

Job No. EO/J/2025/005

Planning Consultancy Service for Redevelopment of Middleton Towers to Student Hostel for the University of Hong Kong

Traffic Impact Assessment

(Ref. TIA-02)

July 2026

AECOM ASIA COMPANY LIMITED

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1 INTRODUCTION

1.1. Background

- 1.1.1. In view of the shortage of student housing in the University and the significant increase in student enrolment in coming years, the University of Hong Kong (HKU) explores opportunity to collaborate with private partner for the joint re-development of the Middleton Towers in Pokfulam to transform the existing staff quarters into modern student hostels. This initiative not only seeks to enhance the quality of life for students but also reinforces the University's commitment to providing a supportive and enriching campus experience.
- 1.1.2. The application site (140 Pokfulam Road, RBL No. 825 RP) falls within an area zoned "Residential (Group C)" ("R(C)") use on the approved Pok Fu Lam Outline Zoning Plan (OZP) No. S/H10/23. According to the Notes of the OZP, the proposed student hostel falls under Column 2, requiring a section 16 planning application to seek approval from the Town Planning Board (TPB). The site location is shown in **Figure 1.1**.
- 1.1.3. AECOM Asia Company Limited has been commissioned by the HKU to provide professional consultancy services to assist the University to prepare and submit a Section 16 Town Planning Application in order to seek approval from the TPB on column 2 usages to facilitate the student hostel development.
- 1.1.4. Planning application at this stage shall be restricted to modification of the existing buildings internally, without alterations to the bulk of the existing buildings, landscaping or external works. It aims to transform the three existing staff quarter towers into modern hostels by internal re-partitioning to provide 900beds for undergraduate/postgraduate students.

1.2. Purpose of the Report

- 1.2.1. The purposes of this Traffic Impact Assessment (TIA) are summarized as follows:-
- (a) To review and collect the traffic and transport data presently available, and forecast traffic flow pattern generated and attracted by the proposed development;
 - (b) To identify roads and junctions in the road network nearby affected by the proposed development and recommend improvement measures if necessary;
 - (c) To devise suitable vehicular access, parking arrangements and loading/unloading facilities for the proposed development; and
 - (d) To assess adjacent public transport facilities affected by the proposed development and recommend improvement measures if necessary.

1.3. Structure of the Report

- 1.3.1. This Report is organized into 8 sections including this introductory section:-
- **Section 2** reviews the existing traffic condition;
 - **Section 3** summarizes the planning parameters of the proposed development;
 - **Section 4** outlines the methodology and traffic forecasts of the TIA;
 - **Section 5** presents traffic impacts assessments for future design year;
 - **Section 6** presents the construction traffic impact assessment;
 - **Section 7** reviews future public transport services; and

- **Section 8** summarizes the findings and recommendations of the TIA.

1.4. Abbreviations

- 1.4.1. The following table lists out the abbreviated titles of Government bureaux, departments, offices, statutory bodies, public organisations and expressions mentioned in this Technical Note:

Abbreviation	Full title
DFC	Design Flow over Capacity
GFA	Gross Floor Area
GIC	Global Innovation Centre
HKPSG	Hong Kong Planning Standards and Guidelines
HKU	University of Hong Kong
HWC	High West Campus Development
L/UL	Loading/unloading
OZP	Outline Zoning Plan
PCU	Passenger Car Unit
PlanD	Planning Department
PT	Public transport
RC	Reserved Capacity
R(C)	Residential (Group C)
TPB	Town Planning Board
TPDM	Transport Planning and Design Manual
TPEDM	Territorial Population and Employment Data Matrix
TTIA	Traffic and Transport Impact Assessment

2 EXISTING CONDITIONS

2.1. Existing Road Network

- 2.1.1. The existing road network in the vicinity of the Site is shown in **Figure 2.1**. The Site is served by an unnamed single track access road which connects the Middleton Towers to Pok Fu Lam Road. Pok Fu Lam Road is a primary distributor running in a north-south direction, connecting Queen's Road West to the north and Shek Pai Wan Road to the south. The section in the vicinity of the Site features a single 4-lane arrangement.
- 2.1.2. A summary of the key junctions to be assessed along the major access routes from/to the Site are shown in **Tables 2.1**. Existing junction layouts are presented in **Appendix A**.

Table 2.1 Key Junctions for Assessment

Junction No.	Junction Location	Junction Type
J1	Pok Fu Lam Road / Access Road to Middleton Towers	Priority
J2	Pok Fu Lam Road / Access Road to University Hall	Priority
J3	Pok Fu Lam Road / Victoria Road	Signal
J4	Pok Fu Lam Road / Sassoon Road / Access Road To Queen Mary Hospital	Signal
J5	Pok Fu Lam Road / Sassoon Road	Priority
J6	Pok Fu Lam Road / Smithfield / Mount Davis Road	Signal
J7	Pok Fu Lam Road / Pokfield Road	Signal
J8	Signalized Pedestrian Crossing at Pok Fu Lam Road near Belcher's	Signal
J9	Signalized Pedestrian Crossing at Pok Fu Lam Road near Woodbury Court	Signal

2.2. Existing Performance of Key Junctions and Road Links

- 2.2.1. Manual traffic counts of key junctions were conducted on a normal weekday in March 2026 during 07:30 – 09:30 and 17:00 – 19:00. Based on the surveyed data, the AM and PM peak hours for the assessed junctions are 07:45 – 08:45 and 17:45 – 18:45 respectively. The observed traffic flows are presented in **Figure 2.2**.
- 2.2.2. Performance of key junctions in 2026 are presented in **Table 2.2**. Detailed junction calculation sheets are presented in **Appendix B**.
- 2.2.3. The results indicate that all key road junctions and road links are operating with sufficient capacity in 2026.

Table 2.2 Existing Key Junction Performance

Junction No.	Junction Location	Junction Type	2026 Existing Case	
			RC/DFC ⁽¹⁾	
			AM	PM
J1	Pok Fu Lam Road / Access Road to Middleton Towers	Priority	0.05	0.03
J2	Pok Fu Lam Road / Access Road to University Hall	Priority	0.03	0.03
J3	Pok Fu Lam Road / Victoria Road	Signal	37%	38%
J4	Pok Fu Lam Road / Sassoon Road / Access Road To Queen Mary Hospital	Signal	44%	53%
J5	Pok Fu Lam Road / Sassoon Road	Priority	0.77	0.64
J6	Pok Fu Lam Road / Smithfield / Mount Davis Road	Signal	32%	44%
J7	Pok Fu Lam Road / Pokfield Road	Signal	38%	45%
J8	Signalized Pedestrian Crossing at Pok Fu Lam Road near Belcher's	Signal	30%	42%
J9	Signalized Pedestrian Crossing at Pok Fu Lam Road near Woodbury Court	Signal	>100%	>100%

Note:

(1) Signalized junction capacity is measured by the Reserved Capacity (RC) of the junction. Priority junction and roundabout are measured by the ratio of Design Flow over Capacity (DFC).

2.3. Existing Public Transport Services

2.3.1. Existing public transport (PT) services in the vicinity of the Site are illustrated in **Figure 2.3** and listed in **Table 2.3**.

Table 2.3 Existing Public Transport Services

Route No.	Origin – Destination
Franchised Bus	
4	Wah Fu (South) / Wong Chuk Hang – Central
4X	Wah Fu (South) – Central
7	Shek Pai Wan – Central
30X	Cyberport – Admiralty (East)
33X	Cyberport – Shau Kei Wan
37A	Chi Fu Fa Yuen – Central

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Route No.	Origin – Destination
37B	Chi Fu Fa Yuen – Admiralty
37X	Chi Fu Fa Yuen – Admiralty
40	Wah Fu (North) – Exhibition Centre Station
40M	Wah Fu (North) – Exhibition Centre Station
40P	Wah Fu (North) – Robinson Road
43M	Tin Wan – Shek Tong Tsui
47P	Belcher Bay – Wong Chuk Hang
71	Wong Chuk Hang – Central (Rumsey Street)
71P	Sham Wan – Central (Ferry Piers)
90B	South Horizons – Admiralty (East)
91	Ap Lei Chau Estate – Central (Ferry Piers)
93	South Horizons / Ap Lei Chay Estate – Robinson Road
93A	Lei Tung Estate – Robinson Road
93C	Ap Lei Chau Main Street / Tin Wan – Caine Road
970	Cyberport – So Uk Estate
970X	Aberdeen – Cheung Sha Wan (Kom Tsun Street)
971	Aberdeen (Shek Pai Wan) – Hoi Lai Estate
973	Stanley Village – Tsim Sha Tsui (Mody Road)
A10	Ap Lei Chau (Lee Lok Street) – Airport (via HZMB Hong Kong Port)
NA10	Ap Lei Chau (Lee Lok Street) – Airport (via HZMB Hong Kong Port)
X970	South Horizons – Cheung Sha Wan (Kom Tsun Street)
Green Minibus	
8	Baguio Villas (Lower) – Central (Exchange Square)
8X	Baguio Villas (Lower) – Central (Exchange Square)
10	Cyberport – Causeway Bay (Jaffe Road)
10P	Cyberport – Causeway Bay (Jaffe Road)
22	Pok Fu Lam Gardens – Central (Exchange Square)

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Route No.	Origin – Destination
22S	Pok Fu Lam Gardens – Central (Ferry Piers)
22X	Pok Fu Lam Gardens – Central (Ferry Piers)
23	Kennedy Town Station – Pok Fu Lam
23M	Chi Fu Fa Yuen – Kennedy Town Station
28	Baguio Villas (Upper) – Causeway Bay
28M	Baguio Villas (Upper) – HKU Station
28S	Baguio Villas (Upper) – HKU Station
31	Tin Wan Estate – Causeway Bay (Jaffe Road)
31X	Tin Wan Estate – Causeway Bay (Jaffe Road)
58	Aberdeen Centre – Kennedy Town Station
58A	Aberdeen (Wu Nam Street) – Kennedy Town Station
58M	Bel-Air – Kennedy Town Station
59	Shum Wan Road Public Terminus – Kennedy Town Station
69	Cyberport – Quarry Bay (Shipyard Lane)
69A	Cyberport – Wong Chuk Hang Station
69X	Cyberport – Causeway Bay (Lockhart Road)
N31	Tin Wan Estate – Causeway Bay (Jaffe Road)

3 THE DEVELOPMENT

3.1. Existing Site Condition

3.1.1. The existing Middleton Towers serves as staff quarters for HKU. It should be noted that currently only 16 out of a total of 72 flats are occupied, representing occupancy rate of 22%. The detailed development parameters are as below:

- Number of Blocks: 3
- Total Number of Flats: 72
- Average Flat Size: Approximately 240m²
- Number of Private Car Parking Space: 92

3.2. Proposed Development

3.2.1. The Middleton Towers is proposed to be internally re-partitioned and converted into a student hostel. Upon completion, it is anticipated that the three buildings will provide approximately 900 student housing units in single-occupancy rooms.

3.2.2. Internal re-partitioning works of the Middleton Towers are anticipated to commence in 2027 and reach completion in 2028 Q1. Any long-term redevelopment of Middleton Tower would be reviewed separately at a later stage, subject to future operational requirements and confirmation of lease arrangements. The design year for operation stage will be 3 years after the completion of construction works, which is 2031. The years of assessment are summarized in Table 3.1.

Table 3.1 Assessment Years

Stage	Design Year
Construction	2027
Completion	2028 Q1
Operation	2031

3.3. Existing and Proposed Site Access Arrangement

3.3.1. Currently, the unnamed single-track access road off Pok Fu Lam Road is the only vehicular access point for the Middleton Towers, with existing traffic consisting mainly of private vehicles and shuttle buses. Due to limited road width, certain sections of the road, particularly at road bends, do not allow for simultaneous two-way movement. The operational constraints for private vehicle two-way movement are further detailed in the swept path analysis provided in Appendix E.

3.3.2. Technical constraints, including the presence of slopes, existing retaining walls and the proximity of the HKU High West Campus Development (HWC), have been identified as significant barriers to widening the existing access road. Consequently, road conditions are likely to remain unchanged. To enhance future traffic safety and allow sufficient manoeuvring space within the unnamed access road, a traffic control management scheme of implementing signalised control to allow only one way traffic would be proposed for heavy vehicles to turn smoothly at narrow bends. The queueing analysis demonstrates 95% confidence that vehicles queueing will not exceed designated queueing space. Moreover, swept path analyses indicate that the 6m-wide road layout under HWC provides sufficient width for vehicles to bypass any potential queue spillback. The traffic control management scheme, along with the queueing analysis, swept path analyses, and junction assessments, is presented in Appendix F. Long term redevelopment will be further considered by the applicant in the future, subject to operational needs. The necessity of providing new vehicular connection between HWC and

Middleton Towers would be further reviewed if redevelopment of the Middleton is to be proceeded.

- 3.3.3. The proposed vehicular access for the HWC, located to the east of Pok Fu Lam Road between Junctions J1 and J2, involves a reconfiguration of the local traffic layout which this Project will adopt.
- 3.3.4. The unnamed access road to University Hall will be converted from 2-way to 1-way ingress only, while the access road to the Middleton Towers will transition to 1-way egress only. These two routes will be integrated via a new internal link road connecting both access roads. In addition, right turn traffic from Pok Fu Lam Road northbound will be prohibited at Junction J2. Under this arrangement, northbound traffic from Pok Fu Lam Road will be required to turn around near Junction J5 to approach the Site from the southbound direction. The rearranged traffic layout is illustrated in **Appendix C**.

3.4. Parking Provision

- 3.4.1. For parking and loading/ unloading (L/UL) provision, there is no parking standard available in the Hong Kong Planning Standards and Guidelines (HKPSG) for student hostel. To cater for parking and L/UL needs, reference was made to the existing and proposed student hostels of similar size, as shown in **Table 3.2**.

Table 3.2 Parking Space and L/UL bay for Similar Student Hostels

Elements	Wei Lun Hall, Richard Charles Lee Hall, Lee Hysan Hall	Planned High West Student Hostel
No. of Students Rooms	1,134	938
Car Parking Space	16	9
L/UL Bay	/	1

- 3.4.2. From the above table, car parking ratio is around 1 parking space per 70 - 100 students and only 1 L/UL bay is provided for the student hostels. On average, car parking ratio of 1 to 90 students and 1 L/UL bay are adopted for the redevelopment of Middleton Towers. The provision of internal transport facilities are as follows:

- Car Parking Space: 10 parking spaces with dimensions of 5m x 2.5m
- Good Vehicle L/UL Bay: 1 L/UL bay with dimensions of 11m x 3.5m

3.5. Trip Generation

Trip Generation Survey

- 3.5.1. To understand the trip rate associated with the existing use of the Middleton Towers, conducting trip generation survey there is straightforward. However, it would lead to great variation for the projected trip generation for full occupancy if the trip rate is based on the current low occupancy condition. Therefore, a trip generation survey was conducted at another staff quarters site, Tam Towers & Gardens, with a higher occupancy rate of 79%, to capture vehicular movements associated with staff quarters and to provide a baseline for assessing current traffic conditions. Tam Towers & Gardens have an average flat size of 250 m², which is comparable to that of Middleton Towers. There are also 128 number of car parking spaces

to serve for 120 flats in Tam Towers & Gardens, which the ratio is comparable to that of Middleton Tower with 93 number of car parking spaces to serve for 72 flats.

- 3.5.2. The University Hall, an existing student hostel having a location and land-use comparable to the proposed use of the Middleton Towers, was surveyed as a reference site. In addition, an additional trip generation survey was conducted at the Po Leung Kuk Lee Shau Kee Youth Oasis, which provides 1,680 hostel places. This reference site is developed to support the "Youth Hostel Scheme" and operated by a private NGO, which is anticipated to have a higher travelling rate than that of traditional student hostel. It is comparable to the redeveloped Middleton Tower with its purpose of being a privately operated student hostel targeting similar age group. Furthermore, the reference site exhibits comparable characteristics, including its relatively remote location from MTR station thus reliance on public transport services such as minibus feeders. Nevertheless, the reference development comprises much more occupants at working age than Middleton, who may have much higher chance of using alternative transport instead of mass transport. In view of similarities in both location and development type, but different composition in occupants, the adopted trip rate without applying any factors is considered a conservative, upper-bound estimate.
- 3.5.3. Pedestrian survey was also conducted for the University Hall to capture pedestrian movements. The pedestrian counted is assumed to be travelling by non-private modes, i.e. public transport.
- 3.5.4. There is currently construction work at the University Hall. Therefore, traffic and pedestrian flows related to the construction work would be excluded to reflect conditions under normal circumstances.
- 3.5.5. The surveys were conducted on a normal school day in January and February 2026. Based on the survey results, the AM and PM peak hours are 08:30 – 09:30 and 18:00 – 19:00 respectively.

Trip Generation under Existing Use

- 3.5.6. **Table 3.3** presents the inbound and outbound traffic flows and trip rates associated with the staff quarters at Tam Towers & Gardens during the AM and PM peak hours. Trip rates of the Tam Towers & Gardens were derived based on the current occupancy of 95 flats.

Table 3.3 Existing Trip Generation of the Middleton Towers

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Tam Towers & Gardens	Existing Use – Staff Quarters (95 flats occupied)	Trip Generation (pcu/hr)	28	37	65	35	25	60
		Trip Rate (pcu/hr/flat)	0.295	0.389	/	0.368	0.263	/

- 3.5.7. The trip generation of the Middleton Towers under full occupancy condition is projected based on trip rate in **Table 3.3**, and the resulting trip generation is presented in **Table 3.4**.

Table 3.4 Trip Generation of the Existing Use under Full Occupancy Condition

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Middleton Towers	Existing Use – Staff Quarters (72 flats)	Trip Generation (pcu/hr)	21	28	49	27	19	46

Trip Generation under Proposed Use

Trip Generation of Private Modes

- 3.5.8. Trip generation surveys were conducted at the University Hall and Po Leung Kuk Lee Shau Kee Youth Oasis to understand the trip rates of student hostel. **Table 3.5** presents trip generation and trip rates associated with the University Hall and Youth Oasis during the AM and PM peak hours.

Table 3.5 Trip Generation of the University Hall

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
University Hall	Student Hostel (110 units)	Trip Generation (pcu/hr)	1	3	4	2	1	3
		Trip Rate (pcu/hr/unit)	0.009	0.027	/	0.018	0.009	/
Po Leung Kuk Lee Shau Kee Youth Oasis	Youth Hostel (1,680 units)	Trip Generation (pcu/hr)	43	81	124	56	29	85
		Trip Rate (pcu/hr/unit)	0.026	0.048	/	0.033	0.017	/

- 3.5.9. To ensure a robust and conservative assessment, the higher trip rates derived from the Po Leung Kuk Lee Shau Kee Youth Oasis survey data were adopted to project the traffic demand for the proposed development. The resulting peak hour trip generation for the Middleton Towers under the proposed use is presented in **Table 3.6**.

Table 3.6 Trip Generation of the Proposed Use

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Middleton Towers	Proposed Use – Student Hostel (900 units)	Trip Generation (pcu/hr)	23	43	66	30	16	46

Trip Generation of Non-Private Modes

- 3.5.10. To understand the patronage demand on non-private modes, i.e. modes other than private cars or taxis, pedestrian count survey was also conducted at the University Hall. **Table 3.7** presents the pedestrian generation associated with the University Hall during the AM and PM peak hours.

Table 3.7 Pedestrian Generation of the University Hall

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
University Hall	Student Hostel (110 units)	Pedestrian Flow (ped/hr)	5	14	19	15	9	24
		Pedestrian Generation Rate (ped/hr/unit)	0.045	0.127	/	0.136	0.082	/

3.5.11. Currently, residents of the Middleton Towers rely primarily on the Route 3 shuttle bus to access the Sassoon Road Campus, Main Campus, and Prince Philip Dental Hospital. Following the re-partitioning, Route 3 will no longer serve the Middleton Towers; instead, new school bus services will be provided to serve the proposed student hostels at the Middleton Towers. The route of planned school bus service would go up to the Middleton Towers to minimise the need of pedestrian using the existing access road.

3.5.12. As a conservative approach, it is assumed that students travelling by non-private modes would primarily use the school bus rather than public transport. Assuming a capacity of 28 passengers for each school bus, **Table 3.8** proposes additional bus trips for accommodating the proposed use at the Middleton Towers based on pedestrian trip rates presented in **Table 3.7**.

Table 3.8 School Bus Trips for Accommodating the Proposed Use at the Middleton Towers

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Middleton Towers	Proposed Use – Student Hostel (900 units)	Patronage Demand (pax/hr)	41	115	156	123	74	197
		No. of School Bus per hour ⁽¹⁾	5	5	10	5	5	10
		Additional Capacity per hour	140	140	280	140	140	280

Note:

(1) School bus capacity of 28 passengers is adopted in this assessment.

3.5.13. As shown **Table 3.8**, it is required to provide 5 school buses (one-way) at peak hour for an additional capacity of 140 passengers per hour to accommodate the peak demand (123 passengers per hour). This results in providing a total hourly capacity of 280 passengers per hour.

Total Trip Generation

3.5.14. With reference to trip generation for private modes and additional bus trips presented in **Table 3.6** and **Table 3.8** respectively, **Table 3.9** summarizes total trip generation of the proposed use at the Middleton Towers.

Table 3.9 Total Trip Generation of the Proposed Use at the Middleton Towers (pcu/hr)

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Middleton Towers	Proposed Use – Student Hostel (900 units)	Private Modes	23	43	66	30	16	46
		School Bus ⁽¹⁾	7.5	7.5	15	7.5	7.5	15
		Total	30.5	50.5	81	37.5	23.5	61

Note:

(1) Passenger Car Unit (PCU) factor for school bus = 1.5.

4 FUTURE TRAFFIC CONDITIONS

4.1. Traffic Forecast Methodology

- 4.1.1. The traffic forecast for this study is based on the 2021-based Territorial Population and Employment Data Matrix (TPEDM) issued by the Planning Department (PlanD). To determine the background traffic for the horizon years, population and employment projections for the Central and Western, and Southern Districts were extracted for the years 2026 and 2031, which are presented in **Table 4.1**.

Table 4.1 2021-Based TPEDM Distributions of Population and Employment in 2026 and 2031

District	Item	2026	2031
Central and Western	Population	226,250	222,600
	Employment	379,150	381,450
Southern	Population	258,800	267,200
	Employment	126,700	121,850
Total		990,900	993,100

- 4.1.2. The annual growth rate was derived through linear interpolation of the 2026 and 2031 data. Analysis indicated that the calculated annual growth rate for these districts falls below 0.5%, which is presented in **Table 4.2**. To maintain a conservative assessment and account for potential fluctuations in development density, a nominal annual growth rate of 0.5% was therefore adopted. This adopted growth rate was subsequently applied to the 2026 observed traffic flows to establish the background traffic for assessment year 2031.

Table 4.2 Annual Growth Rate based on 2021-Based TPEDM

District	Total Population and Employment	
	2026	2031
Central and Western, Southern	990,900	993,100
Annual Growth Rate	0.04%	

4.2. Future Traffic Context

Planned Road and Junction Improvement Schemes

- 4.2.1. Although no major changes to the road network are expected, planned junction improvement works for the 2031 design year have been identified in **Table 4.3**. The planned junction improvement of J1 and J2, ingress and egress access of Middleton Tower and High West, are provided in **Appendix C**, while other planned junction improvements layouts are provided in **Appendix D**.

Table 4.3 Planned Road and Junction Improvement Schemes

Junction No.	Junctions with Planned Improvement Works
J1	Pok Fu Lam Road / Access Road to Middleton Towers
J2	Pok Fu Lam Road / Access Road to University Hall
J3	Pok Fu Lam Road / Victoria Road
J5	Pok Fu Lam Road / Sassoon Road
J6	Pok Fu Lam Road / Smithfield / Mount Davis Road

Planned Developments in the Vicinity

- 4.2.2. Major planned/committed developments in the surrounding areas of the Middleton Towers under the 2031 design year have been considered and summarized in **Table 4.4**.

Table 4.4 Planned Developments in the Vicinity

	Planned Development	Type of Use	Anticipated Completion Year
1	HKU Academic Complex Development at Inland Lot No. 7704 RP (Part), Pokfield Road	Academic Building & Staff Residence	2027
2	HKU Clinical Training Amenities Centre Phase 1 and II at No. 6 Sassoon Road	Student Hostel	2029
3	HKU High West Site Development – Student Hostel and Senior Staff Quarters	Private Housing	2026
4	Cyberport Expansion	Office / Commercial / Data Service Platform	2026
5	Public Housing Developments at the Five Sites in Pokfulam South	Public Housing	2026 – 2031
6	Queen Mary Hospital Redevelopment (Phase 1)	Hospital	2026
7	Redevelopment of Jockey Club Care and Attention Home for Elderly at 9 Sandy Bay Road	G/IC (Care and Attention Home)	2030
8	The Ebenezer School and Home for The Visually Impaired Redevelopment	Private Housing	2027

4.3. Development Traffic

- 4.3.1. The development traffic for the proposed use of the Middleton Towers was established using trip rates derived from comprehensive trip generation surveys conducted at various representative locations. These surveys captured the actual traffic characteristics associated with similar land uses to ensure the forecast reflects the specific operational requirements of the re-partitioned Middleton Towers. The resulting development traffic generated by the proposed use of the Middleton Towers has been summarized in **Table 3.9** of this report.

4.4. Traffic Forecast

- 4.4.1. While only 22% of the flats at the existing site are currently occupied, full occupancy remains permissible under the existing land use without requiring further planning approval. Consequently, a full intake scenario has been adopted for both the existing and proposed uses in design year 2031 to ensure a robust and conservative assessment of the potential traffic impact on the surrounding road network.
- 4.4.2. For the 2031 design year, the assessment evaluates the net impact through two distinct scenarios. The Reference Case establishes the future baseline by combining projected background traffic with the traffic generated by planned developments and the existing use of Middleton Towers at full occupancy. Building upon this, the Design Case incorporates the traffic generated by the proposed use at Middleton Towers, while removing the traffic associated with the existing use to isolate the specific impact of the redevelopment.
- 4.4.3. Forecast traffic flows for design year 2031 are presented in **Figures 5.1** and **5.2**. Details of traffic impact assessment based on the traffic forecast will be presented in **Section 5**.

5 OPERATION TRAFFIC AND TRANSPORT IMPACT ASSESSMENTS

5.1. General

- 5.1.1. In this section, the operational performance of the identified junctions in **Table 2.1** was assessed for design year 2031. The junction layouts adopted for assessment are summarized in **Table 5.1**.

Table 5.1 Adopted Layouts for Key Junction Assessments in Design Year 2031

Junction No.	Junction Location	Junction Type	Adopted Layout
J1	Pok Fu Lam Road / Access Road to Middleton Towers	Priority	Planned Layout in Appendix C
J3	Pok Fu Lam Road / Victoria Road	Signal	Planned Layout in Appendix D
J4	Pok Fu Lam Road / Sassoon Road / Access Road To Queen Mary Hospital	Signal	Existing Layout
J5	Pok Fu Lam Road / Sassoon Road	Priority	Planned Layout in Appendix D
J6	Pok Fu Lam Road / Smithfield / Mount Davis Road	Signal	Planned Layout in Appendix D
J7	Pok Fu Lam Road / Pokfield Road	Signal	Existing Layout
J8	Signalized Pedestrian Crossing at Pok Fu Lam Road near Belcher's	Signal	Existing Layout
J9	Signalized Pedestrian Crossing at Pok Fu Lam Road near Woodbury Court	Signal	Existing Layout

5.2. Key Junction and Road Link Assessments

- 5.2.1. The performance of key junctions have been evaluated and results are summarized in **Tables 5.2**. Detailed junction calculation sheets are presented in **Appendix B**.
- 5.2.2. The results indicate that all key junctions and road links will operate with sufficient capacity in 2031.

Table 5.2 Key Junction Assessments for Design Year 2031

Junction No.	Junction Location	Junction Type	2031			
			Reference Case		Design Case	
			RC/DFC ⁽¹⁾		RC/DFC ⁽¹⁾	
			AM	PM	AM	PM
J1	Pok Fu Lam Road / Access Road to Middleton Towers	Priority	0.66	0.30	0.80	0.32
J3	Pok Fu Lam Road / Victoria Road	Signal	17%	31%	17%	31%
J4	Pok Fu Lam Road / Sassoon Road / Access Road To Queen Mary Hospital	Signal	35%	43%	35%	43%
J5	Pok Fu Lam Road / Sassoon Road	Priority	0.81	0.66	0.81	0.66
J6	Pok Fu Lam Road / Smithfield / Mount Davis Road	Signal	24%	51%	24%	50%
J7	Pok Fu Lam Road / Pokfield Road	Signal	21%	31%	22%	31%
J8	Signalized Pedestrian Crossing at Pok Fu Lam Road near Belcher's	Signal	16%	24%	15%	23%
J9	Signalized Pedestrian Crossing at Pok Fu Lam Road near Woodbury Court	Signal	74%	>100%	74%	>100%

6 CONSTRUCTION TRAFFIC AND TRANSPORT IMPACT ASSESSMENTS

- 6.1.1. As the construction works will mainly involve internal re-partitioning, only a limited amount of construction materials and waste is anticipated. In addition, the site is sufficiently spacious to accommodate the storage of construction materials and waste. Therefore, it is expected to generate minimal construction traffic, i.e. 15 pcu/hr (1-way), which has taken reference from other recent conversion and renovation work of HKU, and result in insignificant impact on the surrounding road network. Construction works of the Middleton Towers will be carried out in 2027 with an anticipated completion in 2028 Q1, ahead of the HKU Global Innovation Centre (GIC) which will be commenced in 2028. Therefore, no concurrent impacts are anticipated.
- 6.1.2. In the event that construction traffic impacts are of concern, construction traffic can be scheduled during non-peak hours to minimize potential impacts on the surrounding road network. This measure would help avoid conflicts with peak-hour commuter traffic and maintain acceptable traffic conditions in the vicinity of the Site.

