Rezoning from "Residential (Group D)" to "Residential (Group C) 1" Zone
For a Proposed Residential Development
at Various Lots in D.D. 104 and the Adjoining Government Land
in Yuen Long, N.T.
- S12A Amendment of Plan Application -

(Planning Application No: Y/YL-MP/10)

Further Information No. 1

Appendix VII

Revised Traffic Impact Assessment

S.12A Planning Application on the Approved Mai Po & Fairview Park OZP No. S/YL-MP/6 Rezoning from “Residential (Group D)” to Residential (Group C)1” Zone for a Proposed Residential Development at Various Lots in DD 104 and Adjacent G.L. in Yuen Long, N.T.

Traffic Impact Assessment

April 2025

01	April 2025	WCS	CSY
Issue	Date	Prepared by	Reviewed by

AECOM

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1 INTRODUCTION

1.1 Background

1.1.1 The subject site covers various lots and adjacent Government Land in DD 104, Yuen Long, N.T. The site is sandwiched by Kam Pok Road and San Tin Highway near Chuk Yuen Tsuen. Further to the west of the site across Kam Pok Road, Ngau Tam Mei Drainage Channel and Yau Pok Road are a previously approved residential site zoned "Recreation" ("REC") and an existing large-scale suburban estate called Fairview Park. The location of the subject site is shown in **Figure 1.1**.

1.1.2 The subject site has been previously approved for a low-rise residential development. Under the Approved Scheme (A/YL-MP/205), the residential development comprises 71 nos. of low-rise houses with a domestic plot ratio of 0.2 and an average unit size of about 186m^2. Under the Current Scheme, the proposed residential development changes from house development to the flat development. It comprises 2,322 residential units with a domestic plot ratio of 1.5 and an average flat size of about 42.4 m^2. In addition, a transport layby, some local retail facilities and GIC uses [including a 6-classroom kindergarten and a neighbourhood elderly centre (NEC)] are also proposed to serve the future residents.

1.1.3 AECOM Asia Co. Ltd has been commissioned by the site owner (the Applicant) to carry out a Traffic Impact Assessment (TIA) to assess the traffic impacts of increasing the plot ratio for the Subject Site in the subject planning application.

1.2 Objectives

1.2.1 The main objectives of this report are as follows-

- Outline the proposed development parameters and internal transport facilities;
- Review the current traffic condition in the vicinity;
- Estimate the future public transport demand of the proposed development;
- Estimate the potential traffic generations and attractions of the proposed development;
- Produce traffic forecasts on the surrounding road network at the adopted design year;
- Assess traffic impact on the surrounding road network induced from the proposed development; and
- Develop traffic improvement proposal(s) if necessary.

1.3 Structure of TIA Report

1.3.1 Following this introductory chapter, the TIA is structured as follows:

- **Chapter 2**: Proposed Development, describes the development schedule of the proposed development and its internal traffic facilities provisions, access arrangement, etc.; The future public transport demand together with the required transport facilities would be discussed;
- **Chapter 3**: Existing Traffic Condition, reviews the current traffic conditions;
- **Chapter 4**: Traffic Impact Assessment, presents the traffic forecast arise from the proposed development, the approach and results of traffic forecast and the results of capacity assessments of the identified critical junctions with the proposed development;
- **Chapter 5**: Summary and Conclusion, summarizes the findings of the study and presents the conclusion of this TIA.

2 PROPOSED DEVELOPMENT

2.1 Development Schedule

2.1.1 The Subject Site has an area of about 6.57 ha. The domestic plot ratio of the site is proposed to be increased from 0.2 to 1.5 with an increase in housing production from the previously approved 71 houses to the currently proposed 2,322 flats. In planning terms, the proposed development remains as in low-medium density in nature. The indicative development schedule of the Proposed Development is summarized in **Table 2.1** for technical assessment purpose and the current Master Layout Plan is illustrated in **Figure 2.1** for reference.

Table 2.1 Indicative Development Schedule of Development

Development Parameters	Approved Scheme (A/YL-MP/205 & 205-1)	Proposed Scheme
Site Area	About 65,915 m^2	About 65,690 m^2
Domestic GFA	About 13,183 m^2	About 98,535 m^2
Commercial GFA	-	About 3,292 m^2 **(1)**
Domestic Plot Ratio	0.2	1.5
No. of Units	71 houses	2,322 units
Average Flat Size	About 186 m^2	About 42.4 m^2

Note:
(1) including the floor space of Retail/ Eating Place use (abt. 2,363m^2) and a 6-classroom kindergarten (abt. 929m^2), but excluding the floor space of Transport Layby (abt. 2,400m^2) and a Neighborhood Elderly Centre (NEC) (abt. 722m^2 GFA)

2.2 Accessibility Arrangement

2.2.1 The Subject Site is sandwiched by Kam Pok Road and San Tin Highway. Kam Pok Road is the existing road running along the Ngau Tam Mei Main Drainage Channel near the Subject Site. The Subject Site is accessible to/from Castle Peak Road – Tam Mi via Kam Pok Road.

2.2.2 The concerned section of Kam Pok Road is a single two-lane carriageway linking Fairview Park Boulevard from its south and Castle Peak Road to its north. It serves as the major access road to the proposed development. The development traffic would access the Subject Site via San Tin Highway through the Fairview Park Roundabout, Castle Peak Road and Kam Pok Road.

2.2.3 Two vehicular accesses (namely Access 1 and Access 2) are proposed along the frontage of Kam Pok Road. Access 1 will serve as the main access to/ from the proposed development as well as ingress point for the proposed transport layby. Access 2 will serve as the egress point for the proposed transport layby and the vehicular access for the proposed GIC and retail facilities. By taken into consideration the latest development from the Light Public Housing at REC site, the design of vehicular access of R(D) site at Kam Pok Road would be further discussed in Section 4.5 and subject to revise under the subsequent Land Grant Application.

2.2.4 **Figure 2.2** presents the proposed site accesses and the access route. Directional signs will be provided near the vehicular access within the lot to guide the drivers to route via Kam Pok Road Northbound and Castle Peak Road – Tam Mi Southbound to access to Fairview Park Roundabout.

2.3 Internal Transport Facilities

2.3.1 The parking and loading/unloading facilities of the Proposed Development will be provided in accordance with the requirements as stipulated in the latest Hong Kong Planning Standards and Guidelines (HKPSG) to cater for the transport demand. The respective requirements and proposed provision according to the development schedule are summarized in **Table 2.2.**

Table 2.2 HKPSG Parking and Servicing Facilities Provisions Requirement

<table>
<tr><th colspan="2">HKPSG Requirements</th></tr>
<tr><td colspan="2">Private Car Parking Spaces</td></tr>
<tr><td>Residential –
Private Car Parking Spaces</td><td><u>GPS (1 space per 4-7) x R1 x R2 x R3</u>
• Demand Adjustment Rate R1:
<table><tr><th>Flat size (FS)</th><th>R1</th></tr><tr><td>FS≤40</td><td>0.5</td></tr><tr><td>40<FS≤70</td><td>1.2</td></tr><tr><td>70<FS≤100</td><td>2.4</td></tr><tr><td>100<FS≤130</td><td>4.1</td></tr></table>
• Accessibility Adjustment Ratio R2 = 1.0
• Development Intensity Adjustment Ratio R3 = 1.1

For flat size 40≤FSm²,
= 1 space per 4-7 flats x 0.5 x 1.00 x 1.10
= 0.55 spaces per 4-7 flats
For flat size 40<FS≤70 m²,
= 1 space per 4-7 flats x 1.2 x 1.00 x 1.10
= 1.32 spaces per 4-7 flats
For flat size 70<FS≤100 m²,
= 1 space per 4-7 flats x 2.4 x 1.00 x 1.10
= 2.64 spaces per 4-7 flats
For flat size 100<FS≤130 m²,
= 1 space per 4-7 flats x 4.1 x 1.00 x 1.10
= 4.51 spaces per 4-7 flats</td></tr>
</table>

HKPSG Requirements	
Residential – Visitor Private Car Parking Spaces	5 spaces per block of more than 75 residential units
Retail – Private Car Parking spaces	1 car space per 150 – 300m^2 GFA
Kindergarten – Private Car Parking Spaces	0 to 1 car parking space per 4 to 6 classrooms
Motorcycle Parking Spaces	
Residential – Motorcycle Parking Spaces	1 space per 100-150 flats
Retail – Motorcycle Parking Spaces	5% - 10% total provision for private cars
Loading/ Unloading Bay	
Residential – Loading and Unloading Bay	1 space for every 800 flats subject to min. 1 bay per block or as determined by the Authority.
Retail – Loading and Unloading Bay	1 loading/ unloading bay for goods vehicles for every 800 to 1200m^2 or part thereof, GFA
Lay-bys	
Kindergarten – Taxi/ Private Cars lay-by	1 lay-by for taxis and private cars for every 5 to 8 classrooms
Kindergarten – Small Coaches Layby	5 lay-bys for mini-bus / nanny van (each 3m x 7m)
Bicycle Parking Spaces	
Residential – Bicycle Parking Spaces	1 space per 30 flats with flat size smaller than 70m^2

2.3.2 Regarding the provision of taxi/ private cars/ school bus layby for kindergarten, reference has been made to planning application no. A/YL-NSW/274 and the provision rates are shown in **Table 2.3**.

