bus stop)	3.8	1.8	1,235	1,145	13.7	12.7	A	A
F1(E)	Lai King Hill Road Northern Footpath	2.5	1.5	1,055	1,055	14.1	14.1	A	A
F2	Lai King Hill Road Southern Footpath	2.8	1.8	1,915	1,235	21.3	13.7	B	A
F2a	Lai King Hill Road Southern Footpath (at bus stop)	3.5	1.5	1,915	1,235	25.5	16.5	C	B
F3	Wa Lai Path Footpath	9.5	8.5	1,570	975	3.7	2.3	A	A

Notes:
(1) Effective clear width = Actual width (on-site measurement) minus 0.5m dead width on both sides, and minus the width of passengers queuing at bus stops.
(2) Pedestrian flow rates are computed based on effective clear width, with 1.2 peak factor applied for the peak minute flow rate.

Table 4.8.4 Design Year 2035 Level of Service in AM and PM Peaks along Key Pedestrian Crossing under Design Scenario

Crossing Facility		Clear Width (m)	Cycle Time (s)		Green Time Proportion		Pedestrian Capacity (1) (ped/hr)		Two-way Pedestrian Flow (ped/hr)		Volume/ Capacity (V/C) Ratio	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
C1	Pedestrian Crossing Across Lai King Hill Road	4.2	60	60	28%	28%	2,230	2,230	1,830	1,180	0.82	0.53

Notes:
(1) Crossing Capacity (ped/hr) = K (1,900 ped/m/hr) x Green Time Proportion x W (width of crossing)

4.8.9 As shown in the tables above, the assessed footpaths and pedestrian crossing would be operating with desirable walking conditions at LOS "A" to "C" and V/C ratio less than 0.85 under both Reference and Design Scenario in year 2035. The pedestrian facilities would hence be adequate to cater for the additional pedestrian demand generated from the Proposed Development in design year 2035.

5 TRAFFIC IMPACT ASSESSMENT (INTERIM SCENARIO)

5.1.1 As the applicant is currently not the only land owner of this Application Site, phased development of this Application Site is proposed with Phase 1A, Phase 1B developments to be developed by the Applicant. The implementation of the Remaining Phases A and B will be subject to actual development plan by third-parties.

5.1.2 Interim traffic assessment is conducted to reveal the traffic impact with only completion and population intake of the proposed Phase 1A, Phase 1B developments to be developed by the Applicant, and the development of Remaining Phase A and Remaining Phase B by third-parties.

Assessment Scenarios

5.1.3 To evaluate the associated traffic impact likely to be induced by the partial completion of the site, interim scenarios assuming the phased development are set up as below

Interim Scenario A, assuming only completion of P1A & P1B

Year 2035 Interim Scenario A

= Year 2024 observed traffic flows × growth factor during the period of year 2024-2035

plus traffic generations of adjacent major planned/committed developments in the vicinity

plus trip generation and attraction of the proposed P1A and P1B

Interim Scenario B, assuming only completion of P1A & P1B & RPA

Year 2035 Interim Scenario B

= Year 2035 Interim Scenario A

plus trip generation and attraction of Remaining Phase A

Interim Scenario C, assuming only completion of P1A & P1B & RPB

Year 2035 Interim Scenario C

= Year 2035 Interim Scenario A

plus trip generation and attraction of Remaining Phase B

Trip Generation and Attraction

5.1.4 The traffic generation and attraction trips for the interim scenarios in year 2035 is summarised in **Table 5.1.1**.

Table 5.1.1 Traffic Generation and Attraction of Proposed Residential Development (pcu/hr)

Proposed Development	AM		PM	
	Gen	Att	Gen	Att
Phase 1A	172	102	74	97
Phase 1B	126	76	55	72
Remaining Phase A	100	59	43	57
Remaining Phase B	206	120	87	113
Interim Scenario A (P1A+P1B)	**298**	**178**	**129**	**169**
Interim Scenario B (P1A+P1B+RPA)(1)	**398**	**237**	**172**	**226**
Interim Scenario C (P1A+P1B+RPB)(1)	**504**	**298**	**216**	**282**

5.1.5 As indicated in **Table 5.1.1**, the total trip generated by the proposed development in the morning and evening peak would be around 476 pcu/hr and 298 pcu/hr (two-way) under Interim Scenario A, 635 pcu/hr and 398 pcu/hr (two-way) under Interim Scenario B, and 802 pcu/hr and 498 pcu/hr (two-way) under Interim Scenario C respectively.

5.1.6 The forecasted traffic flows for the above assessment scenario is presented in **Figures 5.1** to **Figure 5.3**.

5.2 Junction Capacity Assessment

5.2.1 Junction capacity assessment was carried out at the identified key junctions for Year 2035 Interim Scenario A, Interim Scenario B and Interim Scenario C. Assessment results for the key junctions are summarized in **Table 5.2.1** below and the detailed calculations are appended in **Appendix A**.

Table 5.2.1 Year 2035 Future Junction Performance

Junction		Type	Scenario A		Scenario B		Scenario C	
			Performance (1)		Performance (1)		Performance (1)	
			AM	PM	AM	PM	AM	PM
J1	Lai King Hill Road / King Lai Path	Signalized	>100%	>100%	>100%	>100%	>100%	>100%
J2	Lai King Hill Road / Ching Shan Terrance / Estate Road	Signalized	>100%	>100%	>100%	>100%	>100%	>100%
J3_a	Lai King Hill Road / Kwai Chung Interchange (2)	Signalized	13%	42%	8%	35%	2%	27%
J3_b	Lai King Hill Road / Kwai Chung Interchange (3)	Signalized	-13%	4%	-17%	-1%	-21%	-6%
J3_c	Lai King Hill Road / Kwai Chung Interchange (4)	Signalized	16%	39%	15%	34%	15%	30%
J4	Mei Lai Road/ Lai Wan Road	Signalized	>100%	>100%	>100%	>100%	>100%	>100%
J5	Mei Lai Road/ Cheung Sha Wan Road	Signalized	45%	54%	42%	52%	38%	50%

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) in % for signalized junctions.
(2) J3 under existing junction configuration.
(3) J3 with TD planned improvement works.
(4) Junction modification scheme in approved planning application (No. A/KC/489) is incorporated for assessment.

5.2.2 The above results reveal that for the Interim Scenario A, all identified key junctions, with or without the junction modification scheme in approved planning application (No. A/KC/489), would operate within capacity in Year 2035.

5.2.3 For all Interim Scenarios, all identified key junctions would operate within capacity in Year 2035, with the junction modification scheme in approved planning application (No. A/KC/489).

5.3 Link Capacity Assessment

5.3.1 Link capacity assessment was carried out at the identified road links for Year 2035 Interim Scenarios. Assessment results are summarized in **Table 5.3.1** below.

Table 5.3.1 Year 2035 Future Link Performance (1)

Road Link (2)		Direction	Unit	Link Capacity	Traffic Flows (pcu/hr)						Volume/Capacity (V/C) Ratio					
					Interim Scenario A		Interim Scenario B		Interim Scenario C		Interim Scenario A		Interim Scenario B		Interim Scenario C	
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
L1	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	1,517	1,356	1,628	1,425	1,744	1,495	0.63	0.57	0.68	0.60	0.73	0.63
			veh/hr	2,200	1,246	1,124	1,340	1,183	1,435	1,241	0.57	0.51	0.61	0.54	0.65	0.56
L2	Lai King Hill Road (8m wide section)	Two-way	pcu/hr	1,850	1,052	751	1,163	820	1,279	890	0.57	0.41	0.63	0.44	0.69	0.48
			veh/hr	1,700	863	627	955	685	1,052	743	0.51	0.37	0.56	0.40	0.62	0.44
L3	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	937	786	1,048	855	1,164	925	0.39	0.33	0.44	0.36	0.49	0.39
			veh/hr	2,200	765	654	857	712	954	770	0.35	0.30	0.39	0.32	0.43	0.35
L4	Lai King Hill Road (10m wide section)	Two-way	pcu/hr	2,390	869	800	916	830	967	859	0.36	0.33	0.38	0.35	0.40	0.36
			veh/hr	2,200	722	668	762	694	804	718	0.33	0.30	0.35	0.32	0.37	0.33
L5	Kwai Chung Interchange (6.8m wide section)	NB	pcu/hr	2,800	1050	666	1088	702	1127	738	0.38	0.24	0.39	0.25	0.40	0.26
			veh/hr	2,600	869	552	901	582	933	612	0.33	0.21	0.35	0.22	0.36	0.24
L6	Kwai Chung Interchange (6m wide section)	SB	pcu/hr	1,400	644	694	709	722	778	751	0.46	0.50	0.51	0.52	0.56	0.54
			veh/hr	1,300	534	571	588	595	645	619	0.41	0.44	0.45	0.46	0.50	0.48

Notes:
(1) Link capacity estimated according to TPDM Vol.2 Ch.2.4, for single 2-lane carriageway (for L1 to L4 with road width of 8m and 10m) or for dual 2-lane carriageway (for L5 and L6 with road with of 6m and 6.8m). Data in term of veh/hr and pcu/hr are converted according to survey pcu factor.
(2) For conservative approach, the road links are assessed based on the greatest traffic flows at the road sections of corresponding roads within AOI.

5.3.2 As shown in the table above, the identified road section would continue to have sufficient link capacity to cater for the future traffic demand with the proposed development by Year 2035. The proposed development would not induce adverse traffic impact to the surrounding road network during the interim stage.

5.4 Public Transport Services – Interim Scenario

5.4.1 The increase in demand on public transport service under the Interim Scenarios are estimated with the same methodology as presented in **Chapter 4.7.** and summarised in **Table 5.4.1** below.

Table 5.4.1 Passenger Trips Generated from Proposed Development in Interim Scenario

	Interim Scenario A		Interim Scenario B		Interim Scenario C	
No. of Flats	3,457 flats		4,615 flats		5,894 flats	
Population *	9,333		12,459		15,912	
Peak Hours Passenger Trip Generation ** **(pax/hr)**	AM	PM	AM	PM	AM	PM
	2,050	1,708	2,736	2,280	3,495	2,912
Passenger Demand from Proposed Development for On-street Facilities (pax/hr)	1,067	889	1,424	1,187	1,819	1,516
Total Spare Capacity for On-Street Facilities (EB)	2,113	1,927	2,113	1,927	2,113	1,927
Total Spare Capacity for On-Street Facilities (WB)	1,879	2,389	1,879	2,389	1,879	2,389

* Person Per Occupied Flat (PPOF) of 2.7 is assumed based on the 2021 census of Kwai Tsing District

** According to "Travel Characteristics Survey (TCS) 2011" published by Transport Department, the daily mechanised trip rate is 1.83 trips per person and the morning peak and evening peak accounted for about 12% and 10% of the daily trips.

5.4.2 Referring to **Table 5.4.1** above, the results reveal that the overall spare capacity of the assessed franchised bus and GMB routes would be adequate to cater for the public transport demand associated with Proposed Development in the AM and PM peak hours under Interim Scenarios A, B, and C.

5.5 Pedestrian Walking Condition – Interim Scenario

5.5.1 In **Chapter 4.8**, it is revealed that under the ultimate stage, the assessed footpaths and pedestrian crossing would be operating with desirable walking conditions. The pedestrian facilities would hence be adequate to cater for the additional pedestrian demand generated from the P1A and P1B of the Proposed Development.

Additional Pedestrian Enhancements

5.5.2 In view that the residents living in existing Kau Wa Keng San Tsuen and Kau Wah Keng Old Village will be using the existing footpaths adjacent to the boundary of P1A and P1B to/from Lai King Hill Road, the Applicant would take the opportunity of the Phase 1A, Phase 1B accessibility for these two existing villages. The widened public access will be provided at all times. **Diagram 1** below illustrated the proposed additional pedestrian enhancement.

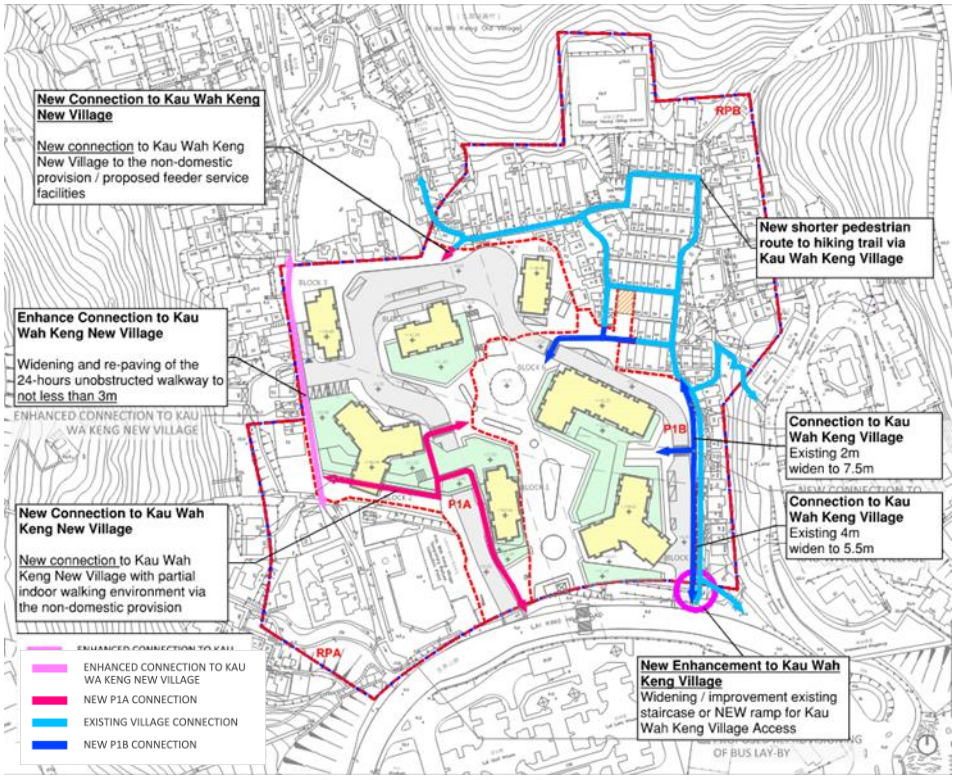


Diagram 1 Proposed Additional Pedestrian Enhancements

5.5.3 Kau Wa Keng San Tsuen is currently accessible from Lai King Hill Road via the existing footpath along the nullah at the western fringe of the P1A and RPA. In the Interim Scenario, the footpath section within P1A is proposed to be widened from the existing 1.5 m width to not less than 3m wide (through zone) in accordance with the Hong Kong Planning Standards and Guidelines (HKPSG) width standard for footpaths/walkways in rural land use, and to be open for public access at all times, and connects with the existing footpath within RPA.

5.5.4 In addition, new connections to Kau Wah Keng New Village with partial indoor walking environment via the non-domestic provision and the proposed feeder service facilities will be provided within P1A.

5.5.5 The existing walkway to Kau Wa Keng Old Village from Lai King Hill Road falls entirely within RPB, which is currently of 2m in width at the narrowest section. In the Interim Scenario, voluntary setback will be provided along the eastern boundary of P1B such that the walkway will be widened from the current minimum of 2m to a minimum of 5.5 m. To further enhance walkability of pedestrian to/from Kau Wa Keng Old Village, widening / improvement existing staircase or new ramp at the or Kau Wah Keng Village Access will be provided. Street furniture and landscaping features such as path lighting and tree planting will be provided along the widened part of walkway within P1B.

5.5.6 With the above additional pedestrian enhancement, it is expected that the performance of the existing pedestrian facilities would be maintained if not improved.

6 CONCLUSION

6.1 Summary

6.1.1 The Application Site falls within the "Comprehensive Development Area" zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung on the Approved Kwai Chung Outline Zoning Plan (OZP) No. S/KC/32.

6.1.2 The Applicant submitted a S16 Planning Application No. A/KC/489. The comprehensive development proposed in the Planning Application No. A/KC/489 ("**Approved Scheme**"), comprises 14 residential blocks with an overall PR of not more than 5 and maximum BH of not more than +120mPD.

6.1.3 The Planning Application No. A/KC/489 was deliberated in the TPB Metro Planning Committee Meeting held on 14 July 2023 (the TPB Meeting). During the TPB meeting, TPB members raised concerns on the provision of social welfare facilities and retail shops, as quoted from the meeting minutes[1]

- *"Some Members considered that retail facilities should be provided in the proposed development to cater for the daily needs of the future residents."* and *"Some Member shared the view that the provision of social welfare facilities in the proposed development was inadequate…"*.
- *"the development intensity of the proposed development could be increased for better land utilisation, e.g. provision of retail and more GIC facilities."*.

After deliberation, the Planning Application No. A/KC/489 was approved with conditions.

[1] Minutes of 722nd Meeting of the Metro Planning Committee held at 9:00 a.m. on 14.7.2023

6.1.4 The Applicant takes the initiative to review the **Approved Scheme** and endeavours to take forward the provision of more of social welfare facilities and retail shops. The **Proposed Scheme**, keeping the phasing strategy adopted in the **Approved Scheme**, comprises 15 building blocks (including 14 building blocks with residential use) with domestic PR of not more than 6 and maximum BH of not more than +147.55mPD. Non-domestic PR of not more than 0.5 is designated for proposed retail shops, existing historical buildings, and social welfare facilities to nurture an inclusive and liveable community in the convenient location of Kwai Chung Area.

6.1.5 A Traffic Impact Assessment (TIA) study was carried out to evaluate the likely traffic impact associated with the proposed development, in support of the Section 16 application for the application site.

6.1.6 The proposed provision of internal parking and servicing facilities for each site of the subject development is in full compliance with the HKPSG requirements and will be self-contained within the respective site boundary. Vehicles will access to/from each site of the subject

development through the respective vehicular access at Lai King Hill Road.

6.1.7 The identified key junctions in the vicinity were assessed with respect to traffic generation of the proposed development upon Year 2035 (3 years after the target Completion Year 2032), taking into account the traffic generation by the major planned/recently constructed developments in the vicinity.

6.1.8 Traffic impact assessment scenarios were set up for the proposed development, namely Year 2035 Reference scenario (the existing land lot to be developed as the **Approved Scheme** overall PR of not more than 5) and Year 2035 Design scenario (the existing land lot to be developed as the **Proposed Scheme** with domestic PR of not more than 6 and non-domestic PR of not more than 0.5 is in place).

6.1.9 The junction assessment results revealed that the identified key junctions would operate within capacity with the proposed development in Year 2035, with the junction modification scheme in approved planning application (No. A/KC/489). It is anticipated that the implication to the road network with the proposed development would be minimal.

6.1.10 Assessment results also revealed that the identified key road links would continue to operate within capacity under both Reference and Design scenarios with the proposed development by Year 2035.

6.1.11 Based on the public transport utilization assessment, the results reveal that the overall spare capacity of the assessed franchised bus and GMB routes would not be adequate to cater for the public transport demand associated with Proposed Development.

6.1.12 To cater for the shortage in public transport services, the applicant proposed to provide feeder services to the nearby MTR station or bus interchange to minimise adverse impact to the existing public transport services. Feeder service from the application site to Lai King Station is proposed. Detail of the proposed feeder service is discussed in **Chapter 4.7**.

6.1.13 Pedestrian impact assessment has been conducted and the walking condition on the critical footpath in vicinity of the application site is desirable during both AM and PM peaks in Year 2035. No adverse pedestrian impact will be generated by the proposed development.

6.1.14 Interim traffic assessment is conducted to reveal the traffic impact with only completion and population intake of the proposed Phase 1A, Phase 1B developments to be developed by the Applicant, and the development of Remaining Phase A and Remaining Phase B by third-parties

6.1.15 The interim junction assessment results revealed that the identified key junctions would operate within capacity with the completion and population intake of P1A and P1B in Year 2035, with or without the junction modification scheme in approved planning application (No. A/KC/489), and all identified key junctions would operate within

capacity with the completion and population intake of Remaining Phase A and Remaining Phase B, with the implementation of the junction modification scheme in approved planning application (No. A/KC/489).

6.1.16 The interim link capacity assessment results revealed that the identified key road links would continue to operate within capacity under interim scenarios with the proposed development by Year 2035.

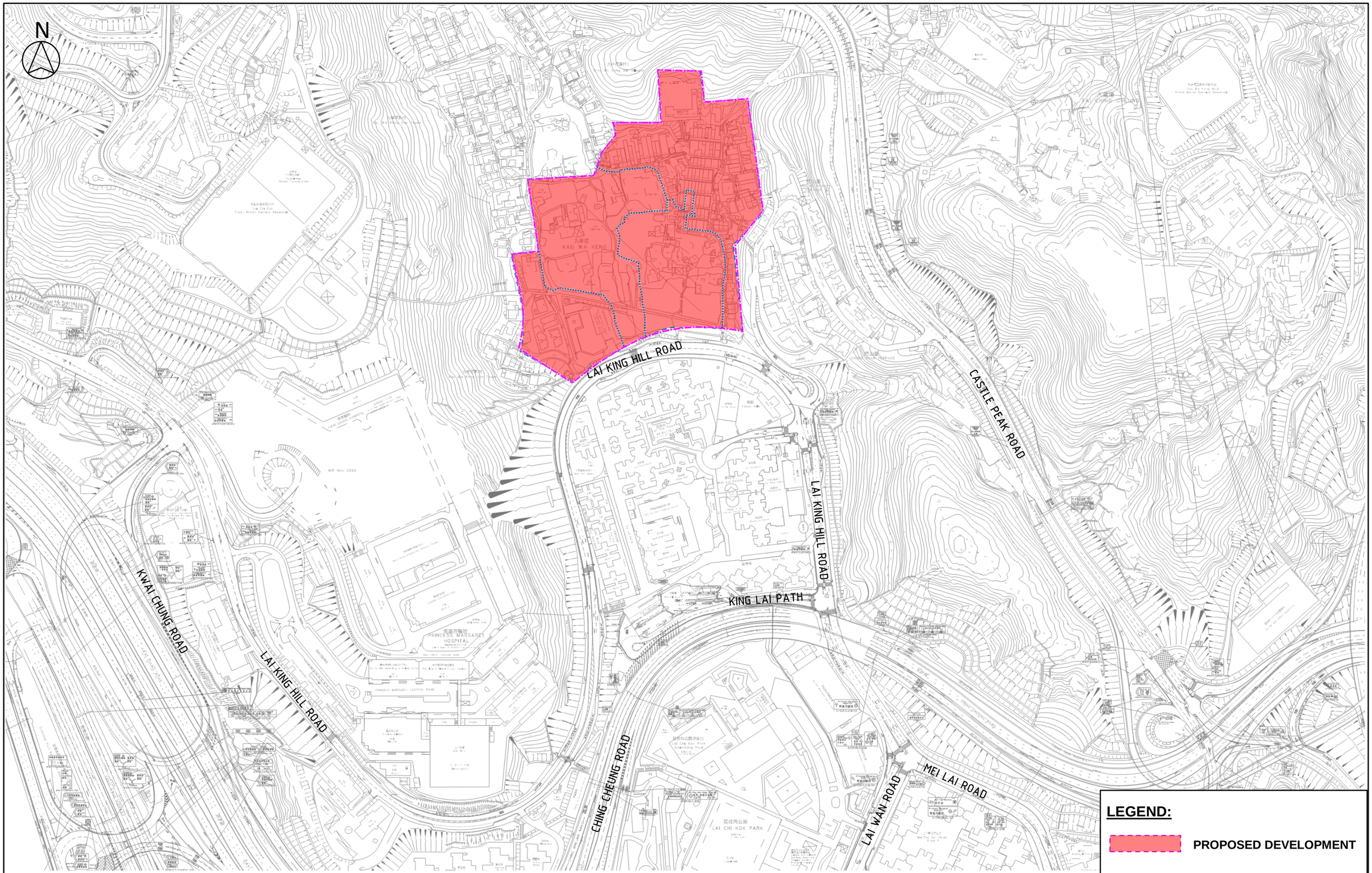
6.1.17 It is viewed that both the public transport services and the pedestrian facilities would be sufficient to cater for the pedestrian demand in the interim scenarios given that it had be assessed that there is no capacity issue in the ultimate stage.

6.1.18 Additional pedestrian enhancement schemes have been proposed to improve the accessibility and walking condition for the residents living in existing Kau Wa Keng San Tsuen and Kau Wah Keng Old Village. With the additionally proposed pedestrian enhancements, it is expected that the performance of the existing pedestrian facilities would be maintained if not improved.

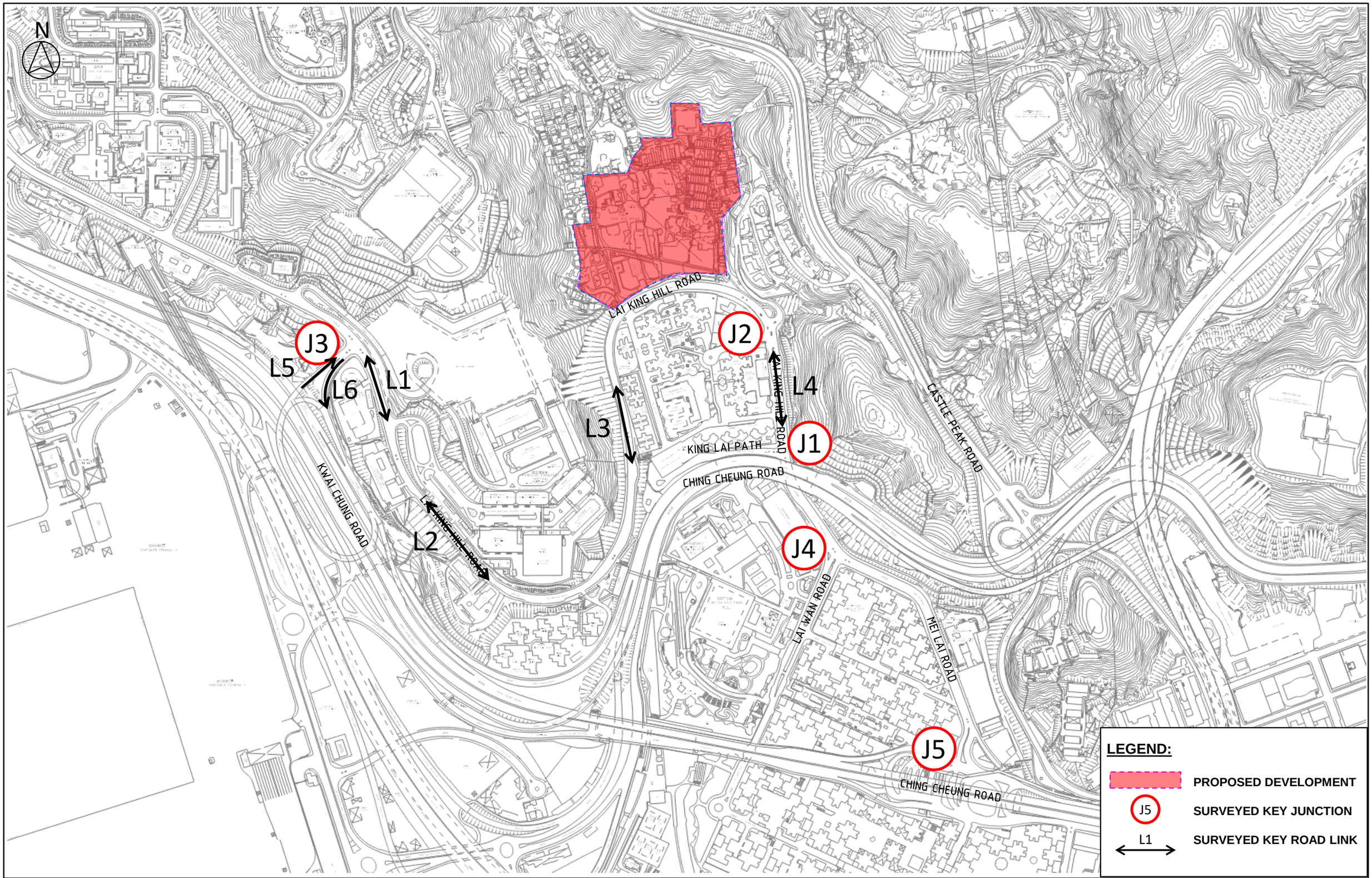
6.2 Conclusion

5.2.1 It could be concluded that the proposed development will not induce insurmountable traffic impact on the surrounding road network and thus is feasible from the traffic engineering point of view.

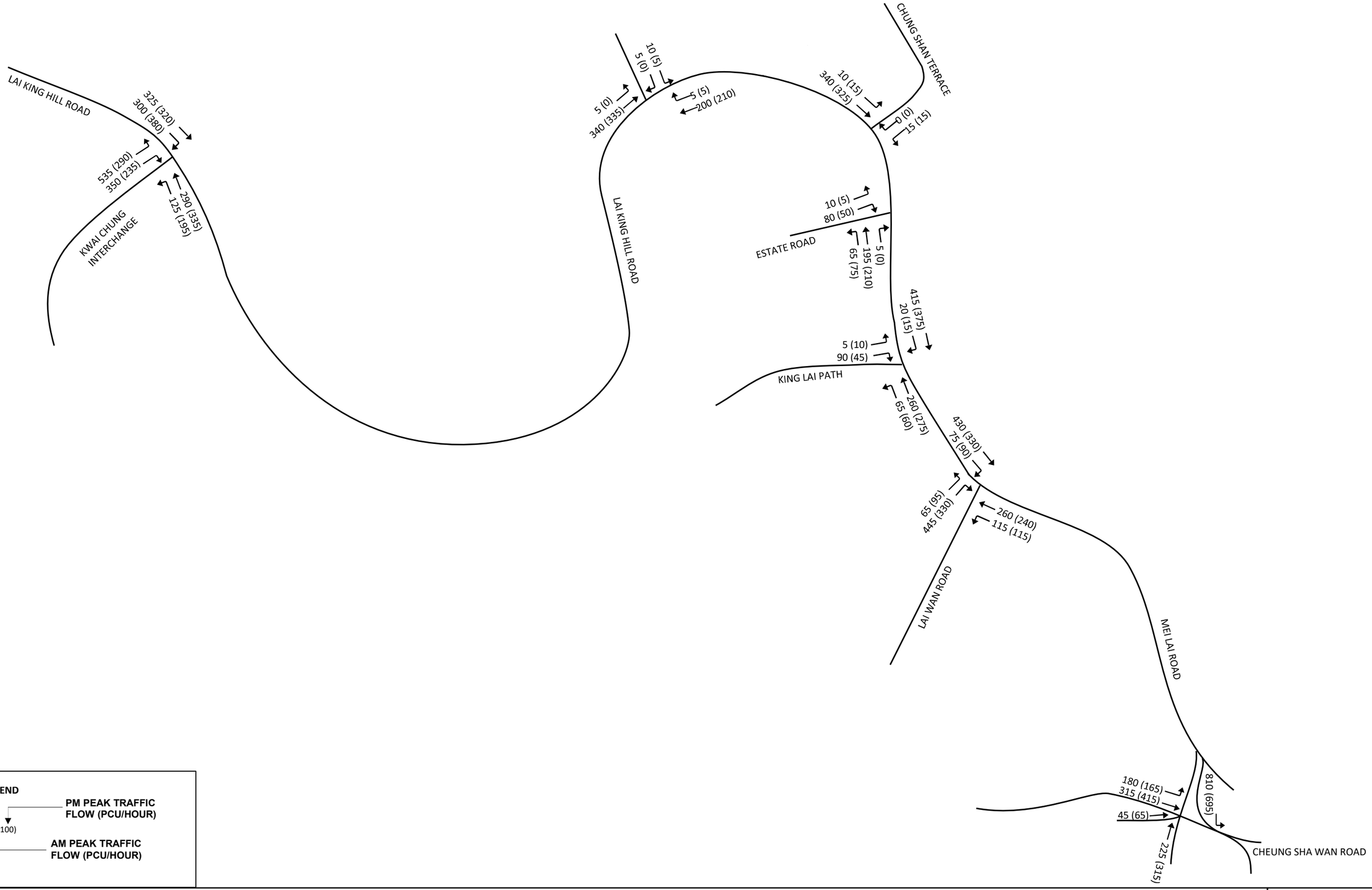
Figures



Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 1.1
Date: JUN 24 / Scale: NTS	Drawing Title: LOCATION OF APPLICATION SITE	ARUP
Drawn: YNNC / Job No.: 299277-02		



Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 2.1
Date: JUN 24 / Scale: NTS	Drawing Title: LOCATION OF SURVEYED JUNCTIONS IN THE VICINITY OF PROPOSED DEVELOPMENT	ARUP
Drawn: YNNC / Job No.: 299277-02		



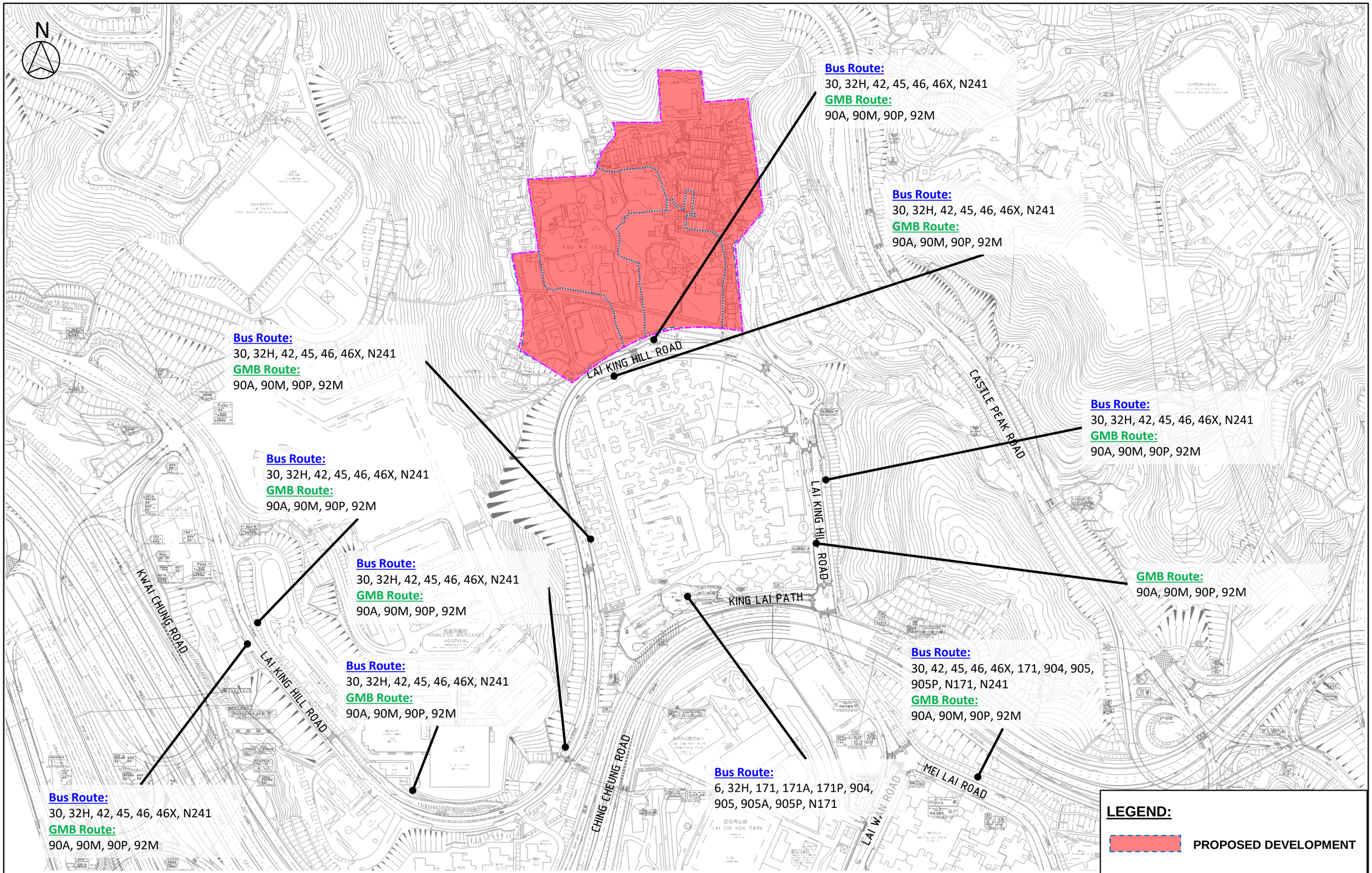
LEGEND

PM PEAK TRAFFIC FLOW (PCU/HOUR)

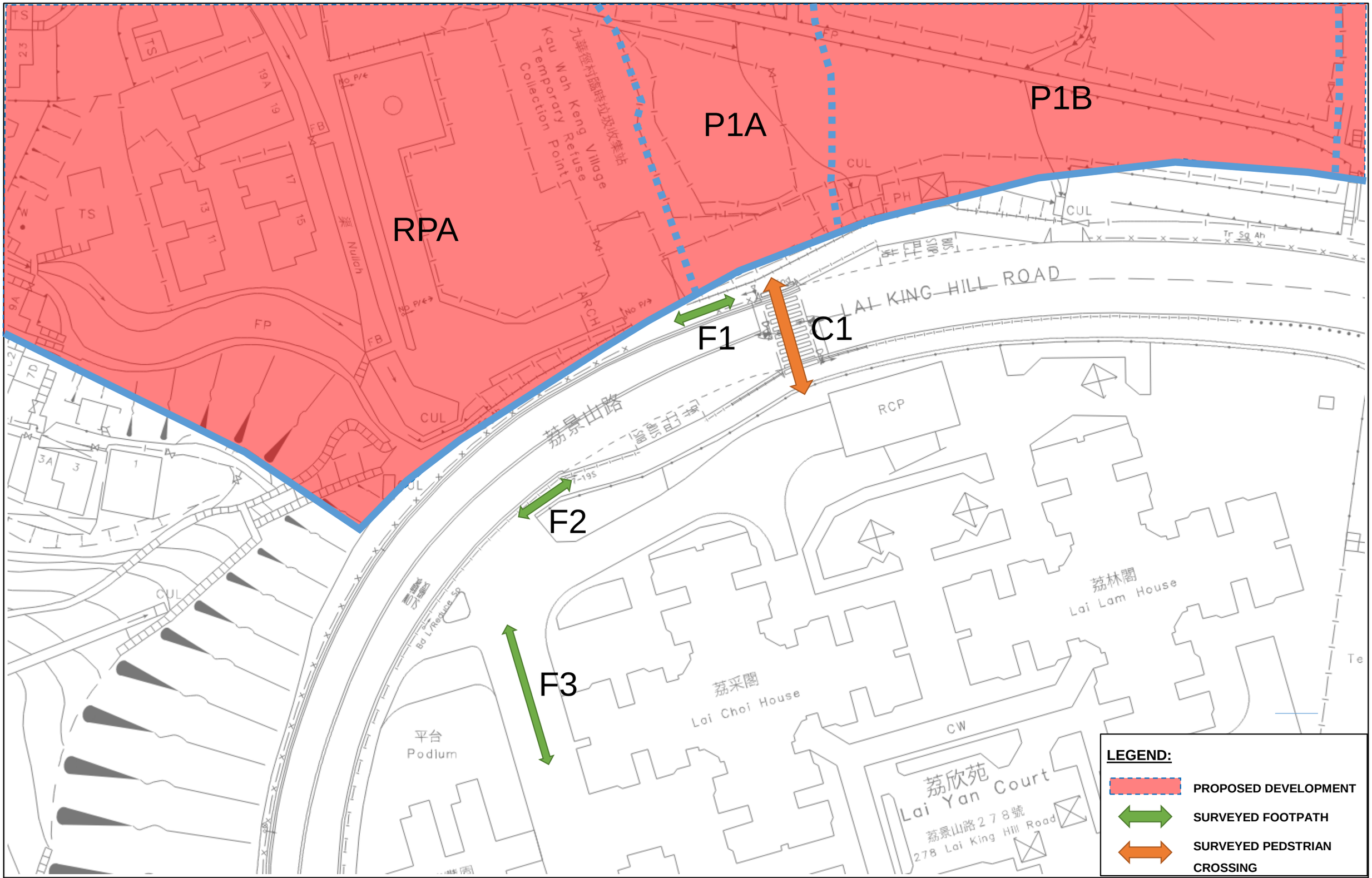
100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: **Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung**		FIGURE 2.2
Date: JUN24	Scale: NTS	Drawing Title: YEAR 2024 EXISTING TRAFFIC FLOW
Drawn: YNNC	Job No.: 299277-02	ARUP



Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 2.3
Date: JUN 24 / Scale: NTS	Drawing Title: PUBLIC TRANSPORT FACILITIES IN THE VICINITY OF PROPOSED DEVELOPMENT	ARUP
Drawn: YNNC / Job No.: 299277-02		



Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 2.4
Date: JUN 24 / Scale: NTS	Drawing Title: PEDESTRIAN FACILITIES ALONG MAJOR PEDESTRIAN ROUTES JUNCTIONS IN THE VICINITY OF PROPOSED DEVELOPMENT	ARUP
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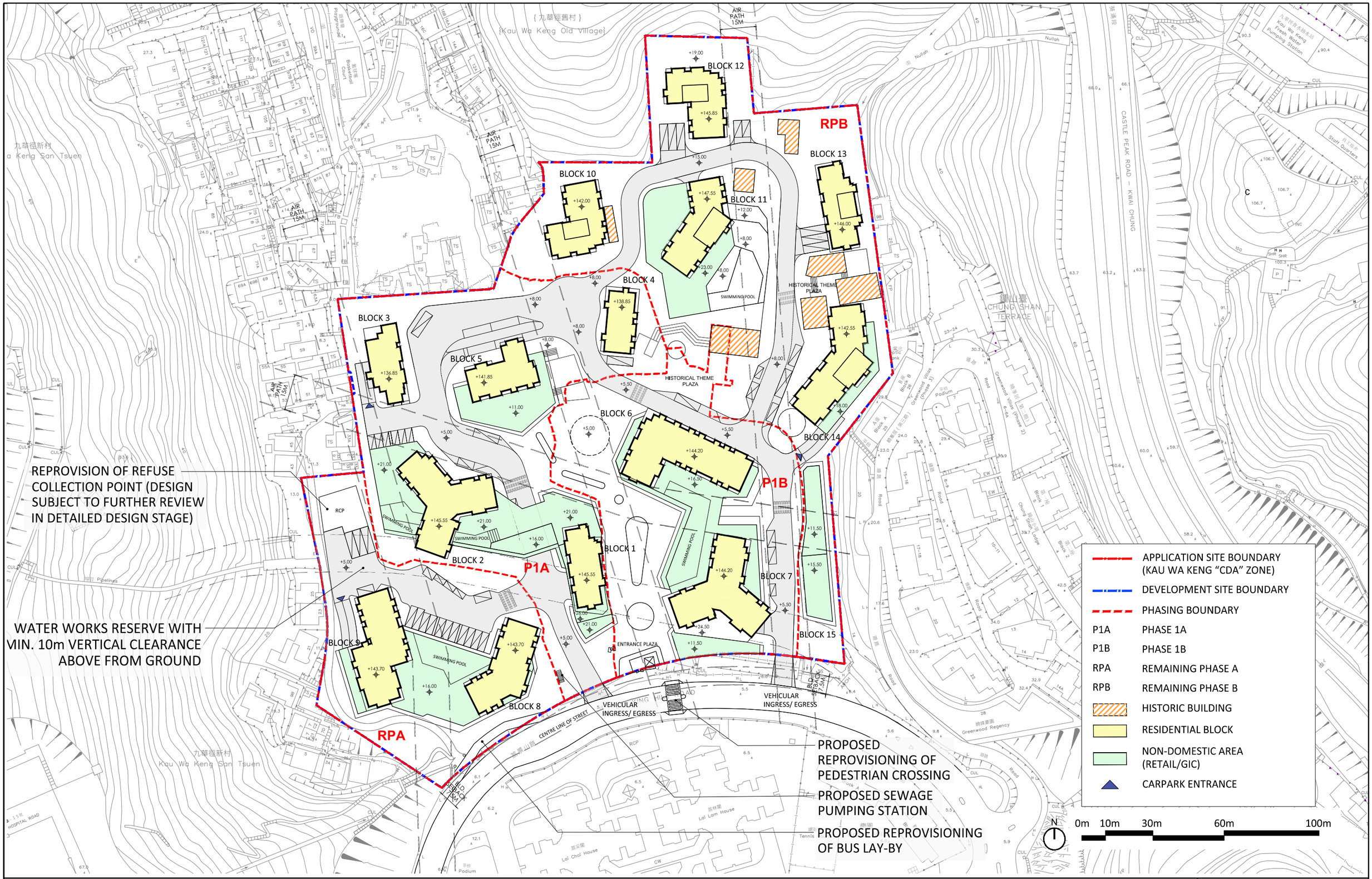
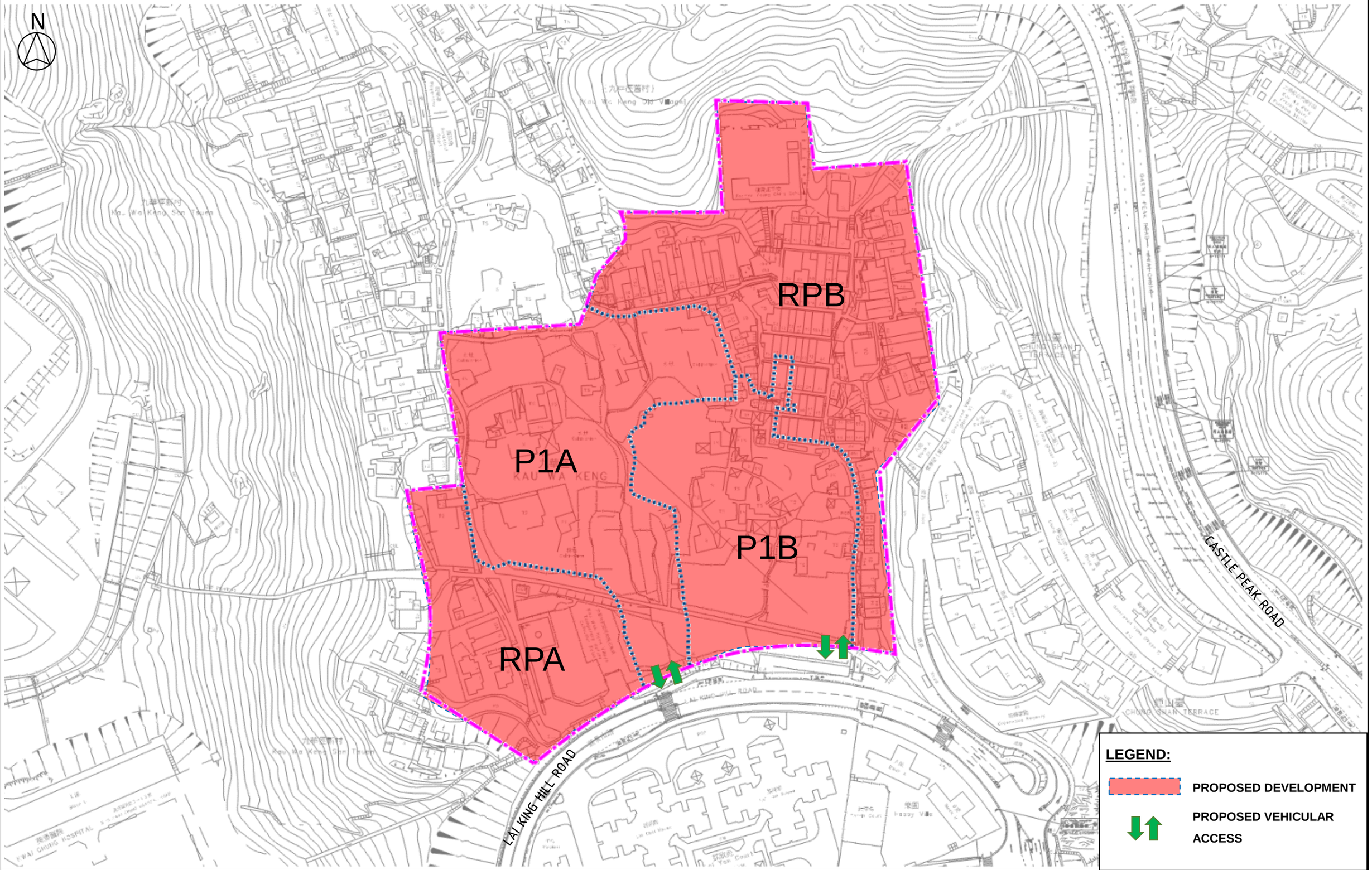
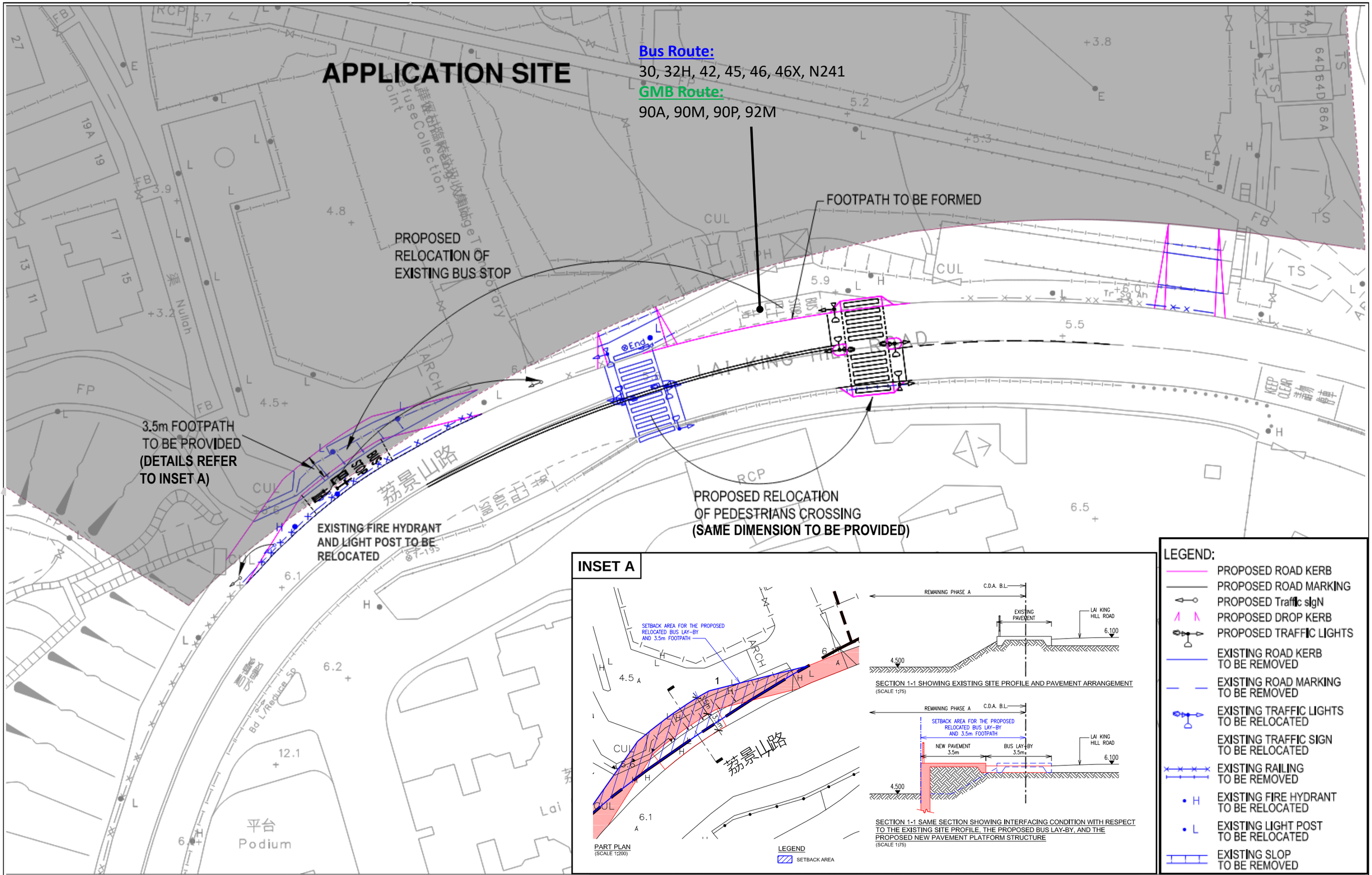


Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 3.1
Date: JUN 24 / Scale: NTS	Drawing Title: MASTER LAYOUT PLAN OF PROPOSED DEVELOPMENT	ARUP
Drawn: YNNC / Job No.: 299277-02		

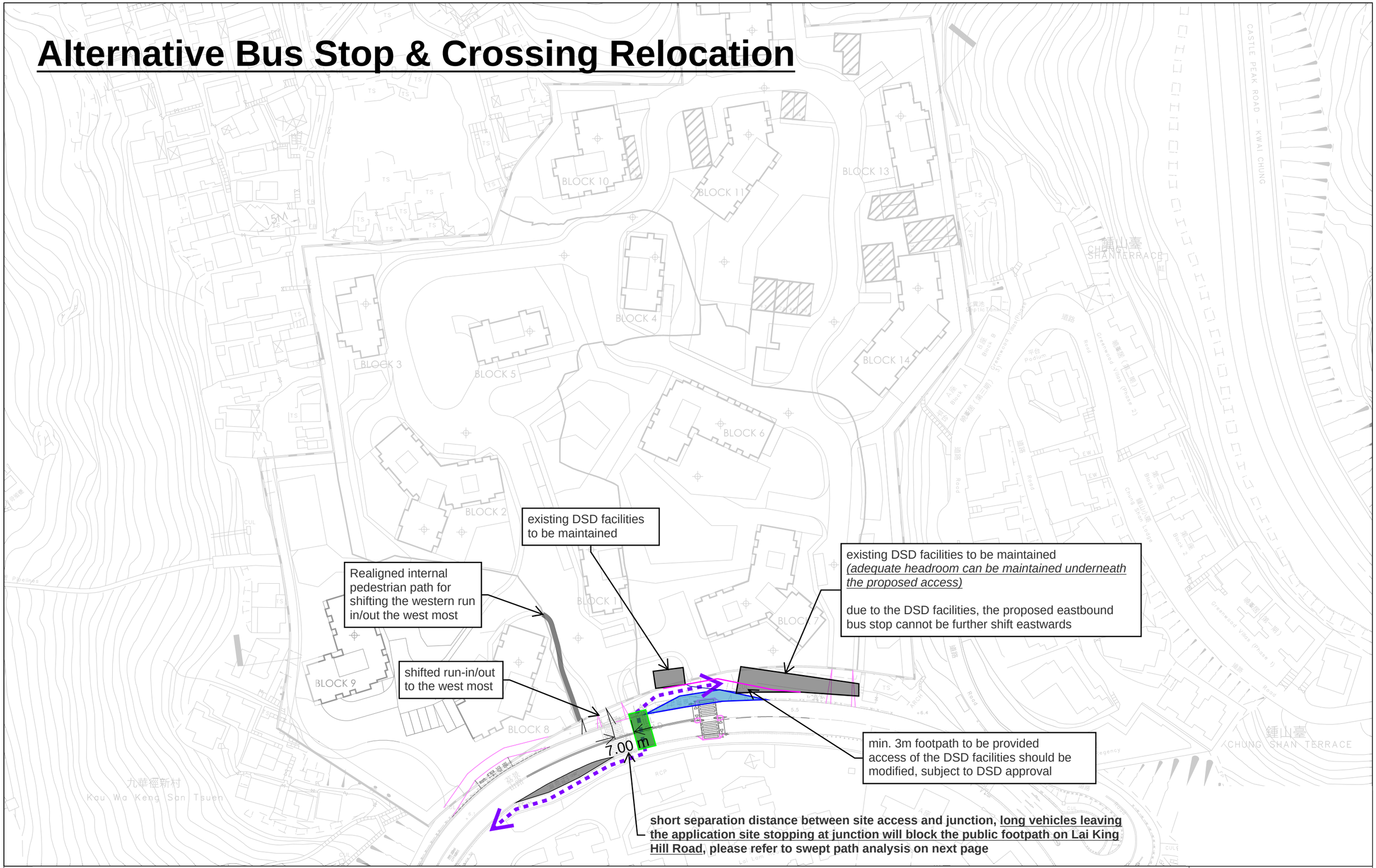


Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 3.2
Date: JUN 24 / Scale: NTS	Drawing Title: PROPOSED VEHICULAR ACCESSES OF PROPOSED DEVELOPMENT	ARUP
Drawn: YNNC / Job No.: 299277-02		

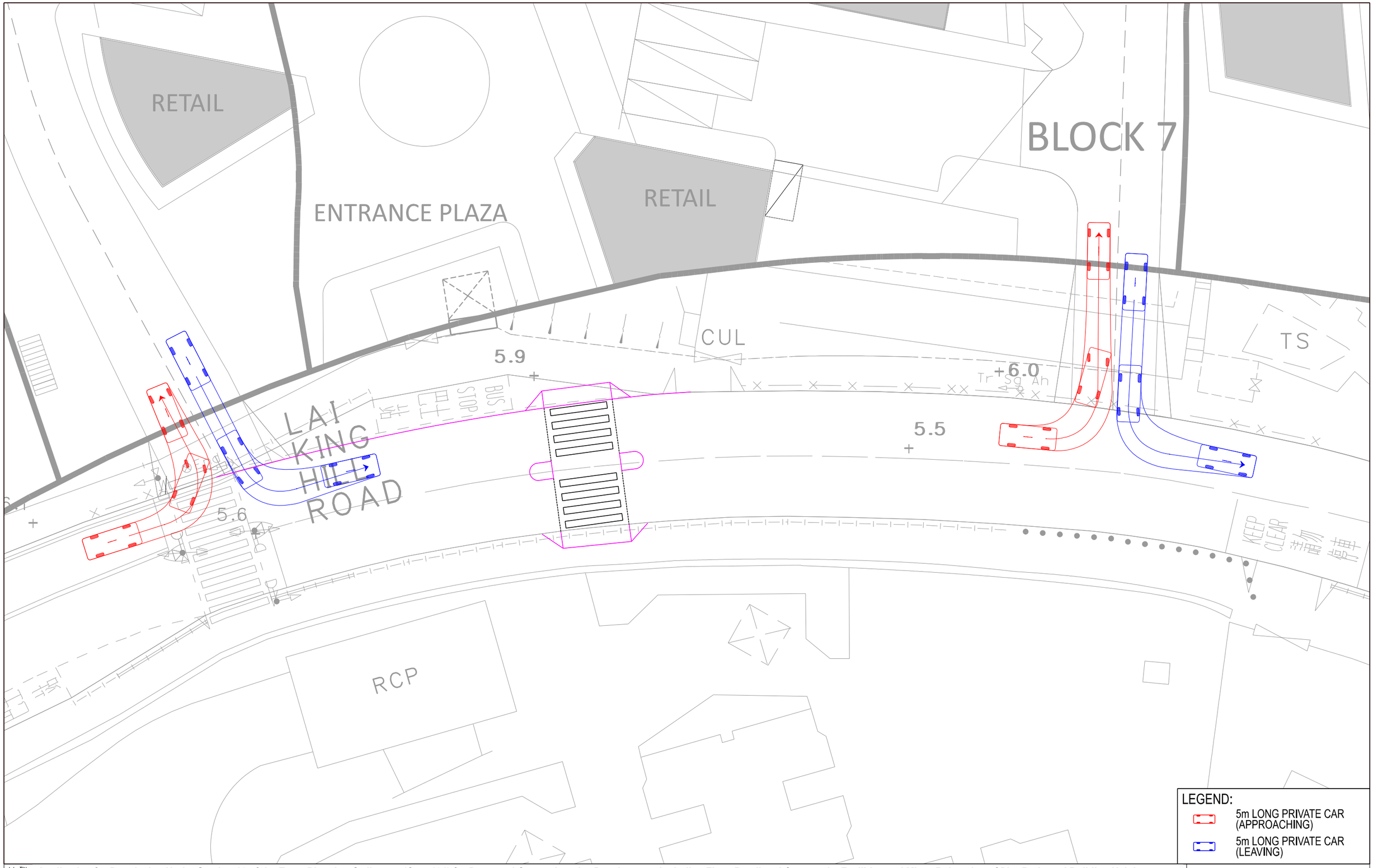


Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 3.3_1
Date: JUN 24 / Scale: NTS	Drawing Title: PROPOSED PEDESTRIAN CROSSING AND BUS STOP RELOCATION	ARUP
Drawn: YNNC / Job No.: 299277-02		

Alternative Bus Stop & Crossing Relocation



Job Title : Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		FIGURE 3.3_2
Date: JUN 24	Scale: NTS	Drawing Title: INDICATIVE POSSIBLE ALTERNATIVE LAI KING HILL ROAD TRAFFIC ARRANGEMENT - CROSSING FACILITY BETWEEN BUS STOPS
Drawn: YNNC	Job No.: 299277-02	ARUP

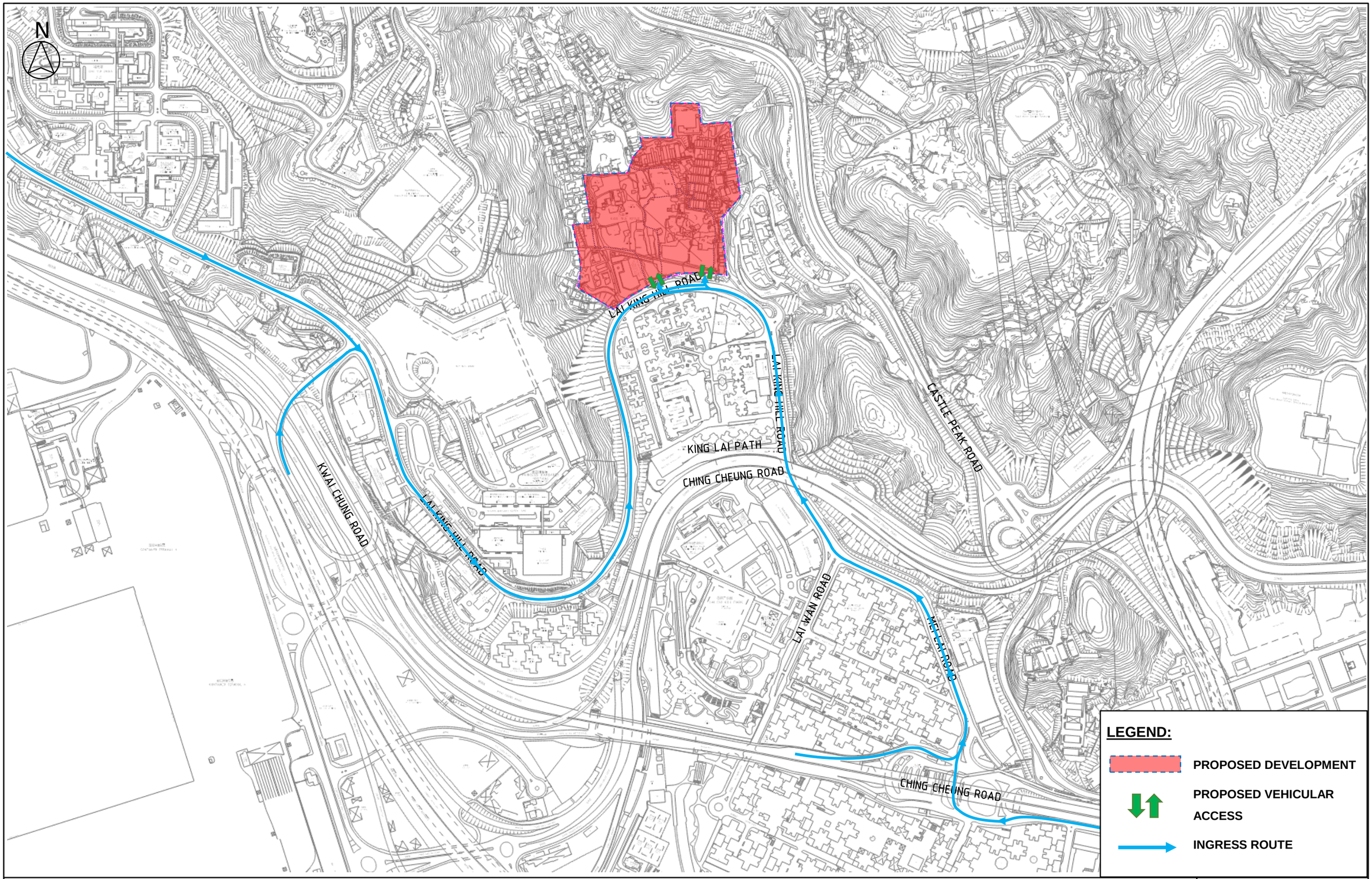


Job Title: Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung

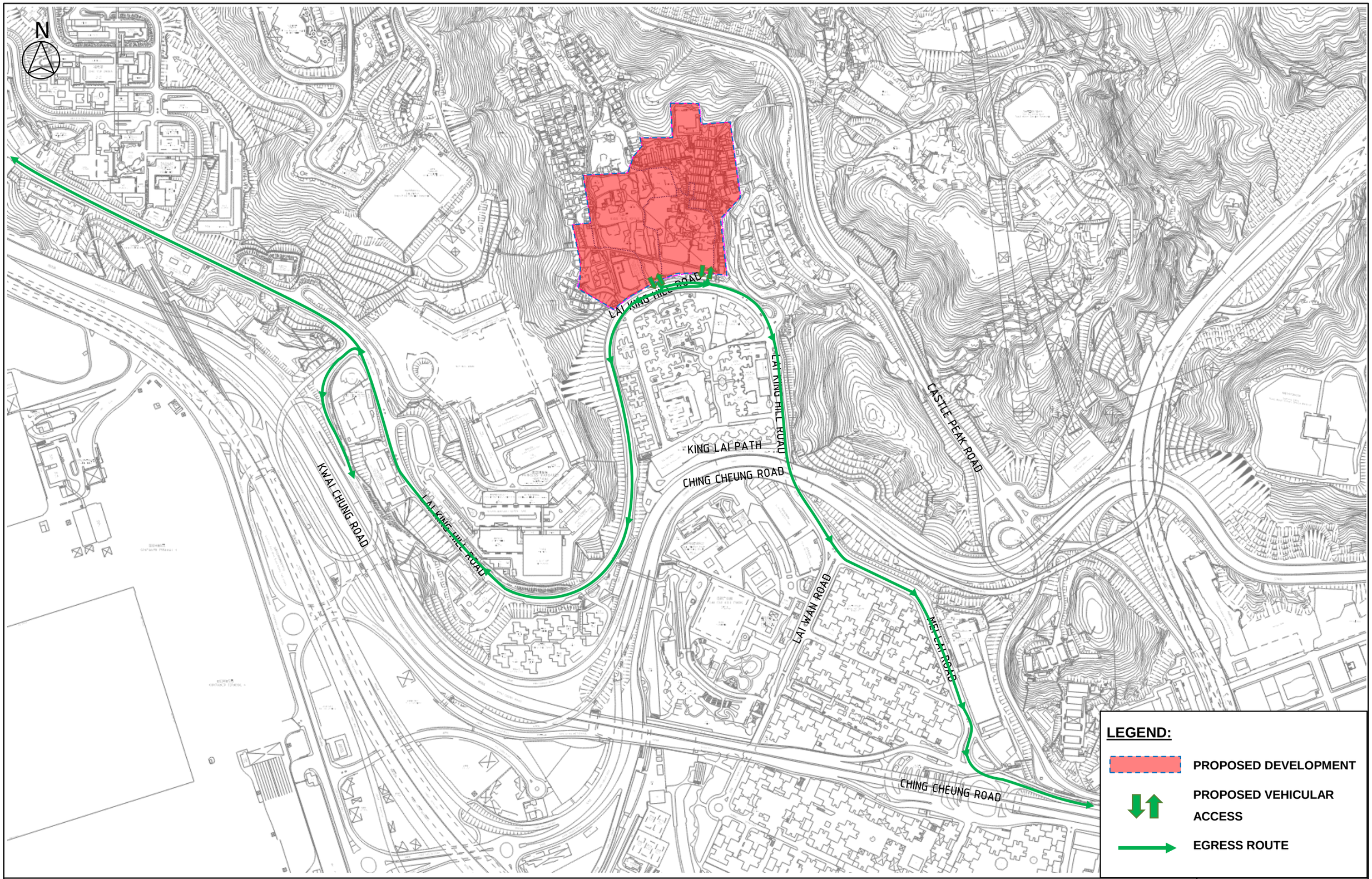
FIGURE 3.4

Date	Scale	Drawing Title
15JAN25	1:500@A3	**SWEPT PATH ANALYSIS AT VEHICULAR ACCESS**
Drawn: YNNC	Job No.: 299277-02	

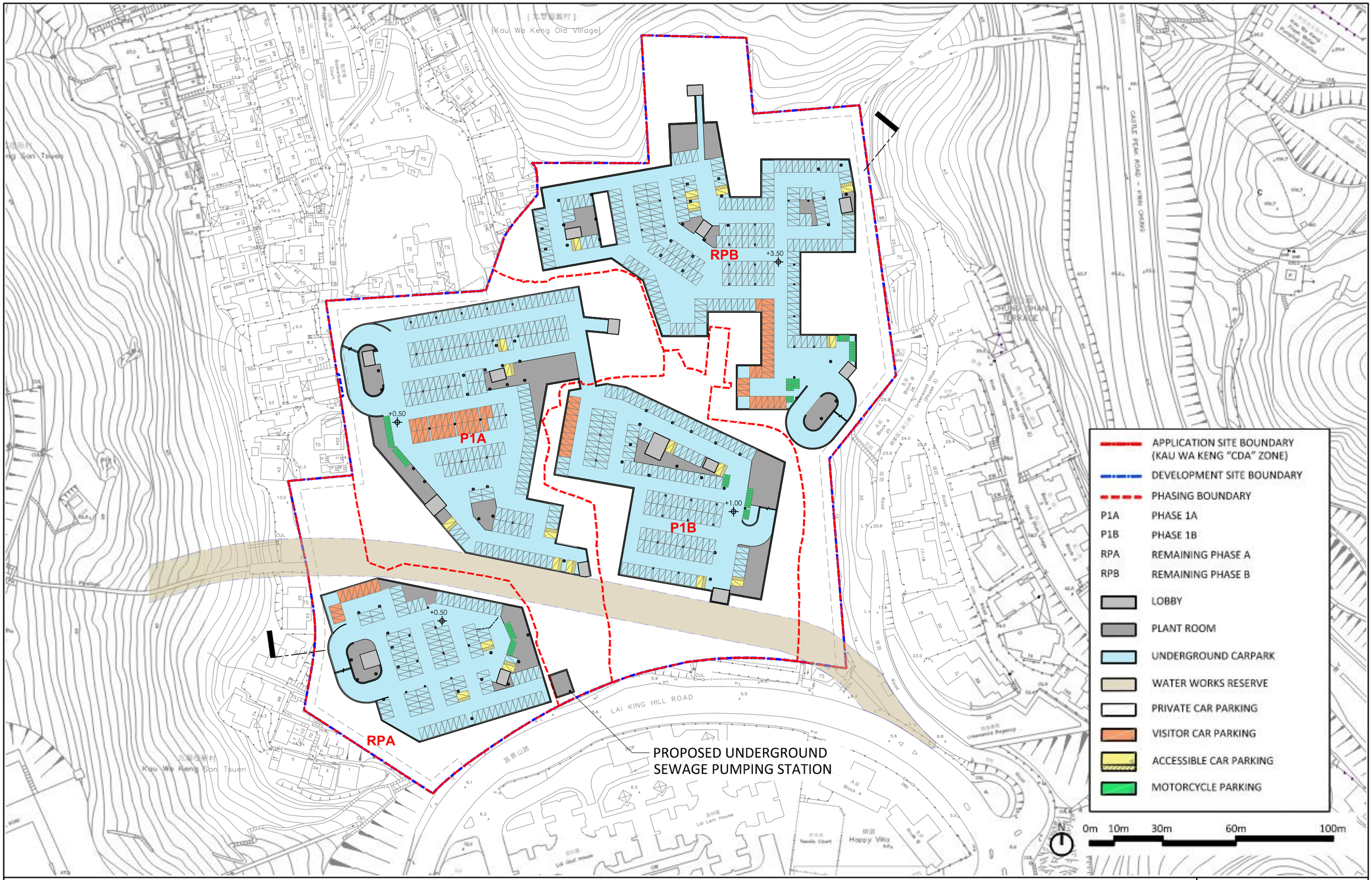
ARUP



Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 3.5
Date: JUN 24 / Scale: NTS	Drawing Title: INGRESS VEHICULAR ROUTES OF PROPOSED DEVELOPMENT	ARUP
Drawn: YNNC / Job No.: 299277-02		



Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 3.6
Date: JUN 24 / Scale: NTS	Drawing Title: EGRESS VEHICULAR ROUTES OF PROPOSED DEVELOPMENT	ARUP
Drawn: YNNC / Job No.: 299277-02		



Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 3.7
Date: JUN 24 / Scale: NTS	Drawing Title: PROPOSED BASEMENT 1/F LAYOUT PLAN	ARUP
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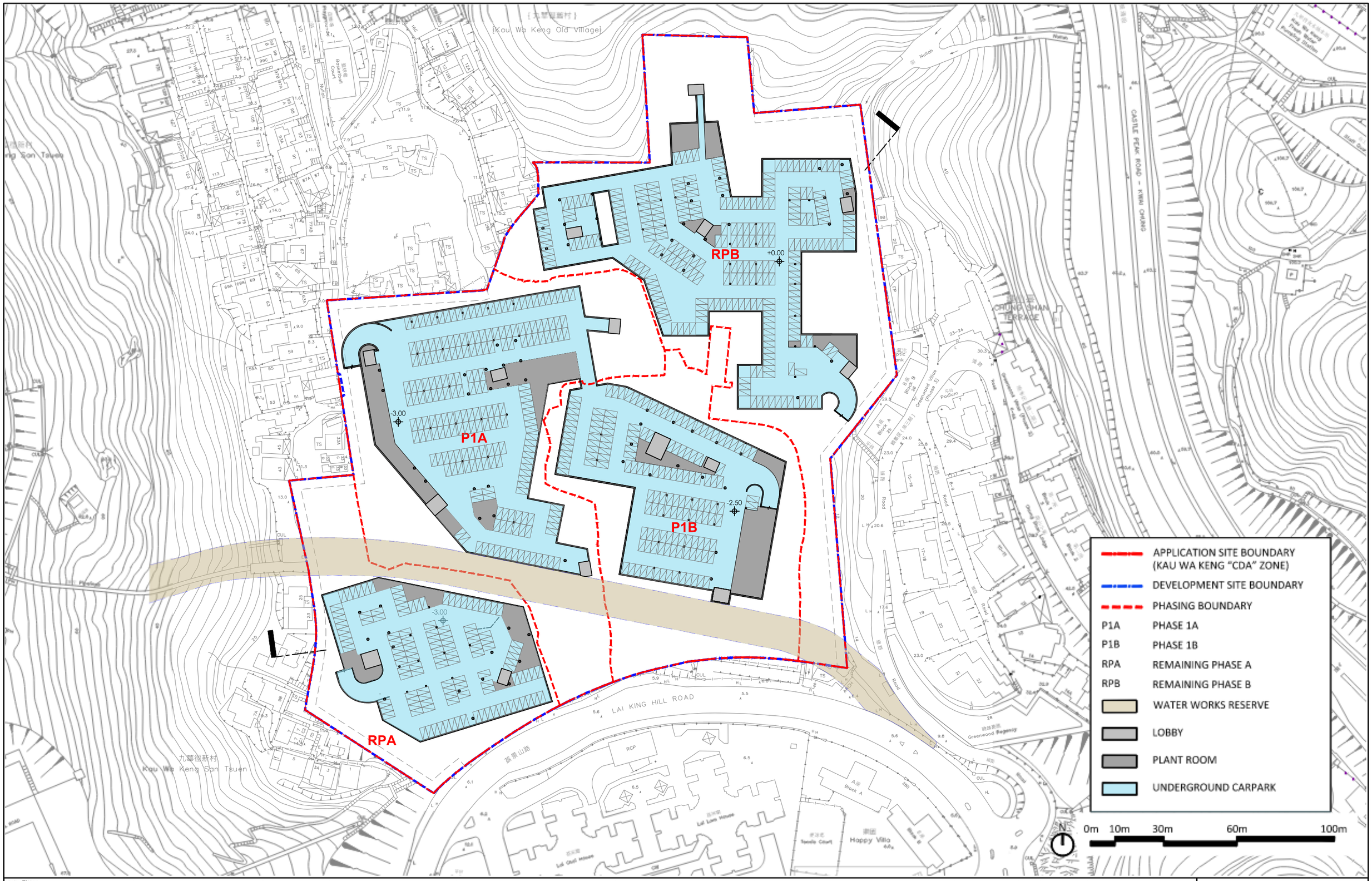

Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 3.8
Date: JUN 24 / Scale: NTS	Drawing Title: PROPOSED BASEMENT 2/F LAYOUT PLAN	ARUP
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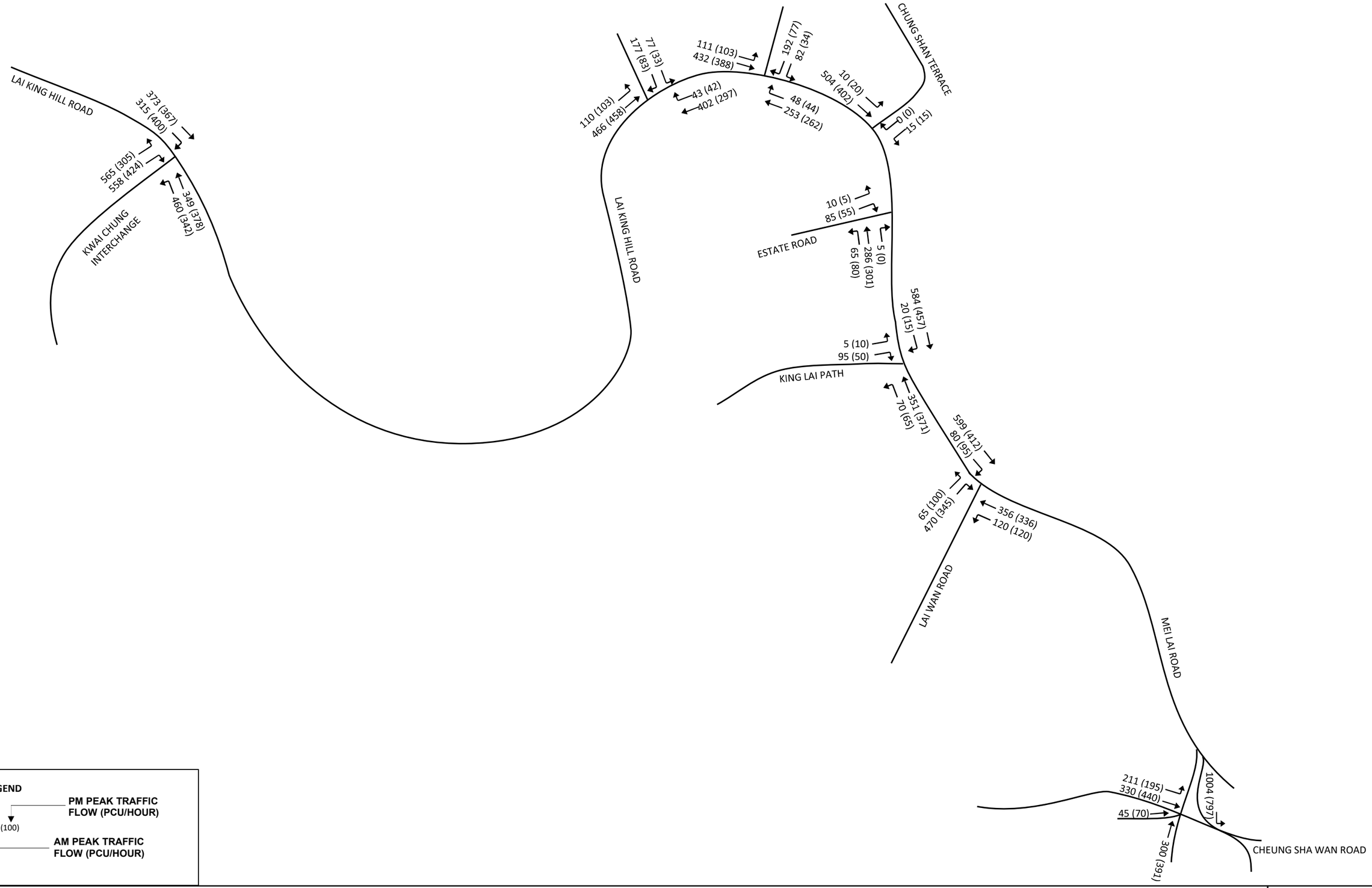
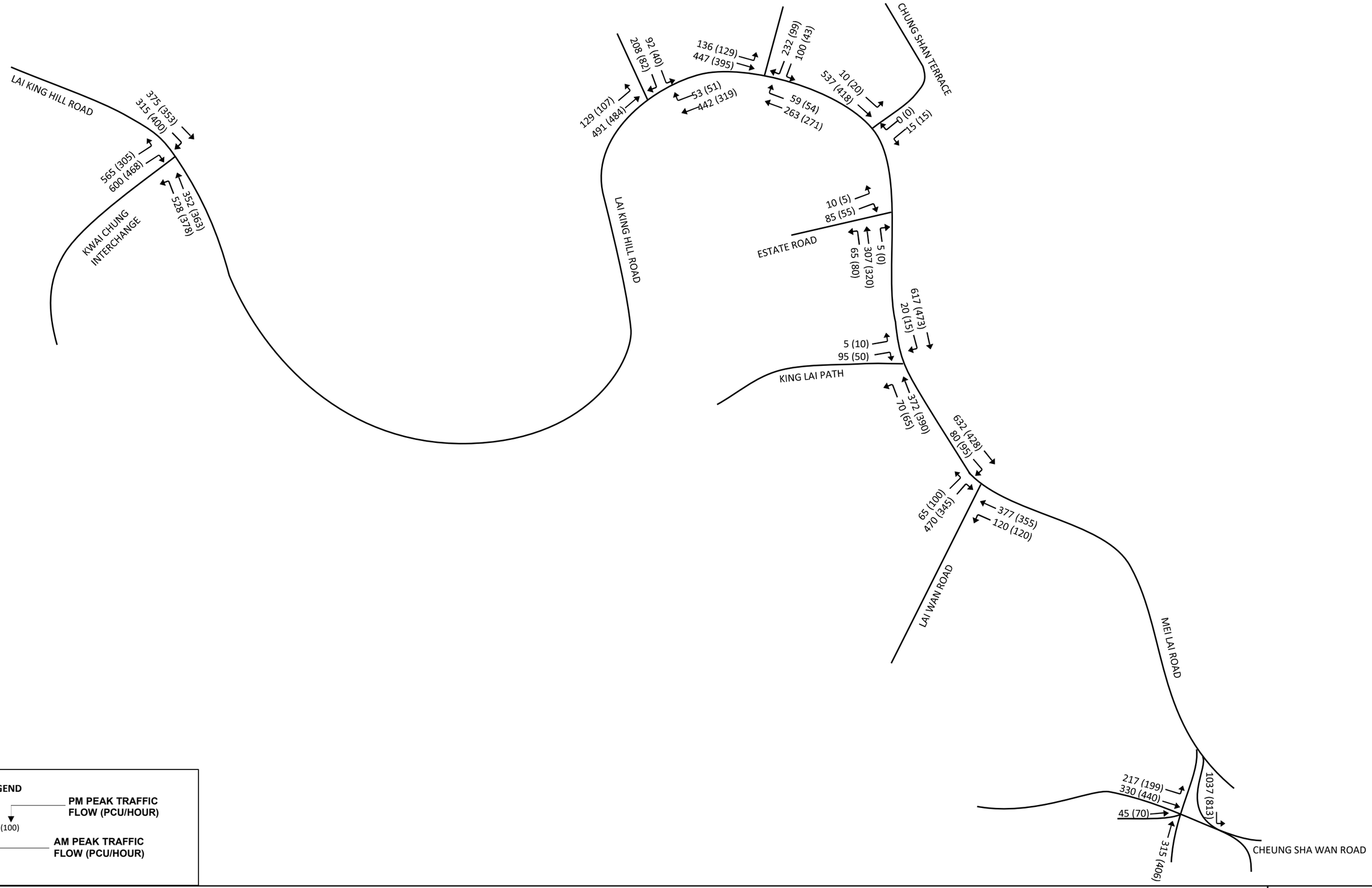


Job Title: Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		FIGURE 4.1
Date: JUN24	Scale: NTS	Drawing Title: YEAR 2035 REFERENCE TRAFFIC FLOW
Drawn: YNNC	Job No.: 299277-02	ARUP



Job Title: Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		FIGURE 4.2
Date: JUN24	Scale: NTS	Drawing Title: YEAR 2035 DESIGN TRAFFIC FLOW
Drawn: YNNC	Job No.: 299277-02	ARUP

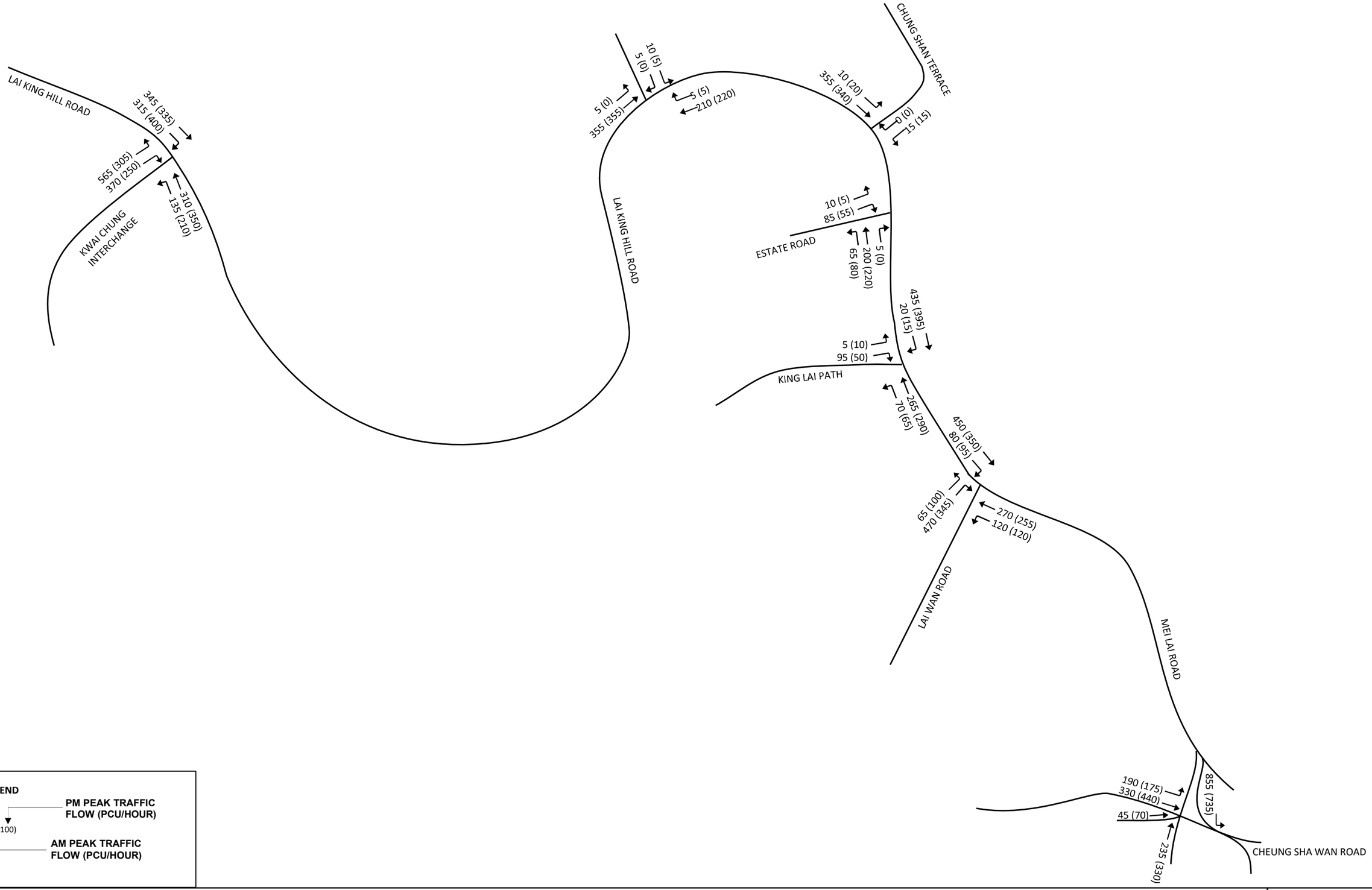
LEGEND

PM PEAK TRAFFIC FLOW (PCU/HOUR)

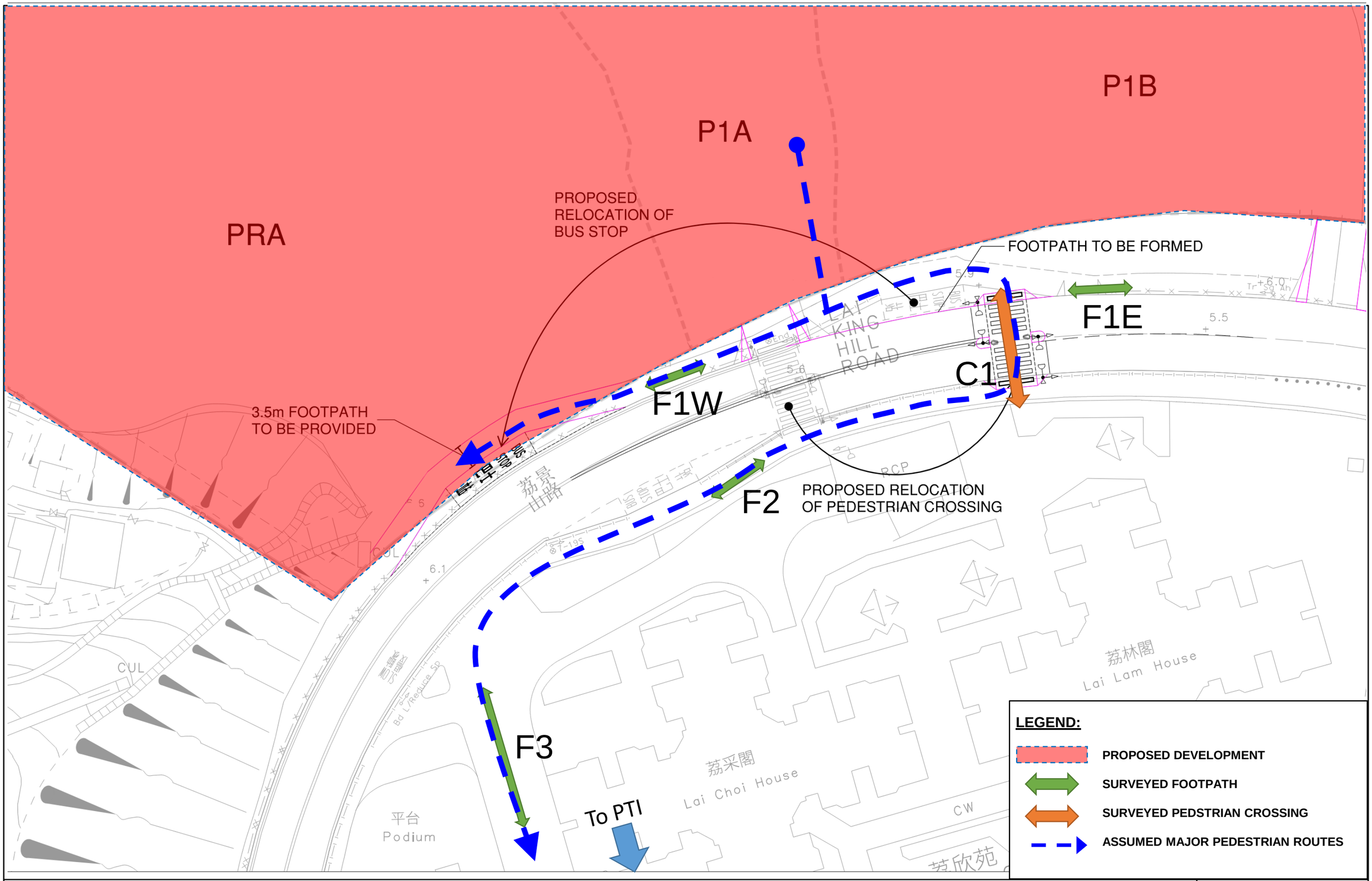
100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

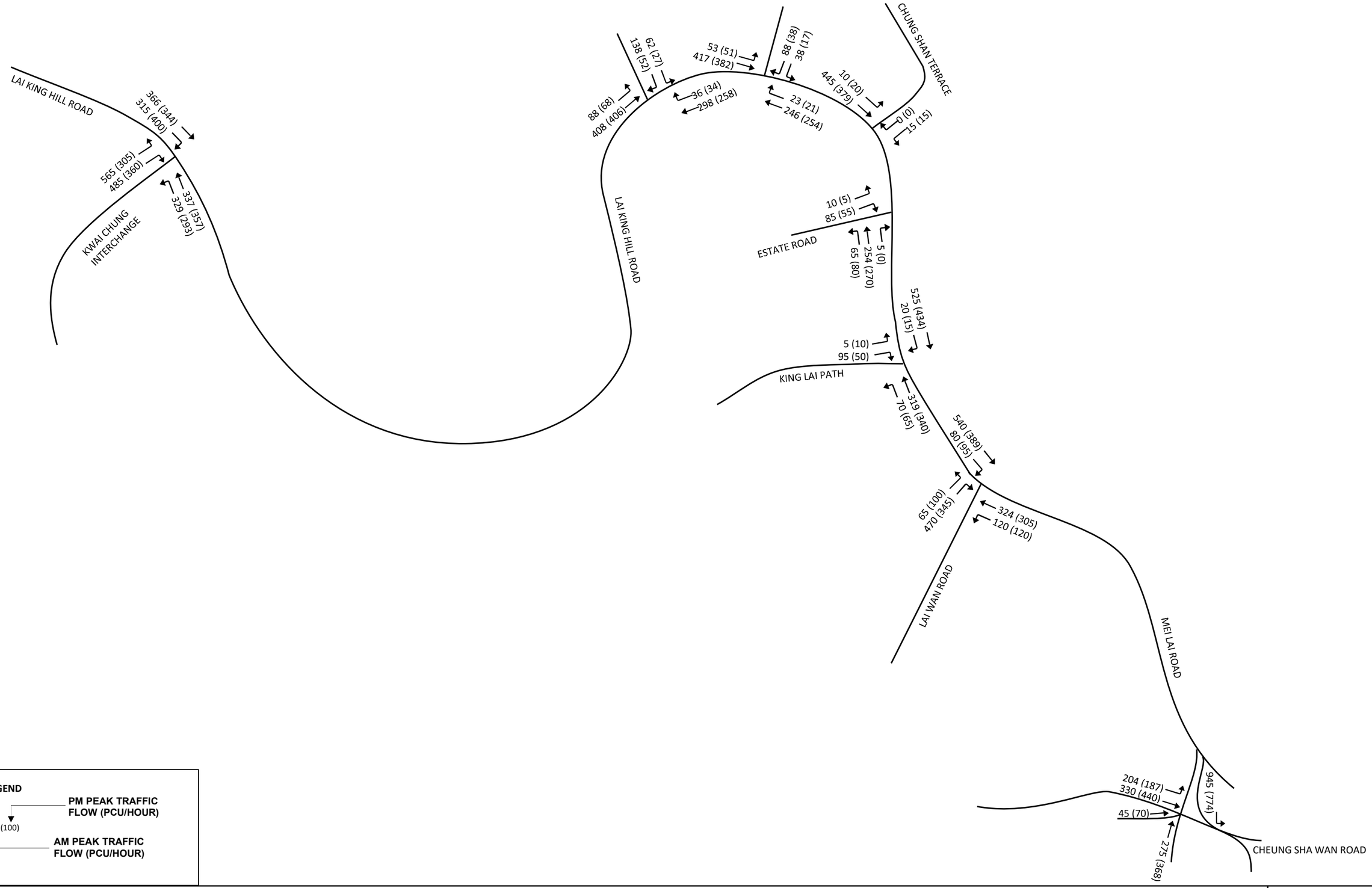
Job Title	**Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung**	FIGURE 4.3
Date: JUN24 / Scale: NTS	Drawing Title: DEVELOPMENT TRAFFIC FLOW	ARUP
Drawn: YNNC / Job No.: 299277-02		



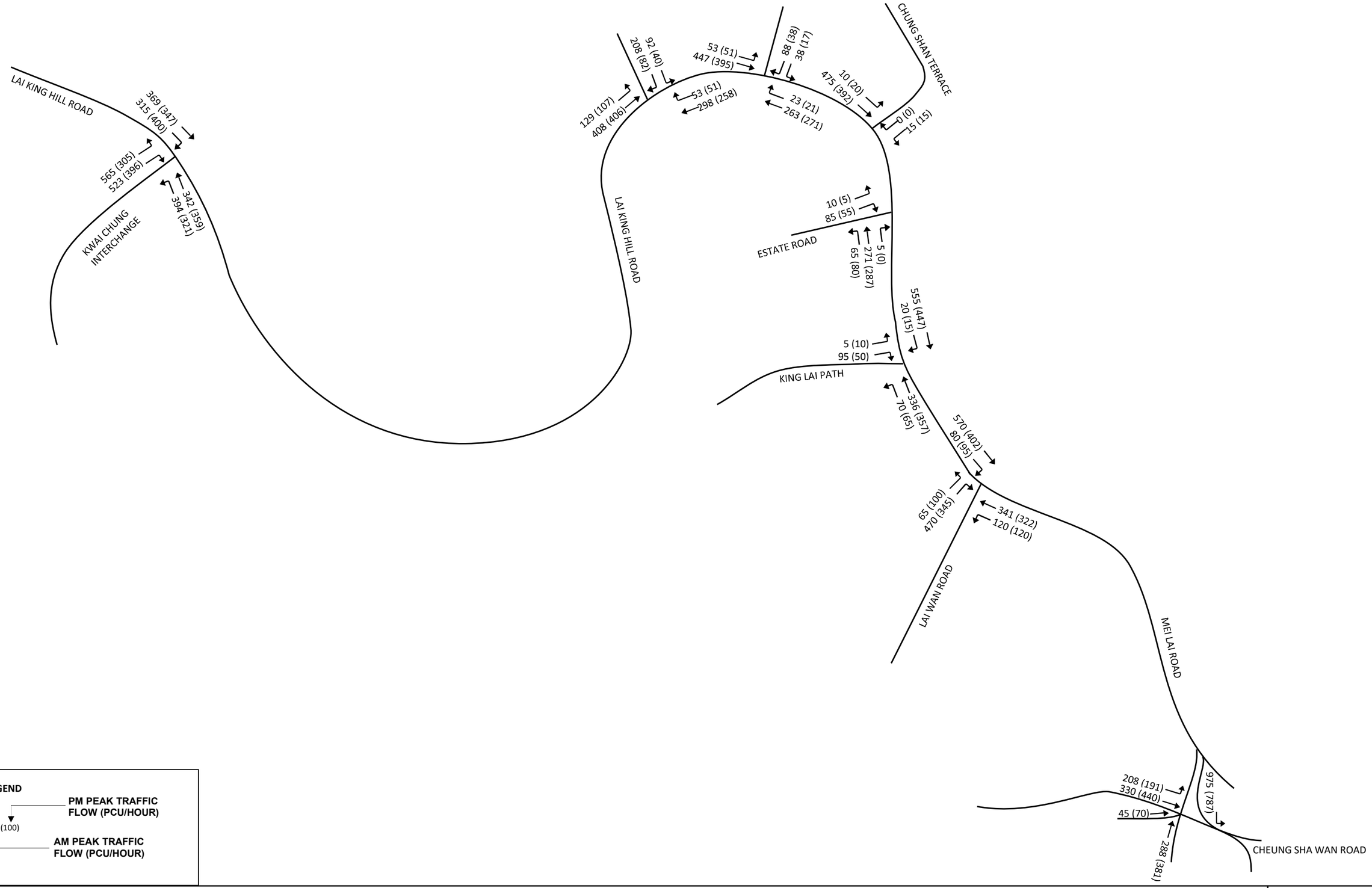
Job Title: Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		FIGURE 4.4
Date: JUN24	Scale: NTS	Drawing Title: YEAR 2035 BASELINE TRAFFIC FLOW
Drawn: YNNC	Job No.: 299277-02	ARUP



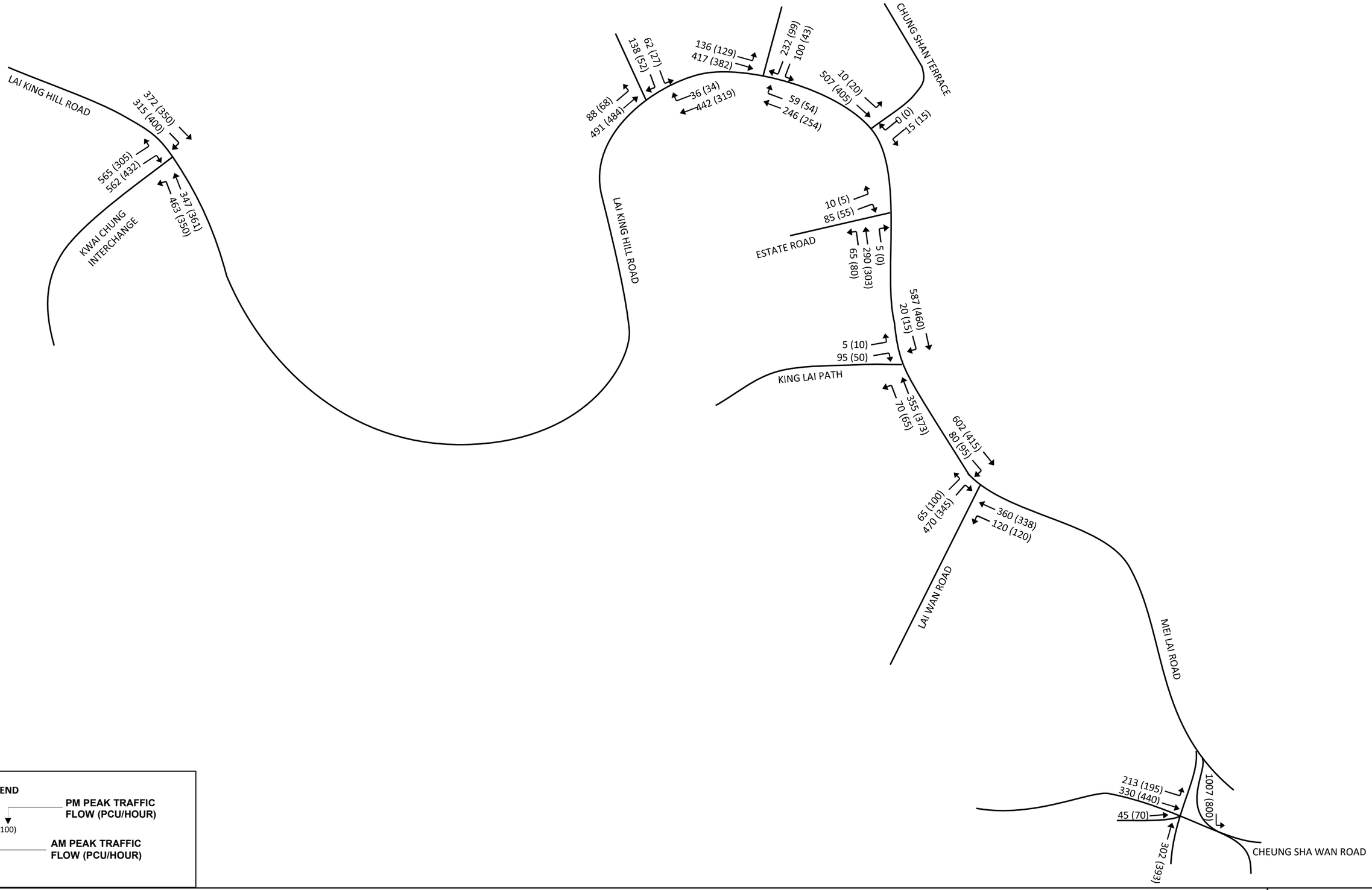
Job Title	Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	FIGURE 4.5
Date: JUN 24 / Scale: NTS	Drawing Title: LOCATION OF PEDESTRIAN FACILITIES ALONG MAJOR PEDESTRIAN ROUTES IN THE VICINITY OF PROPOSED DEVELOPMENT	ARUP
Drawn: YNNC / Job No.: 299277-02		