7 FUTURE PUBLIC TRANSPORT SERVICES

- 7.1.1. Building on the details in **Section 3.5**, the future provision of public transport for the Middleton Towers will be provided by new school bus services that would go up the Middleton Towers to minimise the need of pedestrian using the existing access road, providing a direct link to key campus locations.
- 7.1.2. Following the internal re-partitioning of the Middleton Towers, it is now assumed that students and staff travelling to / from the Middleton Towers via non-private modes will primarily rely on the planned school bus services rather than traditional public transport networks.
- 7.1.3. To maintain operational efficiency and accommodate trips generated from the re-partitioned Middleton Towers, it is recommended that the planned school bus services undergo optimization. This involves the addition of 5 supplementary trips (one-way) for both peak hours to support the proposed use of the Middleton Towers which the assessment has been detailed in **Table 3.8**.

8 SUMMARY

- 8.1.1. The proposed internal re-partitioning of the Middleton Towers into a modern student hostel aims to address the HKU's housing shortage by transforming existing staff quarters into approximately 900 student beds. This TTIA report is prepared to evaluate traffic flows, identify necessary junction improvements, and devise suitable parking and public transport arrangements.
- 8.1.2. An assessment of existing conditions indicates that the site is currently served by an unnamed single-track access road connecting to Pok Fu Lam Road. **Manual traffic counts** conducted in March 2026 for key junctions show that the surrounding road network operates with sufficient capacity during both AM and PM peak hours. All assessed junctions meet acceptable performance standards, maintaining R.C. above 15% and DFC ratios below 0.85.
- 8.1.3. The project involves internally re-partitioning the three existing towers to provide housing units. Proposed site access will feature a reconfigured layout where the University Hall access road becomes a one-way ingress and the Middleton Towers access road becomes a one-way egress, linked by a new internal road. Total trip generation for the proposed use is estimated at **81 trips** during the AM peak and **61 trips** during the PM peak.
- 8.1.4. Future traffic forecasts for the 2031 design year utilize a conservative annual growth rate of 0.5%. This projection accounts for several major planned developments in the vicinity. The assessment evaluates the net impact by comparing a Reference Case, which includes background traffic and existing land use at full occupancy, against a Design Case that isolates the specific impact of the student hostel.
- 8.1.5. The operational impact assessment confirms that all identified key junctions will continue to operate with sufficient capacity through the 2031 design year. Even with the added traffic from the hostel and nearby planned developments, the junctions maintain acceptable performance levels, suggesting that the redevelopment will not significantly degrade local road network efficiency.
- 8.1.6. Construction impacts are expected to be insignificant as the work primarily involves internal re-partitioning. Traffic generated during this phase is estimated at only 15 pcu per hour **taking reference from other recent conversion and renovation work of HKU**, and is scheduled for completion in 2028 Q1, avoiding overlap with the HKU GIC project. If necessary, construction traffic can be restricted to non-peak hours to further minimize the impact on commuters.
- 8.1.7. Future public transport provisions focus on providing new school bus services for the Middleton Towers. It is assumed that students and staff will primarily rely on these school buses rather than traditional public transport networks. By adding new school bus trips, as detailed in the report, the project can accommodate the increased demand internally and prevent additional pressure on the general public transportation infrastructure.

Figure

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

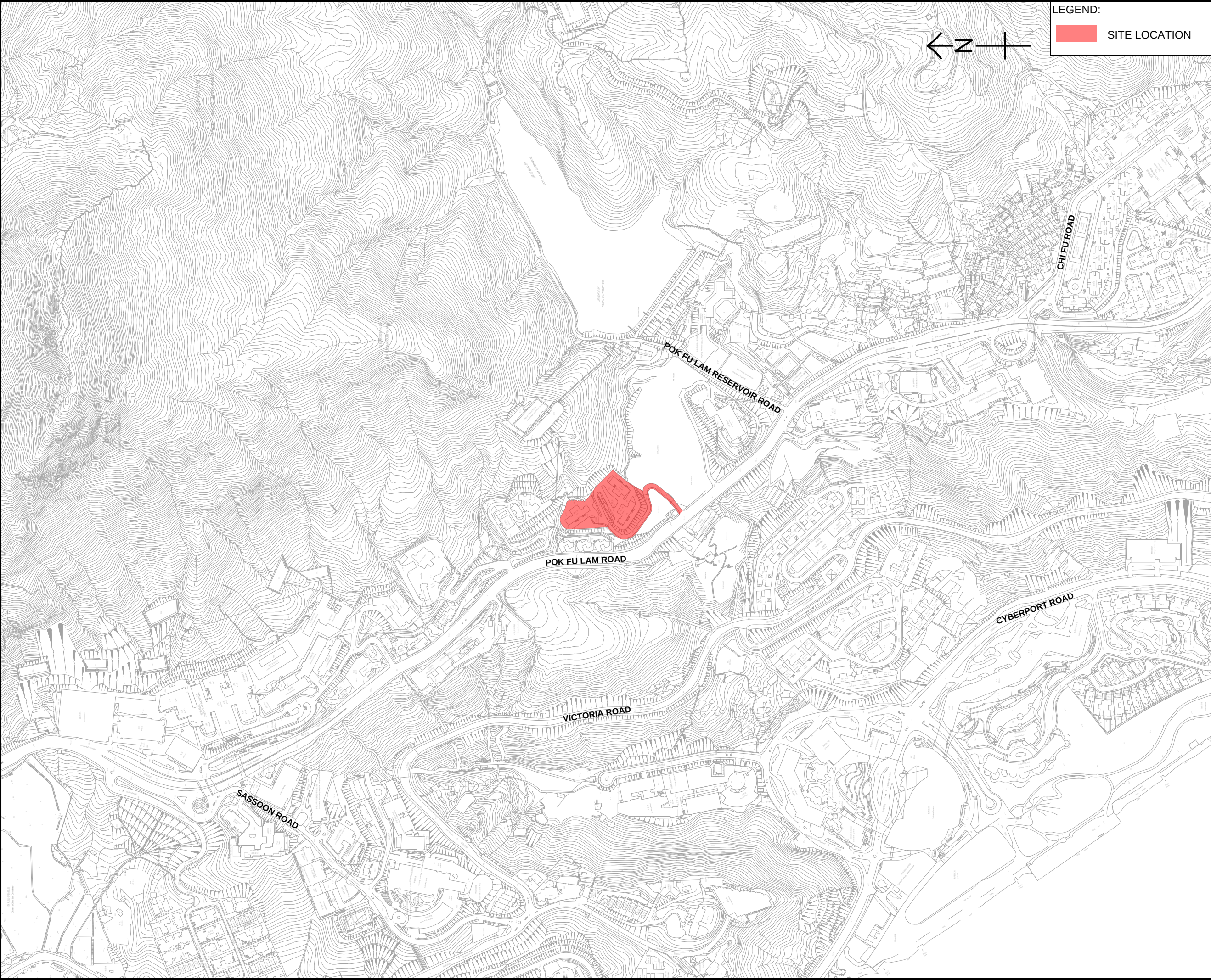
Project Management Initials:

SPLTDRL\$

Plot File by: \$USERS

\$PATH \$FILES

\$DATES



LEGEND:

SITE LOCATION

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STATUS
階段

SCALE 比例	DIMENSION UNIT 尺寸單位
A3 1:5000	METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號	CONTRACT NO. 合約編號
60776275	EO/J/2025/005

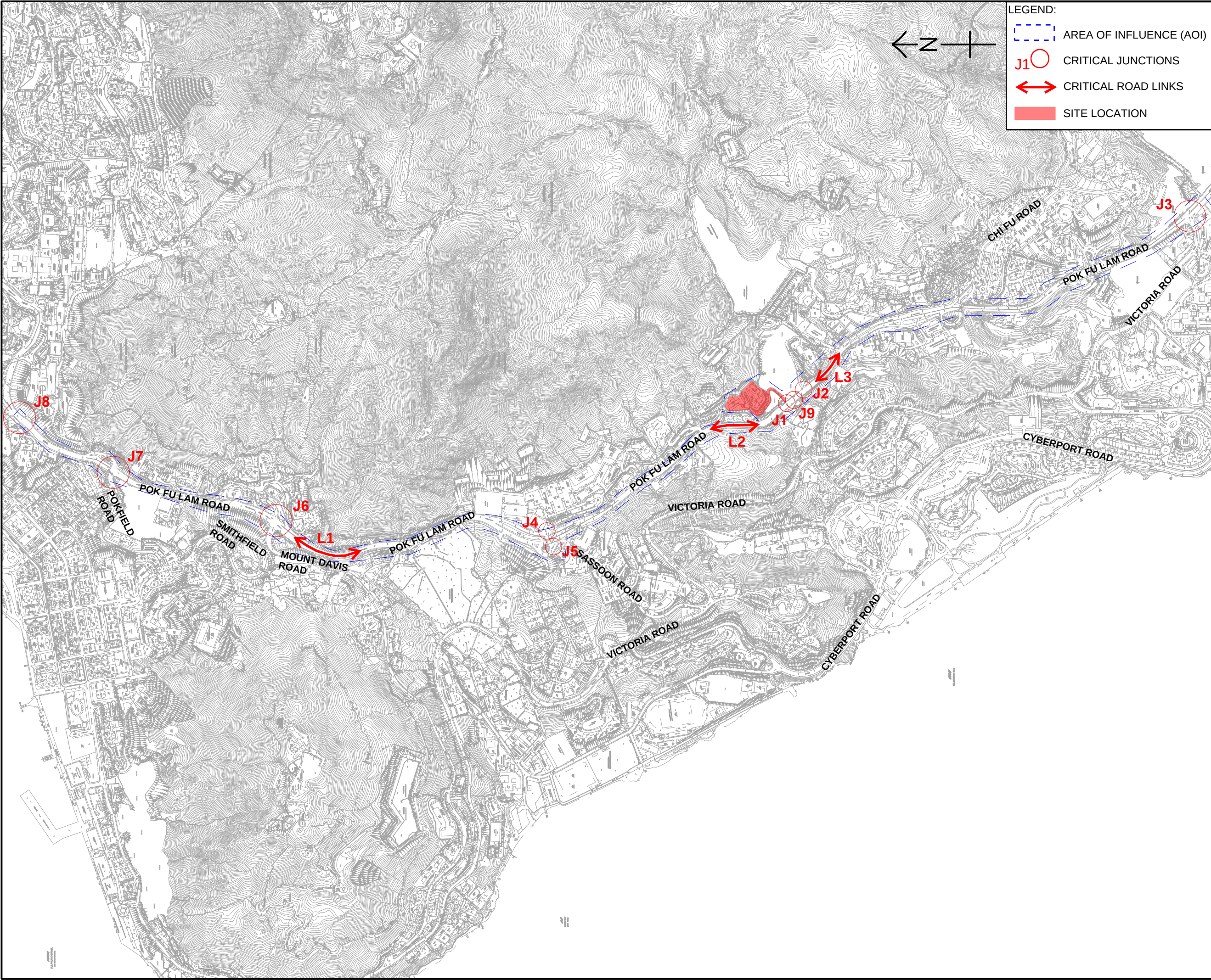
SHEET TITLE
圖紙名稱

LOCATION PLAN

SHEET NUMBER
圖紙編號

FIGURE 1.1

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尺寸單位

KEY PLAN
索引圖

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項目編號
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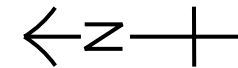
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合約編號
EO/J/2025/005

SHEET TITLE
圖紙名稱
LOCATION PLAN

SHEET NUMBER
圖紙編號
FIGURE 1.1

LEGEND:

888(888) AM(PM) PEAK HOUR TRAFFIC FLOW (PCU/HR)



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比例

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尺寸單位

KEY PLAN
索引圖

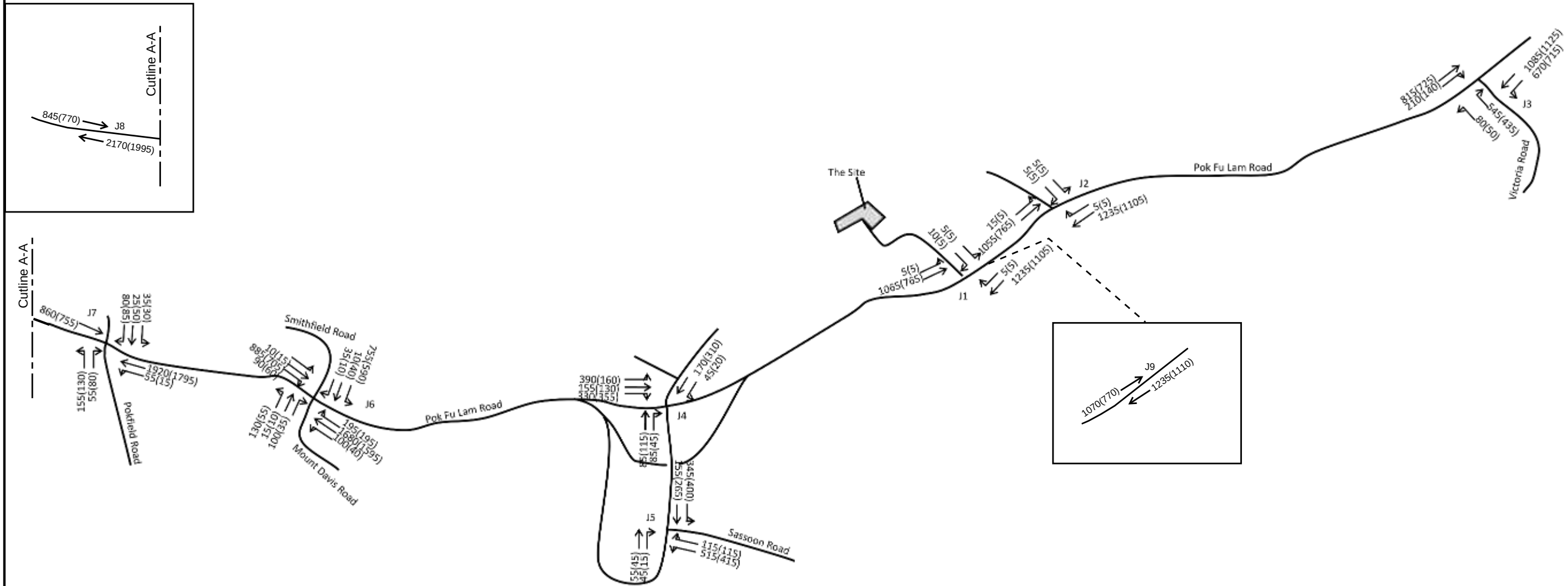
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SHEET TITLE
圖紙名稱

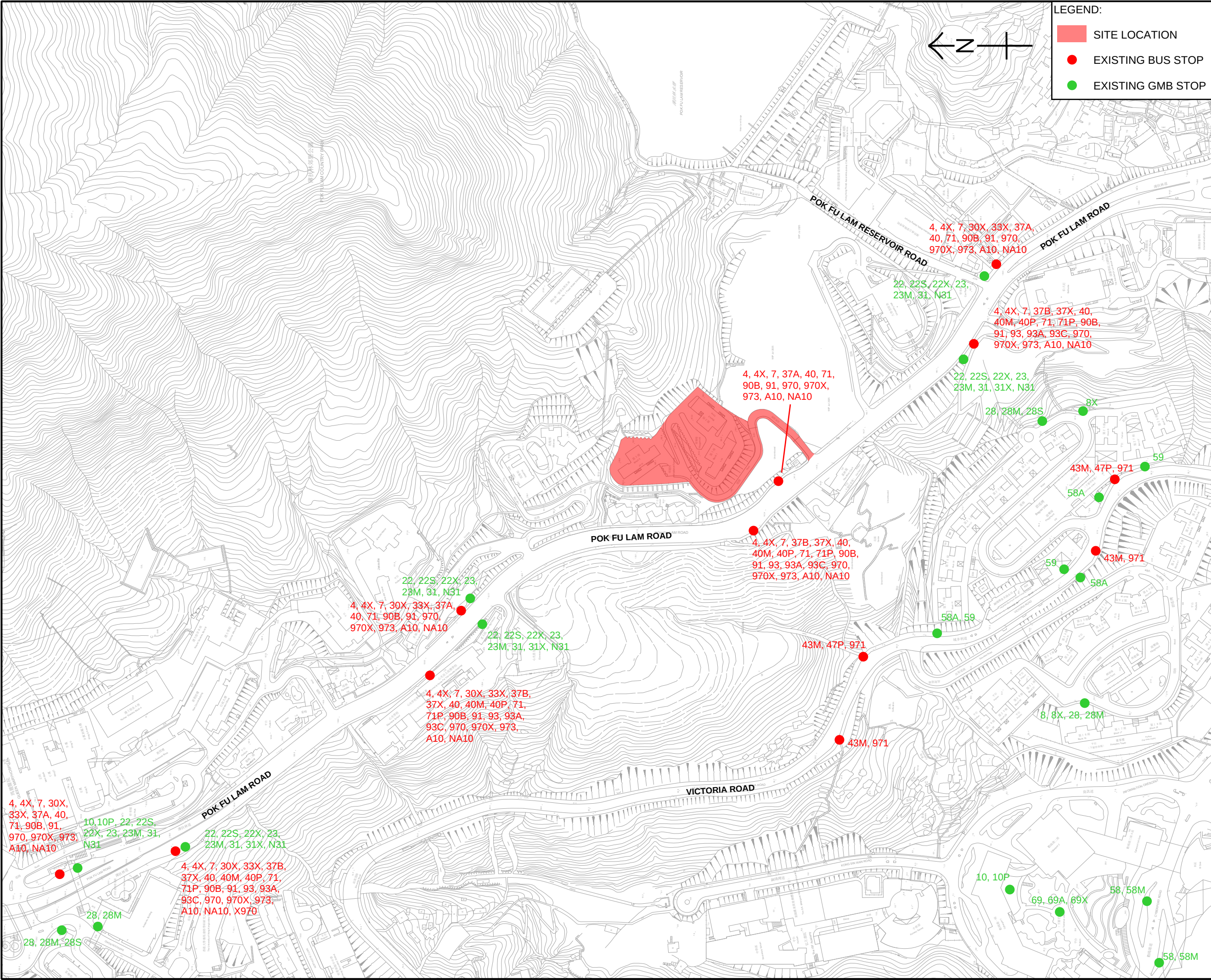
2026 OBSERVED TRAFFIC FLOWS

SHEET NUMBER
圖紙編號

FIGURE 2.2



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Checked:
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Project Management Initials:
SPLTDRLVLS
Plot File by: USERS
DATE: \$DATE\$
PATH \$FILES\$



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SCALE	DIMENSION UNIT
比例	尺寸單位
A3 1:3000	METRES

KEY PLAN
索引圖

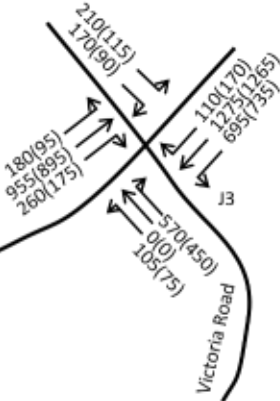
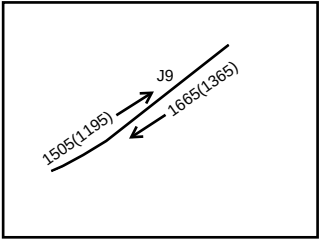
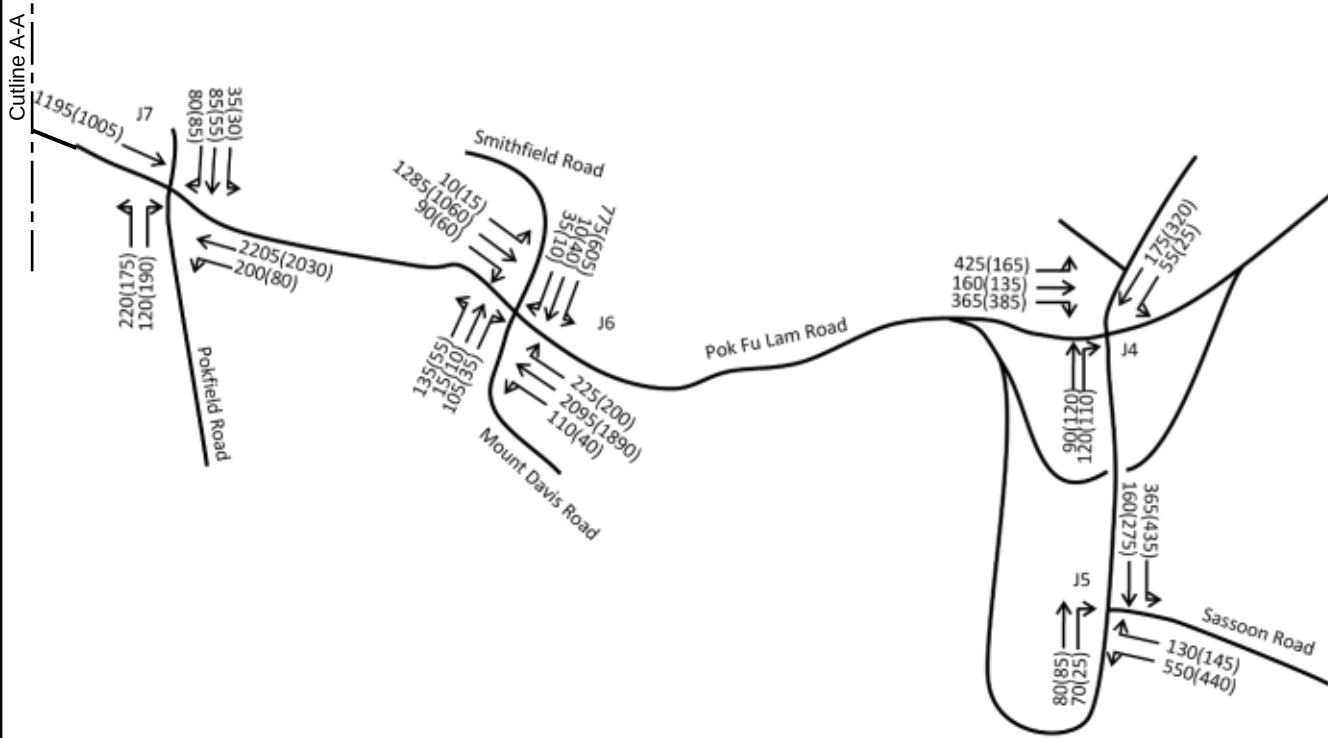
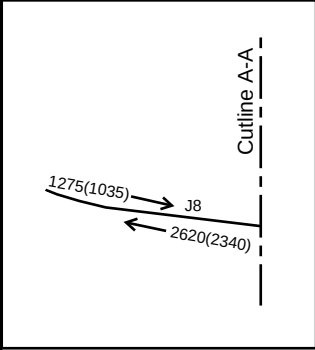
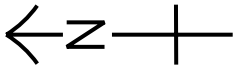
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項目編號	合約編號
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SHEET TITLE
圖紙名稱
**EXISTING PUBLIC TRANSPORT
SERVICES**

SHEET NUMBER
圖紙編號
FIGURE 2.3

LEGEND:

888(888) AM(PM) PEAK HOUR TRAFFIC FLOW (PCU/HR)



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SCALE
比例

DIMENSION UNIT
尺寸單位

KEY PLAN
索引圖

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CONTRACT NO.
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SHEET TITLE
圖紙名稱

2031 REFERENCE TRAFFIC FLOWS

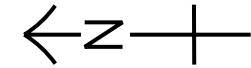
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FIGURE 5.1

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LEGEND:

888(888) AM(PM) PEAK HOUR TRAFFIC FLOW (PCU/HR)



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比例

DIMENSION UNIT
尺寸單位

KEY PLAN

PROJECT NO.
項目編號

CONTRACT NO.
合約編號

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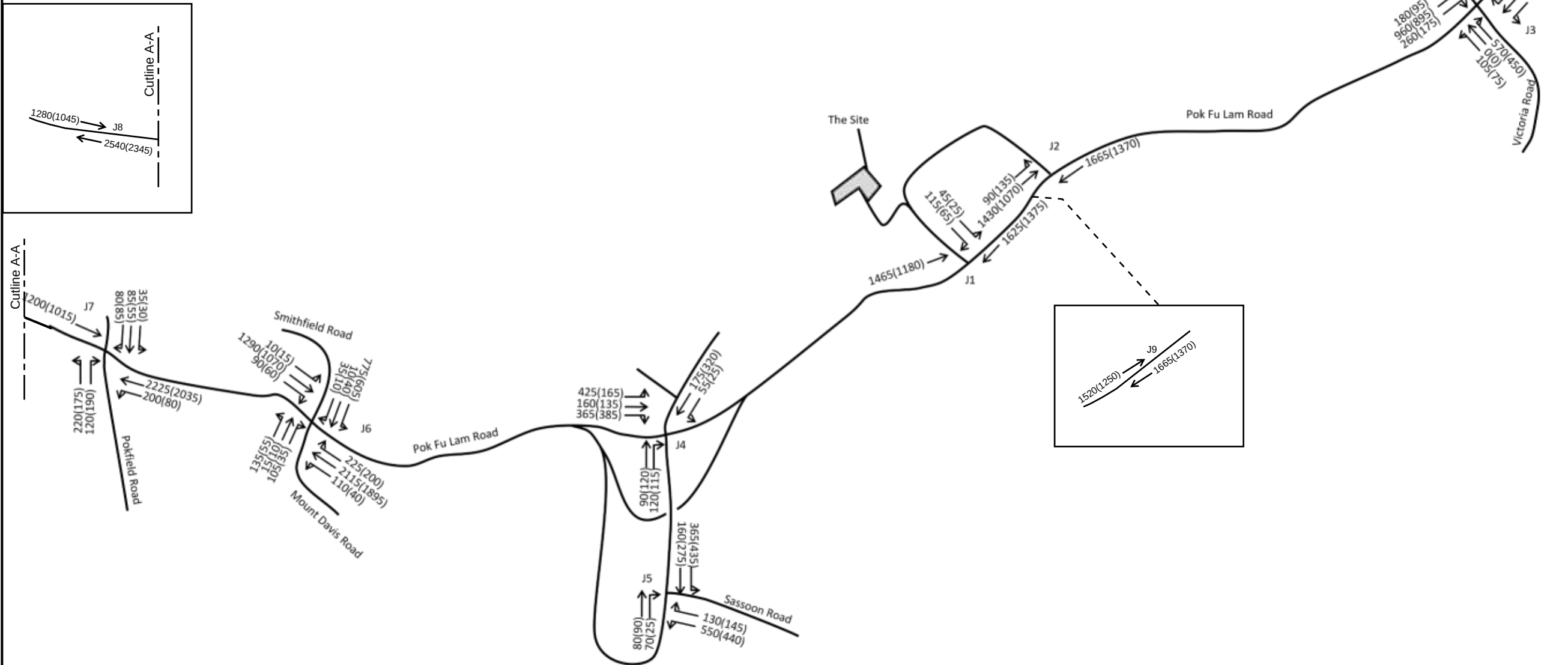
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2031 DESIGN TRAFFIC FLOWS

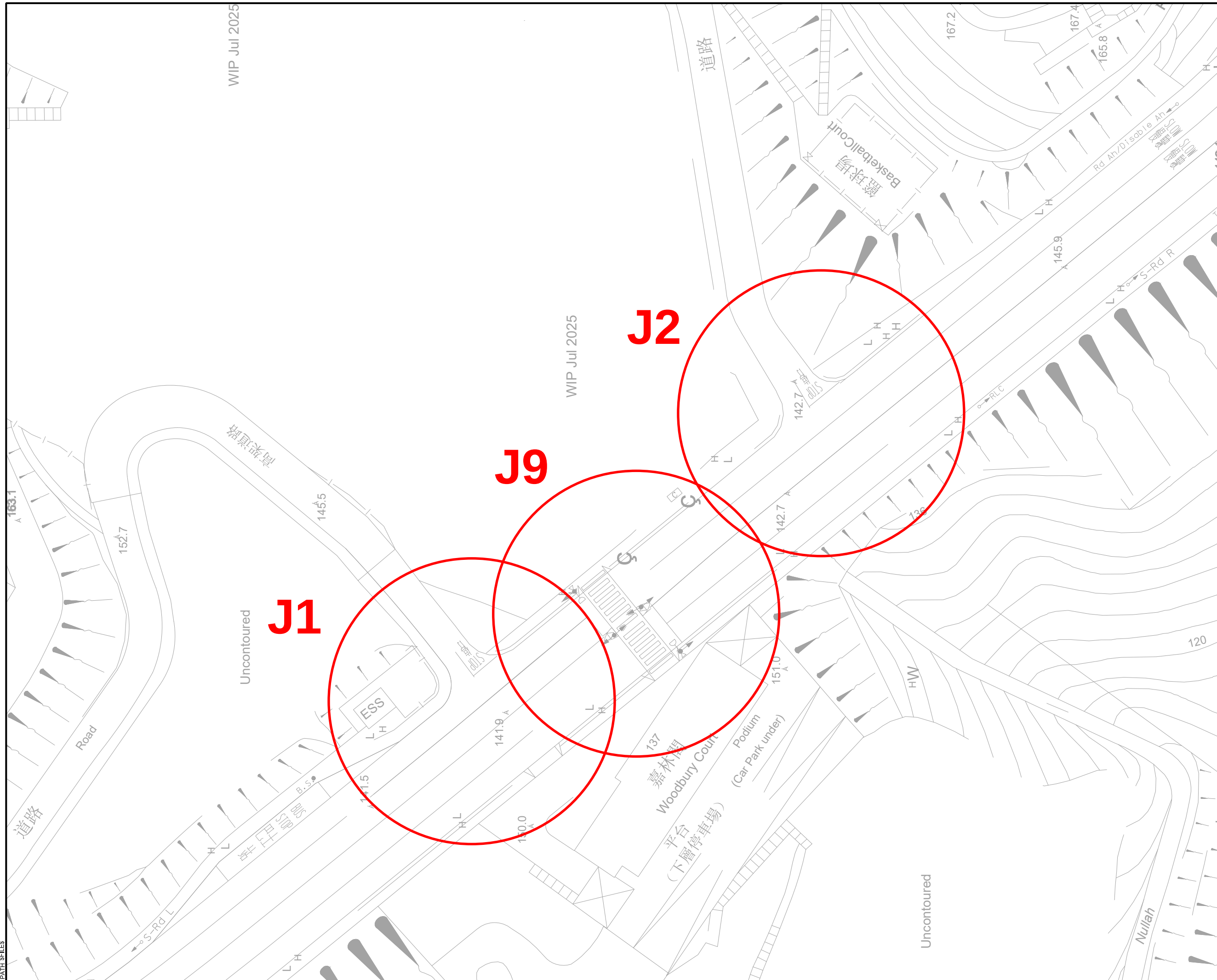
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圖紙編號