Table 2.3 Required and Proposed Parking and Servicing Facilities Provisions

	Private Car/ Taxi Layby	**School Bus Layby**
Adopted Rates	5.63 spaces / 100 students	Minimum 5 laybys for small coaches

2.3.3 In light of the HKPSG requirements given in **Table 2.2** and **Table 2.3**, the proposed provision according to the development schedule is given in **Table 2.4.** Taken into consideration the proximity to public transport services, availability of public car parking space, traffic conditions and the illegal parking condition in the vicinity, a total of 568 nos. of residential car parking spaces would be provided in 1 level of basement carpark based on the proposed flat supply (2,322 units) and domestic plot ratio (DPR 1.5). For other facilities, the higher end of provision requirements has been adopted.

2.3.4 Also, the adjacent REC Northern (i.e. 1,249 Flats) and Southern sites (i.e. 1,228 Flats) will provide 364 and 345 private car spaces respectively. In case there is change in plot ratio/development flat mix in the subject site, a minimum GPS value of 5 would be achieved altogether with the adjacent REC northern and southern sites (planning application Y/YL-MP/7 and 8).

Table 2.4 Required and Proposed Parking and Servicing Facilities Provisions

	Parameters	Required Provision		Proposed Provision
Private Car Parking Spaces				
Residential – Private Car Parking Spaces	768 units	40 m^2≤FS	61 - 106	**496 spaces(1)**
	1,554 units	40<FS≤70 m^2	294 - 513	
	Total: 2,322 units	**355 - 619 spaces**		
Residential – Visitor Private Car Parking Spaces	10 blocks	50 spaces		50 spaces
Retail – Private Car Parking Spaces	2,363m^2	8 – 16		16 spaces
Kindergarten – Private Car Parking Spaces	6 Classrooms	0 – 1 space		1 space
		Private Car Parking Spaces(2)		**568 spaces**
Motorcycle Parking Spaces				
Residential – Motorcycle Parking Spaces	2,322 units	16 - 24 spaces		24 spaces
Retail – Motorcycle Parking Spaces	16 spaces	1 – 2 spaces		2 spaces
		Motorcycle Parking Spaces		**26 spaces**
Loading/ Unloading (L/UL) Bay				
Residential – L/UL Bay	10 blocks	10 spaces		10 spaces
Retail – Loading and Unloading Bay	2,363m^2	2 – 3 spaces		3 spaces

Lay-bys			
Kindergarten – Taxi/ Private Cars lay-by	6 Classrooms	1 lay-by	10 layby(3)
Kindergarten – Small Coaches Layby	6 Classrooms	5 lay-bys	5 lay-bys(5) (each 3m x 7m)
Bicycle Parking Space			
Residential -- Bicycle Parking Space	2,322 units	78 spaces	78 spaces(6)

Notes: Round up figures adopted.
(1) The number is proposed based on 1 level of basement carpark.
(2) Minimum 6 accessible car parking spaces will be reserved for persons with disabilities in accordance with the HKPSG (at least 1 space for visitor parking)
(3) The kindergarten could accommodate up to 180 pupils. Adopted provision rates with reference to planning application no. A/YL-NSW/274.
(4) With reference to the TIA report under planning application no. A/NE-SSH/120-1, nil provision is proposed for Neighbourhood Elderly Centre.
(5) It is preliminarily proposed to place 3 nos. of kindergarten layby at G/F and 2 nos. at the basement level. Management staff would be deployed to guide traffic down to basement when the kindergarten layby at G/F is full to ensure no traffic queue back to public road. Nevertheless, the above details can be further reviewed in the subsequent detailed design stage.
(6) Cycle parking is provided at basement under each residential tower. Lifts would be provided for cyclists between basement and G/F and have no need to travel via the carpark. The details would be provided in the subsequent detailed design stage.

2.4 Proposed Public Transport Facilities

2.4.1 MTRCL Tuen Ma Line is one of the most important mass public transport services in the Yuen Long and Kam Tin areas. Currently, the closest MTRCL Tuen Ma Line stations are Yuen Long Station and Kam Sheung Road Station which are located approximately 5.5 km and 6.5km away from the subject site respectively. Also, Lok Ma Chau Station of East Rail is located at approximately 7.0km away from the subject site.

2.4.2 In the future, by completion of the Northern Link (NOL), Ngau Tam Mei Station will be approximately 1.0km away which would also as an important mass public transport services at the subject site.

2.4.3 Currently, there are 2 nos. of Franchised Bus route and 1 GMB route serving the light public housing residents. **Table 2.5** summarized the public transport route serving the Light Public Housing.

Table 2.5 Existing Public Transport Services

Type of Public Transport Services	Route No.	Origin and Destination
Franchised Bus	76	Yau Pok Road Public Housing (south) Terminus to Sheung Shui Station (Choi Yuen Road) – Circular Route
Franchised Bus	268	Yau Pok Road Public Housing (south) Terminus to Pat Heung Road
Green Minibus	36A	Yau Pok Road Public Housing (south) Terminus to Yuen Long

2.4.4 Under the proposed scheme, there will be 2,322 units. By assumption of 2.7 persons / flat, the anticipated population in proposed development is about 6,270. In addition, there are two other sites under the S12A Planning Application No. Y/YL-MP/7 and Y/YL-MP/8 with a total population of 6,688 persons. Hence, taking into consideration of the three sites, a total population of 12,958 persons would be served. Reference has been made to the published "Travel Characteristics Survey (TCS) 2011 Final Report". According to the TCS Final Report, the daily mechanised trip rate per population is 1.83 trips and the morning peak hour accounted for about 12% of the daily trips. The percentage of using public transport is about 73% of the total trips. The estimated additional public transport demand in AM peak hour is about 2,077 pax/hr (i.e. 12,958 x 1.83 x 0.12 x 0.73) as shown in **Table 2.6**.

Table 2.6 Public Transport Demand for R(D) Site and Adjacent Northern, Southern Site in AM Peak Hour

Development	No. of Units	Population	Public Transport Demand (pax/hr)
R(D) Site (Subject Site)	2,322	6,270	1,005 (i.e. 6,270 x 1.83 x 0.12 x 0.73)
Southern Site (Under Application No. Y/YL-MP-7)	1,228	3,315	531 (i.e. 3,315 x 1.83 x 0.12 x 0.73)
Northern Site (Under Application No. Y/YL-MP-8)	1,249	3,373	541 (i.e. 3,373 x 1.83 x 0.12 x 0.73)
Total	**4,799**	**12,958**	**2,077**

2.4.5 As stated in **Para 2.4.1**, MTRCL is the key mode of public transport in the area. It is therefore proposed to provide the future bus services to serve the Subject Site to Yuen Long Station or NT North or the nearby future Ngau Tam Mei Station of Northern Link (NOL) Project via Kam Po Road, Castle Peak Road (Tam Mi) and San Tin Highway.

2.4.6 A passenger count survey was conducted at existing Park YOHO, which is considered a comparable reference as the Subject Site. Based on the surveyed results, about 45% are destined to Tuen Ma Line Station, 35% via Long-haul bus service (via 268M) and 20% to Yuen Long Town Centre are identified.

2.4.7 As the major public transport demand would be likely to be destined to Tuen Ma Line Station / Yuen Long Town. A circular bus service is proposed between Yuen Long Station PTI and the development site. The proposed new bus service would be a circular route with terminating point at the development site with bus stops at the other two sites (i.e. routing via REC northern and southern sites) and a bus stop at Yuen Long Station PTI for passenger boarding / alighting. The location of the proposed bus stop at Yuen Long Station PTI is shown in **Figure 2.3.** Currently, there are 6 bus bays provided in the Yuen Long Station PTI as shown in **Figure 2.3** serving only bus routes B1, B2, K65 and N30. In view of that, one bus bay is proposed to serve for the proposed circular bus service. The proposed bus stop at Yuen Long Station would serve only for passenger boarding / alighting with no bus stacking required, as a result, there should still be capacity to accommodate the said bus stop within Yuen Long Station PTI.

Nevertheless, the boarding / alighting point for this proposed circular bus service can be further reviewed / discussed with TD in the subsequent detail design stage.

2.4.8 Based on the demand of 1,350 pax/hr (i.e. 2,077 x 65%) and a capacity of 90 persons/bus, the proposed headway is about 4 minutes. Subject to the future planning, the conceptual routing is diagrammatically shown in **Figure 2.3**. The estimated round trip journey distance and journey time are about 12 km and 24 minutes respectively. For the proposed circular bus service between Yuen Long Station PTI and the development site, the round trip time is about 30 minutes (12km / 30kph + 6 minutes boarding/ alighting time). For proposed headway of 4 minutes, a total of 8 buses would be required (i.e. 30/4) during peak hour. For non-peak period, it is assumed that the proposed circular bus service would be operated in headway of 12 minutes, a total of 5 buses would be required (i.e. 60/12) during non-peak hour. As shown in **Appendix A**, the proposed bus bay is about 42m long, which can accommodate 3 buses. In addition, the double-width bus bay could accommodate additional 3 buses at the bypassing lane. Therefore, there will be sufficient stacking space at the proposed Transport Layby.

2.4.9 For the demand of the long-haul bus services, the overall demand for the 3 development sites is about 727 pax/hr (i.e. 2,077 x 35%). Based on a capacity of 90 persons/bus, this would be equivalent to about 8 bus trips/hour. Hence 8 bus trips of long-haul bus routes to/from urban areas (such as Hong Kong Island, Kowloon East and Kowloon) are proposed during the AM / PM peak hours. Passengers taking these bus services can also interchange with other bus routes to various districts via Tai Lam Bus Interchange.