Job Title: Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		FIGURE 5.1
Date: JUN24	Scale: NTS	Drawing Title: YEAR 2035 INTERIM SCENARIO A TRAFFIC FLOW
Drawn: YNNC	Job No.: 299277-02	ARUP



Job Title: Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		FIGURE 5.2
Date: JUN24	Scale: NTS	Drawing Title: YEAR 2035 INTERIM SCENARIO B TRAFFIC FLOW
Drawn: YNNC	Job No.: 299277-02	ARUP



LEGEND

PM PEAK TRAFFIC FLOW (PCU/HOUR)

100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

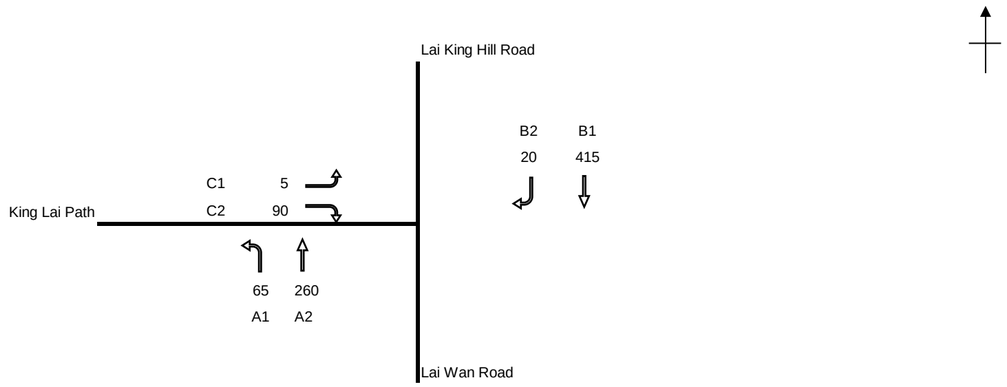
Job Title: Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		FIGURE 5.3
Date: JUN24	Scale: NTS	Drawing Title: YEAR 2035 INTERIM SCENARIO C TRAFFIC FLOW
Drawn: YNNC	Job No.: 299277-02	ARUP

Appendix A

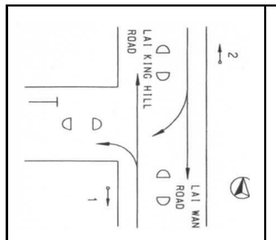
Junction Calculation Sheets

J1 YEAR 2024 AM TRAFFIC FLOW

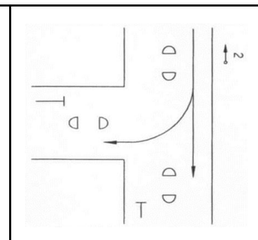
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path	J1_OBS_AM	DATE : 21-Jan-25	FILENAME :



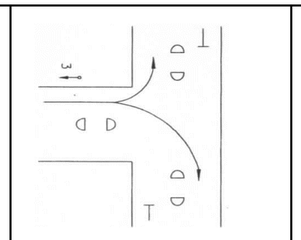
No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.168
Loss time		L =	35 sec
Total Flow		=	855 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.1 sec
Cm	= L/(1-Y)	=	42.1 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	279.1 %
Cp	= 0.9*L/(0.9-Y)	=	43.0 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	279 %



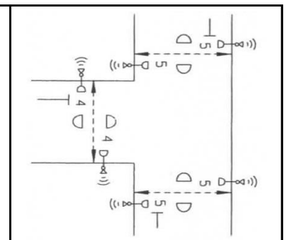
STAGE 1 INT=



STAGE 2 INT= 5



STAGE 3 INT= 10



STAGE 4 INT= 15

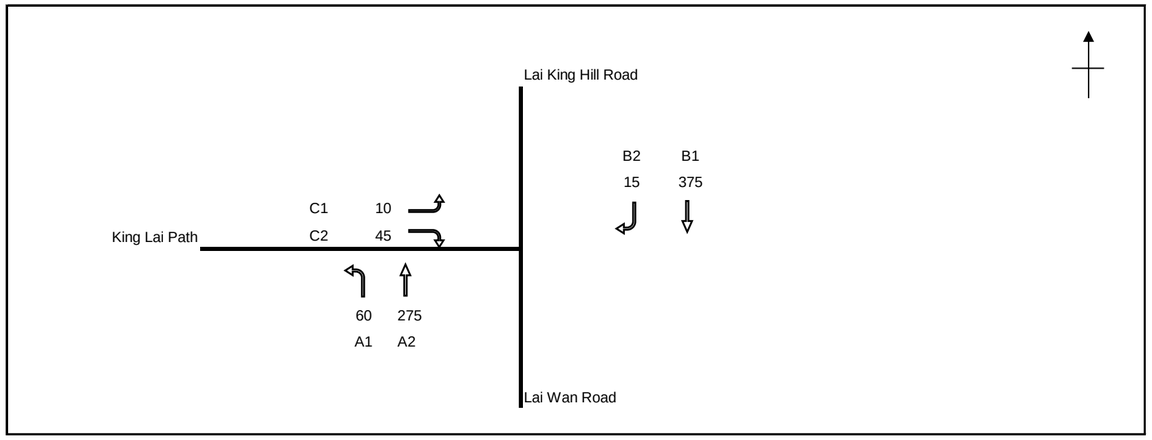
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	65	88		153	0.42	1909			1909	0.080			41	41	0.235	20
A2	1	3.75	A	1				2130		172		172	0.00	2130			2130	0.081			41	41	0.236	23
B1	1,2	3.40	B	1			N	1955		223		223	0.00	1955			1955	0.114	0.114		58	58	0.236	23
B1,B2	1,2	3.40	B	1	20	O		2095		192	20	212	0.09	1852			1852	0.114			58	58	0.237	22
C1,C2	3	4.20	C	1	10		N	2035	5		90	95	1.00	1770			1770	0.054	0.054		27	27	0.239	15
Ep																				7				

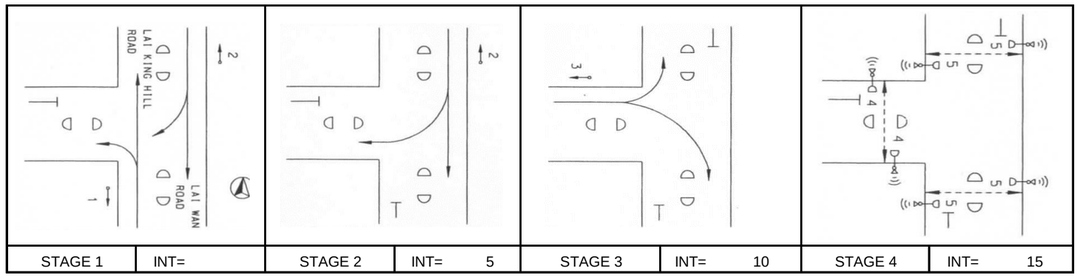
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J1 YEAR 2024 PM TRAFFIC FLOW

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path	J1_OBS_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.134
Loss time		L =	35 sec
Total Flow		=	780 pcu
Co	= (1.5*L+5)/(1-Y)	=	66.4 sec
Cm	= L/(1-Y)	=	40.4 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	377.3 %
Cp	= 0.9*L/(0.9-Y)	=	41.1 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	377 %



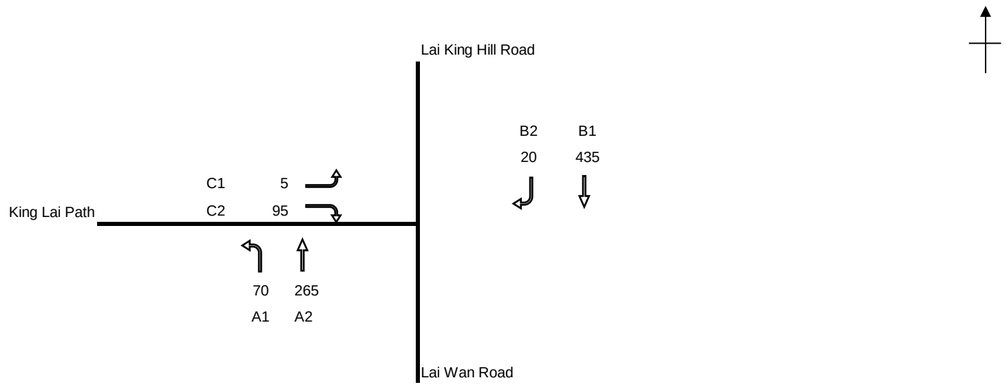
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	60	99		159	0.38	1918			1918	0.083			53	53	0.188	18
A2	1	3.75	A	1				2130		176		176	0.00	2130			2130	0.083			53	53	0.187	20
B1	1,2	3.40	B	1			N	1955		200		200	0.00	1955			1955	0.102	0.102		65	65	0.189	18
B1,B2	1,2	3.40	B	1	20	O		2095		175	15	190	0.08	1854			1854	0.102			65	65	0.189	17
C1,C2	3	4.20	C	1	10		N	2035	10		45	55	1.00	1770			1770	0.031	0.031		20	20	0.186	9
Ep																				7				

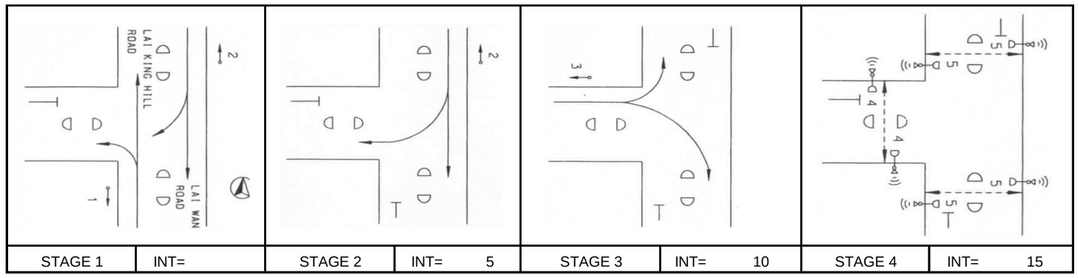
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J1 YEAR 2035 AM TRAFFIC FLOW
BASELINE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path	J1_BASE_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.176
Loss time		L =	35 sec
Total Flow		=	890 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.8 sec
Cm	= L/(1-Y)	=	42.5 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	261.5 %
Cp	= 0.9*L/(0.9-Y)	=	43.5 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	261 %



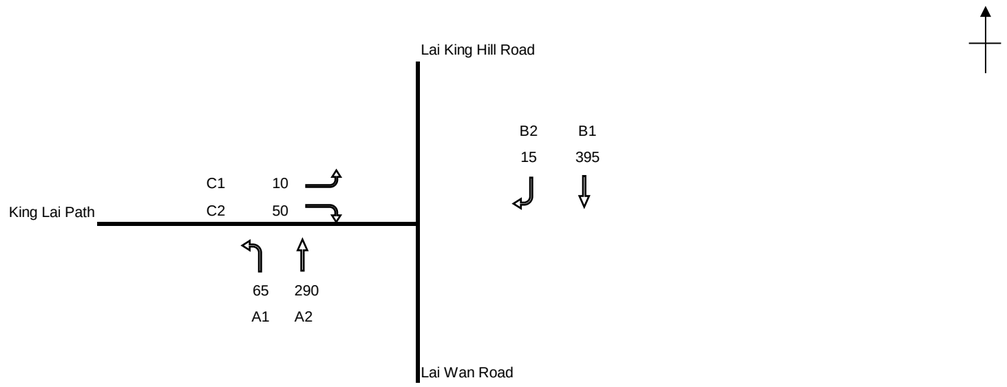
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	70	89		159	0.44	1906			1906	0.083			40	40	0.250	21
A2	1	3.75	A	1				2130		176		176	0.00	2130			2130	0.083			40	40	0.248	23
B1	1,2	3.40	B	1			N	1955		233		233	0.00	1955			1955	0.119	0.120		57	57	0.251	24
B1,B2	1,2	3.40	B	1	20	O		2095		202	20	222	0.09	1852			1852	0.120			58	57	0.252	23
C1,C2	3	4.20	C	1	10		N	2035	5		95	100	1.00	1770			1770	0.057	0.057		27	27	0.251	16
Ep																				7				

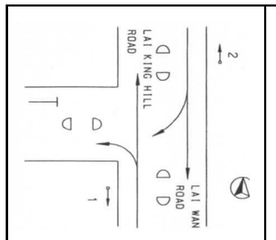
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J1 YEAR 2035 PM TRAFFIC FLOW
BASELINE SCENARIO

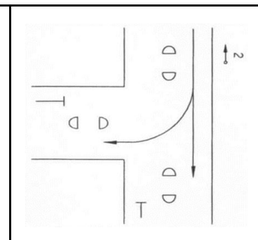
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path	J1_BASE_PM	DATE : 21-Jan-25	FILENAME :



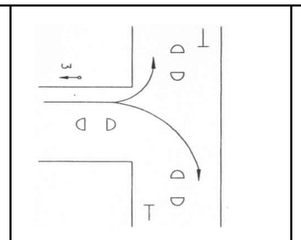
No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.142
Loss time		L =	35 sec
Total Flow		=	825 pcu
Co	= (1.5*L+5)/(1-Y)	=	67.0 sec
Cm	= L/(1-Y)	=	40.8 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	349.7 %
Cp	= 0.9*L/(0.9-Y)	=	41.5 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	350 %



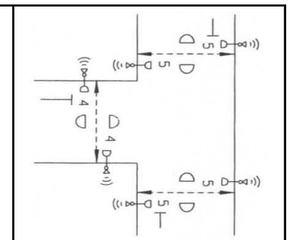
STAGE 1 INT=



STAGE 2 INT= 5



STAGE 3 INT= 10



STAGE 4 INT= 15

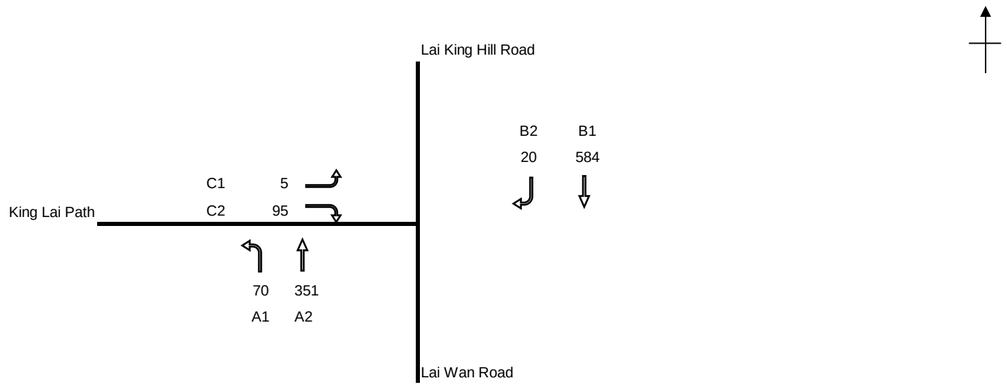
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	65	103		168	0.39	1916			1916	0.088			53	53	0.199	19
A2	1	3.75	A	1				2130		187		187	0.00	2130			2130	0.088			53	53	0.199	21
B1	1,2	3.40	B	1			N	1955		210		210	0.00	1955			1955	0.107	0.108		64	64	0.201	20
B1,B2	1,2	3.40	B	1	20	O		2095		185	15	200	0.08	1855			1855	0.108			65	64	0.202	19
C1,C2	3	4.20	C	1	10		N	2035	10		50	60	1.00	1770			1770	0.034	0.034		20	20	0.203	10
Ep																				7				

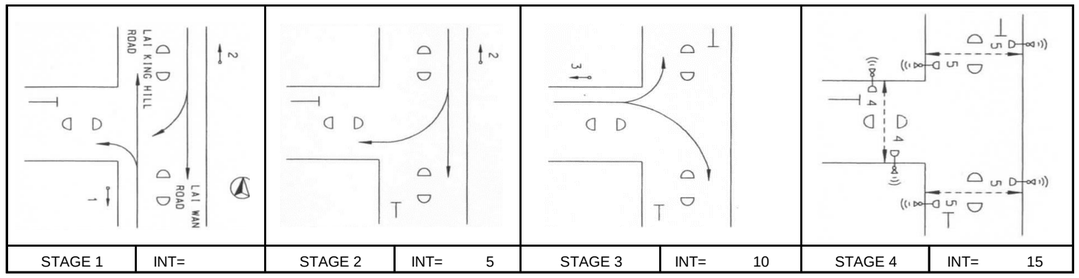
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J1 YEAR 2035 AM TRAFFIC FLOW REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path	J1_REF_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.215
Loss time		L =	35 sec
Total Flow		=	1125 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.3 sec
Cm	= L/(1-Y)	=	44.6 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	196.4 %
Cp	= 0.9*L/(0.9-Y)	=	46.0 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	196 %



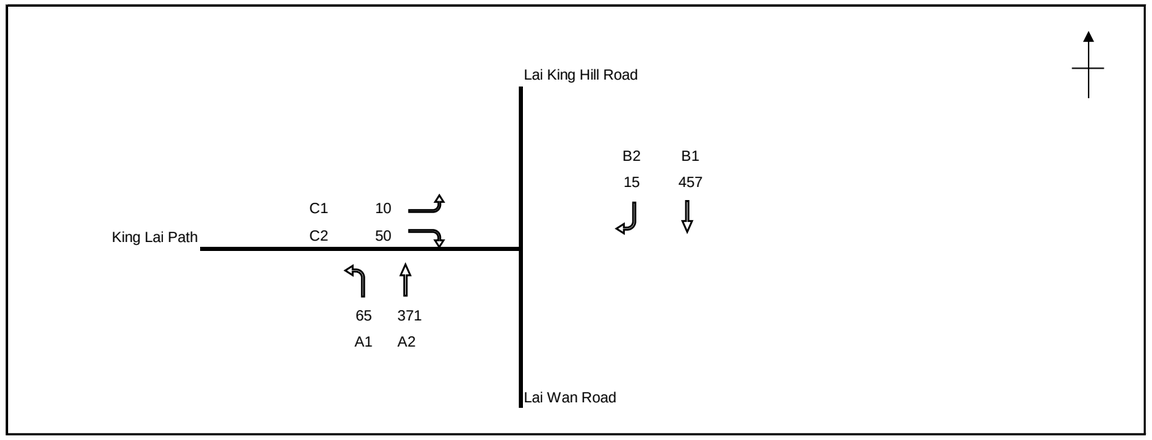
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	70	130		200	0.35	1923			1923	0.104			41	41	0.304	26
A2	1	3.75	A	1				2130		221		221	0.00	2130			2130	0.104			41	41	0.304	29
B1	1,2	3.40	B	1			N	1955		310		310	0.00	1955			1955	0.159	0.159		63	63	0.302	29
B1,B2	1,2	3.40	B	1	20	O		2095		274	20	294	0.07	1856			1856	0.158			63	63	0.302	28
C1,C2	3	4.20	C	1	10		N	2035	5		95	100	1.00	1770			1770	0.057	0.057		22	22	0.308	16
Ep																				7				

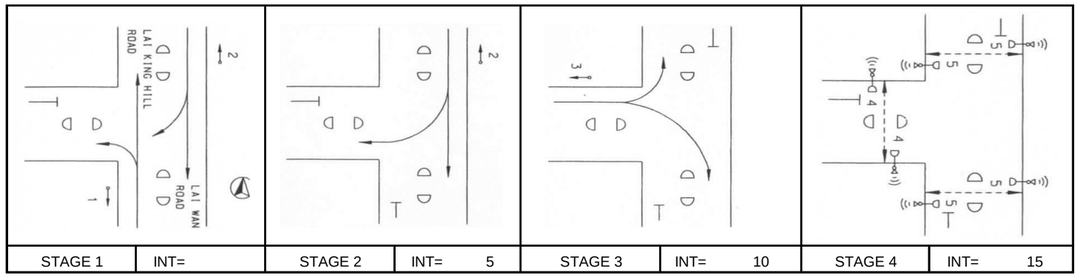
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J1 YEAR 2035 PM TRAFFIC FLOW REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path	J1_REF_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.158
Loss time		L =	35 sec
Total Flow		=	968 pcu
Co	= (1.5*L+5)/(1-Y)	=	68.3 sec
Cm	= L/(1-Y)	=	41.6 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	303.9 %
Cp	= 0.9*L/(0.9-Y)	=	42.4 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	304 %



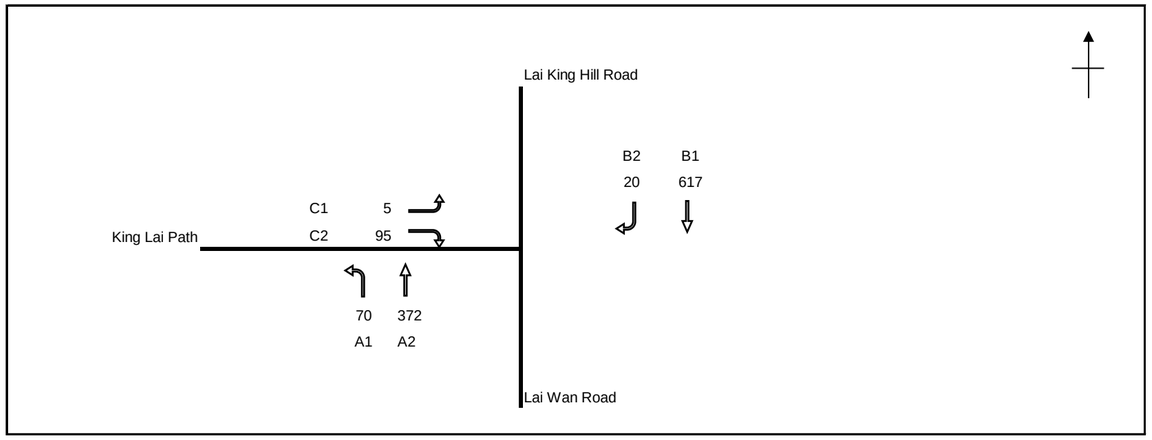
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	65	142		207	0.31	1929			1929	0.107			58	58	0.222	21
A2	1	3.75	A	1				2130		229		229	0.00	2130			2130	0.108			58	58	0.222	24
B1	1,2	3.40	B	1			N	1955		242		242	0.00	1955			1955	0.124	0.124		67	67	0.222	21
B1,B2	1,2	3.40	B	1	20	O		2095		215	15	230	0.07	1856			1856	0.124			67	67	0.222	20
C1,C2	3	4.20	C	1	10		N	2035	10		50	60	1.00	1770			1770	0.034	0.034		18	18	0.226	10
Ep																				7				

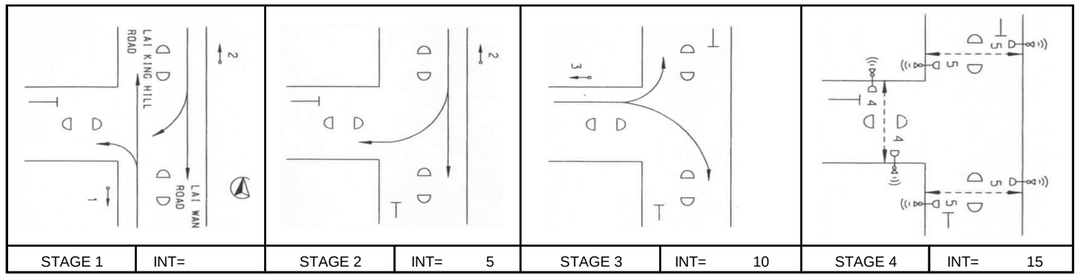
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J1 YEAR 2035 AM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng			PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path		J1_DES_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.224
Loss time		L =	35 sec
Total Flow		=	1179 pcu
Co	= (1.5*L+5)/(1-Y)	=	74.1 sec
Cm	= L/(1-Y)	=	45.1 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	184.9 %
Cp	= 0.9*L/(0.9-Y)	=	46.6 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	185 %



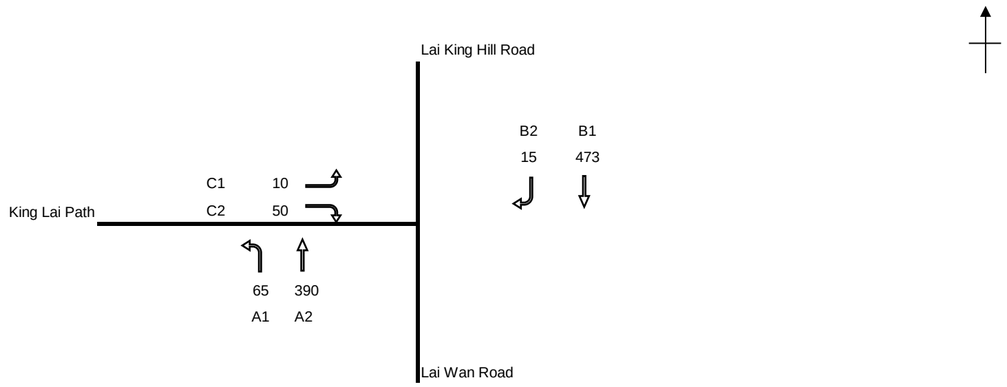
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	70	140		210	0.33	1926			1926	0.109			41	41	0.319	28
A2	1	3.75	A	1				2130		232		232	0.00	2130			2130	0.109			41	41	0.319	31
B1	1,2	3.40	B	1			N	1955		327		327	0.00	1955			1955	0.167	0.167		64	64	0.314	31
B1,B2	1,2	3.40	B	1	20	O		2095		290	20	310	0.06	1856			1856	0.167			63	64	0.313	29
C1,C2	3	4.20	C	1	10		N	2035	5		95	100	1.00	1770			1770	0.057	0.057		21	21	0.323	17
Ep																				7				

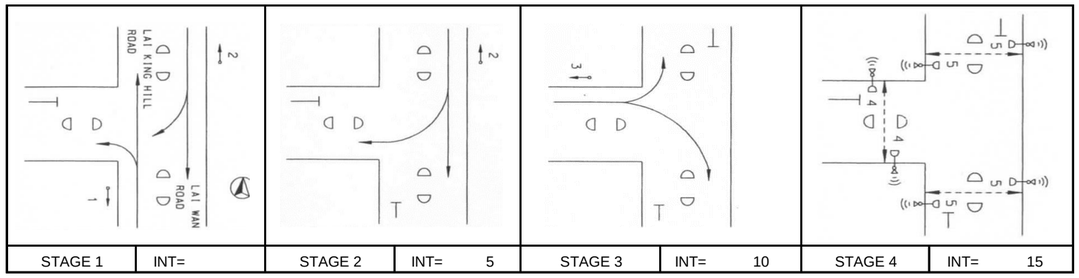
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J1 YEAR 2035 PM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J1
Lai King Hill Road / King Lai Path	J1_DES_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.162
Loss time		L =	35 sec
Total Flow		=	1003 pcu
Co	= (1.5*L+5)/(1-Y)	=	68.6 sec
Cm	= L/(1-Y)	=	41.8 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	292.8 %
Cp	= 0.9*L/(0.9-Y)	=	42.7 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	293 %



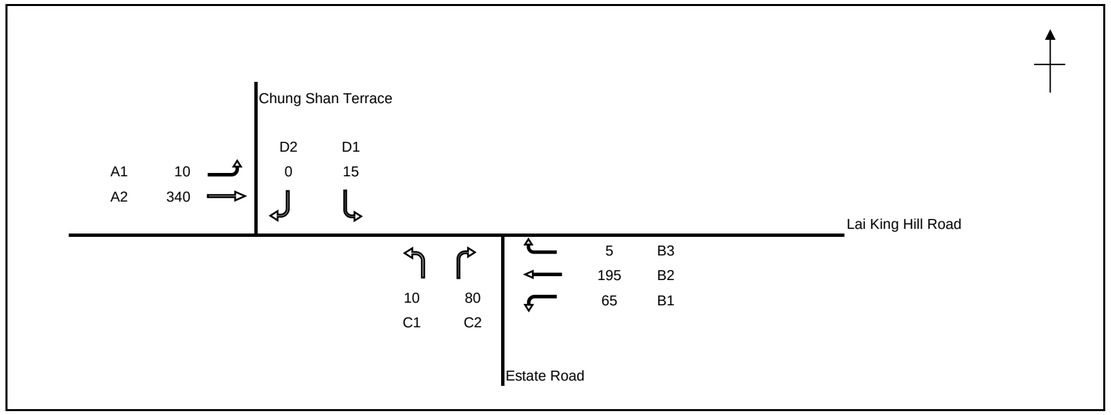
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	10	8	2	11	8	2	11	OK
Ep	10.5	7	8	12	7	8	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1,A2	1	3.75	A	1	15		N	1990	65	152		217	0.30	1932			1932	0.112			59	59	0.228	22
A2	1	3.75	A	1				2130		238		238	0.00	2130			2130	0.112			59	59	0.227	24
B1	1,2	3.40	B	1			N	1955		251		251	0.00	1955			1955	0.128	0.128		67	67	0.230	22
B1,B2	1,2	3.40	B	1	20	O		2095		222	15	237	0.06	1856			1856	0.128			67	67	0.229	21
C1,C2	3	4.20	C	1	10		N	2035	10		50	60	1.00	1770			1770	0.034	0.034		18	18	0.226	10
Ep																				7				

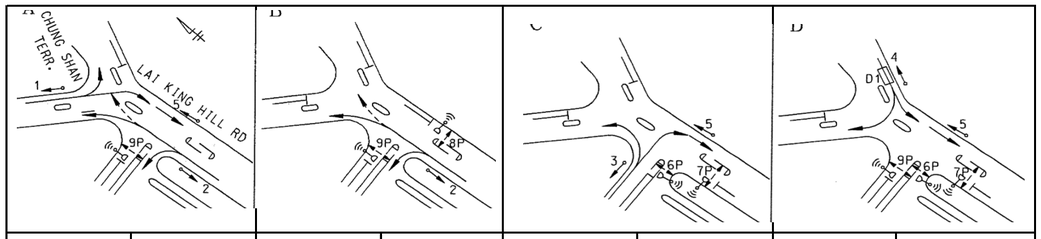
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2024 AM TRAFFIC FLOW

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace	J2_OBS_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.119
Loss time		L =	37 sec
Total Flow		=	720 pcu
Co	= (1.5*L+5)/(1-Y)	=	68.7 sec
Cm	= L/(1-Y)	=	42.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	422.9 %
Cp	= 0.9*L/(0.9-Y)	=	42.6 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	423 %



STAGE 1	INT= 12	STAGE 2	INT= 10	STAGE 3	INT= 7	STAGE 4	INT= 5

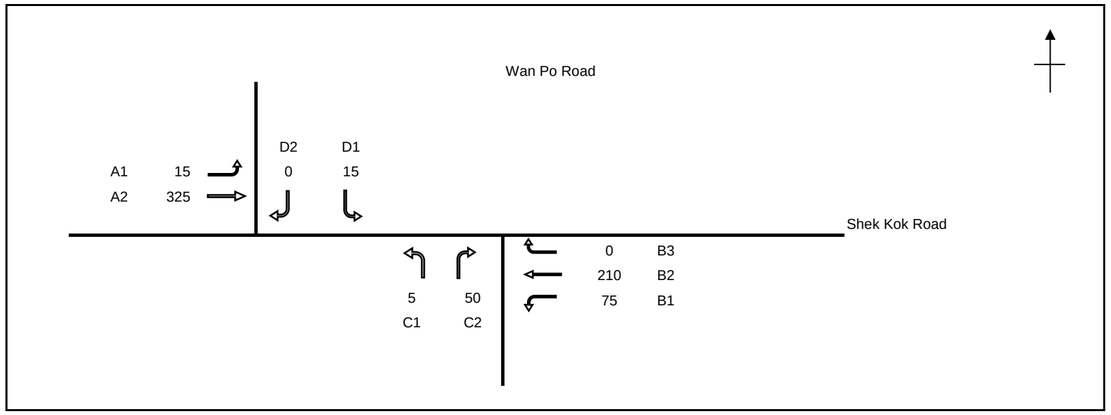
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	24	3	6	OK
Fp	6.8	5	1	6	26	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	89	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1, A2	1	3.40	A	1	10		N	1955	10	158		168	0.06	1938			1938	0.087	0.087		60	60	0.173	17
A2	1	3.40	A	1				2095		182		182	0.00	2095			2095	0.087			61	60	0.174	18
B1	1,2	3.40	B	1	15		N	1955	65			65	1.00	1777			1777	0.037			25	77	0.057	5
B2,B3	1,2	3.40	B	1	15	O		2095		195	5	200	0.03	1860			1860	0.108			75	77	0.168	14
C1,C2	3	3.40	C	1	15		N	1955	10		33	43	1.00	1777			1777	0.024	0.024		17	17	0.171	7
C2	3	3.40	C	1	25			2095			47	47	1.00	1976			1976	0.024			17	17	0.168	8
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008		6	6	0.160	3
Gp																				6				

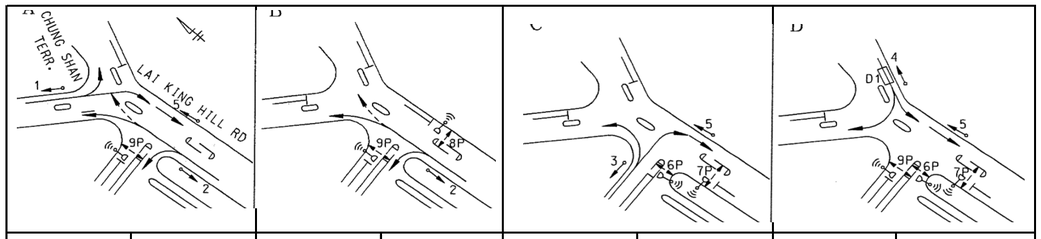
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2024 PM TRAFFIC FLOW

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace	J2_OBS_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.135
Loss time		L =	16 sec
Total Flow		=	695 pcu
Co	= (1.5*L+5)/(1-Y)	=	33.5 sec
Cm	= L/(1-Y)	=	18.5 sec
Yult		=	0.780
R.C.ult	= (Yult-Y)/Y*100%	=	476.7 %
Cp	= 0.9*L/(0.9-Y)	=	18.8 sec
Ymax	= 1-L/C	=	0.867
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	477 %



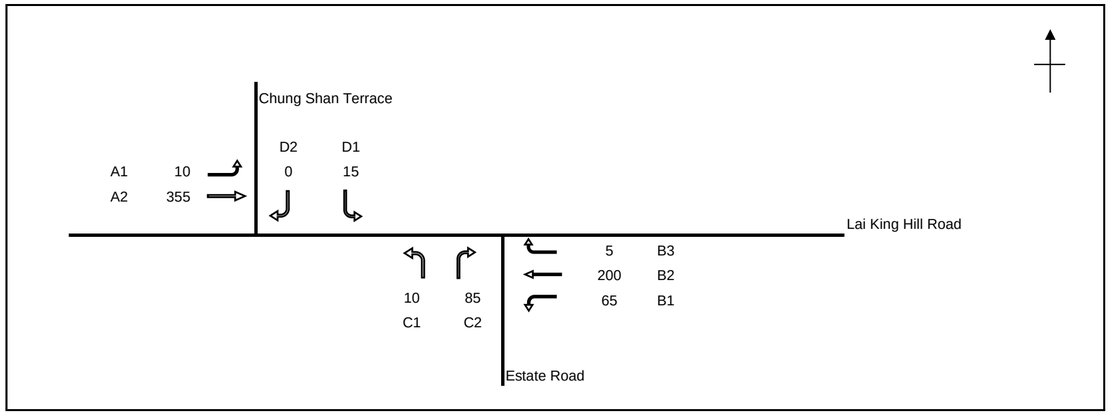
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	18	3	6	OK
Fp	6.8	5	1	6	20	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	95	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1, A2	1	3.40	A	1	10		N	1955	15	147		162	0.09	1928			1928	0.084			65	65	0.155	15
A2	1	3.40	A	1				2095		178		178	0.00	2095			2095	0.085			65	65	0.157	16
B1	1,2	3.40	B	1	15		N	1955	75			75	1.00	1777			1777	0.042	0.113		32	87	0.058	4
B2,B3	1,2	3.40	B	1	15	O		2095		210	0	210	0.00	1865			1865	0.113			87	87	0.155	12
C1,C2	3	3.40	C	1	15		N	1955	5		21	26	1.00	1777			1777	0.015	0.015		11	11	0.160	5
C2	3	3.40	C	1	25			2095			29	29	1.00	1976			1976	0.015			11	11	0.160	5
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008		6	6	0.160	3

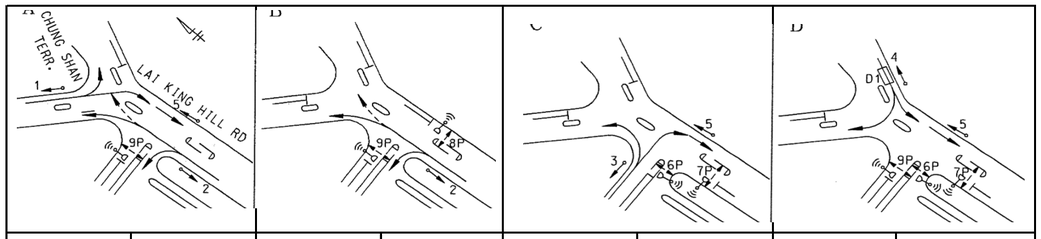
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2035 AM TRAFFIC FLOW
BASELINE SCENARIO

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng			PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace		J2_BASE_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.124
Loss time		L =	37 sec
Total Flow		=	745 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.1 sec
Cm	= L/(1-Y)	=	42.2 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	402.1 %
Cp	= 0.9*L/(0.9-Y)	=	42.9 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	402 %



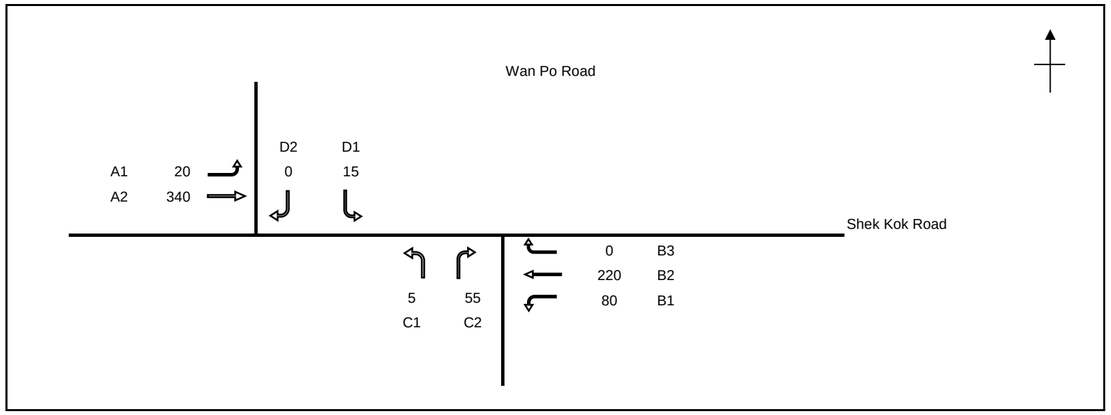
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	23	3	6	OK
Fp	6.8	5	1	6	25	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	88	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1, A2	1	3.40	A	1	10		N	1955	10	165		175	0.06	1938			1938	0.090	0.091		60	60	0.181	18
A2	1	3.40	A	1				2095		190		190	0.00	2095			2095	0.091			61	60	0.181	19
B1	1,2	3.40	B	1	15		N	1955	65			65	1.00	1777			1777	0.037			24	77	0.057	5
B2,B3	1,2	3.40	B	1	15	O		2095		200	5	205	0.02	1860			1860	0.110			74	77	0.172	15
C1,C2	3	3.40	C	1	15		N	1955	10		35	45	1.00	1777			1777	0.025	0.025		17	17	0.179	8
C2	3	3.40	C	1	25			2095			50	50	1.00	1976			1976	0.025			17	17	0.179	9
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008		5	5	0.191	3
Gp																				6				

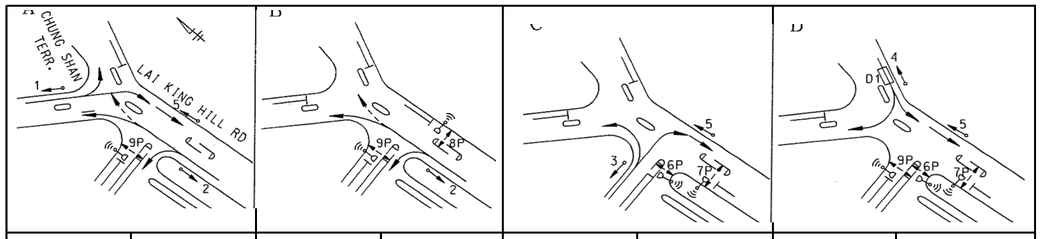
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2035 PM TRAFFIC FLOW
BASELINE SCENARIO

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng			PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace		J2_BASE_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.142
Loss time		L =	16 sec
Total Flow		=	735 pcu
Co	= (1.5*L+5)/(1-Y)	=	33.8 sec
Cm	= L/(1-Y)	=	18.7 sec
Yult		=	0.780
R.C.ult	= (Yult-Y)/Y*100%	=	448.3 %
Cp	= 0.9*L/(0.9-Y)	=	19.0 sec
Ymax	= 1-L/C	=	0.867
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	448 %



STAGE 1	INT=	STAGE 2	INT= 7	STAGE 3	INT= 7	STAGE 4	INT= 5

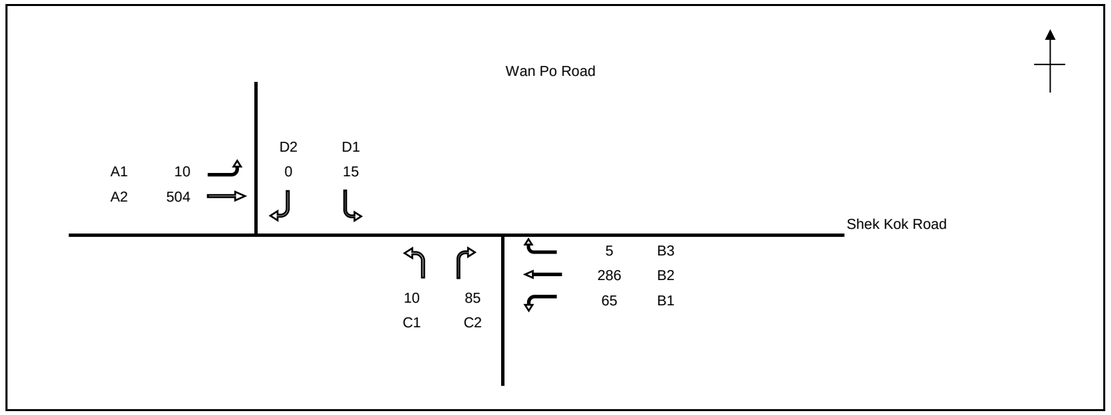
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	19	3	6	OK
Fp	6.8	5	1	6	21	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	94	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1, A2	1	3.40	A	1	10		N	1955	20	152		172	0.12	1921			1921	0.090			65	65	0.165	16
A2	1	3.40	A	1				2095		188		188	0.00	2095			2095	0.090			66	66	0.163	17
B1	1,2	3.40	B	1	15		N	1955	80			80	1.00	1777			1777	0.045	0.118		33	86	0.063	5
B2,B3	1,2	3.40	B	1	15	O		2095		220	0	220	0.00	1865			1865	0.118			86	86	0.165	12
C1,C2	3	3.40	C	1	15		N	1955	5		24	29	1.00	1777			1777	0.016	0.016		12	12	0.163	5
C2	3	3.40	C	1	25			2095			31	31	1.00	1976			1976	0.016			11	12	0.157	6
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008		6	6	0.160	3

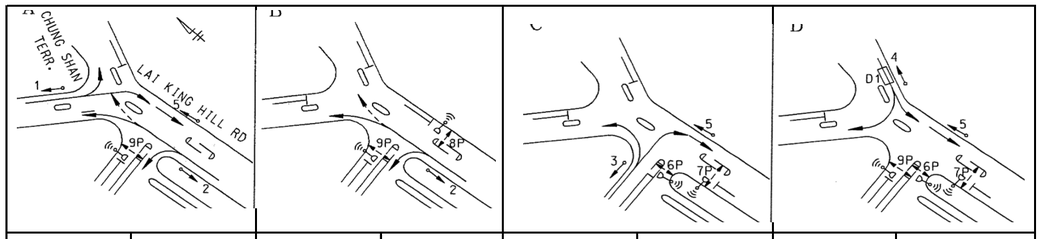
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2035 AM TRAFFIC FLOW
REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace	J2_REF_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.161
Loss time		L =	39 sec
Total Flow		=	980 pcu
Co	= (1.5*L+5)/(1-Y)	=	75.7 sec
Cm	= L/(1-Y)	=	46.5 sec
Yult		=	0.608
R.C.ult	= (Yult-Y)/Y*100%	=	277.9 %
Cp	= 0.9*L/(0.9-Y)	=	47.5 sec
Ymax	= 1-L/C	=	0.675
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	278 %



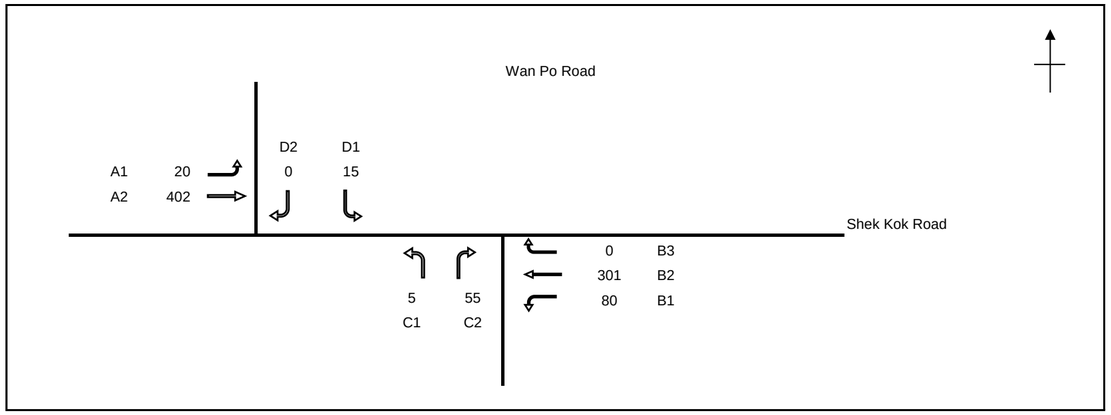
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	20	3	6	OK
Fp	6.8	5	1	6	22	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	93	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1, A2	1	3.40	A	1	10		N	1955	10	237		247	0.04	1943			1943	0.127	0.127		64	64	0.238	23
A2	1	3.40	A	1				2095		267		267	0.00	2095			2095	0.127			64	64	0.239	25
B1	1,2	3.40	B	1	15		N	1955	65			65	1.00	1777			1777	0.037			18	81	0.054	4
B2,B3	1,2	3.40	B	1	15	O		2095		286	5	291	0.02	1862			1862	0.156			79	81	0.232	19
C1,C2	3	3.40	C	1	15		N	1955	10		35	45	1.00	1777			1777	0.025	0.025		13	13	0.234	8
C2	3	3.40	C	1	25			2095			50	50	1.00	1976			1976	0.025			13	13	0.234	9
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008	2	4	6	0.160	3
Gp																				6				

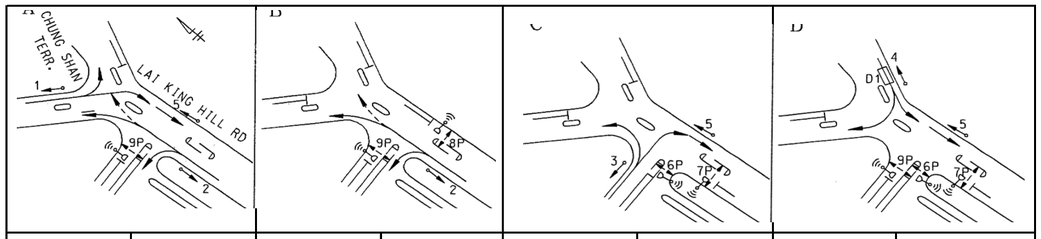
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2035 PM TRAFFIC FLOW
REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace	J2_REF_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.186
Loss time		L =	18 sec
Total Flow		=	878 pcu
Co	= (1.5*L+5)/(1-Y)	=	39.3 sec
Cm	= L/(1-Y)	=	22.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	312.3 %
Cp	= 0.9*L/(0.9-Y)	=	22.7 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	312 %



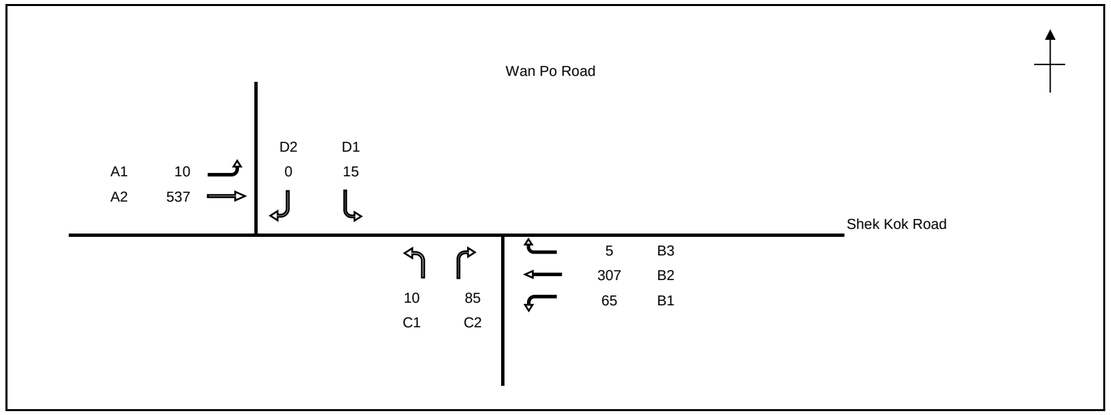
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	16	3	6	OK
Fp	6.8	5	1	6	18	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	97	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1, A2	1	3.40	A	1	10		N	1955	20	183		203	0.10	1927			1927	0.105			58	58	0.218	21
A2	1	3.40	A	1				2095		219		219	0.00	2095			2095	0.105			57	57	0.220	23
B1	1,2	3.40	B	1	15		N	1955	80			80	1.00	1777			1777	0.045	0.161		25	89	0.061	4
B2,B3	1,2	3.40	B	1	15	O		2095		301	0	301	0.00	1865			1865	0.161			89	89	0.218	16
C1,C2	3	3.40	C	1	15		N	1955	5		23	28	1.00	1777			1777	0.016	0.016		9	9	0.210	5
C2	3	3.40	C	1	25			2095			32	32	1.00	1976			1976	0.016			9	9	0.216	6
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008	2	4	6	0.160	3