FIGURE 5.2



Appendix A

Existing Junction Layouts



PROJECT
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STATUS
階段

SCALE
比例

A3 1:500 METRES

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

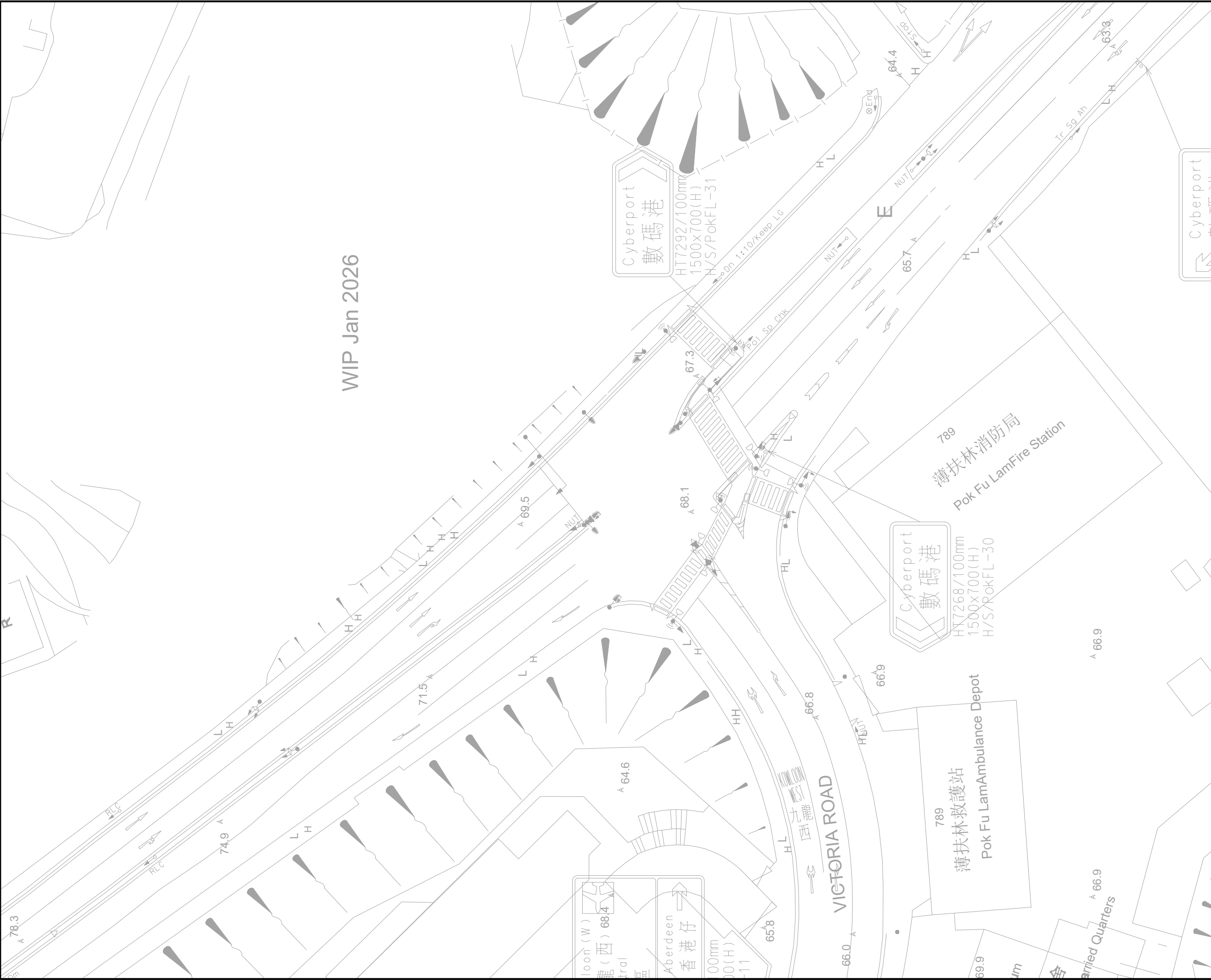
60776275 EO/J/2025/005

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT - POK FU
LAM ROAD / ACCESS ROAD TO
MIDDLETON TOWERS (J1) & POK FU LAM
ROAD / ACCESS ROAD TO UNIVERSITY
HALL (J2)

SHEET NUMBER
圖紙編號

APPENDIX A-1



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階段

SCALE	DIMENSION UNIT
比例	尺寸單位
A3 1:500	METRES

KEY PLAN

索引圖

PROJECT NO.	CONTRACT NO.
項目編號	合約編號

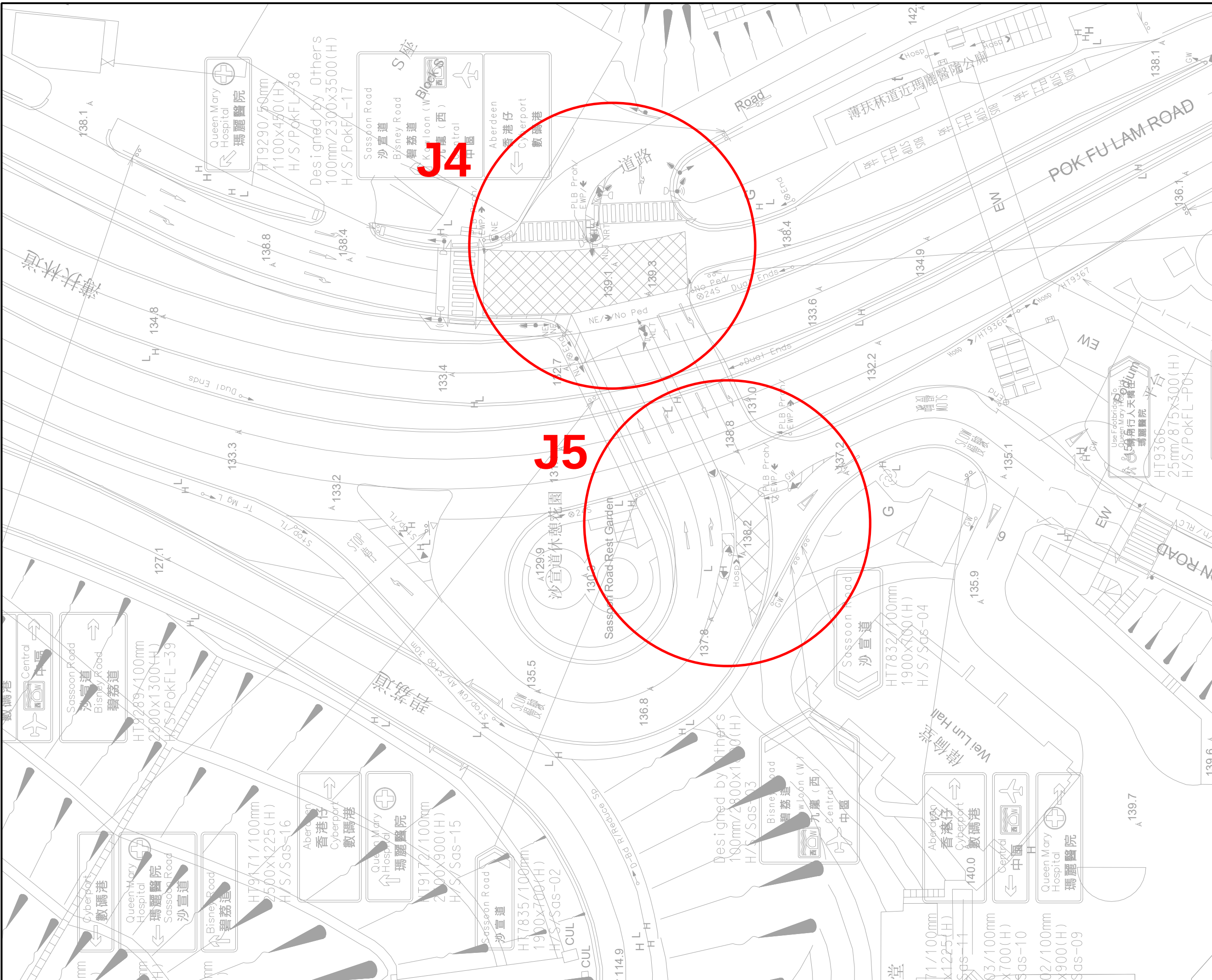
60776275 EO/J/2025/005

SHEET TITLE

EXISTING JUNCTION LAYOUT -
POK FU LAM ROAD / VICTORIA
ROAD (J3)

SHEET NUMBER

圖紙編號



PROJECT
項目

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SCALE
1 to 5

比例	尺寸单位
A3 1:500	METRES

KEY PLAN

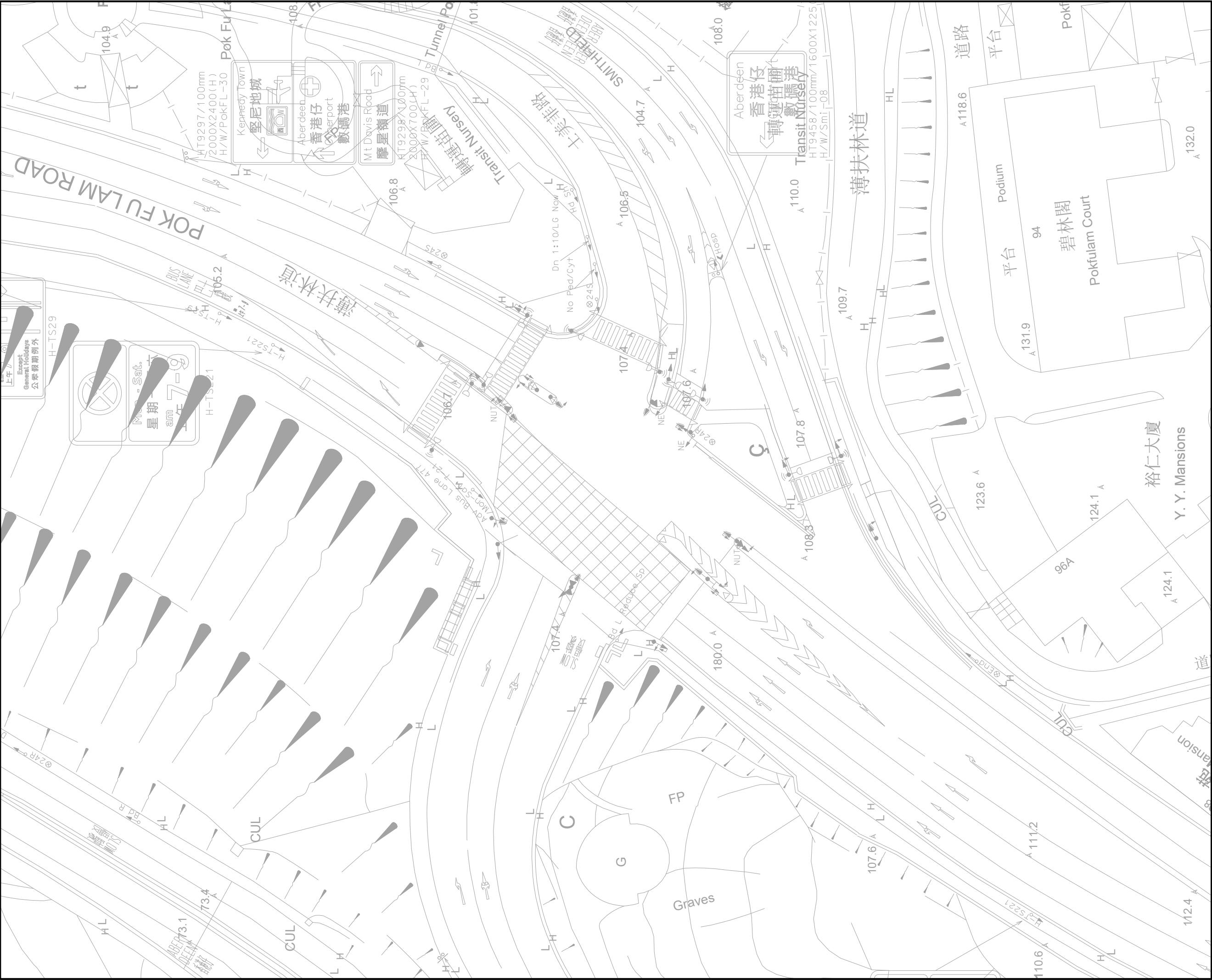
PROJECT NO.
項目編號

60776275 EO/J/2025/005

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT -
POK FU LAM ROAD / SASSOON
ROAD / ACCESS ROAD TO QUEEN
MARY HOSPITAL (J4) & POK FU
LAM ROAD / SASSOON ROAD (J5)
SHEET NUMBER

APPENDIX A-3



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階段

SCALE 比例	DIMENSION UNIT 尺寸單位
A3 1:500	METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

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CONTRACT NO.
合約編號

EO/J/2025/005

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT -
POK FU LAM ROAD / SMITHFIELD /
MOUNT DAVIS ROAD (J6)

SHEET NUMBER
圖紙編號

APPENDIX A-4

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STATUS

階段

SCALE

比例	尺寸單位
A3 1:500	METRES

KEY PLAN

索引圖

PROJECT NO.

項目編號	合約編號
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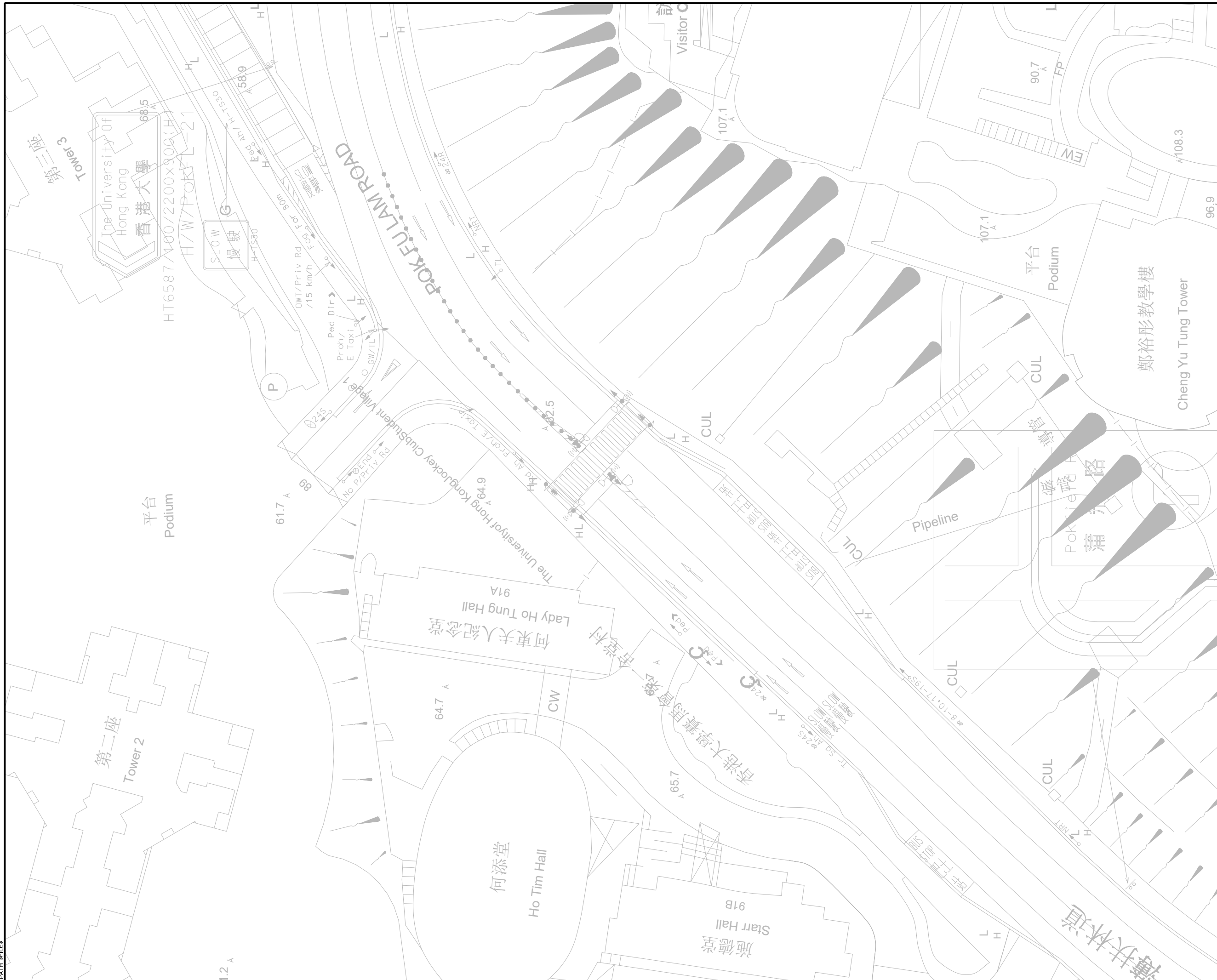
SHEET TITLE

EXISTING JUNCTION LAYOUT -
POK FU LAM ROAD / POKFIELD
ROAD (J7)

SHEET NUMBER

圖紙編號

APPENDIX A-5

**AECOM**

PROJECT
項目

PLANNING CONSULTANCY
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PROJECT FOR
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階段

SCALE
比例

A3 1:500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60776275

CONTRACT NO.
合約編號

EO/J/2025/005

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT -
POK FU LAM ROAD (J8)

SHEET NUMBER
圖紙編號

APPENDIX A-6

Appendix B

Junction Calculation Sheets

Appendix B-1

Junction Calculation Sheet

2026 Base Case

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - Pok Fu Lam Road / Access Road to Middleton Towers

2026 AM Observed Traffic Flows

Designed By : JW

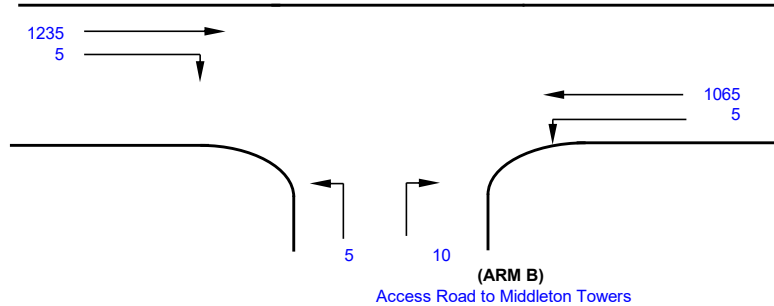
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1235
5



(ARM A)
Pok Fu Lam Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J1

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 5 (pcu/hr)
q a-c = 1065 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 2.4 (metres)
Vr c-b = 100 (metres)
q c-a = 1235 (pcu/hr)
q c-b = 5 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.2 (metres)
W b-c = 2.2 (metres)
Vl b-a = 100 (metres)
Vr b-a = 100 (metres)
Vr b-c = 100 (metres)
q b-a = 10 (pcu/hr)
q b-c = 5 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.822709
E = 0.848153
F = 0.866615
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 241
Q b-c = 468
Q c-b = 478
Q b-ac = 287

CRITICAL DFC = 0.05

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.04
DFC b-c = 0.01
DFC c-b = 0.01
DFC b-ac = 0.05

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - Pok Fu Lam Road / Access Road to Middleton Towers

2026 PM Observed Traffic Flows

Designed By : JW

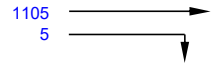
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1105
5



5

5

(ARM B)

Access Road to Middleton Towers

(ARM A)

Pok Fu Lam Road

765
5

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J1

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 5 (pcu/hr)
q a-c = 765 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 2.4 (metres)
Vr c-b = 100 (metres)
q c-a = 1105 (pcu/hr)
q c-b = 5 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.2 (metres)
W b-c = 2.2 (metres)
Vl b-a = 100 (metres)
Vr b-a = 100 (metres)
Vr b-c = 100 (metres)
q b-a = 5 (pcu/hr)
q b-c = 5 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.822709
E = 0.848153
F = 0.866615
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 297
Q b-c = 514
Q c-b = 525
Q b-ac = 377

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.02
DFC b-c = 0.01
DFC c-b = 0.01
DFC b-ac = 0.03

CRITICAL DFC = 0.03

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Pok Fu Lam Road / Access Road to University Hall

2026 AM Observed Traffic Flows

Designed By : JW

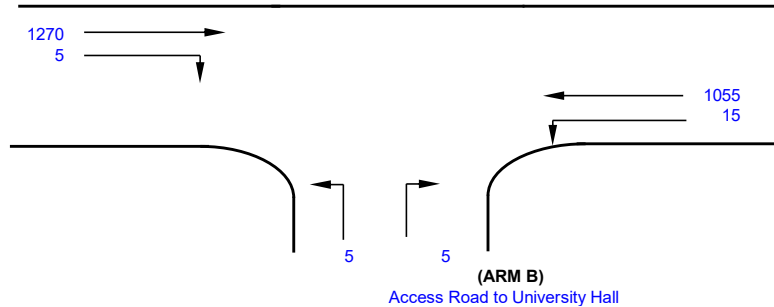
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1270
5



(ARM A)
Pok Fu Lam Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J2

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 15 (pcu/hr)
q a-c = 1055 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.5 (metres)
Vr c-b = 45 (metres)
q c-a = 1270 (pcu/hr)
q c-b = 5 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3 (metres)
W b-c = 3 (metres)
Vl b-a = 35 (metres)
Vr b-a = 22 (metres)
Vr b-c = 22 (metres)
q b-a = 5 (pcu/hr)
q b-c = 5 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.797019
E = 0.856089
F = 0.919352
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 231
Q b-c = 474
Q c-b = 507
Q b-ac = 310

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.02
DFC b-c = 0.01
DFC c-b = 0.01
DFC b-ac = 0.03

CRITICAL DFC = 0.03

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Pok Fu Lam Road / Access Road to University Hall

2026 PM Observed Traffic Flows

Designed By : JW

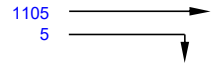
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1105
5



5

5

(ARM B)

Access Road to University Hall

(ARM A)

Pok Fu Lam Road

765
5

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J2

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 5 (pcu/hr)
q a-c = 765 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.5 (metres)
Vr c-b = 45 (metres)
q c-a = 1105 (pcu/hr)
q c-b = 5 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3 (metres)
W b-c = 3 (metres)
Vl b-a = 35 (metres)
Vr b-a = 22 (metres)
Vr b-c = 22 (metres)
q b-a = 5 (pcu/hr)
q b-c = 5 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.797019
E = 0.856089
F = 0.919352
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 288
Q b-c = 519
Q c-b = 557
Q b-ac = 371

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.02
DFC b-c = 0.01
DFC c-b = 0.01
DFC b-ac = 0.03

CRITICAL DFC = 0.03

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J3 - Pok Fu Lam Road / Victoria Road

2026 AM Observed Traffic Flows

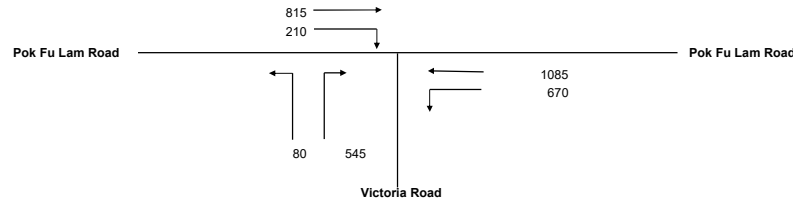
DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26

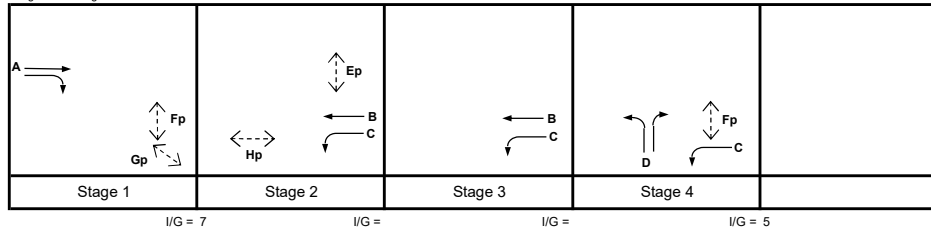
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4
Cycle time	C =	140 sec
Sum(y)	Y =	0.611
Lost time	L =	10 sec
Total Flow	=	3,405 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y) =$	51 sec
Min. Cycle Time C_m	$= L / (1 - Y) =$	26 sec
Y_{ult}	$= 0.9 - 0.0075 \times L =$	0.825
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\% =$	35.0 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y) =$	31 sec
Y_{max}	$= 1 - L/C =$	0.929

J3

Stage/Phase Diagrams



Critical Case : A,C

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 37\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.600	1				1		0	130	1975		491		491			1975	0.248	0.248
	A	1	3.300	1		20	0	0		0		2085		324	210	534		39%	2152	0.248	
	B	2,3	3.500	3				0		0		6315		1085		1085			6315	0.172	
	C	2,3,4	3.700	1	20			1		0		1985	670			670	100%		1847	0.363	
	D	4	4.200	1	15	25	0	1		0		2035	80		223	303	26%	74%	1901	0.160	0.160
	D	4	3.800	1		25	0	0		0		2135			322	322		100%	2014	0.160	
Pedestrian Crossing					GM	FGM															
	Ep	2	min.	10	+	8	=	18	sec												
	Fp	1,4	min.	7	+	9	=	16	sec												
	Gp	1	min.	14	+	5	=	19	sec												
	Hp	2	min.	10	+	8	=	18	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Pok Fu Lam Road / Victoria Road

2026 PM Observed Traffic Flows

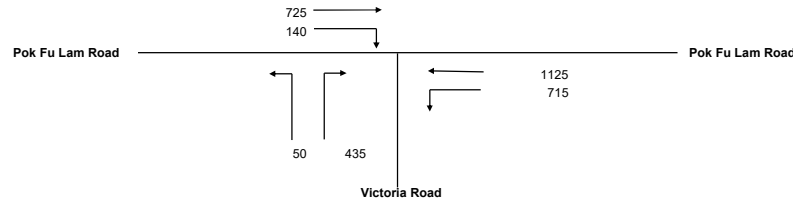
DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26

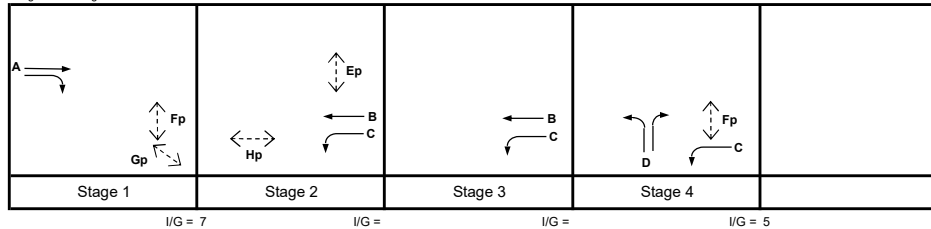
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.596
Lost time	L =	10 sec
Total Flow	=	3,190 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y)$	50 sec
Min. Cycle Time C_m	$= L / (1 - Y)$	25 sec
Y_{ult}	$= 0.9 - 0.0075 \times L$	0.825
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\%$	38.4 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y)$	30 sec
Y_{max}	$= 1 - L/C$	0.917

J3

Stage/Phase Diagrams



Critical Case : A,C

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 38\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.600	1				1		0	130	1975		413		413			1975	0.209	0.209
	A	1	3.300	1		20	0	0		0		2085		312	140	452		31%	2165	0.209	
	B	2,3	3.500	3				0		0		6315		1125		1125			6315	0.178	
	C	2,3,4	3.700	1	20			1		0		1985	715			715	100%		1847	0.387	
	D	4	4.200	1	15	25	0	1		0		2035	50		186	236	21%	79%	1905	0.124	0.124
	D	4	3.800	1		25	0	0		0		2135			249	249	100%	100%	2014	0.124	
Pedestrian Crossing					GM	FGM															
	Ep	2	min.	10	+	8	=	18	sec												
	Fp	1,4	min.	7	+	9	=	16	sec												
	Gp	1	min.	14	+	5	=	19	sec												
	Hp	2	min.	10	+	8	=	18	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J4 - Pok Fu Lam Road / Sassoon Road / Access Road to Queen Mary Hospital

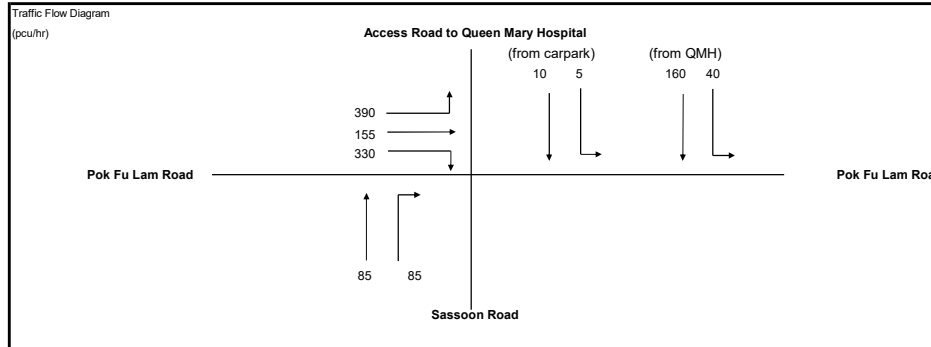
2026 AM Observed Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