2.4.10 To cater for the proposed services, Transport Laybys are proposed within the development site. The indicative layout of proposed Transport Laybys are shown in **Appendix A** (subject to further review under subsequent detailed design stage). As shown in the indicative layout, 3 transport laybys are provided including one double-width bay of about 42m, two single-width bays of about 40m. All the 3 laybys have been designed to allow the manoeuvring of 12.8m bus. One of these 3 laybys would be designated to serve the proposed bus service to/from Yuen Long Station PTI. One of these 3 laybys would be reserved for the provision of GMB services if required in future. For the remaining layby, it could serve the long-haul bus routes during the AM / PM peak hours.

2.4.11 The proposed circular bus services to / from Yuen Long Station PTI and peak hour long-haul services to / from urban areas serve the public transport demand for R(D) site as well as the two REC sites. As PTI has been proposed within both REC sites, a portion of the terminating routes can be located at these two sites. Within the two REC sites, a total of 8 bus bays are planned which could be used as loading/unloading bays or bus stacking bays for the proposed public transport service. The provisions in the two REC sites can be further reviewed under the relevant planning applications (Y/YL-MP7 and 8). Subject to the future detailed design, taxi would be allowed to route via the internal driveway within the development site to provide point-to-point service for the residents, hence taxi stand would not be provided in the transport layby.

2.4.12 The transport laybys proposed within the two REC sites development is shown in **Appendix A**. For the REC northern site, a total of 3 buses can be accommodated. For the REC southern site, a total of 5 buses can be accommodated. By deducting one bus bay used for passenger boarding/alighting for the circular bus service to/from Yuen

Long Station, the remaining (i.e. 2 bus bays in northern site and 4 bus bays in southern site) could also be used to serve the long-haul bus routes during the AM / PM peak hours.

2.4.13 The swept path analysis of the 3 transport laybys is shown in **Appendix A**.

Passenger Queue Area

2.4.14 As indicated in **Section 2.4.7**, the proposed circular bus services to Yuen Long Station PTI and Yuen Long Town account for 65% of the passenger demand, the passenger queue condition is therefore considered the most critical.

2.4.15 Based on the patronage demand described in **Table 2.6**, the hourly demand during AM peak hour for the proposed circular bus route at the Subject Site would be 654 pax/hr (i.e. 1,005 x 0.65). Given a proposed headway of 4 minutes as suggested in **Section 2.4.7**, the maximum queue would be around 44 persons for the Application Site. Based on the above, the Level-of-Service (LOS) for passenger queueing area for the proposed circular bus route has been assessed and summarised in **Table 2.7**.

Table 2.7 LOS Of Passenger Queueing Area For Proposed Circular Bus Route at Proposed Transport Laybys

Transport Layby	Estimated Passenger Demand (pax/hr)	Maximum Queue (pax)	Waiting Area (m^2)	Waiting Space (m^2/person)	LOS(1)
Subject Site	654	44 (i.e. 654/60x4)	63	>1.4	A

Notes:
(1) Level-of-service (LOS) assessment criteria from Highway Capacity Manual 2000 is adopted.

2.4.16 As shown in **Table 2.7**, the passenger queuing area at the subject site would operate with acceptable LOS A, which is better than the preferred LOS C and is therefore considered acceptable. The description of LOS from Exhibit 11-9 of Highway Capacity Manual 2000 is extracted and shown in **Table 2.8** for reference.

Table 2.8 Description of Level-of-Service (LOS) For Queuing Area

LOS	Average Pedestrian Space (m^2/person)	Description
A	>1.2	Standing and free circulation through the queueing area is possible without disturbing others within the queue.
B	0.9 - 1.2	Standing and partially restricted circulation to avoid disturbing others in the queue is possible.
C	0.6 - 0.9	Standing and restricted circulation through the queueing area by disturbing others in the queue is possible; the density is within the range of personal comfort.

D	0.3 - 0.6	Standing without touching is possible circulation is severely restricted within the queue and forward movement is only possible as a group; long term waiting at this density is uncomfortable.
E	0.2 - 0.3	Standing in physical contact with others in unavoidable; circulation in the queue is not possible; queueing can only be sustained for a short period without serious discomfort.
F	≤ 0.2	Virtually all persons within the queue are standing in direct physical contact with others; this density is extremely uncomfortable; no movement is possible in the queue; there is potential for panic in large crowds at this density.

Impact on Tuen Ma Line

2.4.17 Referring to Section 2.4.14, the public transport demand for Tuen Ma Line (formerly named as West Rail Line) induced by three development sites would be around 935 pax/hr (i.e. 2,077 x 45%) in AM peak.

2.4.18 Referring to Press Releases (2019). LCQ7: Loading of trains of West Rail Line, The patronage per direction of the West Rail Link in its critical link (i.e. from Kam Sheung Road to Tsuen Wan West) in year 2018 AM peak hour is 40,400 pax/hr

2.4.19 To forecast the patronage flow in year 2034, annual growth rate was estimated with reference to 2019-based Territorial Population and Employment Data Matrix (TPEDM) data which is available in Planning Department website. **Table 2.9** below shows the planning data of Tuen Mun, Yuen Long, Tin Shui Wai, and northwest New Territories

Table 2.9 2019-based TPEDM Planning Data

Planning Data District	Year 2019	Year 2026	Year 2031
	Population	Population	Population
Tuen Mun	476,500	538,900	606,850
Yuen Long	175,150	172,350	159,850
Tin Shui Wai	279,950	283,250	276,050
Northwest New Territories	222,800	239,250	353,900
Total	**1,154,400**	**1,233,750**	**1,396,650**
Annual growth rate from year 2019 to 2026 = 0.95% **Annual growth rate from year 2026 to 2031 = 2.51%**			

2.4.20 By adopting the annual growth rate of 0.95% (from year 2018 to 2026) and annual growth rate of 2.51% (from year 2026 to year 2034), the forecasted patronage flow in the critical link (i.e. from Kam Sheung Road to Tsuen Wan West) in year 2034 AM peak hour is 53,133 pax/hr (i.e. 40,400 x $(1.0095)^8$ x $(1.0251)^8$). By adopting the demand generated from the development, the overall patronage flow is 54,068 pax/hr (i.e. 53,133 + 935) in year 2034 AM peak.

2.4.21 The maximum capacity of West Rail Link in year 2015 is 49,200 pax/hr. After the commissioning of the Tuen Ma Line, the MTRCL can provide services at a maximum frequency of 24 trains trips per hour by procuring more trains and enhancing signaling system, thus increasing the carrying capacity of WRL by approximately 37%[Note 1] as compared with that in year 2015 (i.e. maximum capacity = 49,200 x 1.37 = 67,404 pax/hr).

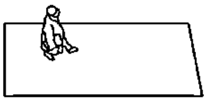
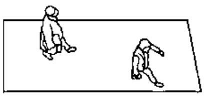
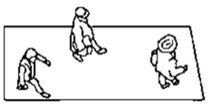
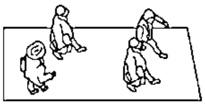
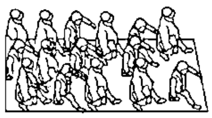
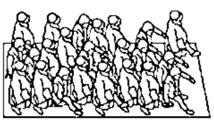
2.4.22 Hence, even with the development, the Tuen Ma Line is anticipated to be operated within capacity in year 2034.

2.5 Pedestrian LOS Assessment

2.5.1 Pedestrian LOS was used to assess the performance of footpaths. The LOS of footpaths are assessed based on flow rate, a ratio between pedestrian flows and width of the pedestrian corridor.

2.5.2 LOS defines the walking environment in six levels by measuring the pedestrian flow rate in terms of the effective width of footpath. LOS A and B are both very good service levels and LOS F is the worst condition, while LOS C is desirable for most design with dominant 'living' pedestrian activities. **Table 2.10** describes different levels of LOS related to different ranges of pedestrian flow rate.

Table 2.10 Description of Pedestrian Level-of-Service (LOS) on Footpath

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

Sources: Transport Planning and Design Manual (TPDM) Volume 6 Chapter 10 and Highway Capacity Manual (HCM-version 2000) Chapter 11 Exhibit 11-8.

2.5.3 As no rail service is provided within 500m of the subject site, it is expected that mechanical trips would be the major mode choice. With the provision of commercial and transport layby within the site, it is expected that pedestrian trips would be minimal travelling out of the site area.

2.5.4 As shown in **Figure 2.1**, arrows indicate potential pedestrian travel direction to/from the proposed site. The footpath along Kam Pok Road would be the main route used the pedestrian trips generated/attracted by the R(D) Site.

2.5.5 The footpath provision along Kam Pok Road has a minimum width of 3.5m at the proposed R(D) site, providing a two-way pedestrian throughput of 4,830ppl/hr to 6,930ppl/hr while maintain LOS C. The proposed development scheme included 2,322 units with 6,270 population. In case 30% of the population (1,881ppl) contributes to the 2-way trips along the 3.5m footpath section, the flow rate would be 9ped/min/m, which provide a LOS A for pedestrian corridor.