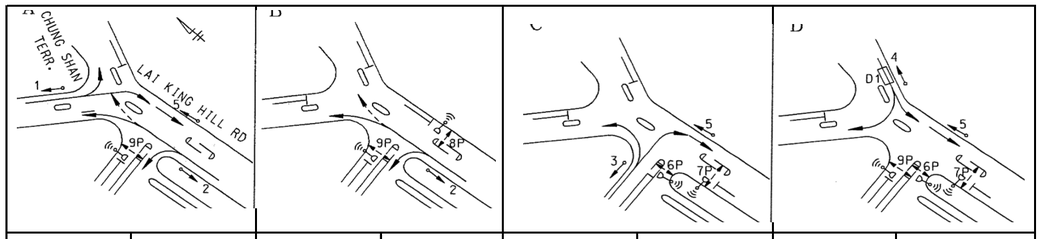
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2035 AM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace	J2_DES_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.169
Loss time		L =	39 sec
Total Flow		=	1034 pcu
Co	= (1.5*L+5)/(1-Y)	=	76.4 sec
Cm	= L/(1-Y)	=	46.9 sec
Yult		=	0.608
R.C.ult	= (Yult-Y)/Y*100%	=	259.8 %
Cp	= 0.9*L/(0.9-Y)	=	48.0 sec
Ymax	= 1-L/C	=	0.675
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	260 %



STAGE 1	INT= 12	STAGE 2	INT= 10	STAGE 3	INT= 7	STAGE 4	INT= 5

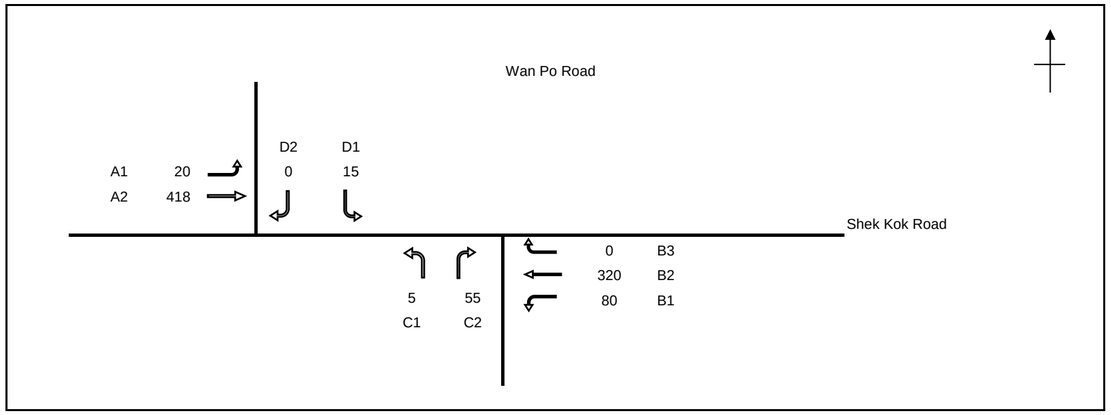
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	19	3	6	OK
Fp	6.8	5	1	6	21	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	94	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1, A2	1	3.40	A	1	10		N	1955	10	253		263	0.04	1944			1944	0.135	0.136		65	65	0.250	24
A2	1	3.40	A	1				2095		284		284	0.00	2095			2095	0.136			65	65	0.250	26
B1	1,2	3.40	B	1	15		N	1955	65			65	1.00	1777			1777	0.037			18	82	0.054	4
B2,B3	1,2	3.40	B	1	15	O		2095		307	5	312	0.02	1862			1862	0.168			80	82	0.245	20
C1,C2	3	3.40	C	1	15		N	1955	10		35	45	1.00	1777			1777	0.025	0.025		12	12	0.253	8
C2	3	3.40	C	1	25			2095			50	50	1.00	1976			1976	0.025			12	12	0.253	9
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008	2	4	6	0.160	3
Gp																				6				

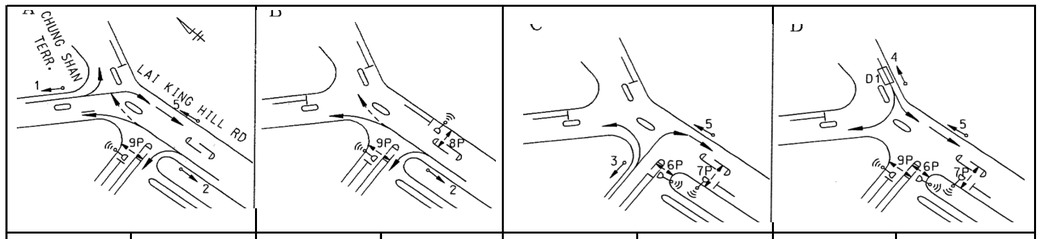
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J2 YEAR 2035 PM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J2
Lai King Hill Road / Chung Shan Terrace	J2_DES_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.196
Loss time		L =	18 sec
Total Flow		=	913 pcu
Co	= (1.5*L+5)/(1-Y)	=	39.8 sec
Cm	= L/(1-Y)	=	22.4 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	290.5 %
Cp	= 0.9*L/(0.9-Y)	=	23.0 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	291 %



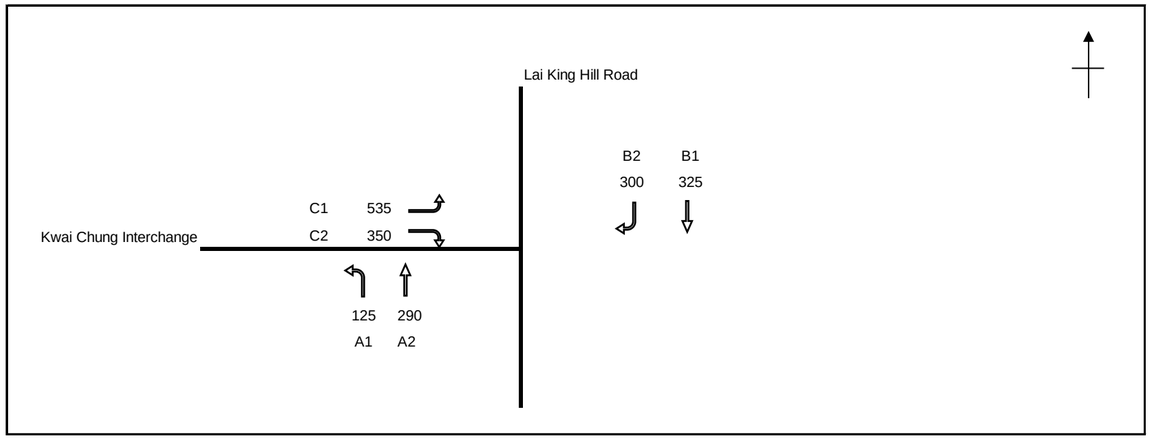
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	6.8	5	3	6	15	3	6	OK
Fp	6.8	5	1	6	17	1	6	OK
Gp	7	6	3	6	6	3	6	OK
Hp	7.3	7	1	7	97	1	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1, A2	1	3.40	A	1	10		N	1955	20	191		211	0.09	1928			1928	0.109			57	57	0.230	22
A2	1	3.40	A	1				2095		227		227	0.00	2095			2095	0.108			56	56	0.232	24
B1	1,2	3.40	B	1	15		N	1955	80			80	1.00	1777			1777	0.045	0.172		23	89	0.061	4
B2,B3	1,2	3.40	B	1	15	O		2095		320	0	320	0.00	1865			1865	0.172			89	89	0.231	17
C1,C2	3	3.40	C	1	15		N	1955	5		24	29	1.00	1777			1777	0.016	0.016		8	8	0.245	5
C2	3	3.40	C	1	25			2095			31	31	1.00	1976			1976	0.016			8	8	0.235	6
D1,D2	4	5.00	D	1	12		N	2115	15		0	15	1.00	1880			1880	0.008	0.008	2	4	6	0.160	3

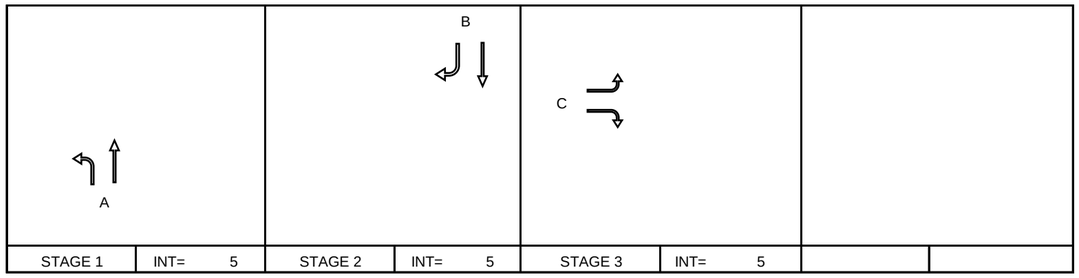
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2024 AM TRAFFIC FLOW
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_OBS_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.629
Loss time		L =	12 sec
Total Flow		=	1925 pcu
Co	= (1.5*L+5)/(1-Y)	=	62.0 sec
Cm	= L/(1-Y)	=	32.4 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	28.8 %
Cp	= 0.9*L/(0.9-Y)	=	39.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	29 %



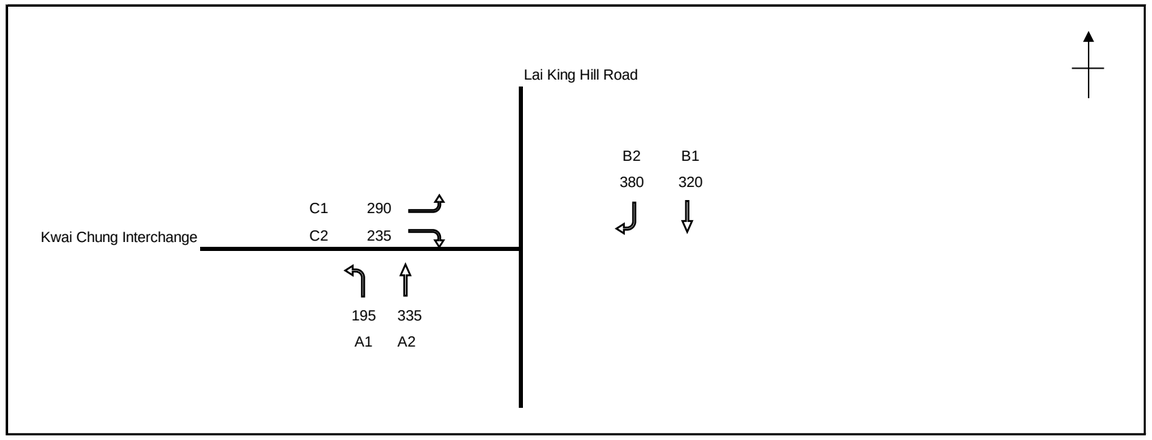
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	125			125	1.00	1809			1809	0.069	0.136		12	23	0.360	20
A2	1	3.75	A	1				2130		290		290	0.00	2130			2130	0.136			23	23	0.710	47
B1	2	3.30	B	1			N	1945		325		325	0.00	1945			1945	0.167	0.167		29	29	0.691	49
B2	2	3.30	B	1	20			2085			300	300	1.00	1940			1940	0.155			27	29	0.640	46
C1	3	3.50	C	1	18		N	1965	535			535	1.00	1814	4.10%	-172	1642	0.326	0.326		56	56	0.698	57
C2	3	3.50	C	1	25			2105			350	350	1.00	1986	4.10%	-172	1814	0.193			33	56	0.413	37

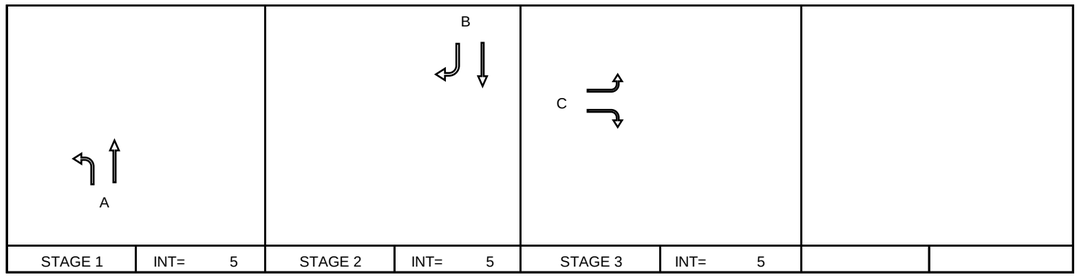
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2024 PM TRAFFIC FLOW
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_OBS_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.530
Loss time		L =	12 sec
Total Flow		=	1755 pcu
Co	= (1.5*L+5)/(1-Y)	=	48.9 sec
Cm	= L/(1-Y)	=	25.5 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	52.9 %
Cp	= 0.9*L/(0.9-Y)	=	29.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	53 %



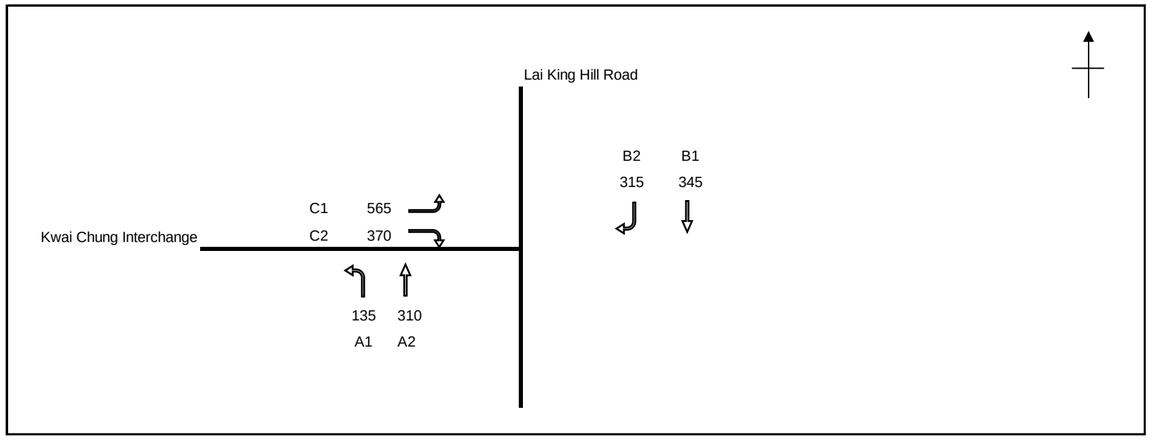
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	195			195	1.00	1809			1809	0.108	0.157		22	32	0.404	29
A2	1	3.75	A	1				2130		335		335	0.00	2130			2130	0.157			32	32	0.590	49
B1	2	3.30	B	1			N	1945		320		320	0.00	1945			1945	0.165	0.196		34	40	0.494	43
B2	2	3.30	B	1	20			2085			380	380	1.00	1940			1940	0.196			40	40	0.588	51
C1	3	3.50	C	1	18		N	1965	290			290	1.00	1814	4.10%	-172	1642	0.177	0.177		36	36	0.589	41
C2	3	3.50	C	1	25			2105			235	235	1.00	1986	4.10%	-172	1814	0.130			26	36	0.432	33

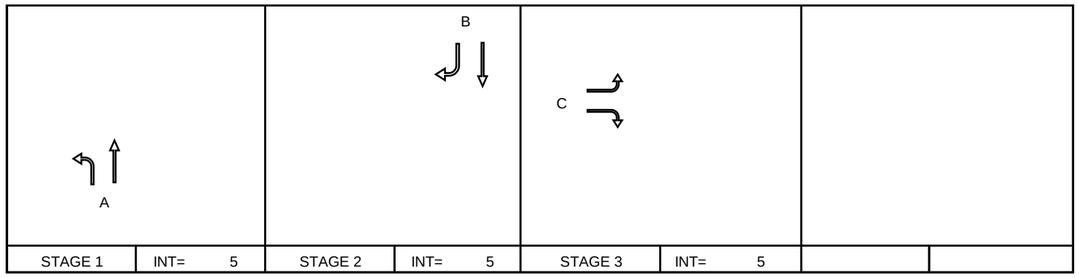
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
BASELINE SCENARIO
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_BASE_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.667
Loss time		L =	12 sec
Total Flow		=	2040 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.1 sec
Cm	= L/(1-Y)	=	36.0 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	21.4 %
Cp	= 0.9*L/(0.9-Y)	=	46.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21 %



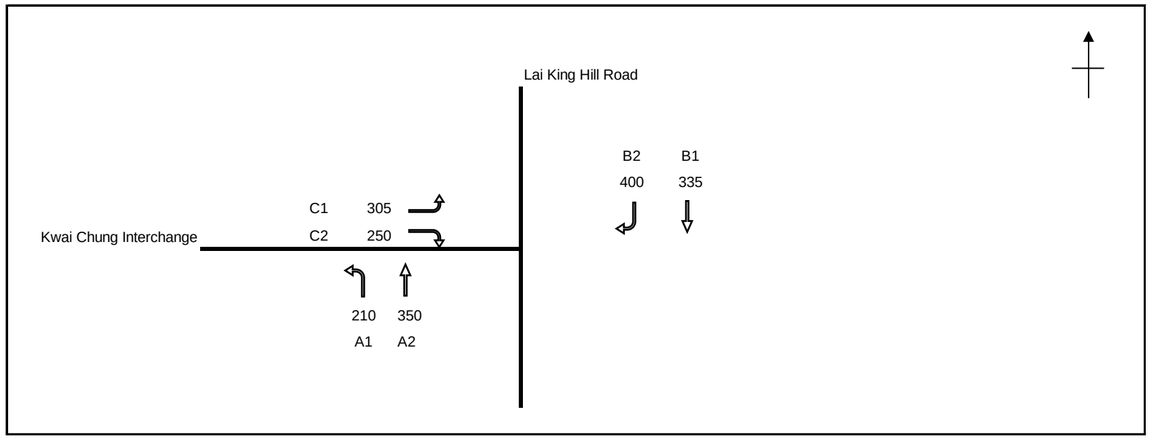
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	135			135	1.00	1809			1809	0.075	0.146		12	24	0.373	22
A2	1	3.75	A	1				2130		310		310	0.00	2130			2130	0.146			24	24	0.728	50
B1	2	3.30	B	1			N	1945		345		345	0.00	1945			1945	0.177	0.177		29	29	0.734	52
B2	2	3.30	B	1	20			2085			315	315	1.00	1940			1940	0.162			26	29	0.672	48
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		56	56	0.737	60
C2	3	3.50	C	1	25			2105			370	370	1.00	1986	4.10%	-172	1814	0.204			33	56	0.437	39

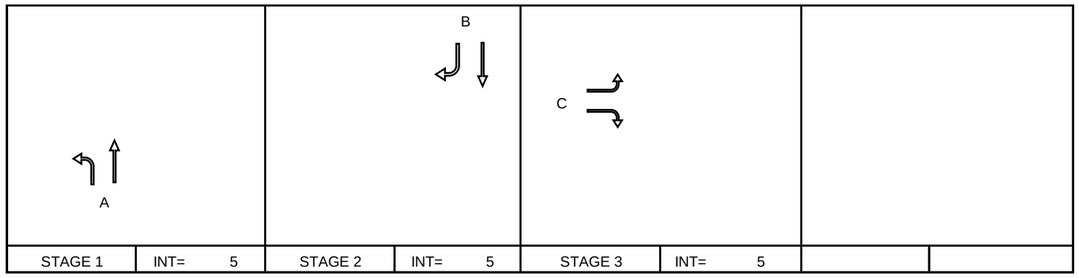
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
BASELINE SCENARIO
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_BASE_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.556
Loss time		L =	12 sec
Total Flow		=	1850 pcu
Co	= (1.5*L+5)/(1-Y)	=	51.8 sec
Cm	= L/(1-Y)	=	27.0 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	45.6 %
Cp	= 0.9*L/(0.9-Y)	=	31.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	46 %



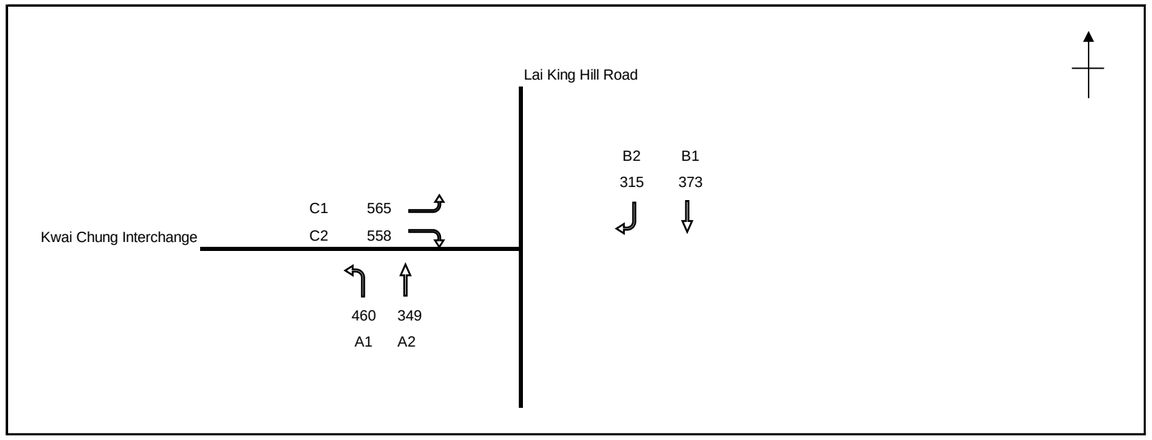
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	210			210	1.00	1809			1809	0.116	0.164		23	32	0.435	31
A2	1	3.75	A	1				2130		350		350	0.00	2130			2130	0.164			32	32	0.616	51
B1	2	3.30	B	1			N	1945		335		335	0.00	1945			1945	0.172	0.206		33	40	0.517	45
B2	2	3.30	B	1	20			2085			400	400	1.00	1940			1940	0.206			40	40	0.619	53
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.186		36	36	0.619	43
C2	3	3.50	C	1	25			2105			250	250	1.00	1986	4.10%	-172	1814	0.138			27	36	0.459	35

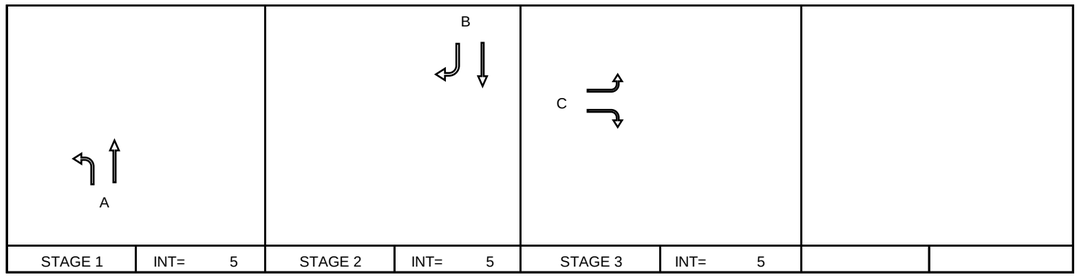
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
REFERENCE SCENARIO
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_REF_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.790
Loss time		L =	12 sec
Total Flow		=	2620 pcu
Co	= (1.5*L+5)/(1-Y)	=	109.6 sec
Cm	= L/(1-Y)	=	57.2 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	2.5 %
Cp	= 0.9*L/(0.9-Y)	=	98.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	3 %



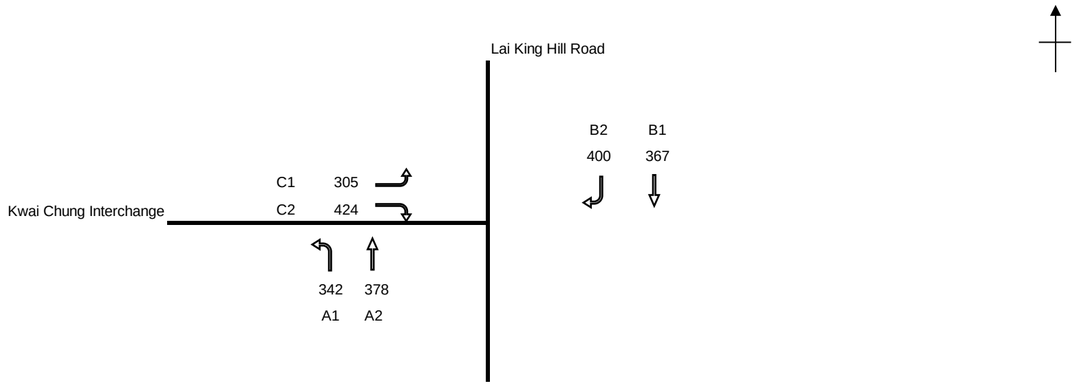
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	460			460	1.00	1809			1809	0.254	0.254		35	35	0.872	65
A2	1	3.75	A	1				2130		349		349	0.00	2130			2130	0.164			22	35	0.562	49
B1	2	3.30	B	1			N	1945		373		373	0.00	1945			1945	0.192	0.192		26	26	0.885	58
B2	2	3.30	B	1	20			2085			315	315	1.00	1940			1940	0.162			22	26	0.750	49
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		47	47	0.879	69
C2	3	3.50	C	1	25			2105			558	558	1.00	1986	4.10%	-172	1814	0.308			42	47	0.785	68

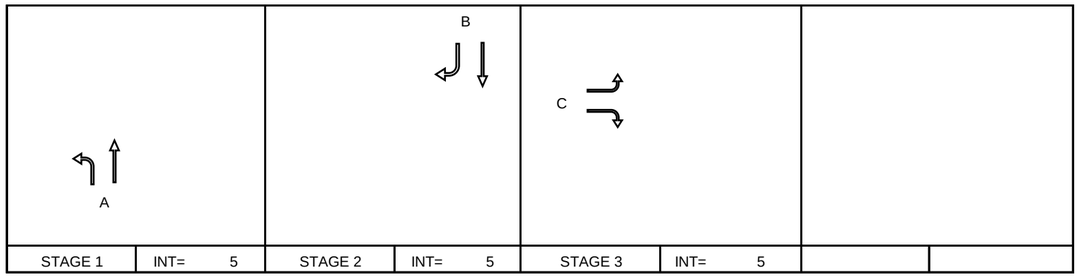
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
REFERENCE SCENARIO
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_REF_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.629
Loss time		L =	12 sec
Total Flow		=	2216 pcu
Co	= (1.5*L+5)/(1-Y)	=	62.0 sec
Cm	= L/(1-Y)	=	32.3 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	28.8 %
Cp	= 0.9*L/(0.9-Y)	=	39.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	29 %



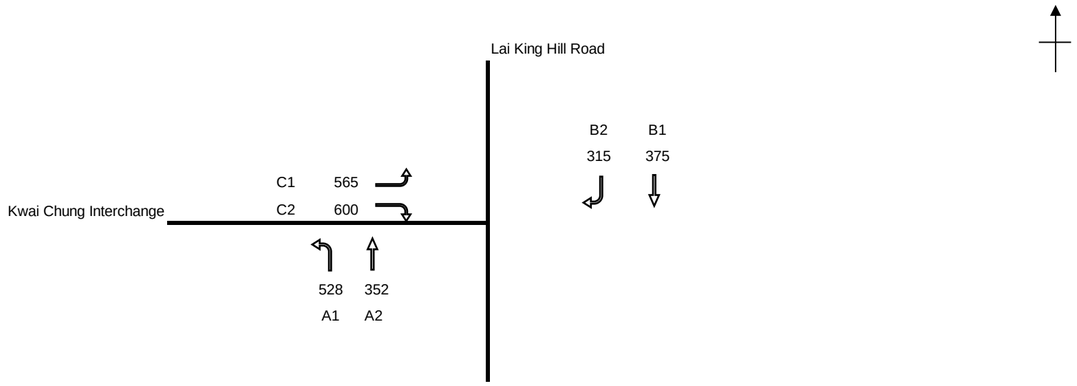
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	342			342	1.00	1809			1809	0.189	0.189		32	32	0.709	50
A2	1	3.75	A	1				2130		378		378	0.00	2130			2130	0.177			30	32	0.665	55
B1	2	3.30	B	1			N	1945		367		367	0.00	1945			1945	0.189	0.206		32	35	0.647	52
B2	2	3.30	B	1	20			2085			400	400	1.00	1940			1940	0.206			35	35	0.707	57
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.234		32	40	0.557	41
C2	3	3.50	C	1	25			2105			424	424	1.00	1986	4.10%	-172	1814	0.234			40	40	0.701	57

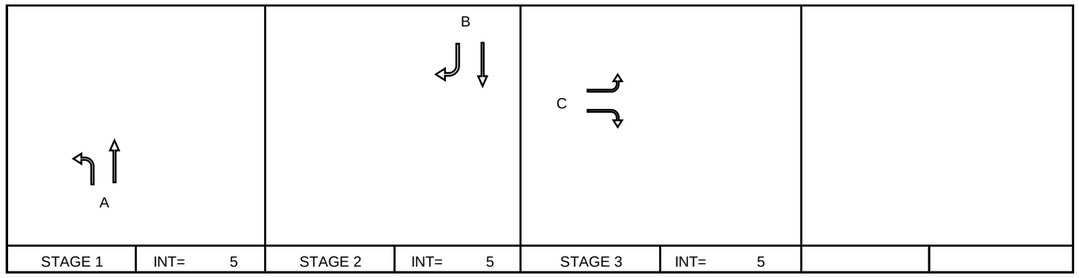
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
DESIGN SCENARIO
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_DES_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.829
Loss time		L =	12 sec
Total Flow		=	2735 pcu
Co	= (1.5*L+5)/(1-Y)	=	134.3 sec
Cm	= L/(1-Y)	=	70.1 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	-2.3 %
Cp	= 0.9*L/(0.9-Y)	=	151.7 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-2 %



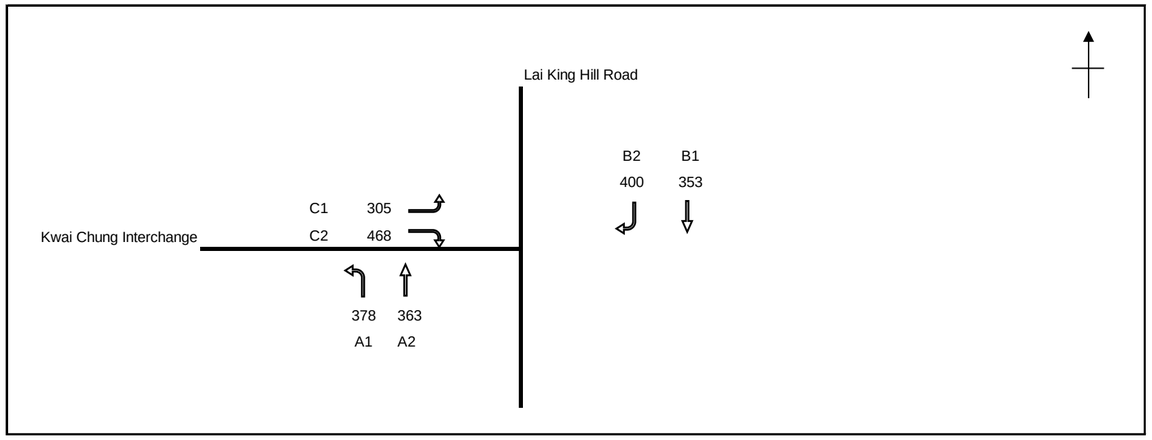
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	528			528	1.00	1809			1809	0.292	0.292		38	38	0.922	72
A2	1	3.75	A	1				2130		352		352	0.00	2130			2130	0.165			22	38	0.522	48
B1	2	3.30	B	1			N	1945		375		375	0.00	1945			1945	0.193	0.193		25	25	0.925	66
B2	2	3.30	B	1	20			2085			315	315	1.00	1940			1940	0.162			21	25	0.780	50
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		45	45	0.918	71
C2	3	3.50	C	1	25			2105			600	600	1.00	1986	4.10%	-172	1814	0.331			43	45	0.882	75

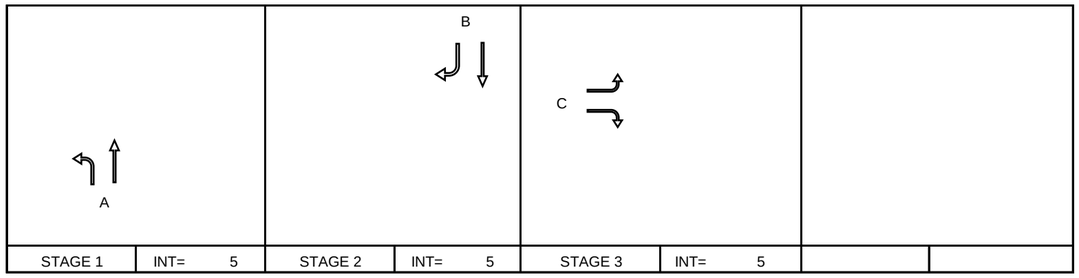
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
DESIGN SCENARIO
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_DES_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.673
Loss time		L =	12 sec
Total Flow		=	2267 pcu
Co	= (1.5*L+5)/(1-Y)	=	70.4 sec
Cm	= L/(1-Y)	=	36.7 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	20.3 %
Cp	= 0.9*L/(0.9-Y)	=	47.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20 %



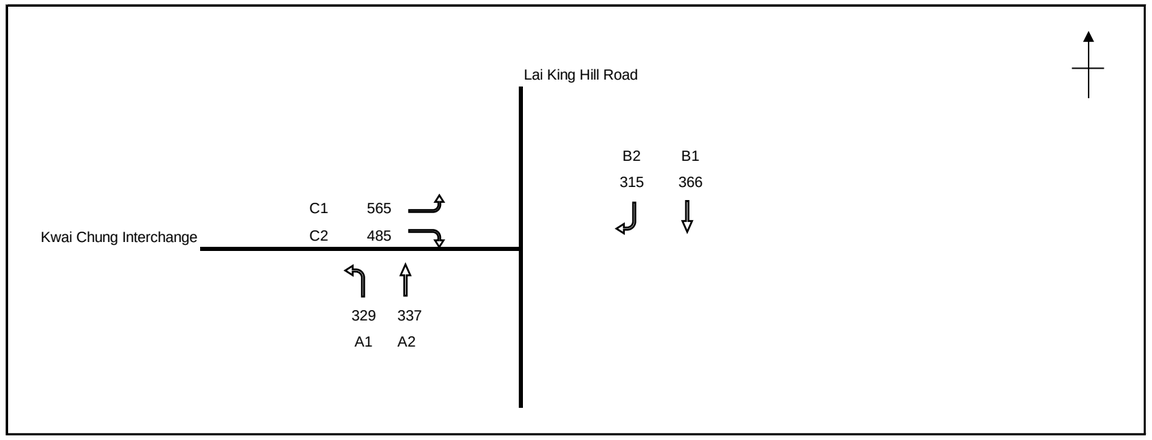
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	378			378	1.00	1809			1809	0.209	0.209		34	34	0.737	54
A2	1	3.75	A	1				2130		363		363	0.00	2130			2130	0.170			27	34	0.601	52
B1	2	3.30	B	1			N	1945		353		353	0.00	1945			1945	0.181	0.206		29	33	0.660	51
B2	2	3.30	B	1	20			2085			400	400	1.00	1940			1940	0.206			33	33	0.750	58
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.258		30	41	0.544	40
C2	3	3.50	C	1	25			2105			468	468	1.00	1986	4.10%	-172	1814	0.258			41	41	0.755	62

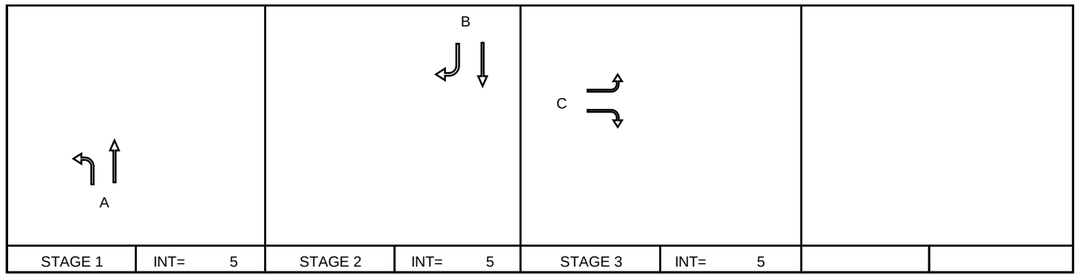
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO A
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_A_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.714
Loss time		L =	12 sec
Total Flow		=	2397 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.5 sec
Cm	= L/(1-Y)	=	42.0 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	13.4 %
Cp	= 0.9*L/(0.9-Y)	=	58.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	13 %



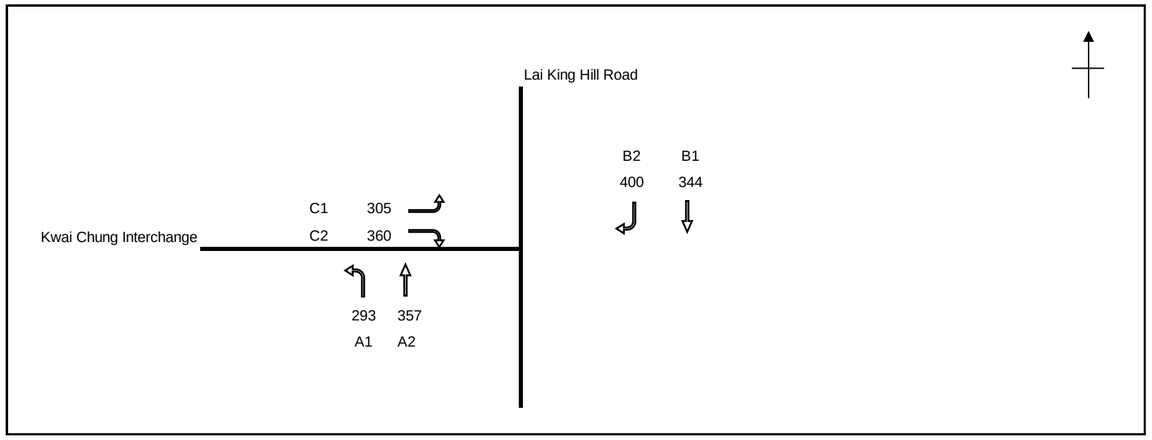
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	329			329	1.00	1809			1809	0.182	0.182		28	28	0.779	50
A2	1	3.75	A	1				2130		337		337	0.00	2130			2130	0.158			24	28	0.678	52
B1	2	3.30	B	1			N	1945		366		366	0.00	1945			1945	0.188	0.188		28	28	0.806	56
B2	2	3.30	B	1	20			2085			315	315	1.00	1940			1940	0.162			25	28	0.696	48
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		52	52	0.794	64
C2	3	3.50	C	1	25			2105			485	485	1.00	1986	4.10%	-172	1814	0.267			40	52	0.617	55

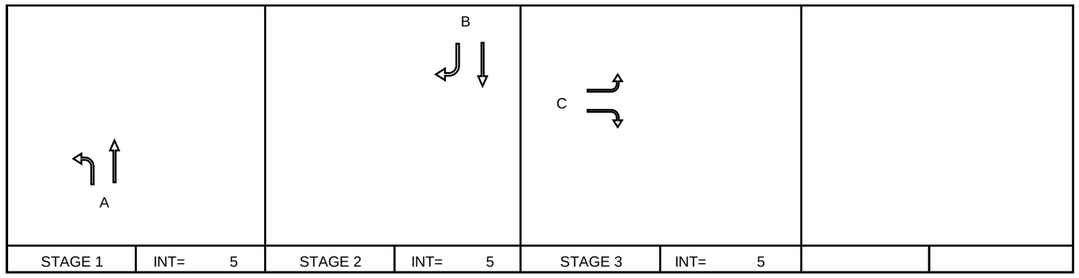
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO A
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_A_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.572
Loss time		L =	12 sec
Total Flow		=	2059 pcu
Co	= (1.5*L+5)/(1-Y)	=	53.8 sec
Cm	= L/(1-Y)	=	28.1 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	41.5 %
Cp	= 0.9*L/(0.9-Y)	=	33.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	42 %



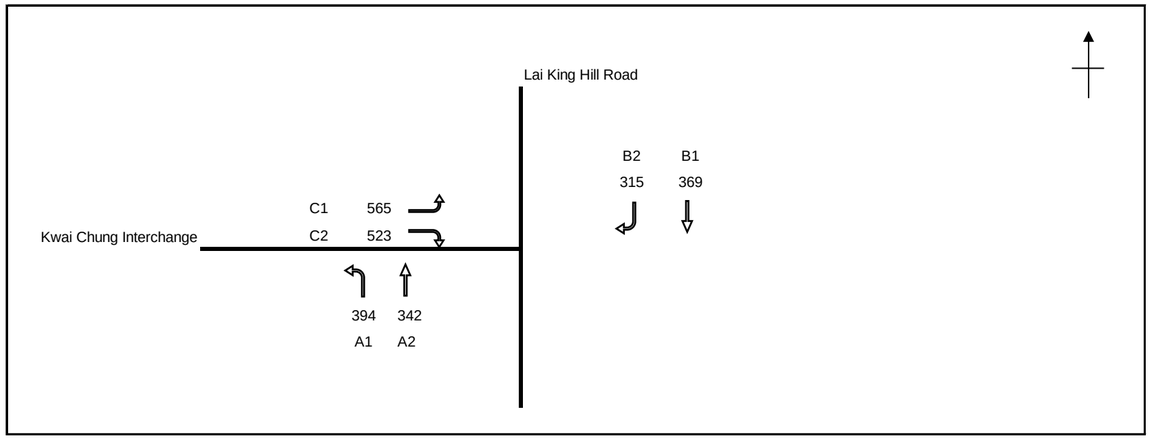
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	293			293	1.00	1809			1809	0.162	0.168		31	32	0.607	43
A2	1	3.75	A	1				2130		357		357	0.00	2130			2130	0.168			32	32	0.629	52
B1	2	3.30	B	1			N	1945		344		344	0.00	1945			1945	0.177	0.206		33	39	0.544	46
B2	2	3.30	B	1	20			2085			400	400	1.00	1940			1940	0.206			39	39	0.635	54
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.198		35	37	0.602	42
C2	3	3.50	C	1	25			2105			360	360	1.00	1986	4.10%	-172	1814	0.198			37	37	0.644	50

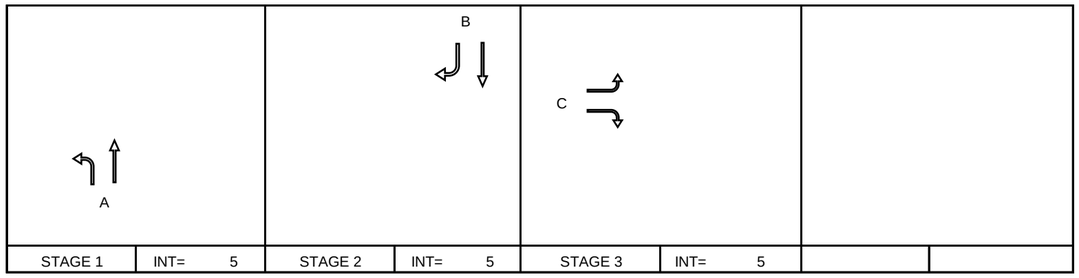
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO B
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_B_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.752
Loss time		L =	12 sec
Total Flow		=	2508 pcu
Co	= (1.5*L+5)/(1-Y)	=	92.6 sec
Cm	= L/(1-Y)	=	48.3 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	7.8 %
Cp	= 0.9*L/(0.9-Y)	=	72.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8 %



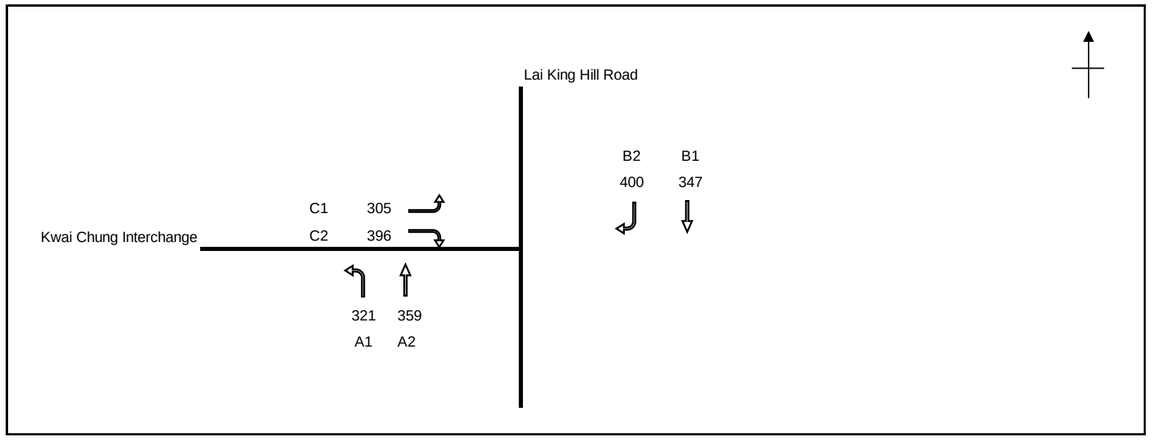
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	394			394	1.00	1809			1809	0.218	0.218		31	31	0.843	58
A2	1	3.75	A	1				2130		342		342	0.00	2130			2130	0.161			23	31	0.622	51
B1	2	3.30	B	1			N	1945		369		369	0.00	1945			1945	0.190	0.190		27	27	0.843	57
B2	2	3.30	B	1	20			2085			315	315	1.00	1940			1940	0.162			23	27	0.722	49
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		49	49	0.843	67
C2	3	3.50	C	1	25			2105			523	523	1.00	1986	4.10%	-172	1814	0.288			41	49	0.706	62

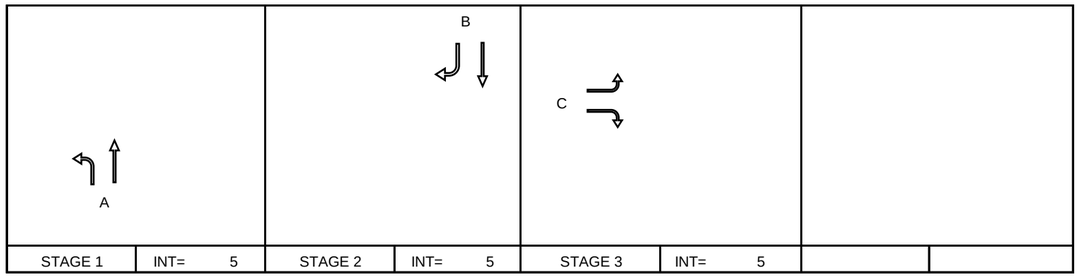
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO B
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_B_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.602
Loss time		L =	12 sec
Total Flow		=	2128 pcu
Co	= (1.5*L+5)/(1-Y)	=	57.8 sec
Cm	= L/(1-Y)	=	30.2 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	34.6 %
Cp	= 0.9*L/(0.9-Y)	=	36.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	35 %



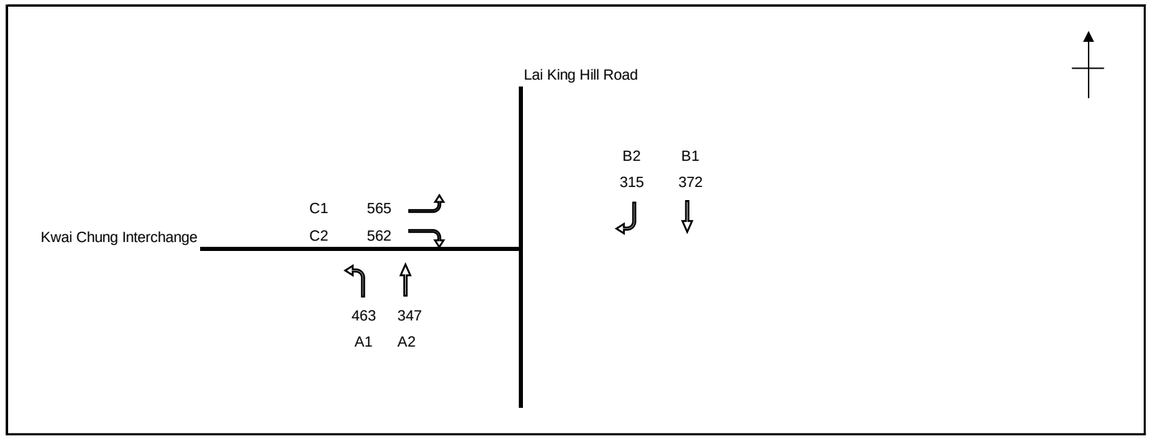
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	321			321	1.00	1809			1809	0.177	0.177		32	32	0.665	47
A2	1	3.75	A	1				2130		359		359	0.00	2130			2130	0.169			30	32	0.632	53
B1	2	3.30	B	1			N	1945		347		347	0.00	1945			1945	0.178	0.206		32	37	0.579	48
B2	2	3.30	B	1	20			2085			400	400	1.00	1940			1940	0.206			37	37	0.669	55
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.218		33	39	0.572	41
C2	3	3.50	C	1	25			2105			396	396	1.00	1986	4.10%	-172	1814	0.218			39	39	0.672	53

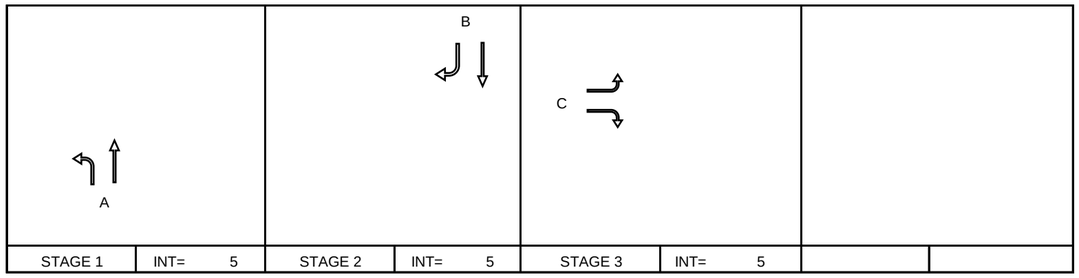
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO C
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_C_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.791
Loss time		L =	12 sec
Total Flow		=	2624 pcu
Co	= (1.5*L+5)/(1-Y)	=	110.2 sec
Cm	= L/(1-Y)	=	57.5 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	2.4 %
Cp	= 0.9*L/(0.9-Y)	=	99.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	2 %



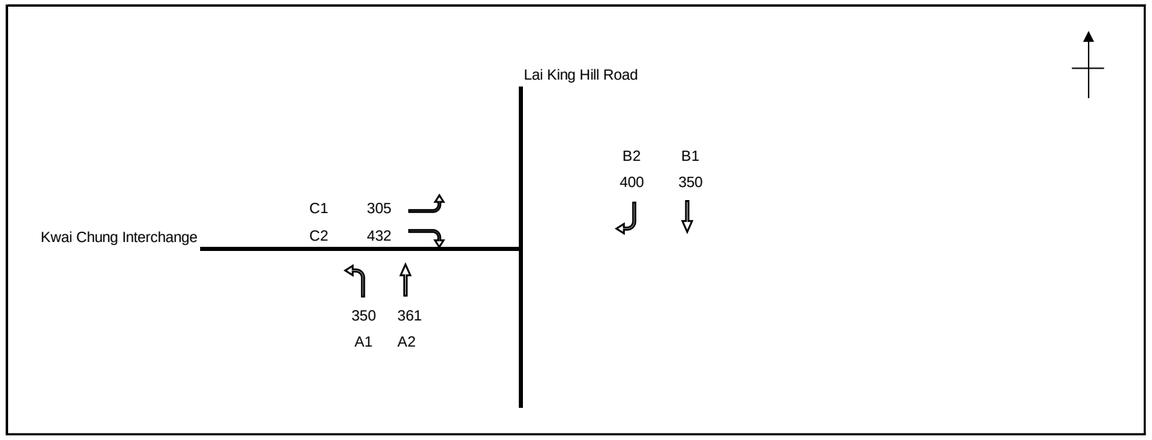
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	463			463	1.00	1809			1809	0.256	0.256		35	35	0.877	66
A2	1	3.75	A	1				2130		347		347	0.00	2130			2130	0.163			22	35	0.559	49
B1	2	3.30	B	1			N	1945		372		372	0.00	1945			1945	0.191	0.191		26	26	0.883	58
B2	2	3.30	B	1	20			2085			315	315	1.00	1940			1940	0.162			22	26	0.750	49
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		47	47	0.879	69
C2	3	3.50	C	1	25			2105			562	562	1.00	1986	4.10%	-172	1814	0.310			42	47	0.791	68