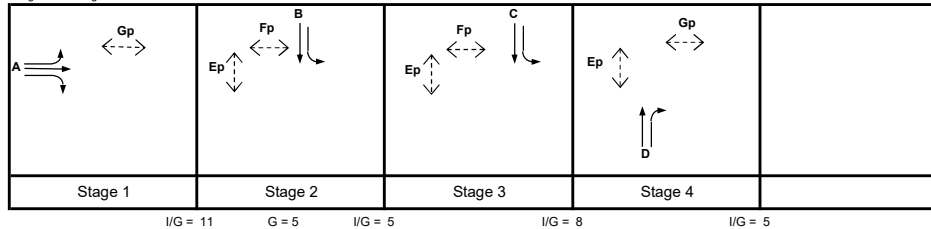
DATE: Apr 26



No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.442
Lost time	L =	31 sec
Total Flow	=	1,260 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y)$	92 sec
Min. Cycle Time C_m	$= L / (1 - Y)$	56 sec
Y_{ult}	$= 0.9 - 0.0075 \times L$	0.668
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\%$	51.2 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y)$	61 sec
Y_{max}	$= 1 - L/C$	0.705

J4

Stage/Phase Diagrams



Critical Case : A,B,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 44\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
Left Turn	A	1	3.300	1	12.5			1		0	100	1945	390	155		545	72%		1883	0.289	0.289
Through/Right	A	1	3.300	1		10	0	0		0		2085			330	330		100%	1813	0.182	
Left Turn	B	2	3.000	1	10			1		0		1915	5	10		15	33%		1824	0.008	
Through/Right	D	4	3.800	1		12.5	0	1		0		1995		85		85		100%	1995	0.043	0.045
Through/Right	D	4	3.800	1				0		0		2135			85	85			1906	0.045	
Left Turn	C	3	3.000	1	10			1		0		1915	40	160		200	20%		1859	0.108	0.108
Pedestrian Crossing					GM	FGM															
Ep	2,3,4	min.		9	+	12	=	21	sec												
Fp	2,3	min.		8	+	13	=	21	sec												
Gp	1,4	min.		5	+	14	=	19	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J4 - Pok Fu Lam Road / Sassoon Road / Access Road to Queen Mary Hospital

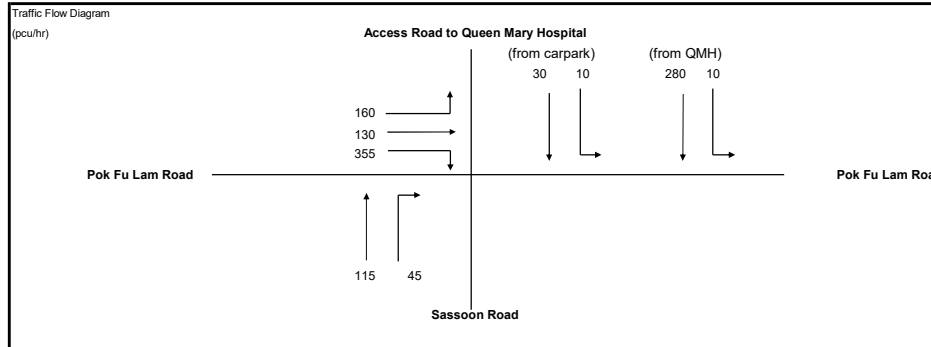
2026 PM Observed Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

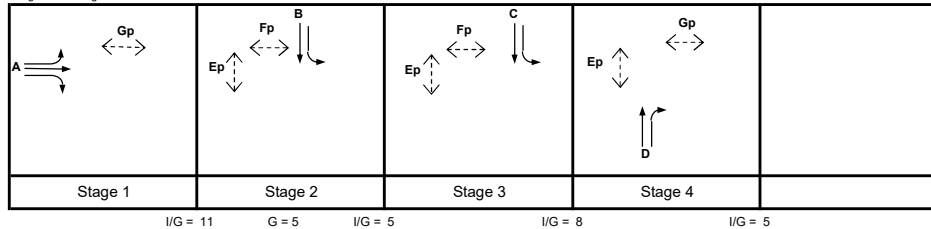
DATE: Apr 26



No. of stages per cycle	N =	4
Cycle time	C =	100 sec
Sum(y)	Y =	0.406
Lost time	L =	31 sec
Total Flow	=	1,135 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y) =$	87 sec
Min. Cycle Time C_m	$= L / (1 - Y) =$	52 sec
Y_{ult}	$= 0.9 - 0.0075 \times L =$	0.668
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\% =$	64.5 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y) =$	56 sec
Y_{max}	$= 1 - L/C =$	0.690

J4

Stage/Phase Diagrams



Critical Case : A,B,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 53\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
Left Turn	A	1	3.300	1	12.5			1		0	100	1945	160	130		290	55%		1918	0.151	
Through/Right	A	1	3.300	1		10	0	0		0		2085			355	355		100%	1813	0.196	0.196
Left Turn	B	2	3.000	1	10			1		0		1915	10	30		40	25%		1846	0.022	
Through/Right	D	4	3.800	1		12.5	0	1		0		1995		115		115		100%	1995	0.058	0.058
Through/Right	D	4	3.800	1				0		0		2135			45	45			1906	0.024	
Left Turn	C	3	3.000	1	10			1		0		1915	10	280		290	3%		1905	0.152	0.152
Pedestrian Crossing					GM	FGM															
	Ep	2,3,4	min.	9	+	12	=	21	sec												
	Fp	2,3	min.	8	+	13	=	21	sec												
	Gp	1,4	min.	5	+	14	=	19	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Pok Fu Lam Road / Sassoon Road

2026 AM Observed Traffic Flows

Designed By : JW

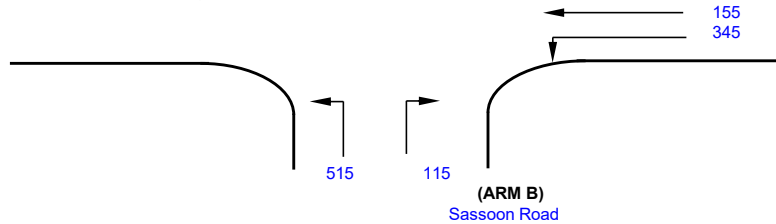
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road Slip Road
(ARM C)

55
45



(ARM A)
Sassoon Road

(ARM B)
Sassoon Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J5

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 15.5 (metres)
W cr = 1.5 (metres)
q a-b = 345 (pcu/hr)
q a-c = 155 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.1 (metres)
Vr c-b = 45 (metres)
q c-a = 55 (pcu/hr)
q c-b = 45 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.5 (metres)
W b-c = 3.7 (metres)
Vl b-a = 65 (metres)
Vr b-a = 75 (metres)
Vr b-c = 75 (metres)
q b-a = 115 (pcu/hr)
q b-c = 515 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.812133
E = 0.964010
F = 0.884290
Y = 0.465250

THE CAPACITY OF MOVEMENT :

Q b-a = 473
Q b-c = 671
Q c-b = 584
Q b-ac = 623

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.24
DFC b-c = 0.77
DFC c-b = 0.08
DFC b-ac =

CRITICAL DFC = 0.77

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Pok Fu Lam Road / Sassoon Road

2026 PM Observed Traffic Flows

Designed By : JW

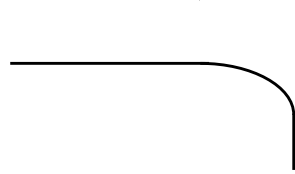
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road Slip Road
(ARM C)

45
15



(ARM A)
Sassoon Road

(ARM B)
Sassoon Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J5

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 15.5 (metres)
W cr = 1.5 (metres)
q a-b = 400 (pcu/hr)
q a-c = 265 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.1 (metres)
Vr c-b = 45 (metres)
q c-a = 45 (pcu/hr)
q c-b = 15 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.5 (metres)
W b-c = 3.7 (metres)
Vl b-a = 65 (metres)
Vr b-a = 75 (metres)
Vr b-c = 75 (metres)
q b-a = 115 (pcu/hr)
q b-c = 415 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.812133
E = 0.964010
F = 0.884290
Y = 0.465250

THE CAPACITY OF MOVEMENT :

Q b-a = 461
Q b-c = 649
Q c-b = 559
Q b-ac = 596

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.25
DFC b-c = 0.64
DFC c-b = 0.03
DFC b-ac =

CRITICAL DFC = 0.64

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J6 - Pok Fu Lam Road / Smithfield / Mount Davis Road

2026 AM Observed Traffic Flows

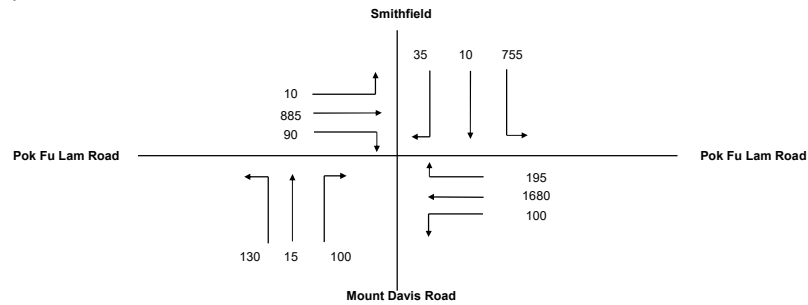
DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle N = 4

Cycle time C = 135 sec

Sum(y) Y = 0.552

Lost time L = 26 sec

Total Flow = 4,005 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 98$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 58$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.705$

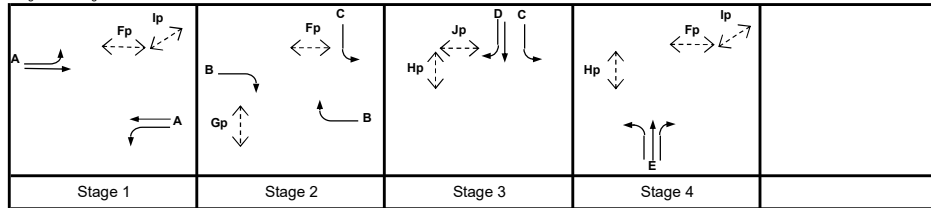
$R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 27.7\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 67$ sec

$Y_{max} = 1 - L/C = 0.807$

J6

Stage/Phase Diagrams



I/G = 12

I/G =

I/G = 9

I/G = 8

Critical Case : A,C,E

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 32\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
A	A	1	3.400	1	10			1		0		1955	10	421		431	2%		1948	0.221	0.294
	A	1	3.400	1		15	0	0		0		2095		464		464		100%	2095	0.221	
	B	2	3.400	1				0		0		2095			90	90			1905	0.047	
A	B	2	3.500	1		15	0	0		0		2105			195	195		100%	1914	0.102	0.294
	A	1	3.300	1	10			1		0		1945	100	456		556	18%		1894	0.294	
	A	1	3.300	2				0		0		4170		1224		1224			4170	0.294	
A	C	2,3	3.400	2	30			1		0		4050	755			755	100%		3857	0.196	0.196
	D	3	3.800	1		20	0	0		0		2135		10	35	45		78%	2017	0.022	
A	E	4	5.000	1	10			1		0		2115	115			115	100%		1839	0.063	0.063
	E	4	5.000	1	15	15	0	0		0		2255	15	15	100	130		77%	2072	0.063	
Pedestrian Crossing				GM		FGM															
	Fp	1,2,4	min.	7	+	5	=	12	sec												
	Gp	2	min.	7	+	9	=	16	sec												
	Hp	3,4	min.	12	+	12	=	24	sec												
	Ip	1,4	min.	7	+	8	=	15	sec												
	Jp	3	min.	6	+	11	=	17	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J6 - Pok Fu Lam Road / Smithfield / Mount Davis Road

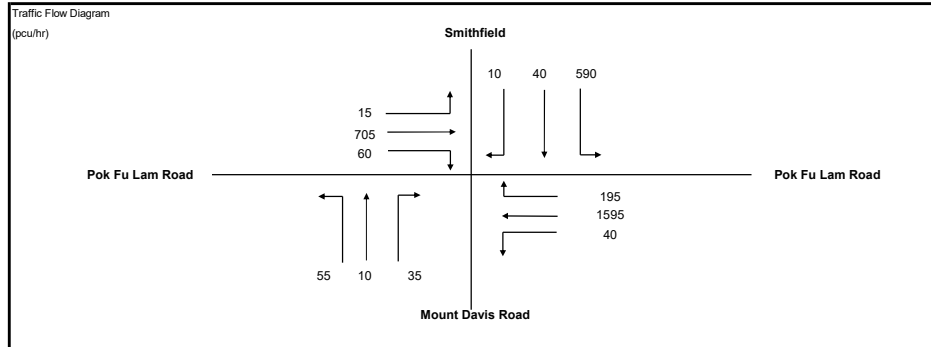
2026 PM Observed Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26



No. of stages per cycle N = 4

Cycle time C = 110 sec

Sum(y) Y = 0.370

Lost time L = 45 sec

Total Flow = 3,350 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 115$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 71$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.563$

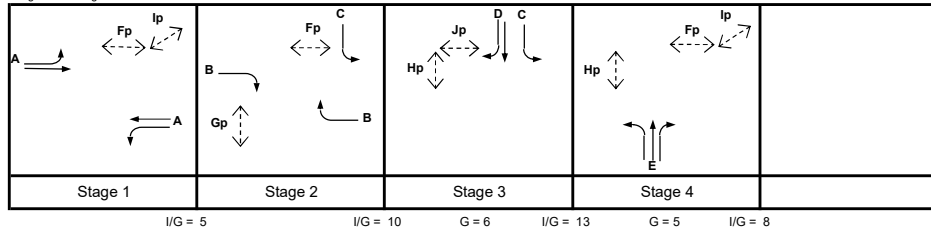
$R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 51.9\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 76$ sec

$Y_{max} = 1 - L/C = 0.591$

J6

Stage/Phase Diagrams



Critical Case : A,B,Jp,E

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 44\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.400	1	10			1		0		1955	15	331		346	4%		1942	0.178	0.102
	A	1	3.400	1				0		0		2095		374		374			2095	0.178	
	B	2	3.400	1		15	0	0		0		2095			60	60	100%		1905	0.032	
	B	2	3.500	1		15	0	0		0		2105			195	195			1914	0.102	0.268
	A	1	3.300	1	10			1		0		1945	40	476		516	8%		1923	0.268	
	A	1	3.300	2				0		0		4170		1119		1119			4170	0.268	
	C	2,3	3.400	2	30			1		0		4050	590			590	100%		3857	0.153	0.024
	D	3	3.800	1		20	0	0		0		2135		40	10	50	20%		2103	0.024	
	E	4	5.000	1	10			1		0		2115	47			47	100%		1839	0.025	0.025
	E	4	5.000	1	15	15	0	0		0		2255	8	10	35	53	15%	66%	2086	0.025	
Pedestrian Crossing					GM	FGM															*
	Fp	1,2,4	min.	7	+	5	=	12	sec												
	Gp	2	min.	7	+	9	=	16	sec												
	Hp	3,4	min.	12	+	12	=	24	sec												
	Ip	1,4	min.	7	+	8	=	15	sec												
	Jp	3	min.	6	+	11	=	17	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J7 - Pok Fu Lam Road / Pokfield Road

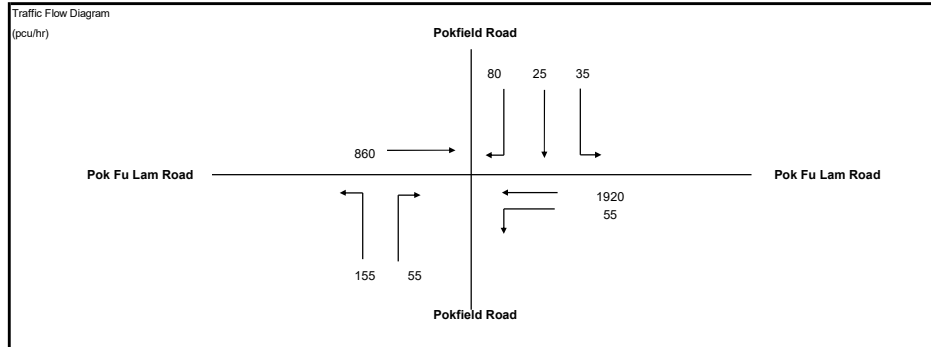
2026 AM Observed Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Jun 26



No. of stages per cycle N = 3

Cycle time C = 135 sec

Sum(y) Y = 0.555

Lost time L = 20 sec

Total Flow = 3,185 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 79$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 45$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.750$

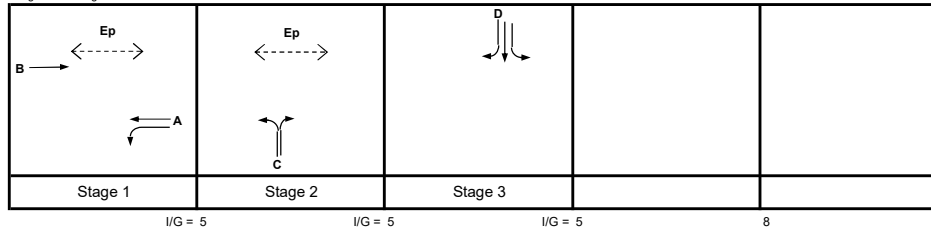
$R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 35.1\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 52$ sec

$Y_{max} = 1 - L/C = 0.852$

J7

Stage/Phase Diagrams



Critical Case : A,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 38\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2	3.500	2				0		0		4210		1920		1920			4210	0.456	0.456
	A	1	3.500	1	15			1		0		1965	55			55	100%		1786	0.031	
	B	1	3.500	2				1		0		4070		860		860			4070	0.211	
	C	2	3.000	1	20			1		0		1915	102			102	100%		1781	0.057	
	C	2	3.000	1	15	20	0	0		0		2055	53		55	108	49%	51%	1890	0.057	0.057
	D	3	3.500	1		15		0		0		2105			80	80		100%	1914	0.042	0.042
	D	3	3.500	1	15			1		0		1965	35	25		60	58%		1857	0.032	
Pedestrian Crossing																					
Ep																					
1,2 min.																					
GM 12																					
+																					
FGM 14																					
=																					
26 sec																					

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J7 - Pok Fu Lam Road / Pokfield Road

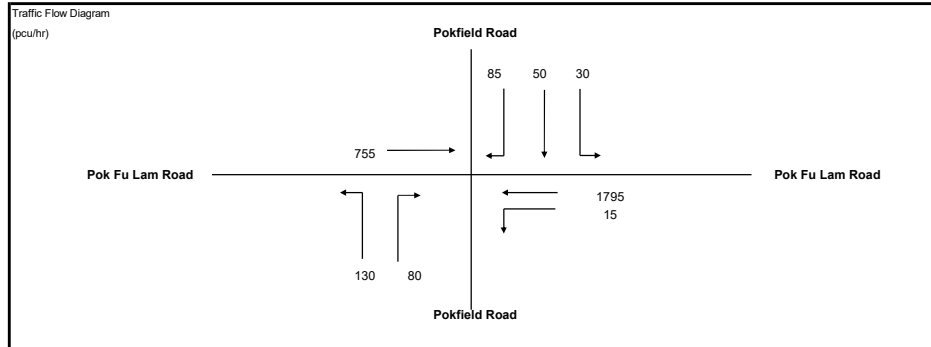
2026 PM Observed Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Jun 26



No. of stages per cycle N = 3

Cycle time C = 135 sec

Sum(y) Y = 0.528

Lost time L = 20 sec

Total Flow = 2,940 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 74$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 42$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.750$

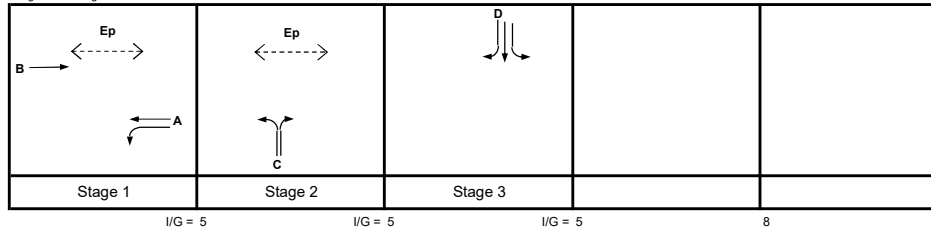
$R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 42.1\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 48$ sec

$Y_{max} = 1 - L/C = 0.852$

J7

Stage/Phase Diagrams



Critical Case : A,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 45\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2	3.500	2				0		0		4210		1795		1795			4210	0.426	0.426
	A	1	3.500	1	15			1		0		1965	15			15	100%		1786	0.008	
	B	1	3.500	2				1		0		4070		755		755			4070	0.186	
	C	2	3.000	1	20			1		0		1915	102			102	100%		1781	0.057	
	C	2	3.000	1	15	20	0	0		0		2055	28		80	108	26%	74%	1900	0.057	0.057
	D	3	3.500	1		15	0	0		0		2105			85	85		100%	1914	0.044	0.044
	D	3	3.500	1	15			1		0		1965	30	50		80	38%		1894	0.042	
Pedestrian Crossing																					
	Ep	1,2	min.	GM 12	+	FGM 14	=	26	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J8 - Lady Ho Tung Hall Signalized Crossing

2026 AM Observed Traffic Flows

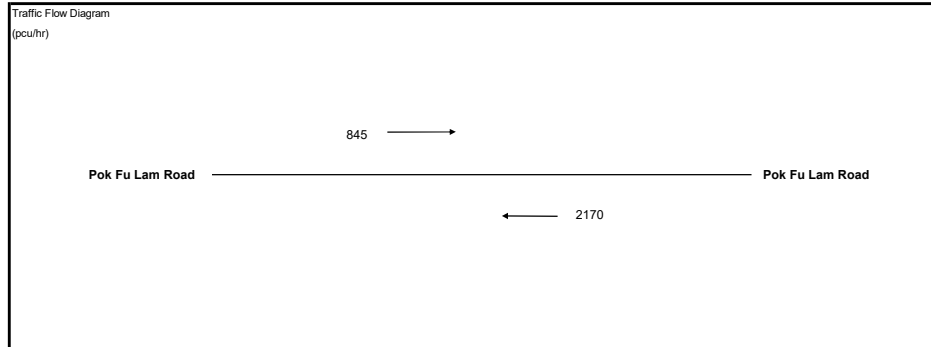
DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

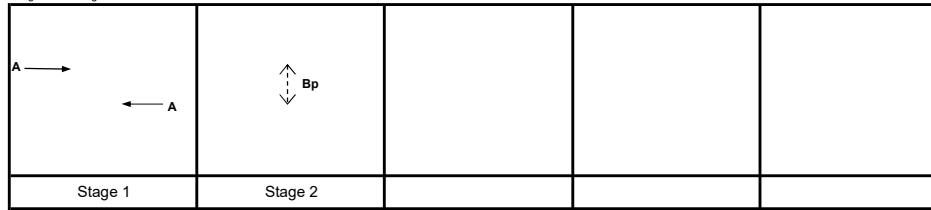


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.533
Lost time L = 25 sec
Total Flow = 3,015 pcu

J8

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 91$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 54$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 33.6\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 61$ sec
 $Y_{max} = 1 - L/C = 0.773$

Stage/Phase Diagrams



I/G = 5

G = 8

I/G = 13

Critical Case : A,Bp

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 30\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		845		845			4070	0.208	
←	A	1	3.500	2				1		0		4070		2170		2170			4070	0.533	0.533
Pedestrian Crossing																					
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												*

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J8 - Lady Ho Tung Hall Signalized Crossing

2026 PM Observed Traffic Flows

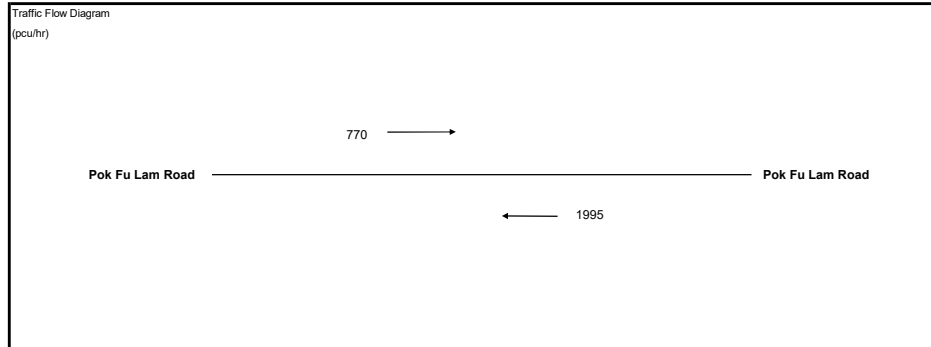
DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

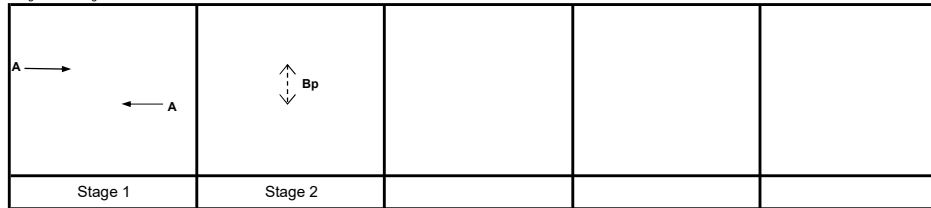


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.490
Lost time L = 25 sec
Total Flow = 2,765 pcu

J8

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 83$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 49$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 45.4\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 55$ sec
 $Y_{max} = 1 - L/C = 0.773$

Stage/Phase Diagrams



Critical Case : A,Bp

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 42\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		770		770			4070	0.189	
←	A	1	3.500	2				1		0		4070		1995		1995			4070	0.490	0.490
Pedestrian Crossing																					
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												*

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J9 - Woodbury Court Signalized Crossing

2026 AM Observed Traffic Flows

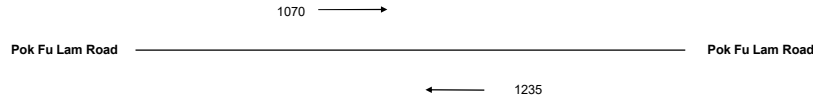
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

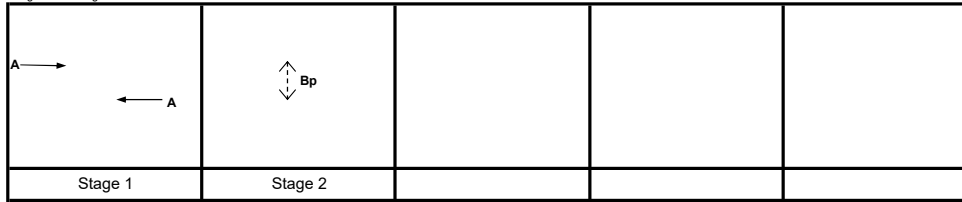


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.303
Lost time L = 25 sec
Total Flow = 2,305 pcu

J9

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 61$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 36$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 134.8\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 38$ sec
 $Y_{max} = 1 - L / C = 0.773$

Stage/Phase Diagrams



Critical Case : A,Bp

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 129\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		1070		1070			4070	0.263	
←	A	1	3.500	2				1		0		4070		1235		1235			4070	0.303	0.303
Pedestrian Crossing																					
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec											*	

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J9 - Woodbury Court Signalized Crossing

2026 PM Observed Traffic Flows

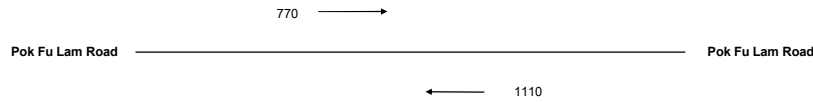
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

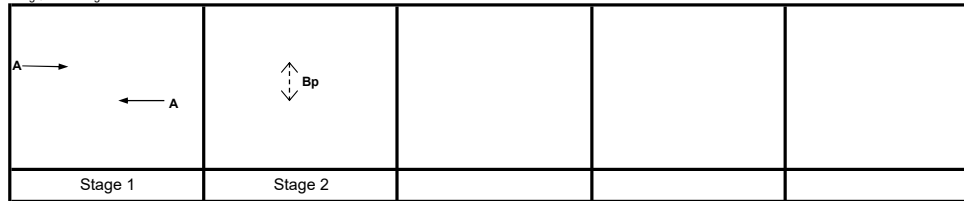


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.273
Lost time L = 25 sec
Total Flow = 1,880 pcu

J9

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 58$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 34$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 161.3\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 36$ sec
 $Y_{max} = 1 - L / C = 0.773$

Stage/Phase Diagrams



Critical Case : A,Bp

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 155\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		770		770			4070	0.189	
←	A	1	3.500	2				1		0		4070		1110		1110			4070	0.273	0.273
Pedestrian Crossing Bp 2 min. GM 8 + FGM 10 = 18 sec																					
*																					

Appendix B-2

Junction Calculation Sheet

2031 Reference Case

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - Pok Fu Lam Road / Access Road to Middleton Towers

2031 AM Reference Traffic Flows

Designed By : JW

Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1625

1455

(ARM A)

Pok Fu Lam Road

40

95

(ARM B)

Access Road to Middleton Towers

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J1

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 0 (pcu/hr)
q a-c = 1455 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 2.4 (metres)
Vr c-b = 100 (metres)
q c-a = 1625 (pcu/hr)
q c-b = 0 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3.5 (metres)
W b-c = 2.5 (metres)
Vl b-a = 100 (metres)
Vr b-a = 100 (metres)
Vr b-c = 100 (metres)
q b-a = 95 (pcu/hr)
q b-c = 40 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.939109
E = 0.875846
F = 0.866615
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 169
Q b-c = 422
Q c-b = 418
Q b-ac = 205

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.56
DFC b-c = 0.09
DFC c-b = 0.00
DFC b-ac = 0.66

CRITICAL DFC = 0.66

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - Pok Fu Lam Road / Access Road to Middleton Towers

2031 PM Reference Traffic Flows

Designed By : JW

Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1370

1170

(ARM A)

Pok Fu Lam Road

25

60

(ARM B)

Access Road to Middleton Towers

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J1

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 0 (pcu/hr)
q a-c = 1170 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 2.4 (metres)
Vr c-b = 100 (metres)
q c-a = 1370 (pcu/hr)
q c-b = 0 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3.5 (metres)
W b-c = 2.5 (metres)
Vl b-a = 100 (metres)
Vr b-a = 100 (metres)
Vr b-c = 100 (metres)
q b-a = 60 (pcu/hr)
q b-c = 25 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.939109
E = 0.875846
F = 0.866615
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 244
Q b-c = 467
Q c-b = 462
Q b-ac = 284