2.5.6 Other than the pedestrian trips contributed to Kam Pok Road, it is noted that there are two other sites (Y/YL-MP/7 Southern Site and Y/YL-MP/8 Northern Site) located at the opposite to the subject site with a total population of 6,688 persons. Pedestrian visiting to the nearby site should also be considered. Those pedestrians would via the existing footpath along the vehicular bridge with a minimum width of 2m, providing a two-way pedestrian throughput of 2760ppl/hr to 3960ppl/hr while maintain LOS C. Assuming 20% of residents would visit the subject site (i.e. 6,688 x 0.2 = 1,338 ppl) and 20% of the subject site residents would visit the Northern and Southern Site (i.e. 6,270 x 0.2 = 1254 ppl). The total contribution to the 2-way trips along the existing 2m footpath is 2,592 ppl, the flow rate would be 22 ped/min/m, which provide a LOS B for pedestrian corridor.

3 EXISTING TRAFFIC CONDITION

3.1 Traffic Survey

3.1.1 A total of 11 critical junctions were identified for assessment in this TIA as listed in **Table 3.1**. The locations of critical junctions and affected road links are shown in **Figure 3.1**. The existing junction layouts are presented in **Figures 3.2** to **3.12** respectively.

Table 3.1 Critical Junctions

Ref.	Junction	Type	Fig. No.
J1	Fairview Park Roundabout	Roundabout	**3.2**
J2	Castle Peak Road / Kam Pok Road	Priority	**3.3**
J3	Fairview Park Boulevard / Kam Pok Road	Signalized	**3.4**
J4	Kam Pok Road / Ha Chuk Yuen Road	Priority	**3.5**
J5	Kam Pok Road / Kam Pok Road East	Priority	**3.6**
J6	Castle Peak Road / Kam Pok Road East	Signalized	**3.7**
J7	Castle Peak Road / Yau Pok Road	Priority	**3.8**
J8	Kam Pok Road / Vehicular Bridge (North)	Priority	**3.9**
J9	Kam Pok Road / Vehicular Bridge (South)	Priority	**3.10**
J10	Yau Pok Road / Vehicular Bridge (South)	Priority	**3.11**
J11	Yau Pok Road / Vehicular Bridge (North)	Priority	**3.12**

3.1.2 Manual classified traffic counts surveys were carried out on a typical weekday in May 2021 to establish the current traffic condition in the vicinity. The surveys were undertaken during 7:30am – 9:30am and 5:00pm – 7:00pm at the critical junctions as listed in **Table 3.1**.

3.1.3 The identified morning (AM) and evening (PM) peak hour are from 7:45am to 8:45am and from 5:45pm to 6:45pm respectively. The 2021 observed AM and PM peak hour traffic flows are shown in **Figure 3.13**.

3.1.4 In order to justify Year 2021 traffic data reflects the prevailing traffic condition, supplementary traffic survey is conducted on a normal weekday in April 2025. The 2025 observed AM and PM peak hour traffic flows are shown in **Figure 3.14**. The traffic flow in Year 2025 is comparatively smaller, for conservative assessment, it is proposed to remain adopting the existing survey as a base for the design year traffic forecast.

3.2 Road Link / Junction Assessment

3.2.1 Junction capacity analysis was carried out for the above surveyed junctions which are located in the vicinity of the Application Site to appraise the existing traffic condition based on the 2021 observed peak hour traffic flows.

3.2.2 Based on the turning flows at the above junctions, capacity assessments were carried out in accordance with the methodology documented in the appendices of Transport Planning and Design Manual (TPDM) Volume 2 Chapter 4 for priority junction / roundabout and Volume 4 for signal junction.

3.2.3 The existing junction performances of the critical junctions are summarized in **Table 3.2**. Capacity calculation sheets are attached in **Appendix D**.

Table 3.2 Existing Junction Performance

Ref.	Junction	Indicator*	2021 Existing	
			AM Peak	PM Peak
J1	Fairview Park Roundabout	DFC	0.66	0.68
J2	Castle Peak Road / Kam Pok Road	DFC	0.10	0.10
J3	Fairview Park Boulevard / Kam Pok Road	RC	73%	56%
J4	Kam Pok Road / Ha Chuk Yuen Road	DFC	0.04	0.04
J5	Kam Pok Road / Kam Pok Road East	DFC	0.25	0.16
J6	Castle Peak Road / Kam Pok Road East	RC	84%	>100%
J7	Castle Peak Road / Yau Pok Road	DFC	0.03	0.04
J8	Kam Pok Road / Vehicular Bridge (North)	DFC	0.02	0.02
J9	Kam Pok Road / Vehicular Bridge (South)	DFC	0.02	0.02
J10	Yau Pok Road / Vehicular Bridge (South)	DFC	0.02	0.02
J11	Yau Pok Road / Vehicular Bridge (North)	DFC	0.02	0.02

* DFC = Design Flow / Capacity ratio for priority junction or roundabout; RC= Reserved Capacity for signalized junction

3.2.4 At present, all critical junctions are operating within capacity.

3.2.5 Based on the observed traffic flows, the affected road links have been assessed and the results are summarized in **Table 3.3.**

Table 3.3 Existing Road Link Performance

Ref	Road Section	Dir	Link Capacity (pcu/hr)	2021 Traffic Flows (pcu/hr)		2021 V/C Ratio	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	San Tin Highway	NB	6100(1)	4290	3460	0.70	0.57
		SB	6100(1)	3830	3820	0.63	0.63
L2	Castle Peak Road – Tam Mi	2-way	2125(2)	1000	750	0.47	0.35
L3	Fairview Park Boulevard	EB	2600(3)	920	720	0.35	0.28
		WB	2600(3)	660	810	0.25	0.31

L4	Kam Pok Road	2-way	1800(4)	130	130	0.07	0.07

Note:
(1) Road capacity for Dual 3 - Trunk Road
(2) Road capacity for Single 2 - Rural Road, with consideration of roadside activities
(3) Road capacity for Dual 2- Local Distributor
(4) Road capacity for Single 2 - Local Distributor

3.3 Existing Public Transport Services

3.3.1 As mentioned in **Section 2.4.3** and **Table 2.4**, currently, there are 2 nos. of franchised bus route and 1 no. of GMB route serving the light public housing development.

4 TRAFFIC IMPACT ASSESSMENT

4.1 Trip Generation of Proposed Development

4.1.1 In order to evaluate the traffic impact under both Reference (Approved Scheme) and Design (Proposed Scheme) scenarios, traffic trip generation and attraction volumes of the subject site are estimated with reference to the trip generation and attraction rates as stipulated in Annex D of Transport Planning and Design Manual (TPDM) Volume 1 Chapter 3 published by Transport Department. The adopted trip rates and the estimated trip generation of the Development under both Reference and Design Scenarios are presented in **Tables 4.1** and **4.2** respectively.

Table 4.1 Adopted Trip Rates

Scheme	Type	Unit	Trip Rates			
			AM Peak		PM Peak	
			Gen.	Att.	Gen.	Att.
Approved Scheme	**Private Residential** (Average Flat Size =180 m^2 Mean)	(pcu/hr/flat)	0.2772	0.1769	0.1635	0.2394
Proposed Scheme	**Private Residential** (Average Flat Size =60m^2 Mean)	(pcu/hr/flat)	0.0718	0.0425	0.0286	0.037
	Retail (GFA=2,363m^2)	(pcu/hr/100 sqm)	0.2296	0.2434	0.3100	0.3563
	Kindergarten	(pcu/hr/100 student)	26(1)	26(1)	1(1)	1(1)

Note: (1) Adopted trip rates for kindergarten with reference to the Traffic Impact Assessment Report under Planning Application (A/YL-NSW/274)

Table 4.2 Trip Generation and Attraction

Scheme	Development Parameter	Trip Generation/ Attractions (pcu/hr)			
		AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Approved Scheme	71 houses (Average Flat Size =186 m^2)	20	13	12	17
Proposed Scheme	2,322 units (Average Flat Size =42.4m^2)	167	99	67	86
	Public Transport(3)	28	28	28	28
	Retail (abt. 2,363m^2)	6	6	8	9
	Kindergarten (6 Classrooms)	47(1)	47(1)	2(1)	2(1)
	NEC	10(2)	10(2)	10(2)	10(2)
	Total	**258**	**190**	**115**	**135**
Difference (Proposed Scheme – Approved Scheme)		**+238**	**+177**	**+103**	**+118**

Note: (1) The proposed kindergarten could accommodate up to 180 pupils.
(2) Nominal figure adopted with reference to in-house survey at Yan Oi Tong Tin Ka Ping Neighbourhood

Elderly Centre for NEC.
(3) As given in Section 2.4, for the subject R(D) site, a total of about 1,006 persons (6,270 x 1.83 x 0.12 x 0.73) would take bus in the AM peak outbound direction. By assuming the bus capacity of 90 pax/hr and a pcu factor of 2.5 for bus, a total of 28 pcu/hr would be generated and attracted. Additional bus trips for the adjacent REC sites have been included in the Sensitivity Test under **Section 4.6**.

4.1.2 The comparison on trip generation/ attractions of the proposed development under Approved Scheme and Proposed Scheme as shown in **Table 4.2** reveals that the Proposed Scheme will induce additional 415 pcu/hr (two-way) during AM peak hour and 221 pcu/hr (two-way) during the PM peak.

4.2 Design Year

4.2.1 The proposed development is tentatively scheduled for population intake in 2031. According to Guidelines and Requirements of Traffic Impact Assessment (TIA) Studies, the TIA should assess at least 3 years after the planned completion of the Proposed Development. Hence, 2034 is adopted as the design year for this TIA.