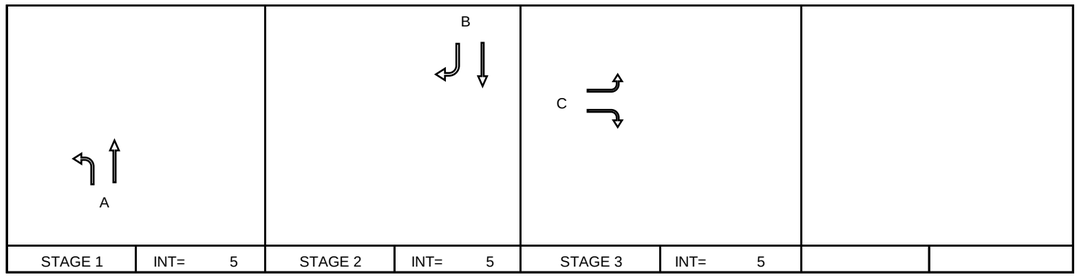
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO C
EXISTING LAYOUT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_C_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.638
Loss time		L =	12 sec
Total Flow		=	2198 pcu
Co	= (1.5*L+5)/(1-Y)	=	63.5 sec
Cm	= L/(1-Y)	=	33.1 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	27.0 %
Cp	= 0.9*L/(0.9-Y)	=	41.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	27 %



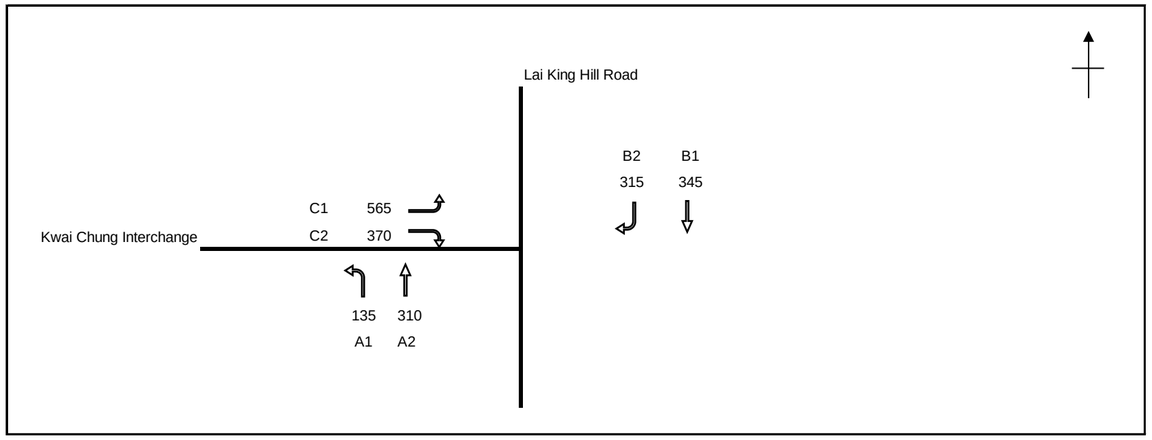
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	350			350	1.00	1809			1809	0.193	0.193		33	33	0.704	51
A2	1	3.75	A	1				2130		361		361	0.00	2130			2130	0.169			29	33	0.616	52
B1	2	3.30	B	1			N	1945		350		350	0.00	1945			1945	0.180	0.206		30	35	0.617	50
B2	2	3.30	B	1	20			2085			400	400	1.00	1940			1940	0.206			35	35	0.707	57
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.238		31	40	0.557	41
C2	3	3.50	C	1	25			2105			432	432	1.00	1986	4.10%	-172	1814	0.238			40	40	0.715	58

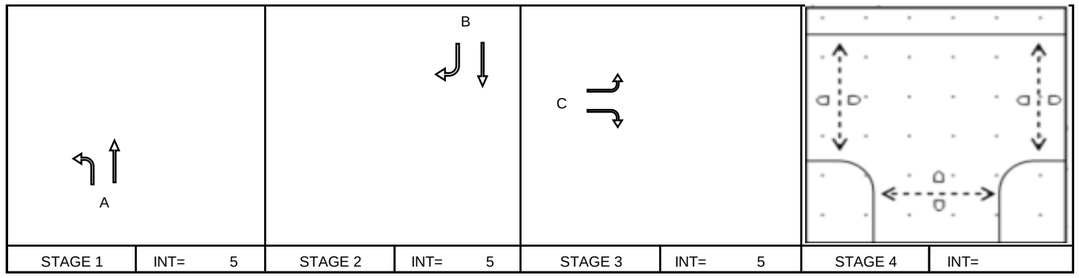
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
BASELINE SCENARIO
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_BASE_AM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.672
Loss time		L =	37 sec
Total Flow		=	2040 pcu
Co	= (1.5*L+5)/(1-Y)	=	184.6 sec
Cm	= L/(1-Y)	=	112.9 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-7.4 %
Cp	= 0.9*L/(0.9-Y)	=	146.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-7 %



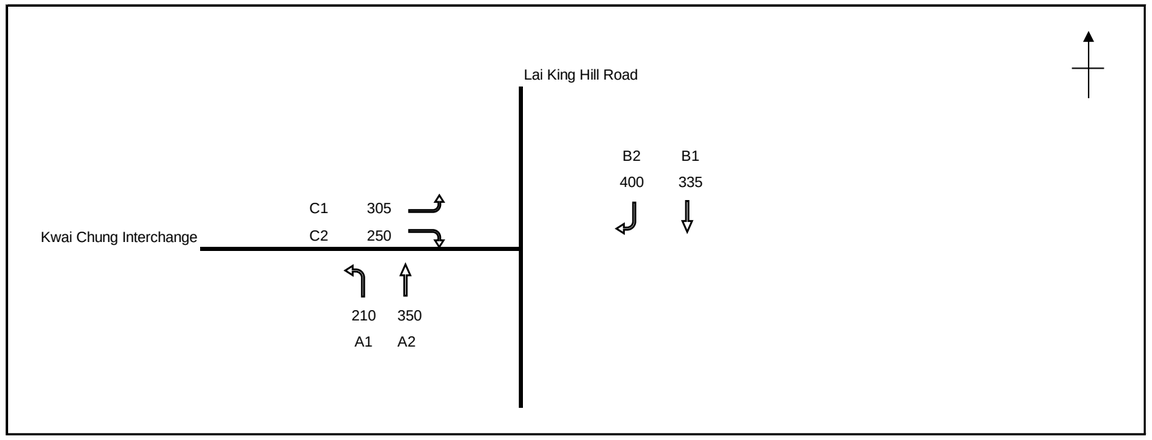
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	135			135	1.00	1809			1809	0.075	0.146		9	18	0.497	23
A2	1	3.75	A	1				2130		310		310	0.00	2130			2130	0.146			18	18	0.970	124
B1	2	3.30	B	1			N	1945		345		345	0.00	1945			1945	0.177	0.183		22	23	0.925	64
B2	2	3.30	B	1	20	O		2085			315	315	1.00	1726			1726	0.183			23	23	0.952	83
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		42	42	0.983	207
C2	3	3.50	C	1	25			2105			370	370	1.00	1986	4.10%	-172	1814	0.204			25	42	0.583	48
																				25				

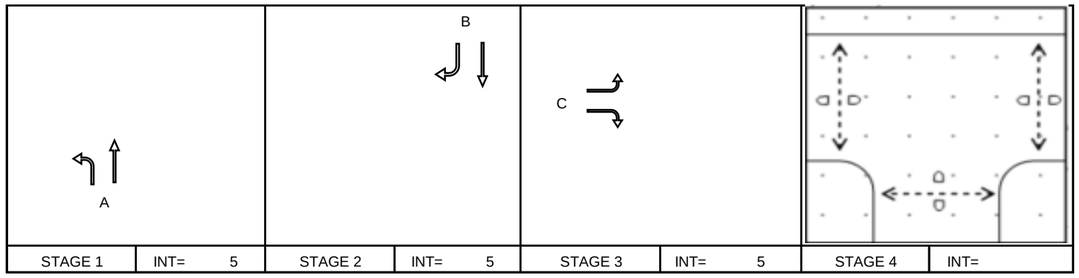
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
BASELINE SCENARIO
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_BASE_PM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.582
Loss time		L =	37 sec
Total Flow		=	1850 pcu
Co	= (1.5*L+5)/(1-Y)	=	144.7 sec
Cm	= L/(1-Y)	=	88.5 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	7.0 %
Cp	= 0.9*L/(0.9-Y)	=	104.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	7 %



STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT=

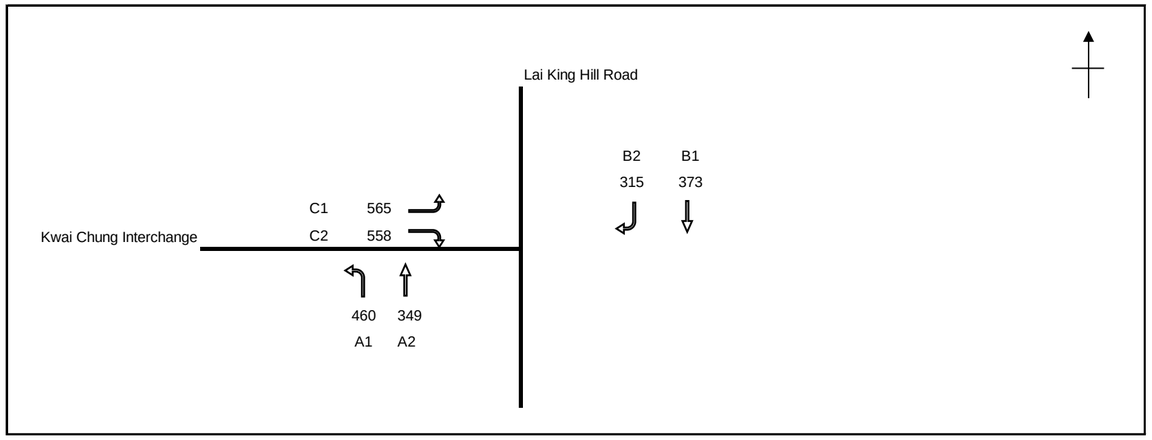
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	210			210	1.00	1809			1809	0.116	0.164		17	23	0.606	34
A2	1	3.75	A	1				2130		350		350	0.00	2130			2130	0.164			23	23	0.857	57
B1	2	3.30	B	1			N	1945		335		335	0.00	1945			1945	0.172	0.232		25	33	0.626	49
B2	2	3.30	B	1	20	O		2085			400	400	1.00	1726			1726	0.232			33	33	0.843	58
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.186		26	26	0.857	48
C2	3	3.50	C	1	25			2105			250	250	1.00	1986	4.10%	-172	1814	0.138			20	26	0.636	39
																				25				

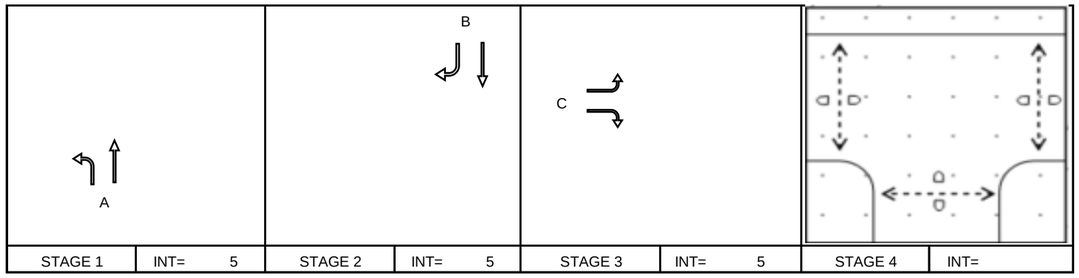
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
REFERENCE SCENARIO
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_REF_AM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.790
Loss time		L =	37 sec
Total Flow		=	2620 pcu
Co	= (1.5*L+5)/(1-Y)	=	288.3 sec
Cm	= L/(1-Y)	=	176.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-21.2 %
Cp	= 0.9*L/(0.9-Y)	=	303.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-21 %



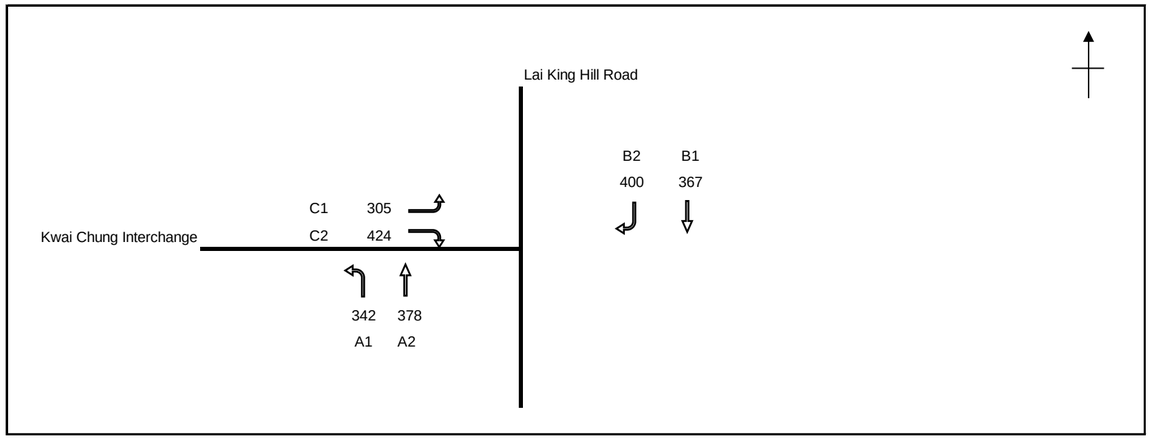
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	460			460	1.00	1809			1809	0.254	0.254		27	27	1.130	71
A2	1	3.75	A	1				2130		349		349	0.00	2130			2130	0.164			17	27	0.728	54
B1	2	3.30	B	1			N	1945		373		373	0.00	1945			1945	0.192	0.192		20	20	1.151	62
B2	2	3.30	B	1	20	O		2085			315	315	1.00	1726			1726	0.183			19	20	1.095	53
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		36	36	1.147	79
C2	3	3.50	C	1	25			2105			558	558	1.00	1986	4.10%	-172	1814	0.308			32	36	1.025	78
																				25				

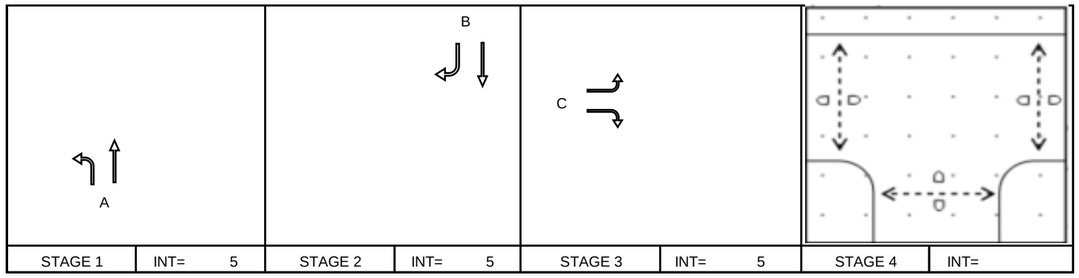
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
REFERENCE SCENARIO
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_REF_PM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.655
Loss time		L =	37 sec
Total Flow		=	2216 pcu
Co	= (1.5*L+5)/(1-Y)	=	175.2 sec
Cm	= L/(1-Y)	=	107.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-4.9 %
Cp	= 0.9*L/(0.9-Y)	=	135.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-5 %



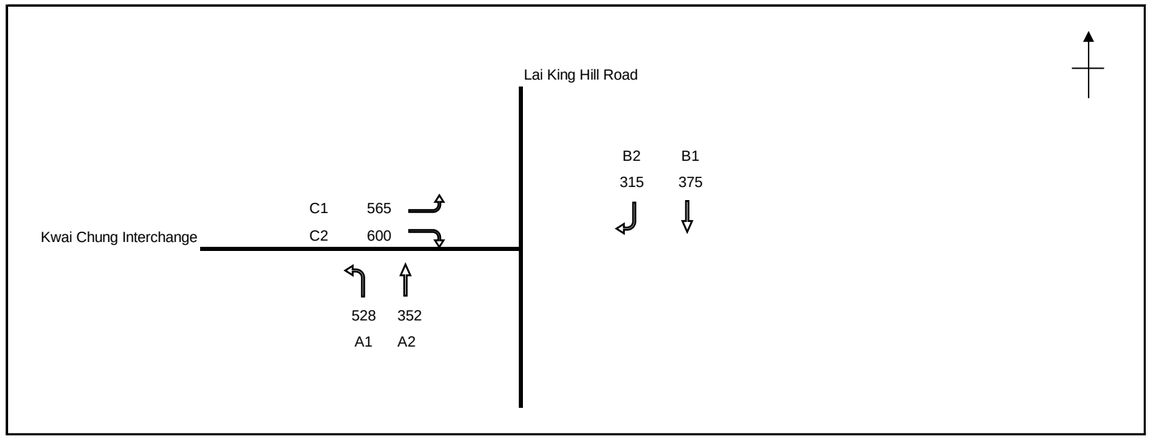
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	342			342	1.00	1809			1809	0.189	0.189		24	24	0.945	77
A2	1	3.75	A	1				2130		378		378	0.00	2130			2130	0.177			23	24	0.887	60
B1	2	3.30	B	1			N	1945		367		367	0.00	1945			1945	0.189	0.232		24	29	0.781	56
B2	2	3.30	B	1	20	O		2085			400	400	1.00	1726			1726	0.232			29	29	0.959	98
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.234		24	30	0.743	46
C2	3	3.50	C	1	25			2105			424	424	1.00	1986	4.10%	-172	1814	0.234			30	30	0.935	73
																				25				

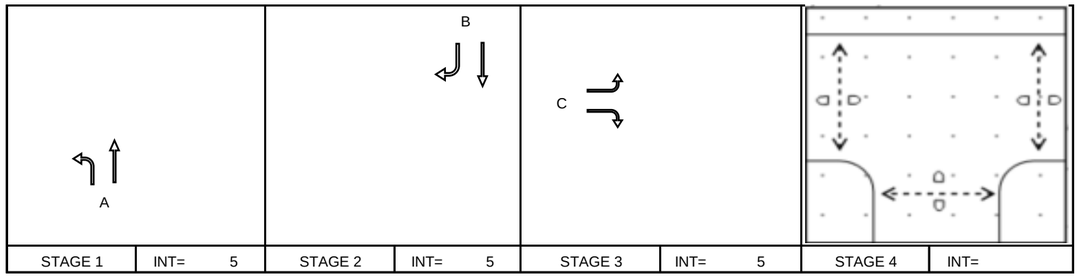
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
DESIGN SCENARIO
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_DES_AM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.829
Loss time		L =	37 sec
Total Flow		=	2735 pcu
Co	= (1.5*L+5)/(1-Y)	=	353.4 sec
Cm	= L/(1-Y)	=	216.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-24.9 %
Cp	= 0.9*L/(0.9-Y)	=	467.6 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-25 %



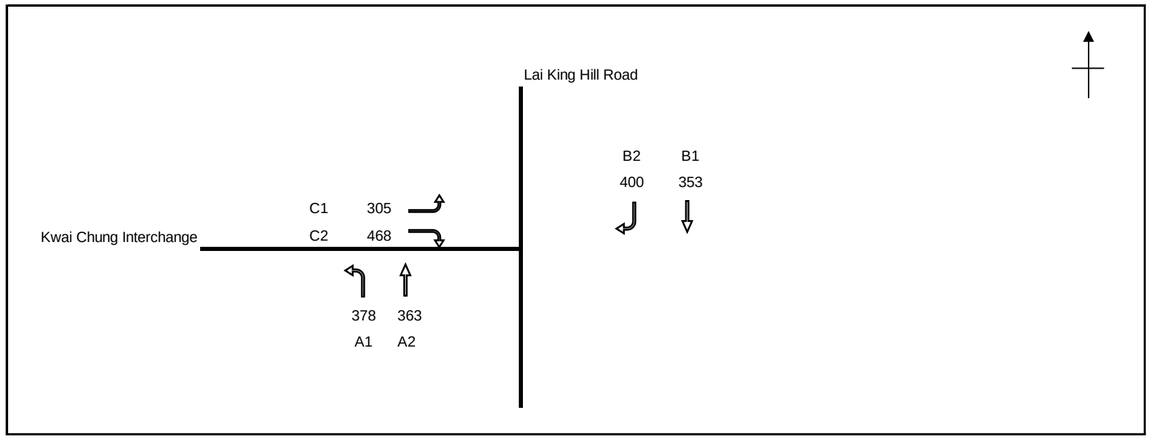
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	528			528	1.00	1809			1809	0.292	0.292		29	29	1.208	80
A2	1	3.75	A	1				2130		352		352	0.00	2130			2130	0.165			17	29	0.684	53
B1	2	3.30	B	1			N	1945		375		375	0.00	1945			1945	0.193	0.193		19	19	1.218	63
B2	2	3.30	B	1	20	O		2085			315	315	1.00	1726			1726	0.183			18	19	1.153	53
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		34	34	1.215	81
C2	3	3.50	C	1	25			2105			600	600	1.00	1986	4.10%	-172	1814	0.331			33	34	1.167	86
																				25				

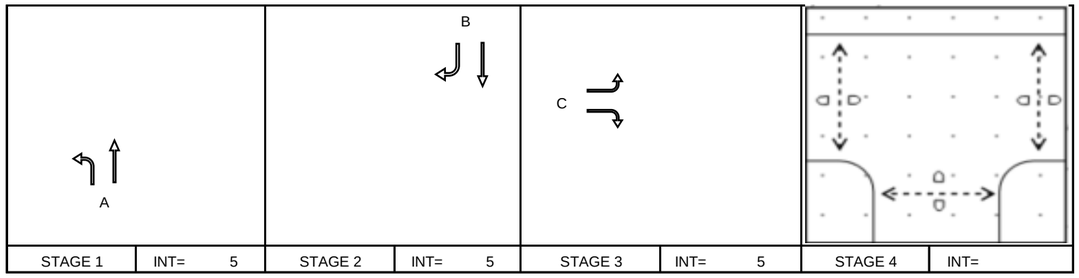
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
DESIGN SCENARIO
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_DES_PM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.699
Loss time		L =	37 sec
Total Flow		=	2267 pcu
Co	= (1.5*L+5)/(1-Y)	=	200.8 sec
Cm	= L/(1-Y)	=	122.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-10.9 %
Cp	= 0.9*L/(0.9-Y)	=	165.5 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-11 %



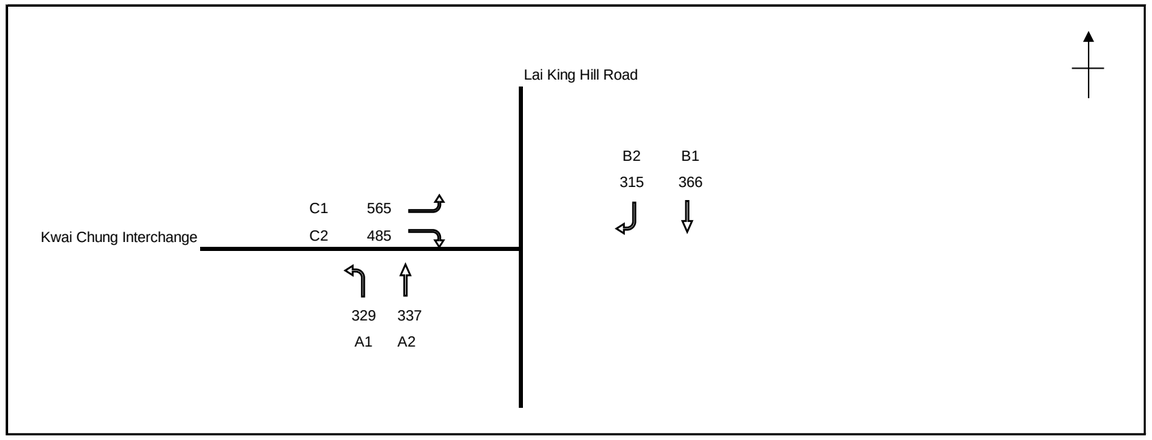
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	378			378	1.00	1809			1809	0.209	0.209		25	25	1.003	60
A2	1	3.75	A	1				2130		363		363	0.00	2130			2130	0.170			20	25	0.818	57
B1	2	3.30	B	1			N	1945		353		353	0.00	1945			1945	0.181	0.232		22	28	0.778	54
B2	2	3.30	B	1	20	O		2085			400	400	1.00	1726			1726	0.232			28	28	0.993	484
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.258		22	31	0.719	45
C2	3	3.50	C	1	25			2105			468	468	1.00	1986	4.10%	-172	1814	0.258			31	31	0.999	2465
																				25				

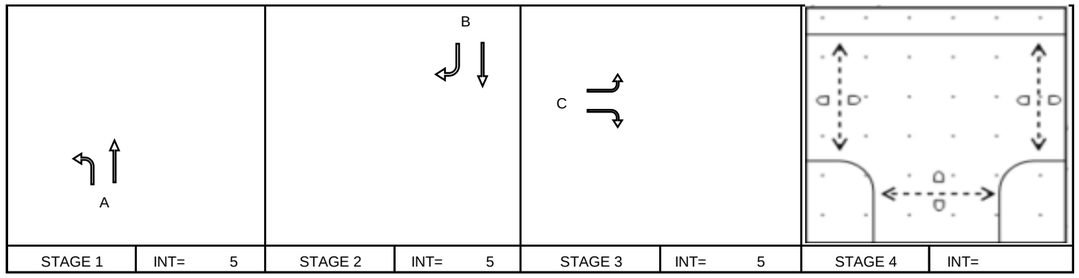
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO A
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_A_AM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.714
Loss time		L =	37 sec
Total Flow		=	2397 pcu
Co	= (1.5*L+5)/(1-Y)	=	211.7 sec
Cm	= L/(1-Y)	=	129.4 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-12.8 %
Cp	= 0.9*L/(0.9-Y)	=	179.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-13 %



STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT=

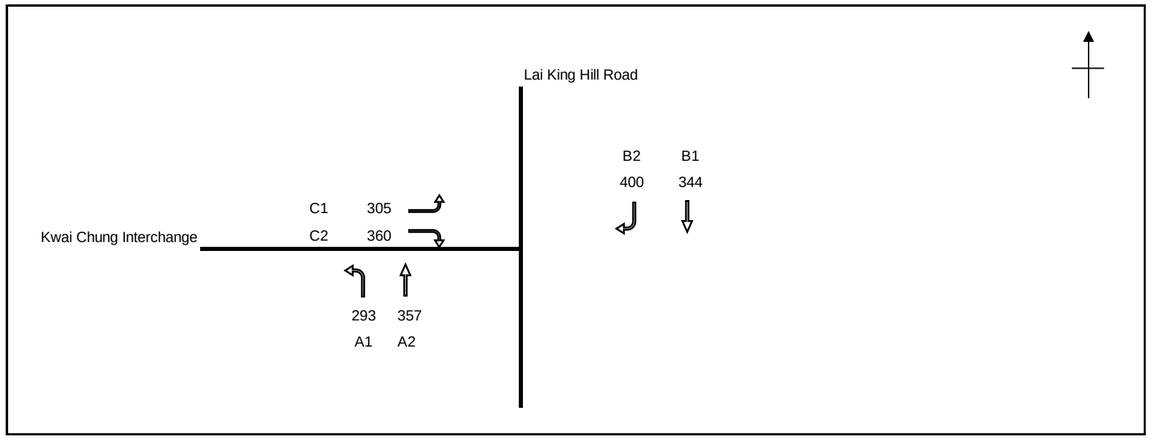
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	329			329	1.00	1809			1809	0.182	0.182		21	21	1.039	54
A2	1	3.75	A	1				2130		337		337	0.00	2130			2130	0.158			18	21	0.904	56
B1	2	3.30	B	1			N	1945		366		366	0.00	1945			1945	0.188	0.188		22	22	1.026	60
B2	2	3.30	B	1	20	O		2085			315	315	1.00	1726			1726	0.183			21	22	0.996	720
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		40	40	1.032	75
C2	3	3.50	C	1	25			2105			485	485	1.00	1986	4.10%	-172	1814	0.267			31	40	0.802	65
																				25				

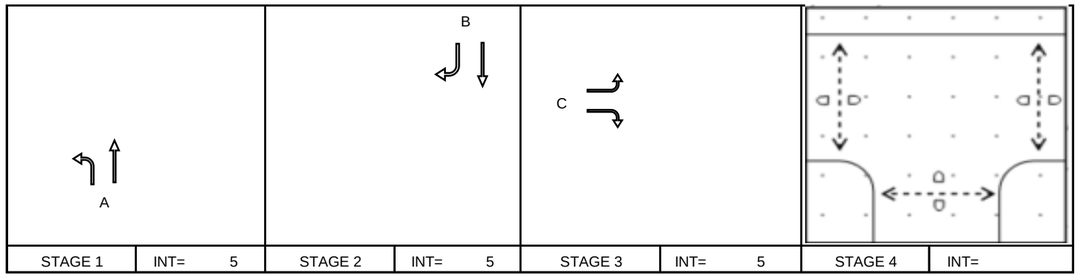
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO A
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_A_PM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.598
Loss time		L =	37 sec
Total Flow		=	2059 pcu
Co	= (1.5*L+5)/(1-Y)	=	150.5 sec
Cm	= L/(1-Y)	=	92.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	4.1 %
Cp	= 0.9*L/(0.9-Y)	=	110.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	4 %



STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT=

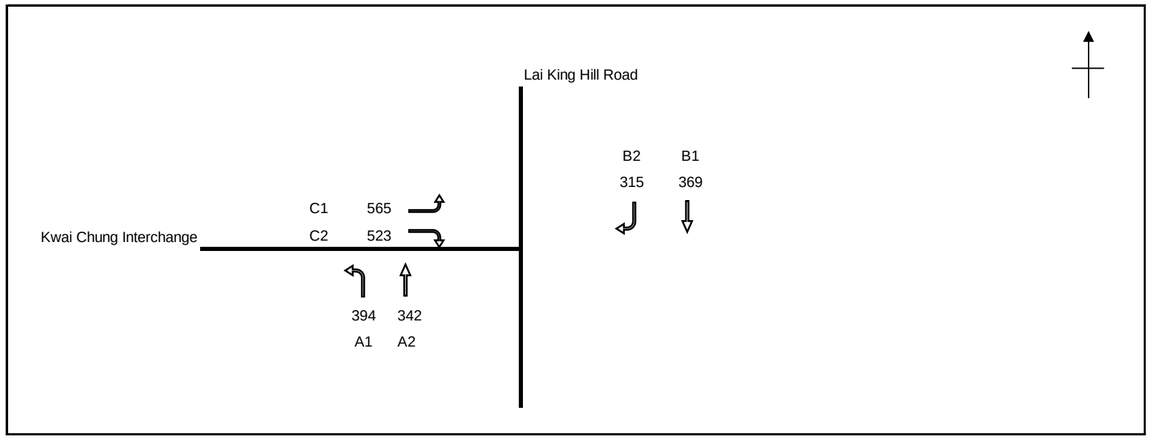
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	293			293	1.00	1809			1809	0.162	0.168		22	23	0.845	47
A2	1	3.75	A	1				2130		357		357	0.00	2130			2130	0.168			23	23	0.874	58
B1	2	3.30	B	1			N	1945		344		344	0.00	1945			1945	0.177	0.232		25	32	0.663	50
B2	2	3.30	B	1	20	O		2085			400	400	1.00	1726			1726	0.232			32	32	0.869	59
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.198		26	28	0.796	47
C2	3	3.50	C	1	25			2105			360	360	1.00	1986	4.10%	-172	1814	0.198			28	28	0.851	55
																				25				

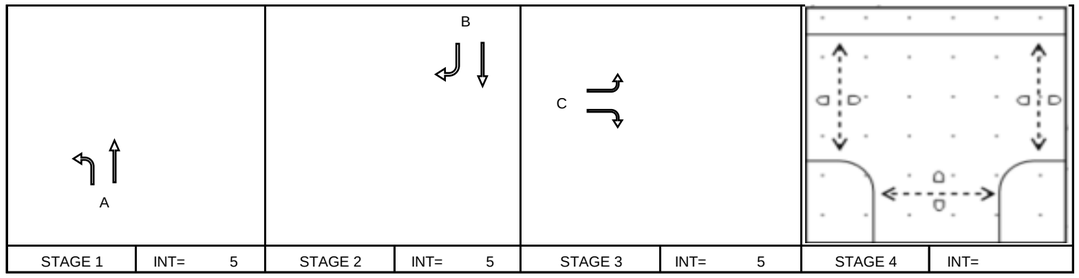
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO B
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_B_AM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.752
Loss time		L =	37 sec
Total Flow		=	2508 pcu
Co	= (1.5*L+5)/(1-Y)	=	243.6 sec
Cm	= L/(1-Y)	=	149.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-17.2 %
Cp	= 0.9*L/(0.9-Y)	=	224.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-17 %



STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT=

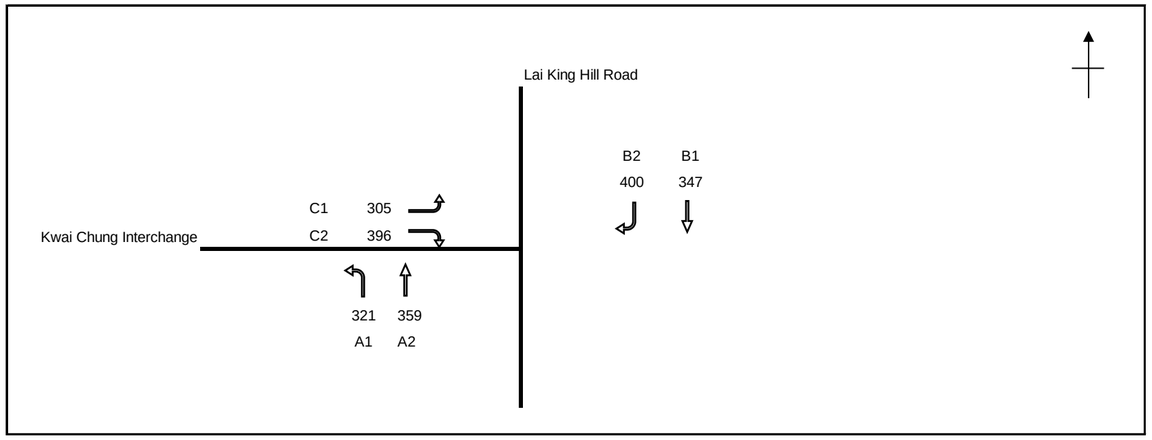
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	394			394	1.00	1809			1809	0.218	0.218		24	24	1.089	63
A2	1	3.75	A	1				2130		342		342	0.00	2130			2130	0.161			18	24	0.803	55
B1	2	3.30	B	1			N	1945		369		369	0.00	1945			1945	0.190	0.190		21	21	1.084	61
B2	2	3.30	B	1	20	O		2085			315	315	1.00	1726			1726	0.183			20	21	1.043	52
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		38	38	1.087	77
C2	3	3.50	C	1	25			2105			523	523	1.00	1986	4.10%	-172	1814	0.288			32	38	0.911	71
																				25				

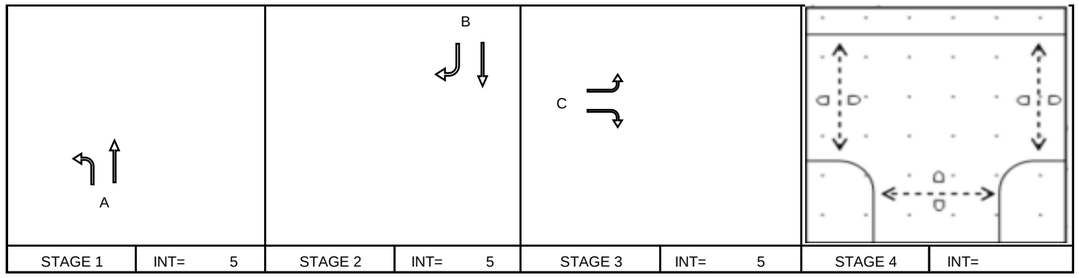
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO B
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_B_PM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.628
Loss time		L =	37 sec
Total Flow		=	2128 pcu
Co	= (1.5*L+5)/(1-Y)	=	162.4 sec
Cm	= L/(1-Y)	=	99.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-0.8 %
Cp	= 0.9*L/(0.9-Y)	=	122.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-1 %



STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT=

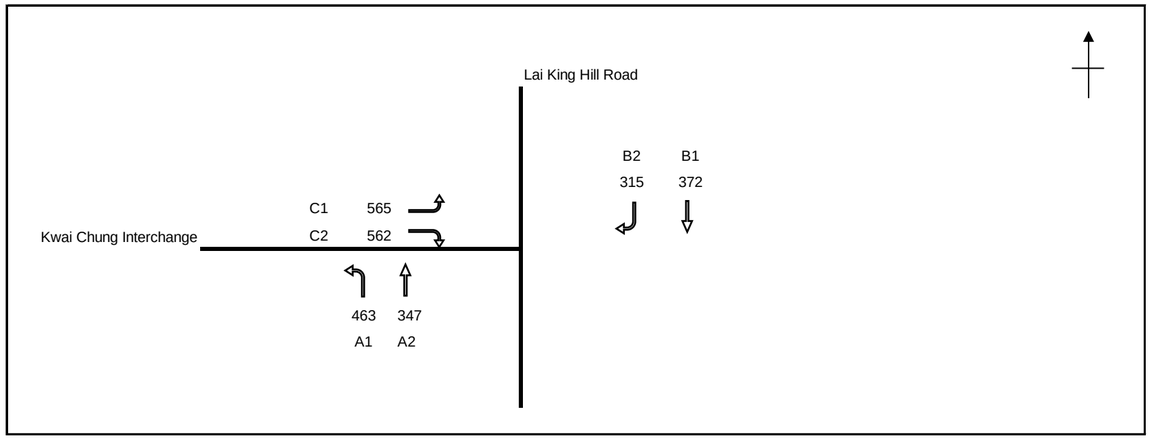
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	321			321	1.00	1809			1809	0.177	0.177		23	23	0.926	61
A2	1	3.75	A	1				2130		359		359	0.00	2130			2130	0.169			22	23	0.879	58
B1	2	3.30	B	1			N	1945		347		347	0.00	1945			1945	0.178	0.232		24	31	0.691	51
B2	2	3.30	B	1	20	O		2085			400	400	1.00	1726			1726	0.232			31	31	0.897	59
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.218		25	29	0.769	46
C2	3	3.50	C	1	25			2105			396	396	1.00	1986	4.10%	-172	1814	0.218			29	29	0.903	60
																				25				

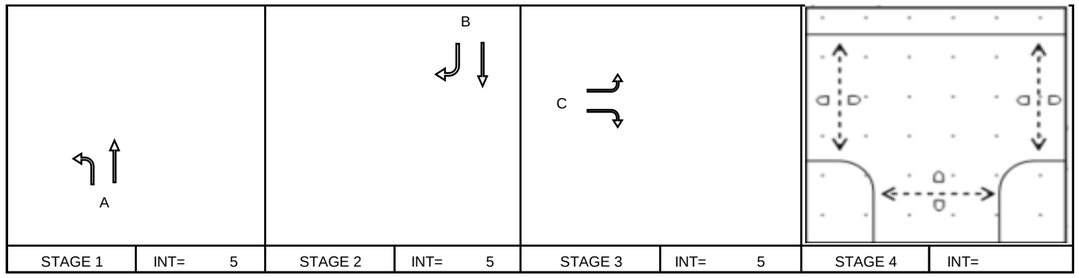
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO C
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_C_AM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.791
Loss time		L =	37 sec
Total Flow		=	2624 pcu
Co	= (1.5*L+5)/(1-Y)	=	289.9 sec
Cm	= L/(1-Y)	=	177.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-21.3 %
Cp	= 0.9*L/(0.9-Y)	=	306.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-21 %



STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT=

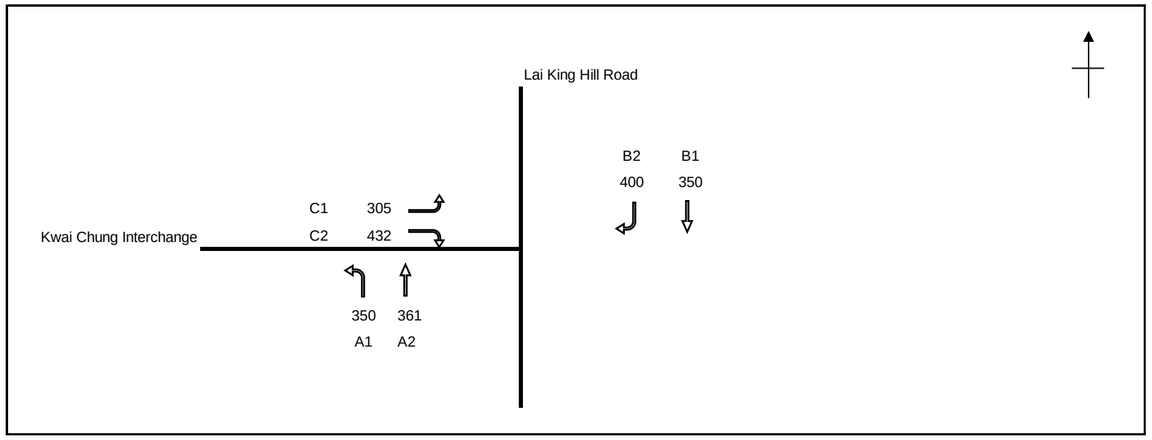
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	463			463	1.00	1809			1809	0.256	0.256		27	27	1.137	72
A2	1	3.75	A	1				2130		347		347	0.00	2130			2130	0.163			17	27	0.724	54
B1	2	3.30	B	1			N	1945		372		372	0.00	1945			1945	0.191	0.191		20	20	1.148	62
B2	2	3.30	B	1	20	O		2085			315	315	1.00	1726			1726	0.183			19	20	1.095	53
C1	3	3.50	C	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		36	36	1.147	79
C2	3	3.50	C	1	25			2105			562	562	1.00	1986	4.10%	-172	1814	0.310			32	36	1.033	79
																				25				

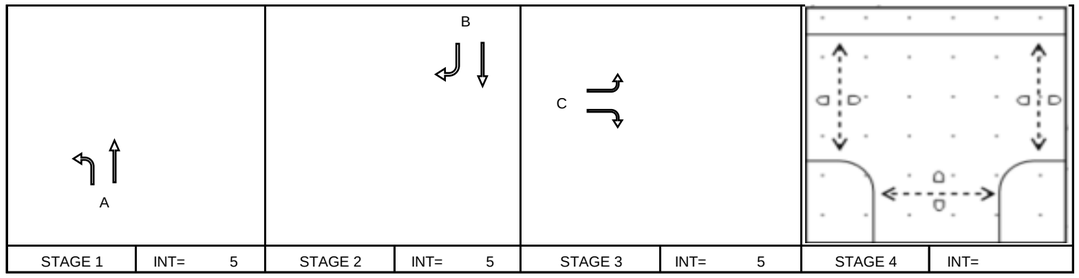
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO C
TD PLANNED JUNCTION ARRANGEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_C_PM_(TD)	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.663
Loss time		L =	37 sec
Total Flow		=	2198 pcu
Co	= (1.5*L+5)/(1-Y)	=	179.8 sec
Cm	= L/(1-Y)	=	109.9 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	-6.2 %
Cp	= 0.9*L/(0.9-Y)	=	140.8 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-6 %



STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT=

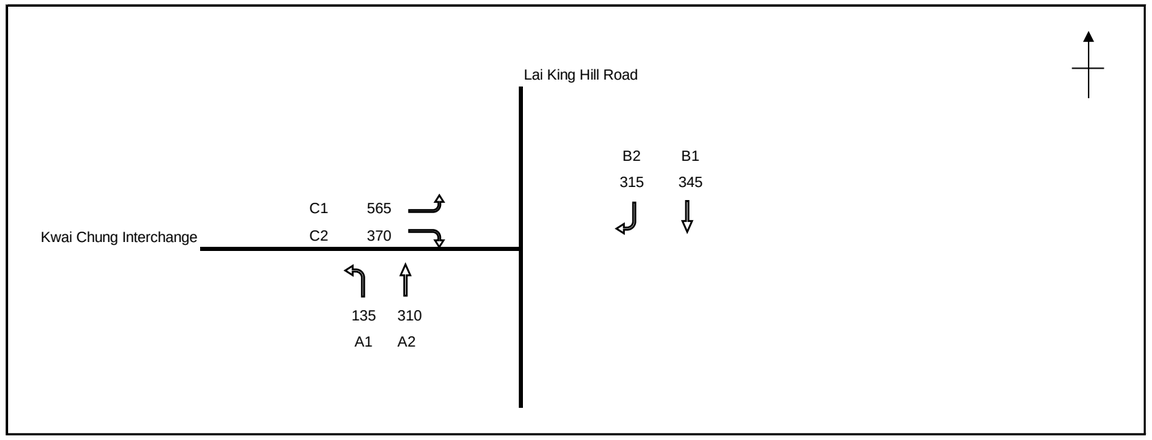
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	10.6	9	2	8	15	2	8	OK
F	11.4	10	7	8	10	7	8	OK
G	9.3	8	7	7	11	7	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1,A2	1	3.75	A	1	15		N	1990	350			350	1.00	1809			1809	0.193	0.193		24	24	0.967	115
A2	1	3.75	A	1				2130		361		361	0.00	2130			2130	0.169			21	24	0.847	58
B1	2	3.30	B	1			N	1945		350		350	0.00	1945			1945	0.180	0.232		23	29	0.745	53
B2	2	3.30	B	1	20	O		2085			400	400	1.00	1726			1726	0.232			29	29	0.959	98
C1	3	3.50	C	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.238		23	30	0.743	46
C2	3	3.50	C	1	25			2105			432	432	1.00	1986	4.10%	-172	1814	0.238			30	30	0.953	91
																				25				

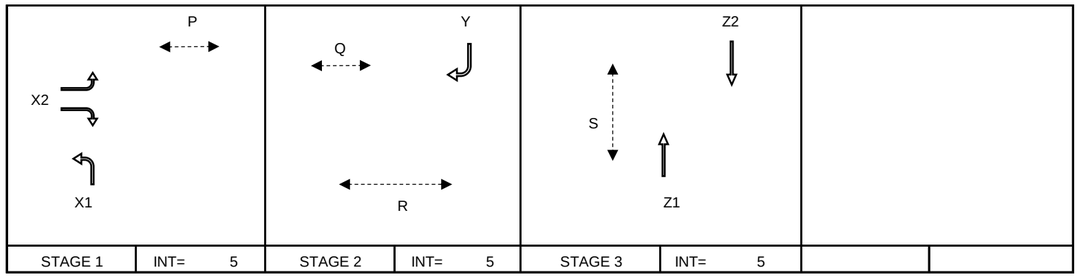
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
BASELINE SCENARIO
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_BASE_IMP_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.684
Loss time		L =	12 sec
Total Flow		=	2040 pcu
Co	= (1.5*L+5)/(1-Y)	=	72.8 sec
Cm	= L/(1-Y)	=	38.0 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	18.4 %
Cp	= 0.9*L/(0.9-Y)	=	50.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	18 %



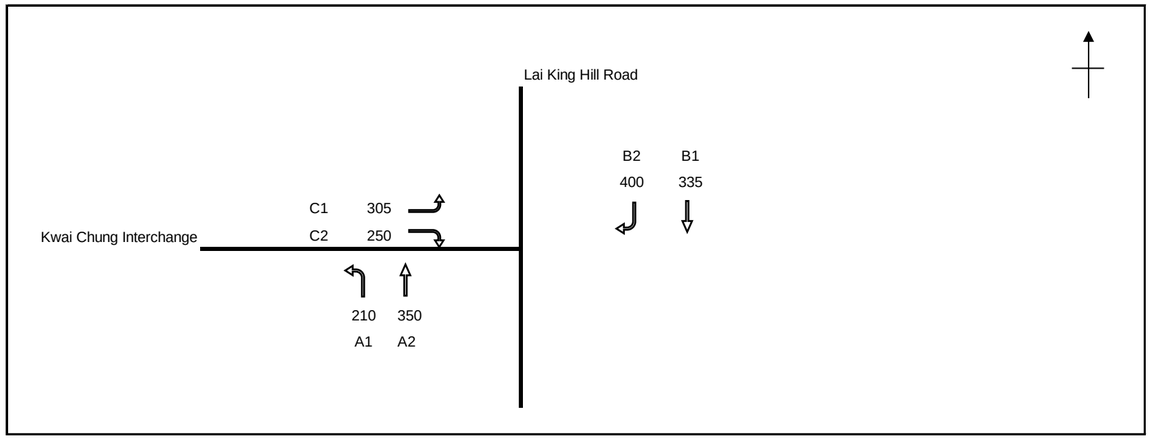
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	52	1	5	OK
Q	10	6	2	11	17	2	11	OK
R	12	13	5	12	13	5	12	OK
S	11	12	5	11	16	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	135			135	1.00	1809			1809	0.075			12	54	0.166	15
C1	1	3.50	X2	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		54	54	0.765	62
C2	1	3.50	X2	1	25			2105			370	370	1.00	1986	4.10%	-172	1814	0.204			32	54	0.453	41
A2	3	3.75	Z1	1				2130		310		310	0.00	2130			2130	0.146			23	28	0.624	48
B1	3	3.30	Z2	1			N	1945		345		345	0.00	1945			1945	0.177	0.177		28	28	0.760	53
B2	2	3.30	Y	1	20			2085			315	315	1.00	1940			1940	0.162	0.162		26	26	0.750	49

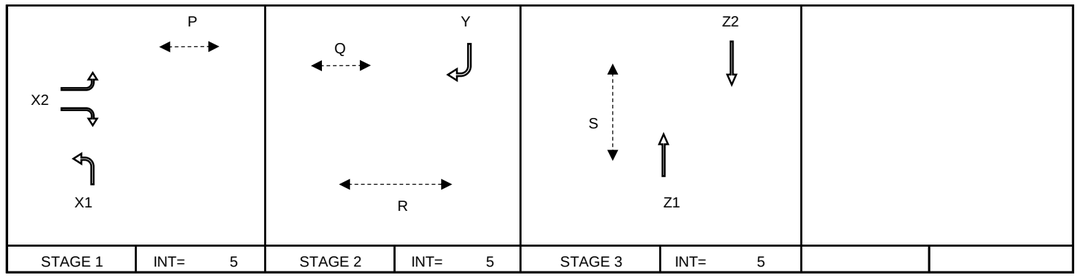
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
BASELINE SCENARIO
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_BASE_IMP_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.564
Loss time		L =	12 sec
Total Flow		=	1850 pcu
Co	= (1.5*L+5)/(1-Y)	=	52.8 sec
Cm	= L/(1-Y)	=	27.5 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	43.6 %
Cp	= 0.9*L/(0.9-Y)	=	32.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	44 %