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.25
DFC b-c = 0.05
DFC c-b = 0.00
DFC b-ac = 0.30

CRITICAL DFC = 0.30

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J3 - Pok Fu Lam Road / Victoria Road

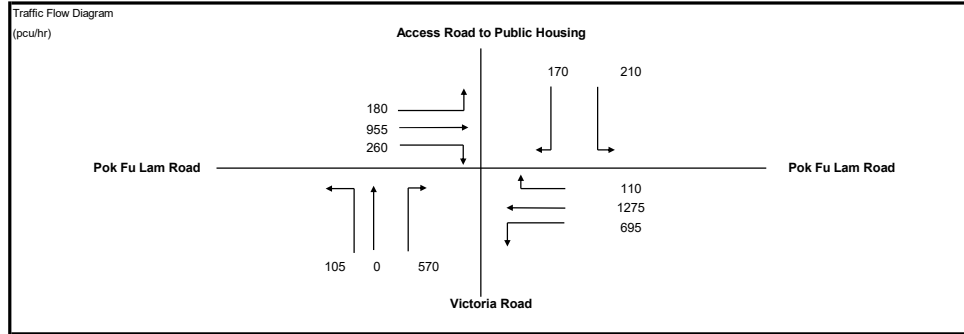
2031 AM Reference Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26



No. of stages per cycle N = 4

Cycle time C = 140 sec

Sum(y) Y = 0.654

Lost time L = 21 sec

Total Flow = 4,530 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 106$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 61$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.743$

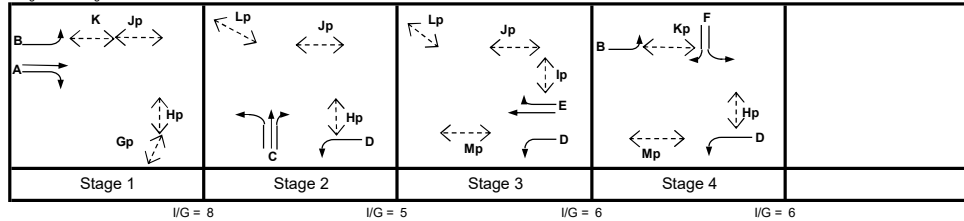
$R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 13.5\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 77$ sec

$Y_{max} = 1 - L / C = 0.850$

J3

Stage/Phase Diagrams



Critical Case : A,C,E,F

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 17\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.700	2				0	0			4250		819		819			4250	0.193	0.193
	A	1	3.650	1		30	0	0	0			2120		136		396			2053	0.193	
	B	1,4	3.700	1	20		0	1	0			1985	180		260	180	100%	66%	1847	0.097	
	C	2	3.600	1	20	25	0	1	0		100	1975	105	0	229	334	31%	69%	1949	0.172	0.172
	C	2	3.500	1		25	0	0	0			2105			341	341		100%	1986	0.172	
	D	2,3,4	3.700	1	20			1	0			1985	695			695	100%		1847	0.376	
	E	3	3.500	2				0	0			4210		933		933			4210	0.222	
	E	3	3.500	1		11	0	0	0			2105		342	110	452		24%	2037	0.222	0.222
	F	4	3.650	1	10			1	0			1980	117			117	100%		1722	0.068	
	F	4	3.650	1	10	20	0	0	0			2120	93		35	128	72%	28%	1877	0.068	0.068
	F	4	3.650	1		20	0	0	0			2120			135	135		100%	1972	0.068	
Pedestrian Crossing					GM	FGM															
	Gp	1	min.	5	+	5	=	10	sec												
	Hp	1,2,4	min.	5	+	9	=	14	sec												
	Ip	3	min.	5	+	10	=	15	sec												
	Jp	1,2,3	min.	5	+	9	=	14	sec												
	Kp	1,4	min.	5	+	6	=	11	sec												
	Lp	2,3	min.	5	+	5	=	10	sec												
	Mp	3,4	min.	5	+	10	=	15	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J3 - Pok Fu Lam Road / Victoria Road

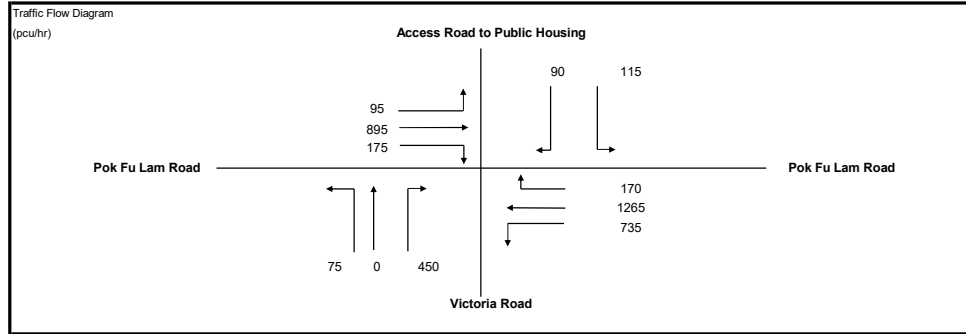
2031 PM Reference Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Apr 26



No. of stages per cycle N = 4

Cycle time C = 120 sec

Sum(y) Y = 0.534

Lost time L = 27 sec

Total Flow = 4,065 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 98$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 58$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.698$

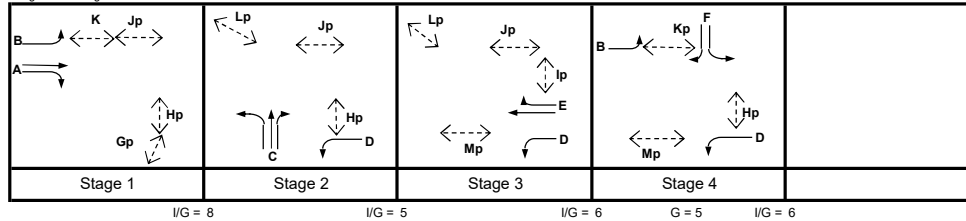
R.C._{ult} = $(Y_{ult} - Y) / Y \times 100\% = 30.7\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 66$ sec

$Y_{max} = 1 - L / C = 0.775$

J3

Stage/Phase Diagrams



Critical Case : A,C,E,F

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 31\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.700	2				0	0			4250		720		720		50%	4250	0.169	0.169
	A	1	3.650	1		30	0	0	0			2120		175		350		50%	2068	0.169	
	B	1,4	3.700	1	20		0	1	0			1985	95		175	95	100%		1847	0.051	
	C	2	3.600	1	20	25	0	1	0		100	1975	75	0	185	260	29%	71%	1950	0.133	
	C	2	3.500	1		25	0	0	0			2105			265	265	100%		1986	0.133	0.133
	D	2,3,4	3.700	1	20			1	0			1985	735			735	100%		1847	0.398	
	E	3	3.500	2				0	0			4210		972		972			4210	0.231	
	E	3	3.500	1		11	0	0	0			2105		293	170	463	37%		2005	0.231	0.231
	F	4	3.650	1	10			1	0			1980	63			63	100%		1722	0.037	
	F	4	3.650	1	10	20	0	0	0			2120	52		17	69	75%	25%	1874	0.037	
	F	4	3.650	1		20	0	0	0			2120			73	73	100%		1972	0.037	
Pedestrian Crossing					GM	FGM															
	Gp	1	min.	5	+	5	=	10	sec												
	Hp	1,2,4	min.	5	+	9	=	14	sec												
	Ip	3	min.	5	+	10	=	15	sec												
	Jp	1,2,3	min.	5	+	9	=	14	sec												
	Kp	1,4	min.	5	+	6	=	11	sec												
	Lp	2,3	min.	5	+	5	=	10	sec												
	Mp	3,4	min.	5	+	10	=	15	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J4 - Pok Fu Lam Road / Sassoon Road / Access Road to Queen Mary Hospital

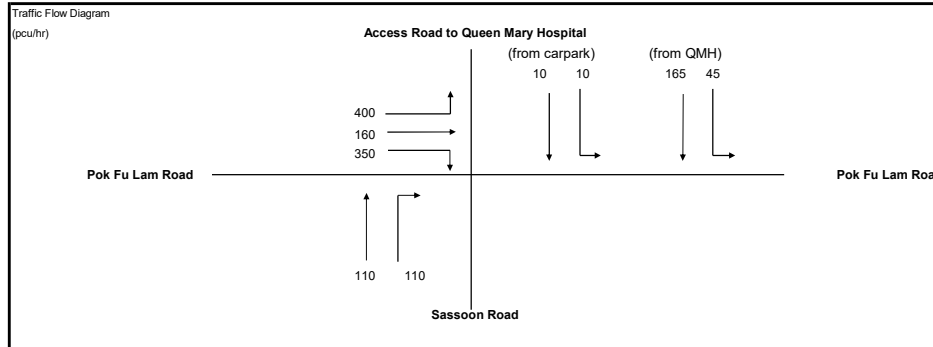
2031 AM Reference Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

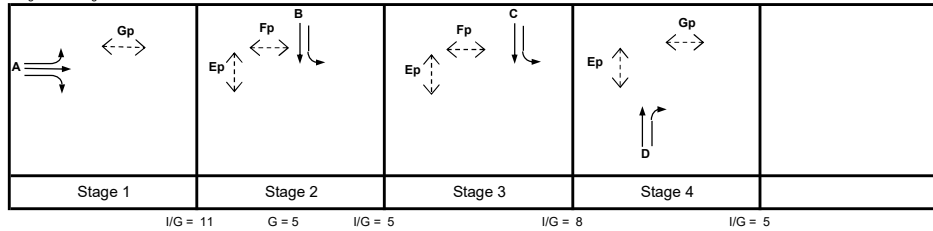
DATE: Apr 26



No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.468
Lost time	L =	31 sec
Total Flow	=	1,360 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y)$	97 sec
Min. Cycle Time C_m	$= L / (1 - Y)$	58 sec
Y_{ult}	$= 0.9 - 0.0075 \times L$	0.668
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\%$	42.6 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y)$	65 sec
Y_{max}	$= 1 - L/C$	0.705

J4

Stage/Phase Diagrams



Critical Case : A,B,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 35\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
Left Turn	A	1	3.300	1	12.5			1		0	100	1945	400	160		560	71%		1884	0.297	0.297
Through/Right	A	1	3.300	1		10	0	0		0		2085			350	350		100%	1813	0.193	
Left Turn	B	2	3.000	1	10			1		0		1915	10	10		20	50%		1781	0.011	
Through/Right	D	4	3.800	1		12.5	0	1		0		1995		110		110		100%	1995	0.055	0.058
Through/Right	D	4	3.800	1				0		0		2135			110	110			1906	0.058	
Left Turn	C	3	3.000	1	10			1		0		1915	45	165		210	21%		1855	0.113	0.113
Pedestrian Crossing					GM	FGM															
	Ep	2,3,4	min.	9	+	12	=	21	sec												
	Fp	2,3	min.	8	+	13	=	21	sec												
	Gp	1,4	min.	5	+	14	=	19	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J4 - Pok Fu Lam Road / Sassoon Road / Access Road to Queen Mary Hospital

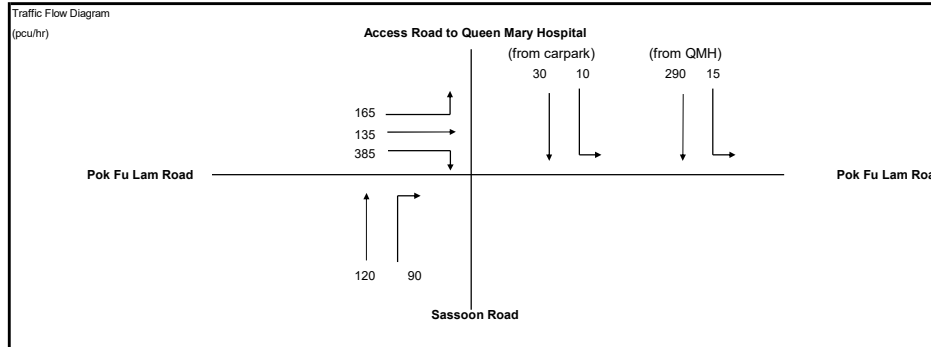
2031 PM Reference Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

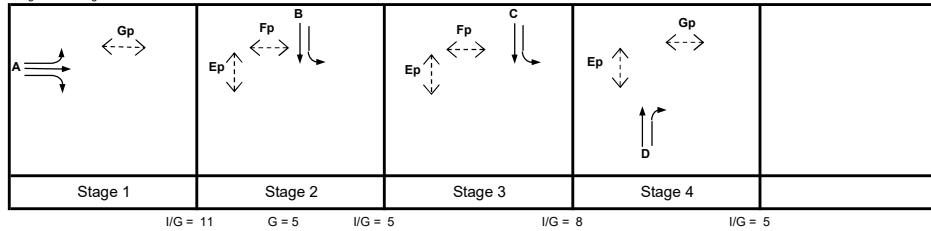
DATE: Apr 26



No. of stages per cycle	N =	4
Cycle time	C =	100 sec
Sum(y)	Y =	0.433
Lost time	L =	31 sec
Total Flow	=	1,240 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y)$	91 sec
Min. Cycle Time C_m	$= L / (1 - Y)$	55 sec
Y_{ult}	$= 0.9 - 0.0075 \times L$	0.668
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\%$	54.2 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y)$	60 sec
Y_{max}	$= 1 - L/C$	0.690

J4

Stage/Phase Diagrams



Critical Case : A,B,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 43\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
Left Turn	A	1	3.300	1	12.5			1		0	100	1945	165	135		300	55%		1918	0.156	
Through/Right	A	1	3.300	1		10	0	0		0		2085			385	385		100%	1813	0.212	0.212
Left Turn	B	2	3.000	1	10			1		0		1915	10	30		40	25%		1846	0.022	
Through/Right	D	4	3.800	1		12.5	0	1		0		1995		120		120		100%	1995	0.060	0.060
Through/Right	D	4	3.800	1				0		0		2135			90	90			1906	0.047	
Left Turn	C	3	3.000	1	10			1		0		1915	15	290		305	5%		1901	0.160	0.160
Pedestrian Crossing					GM	FGM															
	Ep	2,3,4	min.	9	+	12	=	21	sec												
	Fp	2,3	min.	8	+	13	=	21	sec												
	Gp	1,4	min.	5	+	14	=	19	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Pok Fu Lam Road / Sassoon Road

2031 AM Reference Traffic Flows

Designed By : JW

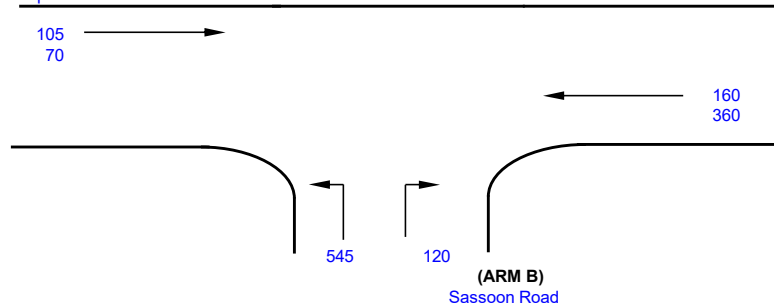
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road Slip Road
(ARM C)

105
70



(ARM A)
Sassoon Road

(ARM B)
Sassoon Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J5

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 15.5 (metres)
W cr = 1.5 (metres)
q a-b = 360 (pcu/hr)
q a-c = 160 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.1 (metres)
Vr c-b = 45 (metres)
q c-a = 105 (pcu/hr)
q c-b = 70 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.5 (metres)
W b-c = 3.7 (metres)
Vl b-a = 65 (metres)
Vr b-a = 75 (metres)
Vr b-c = 75 (metres)
q b-a = 120 (pcu/hr)
q b-c = 545 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.812133
E = 0.964010
F = 0.884290
Y = 0.465250

THE CAPACITY OF MOVEMENT :

Q b-a = 462
Q b-c = 669
Q c-b = 581
Q b-ac = 619

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.26
DFC b-c = 0.81
DFC c-b = 0.12
DFC b-ac =

CRITICAL DFC = 0.81

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Pok Fu Lam Road / Sassoon Road

2031 PM Reference Traffic Flows

Designed By : JW

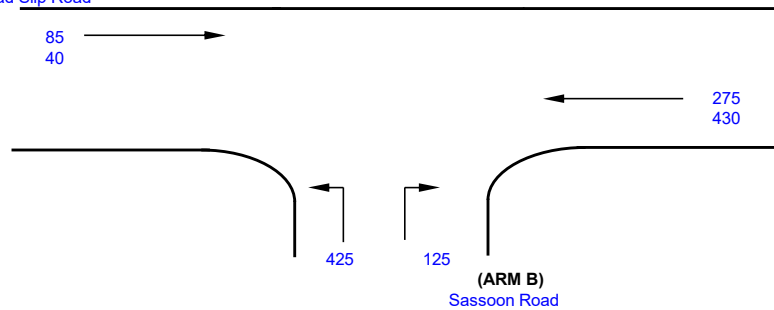
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road Slip Road
(ARM C)

85
40



(ARM A)
Sassoon Road

(ARM B)
Sassoon Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J5

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 15.5 (metres)
W cr = 1.5 (metres)
q a-b = 430 (pcu/hr)
q a-c = 275 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.1 (metres)
Vr c-b = 45 (metres)
q c-a = 85 (pcu/hr)
q c-b = 40 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.5 (metres)
W b-c = 3.7 (metres)
Vl b-a = 65 (metres)
Vr b-a = 75 (metres)
Vr b-c = 75 (metres)
q b-a = 125 (pcu/hr)
q b-c = 425 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.812133
E = 0.964010
F = 0.884290
Y = 0.465250

THE CAPACITY OF MOVEMENT :

Q b-a = 450
Q b-c = 646
Q c-b = 553
Q b-ac = 587

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.28
DFC b-c = 0.66
DFC c-b = 0.07
DFC b-ac =

CRITICAL DFC = 0.66

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J6 - Pok Fu Lam Road / Smithfield / Mount Davis Road

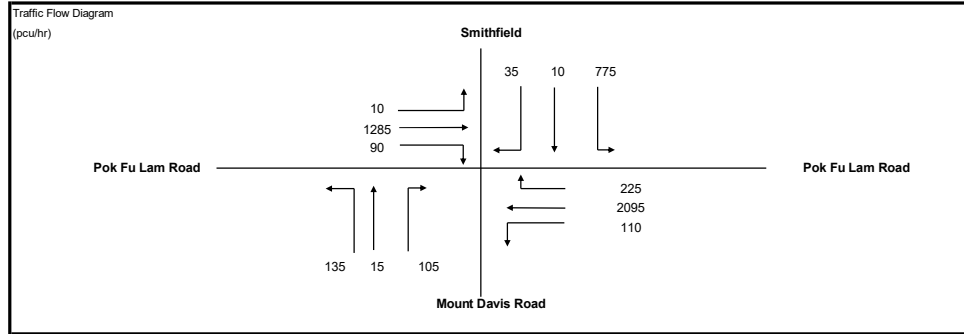
2031 AM Reference Traffic Flows

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No. of stages per cycle N = 5

Cycle time C = 135 sec

Sum(y) Y = 0.586

Lost time L = 26 sec

Total Flow = 4,890 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 106$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 63$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.705$

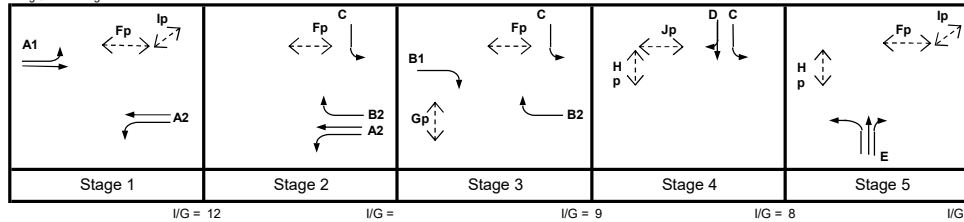
R.C._{ult} = $(Y_{ult} - Y) / Y \times 100\% = 20.3\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 75$ sec

$Y_{max} = 1 - L / C = 0.807$

J6

Stage/Phase Diagrams



Critical Case : A1,C,E

R.C.(C) = $(0.9 \times Y_{max} - Y) / Y \times 100\% = 24\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
A1	A1	1	3.400	1	10			1	0			1955	10	614		624	2%		1950	0.320	0.320
	A1	1	3.400	1				0	0			2095		671		671			2095	0.320	
	B1	3	3.400	1		15	0	0	0			2095			90	90		100%	1905	0.047	
B2	B2	2,3	3.500	1		15	0	0	0			2105			225	225		100%	1914	0.118	
	A2	1,2	3.300	1	10			1	0			1945	110	580		690	16%		1900	0.363	
	A2	1,2	3.300	2				0	0			4170		1515		1515			4170	0.363	
C	C	2,3,4	3.400	2	30			1	0			4050	775			775	100%		3857	0.201	0.201
	D	3	3.800	1		20	0	0	0			2135		10	35	45		78%	2017	0.022	
E	E	4	5.000	1	10			1	0			2115	120			120	100%		1839	0.065	0.065
	E	4	5.000	1	15	15	0	0	0			2255	15	15	105	135	11%	78%	2071	0.065	
Pedestrian Crossing																					
	Fp	1,2,3,5	min.	GM	7	+	FGM	=	12	sec											
	Gp	3	min.		7	+		=	16	sec											
	Hp	4,5	min.		12	+		=	24	sec											
	Ip	1,5	min.		7	+		=	15	sec											
	Jp	4	min.		6	+		=	17	sec											

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J6 - Pok Fu Lam Road / Smithfield / Mount Davis Road

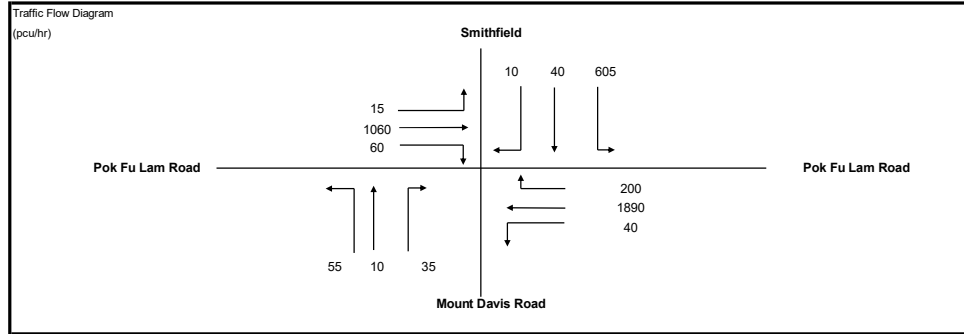
2031 PM Reference Traffic Flows

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No. of stages per cycle N = 5

Cycle time C = 110 sec

Sum(y) Y = 0.423

Lost time L = 32 sec

Total Flow = 4,020 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 92$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 55$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.660$

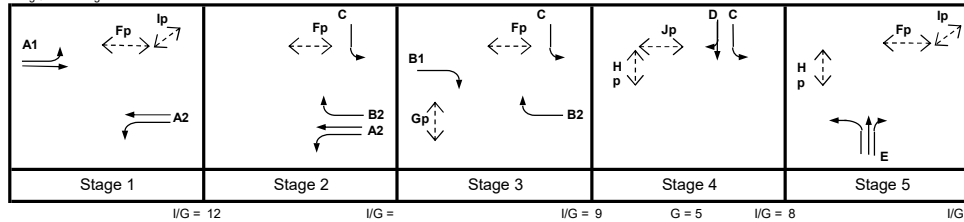
R.C._{ult} = $(Y_{ult} - Y) / Y \times 100\% = 56.1\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 60$ sec

$Y_{max} = 1 - L / C = 0.709$

J6

Stage/Phase Diagrams



Critical Case : A1,C,E

R.C.(C) = $(0.9 \times Y_{max} - Y) / Y \times 100\% = 51\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
A1	A1	1	3.400	1	10			1	0			1955	15	503		518	3%		1947	0.266	0.266
	A1	1	3.400	1				0	0			2095		557		557			2095	0.266	
	B1	3	3.400	1		15	0	0	0			2095			60	60		100%	1905	0.032	
B2	B2	2,3	3.500	1		15	0	0	0			2105			200	200		100%	1914	0.105	0.105
	A2	1,2	3.300	1	10			1	0			1945	40	570		610	7%		1926	0.317	
	A2	1,2	3.300	2				0	0			4170		1320		1320			4170	0.317	
C	C	2,3,4	3.400	2	30			1	0			4050	605			605	100%		3857	0.157	0.157
	D	3	3.800	1		20	0	0	0			2135		40	10	50		20%	2103	0.024	
E	E	4	5.000	1	10			1	0			2115	47			47	100%		1839	0.025	0.025
	E	4	5.000	1	15	15	0	0	0			2255	8	10	35	53	15%	66%	2086	0.025	
Pedestrian Crossing					GM	FGM															
	Fp	1,2,3,5	min.	7	+	5	=	12	sec												
	Gp	3	min.	7	+	9	=	16	sec												
	Hp	4,5	min.	12	+	12	=	24	sec												
	Ip	1,5	min.	7	+	8	=	15	sec												
	Jp	4	min.	6	+	11	=	17	sec												

JUNCTION CAPACITY CALCULATION

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Junction J7 - Pok Fu Lam Road / Pokfield Road

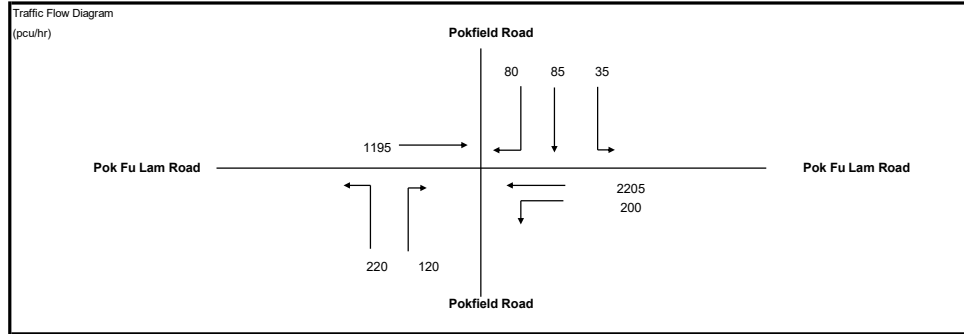
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CHECK: QC

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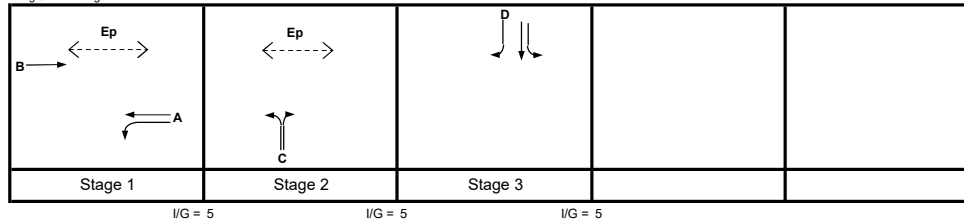
DATE: Jun 26



No. of stages per cycle	N =	3
Cycle time	C =	135 sec
Sum(y)	Y =	0.679
Lost time	L =	12 sec
Total Flow	=	4,140 pcu
Optimum Cycle C_o	= $(1.5 \times L + 5) / (1 - Y)$	72 sec
Min. Cycle Time C_m	= $L / (1 - Y)$	37 sec
Y_{ult}	= $0.9 - 0.0075 \times L$	0.810
R.C. _{ult}	= $(Y_{ult} - Y) / Y \times 100\%$	19.3 %
Practical Cycle Time C_p	= $0.9 \times L / (0.9 - Y)$	49 sec
Y_{max}	= $1 - L / C$	0.911

J7

Stage/Phase Diagrams



Critical Case : A,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 21\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2	3.500	2				0		0		4210		2205		2205			4210	0.524	0.524
	A	1	3.500	1	15			1		0		1965	200			200	100%		1786	0.112	
	B	1	3.500	2				1		0		4070		1195		1195			4070	0.294	
	C	2	3.000	1	20			1		0		1915	165			165	100%		1781	0.092	
	C	2	3.000	1	15	20	0	0		0		2055	55		120	175	32%	68%	1898	0.092	0.092
	D	3	3.500	1		15		0		0		2105			80	80		100%	1914	0.042	
	D	3	3.500	1	15			1		0		1965	35	85		120	29%		1909	0.063	0.063
Pedestrian Crossing																					
	Ep	1,2	min.	GM 12	+	FGM 14	=	26	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J7 - Pok Fu Lam Road / Pokfield Road

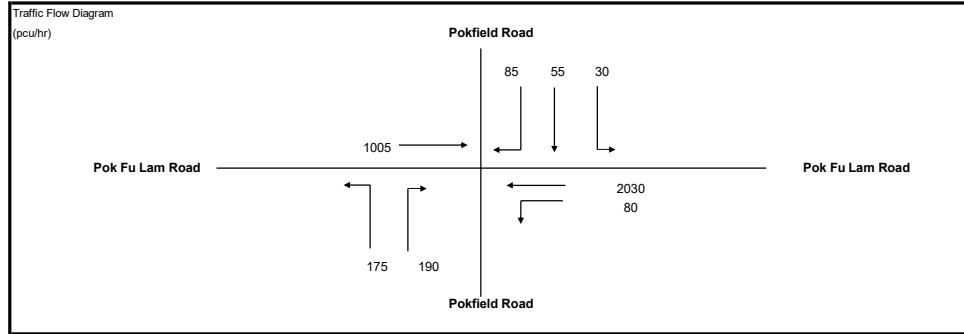
2031 PM Reference Traffic Flows

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DATE: Jun 26



No. of stages per cycle N = 3

Cycle time C = 135 sec

Sum(y) Y = 0.626

Lost time L = 12 sec

Total Flow = 3,650 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 62$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 32$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.810$

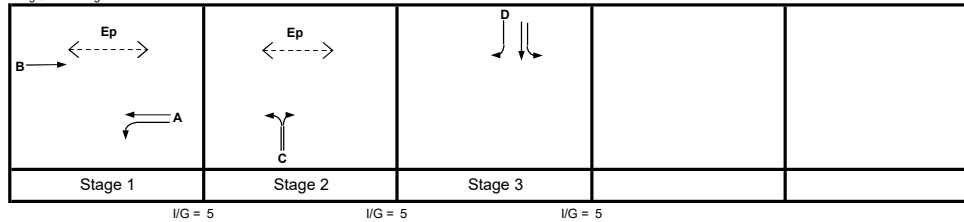
R.C._{ult} = $(Y_{ult} - Y) / Y \times 100\% = 29.3\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 39$ sec

$Y_{max} = 1 - L / C = 0.911$

J7

Stage/Phase Diagrams



Critical Case : A,C,D

R.C.(C) = $(0.9 \times Y_{max} - Y) / Y \times 100\% = 31\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2	3.500	2	15			0		0		4210	80	2030		2030	100%		4210	0.482	0.482
	A	1	3.500	1				1		0		1965				80			1786		
	B	1	3.500	2			1		0		4070		1005		1005		4070	0.247			
	C	2	3.000	1					20		1		0		1915		175				175
	C	2	3.000	1	15	20	0	0	0		2055	0	190	190	0%	100%	1912	0.099	0.099		
	D	3	3.500	1		15	0	0	0		2105			85	85		100%	1914		0.044	
	D	3	3.500	1	15		1	0	0		1965	30	55	85	35%		1898	0.045	0.045		
Pedestrian Crossing				GM 12	+	FGM 14	=	26	sec												
	Ep	1,2	min.																		