4.3 Traffic Forecast

Other Planned Major Developments

4.3.1 Apart from the proposed development, the other major newly completed and committed/planned developments in the vicinity of the proposed development has also been taken into account in the traffic forecast. The future developments are listed in **Table 4.3.**

Table 4.3 Key Newly Completed and Planned Developments

Ref.	Development	Key Development Parameters	Estimated 2-way Trip Generation (pcu/hr)	
			AM Peak	PM Peak
1	Tung Shing Lei Development (A/YL-NSW/274)	• 1518 private residential units (average flat size = about 46m^2)	174	101
2	Sha Po North Phase 2 Residential Development (A/YL-KTN/663)	• 1,154 private residential units (average flat size = about 42.57m^2)	58	32
3	Nam Sang Wai Commercial Development (Y/YL-NSW/3)	• 38,300m^2 retail GFA • 700 hotel rooms	378	456
4	Kam Tin South Priority Sites Development	• 8,100 units of public housing (average flat size = about 50m^2) • 2,200 units of private housing (average flat size = about 70m^2)	1,160	751
5	Kam Tin West Outlet Mall (A/YL-NSW/241)	• 37,171m^2 retail GFA	177	249
6	Tung Shing Lei Land Sharing Pilot Scheme Development	• 1,261 units of private housing (average flat size = about 40m^2) • 1,868 units of public housing (average flat size = about 50m^2)	342	215

Ref.	Development	Key Development Parameters	Estimated 2-way Trip Generation (pcu/hr)	
			AM Peak	PM Peak
7	Sha Po North Comprehensive residential development (A/YL-KTN/604)	• 3,891 private residential units (average flat size = about 49m²) • 5,500 m² retail GFA	558	334
8	Sha Po Public Housing Development	• 16,300 Flats • 1 Primary School • 20,668 m² retail GFA • 5 Kindergarten • 38,384 m² Welfare Facilities • 19,267 m² GIC	2,183	1,628
9	Kam Tin North Residential Development (A/YL-KTN/791)	• 230 flats (average flat size = about 31m²)	38	22
10	Sha Po South Residential Development (A/YL-KTN/964)	• 615 private residential units (average flat size = about 38m²)	70	41
11	Wing Kei Tsuen Development (Y/YL-NSW/7)	• 1,997 private residential units • (average flat size = 48.9 m²)	230	130
12	Outlet Mall at Wing Kei Tsuen	• 37,000 m² retail GFA	177	249
13	Retail and Hotel Complex at Wing Kei Tseun	• 38,000 m² retail • 700 hotel rooms	376	453
14	Au Tau Commercial Development (DD107 Lot 1928)	• 10,000 m² retail GFA	48	67
15	Ngau Tam Mei Area *	• Population: 9,600 – 10,800 • No. of Flats: 3,600 – 3,900	550	330

(Source: *http://www.tpb.gov.hk* and *https://www.nm-ntm.hk*)

* The new population and flats of Ngau Tam Mei Area is about 32,000 - 36,000 and 12,000 – 13,000 respectively. According to LegCo Paper No. CB(1)1487/2024(04), the first population intake of Ngau Tam Mei Area is expected to take place from 2034. It is therefore assumed that 30% of the Comprehensive Residential Neighbourhood, in close vicinity of the planned Ngau Tam Mei Station, will be in place in Year 2034. Meanwhile, the remaining Residential Neighbourhood, Research Hospital and University Town will be in place in later years.

Other Future Adjacent Developments

4.3.2 There are some future residential sites located in the close vicinity of the Site. The traffic forecast has been developed to include these residential sites to cater for the worst scenario. These sites are all designated for low-density residential use. As the worst-case testing, it is assumed that these adjacent planned residential sites will be fully developed by year 2031 (i.e. the completion year of the subject development).

4.3.3 Locations of these planned residential development sites near the Subject Site are presented in **Figure 4.1**. Their development parameters and their corresponding traffic generations are presented in **Table 4.4**, have been incorporated in this assessment as follows:

Table 4.4 Development Parameters of Future Adjacent Developments

Site	Key Development Parameters				Estimated 2-way Trip Generation (pcu/hr)	
	Zone	Site Area	Plot Ratio	No. of Houses	AM Peak	PM Peak
A	OU	207,408 m^2	0.4	789 houses	243	179
B	OU	81,000 m^2	0.2	105 houses	49	44
C	REC	89,774 m^2	0.63	2,150 flats	135	164
D	R(D)	37,702 m^2	0.2	65 houses	26	20
E	R(D)	2,716 m^2	0.2	3 houses	2	2
F	R(D)	898 m^2	0.2	1 house	2	2

*Remarks: Development parameters of Site A, B, C and D were obtained from their respective approved planning applications, while assumptions have been made for Site E and F which comply with the permissible PR under the OZP.

Future Traffic Flows

4.3.4 For projection of background traffic flows in Area of Influence, an in-house 2-tier modelling approach (Strategic Transport Model (STM) and Local Area Traffic Model (LATM)) have been adopted. Based on the planning data published on the website of Planning Department (i.e. 2019-based TPEDM Planning Data), together with other information (such as population distribution and employment type from Census) available in public domain, a simplified Strategic Transport Model (STM) was developed for cordoning board vehicle trip matrices for local area traffic modelling.

4.3.5 For the Local Area Traffic Model (LATM), the Base District Traffic Model (BDTM) "NTW1" covering Tuen Mun and Yuen Long Area has been adopted as the base traffic model for this study.

4.3.6 The LATM has been validated against the 2021 traffic data in the area of influence to ensure that the base year LATM could satisfactorily replicate the base year traffic patterns and volumes before the model is used to produce future years traffic forecasts.

4.3.7 The STM cordoned matrices were fed into the LATM for projecting the traffic flows from year 2021 to year 2034. In addition, the trip ends of traffic zones were adjusted and controlled to the estimated trips generated by the future developments in the vicinity as listed in **Table 4.2 (Approved Scheme), Table 4.3 and Table 4.4** to produce the 2034 reference traffic flows as shown in **Figure 4.2.**

4.3.8 The additional trip ends due to proposed development with proposed scheme as estimated in **Table 4.2** are then added to 2034 reference traffic flows to produce 2034 design traffic flows. **Figure 4.3** presents the net increase development traffic flow of the proposed development with proposed scheme. **Figure 4.4** presents 2034 design traffic flow (with Proposed Scheme).

4.4 Planned Junction Improvement Works

J1 – Fairview Park Roundabout

4.4.1 As extracted from the feasibility study (CEDD Agreement No. CE10/2020(CE)) for Sha Po Public Housing Development enclosed in RNTPC Paper No. 9/22 for consideration by RNTPC on 9 December 2022, improvement measures were proposed at Fairview Park Roundabout (J1). The approach arms of Castle Peak Road – Tam Mi (northbound), San Tin Highway Slip Road (southbound) and San Tam Road (northbound) would be widened. An additional exclusive left-turn lane is also proposed at the approach arm of San Tin Highway Slip Road (northbound) for traffic routing to Castle Peak Road – Tam Mi (southbound). The planned layout is as shown in **Figure 4.5**.

4.5 Road Link / Junction Assessment

4.5.1 The main criteria for assessing the traffic impact of critical junctions are whether the addition of generated traffic would significantly affect the capacity of junctions in the vicinity of the subject site.

4.5.2 The operational performances of the 11 critical junctions as identified in **Section 3** were assessed based on the 2034 Reference (Approved Scheme) and Design (Proposed Scheme) traffic flows as derived in **Section 4.3**. The results are summarized in **Table 4.5.** The junction calculation sheets are shown in **Appendix D.**

Table 4.5 2034 Junction Performance

Ref.	Junction	Year 2034 RC/DFC*			
		Reference Case (Approved Scheme)		Design Case (Proposed Scheme)	
		AM Peak	PM Peak	AM Peak	PM Peak
J1	Fairview Park Roundabout	1.19	1.13	1.34	1.18
J2	Castle Peak Road / Kam Pok Road	0.30	0.34	0.84	0.57
J3	Fairview Park Boulevard / Kam Pok Road	58%	41%	48%	36%
J4	Kam Pok Road / Ha Chuk Yuen Road	0.04	0.04	0.05	0.05
J5	Kam Pok Road / Kam Pok Road East	0.39	0.25	0.44	0.30
J6	Castle Peak Road / Kam Pok Road East	35%	46%	35%	46%
J7	Castle Peak Road / Yau Pok Road	0.07	0.07	0.07	0.07
J8	Kam Pok Road / Vehicular Bridge (North)	0.08	0.07	0.10	0.12
J9	Kam Pok Road / Vehicular Bridge (South)	0.08	0.08	0.08	0.08
J10	Yau Pok Road / Vehicular Bridge (South)	>100%	>100%	>100%	>100%

Ref.	Junction	Year 2034 RC/DFC*			
		Reference Case (Approved Scheme)		Design Case (Proposed Scheme)	
		AM Peak	PM Peak	AM Peak	PM Peak
J11	Yau Pok Road / Vehicular Bridge (North)	>100%	>100%	N/A	N/A

*RC in % denotes "Reserve Capacity" for signalized junction; DFC decimal number denotes "Design Flow / Capacity" ratio for priority junction or roundabout

4.5.3 As shown in **Table 4.5**, except Junction 1, all junctions would be able to handle the future traffic demand with ample capacity in both reference case and design case.