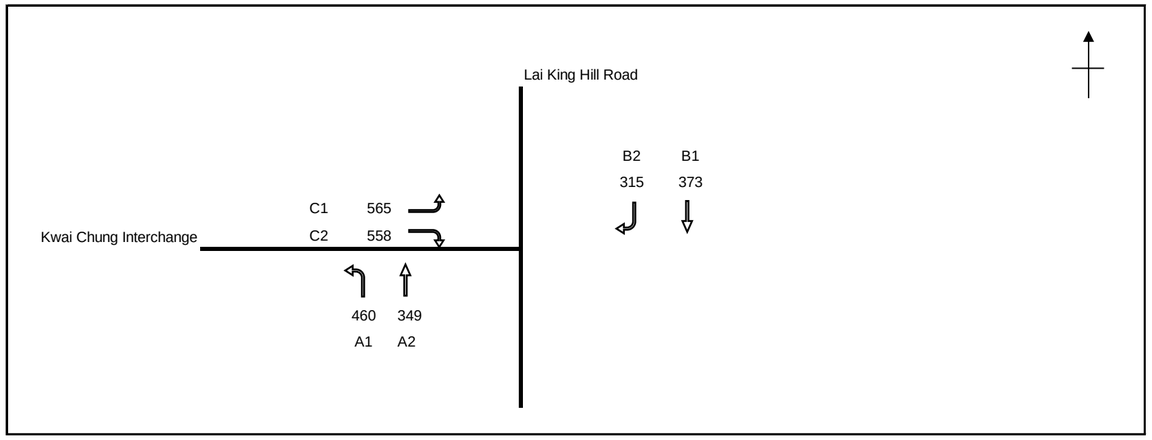
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	34	1	5	OK
Q	10	6	2	11	30	2	11	OK
R	12	13	5	12	26	5	12	OK
S	11	12	5	11	21	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	210			210	1.00	1809			1809	0.116			22	36	0.387	29
C1	1	3.50	X2	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.186		36	36	0.619	43
C2	1	3.50	X2	1	25			2105			250	250	1.00	1986	4.10%	-172	1814	0.138			26	36	0.459	35
A2	3	3.75	Z1	1				2130		350		350	0.00	2130			2130	0.164			31	33	0.598	51
B1	3	3.30	Z2	1			N	1945		335		335	0.00	1945			1945	0.172	0.172		33	33	0.626	49
B2	2	3.30	Y	1	20			2085			400	400	1.00	1940			1940	0.206	0.206		39	39	0.635	54

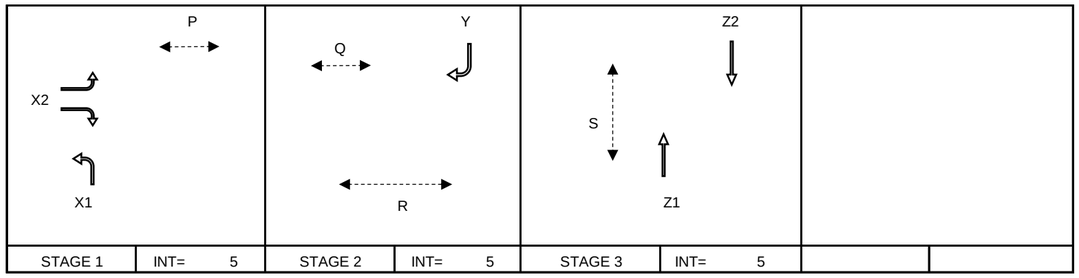
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
REFERENCE SCENARIO
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_REF_IMP_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.698
Loss time		L =	13 sec
Total Flow		=	2620 pcu
Co	= (1.5*L+5)/(1-Y)	=	81.2 sec
Cm	= L/(1-Y)	=	43.1 sec
Yult		=	0.803
R.C.ult	= (Yult-Y)/Y*100%	=	14.9 %
Cp	= 0.9*L/(0.9-Y)	=	58.0 sec
Ymax	= 1-L/C	=	0.892
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	15 %



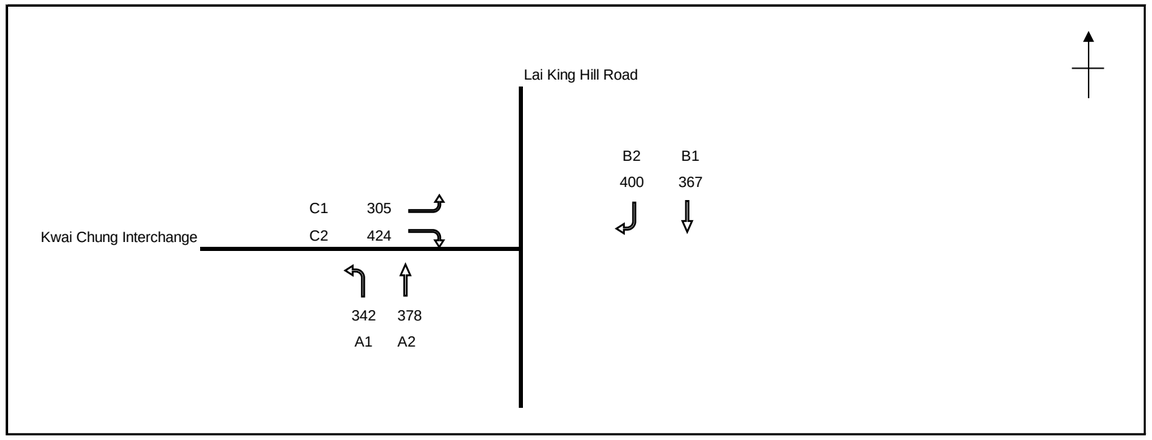
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	51	1	5	OK
Q	10	6	2	11	17	2	11	OK
R	12	13	5	12	13	5	12	OK
S	11	12	5	11	17	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	460			460	1.00	1809			1809	0.254			39	53	0.576	51
C1	1	3.50	X2	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		53	53	0.779	63
C2	1	3.50	X2	1	25			2105			558	558	1.00	1986	4.10%	-172	1814	0.308			47	53	0.697	62
A2	3	3.75	Z1	1				2130		349		349	0.00	2130			2130	0.164			25	29	0.678	53
B1	3	3.30	Z2	1			N	1945		373		373	0.00	1945			1945	0.192	0.192		29	29	0.794	57
B2	2	3.30	Y	1	20			2085			315	315	1.00	1940			1940	0.162	0.162	1	25	26	0.750	49

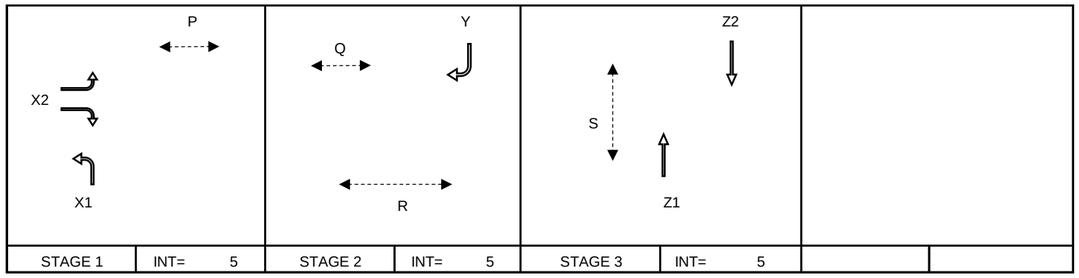
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
REFERENCE SCENARIO
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_REF_IMP_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.629
Loss time		L =	12 sec
Total Flow		=	2216 pcu
Co	= (1.5*L+5)/(1-Y)	=	61.9 sec
Cm	= L/(1-Y)	=	32.3 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	28.8 %
Cp	= 0.9*L/(0.9-Y)	=	39.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	29 %



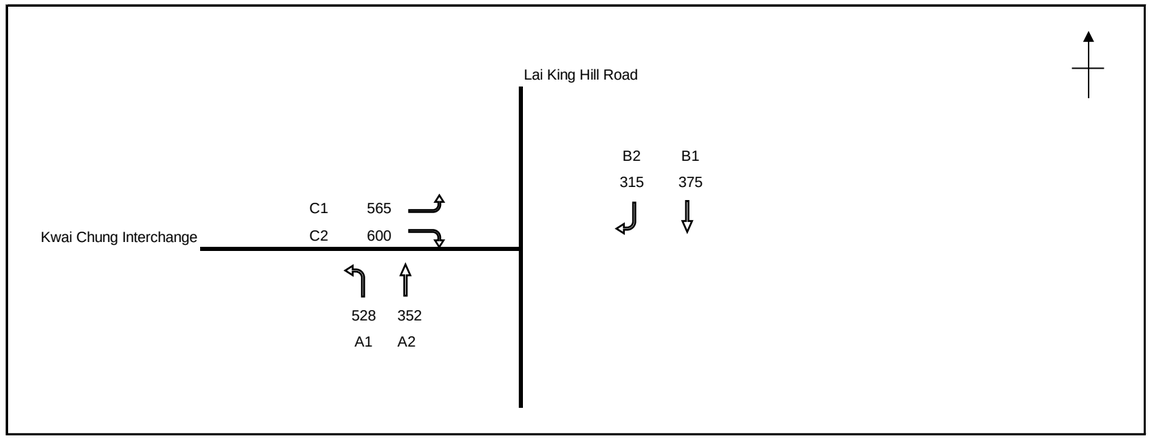
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	38	1	5	OK
Q	10	6	2	11	26	2	11	OK
R	12	13	5	12	22	5	12	OK
S	11	12	5	11	20	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	342			342	1.00	1809			1809	0.189			32	40	0.567	46
C1	1	3.50	X2	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.234		32	40	0.557	41
C2	1	3.50	X2	1	25			2105			424	424	1.00	1986	4.10%	-172	1814	0.234			40	40	0.701	57
A2	3	3.75	Z1	1				2130		378		378	0.00	2130			2130	0.177			30	32	0.665	55
B1	3	3.30	Z2	1			N	1945		367		367	0.00	1945			1945	0.189	0.189		32	32	0.708	54
B2	2	3.30	Y	1	20			2085			400	400	1.00	1940			1940	0.206	0.206		35	35	0.707	57

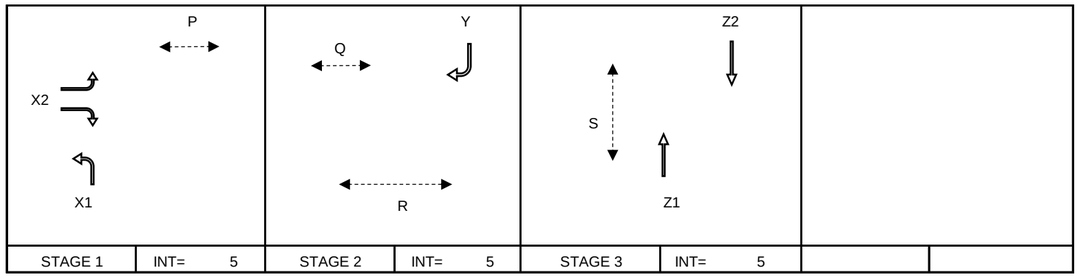
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
DESIGN SCENARIO
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_DES_IMP_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.699
Loss time		L =	13 sec
Total Flow		=	2735 pcu
Co	= (1.5*L+5)/(1-Y)	=	81.5 sec
Cm	= L/(1-Y)	=	43.2 sec
Yult		=	0.803
R.C.ult	= (Yult-Y)/Y*100%	=	14.8 %
Cp	= 0.9*L/(0.9-Y)	=	58.3 sec
Ymax	= 1-L/C	=	0.892
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	15 %



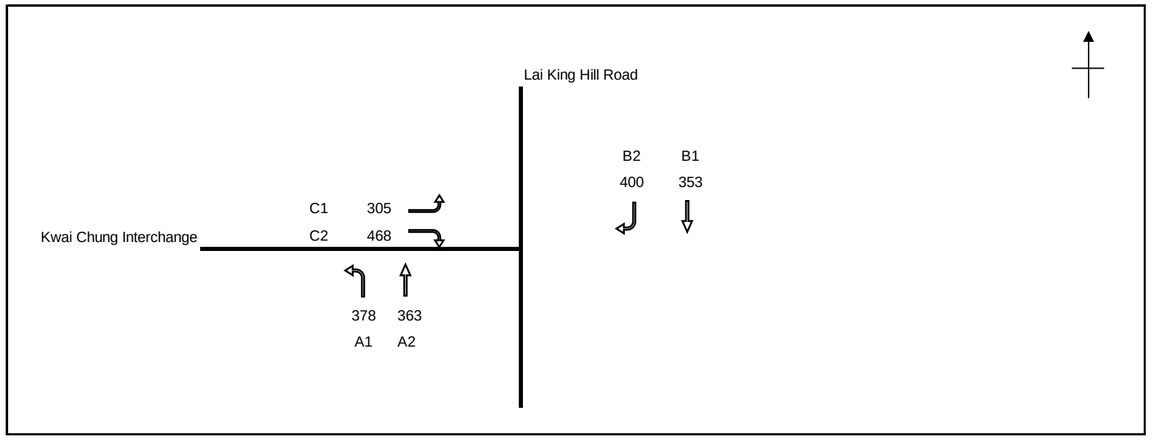
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	51	1	5	OK
Q	10	6	2	11	17	2	11	OK
R	12	13	5	12	13	5	12	OK
S	11	12	5	11	17	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	528			528	1.00	1809			1809	0.292			45	53	0.661	59
C1	1	3.50	X2	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		53	53	0.779	63
C2	1	3.50	X2	1	25			2105			600	600	1.00	1986	4.10%	-172	1814	0.331			51	53	0.749	67
A2	3	3.75	Z1	1				2130		352		352	0.00	2130			2130	0.165			25	29	0.684	53
B1	3	3.30	Z2	1			N	1945		375		375	0.00	1945			1945	0.193	0.193		29	29	0.798	57
B2	2	3.30	Y	1	20			2085			315	315	1.00	1940			1940	0.162	0.162	1	25	26	0.750	49

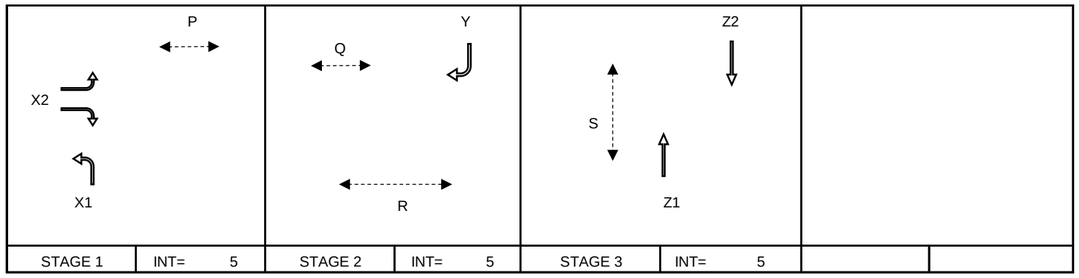
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
DESIGN SCENARIO
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_DES_IMP_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.646
Loss time		L =	12 sec
Total Flow		=	2267 pcu
Co	= (1.5*L+5)/(1-Y)	=	64.9 sec
Cm	= L/(1-Y)	=	33.9 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	25.4 %
Cp	= 0.9*L/(0.9-Y)	=	42.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	25 %



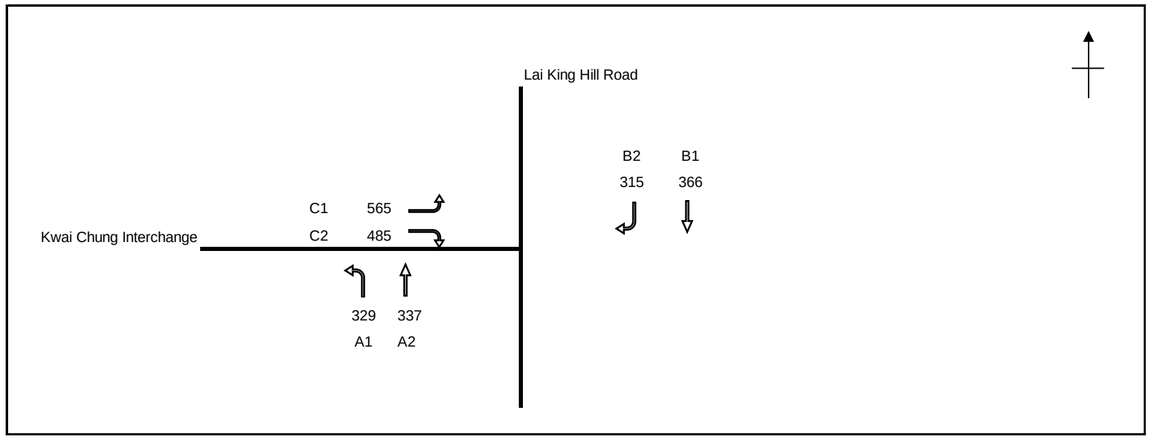
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	41	1	5	OK
Q	10	6	2	11	25	2	11	OK
R	12	13	5	12	21	5	12	OK
S	11	12	5	11	18	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	378			378	1.00	1809			1809	0.209			35	43	0.583	49
C1	1	3.50	X2	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.258		31	43	0.518	39
C2	1	3.50	X2	1	25			2105			468	468	1.00	1986	4.10%	-172	1814	0.258			43	43	0.720	60
A2	3	3.75	Z1	1				2130		363		363	0.00	2130			2130	0.170			29	30	0.682	54
B1	3	3.30	Z2	1			N	1945		353		353	0.00	1945			1945	0.181	0.181		30	30	0.726	53
B2	2	3.30	Y	1	20			2085			400	400	1.00	1940			1940	0.206	0.206		34	34	0.728	57

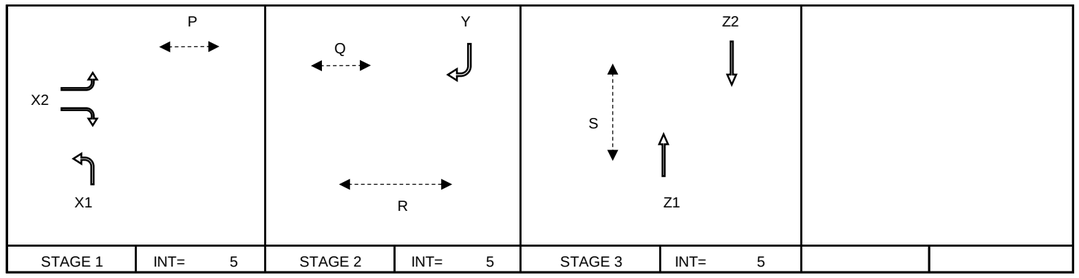
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO A
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_A_IMP_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.695
Loss time		L =	13 sec
Total Flow		=	2397 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.3 sec
Cm	= L/(1-Y)	=	42.6 sec
Yult		=	0.803
R.C.ult	= (Yult-Y)/Y*100%	=	15.5 %
Cp	= 0.9*L/(0.9-Y)	=	57.0 sec
Ymax	= 1-L/C	=	0.892
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	16 %



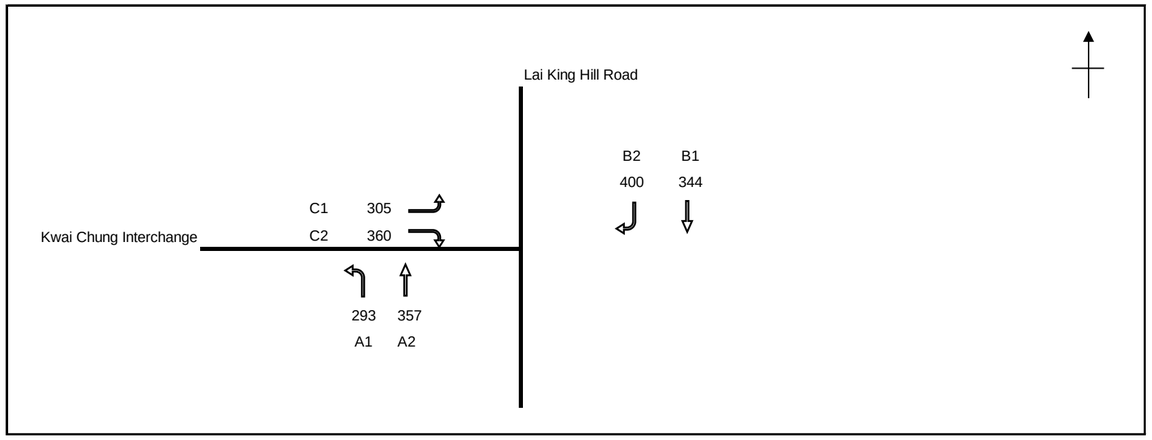
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	51	1	5	OK
Q	10	6	2	11	17	2	11	OK
R	12	13	5	12	13	5	12	OK
S	11	12	5	11	17	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	329			329	1.00	1809			1809	0.182			28	53	0.412	37
C1	1	3.50	X2	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		53	53	0.779	63
C2	1	3.50	X2	1	25			2105			485	485	1.00	1986	4.10%	-172	1814	0.267			41	53	0.605	54
A2	3	3.75	Z1	1				2130		337		337	0.00	2130			2130	0.158			24	29	0.655	51
B1	3	3.30	Z2	1			N	1945		366		366	0.00	1945			1945	0.188	0.188		29	29	0.779	56
B2	2	3.30	Y	1	20			2085			315	315	1.00	1940			1940	0.162	0.162	1	25	26	0.750	49

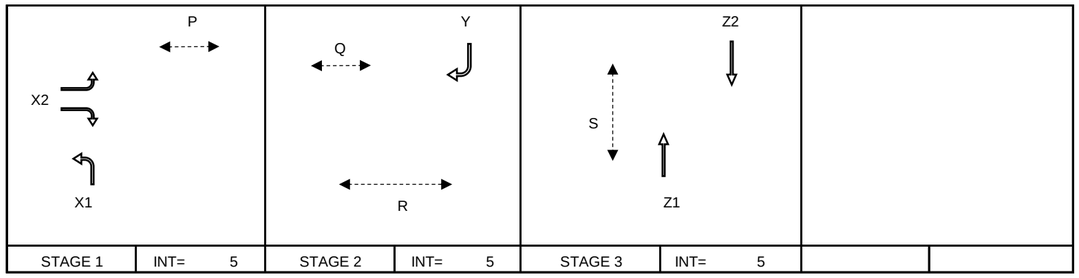
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO A
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_A_IMP_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.582
Loss time		L =	12 sec
Total Flow		=	2059 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.0 sec
Cm	= L/(1-Y)	=	28.7 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	39.3 %
Cp	= 0.9*L/(0.9-Y)	=	33.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	39 %



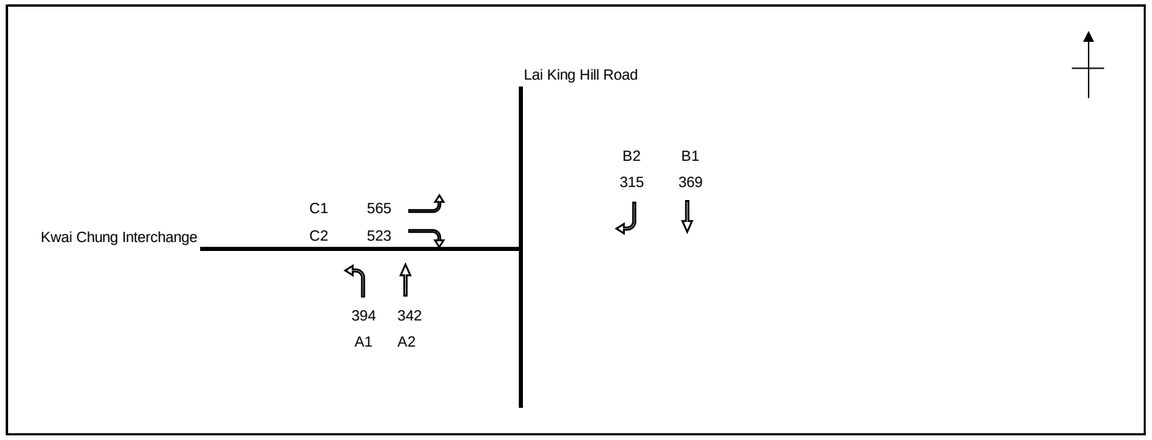
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	35	1	5	OK
Q	10	6	2	11	29	2	11	OK
R	12	13	5	12	25	5	12	OK
S	11	12	5	11	21	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	293			293	1.00	1809			1809	0.162			30	37	0.525	41
C1	1	3.50	X2	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.198		34	37	0.602	42
C2	1	3.50	X2	1	25			2105			360	360	1.00	1986	4.10%	-172	1814	0.198			37	37	0.644	50
A2	3	3.75	Z1	1				2130		357		357	0.00	2130			2130	0.168			31	33	0.609	52
B1	3	3.30	Z2	1			N	1945		344		344	0.00	1945			1945	0.177	0.177		33	33	0.643	50
B2	2	3.30	Y	1	20			2085			400	400	1.00	1940			1940	0.206	0.206		38	38	0.651	55

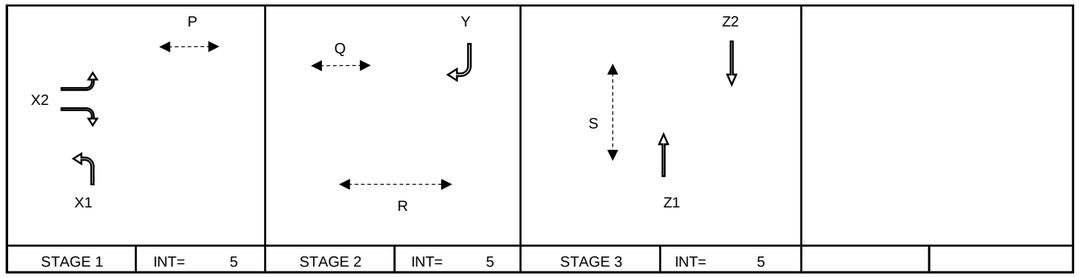
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO B
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_B_IMP_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.696
Loss time		L =	13 sec
Total Flow		=	2508 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.7 sec
Cm	= L/(1-Y)	=	42.8 sec
Yult		=	0.803
R.C.ult	= (Yult-Y)/Y*100%	=	15.3 %
Cp	= 0.9*L/(0.9-Y)	=	57.4 sec
Ymax	= 1-L/C	=	0.892
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	15 %



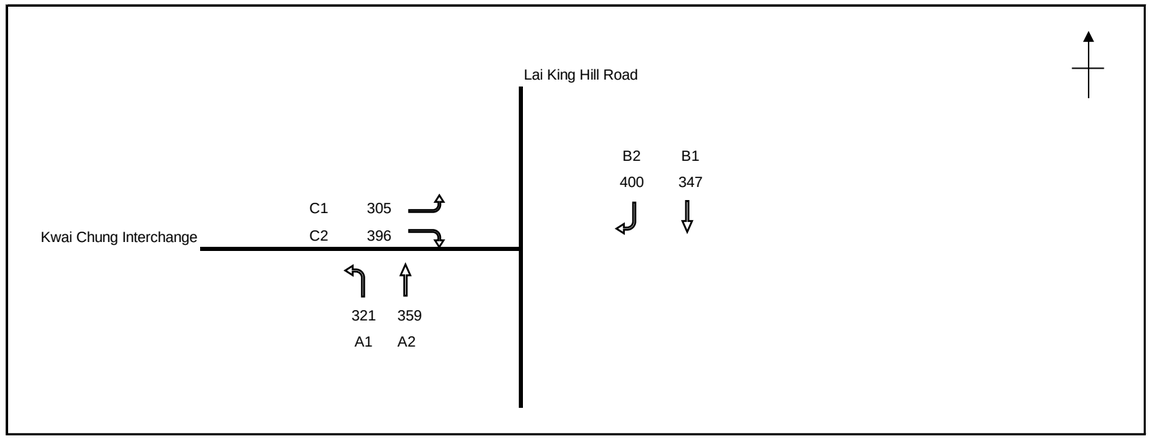
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	51	1	5	OK
Q	10	6	2	11	17	2	11	OK
R	12	13	5	12	13	5	12	OK
S	11	12	5	11	17	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	394			394	1.00	1809			1809	0.218			33	53	0.493	44
C1	1	3.50	X2	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		53	53	0.779	63
C2	1	3.50	X2	1	25			2105			523	523	1.00	1986	4.10%	-172	1814	0.288			44	53	0.653	58
A2	3	3.75	Z1	1				2130		342		342	0.00	2130			2130	0.161			25	29	0.664	52
B1	3	3.30	Z2	1			N	1945		369		369	0.00	1945			1945	0.190	0.190		29	29	0.785	56
B2	2	3.30	Y	1	20			2085			315	315	1.00	1940			1940	0.162	0.162	1	25	26	0.750	49

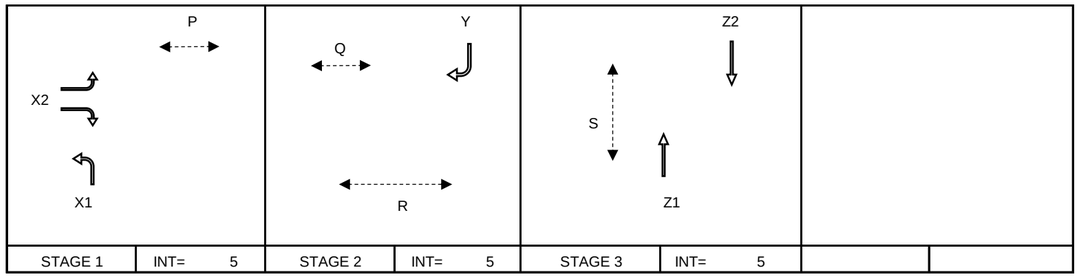
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO B
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_B_IMP_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.603
Loss time		L =	12 sec
Total Flow		=	2128 pcu
Co	= (1.5*L+5)/(1-Y)	=	57.9 sec
Cm	= L/(1-Y)	=	30.2 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	34.3 %
Cp	= 0.9*L/(0.9-Y)	=	36.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	34 %



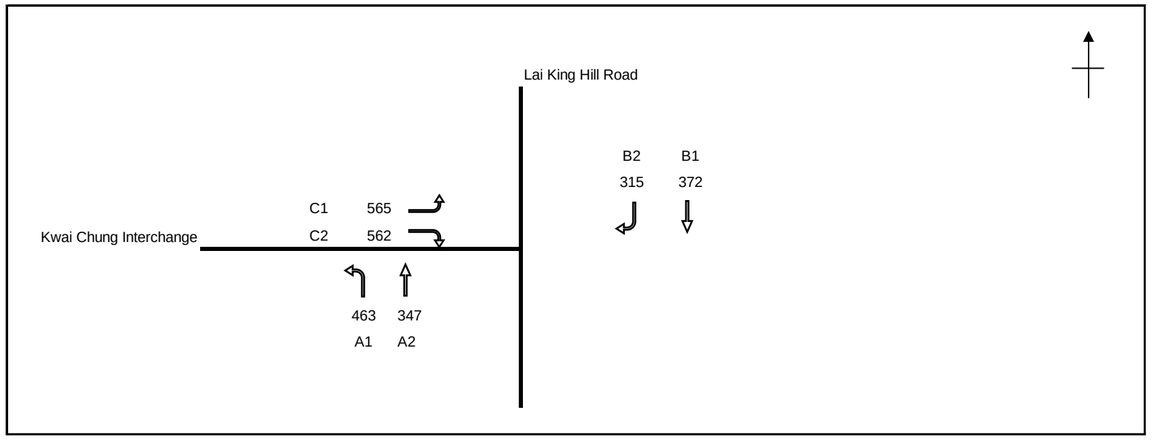
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	37	1	5	OK
Q	10	6	2	11	28	2	11	OK
R	12	13	5	12	24	5	12	OK
S	11	12	5	11	20	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	321			321	1.00	1809			1809	0.177			32	39	0.546	43
C1	1	3.50	X2	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.218		33	39	0.572	41
C2	1	3.50	X2	1	25			2105			396	396	1.00	1986	4.10%	-172	1814	0.218			39	39	0.672	53
A2	3	3.75	Z1	1				2130		359		359	0.00	2130			2130	0.169			30	32	0.632	53
B1	3	3.30	Z2	1			N	1945		347		347	0.00	1945			1945	0.178	0.178		32	32	0.669	51
B2	2	3.30	Y	1	20			2085			400	400	1.00	1940			1940	0.206	0.206		37	37	0.669	55

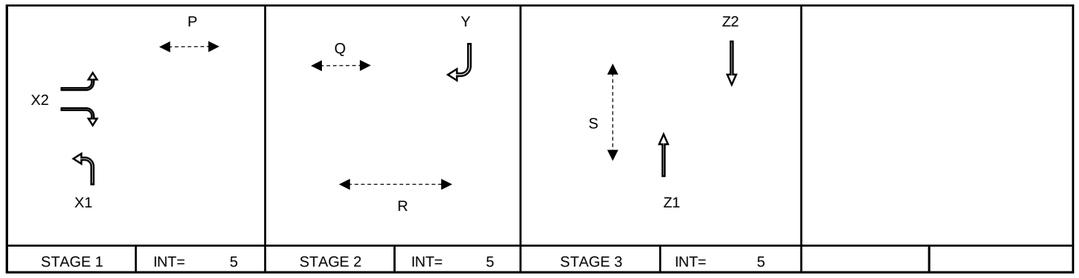
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO C
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange	J3_INT_C_IMP_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.698
Loss time		L =	13 sec
Total Flow		=	2624 pcu
Co	= (1.5*L+5)/(1-Y)	=	81.1 sec
Cm	= L/(1-Y)	=	43.0 sec
Yult		=	0.803
R.C.ult	= (Yult-Y)/Y*100%	=	15.0 %
Cp	= 0.9*L/(0.9-Y)	=	57.9 sec
Ymax	= 1-L/C	=	0.892
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	15 %



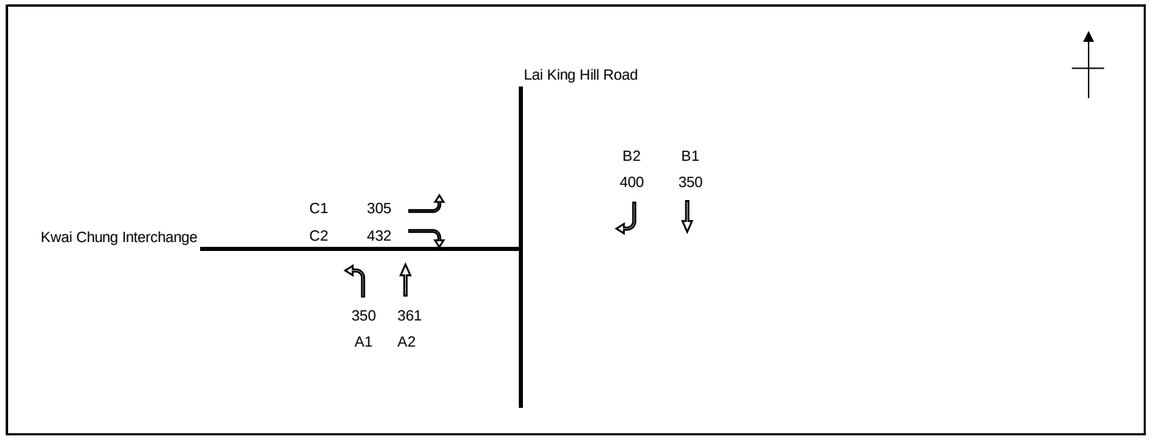
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	51	1	5	OK
Q	10	6	2	11	17	2	11	OK
R	12	13	5	12	13	5	12	OK
S	11	12	5	11	17	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	463			463	1.00	1809			1809	0.256			39	53	0.579	52
C1	1	3.50	X2	1	18		N	1965	565			565	1.00	1814	4.10%	-172	1642	0.344	0.344		53	53	0.779	63
C2	1	3.50	X2	1	25			2105			562	562	1.00	1986	4.10%	-172	1814	0.310			48	53	0.702	63
A2	3	3.75	Z1	1				2130		347		347	0.00	2130			2130	0.163			25	29	0.674	53
B1	3	3.30	Z2	1			N	1945		372		372	0.00	1945			1945	0.191	0.191		29	29	0.791	56
B2	2	3.30	Y	1	20			2085			315	315	1.00	1940			1940	0.162	0.162	1	25	26	0.750	49

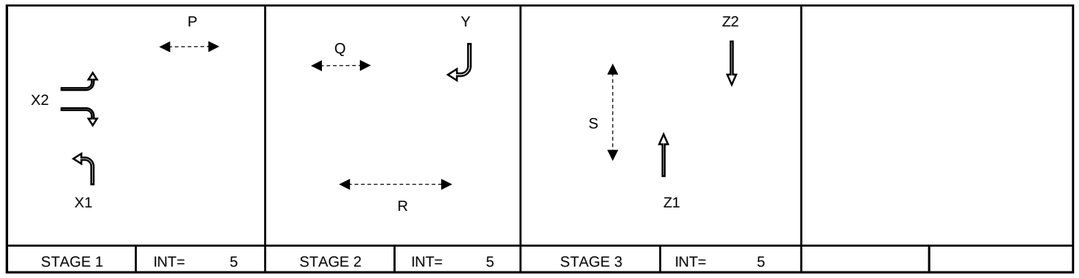
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J3 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO C
PROPOSED JUNCTION IMPROVEMENT

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng			PROJECT NO: 299277-02	Junction No. J3
Lai King Hill Road / Kwai Chung Interchange		J3_INT_C_IMP_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.624
Loss time		L =	12 sec
Total Flow		=	2198 pcu
Co	= (1.5*L+5)/(1-Y)	=	61.2 sec
Cm	= L/(1-Y)	=	31.9 sec
Yult		=	0.810
R.C.ult	= (Yult-Y)/Y*100%	=	29.7 %
Cp	= 0.9*L/(0.9-Y)	=	39.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	30 %



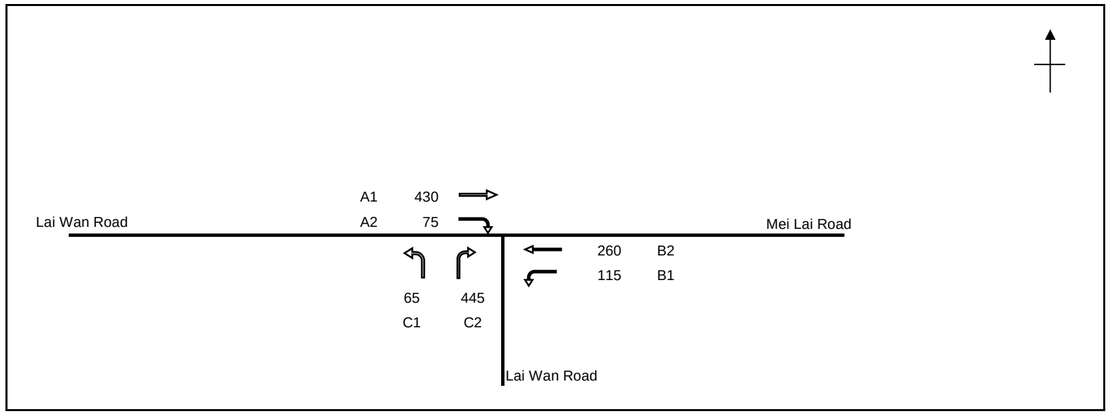
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P	5	6	1	5	39	1	5	OK
Q	10	6	2	11	27	2	11	OK
R	12	13	5	12	23	5	12	OK
S	11	12	5	11	19	5	11	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
A1	1	3.75	X1	1	15		N	1990	350			350	1.00	1809			1809	0.193			33	41	0.566	46
C1	1	3.50	X2	1	18		N	1965	305			305	1.00	1814	4.10%	-172	1642	0.186	0.238		32	41	0.544	40
C2	1	3.50	X2	1	25			2105			432	432	1.00	1986	4.10%	-172	1814	0.238			41	41	0.697	57
A2	3	3.75	Z1	1				2130		361		361	0.00	2130			2130	0.169			29	31	0.656	54
B1	3	3.30	Z2	1			N	1945		350		350	0.00	1945			1945	0.180	0.180		31	31	0.697	52
B2	2	3.30	Y	1	20			2085			400	400	1.00	1940			1940	0.206	0.206		36	36	0.687	56

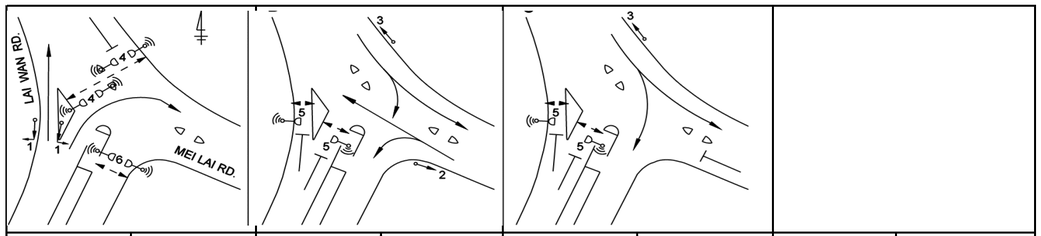
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2024 AM TRAFFIC FLOW

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_OBS_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.271
Loss time		L =	10 sec
Total Flow		=	1390 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.4 sec
Cm	= L/(1-Y)	=	13.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	204.5 %
Cp	= 0.9*L/(0.9-Y)	=	14.3 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	204 %



STAGE 1	INT= 7	STAGE 2	INT=	STAGE 3	INT= 5	STAGE 4	INT=

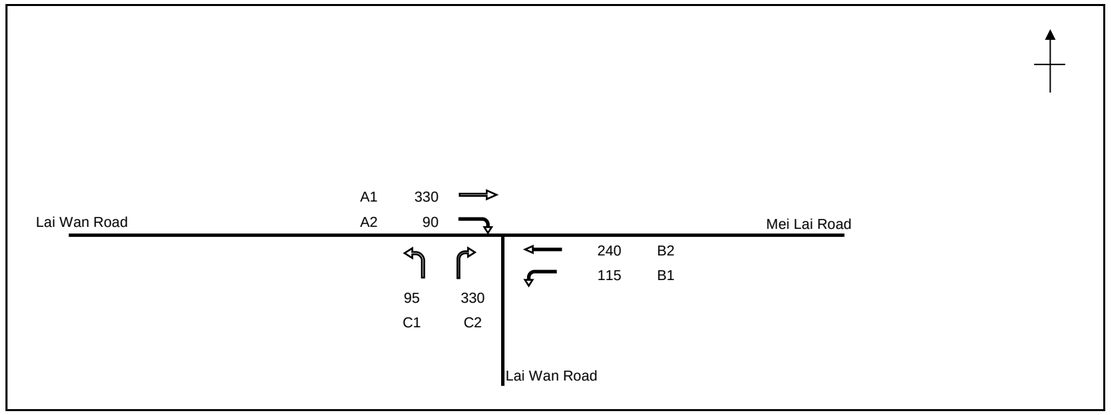
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	50	2	9	OK
Ep	7.3	5	1	8	50	1	8	OK
Fp	7.3	5	7	8	46	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
C1,C2	1	3.30	C	1	16		N	1945	65		177	242	1.00	1778			1778	0.136	0.136		55	55	0.297	26
C2	1	4.00	C	1	16			2155			268	268	1.00	1970			1970	0.136			55	55	0.297	29
B1,B2	2	2.70	B	1	6		N	1885	115	49		164	0.70	1604			1604	0.102			42	42	0.292	21
B2	2	3.00	B	1				2055		211		211	0.00	2055			2055	0.103			42	42	0.293	27
A1	2,3	3.20	A	1			N	1935		261		261	0.00	1935			1935	0.135	0.135		55	55	0.294	28
A1,A2	2,3	3.20	A	1	25	O		2075		169	75	244	0.31	1812			1812	0.135			55	55	0.294	26

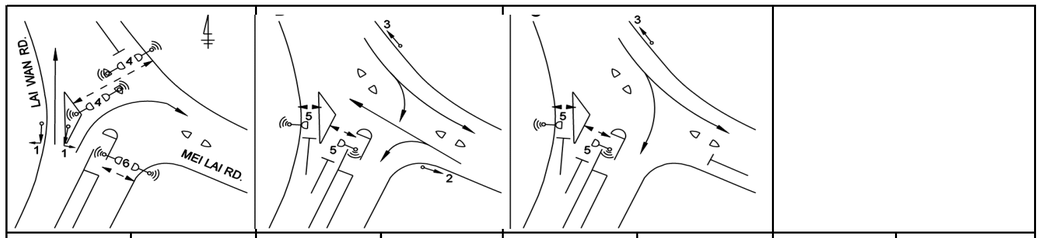
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2024 PM TRAFFIC FLOW

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_OBS_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.211
Loss time		L =	20 sec
Total Flow		=	1200 pcu
Co	= (1.5*L+5)/(1-Y)	=	44.4 sec
Cm	= L/(1-Y)	=	25.4 sec
Yult		=	0.750
R.C.ult	= (Yult-Y)/Y*100%	=	255.2 %
Cp	= 0.9*L/(0.9-Y)	=	26.1 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	255 %



STAGE 1	INT= 7	STAGE 2	INT=	STAGE 3	INT= 15	STAGE 4	INT=

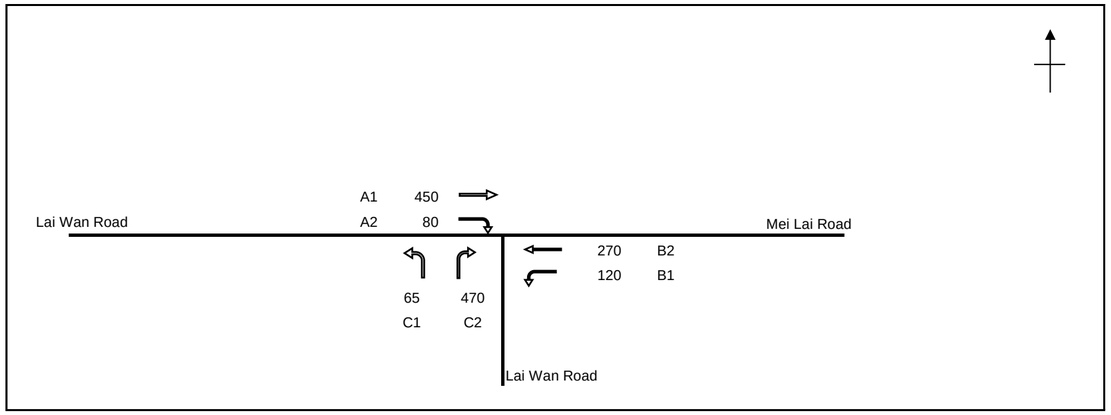
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	49	2	9	OK
Ep	7.3	5	1	8	51	1	8	OK
Fp	7.3	5	7	8	45	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1,C2	1	3.30	C	1	16		N	1945	95		106	201	1.00	1778			1778	0.113	0.114		54	54	0.251	22
C2	1	4.00	C	1	16			2155			224	224	1.00	1970			1970	0.114			54	54	0.253	25
B1,B2	2	2.70	B	1	6		N	1885	115	40		155	0.74	1590			1590	0.097	0.097		46	46	0.254	19
B2	2	3.00	B	1				2055		200		200	0.00	2055			2055	0.097			46	46	0.254	25
A1	2,3	3.20	A	1			N	1935		217		217	0.00	1935			1935	0.112			53	53	0.254	24
A1,A2	2,3	3.20	A	1	25	O		2075		113	90	203	0.44	1797			1797	0.113			53	53	0.256	23

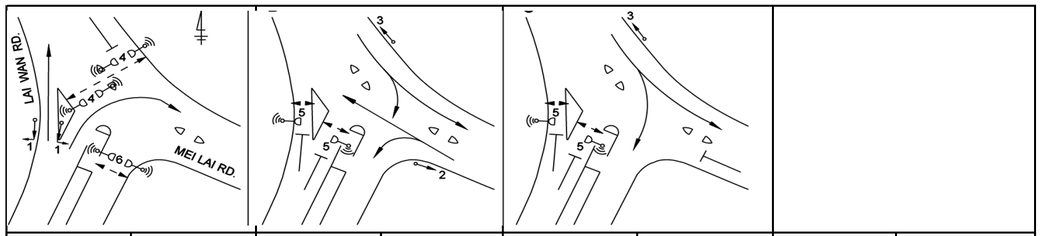
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2035 AM TRAFFIC FLOW
BASELINE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_BASE_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.285
Loss time		L =	10 sec
Total Flow		=	1455 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.0 sec
Cm	= L/(1-Y)	=	14.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	189.7 %
Cp	= 0.9*L/(0.9-Y)	=	14.6 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	190 %



STAGE 1	INT= 7	STAGE 2	INT=	STAGE 3	INT= 5	STAGE 4	INT=

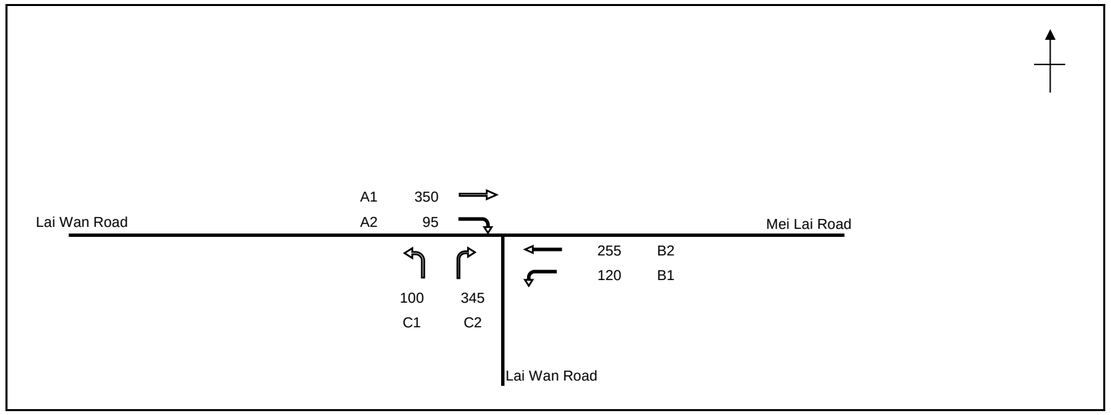
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	50	2	9	OK
Ep	7.3	5	1	8	50	1	8	OK
Fp	7.3	5	7	8	46	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
C1,C2	1	3.30	C	1	16		N	1945	65		189	254	1.00	1778			1778	0.143	0.143		55	55	0.312	28
C2	1	4.00	C	1	16			2155			281	281	1.00	1970			1970	0.143			55	55	0.311	30
B1,B2	2	2.70	B	1	6		N	1885	120	51		171	0.70	1604			1604	0.107			41	41	0.312	23
B2	2	3.00	B	1				2055		219		219	0.00	2055			2055	0.107			41	41	0.312	29
A1	2,3	3.20	A	1			N	1935		273		273	0.00	1935			1935	0.141	0.142		55	55	0.308	30
A1,A2	2,3	3.20	A	1	25	O		2075		177	80	257	0.31	1811			1811	0.142			55	55	0.310	28

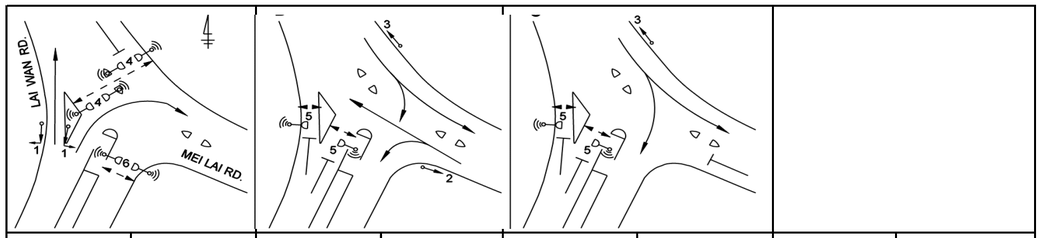
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2035 PM TRAFFIC FLOW
BASELINE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_BASE_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.222
Loss time		L =	20 sec
Total Flow		=	1265 pcu
Co	= (1.5*L+5)/(1-Y)	=	45.0 sec
Cm	= L/(1-Y)	=	25.7 sec
Yult		=	0.750
R.C.ult	= (Yult-Y)/Y*100%	=	238.3 %
Cp	= 0.9*L/(0.9-Y)	=	26.5 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	238 %