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J8 - Lady Ho Tung Hall Signalized Crossing

2031 AM Reference Traffic Flows

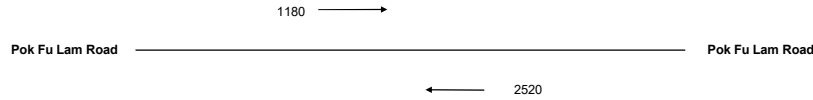
DESIGN: JW

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DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

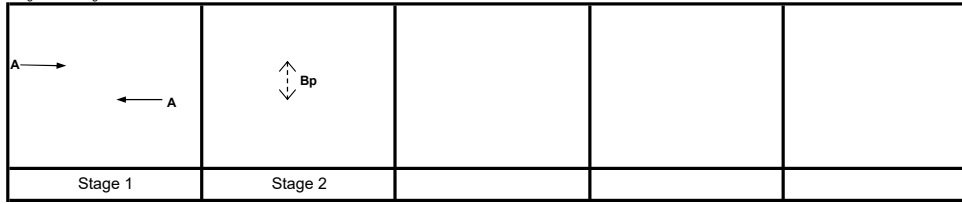


No. of stages per cycle N = 2
Cycle time C = 120 sec
Sum(y) Y = 0.615
Lost time L = 25 sec
Total Flow = 3,700 pcu

J8

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 110$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 65$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 15.9\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 79$ sec
 $Y_{max} = 1 - L / C = 0.792$

Stage/Phase Diagrams



Critical Case : A,Bp

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 16\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.650	2				1		0		4100		1180		1180			4100	0.288	
←	A	1	3.650	2				1		0		4100		2520		2520			4100	0.615	0.615
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J8 - Lady Ho Tung Hall Signalized Crossing

2031 PM Reference Traffic Flows

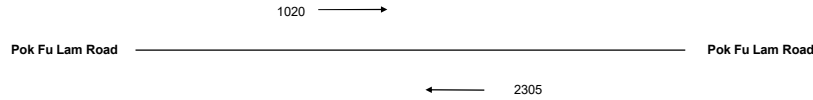
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

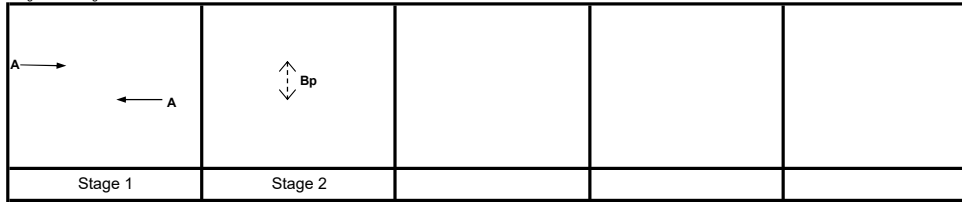


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.562
Lost time L = 25 sec
Total Flow = 3,325 pcu

J8

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 97$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 57$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 26.7\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 67$ sec
 $Y_{max} = 1 - L / C = 0.773$

Stage/Phase Diagrams



Critical Case : A,Bp

R.C.(C) = $(0.9 \times Y_{max} - Y) / Y \times 100\% = 24\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.650	2				1		0		4100		1020		1020			4100	0.249	
←	A	1	3.650	2				1		0		4100		2305		2305			4100	0.562	0.562
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J9 - Woodbury Court Signalized Crossing

2031 AM Reference Traffic Flows

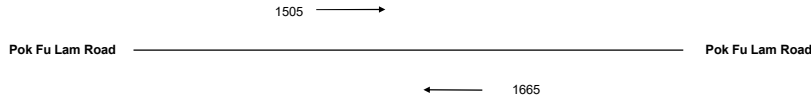
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

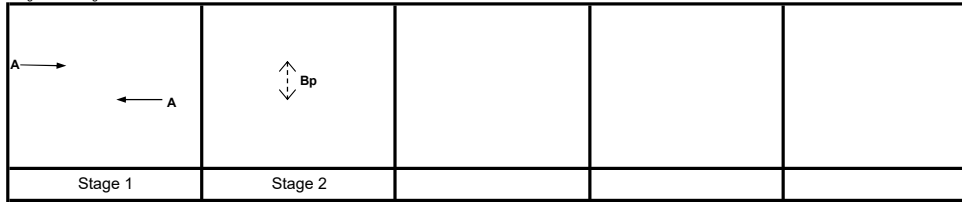


No. of stages per cycle N = 2
Cycle time C = 120 sec
Sum(y) Y = 0.409
Lost time L = 25 sec
Total Flow = 3,170 pcu

J9

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 72$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 42$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 74.2\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 46$ sec
 $Y_{max} = 1 - L / C = 0.792$

Stage/Phase Diagrams



Critical Case : A,Bp

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 74\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		1505		1505			4070	0.370	
←	A	1	3.500	2				1		0		4070		1665		1665			4070	0.409	0.409
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J9 - Woodbury Court Signalized Crossing

2031 PM Reference Traffic Flows

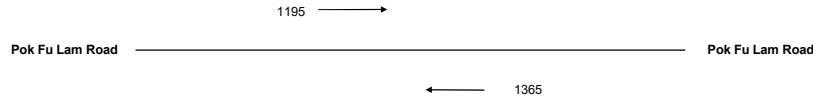
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

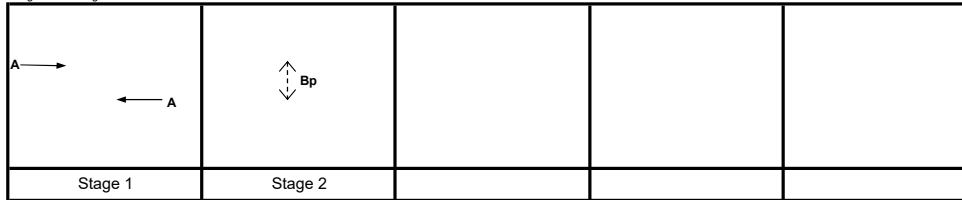


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.335
Lost time L = 25 sec
Total Flow = 2,560 pcu

J9

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 64$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 38$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 112.4\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 40$ sec
 $Y_{max} = 1 - L / C = 0.773$

Stage/Phase Diagrams



Critical Case : A,Bp

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 107\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		1195		1195			4070	0.294	
←	A	1	3.500	2				1		0		4070		1365		1365			4070	0.335	0.335
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

Appendix B-3

Junction Calculation Sheet

2031 Design Case

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - Pok Fu Lam Road / Access Road to Middleton Towers

2031 AM Design Traffic Flows

Designed By : JW

Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1625

1465

(ARM A)
Pok Fu Lam Road

45

115

(ARM B)

Access Road to Middleton Towers

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J1

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 0 (pcu/hr)
q a-c = 1465 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 2.4 (metres)
Vr c-b = 100 (metres)
q c-a = 1625 (pcu/hr)
q c-b = 0 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3.5 (metres)
W b-c = 2.5 (metres)
Vl b-a = 100 (metres)
Vr b-a = 100 (metres)
Vr b-c = 100 (metres)
q b-a = 115 (pcu/hr)
q b-c = 45 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.939109
E = 0.875846
F = 0.866615
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 167
Q b-c = 421
Q c-b = 416
Q b-ac = 201

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.69
DFC b-c = 0.11
DFC c-b = 0.00
DFC b-ac = 0.80

CRITICAL DFC = 0.80

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - Pok Fu Lam Road / Access Road to Middleton Towers

2031 PM Design Traffic Flows

Designed By : JW

Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road
(ARM C)

1375

1180

(ARM A)
Pok Fu Lam Road

25

65

(ARM B)

Access Road to Middleton Towers

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J1

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 14.6 (metres)
W cr = 0 (metres)
q a-b = 0 (pcu/hr)
q a-c = 1180 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 2.4 (metres)
Vr c-b = 100 (metres)
q c-a = 1375 (pcu/hr)
q c-b = 0 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3.5 (metres)
W b-c = 2.5 (metres)
Vl b-a = 100 (metres)
Vr b-a = 100 (metres)
Vr b-c = 100 (metres)
q b-a = 65 (pcu/hr)
q b-c = 25 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.939109
E = 0.875846
F = 0.866615
Y = 0.496300

THE CAPACITY OF MOVEMENT :

Q b-a = 242
Q b-c = 466
Q c-b = 461
Q b-ac = 279

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.27
DFC b-c = 0.05
DFC c-b = 0.00
DFC b-ac = 0.32

CRITICAL DFC = 0.32

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J3 - Pok Fu Lam Road / Victoria Road

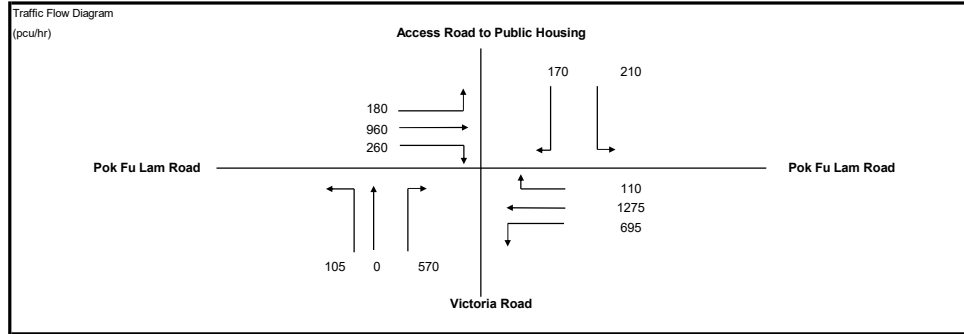
2031 AM Design Traffic Flows

DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26



No. of stages per cycle N = 4

Cycle time C = 140 sec

Sum(y) Y = 0.655

Lost time L = 21 sec

Total Flow = 4,535 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 106$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 61$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.743$

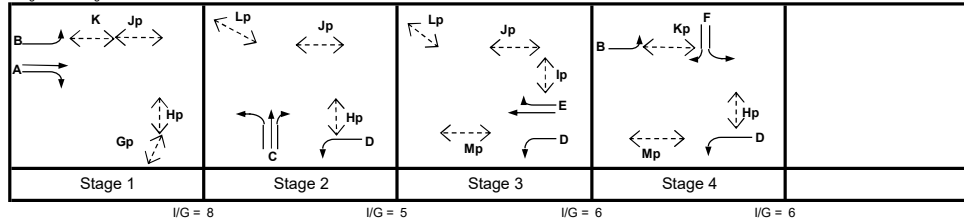
$R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 13.4\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 77$ sec

$Y_{max} = 1 - L / C = 0.850$

J3

Stage/Phase Diagrams



Critical Case : A,C,E,F

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 17\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.700	2				0	0			4250		823		823			4250	0.194	0.194
	A	1	3.650	1		30	0	0	0			2120		137		397		65%	2053	0.194	
	B	1,4	3.700	1	20		0	1	0			1985	180		260	180	100%		1847	0.097	
	C	2	3.600	1	20	25	0	1	0		100	1975	105	0	229	334	31%	69%	1949	0.172	0.172
	C	2	3.500	1		25	0	0	0			2105			341	341		100%	1986	0.172	
	D	2,3,4	3.700	1	20			1	0			1985	695			695	100%		1847	0.376	
	E	3	3.500	2				0	0			4210		933		933			4210	0.222	
	E	3	3.500	1		11	0	0	0			2105		342	110	452		24%	2037	0.222	0.222
	F	4	3.650	1	10			1	0			1980	117			117	100%		1722	0.068	
	F	4	3.650	1	10	20	0	0	0			2120	93		35	128	72%	28%	1877	0.068	0.068
	F	4	3.650	1		20	0	0	0			2120			135	135		100%	1972	0.068	
Pedestrian Crossing					GM	FGM															
	Gp	1	min.	5	+	5	=	10	sec												
	Hp	1,2,4	min.	5	+	9	=	14	sec												
	Ip	3	min.	5	+	10	=	15	sec												
	Jp	1,2,3	min.	5	+	9	=	14	sec												
	Kp	1,4	min.	5	+	6	=	11	sec												
	Lp	2,3	min.	5	+	5	=	10	sec												
	Mp	3,4	min.	5	+	10	=	15	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J3 - Pok Fu Lam Road / Victoria Road

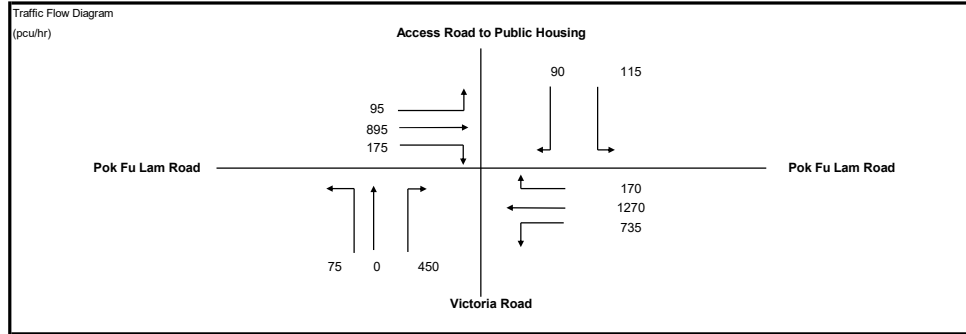
2031 PM Design Traffic Flows

DESIGN: JW

CHECK: QC

#VALUE!

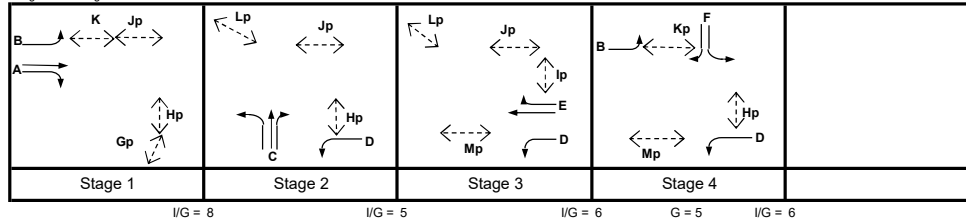
DATE: Apr 26



No. of stages per cycle	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.534
Lost time	L =	27 sec
Total Flow	=	4,070 pcu
Optimum Cycle C_o	= $(1.5 \times L + 5)/(1 - Y)$	98 sec
Min. Cycle Time C_m	= $L/(1 - Y)$	58 sec
Y_{ult}	= $0.9 - 0.0075 \times L$	0.698
$R.C_{ult}$	= $(Y_{ult} - Y)/Y \times 100\%$	30.5 %
Practical Cycle Time C_p	= $0.9 \times L/(0.9 - Y)$	66 sec
Y_{max}	= $1 - L/C$	0.775

J3

Stage/Phase Diagrams



Critical Case : A,C,E,F

$$R.C.(C) = (0.9 \times Y_{max} - Y)/Y \times 100\% = 31\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.700	2				0	0			4250		720		720			4250	0.169	0.169
	A	1	3.650	1		30	0	0	0			2120		175		350		50%	2068	0.169	
	B	1,4	3.700	1	20		0	1	0			1985	95		175	95	100%		1847	0.051	
	C	2	3.600	1	20	25	0	1	0		100	1975	75	0	185	260	29%	71%	1950	0.133	
	C	2	3.500	1		25	0	0	0			2105			265	265		100%	1986	0.133	0.133
	D	2,3,4	3.700	1	20			1	0			1985	735			735	100%		1847	0.398	
	E	3	3.500	2				0	0			4210		975		975			4210	0.232	
	E	3	3.500	1		11	0	0	0			2105		295	170	465		37%	2005	0.232	0.232
	F	4	3.650	1	10			1	0			1980	63			63	100%		1722	0.037	
	F	4	3.650	1	10	20	0	0	0			2120	52		17	69		25%	1874	0.037	
	F	4	3.650	1		20	0	0	0			2120			73	73		100%	1972	0.037	
Pedestrian Crossing					GM	FGM															
	Gp	1	min.	5	+	5	=	10	sec												
	Hp	1,2,4	min.	5	+	9	=	14	sec												
	Ip	3	min.	5	+	10	=	15	sec												
	Jp	1,2,3	min.	5	+	9	=	14	sec												
	Kp	1,4	min.	5	+	6	=	11	sec												
	Lp	2,3	min.	5	+	5	=	10	sec												
	Mp	3,4	min.	5	+	10	=	15	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J4 - Pok Fu Lam Road / Sassoon Road / Access Road to Queen Mary Hospital

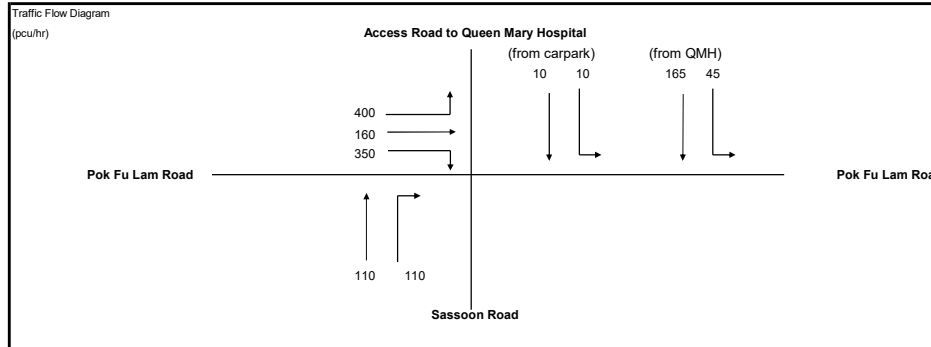
2031 AM Design Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

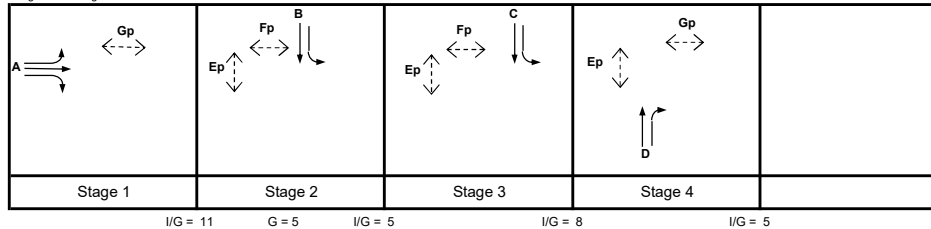
DATE: Apr 26



No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.468
Lost time	L =	31 sec
Total Flow	=	1,360 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y) =$	97 sec
Min. Cycle Time C_m	$= L / (1 - Y) =$	58 sec
Y_{ult}	$= 0.9 - 0.0075 \times L =$	0.668
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\% =$	42.6 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y) =$	65 sec
Y_{max}	$= 1 - L/C =$	0.705

J4

Stage/Phase Diagrams



Critical Case : A,B,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 35\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
Left Turn	A	1	3.300	1	12.5			1		0	100	1945	400	160		560	71%		1884	0.297	0.297
Through/Right	A	1	3.300	1		10	0	0		0		2085			350	350		100%	1813	0.193	
Left Turn	B	2	3.000	1	10			1		0		1915	10	10		20	50%		1781	0.011	
Through/Right	D	4	3.800	1				1		0		1995		110		110			1995	0.055	
Through/Right	D	4	3.800	1		12.5	0	0		0		2135			110	110		100%	1906	0.058	0.058
Left Turn	C	3	3.000	1	10			1		0		1915	45	165		210	21%		1855	0.113	0.113
Pedestrian Crossing					GM	FGM															
	Ep	2,3,4	min.	9	+	12	=	21	sec												
	Fp	2,3	min.	8	+	13	=	21	sec												
	Gp	1,4	min.	5	+	14	=	19	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J4 - Pok Fu Lam Road / Sassoon Road / Access Road to Queen Mary Hospital

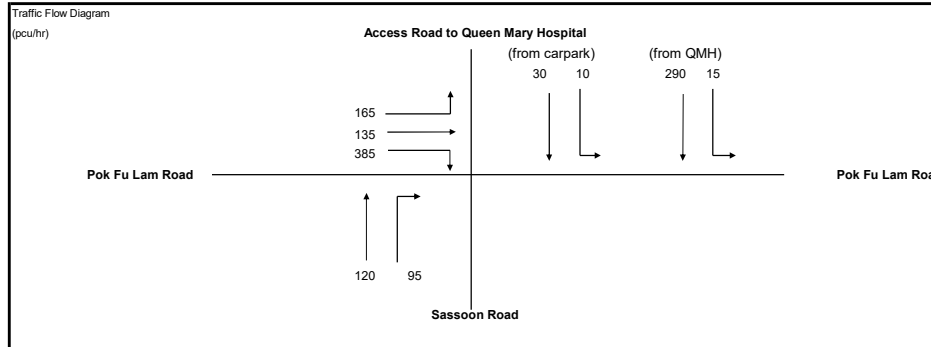
2031 PM Design Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

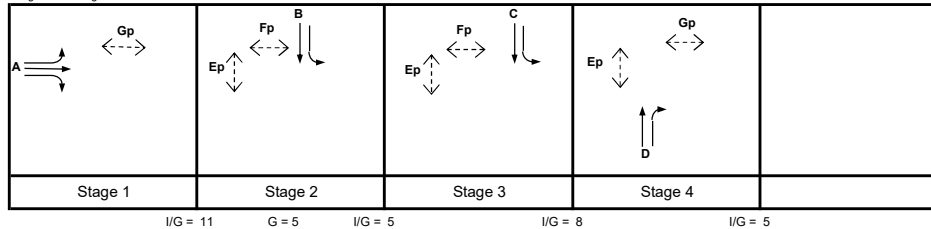
DATE: Apr 26



No. of stages per cycle	N =	4
Cycle time	C =	100 sec
Sum(y)	Y =	0.433
Lost time	L =	31 sec
Total Flow	=	1,245 pcu
Optimum Cycle C_o	$= (1.5 \times L + 5) / (1 - Y) =$	91 sec
Min. Cycle Time C_m	$= L / (1 - Y) =$	55 sec
Y_{ult}	$= 0.9 - 0.0075 \times L =$	0.668
$R.C._{ult}$	$= (Y_{ult} - Y) / Y \times 100\% =$	54.2 %
Practical Cycle Time C_p	$= 0.9 \times L / (0.9 - Y) =$	60 sec
Y_{max}	$= 1 - L/C =$	0.690

J4

Stage/Phase Diagrams



Critical Case : A,B,C,D

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 43\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
Left Turn	A	1	3.300	1	12.5			1		0	100	1945	165	135		300	55%		1918	0.156	
Through	A	1	3.300	1		10	0	0		0		2085			385	385		100%	1813	0.212	0.212
Left Turn	B	2	3.000	1	10			1		0		1915	10	30		40	25%		1846	0.022	
Through	D	4	3.800	1				1		0		1995		120		120			1995	0.060	0.060
Through	D	4	3.800	1		12.5	0	0		0		2135			95	95		100%	1906	0.050	
Left Turn	C	3	3.000	1	10			1		0		1915	15	290		305	5%		1901	0.160	0.160
Pedestrian Crossing					GM	FGM															
Ep	2,3,4	min.		9	+	12	=	21	sec												
Fp	2,3	min.		8	+	13	=	21	sec												
Gp	1,4	min.		5	+	14	=	19	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Pok Fu Lam Road / Sassoon Road

2031 AM Design Traffic Flows

Designed By : JW

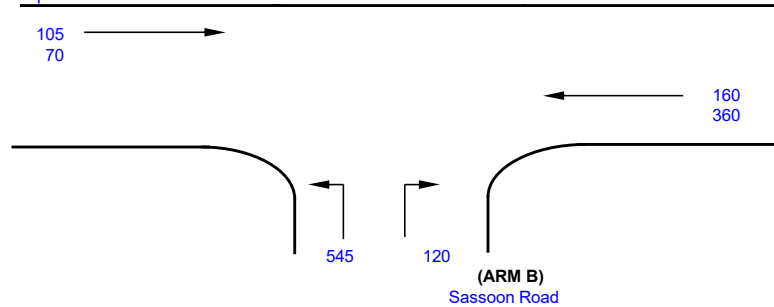
Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road Slip Road
(ARM C)

105
70



(ARM A)
Sassoon Road

(ARM B)
Sassoon Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J5

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 15.5 (metres)
W cr = 1.5 (metres)
q a-b = 360 (pcu/hr)
q a-c = 160 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.1 (metres)
Vr c-b = 45 (metres)
q c-a = 105 (pcu/hr)
q c-b = 70 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.5 (metres)
W b-c = 3.7 (metres)
Vl b-a = 65 (metres)
Vr b-a = 75 (metres)
Vr b-c = 75 (metres)
q b-a = 120 (pcu/hr)
q b-c = 545 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.812133
E = 0.964010
F = 0.884290
Y = 0.465250

THE CAPACITY OF MOVEMENT :

Q b-a = 462
Q b-c = 669
Q c-b = 581
Q b-ac = 619

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.26
DFC b-c = 0.81
DFC c-b = 0.12
DFC b-ac =

CRITICAL DFC = 0.81

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Pok Fu Lam Road / Sassoon Road

2031 PM Design Traffic Flows

Designed By : JW

Checked By : OC

Job No. :

Date : Jun 26

Pok Fu Lam Road Slip Road
(ARM C)

90
40

275
430

(ARM A)
Sassoon Road

(ARM B)
Sassoon Road

NOTES : (GEOMETRIC INPUT DATA)

W = Major Road Width (6.4 - 20.0)
W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.70)
W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.70)
W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.70)
Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c = Visibility to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

D = Stream-specific B-A
E = Stream-specific B-C
F = Stream-specific C-B
Y = (1-0.0345W)

J5

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 15.5 (metres)
W cr = 1.5 (metres)
q a-b = 430 (pcu/hr)
q a-c = 275 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.1 (metres)
Vr c-b = 45 (metres)
q c-a = 90 (pcu/hr)
q c-b = 40 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 2.5 (metres)
W b-c = 3.7 (metres)
Vl b-a = 65 (metres)
Vr b-a = 75 (metres)
Vr b-c = 75 (metres)
q b-a = 125 (pcu/hr)
q b-c = 425 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.812133
E = 0.964010
F = 0.884290
Y = 0.465250

THE CAPACITY OF MOVEMENT :

Q b-a = 449
Q b-c = 646
Q c-b = 553
Q b-ac = 587

COMPARISON OF DESIGN FLOW TO CAPACITY :

DFC b-a = 0.28
DFC b-c = 0.66
DFC c-b = 0.07
DFC b-ac =

CRITICAL DFC = 0.66

JUNCTION CAPACITY CALCULATION

ATCOM

Junction J6 - Pok Fu Lam Road / Smithfield / Mount Davis Road

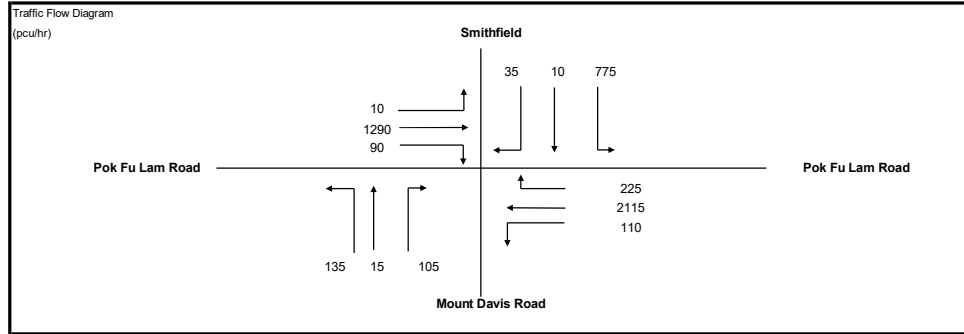
2031 AM Design Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Jun 26



No. of stages per cycle N = 5

Cycle time C = 135 sec

Sum(y) Y = 0.588

Lost time L = 26 sec

Total Flow = 4,915 pcu

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 107$ sec

Min. Cycle Time $C_m = L / (1 - Y) = 63$ sec

$Y_{ult} = 0.9 - 0.0075 \times L = 0.705$

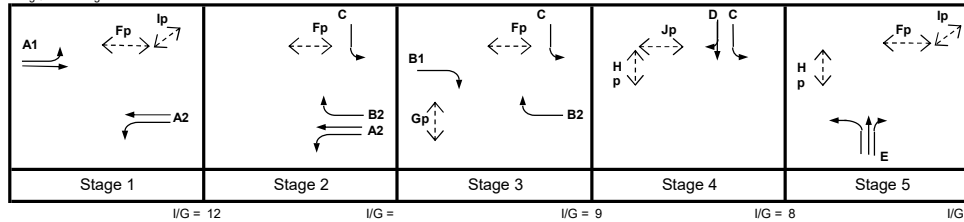
R.C._{ult} = $(Y_{ult} - Y) / Y \times 100\% = 20.0\%$

Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 75$ sec

$Y_{max} = 1 - L / C = 0.807$

J6

Stage/Phase Diagrams



Critical Case : A1,C,E

R.C.(C) = $(0.9 \times Y_{max} - Y) / Y \times 100\% = 24\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
A1	A1	1	3.400	1	10			1	0			1955	10	617		627	2%		1950	0.321	0.321
	A1	1	3.400	1				0	0			2095		673		673			2095	0.321	
	B1	3	3.400	1		15	0	0	0			2095			90	90	100%		1905	0.047	
B2	B2	2,3	3.500	1		15	0	0	0			2105			225	225	100%		1914	0.118	
	A2	1,2	3.300	1	10			1	0			1945	110	586		696	16%		1900	0.367	
	A2	1,2	3.300	2				0	0			4170		1529		1529			4170	0.367	
C	C	2,3,4	3.400	2	30			1	0			4050	775			775	100%		3857	0.201	0.201
	D	3	3.800	1		20	0	0	0			2135		10	35	45	78%		2017	0.022	
E	E	4	5.000	1	10			1	0			2115	120			120	100%		1839	0.065	0.065
	E	4	5.000	1	15	15	0	0	0			2255	15	15	105	135	11%	78%	2071	0.065	
Pedestrian Crossing																					
	Fp	1,2,3,5	min.	GM	7	+	FGM	=	12	sec											
	Gp	3	min.	7	+	9	=	16	sec												
	Hp	4,5	min.	12	+	12	=	24	sec												
	Ip	1,5	min.	7	+	8	=	15	sec												
	Jp	4	min.	6	+	11	=	17	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J6 - Pok Fu Lam Road / Smithfield / Mount Davis Road

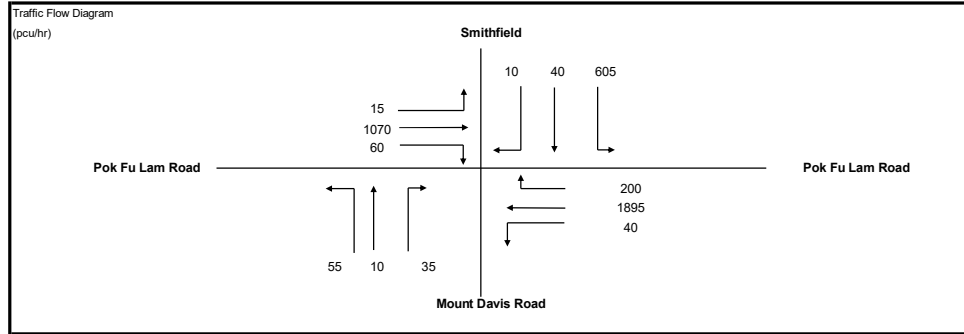
2031 PM Design Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

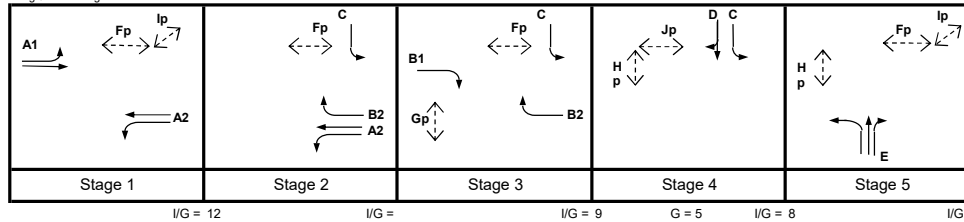
DATE: Jun 26



No. of stages per cycle	N =	5
Cycle time	C =	110 sec
Sum(y)	Y =	0.425
Lost time	L =	32 sec
Total Flow	=	4,035 pcu
Optimum Cycle C_o	= $(1.5 \times L + 5) / (1 - Y)$	92 sec
Min. Cycle Time C_m	= $L / (1 - Y)$	56 sec
Y_{ult}	= $0.9 - 0.0075 \times L$	0.660
R.C. _{ult}	= $(Y_{ult} - Y) / Y \times 100\%$	55.2 %
Practical Cycle Time C_p	= $0.9 \times L / (0.9 - Y)$	61 sec
Y_{max}	= $1 - L / C$	0.709

J6

Stage/Phase Diagrams



Critical Case : A1,C,E

$$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 50\%$$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A1	1	3.400	1	10			1	0			1955	15	508		523	3%		1947	0.268	0.268
	A1	1	3.400	1				0	0			2095		562		562			2095	0.268	
	B1	3	3.400	1		15	0	0	0			2095			60	60	100%		1905	0.032	
	B2	2,3	3.500	1		15	0	0	0			2105			200	200	100%		1914	0.105	0.105
	A2	1,2	3.300	1	10			1	0			1945	40	571		611	7%		1926	0.317	
	A2	1,2	3.300	2				0	0			4170		1324		1324			4170	0.317	
	C	2,3,4	3.400	2	30			1	0			4050	605			605	100%		3857	0.157	0.157
	D	3	3.800	1		20	0	0	0			2135		40	10	50	20%		2103	0.024	
	E	4	5.000	1	10			1	0			2115	47			47	100%		1839	0.025	0.025
	E	4	5.000	1	15	15	0	0	0			2255	8	10	35	53	15%	66%	2086	0.025	
Pedestrian Crossing					GM	FGM															
	Fp	1,2,3,5	min.	7	+	5	=	12	sec												
	Gp	3	min.	7	+	9	=	16	sec												
	Hp	4,5	min.	12	+	12	=	24	sec												
	Ip	1,5	min.	7	+	8	=	15	sec												
	Jp	4	min.	6	+	11	=	17	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J7 - Pok Fu Lam Road / Pokfield Road

2031 AM Design Traffic Flows

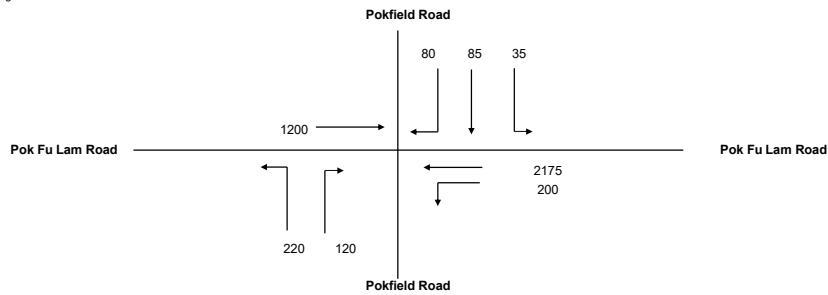
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Jun 26

Traffic Flow Diagram
(pcu/hr)

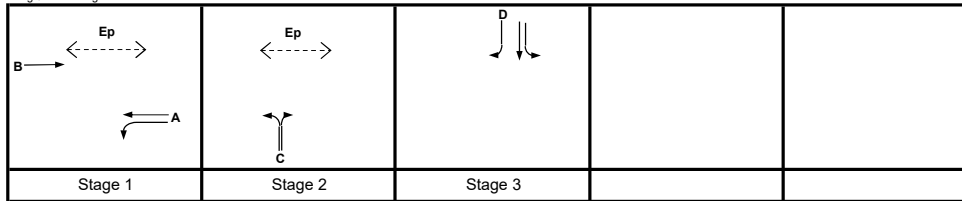


No. of stages per cycle N = 3
Cycle time C = 135 sec
Sum(y) Y = 0.672
Lost time L = 12 sec
Total Flow = 4,115 pcu

J7

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 70$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 37$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.810$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 20.6\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 47$ sec
 $Y_{max} = 1 - L / C = 0.911$

Stage/Phase Diagrams



I/G = 5

I/G = 5

I/G = 5

Critical Case : A,C,D

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 22\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
←	A	2	3.500	2				0		0		4210		2175		2175			4210	0.517	0.517
→	A	1	3.500	1	15			1		0		1965	200			200	100%		1786	0.112	
↗	B	1	3.500	2				1		0		4070		1200		1200			4070	0.295	
↘	C	2	3.000	1	20			1		0		1915	165			165	100%		1781	0.092	
↙	C	2	3.000	1	15	20	0	0		0		2055	55		120	175	32%	68%	1898	0.092	0.092
↖	D	3	3.500	1		15		0		0		2105			80	80		100%	1914	0.042	
↗	D	3	3.500	1	15			1		0		1965	35	85		120	29%		1909	0.063	0.063
Pedestrian Crossing																					
	Ep	1,2	min.	GM 12	+	FGM 14	=	26	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J7 - Pok Fu Lam Road / Pokfield Road

2031 PM Design Traffic Flows

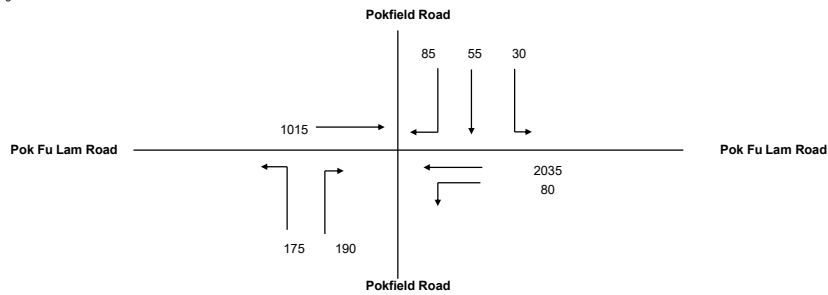
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Jun 26

Traffic Flow Diagram
(pcu/hr)

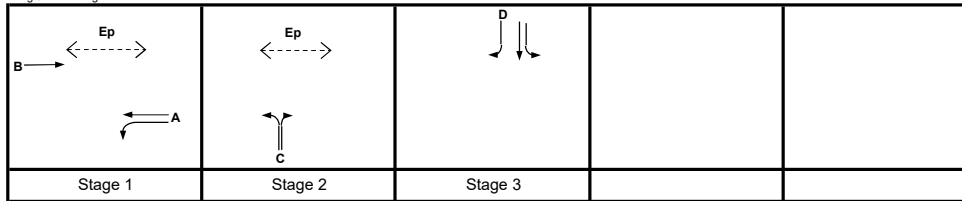


No. of stages per cycle N = 3
Cycle time C = 135 sec
Sum(y) Y = 0.628
Lost time L = 12 sec
Total Flow = 3,665 pcu

J7

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 62$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 32$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.810$
 $R.C_{ult} = (Y_{ult} - Y) / Y \times 100\% = 29.1\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 40$ sec
 $Y_{max} = 1 - L / C = 0.911$

Stage/Phase Diagrams



I/G = 5

I/G = 5

I/G = 5

Critical Case : A,C,D

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 31\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2	3.500	2				0		0		4210		2035		2035			4210	0.483	0.483
	A	1	3.500	1	15			1		0		1965	80			80	100%		1786	0.045	
	B	1	3.500	2				1		0		4070		1015		1015			4070	0.249	
	C	2	3.000	1	20			1		0		1915	175			175	100%		1781	0.098	
	C	2	3.000	1	15	20	0	0		0		2055	0		190	190	0%	100%	1912	0.099	0.099
	D	3	3.500	1		15		0		0		2105			85	85		100%	1914	0.044	
	D	3	3.500	1	15			1		0		1965	30	55		85	35%		1898	0.045	0.045
Pedestrian Crossing																					
	Ep	1,2	min.	GM 12	+	FGM 14	=	26	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J8 - Lady Ho Tung Hall Signalized Crossing

2031 AM Reference Traffic Flows

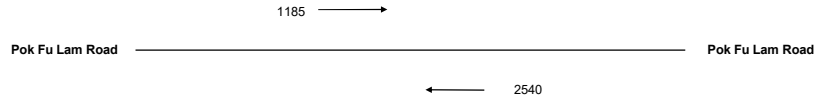
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

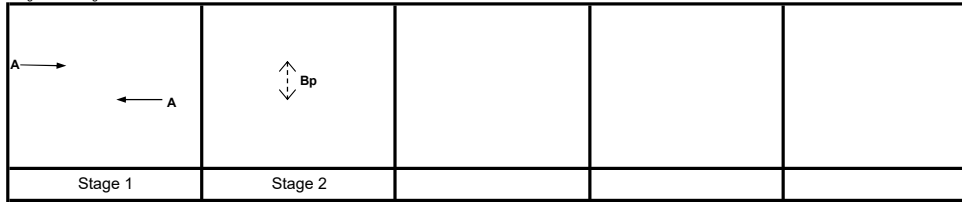


No. of stages per cycle N = 2
Cycle time C = 120 sec
Sum(y) Y = 0.620
Lost time L = 25 sec
Total Flow = 3,725 pcu

J8

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 112$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 66$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 15.0\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 80$ sec
 $Y_{max} = 1 - L / C = 0.792$

Stage/Phase Diagrams



Critical Case : A,Bp

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 15\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.650	2				1		0		4100		1185		1185			4100	0.289	
←	A	1	3.650	2				1		0		4100		2540		2540			4100	0.620	0.620
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J8 - Lady Ho Tung Hall Signalized Crossing

2031 PM Design Traffic Flows

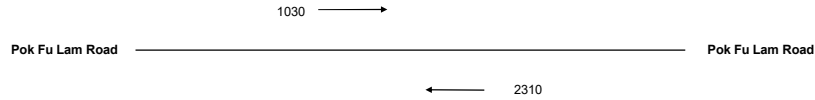
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

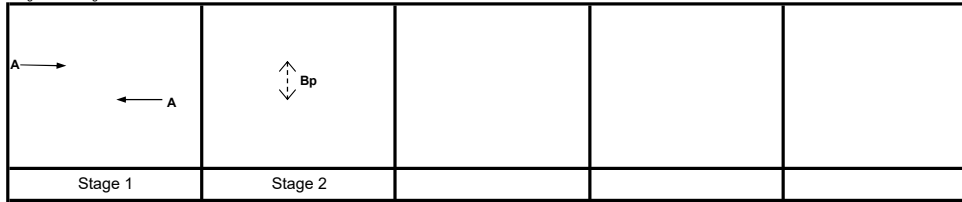


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.563
Lost time L = 25 sec
Total Flow = 3,340 pcu

J8

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 97$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 57$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 26.5\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 67$ sec
 $Y_{max} = 1 - L / C = 0.773$

Stage/Phase Diagrams



Critical Case : A,Bp

$R.C.(C) = (0.9 \times Y_{max} - Y) / Y \times 100\% = 23\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.650	2				1		0		4100		1030		1030			4100	0.251	
←	A	1	3.650	2				1		0		4100		2310		2310			4100	0.563	0.563
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J9 - Woodbury Court Signalized Crossing

2031 AM Design Traffic Flows

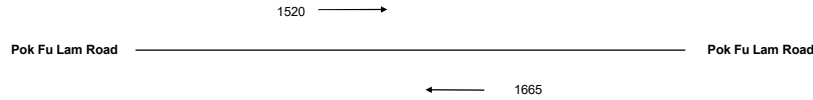
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

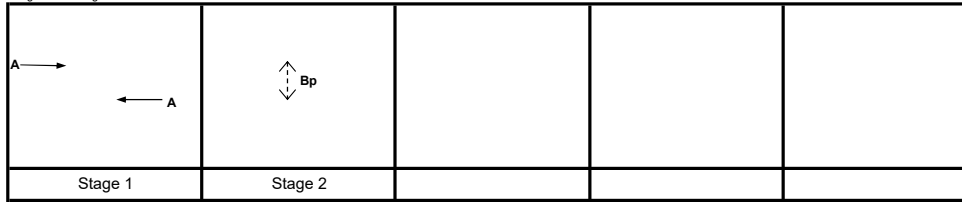


No. of stages per cycle N = 2
Cycle time C = 120 sec
Sum(y) Y = 0.409
Lost time L = 25 sec
Total Flow = 3,185 pcu

J9

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 72$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 42$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 74.2\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 46$ sec
 $Y_{max} = 1 - L / C = 0.792$

Stage/Phase Diagrams



Critical Case : A,Bp

R.C.(C) = $(0.9 \times Y_{max} - Y) / Y \times 100\% = 74\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		1520		1520			4070	0.373	
←	A	1	3.500	2				1		0		4070		1665		1665			4070	0.409	0.409
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AZCOM

Junction J9 - Woodbury Court Signalized Crossing

2031 PM Design Traffic Flows

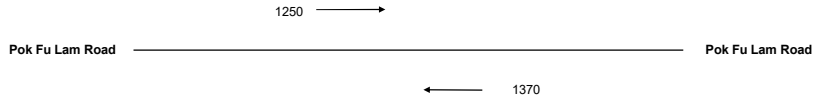
DESIGN: JW

CHECK: QC

#VALUE!

DATE: Apr 26

Traffic Flow Diagram
(pcu/hr)

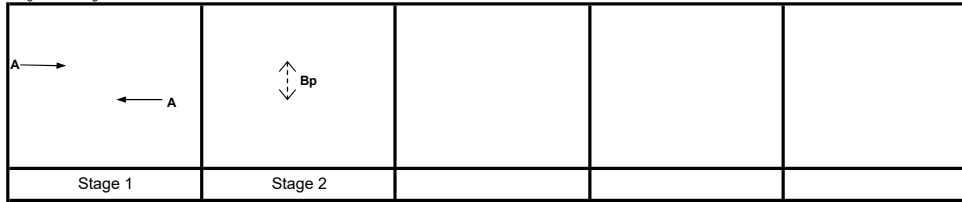


No. of stages per cycle N = 2
Cycle time C = 110 sec
Sum(y) Y = 0.337
Lost time L = 25 sec
Total Flow = 2,620 pcu

J9

Optimum Cycle $C_o = (1.5 \times L + 5) / (1 - Y) = 64$ sec
Min. Cycle Time $C_m = L / (1 - Y) = 38$ sec
 $Y_{ult} = 0.9 - 0.0075 \times L = 0.713$
 $R.C._{ult} = (Y_{ult} - Y) / Y \times 100\% = 111.7\%$
Practical Cycle Time $C_p = 0.9 \times L / (0.9 - Y) = 40$ sec
 $Y_{max} = 1 - L / C = 0.773$

Stage/Phase Diagrams



I/G = 5 G = 8 I/G = 13

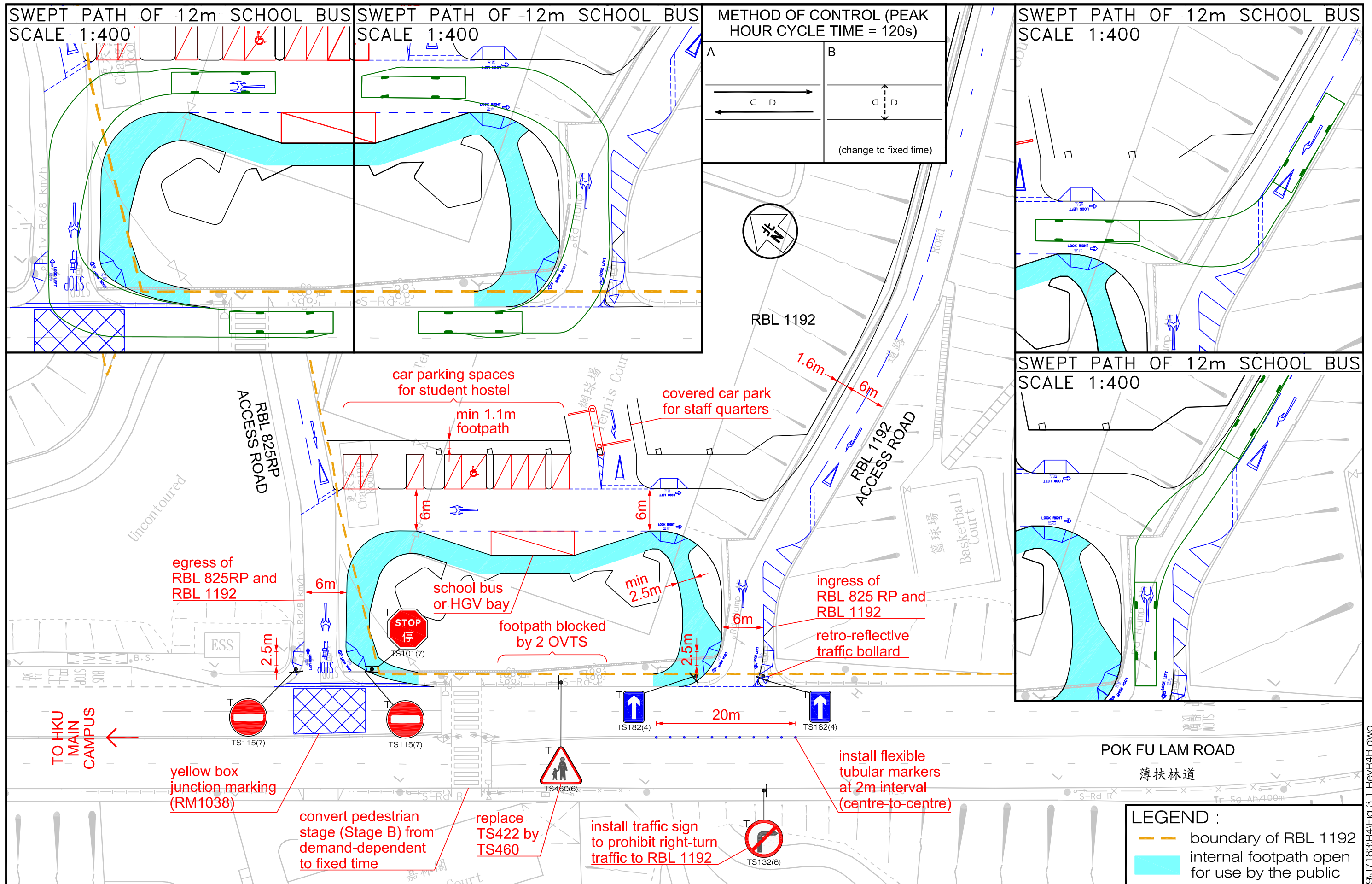
Critical Case : A,Bp

R.C.(C) = $(0.9 \times Y_{max} - Y) / Y \times 100\% = 107\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	A	1	3.500	2				1		0		4070		1250		1250			4070	0.307	
←	A	1	3.500	2				1		0		4070		1370		1370			4070	0.337	0.337
Pedestrian Crossing																					*
	Bp	2	min.	GM 8	+	FGM 10	=	18	sec												

Appendix C

Rearranged Traffic Layout at J1 & J2



Project Title	RBL 1192, HIGH WEST, 142 POK FU LAM ROAD, HKU			Figure No.	3.1	Revision	R4B	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk
Figure Title	VEHICULAR ACCESS ARRANGEMENT OF RBL 1192			Designed by	T H C	Drawn by	C C L	
				Scale in A3	1 : 500	Date	07 OCT 2022	
				Figure No.	J7183	Checked by	K C	

T:\JOB\J7150-J7199\J7183\R4\Fig 3.1 RevR4B.dwg

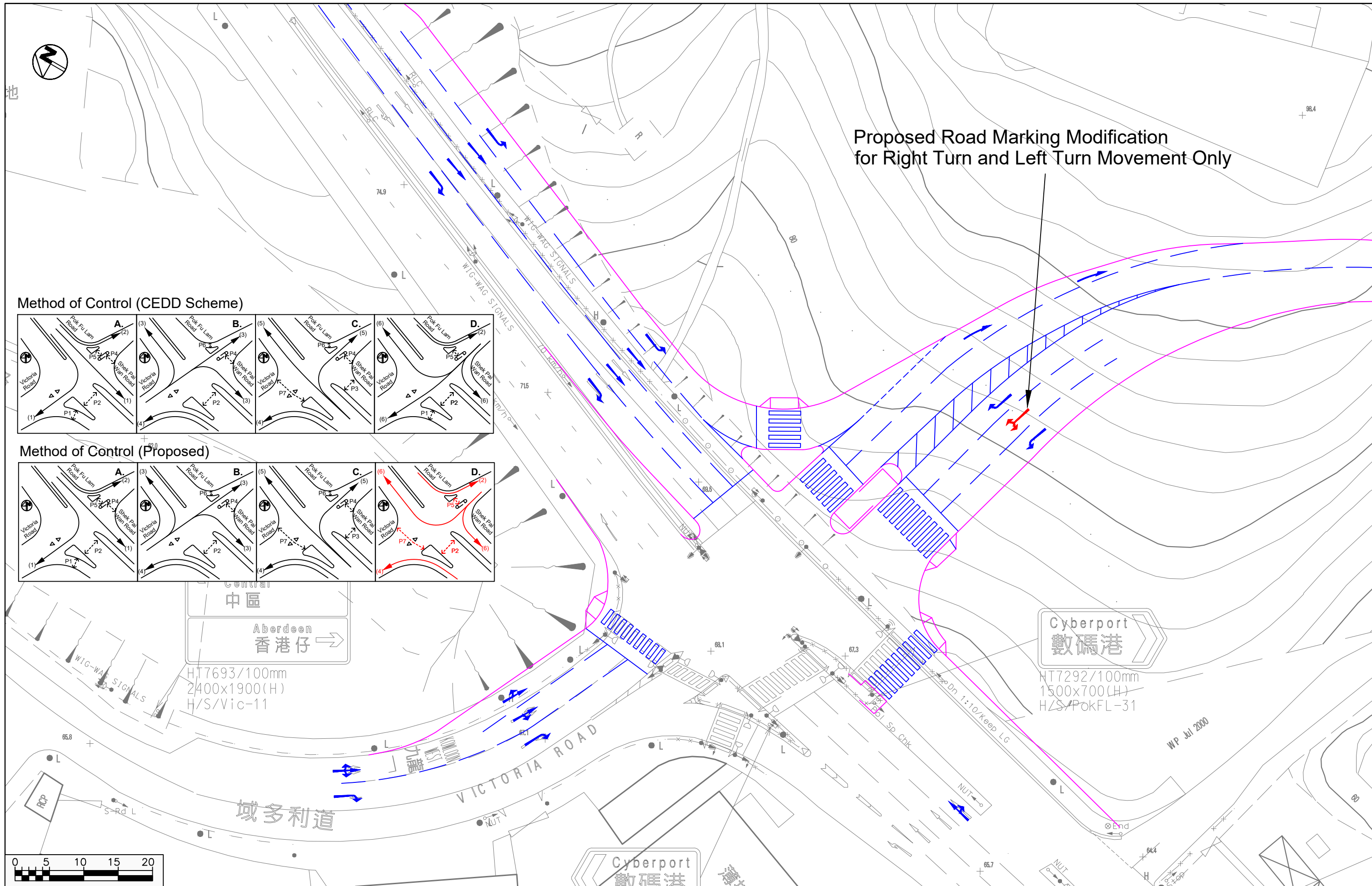
Appendix D

Planned Junction Improvements

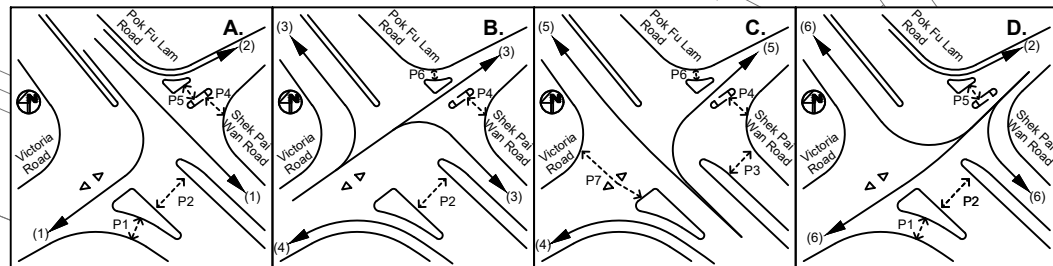
Appendix D-1

Planned Junction Layout

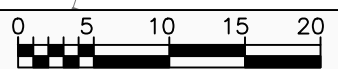
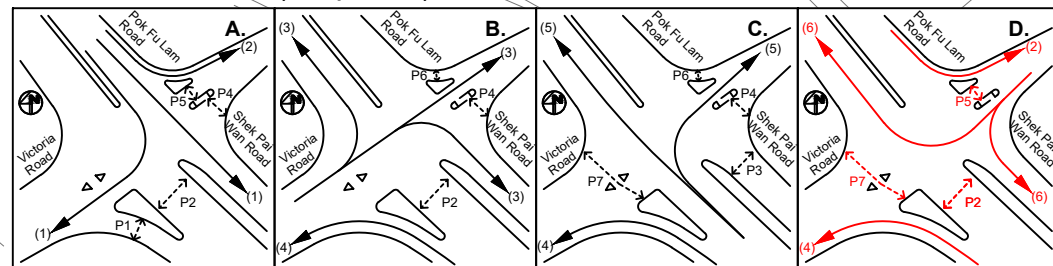
Pok Fu Lam Road / Victoria Road (J3)



Method of Control (CEDD Scheme)



Method of Control (Proposed)