4.5.4 As mentioned in Section 4.4, planned improvement measures were proposed to Fairview Park Roundabout (J1) under the feasibility study (CEDD Agreement No. CE10/2020(CE)) for Sha Po Public Housing Development. Additional junction improvement proposal to Fairview Park Roundabout (J1) is recommended to enhance the junction capacity. The approach arms of Castle Peak Road – Tam Mi (northbound), Fairview Park Boulevard (eastbound), Castle Peak Road – Tam Mi (southbound), San Tin Highway Slip Road (southbound), San Tam Road (southbound), San Tam Road (northbound) and San Tin Highway Slip Road (northbound) would be widened at the junction and undertaken by the applicant prior to the commissioning. The proposed layout is shown in **Figure 4.6**. In case, there is programme mismatch between the subject site and Sha Po Public Housing Development, the subject planning application and the applicant would construct free flow lane from San Tin Highway NB slip road to Castle Peak Road – Tam Mi prior to the commissioning. The proposed layout is shown in **Figure 4.7**.

4.5.5 As mentioned in Section 4.4, planned improvement measures were proposed to Kam Pok Road / Vehicular Bridge - North (J11) by the Light Public Housing. Additional junction improvement proposal is recommended for provision of vehicular access to the subject planning application. Additional left turn lane is introduced along Kam Pok Road WB for the new traffic attraction heading to the subject site. Also, signalized crossing is proposed for pedestrian across the site. The proposed layout is shown in **Figure 4.8**.

4.5.6 The junction performance is reassessed taken into consideration the proposed improvements and the assessment results are shown in **Table 4.6.**

Table 4.6 2034 Junction Performance with Proposed Improvement Scheme

Ref.	Junction	Year 2034 RC/DFC*	
		Design Case	
		AM Peak	PM Peak
J1	Fairview Park Roundabout (**Figure 4.6**)	0.80	0.80
J11	Kam Pok Road / Vehicular Bridge / R(D) Site Access **(Figure 4.8)**	80%	>100%

4.5.7 Based on the future traffic flows, the affected road link has been assessed and the results are summarized in **Table 4.7**. The assessment result indicated that all the above road links are expected to operate within capacity except San Tin Highway (L1). Between the year 2031 (completion year of the development) and the opening year of Route 11, the V/C ratio of San Tin Highway would reach 1.06, meaning that the traffic speed would be reduced, but would still be manageable with V/C ratio under 1.2. Along with the developments of NDAs within Northern Metropolis, a Northern Metropolis Highway has been proposed under the “Strategic Studies on Railways and Major Roads Beyond 2030”. It is expected that traffic condition of San Tin Highway could be improved with the completion of Northern Metropolis Highway.

Table 4.7 Future Road Link Performance

Ref	Road Section	Dir	Link Capacity (pcu/hr)	Reference Case (Approved Scheme)				Design Case (Proposed Scheme)			
				2034 Traffic Flows (pcu/hr)		2034 V/C Ratio		2034 Traffic Flows (pcu/hr)		2034 V/C Ratio	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
L1	San Tin Highway	NB	6100(1)	6450	5880	1.06	0.96	6550	5960	1.07	0.98
		SB	6100(1)	5430	4910	0.89	0.80	5570	4990	0.91	0.82
L2	Castle Peak Road – Tam Mi	2-way	2125(2)	1270	1030	0.60	0.48	1560	1200	0.73	0.56
L3	Fairview Park Boulevard	EB	2600(3)	790	760	0.30	0.29	790	760	0.30	0.29
		WB	2600(3)	610	790	0.23	0.30	610	790	0.23	0.30
L4	Kam Pok Road	2-way	1800(4)	340	380	0.19	0.21	720	590	0.40	0.33

Note:
(1) Road capacity for Dual 3-Trunk Road
(2) Road capacity for Single 2-Rural Road, with consideration of roadside activities
(3) Road capacity for Dual 2- Local Distributor
(4) Road Capacity for Single 2 – Local Distributor

4.6 Sensitivity Test (I)

4.6.1 It is noted that another application is submitted for the adjacent Site C (REC) at the opposite of the Application Site across the drainage channel for increasing its development density. As such, a sensitivity test was carried out assuming the REC site is completed according to the current proposed scheme.

4.6.2 In this sensitivity test, it is also assumed that the adjacent R(D) sites in the close vicinity of the site will increase their flat supply with domestic plot ratio increased from 0.2 to 1.5, same as the plot ratio in the Application. The traffic to be induced are summarised in **Table 4.8**. The cumulative net increase development traffic flow and design traffic flow (Sensitivity test I) are illustrated in **Figure 4.9 and Figure 4.10** respectively.

Table 4.8 Development Parameters of Future R(D) Adjacent Developments assumed in Sensitivity Test

Site	Key Development Parameters	Estimated 2-way Trip Generation (pcu/hr)

	Site Area (abt.)	Domestic Plot Ratio	No. of Houses	AM Peak	PM Peak
C (REC)	89,090 m^2	1.2	2,477 units(2)	286	165
D	37,702 m^2	1.5	1,333 flats(1)	153	89
E	2,716 m^2	1.5	97 flats(1)	12	7
F	898 m^2	1.5	32 flats(1)	5	3

(1) Based on average flat size of 42.4m^2 according to the proposed scheme
(2) A total of 2,477 units private residential units is assumed for the REC site. As compared with the Light Public Housing development (2,100 units), the traffic generation of private residential development would be much higher which represent a more conservative approach.

4.6.3 Junction assessments are also carried for the three key junctions for the sensitivity test and the results are summarised in **Table 4.9.**

Table 4.9 2034 Junction Performance (Sensitivity test I)

Ref.	Junction	Year 2034 RC/DFC* Design Case (Sensitivity Test I) AM Peak	Year 2034 RC/DFC* Design Case (Sensitivity Test I) PM Peak
J1	Fairview Park Roundabout (**Figure 4.6**)	0.84	0.82
J2	Castle Peak Road / Kam Pok Road	**1.20**	0.65
J3	Fairview Park Boulevard / Kam Pok Road	21%	28%
J4	Kam Pok Road / Ha Chuk Yuen Road	0.05	0.05
J5	Kam Pok Road / Kam Pok Road East	0.59	0.37
J6	Castle Peak Road / Kam Pok Road East	35%	46%
J7	Castle Peak Road / Yau Pok Road	0.08	0.07
J8	Kam Pok Road / Vehicular Bridge (North)	0.22	0.16
J9	Kam Pok Road / Vehicular Bridge (South)	0.29	0.12
J10	Yau Pok Road / Vehicular Bridge (South)	34%	>100%
J11	Yau Pok Road / Vehicular Bridge (North) **(Figure 4.8)**	24%	81%

*RC in % denotes "Reserve Capacity" for signalized junction; DFC decimal number denotes "Design Flow / Capacity" ratio for priority junction or roundabout

4.6.4 As shown in **Table 4.9**, all the assessed junctions except Junction 2 would be able to handle the future traffic demand in the sensitivity test with sufficient capacity.

4.6.5 In view of the above, improvement schemes were formulated for allowing separated turning lanes in Yau Pok Road in order to enhance the junction performance of Junction 2 as illustrated in **Figure 4.11.** The junction performance is reassessed taking into consideration the proposed improvements and the assessment result is shown in **Table 4.10.**

Table 4.10 2034 Junction Performance with Proposed Improvement Scheme (Sensitivity Test (I))

Ref.	Junction	Year 2034 RC/DFC*	
		Design Case (Sensitivity Test)	
		AM Peak	PM Peak
J2	Castle Peak Road / Kam Pok Road **(Figure 4.11)**	0.84	0.45

*RC in % denotes "Reserve Capacity" for signalized junction; DFC decimal number denotes "Design Flow / Capacity" ratio for priority junction or roundabout

4.6.6 Road Link Assessment for the four key road links under sensitivity test scenario are tabulated in **Table 4.11**.

Table 4.11 Future Road Link Performance (Sensitivity Test (I))

Ref	Road Section	Dir	Link Capacity (pcu/hr)	Design Case (Sensitivity Test)			
				2034 Traffic Flows (pcu/hr)		2034 V/C Ratio	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	San Tin Highway	NB	6100(1)	6650	6030	1.09	0.99
		SB	6100(1)	5700	5060	0.93	0.83
L2	Castle Peak Road – Tam Mi	2-way	2125(2)	1660	1230	0.78	0.58
L3	Fairview Park Boulevard	EB	2600(3)	900	790	0.35	0.30
		WB	2600(3)	610	790	0.23	0.30
L4	Kam Pok Road	2-way	1800(4)	1000	690	0.56	0.38

Note:
(1) Road capacity for Dual 3-Trunk Road
(1) Road capacity for Single 2-Rural Road, with consideration of roadside activities
(2) Road capacity for Dual 2- Local Distributor
(3) Road Capacity for Single 2 – Local Distributor

4.7 Sensitivity Test (II)

4.7.1 As mentioned in Section 4.6, the adjacent REC sites have submitted two planning applications (i.e. Y/YL-MP/7 and Y/YL-MP/8) for increasing the development density to PR 1.2. It is also noted that two private residential development have been proposed under planning application no. Y/YL-NSW/8 and Y/YL-NSW/9. A sensitivity was carried out to assess the cumulative traffic impact induced by the three planning applications.

4.7.2 For planning application Y/YL-NSW/8, 6,825 flats with an average flat size of 37.5m^2 along with 4,950m^2 of retail facilities and kindergarten site are being proposed. The same site was planned as an outlet mall with 37,171m^2 retail GFA under previously approved planning application A/YL-NSW/241. As the approved planning application A/YL-NSW/241 has already been considered in the traffic forecast, only the difference in trip generation and attraction between these two development proposals would be added to the road network for assessment as shown in **Table 4.12**.