STAGE 1	INT= 7	STAGE 2	INT=	STAGE 3	INT= 15	STAGE 4	INT=

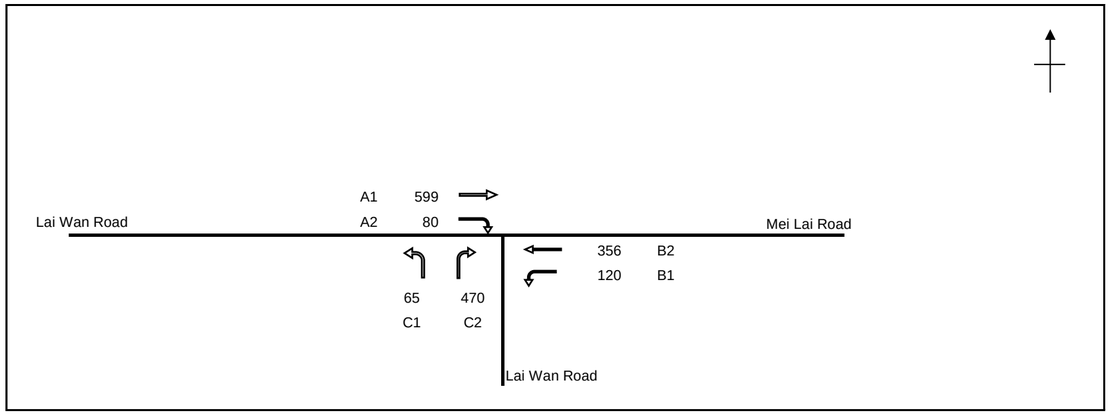
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	49	2	9	OK
Ep	7.3	5	1	8	51	1	8	OK
Fp	7.3	5	7	8	45	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1,C2	1	3.30	C	1	16		N	1945	100		111	211	1.00	1778			1778	0.119	0.119		54	54	0.264	23
C2	1	4.00	C	1	16			2155			234	234	1.00	1970			1970	0.119			54	54	0.264	26
B1,B2	2	2.70	B	1	6		N	1885	120	44		164	0.73	1594			1594	0.103	0.103		46	46	0.268	20
B2	2	3.00	B	1				2055		211		211	0.00	2055			2055	0.103			46	46	0.268	26
A1	2,3	3.20	A	1			N	1935		231		231	0.00	1935			1935	0.119			54	54	0.265	25
A1,A2	2,3	3.20	A	1	25	O		2075		119	95	214	0.44	1797			1797	0.119			54	54	0.265	24

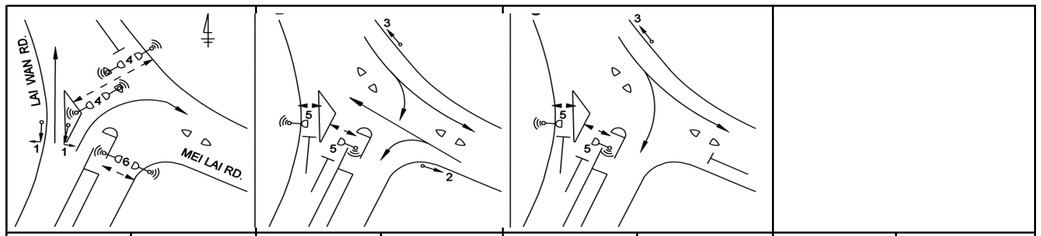
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2035 AM TRAFFIC FLOW
REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_REF_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.324
Loss time		L =	10 sec
Total Flow		=	1690 pcu
Co	= (1.5*L+5)/(1-Y)	=	29.6 sec
Cm	= L/(1-Y)	=	14.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	154.8 %
Cp	= 0.9*L/(0.9-Y)	=	15.6 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	155 %



STAGE 1	INT= 7	STAGE 2	INT=	STAGE 3	INT= 5	STAGE 4	INT=

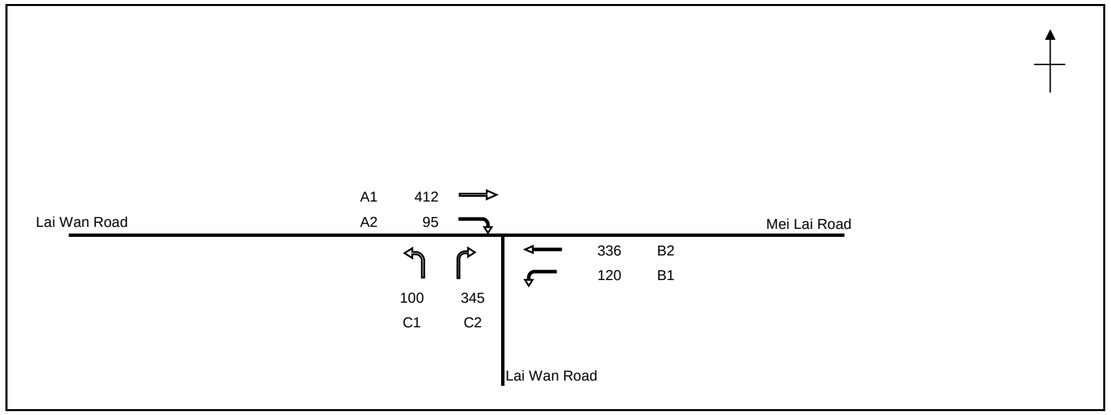
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	44	2	9	OK
Ep	7.3	5	1	8	56	1	8	OK
Fp	7.3	5	7	8	40	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
C1,C2	1	3.30	C	1	16		N	1945	65		189	254	1.00	1778			1778	0.143	0.143		49	49	0.350	30
C2	1	4.00	C	1	16			2155			281	281	1.00	1970			1970	0.143			48	49	0.349	33
B1,B2	2	2.70	B	1	6		N	1885	120	92		212	0.57	1651			1651	0.128			44	44	0.350	27
B2	2	3.00	B	1				2055		264		264	0.00	2055			2055	0.128			44	44	0.350	33
A1	2,3	3.20	A	1			N	1935		350		350	0.00	1935			1935	0.181	0.181		61	61	0.356	34
A1,A2	2,3	3.20	A	1	25	O		2075		249	80	329	0.24	1818			1818	0.181			61	61	0.356	32

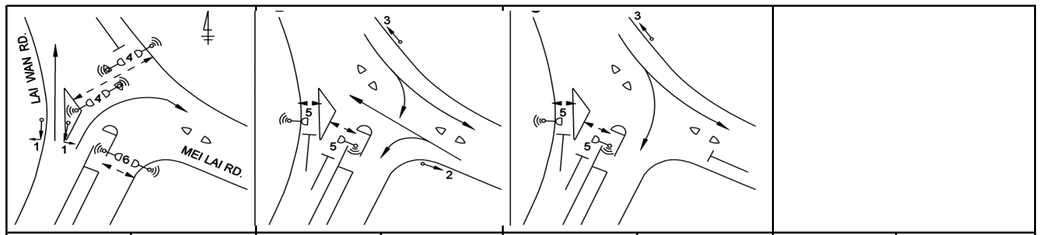
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2035 PM TRAFFIC FLOW
REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_REF_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3	
No. of stage using for calculation		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.242	
Loss time		L =	20	sec
Total Flow		=	1408	pcu
Co	= (1.5*L+5)/(1-Y)	=	46.2	sec
Cm	= L/(1-Y)	=	26.4	sec
Yult		=	0.750	
R.C.ult	= (Yult-Y)/Y*100%	=	209.5	%
Cp	= 0.9*L/(0.9-Y)	=	27.4	sec
Ymax	= 1-L/C	=	0.833	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	209	%



STAGE 1	INT= 7	STAGE 2	INT=	STAGE 3	INT= 15	STAGE 4	INT=

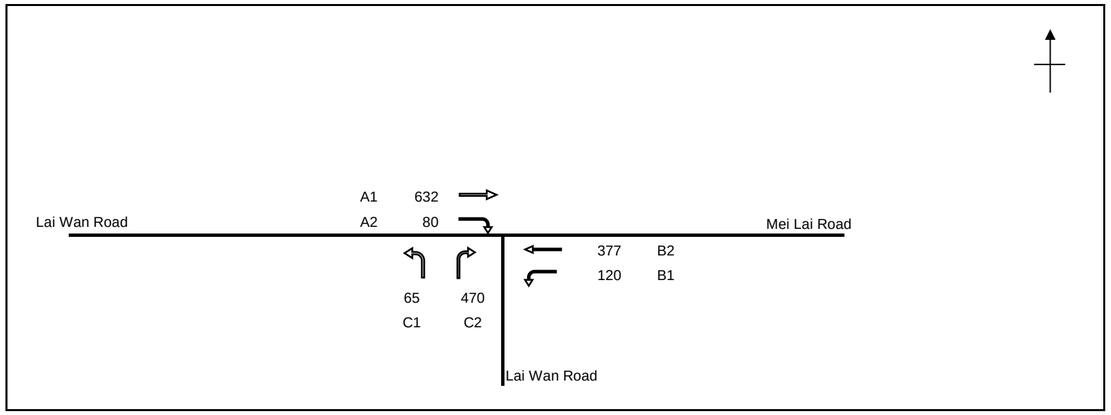
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	44	2	9	OK
Ep	7.3	5	1	8	56	1	8	OK
Fp	7.3	5	7	8	40	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1,C2	1	3.30	C	1	16		N	1945	100		111	211	1.00	1778			1778	0.119	0.119		49	49	0.291	25
C2	1	4.00	C	1	16			2155			234	234	1.00	1970			1970	0.119			49	49	0.291	28
B1,B2	2	2.70	B	1	6		N	1885	120	82		202	0.59	1641			1641	0.123	0.124		51	51	0.290	23
B2	2	3.00	B	1				2055		254		254	0.00	2055			2055	0.124			51	51	0.291	29
A1	2,3	3.20	A	1			N	1935		264		264	0.00	1935			1935	0.136			56	56	0.292	28
A1,A2	2,3	3.20	A	1	25	O		2075		148	95	243	0.39	1803			1803	0.135			56	56	0.289	26

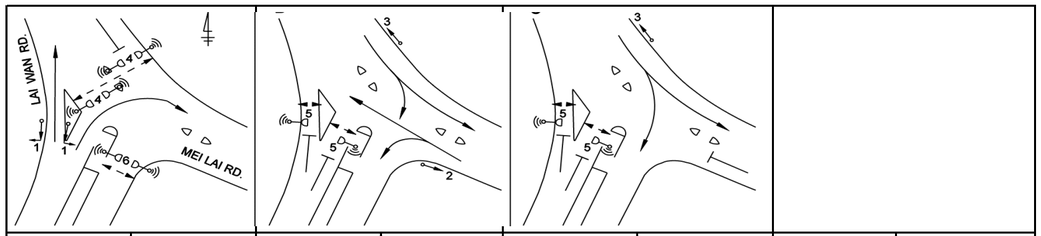
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2035 AM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_DES_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.332
Loss time		L =	10 sec
Total Flow		=	1744 pcu
Co	= (1.5*L+5)/(1-Y)	=	30.0 sec
Cm	= L/(1-Y)	=	15.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	148.1 %
Cp	= 0.9*L/(0.9-Y)	=	15.9 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	148 %



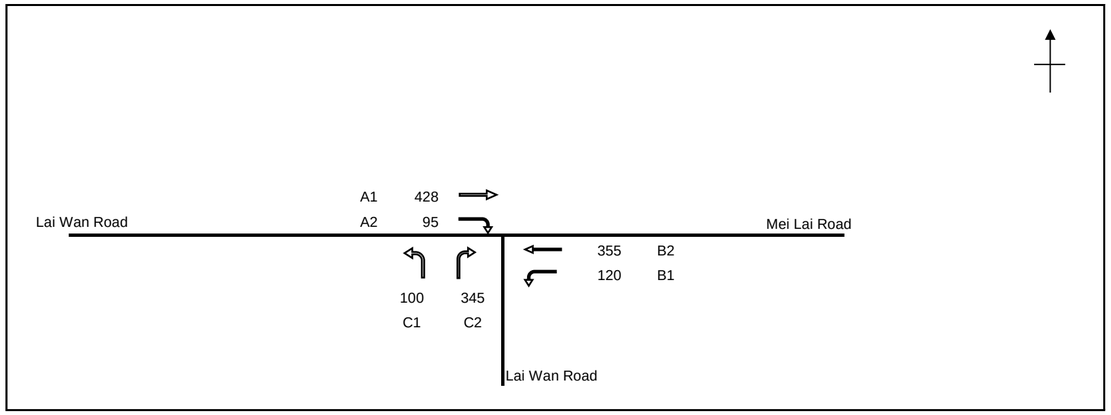
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	42	2	9	OK
Ep	7.3	5	1	8	58	1	8	OK
Fp	7.3	5	7	8	38	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
C1,C2	1	3.30	C	1	16		N	1945	65		189	254	1.00	1778			1778	0.143	0.143		47	47	0.365	31
C2	1	4.00	C	1	16			2155			281	281	1.00	1970			1970	0.143			47	47	0.364	34
B1,B2	2	2.70	B	1	6		N	1885	120	102		222	0.54	1661			1661	0.134			44	44	0.365	28
B2	2	3.00	B	1				2055		275		275	0.00	2055			2055	0.134			44	44	0.365	35
A1	2,3	3.20	A	1			N	1935		367		367	0.00	1935			1935	0.190	0.190		63	63	0.361	35
A1,A2	2,3	3.20	A	1	25	O		2075		265	80	345	0.23	1820			1820	0.190			63	63	0.361	33

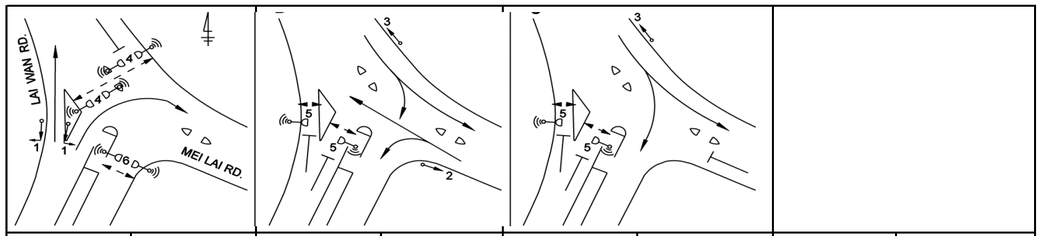
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J4 YEAR 2035 PM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J4
Lai Wan Road / Mei Lai Road	J4_DES_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.247
Loss time		L =	20 sec
Total Flow		=	1443 pcu
Co	= (1.5*L+5)/(1-Y)	=	46.5 sec
Cm	= L/(1-Y)	=	26.6 sec
Yult		=	0.750
R.C.ult	= (Yult-Y)/Y*100%	=	203.5 %
Cp	= 0.9*L/(0.9-Y)	=	27.6 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	203 %



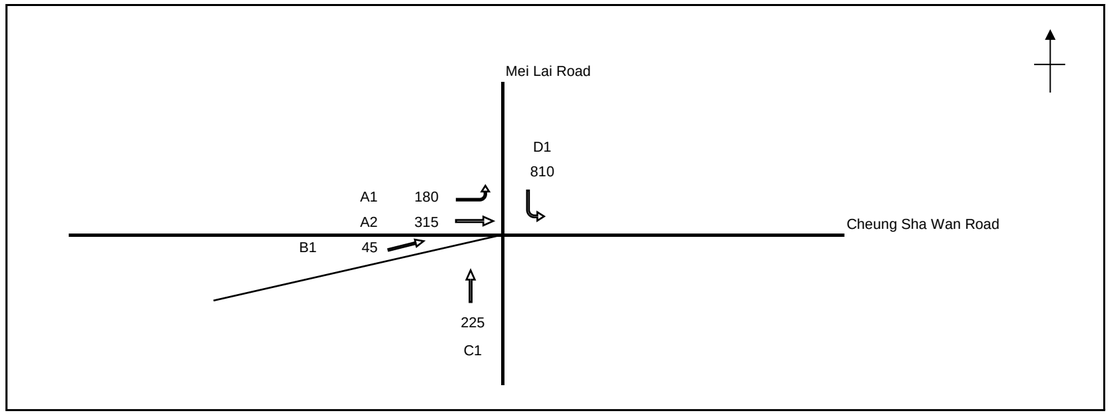
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Dp	9.6	11	2	9	43	2	9	OK
Ep	7.3	5	1	8	57	1	8	OK
Fp	7.3	5	7	8	39	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1,C2	1	3.30	C	1	16		N	1945	100		111	211	1.00	1778			1778	0.119	0.119		48	48	0.297	25
C2	1	4.00	C	1	16			2155			234	234	1.00	1970			1970	0.119			48	48	0.297	28
B1,B2	2	2.70	B	1	6		N	1885	120	92		212	0.57	1651			1651	0.128	0.128		52	52	0.296	24
B2	2	3.00	B	1				2055		263		263	0.00	2055			2055	0.128			52	52	0.295	30
A1	2,3	3.20	A	1			N	1935		270		270	0.00	1935			1935	0.140			56	57	0.294	28
A1,A2	2,3	3.20	A	1	25	O		2075		158	95	253	0.38	1804			1804	0.140			57	57	0.295	27

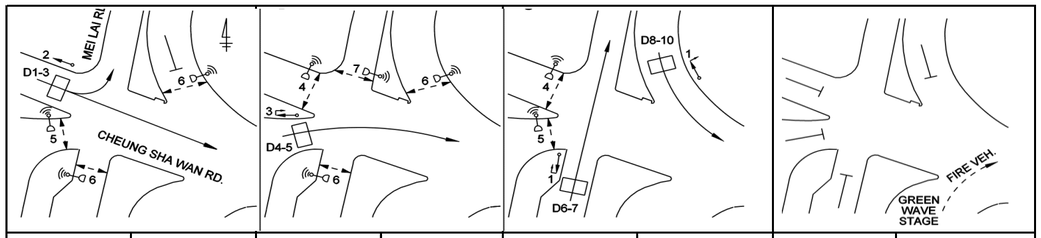
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2024 AM TRAFFIC FLOW

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_OBS_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.317
Loss time		L =	38 sec
Total Flow		=	1575 pcu
Co	= (1.5*L+5)/(1-Y)	=	90.8 sec
Cm	= L/(1-Y)	=	55.7 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	93.8 %
Cp	= 0.9*L/(0.9-Y)	=	58.7 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	64 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

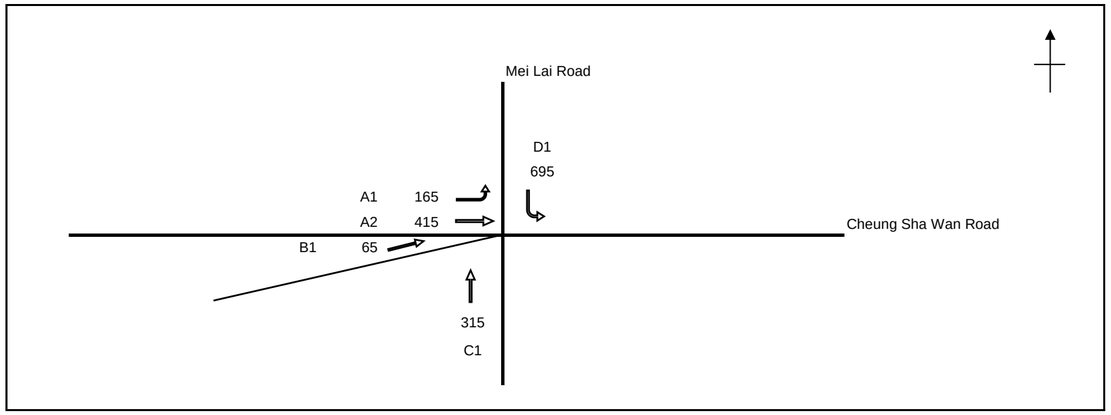
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	43	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	37	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	180	12		192	0.94	1591			1591	0.121	0.121		20	20	0.543	22
A2	1	3.40	A	1				2095		303		303	0.00	2095		400	2495	0.121			20	20	0.546	35
B1	2	3.80	B	1			N	1995		22		22	0.00	1995			1995	0.011			2	14	0.071	3
B1	2	3.80	B	1				2135		23		23	0.00	2135			2135	0.011			2	14	0.069	3
C1	3	3.00	C	1			N	1915		108		108	0.00	1915			1915	0.056	0.196		9	32	0.159	10
C1	3	3.40	C	1				2095		117		117	0.00	2095			2095	0.056			9	32	0.157	11
D1	3	3.20	C	1	30		N	1935	361			361	1.00	1843			1843	0.196			32	32	0.551	35
D1	3	3.20	C	1	30			2075	449			449	1.00	1976		320	2296	0.196			32	32	0.550	43
X	4																			5		5		
Hp																				5				

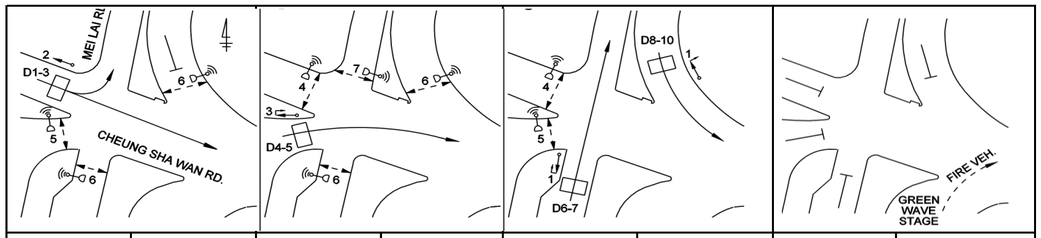
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2024 PM TRAFFIC FLOW

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_OBS_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.308
Loss time		L =	38 sec
Total Flow		=	1655 pcu
Co	= (1.5*L+5)/(1-Y)	=	89.6 sec
Cm	= L/(1-Y)	=	54.9 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	99.6 %
Cp	= 0.9*L/(0.9-Y)	=	57.8 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	69 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

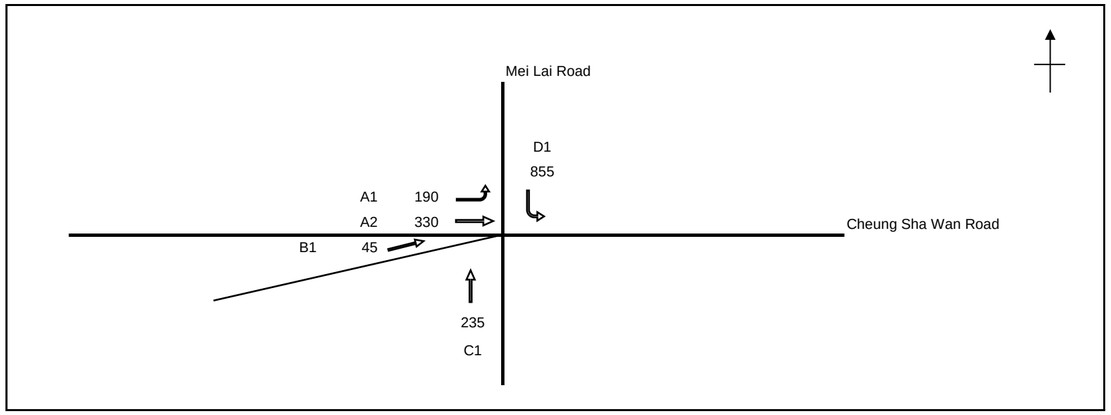
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	39	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	33	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	165	66		231	0.71	1661			1661	0.139	0.140		23	24	0.521	25
A2	1	3.40	A	1				2095		349		349	0.00	2095		400	2495	0.140			24	24	0.525	38
B1	2	3.80	B	1			N	1995		31		31	0.00	1995			1995	0.016			3	14	0.100	4
B1	2	3.80	B	1				2135		34		34	0.00	2135			2135	0.016			3	14	0.102	4
C1	3	3.00	C	1			N	1915		151		151	0.00	1915			1915	0.079	0.168		13	28	0.253	16
C1	3	3.40	C	1				2095		164		164	0.00	2095			2095	0.078			13	28	0.252	17
D1	3	3.20	C	1	30		N	1935	310			310	1.00	1843			1843	0.168			28	28	0.541	32
D1	3	3.20	C	1	30			2075	385			385	1.00	1976		320	2296	0.168			28	28	0.539	40
X	4																			5		5		
Hp																				5				

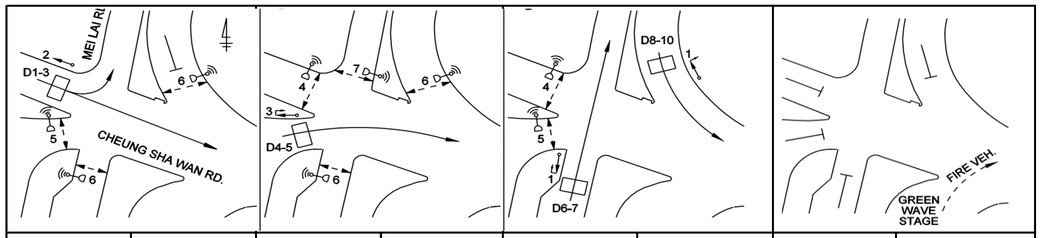
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 AM TRAFFIC FLOW
BASELINE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_BASE_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.334
Loss time		L =	38 sec
Total Flow		=	1655 pcu
Co	= (1.5*L+5)/(1-Y)	=	93.1 sec
Cm	= L/(1-Y)	=	57.1 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	84.0 %
Cp	= 0.9*L/(0.9-Y)	=	60.5 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	56 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

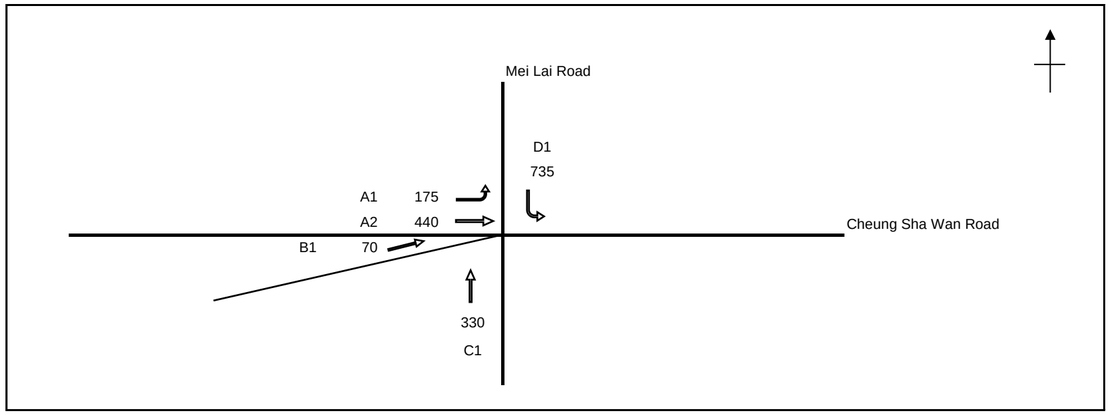
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	43	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	37	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	190	12		202	0.94	1590			1590	0.127	0.127		20	20	0.572	24
A2	1	3.40	A	1				2095		318		318	0.00	2095		400	2495	0.127			20	20	0.574	37
B1	2	3.80	B	1			N	1995		22		22	0.00	1995			1995	0.011			2	14	0.071	3
B1	2	3.80	B	1				2135		23		23	0.00	2135			2135	0.011			2	14	0.069	3
C1	3	3.00	C	1			N	1915		112		112	0.00	1915			1915	0.058	0.207		9	32	0.164	11
C1	3	3.40	C	1				2095		123		123	0.00	2095			2095	0.059			9	32	0.165	12
D1	3	3.20	C	1	30		N	1935	380			380	1.00	1843			1843	0.206			32	32	0.580	37
D1	3	3.20	C	1	30			2075	475			475	1.00	1976		320	2296	0.207			32	32	0.582	46
X	4																			5		5		
Hp																				5				

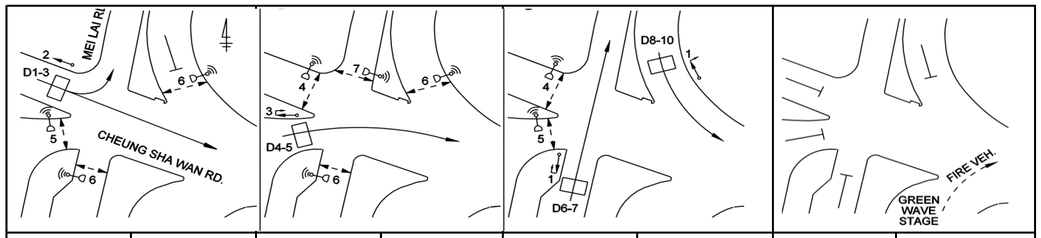
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 PM TRAFFIC FLOW
BASELINE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_BASE_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.326
Loss time		L =	38 sec
Total Flow		=	1750 pcu
Co	= (1.5*L+5)/(1-Y)	=	91.9 sec
Cm	= L/(1-Y)	=	56.4 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	88.8 %
Cp	= 0.9*L/(0.9-Y)	=	59.5 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	60 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

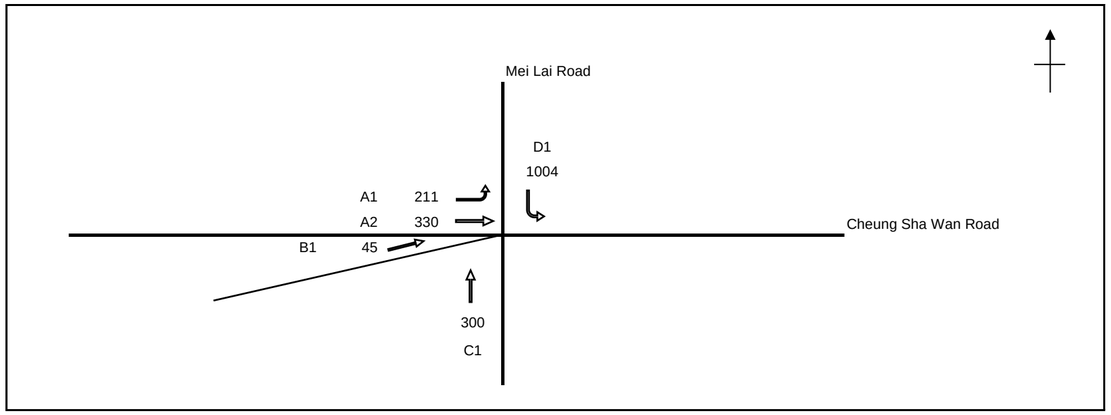
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	39	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	33	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	175	71		246	0.71	1662			1662	0.148	0.148		24	24	0.555	27
A2	1	3.40	A	1				2095		369		369	0.00	2095		400	2495	0.148			24	24	0.555	41
B1	2	3.80	B	1			N	1995		33		33	0.00	1995			1995	0.017			3	14	0.106	4
B1	2	3.80	B	1				2135		37		37	0.00	2135			2135	0.017			3	14	0.111	5
C1	3	3.00	C	1			N	1915		157		157	0.00	1915			1915	0.082	0.178		13	28	0.264	16
C1	3	3.40	C	1				2095		173		173	0.00	2095			2095	0.083			13	28	0.265	18
D1	3	3.20	C	1	30		N	1935	327			327	1.00	1843			1843	0.177			28	28	0.570	34
D1	3	3.20	C	1	30			2075	408			408	1.00	1976		320	2296	0.178			28	28	0.571	42
X	4																			5		5		
Hp																				5				

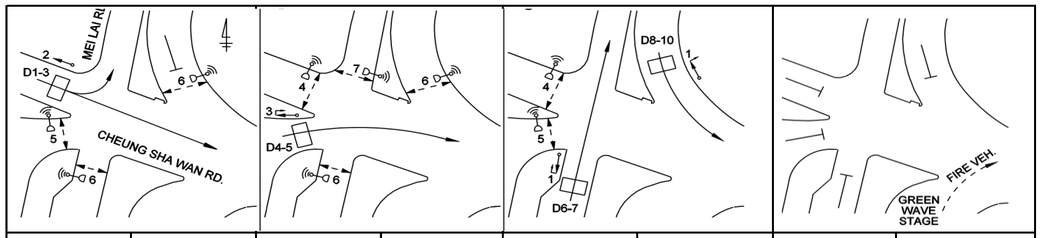
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 AM TRAFFIC FLOW
REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_REF_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.377
Loss time		L =	38 sec
Total Flow		=	1890 pcu
Co	= (1.5*L+5)/(1-Y)	=	99.5 sec
Cm	= L/(1-Y)	=	61.0 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	63.2 %
Cp	= 0.9*L/(0.9-Y)	=	65.4 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

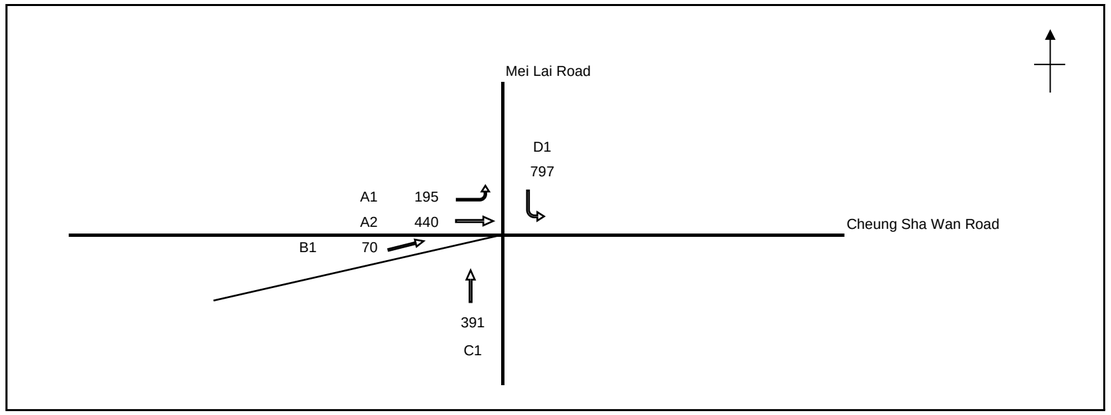
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	44	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	38	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	211	0		211	1.00	1572			1572	0.134	0.134		19	19	0.636	25
A2	1	3.40	A	1				2095		330		330	0.00	2095		400	2495	0.132			18	19	0.627	39
B1	2	3.80	B	1			N	1995		22		22	0.00	1995			1995	0.011			2	14	0.071	3
B1	2	3.80	B	1				2135		23		23	0.00	2135			2135	0.011			1	14	0.069	3
C1	3	3.00	C	1			N	1915		143		143	0.00	1915			1915	0.075	0.243		10	33	0.204	14
C1	3	3.40	C	1				2095		157		157	0.00	2095			2095	0.075			10	33	0.204	15
D1	3	3.20	C	1	30		N	1935	447			447	1.00	1843			1843	0.243			33	33	0.662	42
D1	3	3.20	C	1	30			2075	557			557	1.00	1976		320	2296	0.243			33	33	0.662	53
X	4																			5		5		
Hp																				5				

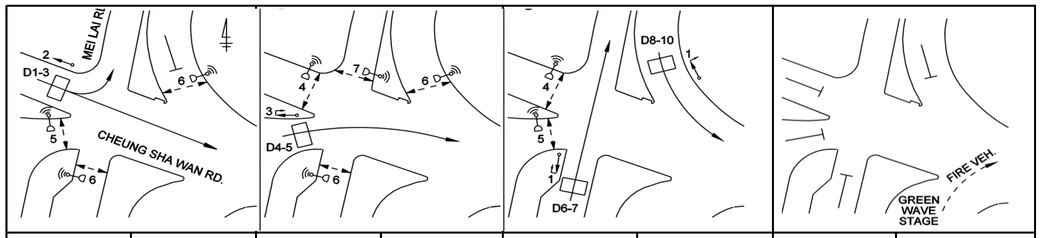
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 PM TRAFFIC FLOW
REFERENCE SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_REF_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.346
Loss time		L =	38 sec
Total Flow		=	1893 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.9 sec
Cm	= L/(1-Y)	=	58.1 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	77.5 %
Cp	= 0.9*L/(0.9-Y)	=	61.8 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	50 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

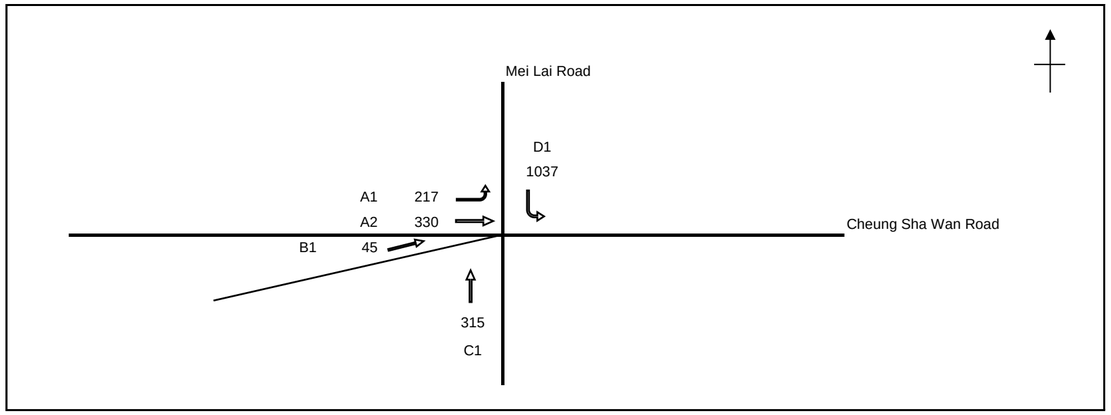
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	40	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	34	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	195	57		252	0.77	1642			1642	0.153	0.154		23	23	0.601	28
A2	1	3.40	A	1				2095		383		383	0.00	2095		400	2495	0.154			23	23	0.601	43
B1	2	3.80	B	1			N	1995		33		33	0.00	1995			1995	0.017			2	14	0.106	4
B1	2	3.80	B	1				2135		37		37	0.00	2135			2135	0.017			3	14	0.111	5
C1	3	3.00	C	1			N	1915		187		187	0.00	1915			1915	0.098	0.193		15	29	0.303	19
C1	3	3.40	C	1				2095		204		204	0.00	2095			2095	0.097			15	29	0.302	21
D1	3	3.20	C	1	30		N	1935	354			354	1.00	1843			1843	0.192			29	29	0.596	36
D1	3	3.20	C	1	30			2075	443			443	1.00	1976		320	2296	0.193			29	29	0.599	45
X	4																			5		5		
Hp																				5				

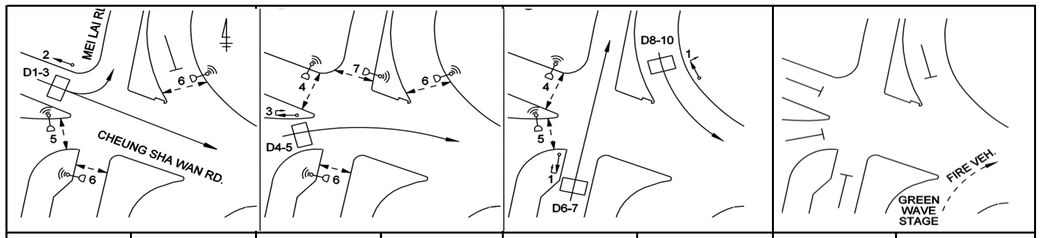
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 AM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_DES_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.389
Loss time		L =	38 sec
Total Flow		=	1944 pcu
Co	= (1.5*L+5)/(1-Y)	=	101.5 sec
Cm	= L/(1-Y)	=	62.2 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	58.1 %
Cp	= 0.9*L/(0.9-Y)	=	66.9 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	34 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

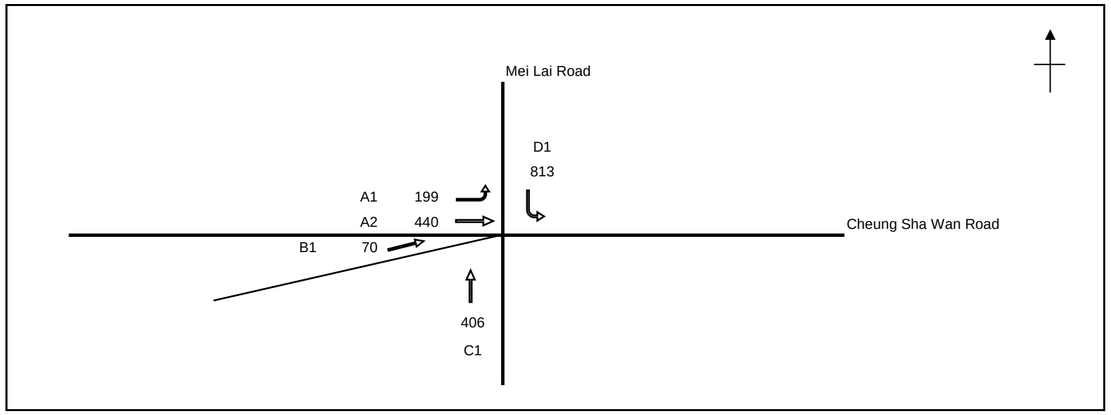
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	45	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	39	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	217	0		217	1.00	1572			1572	0.138	0.138		18	18	0.690	26
A2	1	3.40	A	1				2095		330		330	0.00	2095		400	2495	0.132			18	18	0.661	40
B1	2	3.80	B	1			N	1995		22		22	0.00	1995			1995	0.011			1	14	0.071	3
B1	2	3.80	B	1				2135		23		23	0.00	2135			2135	0.011			1	14	0.069	3
C1	3	3.00	C	1			N	1915		150		150	0.00	1915			1915	0.078	0.251		10	34	0.207	14
C1	3	3.40	C	1				2095		165		165	0.00	2095			2095	0.079			11	34	0.208	15
D1	3	3.20	C	1	30		N	1935	461			461	1.00	1843			1843	0.250			33	34	0.662	43
D1	3	3.20	C	1	30			2075	576			576	1.00	1976		320	2296	0.251			34	34	0.664	54
X	4																			5		5		
Hp																				5				

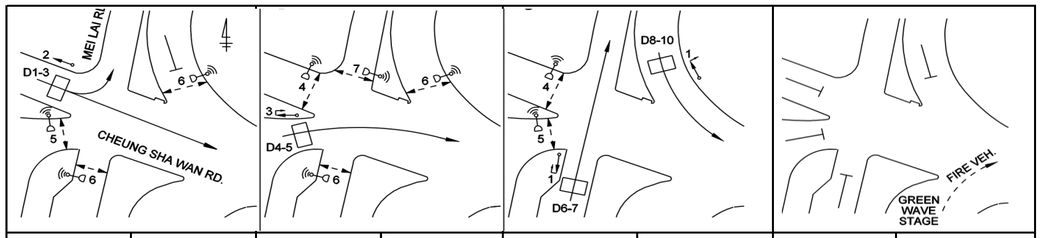
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 PM TRAFFIC FLOW DESIGN SCENARIO

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_DES_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.351
Loss time		L =	38 sec
Total Flow		=	1928 pcu
Co	= (1.5*L+5)/(1-Y)	=	95.6 sec
Cm	= L/(1-Y)	=	58.6 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	75.1 %
Cp	= 0.9*L/(0.9-Y)	=	62.3 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	48 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

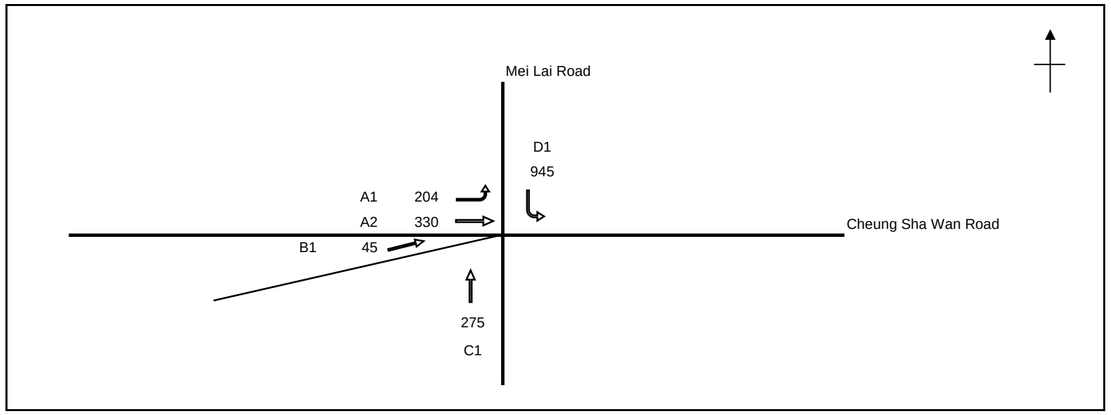
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	40	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	34	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	199	54		253	0.79	1638			1638	0.154	0.155		23	23	0.604	28
A2	1	3.40	A	1				2095		386		386	0.00	2095		400	2495	0.155			23	23	0.605	43
B1	2	3.80	B	1			N	1995		33		33	0.00	1995			1995	0.017			2	14	0.106	4
B1	2	3.80	B	1				2135		37		37	0.00	2135			2135	0.017			3	14	0.111	5
C1	3	3.00	C	1			N	1915		194		194	0.00	1915			1915	0.101	0.196		15	29	0.314	20
C1	3	3.40	C	1				2095		212		212	0.00	2095			2095	0.101			15	29	0.314	22
D1	3	3.20	C	1	30		N	1935	362			362	1.00	1843			1843	0.196			29	29	0.610	37
D1	3	3.20	C	1	30			2075	451			451	1.00	1976		320	2296	0.196			29	29	0.610	46
X	4																			5		5		
Hp																				5				

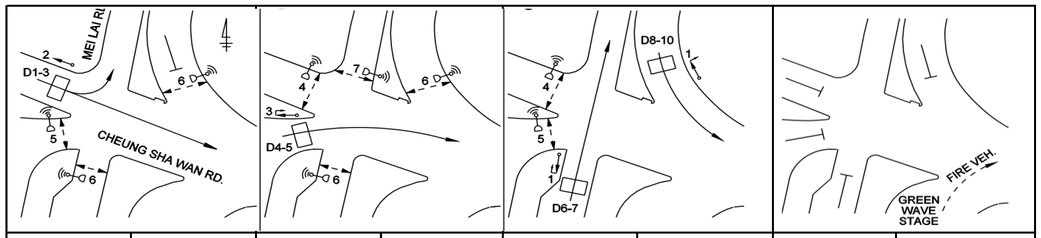
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO A

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_INT_A_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.360
Loss time		L =	38 sec
Total Flow		=	1799 pcu
Co	= (1.5*L+5)/(1-Y)	=	96.8 sec
Cm	= L/(1-Y)	=	59.4 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	70.9 %
Cp	= 0.9*L/(0.9-Y)	=	63.3 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	45 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

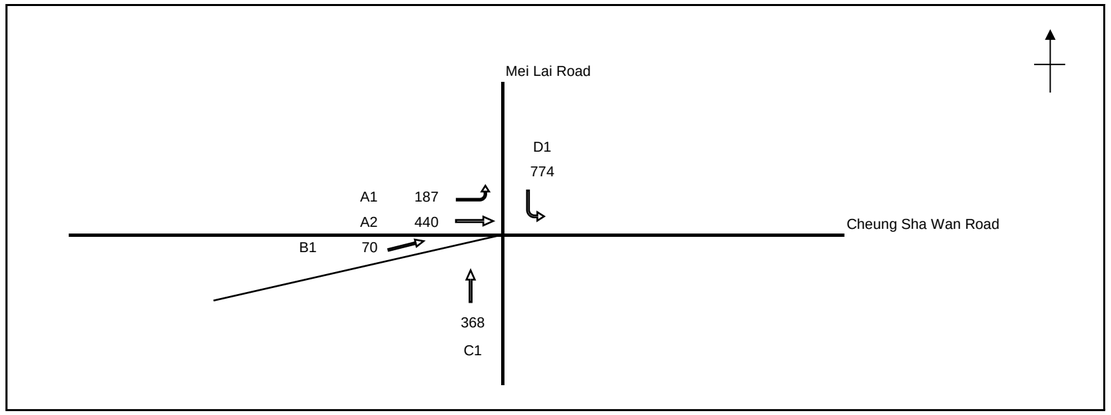
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	44	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	38	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	204	3		207	0.99	1576			1576	0.131	0.131		19	19	0.622	24
A2	1	3.40	A	1				2095		327		327	0.00	2095		400	2495	0.131			19	19	0.621	39
B1	2	3.80	B	1			N	1995		22		22	0.00	1995			1995	0.011			2	14	0.071	3
B1	2	3.80	B	1				2135		23		23	0.00	2135			2135	0.011			2	14	0.069	3
C1	3	3.00	C	1			N	1915		131		131	0.00	1915			1915	0.068	0.228		10	33	0.187	12
C1	3	3.40	C	1				2095		144		144	0.00	2095			2095	0.069			10	33	0.187	14
D1	3	3.20	C	1	30		N	1935	421			421	1.00	1843			1843	0.228			33	33	0.623	40
D1	3	3.20	C	1	30			2075	524			524	1.00	1976		320	2296	0.228			33	33	0.622	50
X	4																			5		5		
Hp																				5				

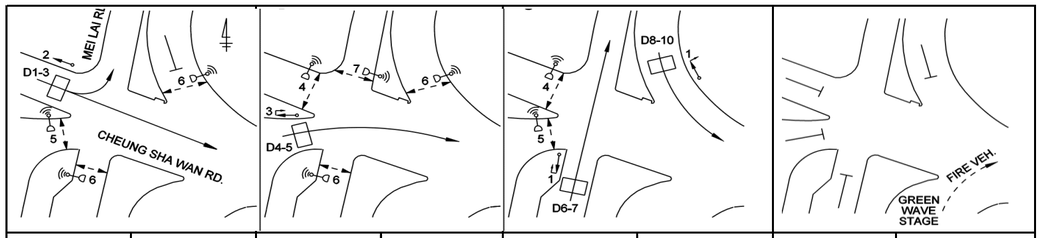
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO A

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_INT_A_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.339
Loss time		L =	38 sec
Total Flow		=	1839 pcu
Co	= (1.5*L+5)/(1-Y)	=	93.8 sec
Cm	= L/(1-Y)	=	57.5 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	81.6 %
Cp	= 0.9*L/(0.9-Y)	=	60.9 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	54 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

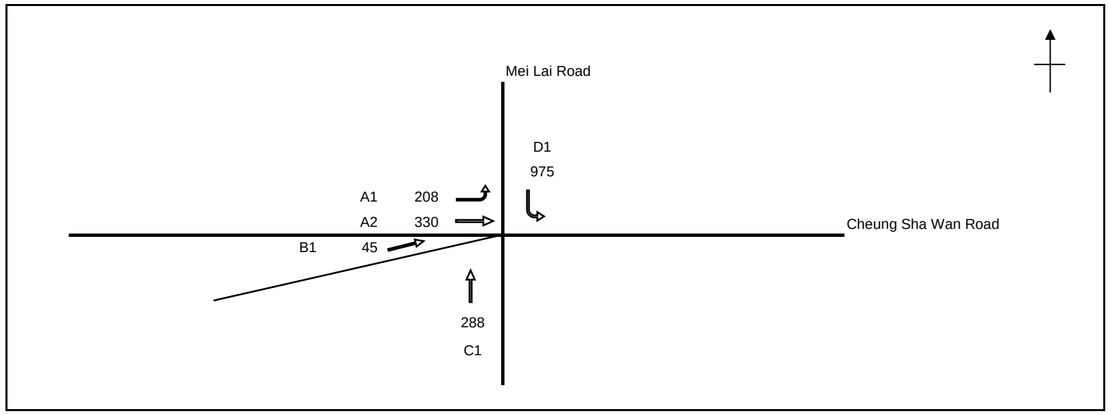
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	40	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	34	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	187	62		249	0.75	1649			1649	0.151	0.152		23	23	0.591	28
A2	1	3.40	A	1				2095		378		378	0.00	2095		400	2495	0.152			23	23	0.593	42
B1	2	3.80	B	1			N	1995		33		33	0.00	1995			1995	0.017			3	14	0.106	4
B1	2	3.80	B	1				2135		37		37	0.00	2135			2135	0.017			3	14	0.111	5
C1	3	3.00	C	1			N	1915		176		176	0.00	1915			1915	0.092	0.187		14	29	0.285	18
C1	3	3.40	C	1				2095		192		192	0.00	2095			2095	0.092			14	29	0.284	20
D1	3	3.20	C	1	30		N	1935	345			345	1.00	1843			1843	0.187			29	29	0.581	35
D1	3	3.20	C	1	30			2075	429			429	1.00	1976		320	2296	0.187			29	29	0.580	44
X	4																			5		5		
Hp																				5				