Date
26/06/2019

Scale
1:500

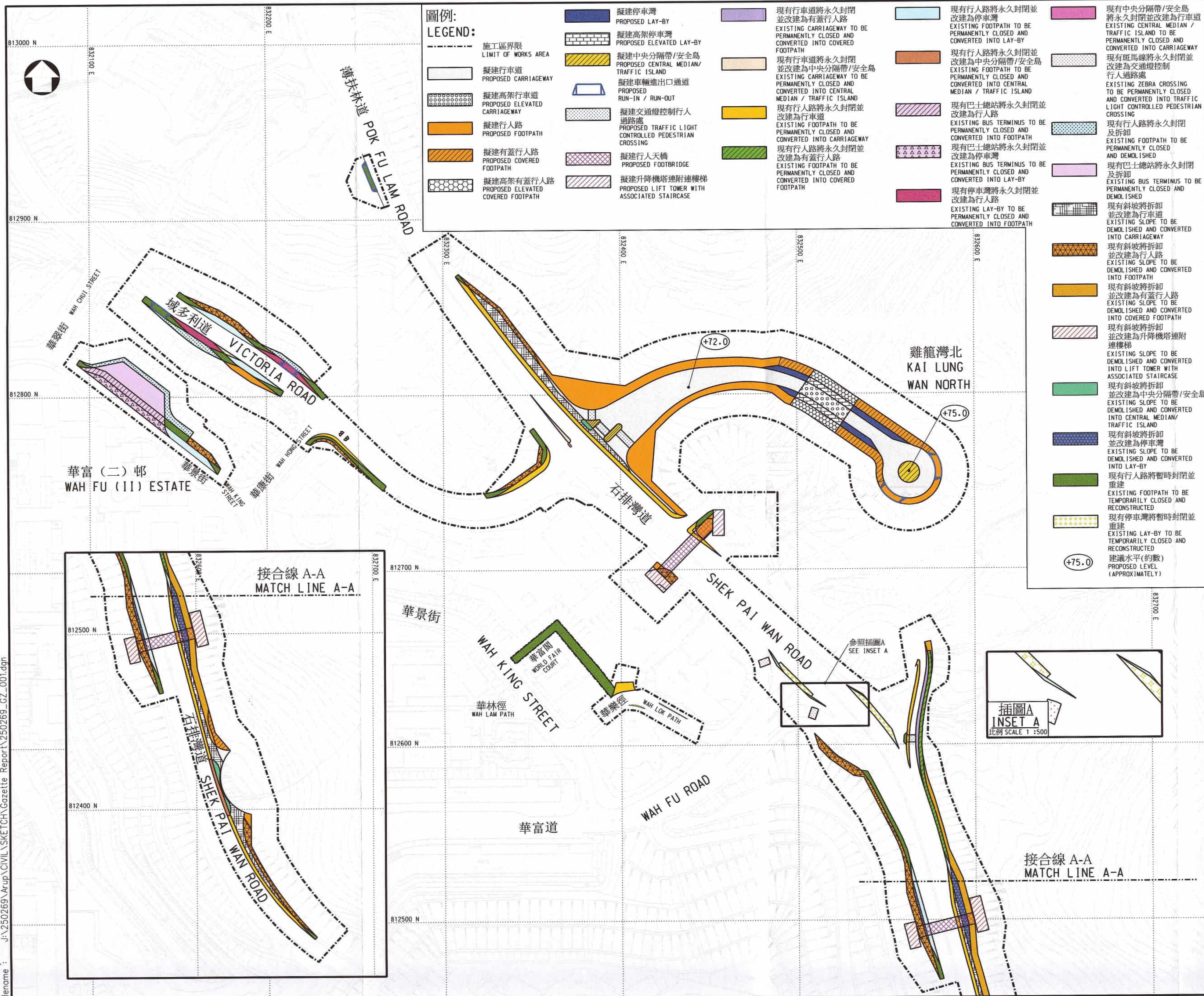
Proposed Cyberport Expansion

Proposed Modifications at Junction of Pok Fu Lam Road, Shek Pai Wan Road and Victoria Road (J9)



Project No. 81110
Dwg No. Figure 5-4

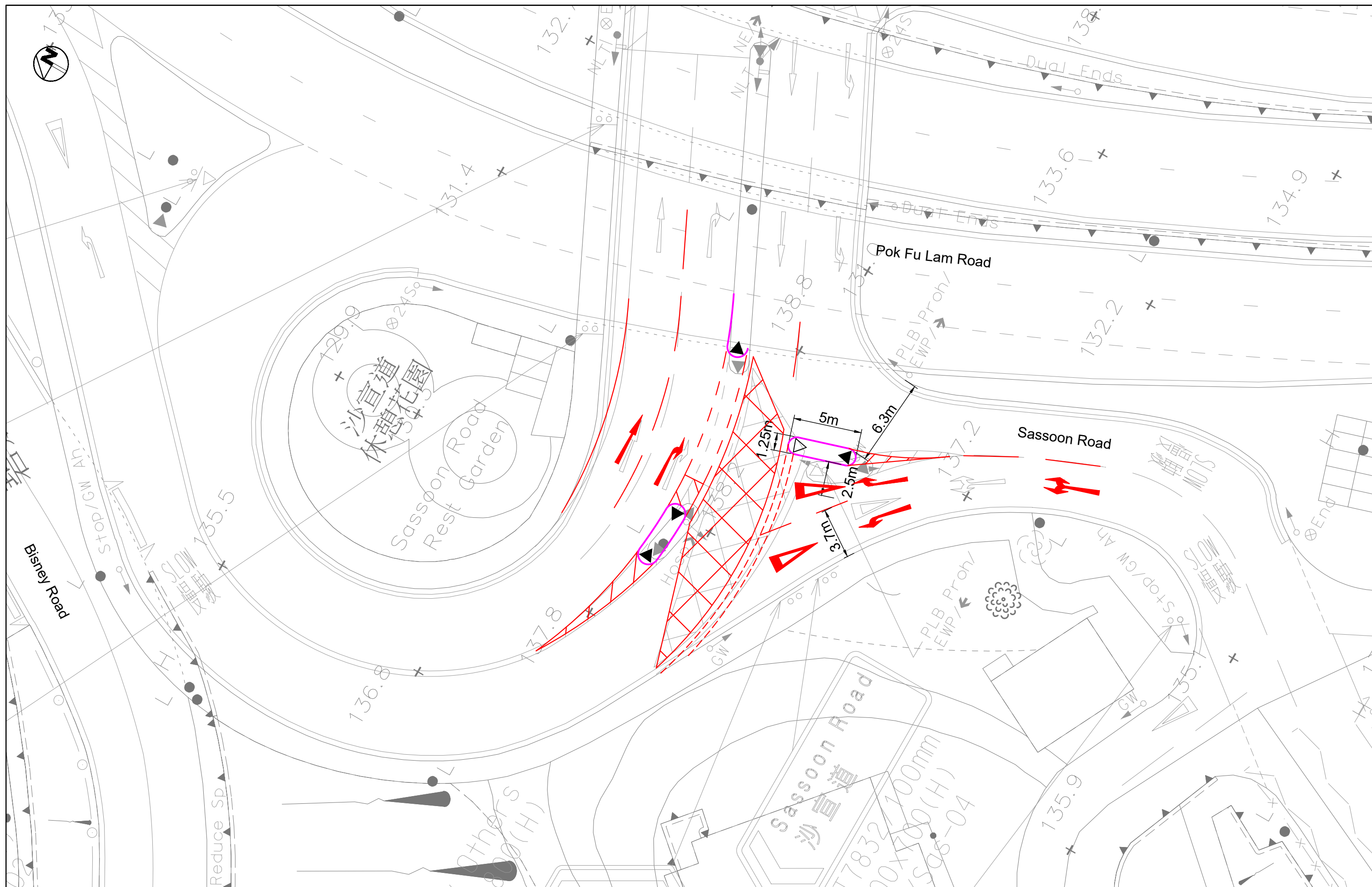
Rev.
A



Appendix D-2

Planned Junction Layout

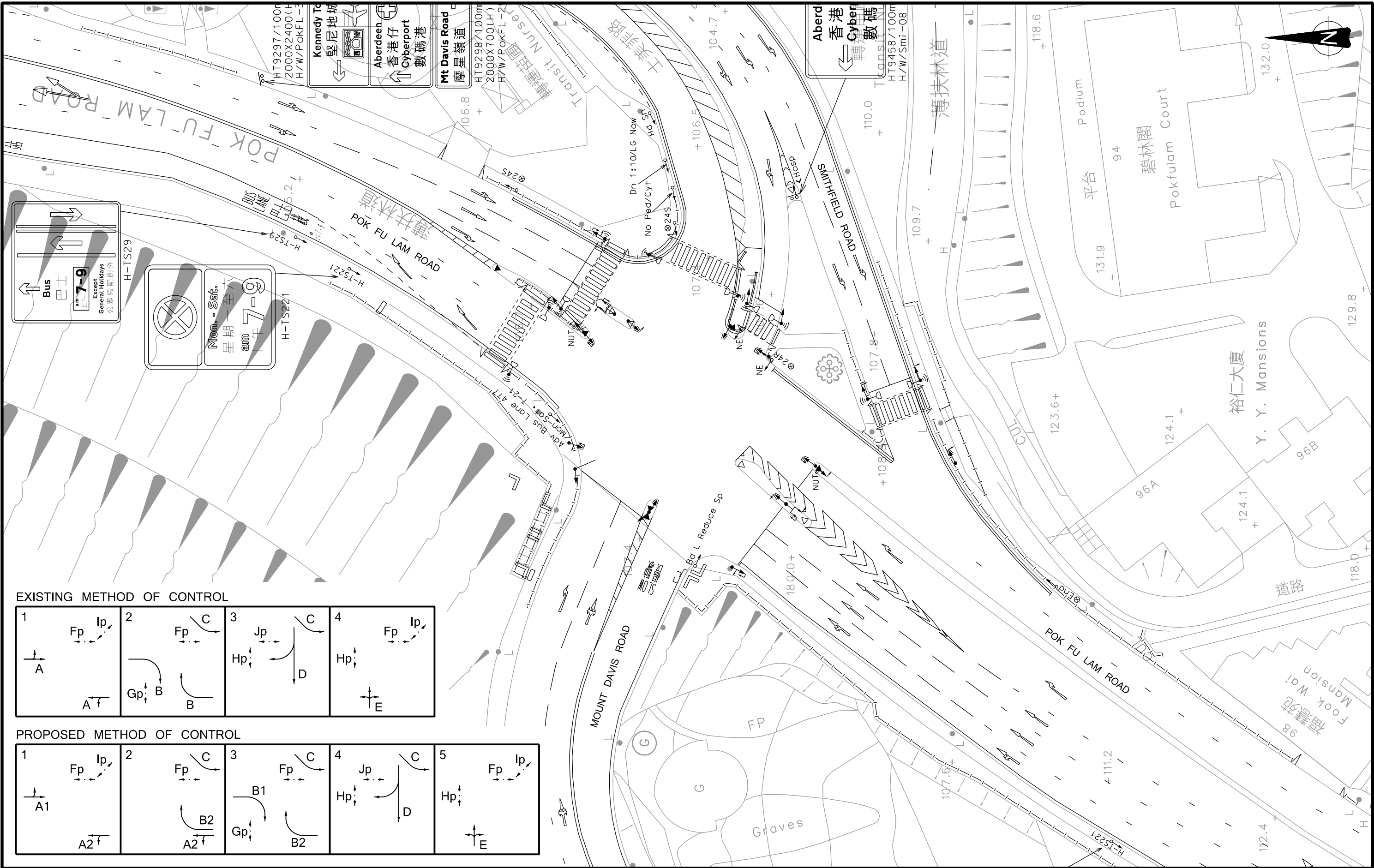
Pok Fu Lam Road / Sassoon Road (J5)



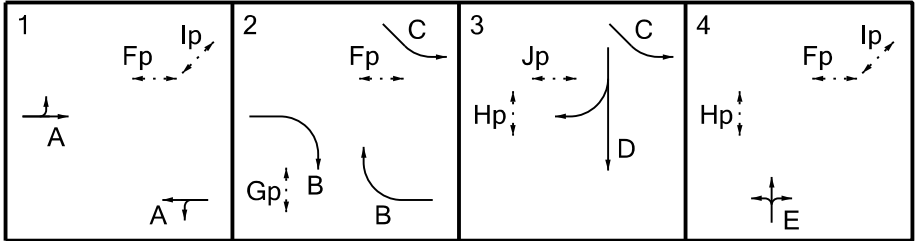
Appendix D-3

Planned Junction Layout

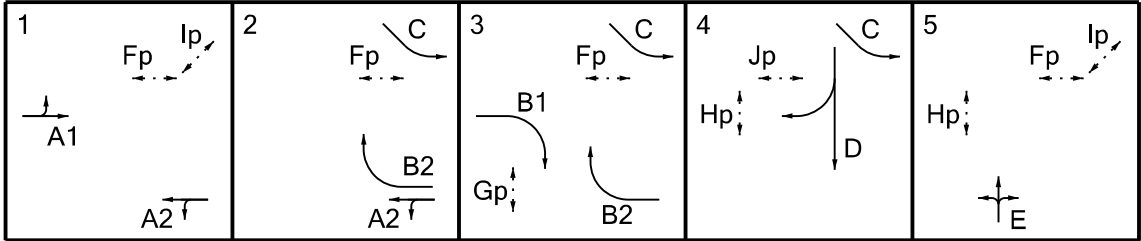
Pok Fu Lam Road / Smithfield / Mount
Davis Road (J6)



EXISTING METHOD OF CONTROL



PROPOSED METHOD OF CONTROL



-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Rev.	Description	Checked	Date

Project Title
DESIGN AND CONSTRUCTION OF REDEVELOPMENT OF QUEEN MARY HOSPITAL, PHASE 1 AT POK FU LAM ROAD, HONG KONG

Drawing Title											
SUGGESTED JUNCTION IMPROVEMENT AT POK FU LAM ROAD / MOUNT DAVIS ROAD (J5)											
Designed	WHC	Checked	LYT	Scale	1:500(A3)	Date	JUL 2020	Drawing No.	5.2	Rev.	-



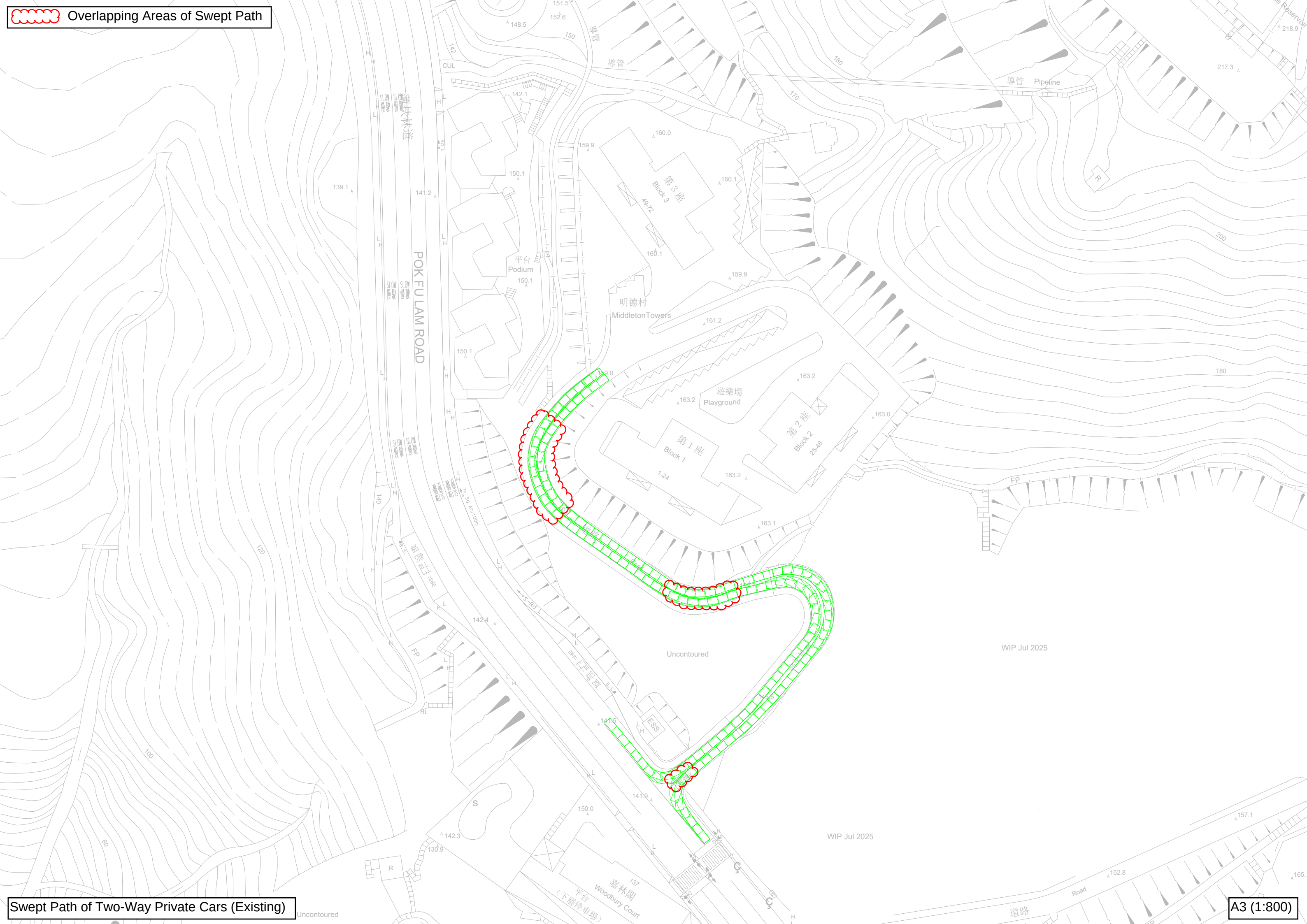
Appendix E

Swept Path Analysis of Existing Access Road

 Overlapping Areas of Swept Path

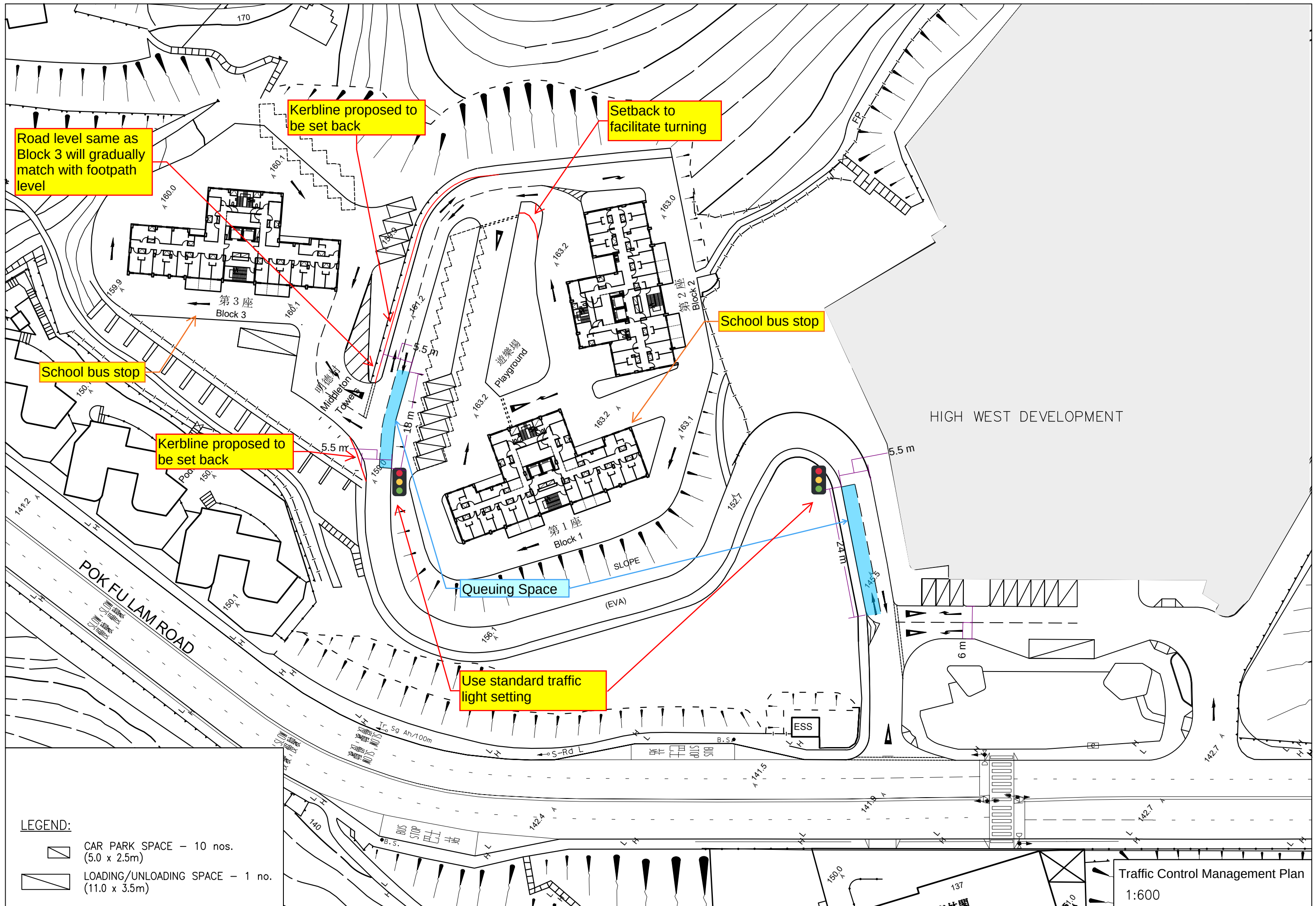
Swept Path of Two-Way Private Cars (Existing)

A3 (1:800)



Appendix F

Traffic Control Management Plan



Queuing Probability of Ingress Traffic

Traffic Flow (pcu/hr) of Proposed Middleton Tower:

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Middleton Towers	Proposed Use – Student Hostel (900 units)	Private Modes	23	43	66	30	16	46
		School Bus ⁽¹⁾	7.5	7.5	15	7.5	7.5	15
		Total	30.5	50.5	81	37.5	23.5	61

Below shows the calculation on the probability of ingress vehicle waiting for signal to turn green.

Item	Factor	AM		PM	
Averaged arrival rate (veh/sec)	q	= 30.5/3600	0.00847	= 37.5/3600	0.0104
Averaged service rate of each service channel (veh/sec)	Q	= 4 × 30/3600	0.0333	= 4 × 30/3600	0.0333
Number of service channel	K		1		1
	p	= q/Q	0.254	= q/Q	0.313
	p ^K		0.254		0.313
	K!		1		1
	1-p/K	= 1- $\frac{0.254}{1}$	0.746	= 1- $\frac{0.313}{1}$	0.688
	$\frac{p^K}{K! * 1-p/K}$	= $\frac{0.254}{1 \times 0.746}$	0.341	= $\frac{0.313}{1 \times 0.688}$	0.455
Probability of 0 vehicle waiting in front of signal pole	P(0)	= $\frac{1}{\frac{0.254^0}{0!} + 0.341}$	74.6%	= $\frac{1}{\frac{0.313^0}{0!} + 0.455}$	68.8%
Probability of 1 vehicle waiting in front of signal pole	P(1)	= $\frac{0.254^1}{1!} \times 74.6\%$	19.0%	= $\frac{0.313^1}{1!} \times 68.8\%$	21.5%
Probability of 2 vehicle waiting in front of signal pole	P(2)	= $\frac{0.254^2}{1 \times 1!} \times 74.6\%$	4.8%	= $\frac{0.313^2}{1 \times 1!} \times 68.8\%$	6.7%
Probability of 3 vehicle waiting in front of signal pole	P(3)	= $\frac{0.254^3}{1 \times 1!} \times 74.6\%$	1.2%	= $\frac{0.313^3}{1 \times 1!} \times 68.8\%$	2.1%
Probability of 4 vehicle waiting in front of signal pole	P(4)	= $\frac{0.254^4}{1 \times 1!} \times 74.6\%$	0.3%	= $\frac{0.313^4}{1 \times 1!} \times 68.8\%$	0.7%
Probability of 5 vehicle waiting in front of signal pole	P(5)	= $\frac{0.254^5}{1 \times 1!} \times 74.6\%$	0.1%	= $\frac{0.313^5}{1 \times 1!} \times 68.8\%$	0.2%

$$P(0) = \frac{1}{\sum_{n=0}^{K-1} \frac{\rho^n}{n!} + \frac{\rho^K}{K!(1-\rho/K)}}$$

$$P(n) = \frac{\rho^n}{n!} P(0) \quad \text{for } n \leq K$$

$$P(n) = \frac{\rho^n}{K^{n-K} K!} P(0) \quad \text{for } n \geq K$$

Based on the calculation, the probability of having 4 or fewer vehicles queuing up is higher than 95% confidence level, which is **99.9%** and **99.7%** for AM and PM peak respectively.

Queuing Probability of Egress Traffic

Traffic Flow (pcu/hr) of Proposed Middleton Tower:

Location	Land Use and Parameters	Item	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Middleton Towers	Proposed Use – Student Hostel (900 units)	Private Modes	23	43	66	30	16	46
		School Bus ⁽¹⁾	7.5	7.5	15	7.5	7.5	15
		Total	30.5	50.5	81	37.5	23.5	61

Below shows the calculation on the probability of ingress vehicle waiting for signal to turn green.

Item	Factor	AM		PM	
Averaged arrival rate (veh/sec)	q	= 50.5/3600	0.0140	= 23.5/3600	0.00653
Averaged service rate of each service channel (veh/sec)	Q	= 4 × 30/3600	0.0333	= 4 × 30/3600	0.0333
Number of service channel	K		1		1
	p	= q/Q	0.421	= q/Q	0.196
	p ^K		0.421		0.196
	K!		1		1
	1-p/K	= 1- $\frac{0.421}{1}$	0.579	= 1- $\frac{0.196}{1}$	0.804
	$\frac{p^K}{K! * 1-p/K}$	= $\frac{0.421}{1 \times 0.579}$	0.727	= $\frac{0.196}{1 \times 0.804}$	0.244
Probability of 0 vehicle waiting in front of signal pole	P(0)	= $\frac{1}{\frac{0.421^0}{0!} + 0.727}$	57.9%	= $\frac{1}{\frac{0.196^0}{0!} + 0.244}$	80.4%
Probability of 1 vehicle waiting in front of signal pole	P(1)	= $\frac{0.421^1}{1!} \times 57.9\%$	24.4%	= $\frac{0.196^1}{1!} \times 80.4\%$	15.7%
Probability of 2 vehicle waiting in front of signal pole	P(2)	= $\frac{0.421^2}{1 \times 1!} \times 57.9\%$	10.3%	= $\frac{0.196^2}{1 \times 1!} \times 80.4\%$	3.1%
Probability of 3 vehicle waiting in front of signal pole	P(3)	= $\frac{0.421^3}{1 \times 1!} \times 57.9\%$	4.3%	= $\frac{0.196^3}{1 \times 1!} \times 80.4\%$	0.6%
Probability of 4 vehicle waiting in front of signal pole	P(4)	= $\frac{0.421^4}{1 \times 1!} \times 57.9\%$	1.8%	= $\frac{0.196^4}{1 \times 1!} \times 80.4\%$	0.1%
Probability of 5 vehicle waiting in front of signal pole	P(5)	= $\frac{0.421^5}{1 \times 1!} \times 57.9\%$	0.8%	= $\frac{0.196^5}{1 \times 1!} \times 80.4\%$	0.0%

$$P(0) = \frac{1}{\sum_{n=0}^{K-1} \frac{\rho^n}{n!} + \frac{\rho^K}{K!(1-\rho/K)}}$$

$$P(n) = \frac{\rho^n}{n!} P(0) \quad \text{for } n \leq K$$

$$P(n) = \frac{\rho^n}{K^{n-K} K!} P(0) \quad \text{for } n \geq K$$

Based on the calculation, the probability of having 3 or fewer vehicles queuing up is higher than 95% confidence level, which is **96.9%** and **99.9%** for AM and PM peak respectively.

Junction Assessment of Signal Arrangement at Middleton Towers (AM Peak)

JUNCTION CAPACITY CALCULATION

Junction J10 - Middleton Towers Signal

2031 PM Design Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Jun 26

Traffic Flow Diagram
(pcu/hr)

50

MT

Pok Fu Lam Road

30

No. of stages per cycle

N = 2

Cycle time

C = 120 sec

Sum(y)

Y = 0.041

Lost time

L = 96 sec

Total Flow

= 80 pcu

Optimum Cycle C_o

$= (1.5 \times L + 5) / (1 - Y) = 155$ sec

Min. Cycle Time C_m

$= L / (1 - Y) = 100$ sec

Y_{ult}

$= 0.9 - 0.0075 \times L = 0.180$

$R.C._{ult}$

$= (Y_{ult} - Y) / Y \times 100\% = 335.6$ %

Practical Cycle Time C_p

$= 0.9 \times L / (0.9 - Y) = 101$ sec

Y_{max}

$= 1 - L / C = 0.200$

J10

Stage/Phase Diagrams

A

B

Stage 1

Stage 2

I/G = 49

I/G = 49

Critical Case : A,B

R.C.(C)

$= (0.9 \times Y_{max} - Y) / Y \times 100\% = 336\%$

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y	EFFECTIVE GREEN $g = y / Y \times (C - L)$ (sec)	ACTUAL GREEN G (sec)	DEGREE OF SATURATION X	Average Queue N
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT							
➡	A	1	3.500	1				1		0		1965		50		50			1965	0.025	0.025	15	14	0.207	1
⬅	B	2	2.750	1				1		0		1890		30		30			1890	0.016	0.016	9	8	0.207	1

MT Signalized Crossing.xlsm / Test_AM (2)

2026-07-02

Junction Assessment of Signal Arrangement at Middleton Towers (PM Peak)

JUNCTION CAPACITY CALCULATION

Junction J10 - Middleton Towers Signal

2031 PM Design Traffic Flows

DESIGN: JW

CHECK: OC

#VALUE!

DATE: Jun 26

Traffic Flow Diagram
(pcu/hr)

25

→

← 40

MT

Pok Fu Lam Road

No. of stages per cycle

N = 2

Cycle time

C = 120 sec

Sum(y)

Y = 0.034

Lost time

L = 96 sec

Total Flow

= 65 pcu

Optimum Cycle C_o

$= (1.5 \times L + 5) / (1 - Y) = 154$ sec

Min. Cycle Time C_m

$= L / (1 - Y) = 99$ sec

Y_{ult}

$= 0.9 - 0.0075 \times L = 0.180$

$R.C._{ult}$

$= (Y_{ult} - Y) / Y \times 100\% = 431.2$ %

Practical Cycle Time C_p

$= 0.9 \times L / (0.9 - Y) = 100$ sec

Y_{max}

$= 1 - L / C = 0.200$

Stage/Phase Diagrams

A →

← B

Stage 1

Stage 2

I/G = 49

I/G = 49

Critical Case : A,B

R.C.(C)

= $(0.9 \times Y_{max} - Y) / Y \times 100\%$

= 431%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y	EFFECTIVE GREEN $g=y/(C-L)$ (sec)	ACTUAL GREEN G (sec)	DEGREE OF SATURATION X	Average Queue N
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT							
→	A	1	3.500	1				1		0		1965		25		25			1965	0.013	0.013	9	8	0.169	1
←	B	2	2.750	1				1		0		1890		40		40			1890	0.021	0.021	15	14	0.169	1

MT Signalized Crossing.xlsm / Test_PM (2)

2026-07-02