Table 4.12 Trip Generation and Attraction – Planning Application No. Y/YL-NSW/8

Land Use	Trip Generation/ Attractions (pcu/hr)				
	Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Latest Planning Application No. Y/YL-NSW/8					
Private Housing	6,825 Flats	491	291	196	253
Retail	3,950m^2	10	10	13	15
GIC facilities	2 nos.	10	10	10	10
Kindergarten	1 Kindergarten (8 classrooms)	25	25	1	1
Total (A)	-	**536**	**336**	**220**	**279**
Approved Planning Application No. A/YL-NSW/241					
Retail (B)	37,171m^2	86	91	116	133
Difference (A) – (B)	-	**+450**	**+245**	**+104**	**+146**

4.7.3 For planning application Y/YL-NSW/9, 3,115 flats with an average flat size of 37.2m^2 along with 3,900m^2 of retail facilities, a primary school site, kindergarten sites and a relocated soy sauce factory are being proposed. The same site was planned as a retail facility with 38,300m^2 GFA and a hotel with 700 guest rooms under previously approved planning application Y/YL-NSW/3. The difference in trip generation and attraction between these two development proposals are as shown in **Table 4.13**.

Table 4.13 Trip Generation and Attraction – Planning Application No. Y/YL-NSW/9

Land Use	Trip Generation/ Attractions (pcu/hr)				
	Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Latest Planning Application No. Y/YL-NSW/9					
Private Housing	3,115 Flats	224	133	90	116
Retail	2,900 m^2	7	8	9	11
Reserved School Site (Primary School)	1 school	7	30	1	1
Kindergarten	1 kindergarten (8 classrooms)	25	25	1	1
Relocated Soy Sauce Factory	13,700m^2	0	4	10	2
Total (A)	**-**	**263**	**200**	**111**	**131**
Approved Planning Application No. Y/YL-NSW/3					
Retail	38,300m^2	88	94	119	137
Hotel	700 guest rooms	94	102	91	109
Total (B)	**-**	**182**	**196**	**210**	**246**
Difference (A) – (B)	**-**	**+81**	**+4**	**-99**	**-115**

4.7.4 The additional traffic generated from the three potential developments has been added into the 2034 design flow. Operational performances of the critical junctions are reassessed according to the revised traffic forecast. The results are summarized in **Table 4.14**.

Table 4.14 2034 Junction Performance (Sensitivity test (II))

Ref.	Junction	Year 2034 RC/DFC Design Case (Sensitivity Test II)	
		AM Peak	**PM Peak**
J1	Fairview Park Roundabout (**Figure 4.6**)	0.92	0.82
J2	Castle Peak Road / Kam Pok Road **(Figure 4.11)**	0.84	0.45
J3	Fairview Park Boulevard / Kam Pok Road	21%	28%
J4	Kam Pok Road / Ha Chuk Yuen Road	0.05	0.05
J5	Kam Pok Road / Kam Pok Road East	0.59	0.37
J6	Castle Peak Road / Kam Pok Road East	**-7%**	31%
J7	Castle Peak Road / Yau Pok Road	0.08	0.07
J8	Kam Pok Road / Vehicular Bridge (North)	0.22	0.16
J9	Kam Pok Road / Vehicular Bridge (South)	0.29	0.12
J10	Yau Pok Road / Vehicular Bridge (South)	34%	>100%
J11	Yau Pok Road / Vehicular Bridge (North) **(Figure 4.8)**	24%	81%

4.7.5 As shown in **Table 4.14**, all the assessed junctions except J6, would be operating within capacity under sensitivity test (II) scenario.

4.7.6 In view of the above, improvement schemes were formulated to Castle Peak Road – Tam Mi / Kam Pok Road East to enhance the junction capacity. Split phases control is proposed at Castle Peak Road – Tam Mi (southbound) and Kam Pok Road East. The proposed improvement and method of control to be undertaken by the applicant is illustrated in **Figure 4.12.** The junction performance is reassessed taking into consideration the proposed improvements and the assessment result is shown in **Table 4.15.**

Table 4.15 2034 Junction Performance with Proposed Improvement Scheme (Sensitivity Test (II))

Ref.	Junction	Year 2034 RC/DFC* Design Case (Sensitivity Test)	
		AM Peak	**PM Peak**
J6	Castle Peak Road / Kam Pok Road East **(Figure 4.12)**	37%	79%

*RC in % denotes "Reserve Capacity" for signalized junction; DFC decimal number denotes "Design Flow / Capacity" ratio for priority junction or roundabout

5 SUMMARY AND CONCLUSION8

5.1 Summary

5.1.1 The Subject Site is sandwiched by Kam Pok Road and San Tin Highway near Chuk Yuen Tsuen, Yuen Long. The location of the subject site is shown in **Figure 1.1**.

5.1.2 AECOM was commissioned by the Applicant to prepare a TIA in support of this S.12A planning application for rezoning of the site for an increase in domestic plot ratio from 0.2 to 1.5. There are also transport layby, some GIC uses (including a NEC) and local retail facilities provided on the site. The proposed residential development will comprise 2,322 residential units with an average flat size of about 42.4 m^2.

5.1.3 For residential components, the proposed development will provide 496 car parking spaces, 50 visitor private car parking spaces, 24 motorcycle parking spaces, and 10 loading/unloading bays for goods vehicles according to the latest HKPSG. For the retail component, 16 private car parking spaces, 2 motorcycle parking spaces and 3 loading/ unloading bays for goods vehicles will be provided. For the kindergarten, 1 private car parking space, 10 taxi/ private car laybys and 5 small coach laybys will be provided. For NEC, nil car parking provision is proposed.

5.1.4 Franchised bus services are proposed to serve the subject site by circular route to Yuen Long Station PTI. Transport Layby is proposed within the development site. The indicative layout of proposed Transport Layby is shown in **Appendix A**. As shown in the indicative layout, 3 transport laybys are provided including one double-width bay of about 42m, two single-width bay of about 40m. All the 3 laybys have been designed to allow the manoeuvring of 12.8m bus. One of these 3 laybys would be designated to serve for the proposed bus service (to/from Yuen Long Station PTI). One of these 3 laybys would be reserved for the provision of GMB services if required in future. For the remaining one layby, it could serve the long-haul bus services during AM/PM peak hours and can supplement for further expansion future public transport services if required in the future.

5.1.5 In order to review the existing traffic condition, traffic count surveys were conducted at the following 11 identified critical junctions to investigate the traffic condition during commuting peak hours. At present, all the critical junctions are operating within capacity.

- Fairview Park Roundabout (J1)
- Castle Peak Road / Kam Pok Road (J2)
- Fairview Park Boulevard / Kam Pok Road (J3)
- Kam Pok Road / Ha Chuk Yuen Road (J4)
- Kam Pok Road / Kam Pok Road East (J5)
- Castle Peak Road / Kam Pok Road East (J6)
- Castle Peak Road / Yau Pok Road (J7)
- Yau Pok Road / Vehicular Bridge (North) (J8)
- Yau Pok Road / Vehicular Bridge (South) (J9)

- Kam Pok Road / Vehicular Bridge (South) (J10)
- Kam Pok Road / Vehicular Bridge (North) (J11)

5.1.6 By comparing the trip generation/ attractions of the proposed development under Approved Scheme and Proposed Scheme, the Proposed Scheme will induce additional 435 pcu/hr (two-way) during AM peak hour and 241 pcu/hr (two-way) during PM peak hour.

5.1.7 The proposed development is tentatively scheduled for population intake in 2031. According to Guidelines and Requirements of Traffic Impact Assessment (TIA) Studies, the TIA should assess at least 3 years after the planned completion of the Proposed Development. Hence, 2034 is adopted as the design year for this TIA.

5.1.8 For projection of background traffic flows in Area of Influence, an in-house 2-tier modelling approach (Strategic Transport Model (STM) and Local Area Traffic Model (LATM)) have been adopted. Based on the planning data published on the website of Planning Department (i.e. 2019-based TPEDM Planning Data), together with other information (such as population distribution and employment type from Census) available in public domain, a simplified Strategic Transport Model (STM) was developed for cordoning board vehicle trip matrices for local area traffic modelling. For the Local Area Traffic Model (LATM), the Base District Traffic Model (BDTM) “NTW1” covering Tuen Mun and Yuen Long Area has been adopted as the base traffic model for this study.

5.1.9 The LATM has been validated against the 2021 traffic data in the area of influence to ensure that the base year LATM could satisfactorily replicate the base year traffic patterns and volumes before the model is used to produce future years traffic forecasts.

5.1.10 The STM cordoned matrices were fed into the LATM for projecting the traffic flows from year 2021 to year 2034. In addition, the trip ends of traffic zones were adjusted and controlled to the estimated trips generated by the future developments in the vicinity as listed in **Table 4.2 (Approved Scheme), Table 4.3 and Table 4.4** to produce the 2034 reference traffic flows as shown in **Figure 4.2.**

5.1.11 The additional trip ends due to the proposed development as estimated in **Table 4.2** are then added to 2034 reference traffic flows to produce 2034 design traffic flows. **Figure 4.4** presents 2034 design traffic flow (with Proposed Scheme).

5.1.12 The results of junction capacity assessments revealed that except Junction 1, all junctions would be able to handle the future traffic demand with ample capacity in both reference case and design case. As such, an improvement scheme is formulated for enhancing the junction performance of Junction 1 as illustrated in **Figure 4.6** and the junction performance as listed in **Table 4.6**. The applicant would be responsible for carrying out the proposed improvement works, which would be completed before the occupation of the subject R(D) site.