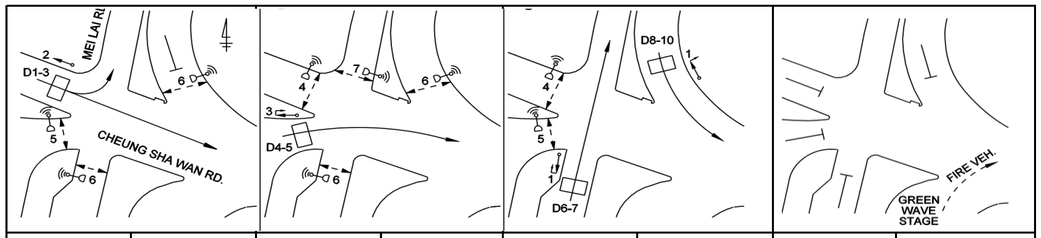
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO B

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_INT_B_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.368
Loss time		L =	38 sec
Total Flow		=	1846 pcu
Co	= (1.5*L+5)/(1-Y)	=	98.1 sec
Cm	= L/(1-Y)	=	60.1 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	67.2 %
Cp	= 0.9*L/(0.9-Y)	=	64.3 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	41 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

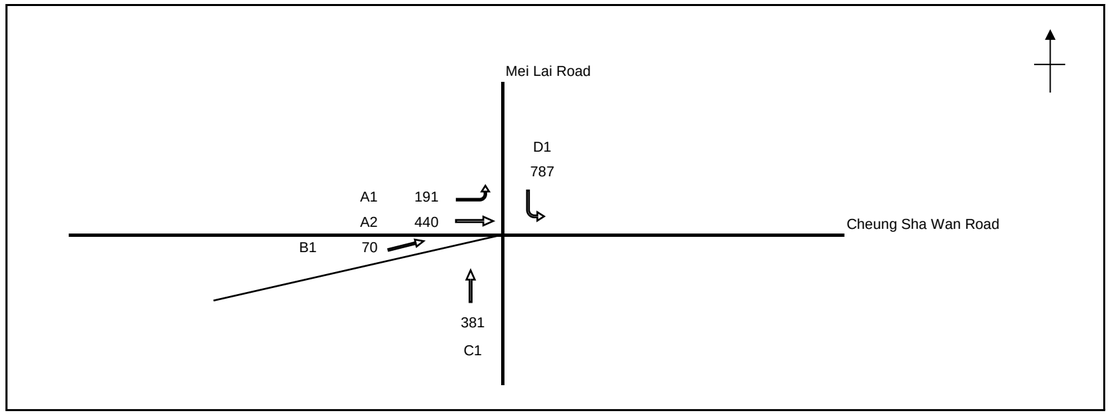
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	44	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	38	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	208	0		208	1.00	1572			1572	0.132	0.132		19	19	0.627	25
A2	1	3.40	A	1				2095		330		330	0.00	2095		400	2495	0.132			19	19	0.627	39
B1	2	3.80	B	1			N	1995		22		22	0.00	1995			1995	0.011			2	14	0.071	3
B1	2	3.80	B	1				2135		23		23	0.00	2135			2135	0.011			2	14	0.069	3
C1	3	3.00	C	1			N	1915		137		137	0.00	1915			1915	0.072	0.236		10	33	0.195	13
C1	3	3.40	C	1				2095		151		151	0.00	2095			2095	0.072			10	33	0.197	14
D1	3	3.20	C	1	30		N	1935	434			434	1.00	1843			1843	0.236			33	33	0.642	41
D1	3	3.20	C	1	30			2075	541			541	1.00	1976		320	2296	0.236			33	33	0.643	51
X	4																			5		5		
Hp																				5				

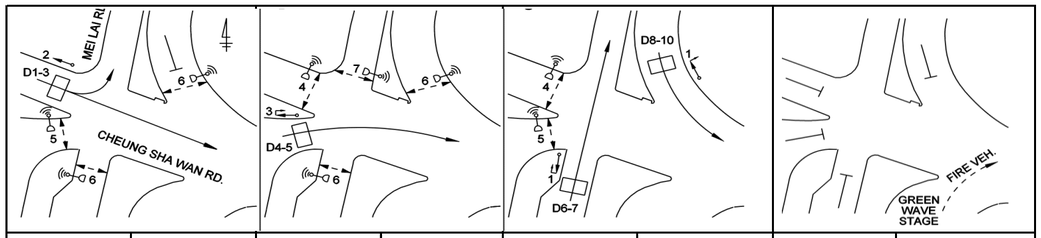
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO B

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_INT_B_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.343
Loss time		L =	38 sec
Total Flow		=	1869 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.4 sec
Cm	= L/(1-Y)	=	57.8 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	79.3 %
Cp	= 0.9*L/(0.9-Y)	=	61.4 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	52 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

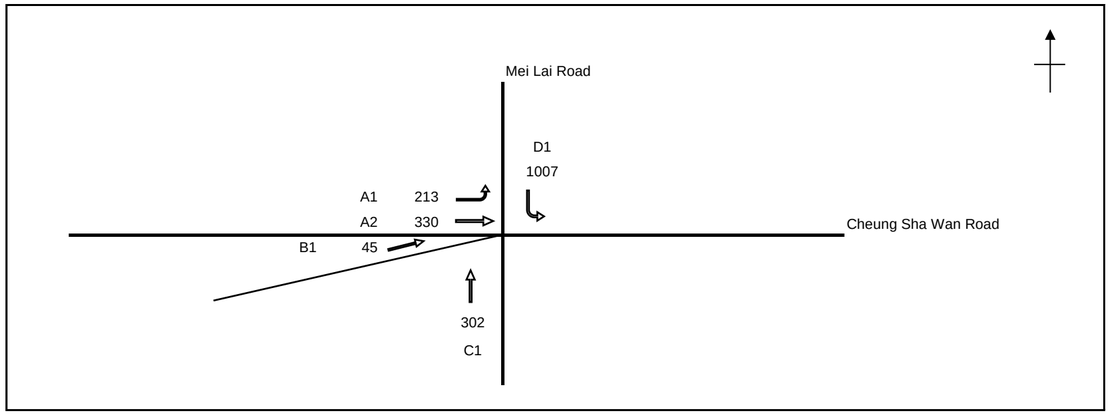
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	40	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	34	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	191	60		251	0.76	1646			1646	0.152	0.152		23	23	0.597	28
A2	1	3.40	A	1				2095		380		380	0.00	2095		400	2495	0.152			23	23	0.596	42
B1	2	3.80	B	1			N	1995		33		33	0.00	1995			1995	0.017			3	14	0.106	4
B1	2	3.80	B	1				2135		37		37	0.00	2135			2135	0.017			3	14	0.111	5
C1	3	3.00	C	1			N	1915		182		182	0.00	1915			1915	0.095	0.190		14	29	0.295	19
C1	3	3.40	C	1				2095		199		199	0.00	2095			2095	0.095			14	29	0.295	20
D1	3	3.20	C	1	30		N	1935	351			351	1.00	1843			1843	0.190			29	29	0.591	36
D1	3	3.20	C	1	30			2075	436			436	1.00	1976		320	2296	0.190			29	29	0.589	44
X	4																			5		5		
Hp																				5				

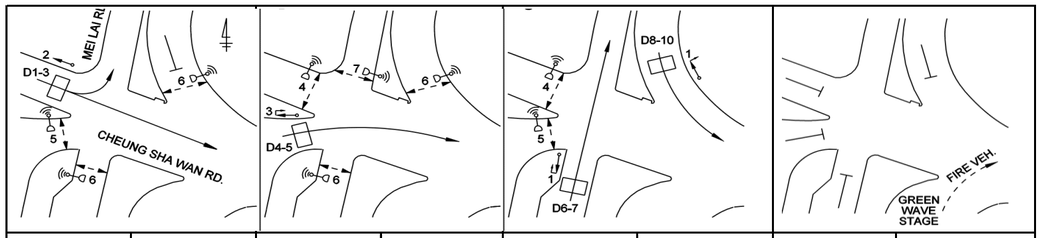
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 AM TRAFFIC FLOW
INTERIM SCENARIO C

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_INT_C_AM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.379
Loss time		L =	38 sec
Total Flow		=	1897 pcu
Co	= (1.5*L+5)/(1-Y)	=	99.8 sec
Cm	= L/(1-Y)	=	61.2 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	62.3 %
Cp	= 0.9*L/(0.9-Y)	=	65.6 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	37 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

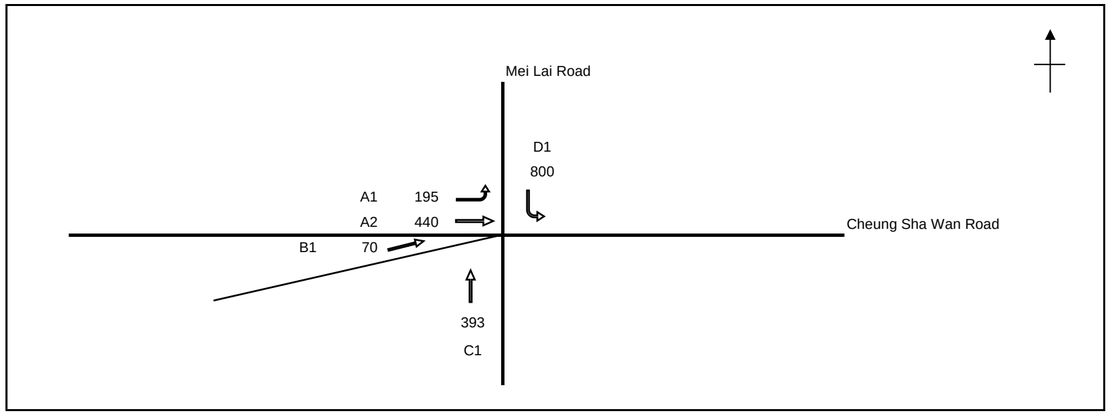
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	44	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	38	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	213	0		213	1.00	1572			1572	0.135	0.135		19	19	0.642	25
A2	1	3.40	A	1				2095		330		330	0.00	2095		400	2495	0.132			18	19	0.627	39
B1	2	3.80	B	1			N	1995		22		22	0.00	1995			1995	0.011			2	14	0.071	3
B1	2	3.80	B	1				2135		23		23	0.00	2135			2135	0.011			1	14	0.069	3
C1	3	3.00	C	1			N	1915		144		144	0.00	1915			1915	0.075	0.243		10	33	0.205	14
C1	3	3.40	C	1				2095		158		158	0.00	2095			2095	0.075			10	33	0.206	15
D1	3	3.20	C	1	30		N	1935	448			448	1.00	1843			1843	0.243			33	33	0.663	43
D1	3	3.20	C	1	30			2075	559			559	1.00	1976		320	2296	0.243			33	33	0.664	53
X	4																			5		5		
Hp																				5				

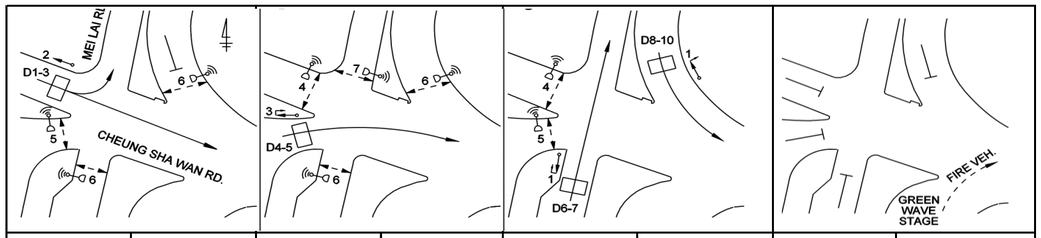
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J5 YEAR 2035 PM TRAFFIC FLOW
INTERIM SCENARIO C

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
S16 Application for Proposed Development at Kau Wa Keng		PROJECT NO: 299277-02	Junction No. J5
Cheung Sha Wan Road / Mei Lai Road	J5_INT_C_PM	DATE : 21-Jan-25	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.347
Loss time		L =	38 sec
Total Flow		=	1898 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.9 sec
Cm	= L/(1-Y)	=	58.2 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	77.3 %
Cp	= 0.9*L/(0.9-Y)	=	61.8 sec
Ymax	= 1-L/C	=	0.578
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	50 %



STAGE 1	INT= 7	STAGE 2	INT= 13	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
Ep	4.9	5	3	8	40	3	8	OK
Fp	4.5	5	3	6	53	3	6	OK
Gp	4	5	5	12	34	5	12	OK
Hp	3.7	5	7	9	5	7	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				28				
A1, A2	1	3.20	A	1	6.5		N	1935	195	57		252	0.77	1642			1642	0.153	0.154		23	23	0.601	28
A2	1	3.40	A	1				2095		383		383	0.00	2095		400	2495	0.154			23	23	0.601	43
B1	2	3.80	B	1			N	1995		33		33	0.00	1995			1995	0.017			2	14	0.106	4
B1	2	3.80	B	1				2135		37		37	0.00	2135			2135	0.017			3	14	0.111	5
C1	3	3.00	C	1			N	1915		188		188	0.00	1915			1915	0.098	0.193		15	29	0.305	19
C1	3	3.40	C	1				2095		205		205	0.00	2095			2095	0.098			15	29	0.304	21
D1	3	3.20	C	1	30		N	1935	356			356	1.00	1843			1843	0.193			29	29	0.600	36
D1	3	3.20	C	1	30			2075	444			444	1.00	1976		320	2296	0.193			29	29	0.600	45
X	4																			5		5		
Hp																				5				

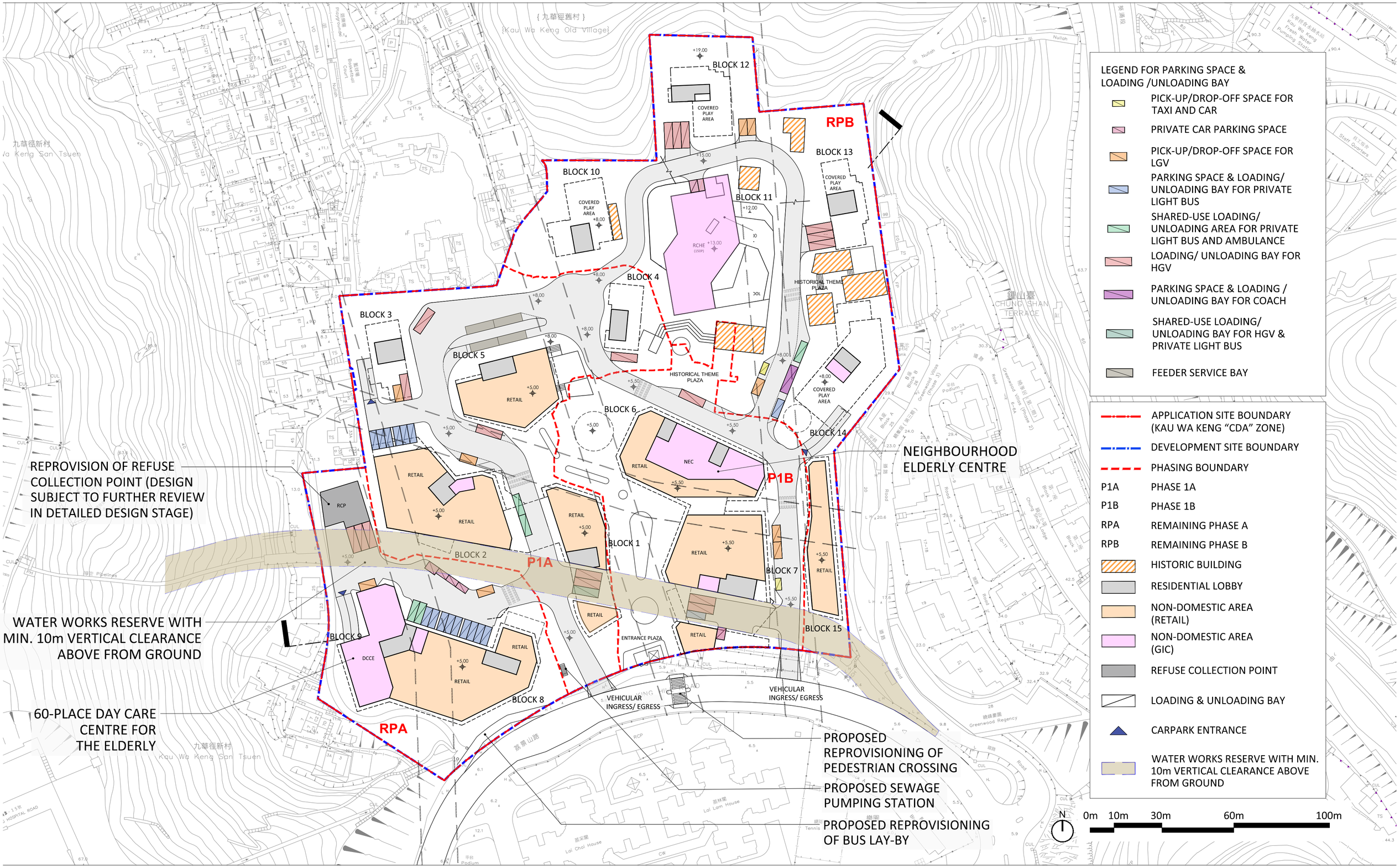
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix B

Highlighted Plans of Internal Transport Provision

GROUND FLOOR LAYOUT PLAN

1:500@A0 1:1000@A2



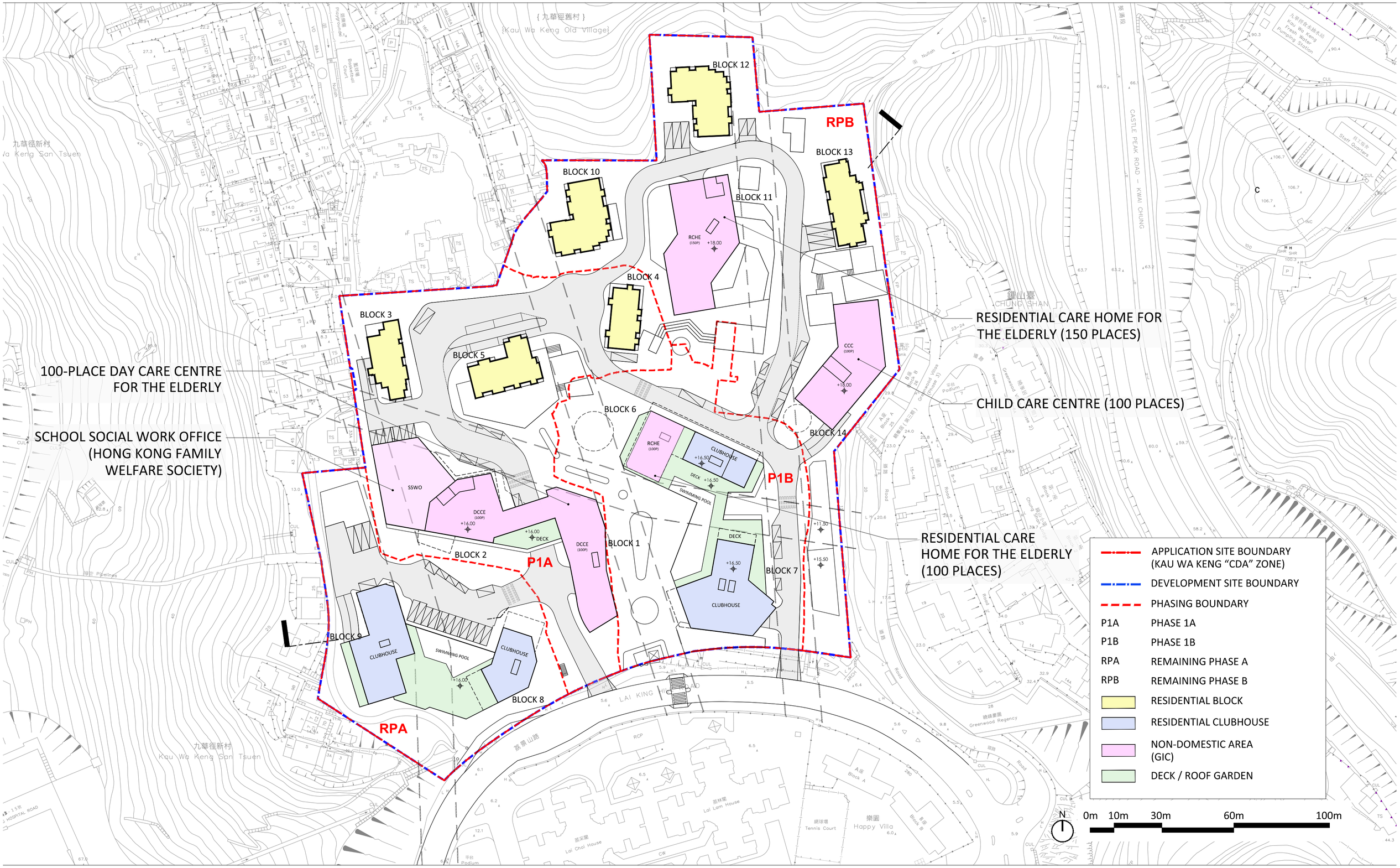
PROPOSED COMPREHENSIVE DEVELOPMENT INCLUDING FLATS, RETAIL AND COMMUNITY FACILITIES AND MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION IN "COMPREHENSIVE DEVELOPMENT AREA" ZONE
AT VARIOUS LOTS IN S.D.4 AND ADJOINING GOVERNMENT LAND, KAU WA KENG, KWAI CHUNG
21 FEBRUARY 2025

DRAWING NO.: MLP-SK01\01-R6

LU TANG LAI ARCHITECTS LTD.
L T L 呂鄧黎建築師有限公司

SECOND FLOOR LAYOUT PLAN

1:500@A0 1:1000@A2



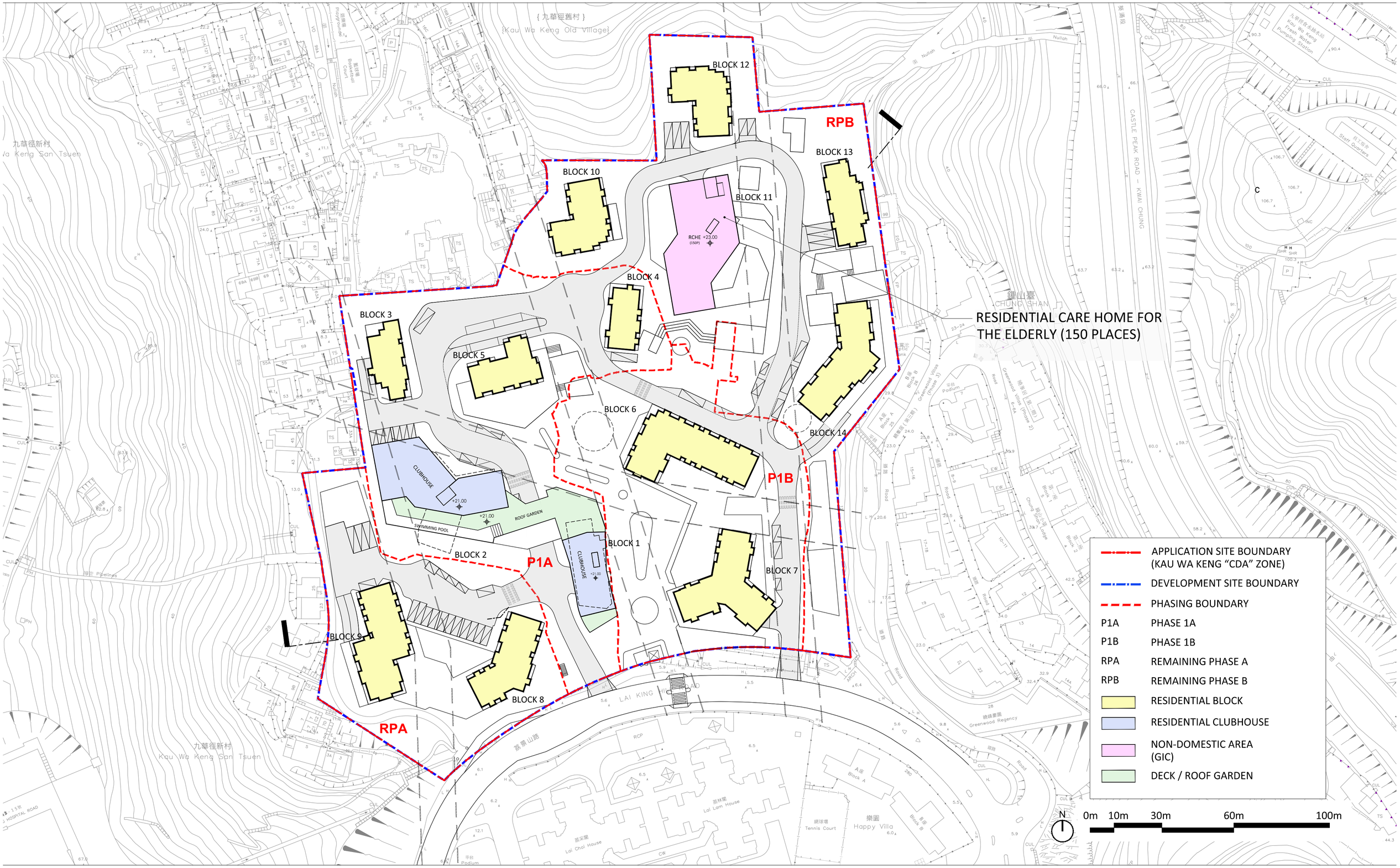
PROPOSED COMPREHENSIVE DEVELOPMENT INCLUDING FLATS, RETAIL AND COMMUNITY FACILITIES AND MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION IN "COMPREHENSIVE DEVELOPMENT AREA" ZONE
AT VARIOUS LOTS IN S.D.4 AND ADJOINING GOVERNMENT LAND, KAU WA KENG, KWAI CHUNG
21 FEBRUARY 2025

DRAWING NO.: MLP-SK01\03-R6

LU TANG LAI ARCHITECTS LTD.
L T L 呂鄧黎建築師有限公司

THIRD FLOOR LAYOUT PLAN

1:500@A0 1:1000@A2



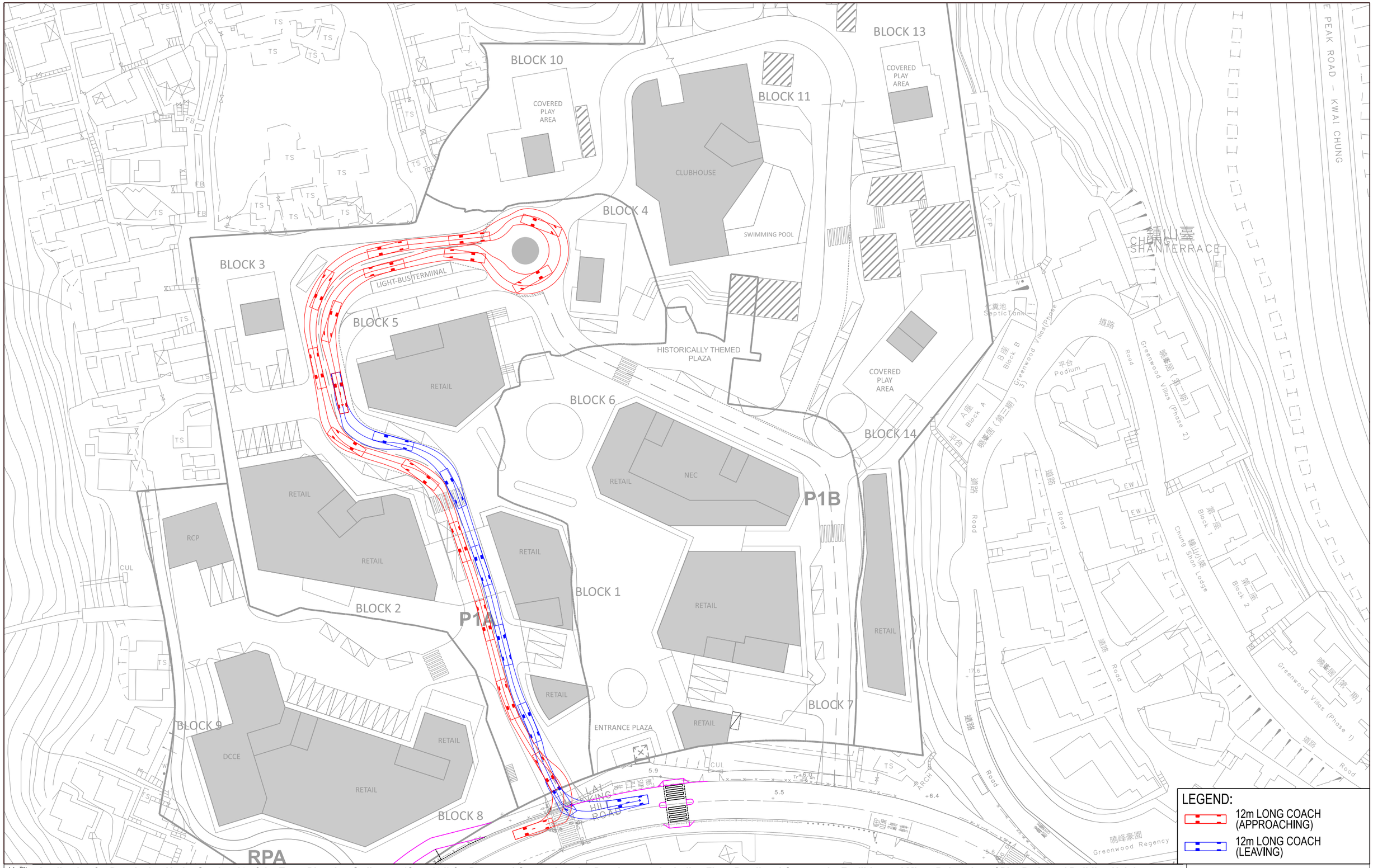
PROPOSED COMPREHENSIVE DEVELOPMENT INCLUDING FLATS, RETAIL AND COMMUNITY FACILITIES AND MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION IN "COMPREHENSIVE DEVELOPMENT AREA" ZONE
AT VARIOUS LOTS IN S.D.4 AND ADJOINING GOVERNMENT LAND, KAU WA KENG, KWAI CHUNG
21 FEBRUARY 2025

DRAWING NO.: MLP-SK01\04-R6

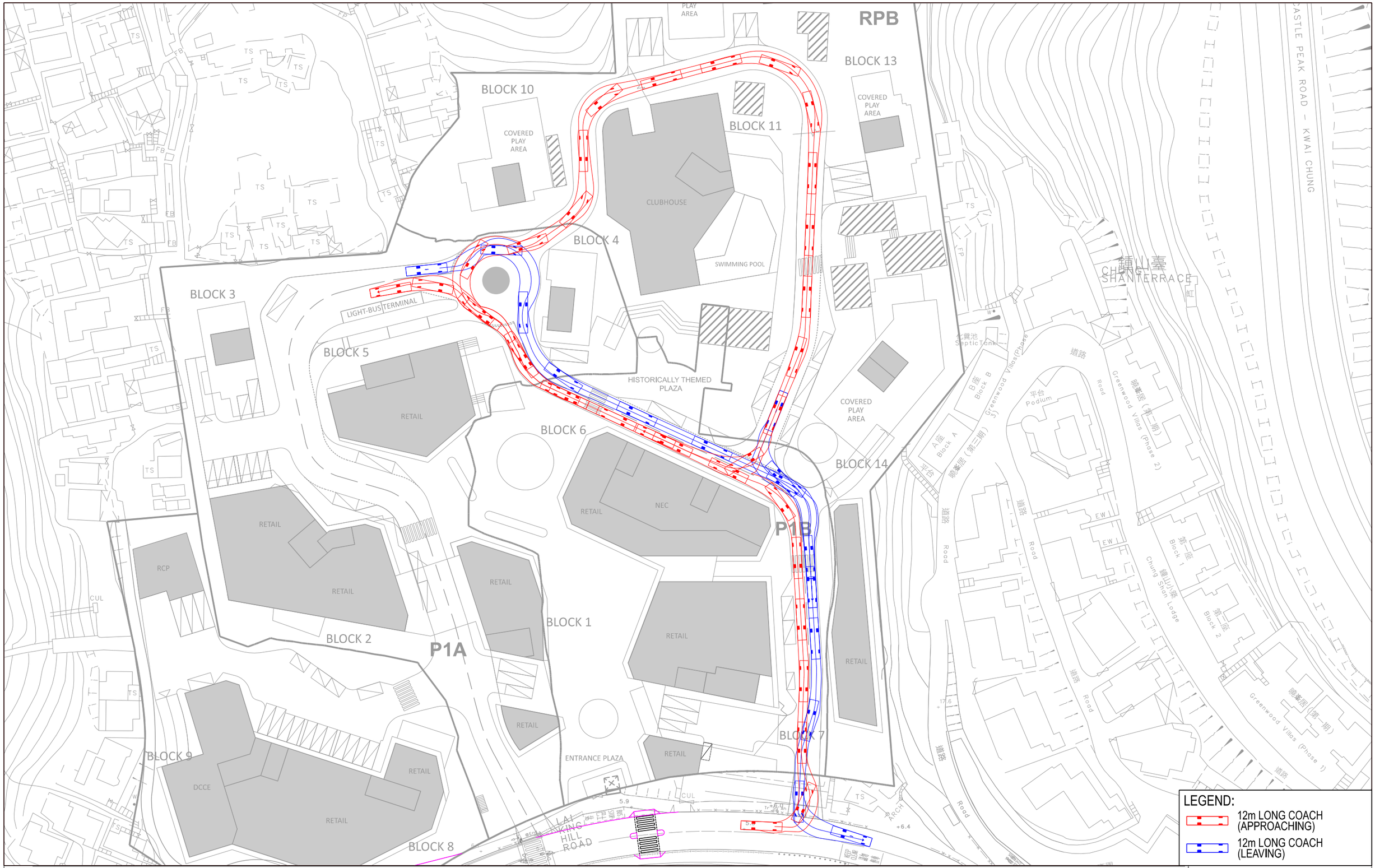
LU TANG LAI ARCHITECTS LTD.
L T L 呂鄧黎建築師有限公司

Appendix C

Critical Swept Path Analysis



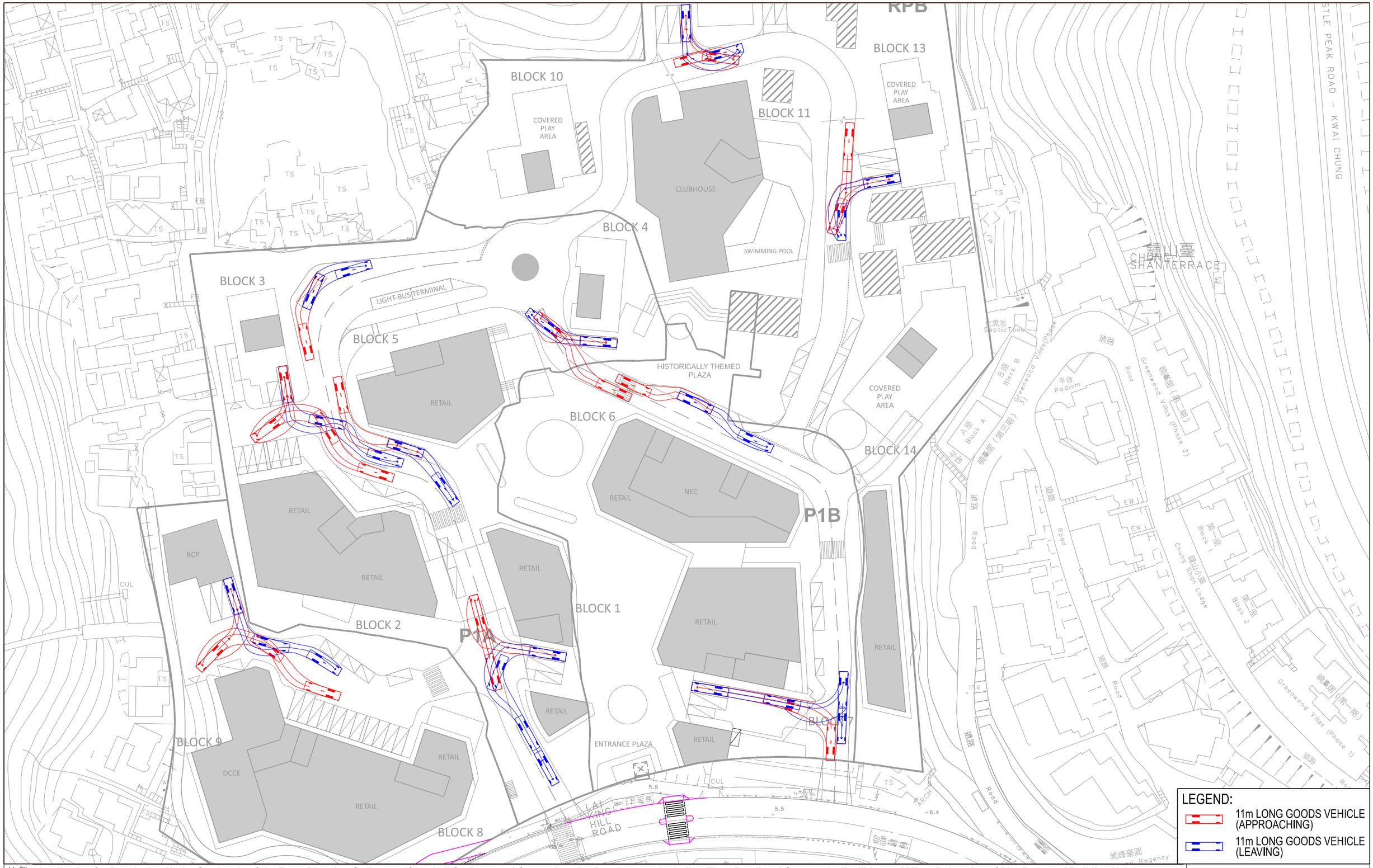
Job Title	**Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung**	SK-011_SP5
Date: 15JAN25 / Scale: 1:1000@A3	Drawing Title: SWEPT PATH ANALYSIS FOR 12m LONG COACH	ARUP
Drawn: WLAC / Job No.: 299277-02		



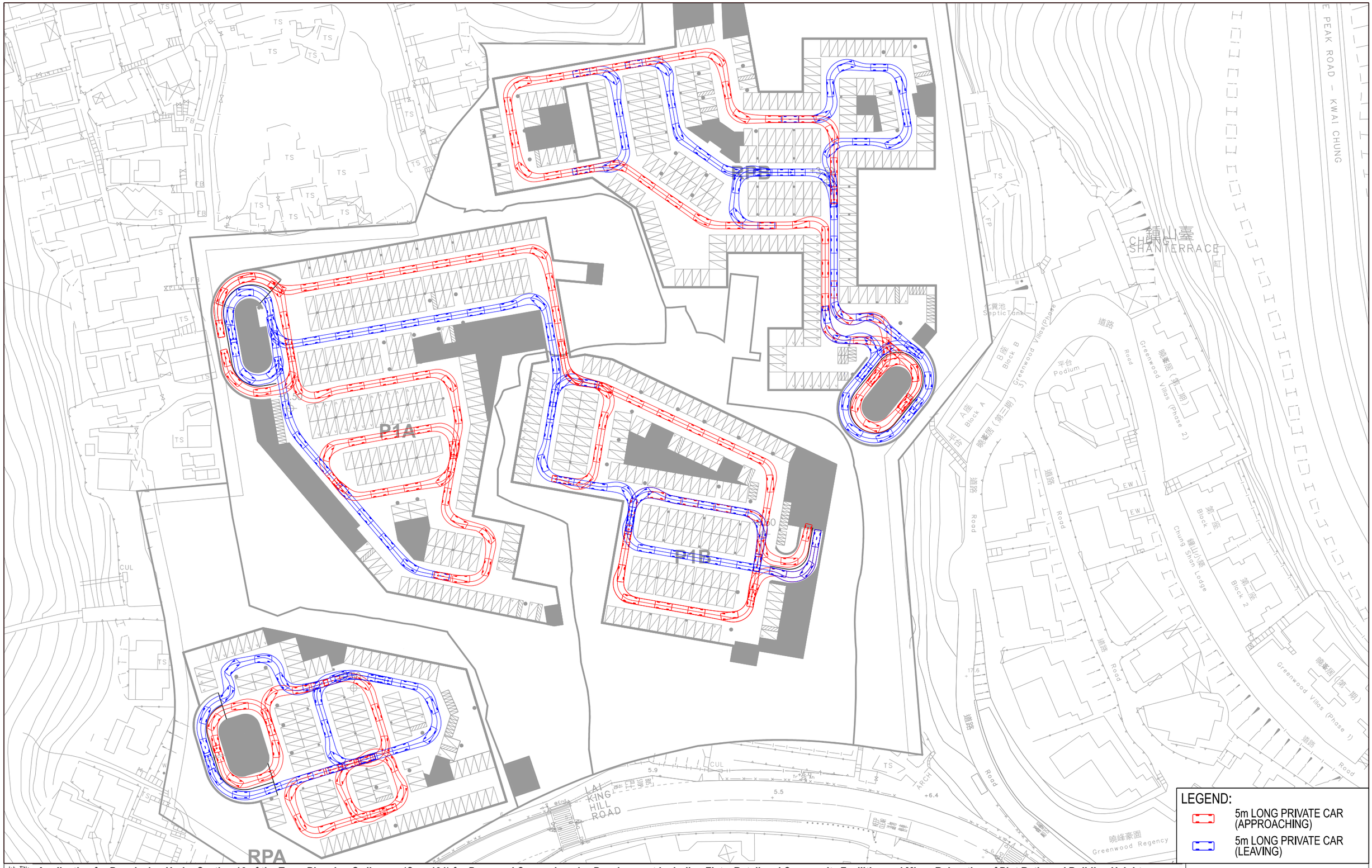
Job Title	
Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung	SK-011_SP7

Date	Scale	Drawing Title
14JAN25	1:300@A3	SWEPT PATH ANALYSIS FOR 12m LONG COACH
Drawn	Job No.	
WLAC	299277-02	

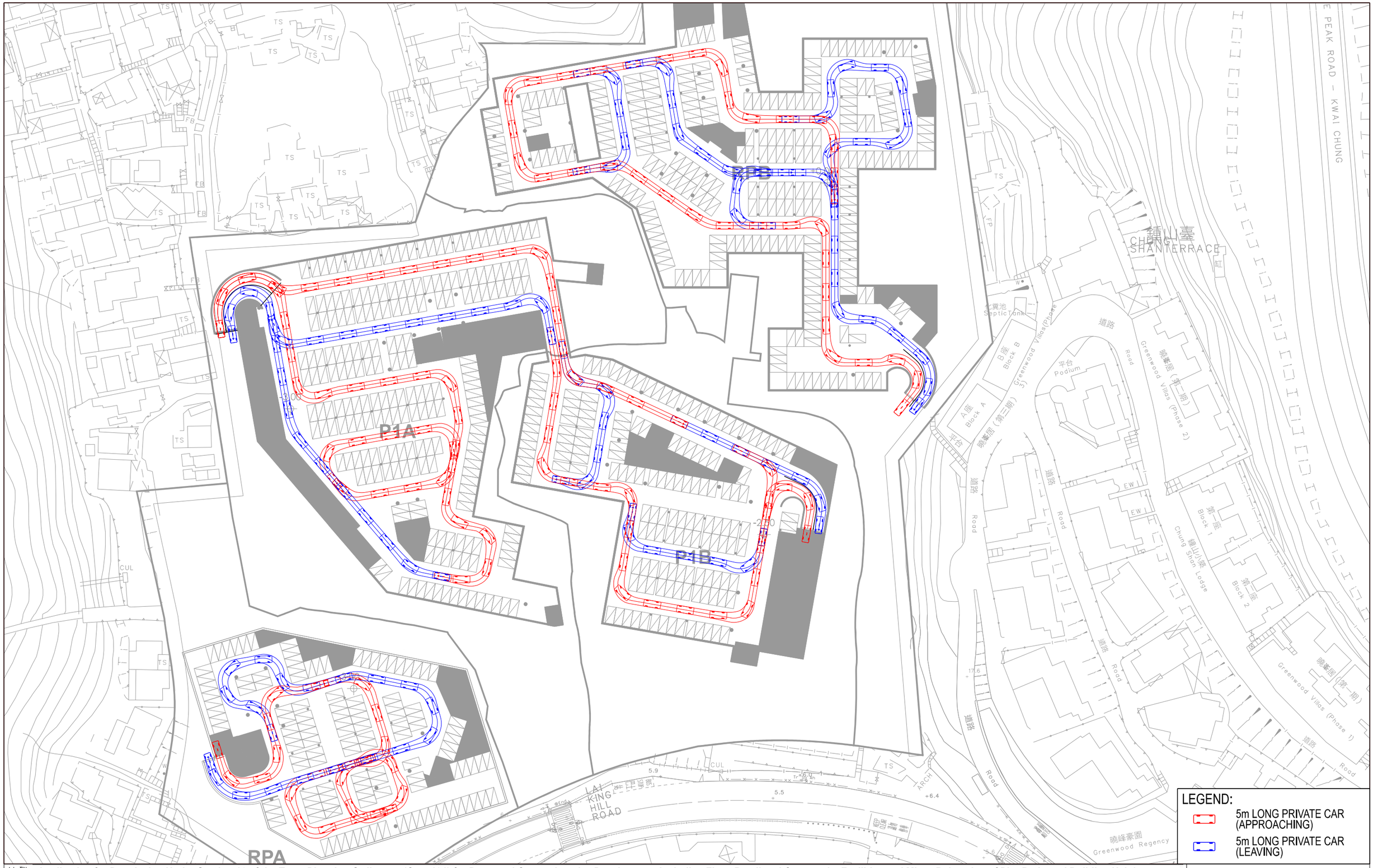
ARUP



Job Title		
Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung		SK-011_SP3
Date: 14JAN25	Scale: 1:1000@A3	Drawing Title: SWEPT PATH ANALYSIS FOR 11m LONG GOODS VEHICLE
Drawn: WLAC	Job No.: 299277-02	ARUP



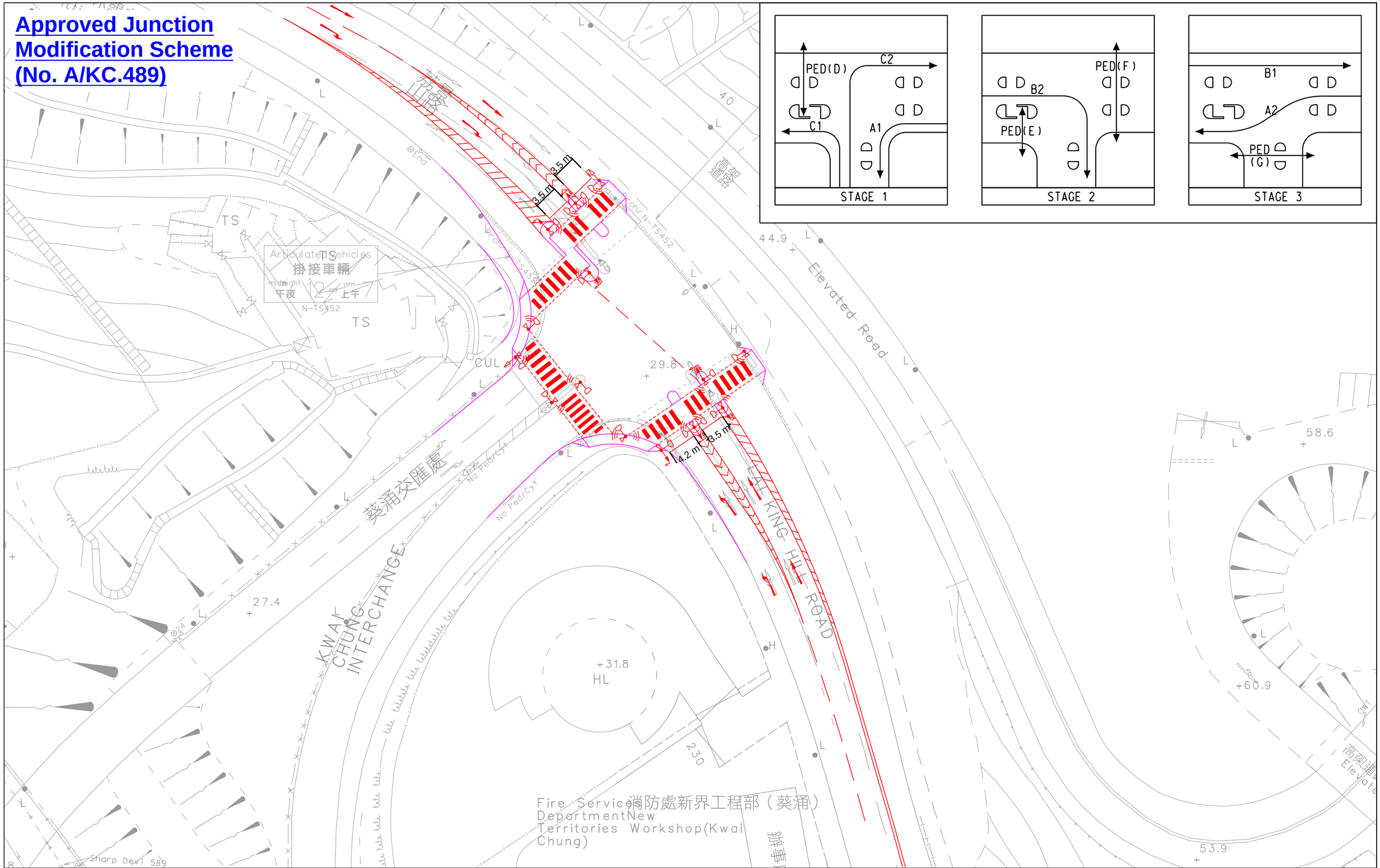
Job Title	**Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung**	SK-012_SP1
Date: 14JAN25	Scale: 1:1000@A3	Drawing Title: SWEPT PATH ANALYSIS FOR 5m LONG PRIVATE CAR AT B1
Drawn: WLAC	Job No.: 299277-02	ARUP



Job Title	**Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Comprehensive Development including Flats, Retail and Community Facilities and Minor Relaxation of Plot Ratio and Building Height Restriction in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung**	SK-013_SP1
Date: 14JAN25 / Scale: 1:1000@A3	Drawing Title: SWEPT PATH ANALYSIS FOR 5m LONG PRIVATE CAR AT B2	ARUP
Drawn: WLAC / Job No.: 299277-02		

Appendix D

Junction Modification Scheme in Approved Planning Application (No. A/KC.489)



Job Title			
S16 Planning Application for Proposed Comprehensive Development including Flat and Community Facilities in "Comprehensive Development Area" Zone at Various Lots in S.D.4 and Adjoining Government Land, Kau Wa Keng, Kwai Chung			FIGURE 4.4
Date: DEC 21	Scale: NTS	Drawing Title: PROPOSED JUNCTION MODIFICATION FOR J3	ARUP
Drawn: KSIY	Job No.		