5.1.13 A sensitivity test was also carried out by assuming a domestic PR 1.2 residential scheme for the adjacent “REC” site (now under another S.12A rezoning application) and a domestic PR 1.5 for the adjacent “R(D)” sites to have been completed. The junction assessment results reveal that junction improvement at Junction 2 would be required, as illustrated in **Figure 4.11**. With the proposed junction improvement schemes implemented, all the assessment junctions and critical road links would be able to handle the future traffic demand in the sensitivity test with sufficient capacity.

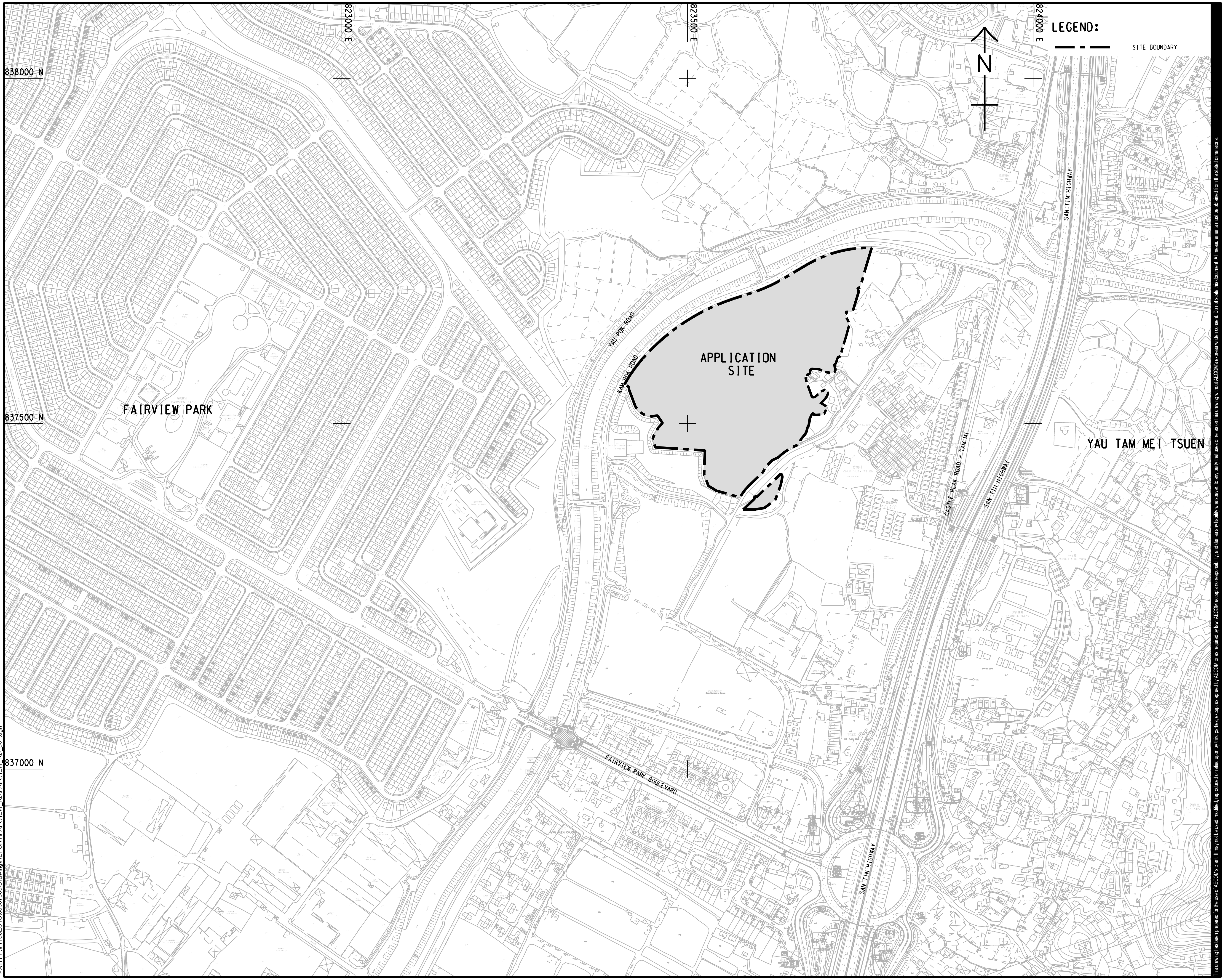
5.1.14 An additional sensitivity test has been carried out to assess the traffic impact induced by the potential private residential developments proposed under planning application no. Y/YL-NSW/8, Y/YL-NSW/9, Y/YL-MP/7 and Y/YL-MP/8. The junction assessment results reveal that junction improvement at Junction 6 would be required, as illustrated in **Figure 4.12**. With the proposed junction improvement scheme implemented, all the assessed junctions would be operating within capacity under the sensitivity test scenario.

5.1.15 Concurrent construction activities are anticipated with the planned Northern Link and the developments in close vicinity. Construction traffic impact assessment will be conducted prior to the commencement of the works, once the implementation programme of the subject site is available, as well as the construction programme of other projects is certain.

5.2 Conclusion

5.2.1 In light of the findings of this TIA, it is concluded that there is no insurmountable traffic impact imposed onto the local road network due to the Proposed Development. With the proposed mitigation measures in place, the Proposed Development is technically feasible in traffic terms.

Figure



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PROJECT 項目

S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

CLIENT 業主

CONSULTANT 工程顧問公司

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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
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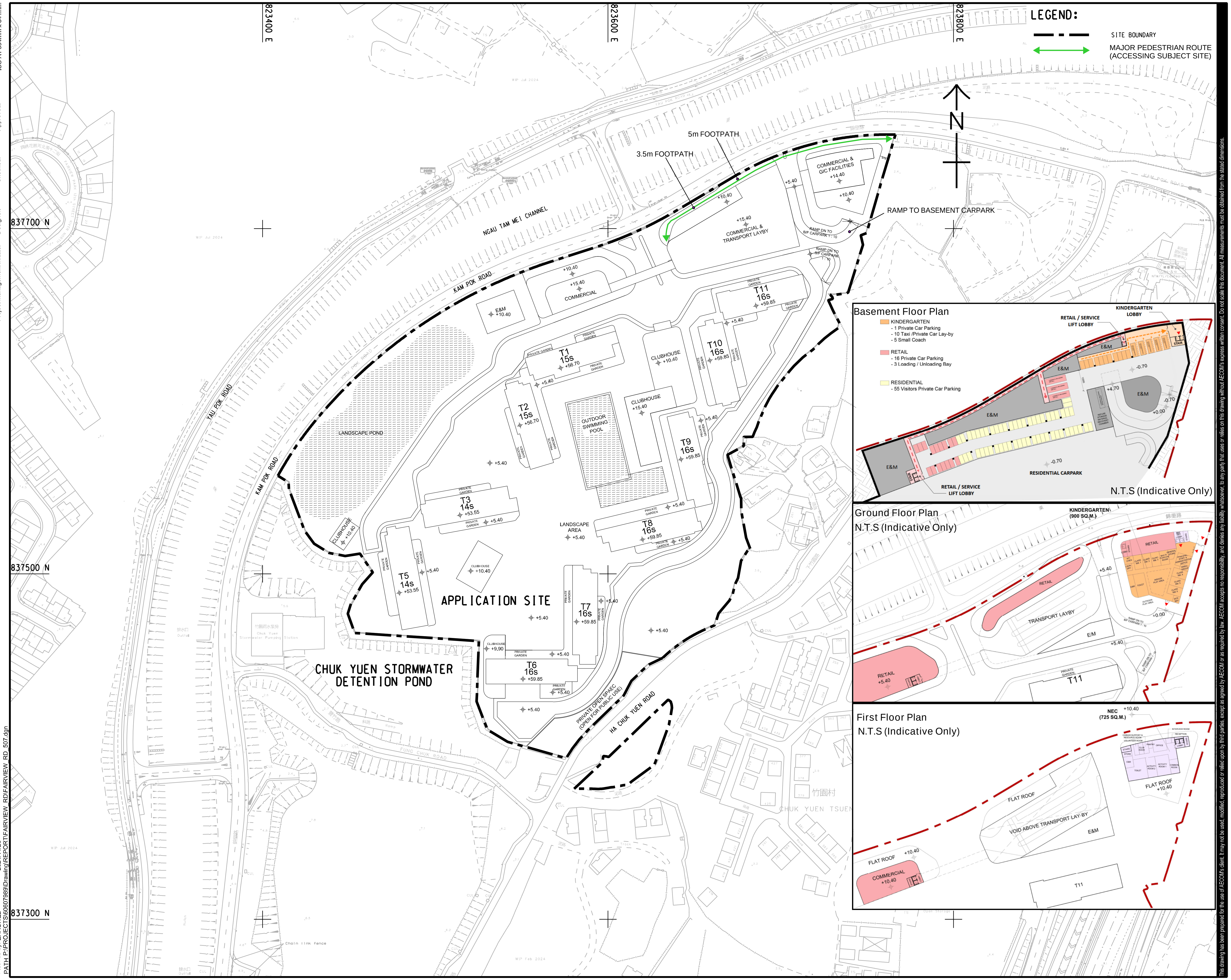
SHEET TITLE 圖紙名稱

SITE LOCATION PLAN

SHEET NUMBER 圖紙編號

FIGURE 1.1



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KEY PLAN

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CONTRACT NO.

SHEET TITLE: MASTER LAYOUT PLAN

SHEET NUMBER: FIGURE 2.1

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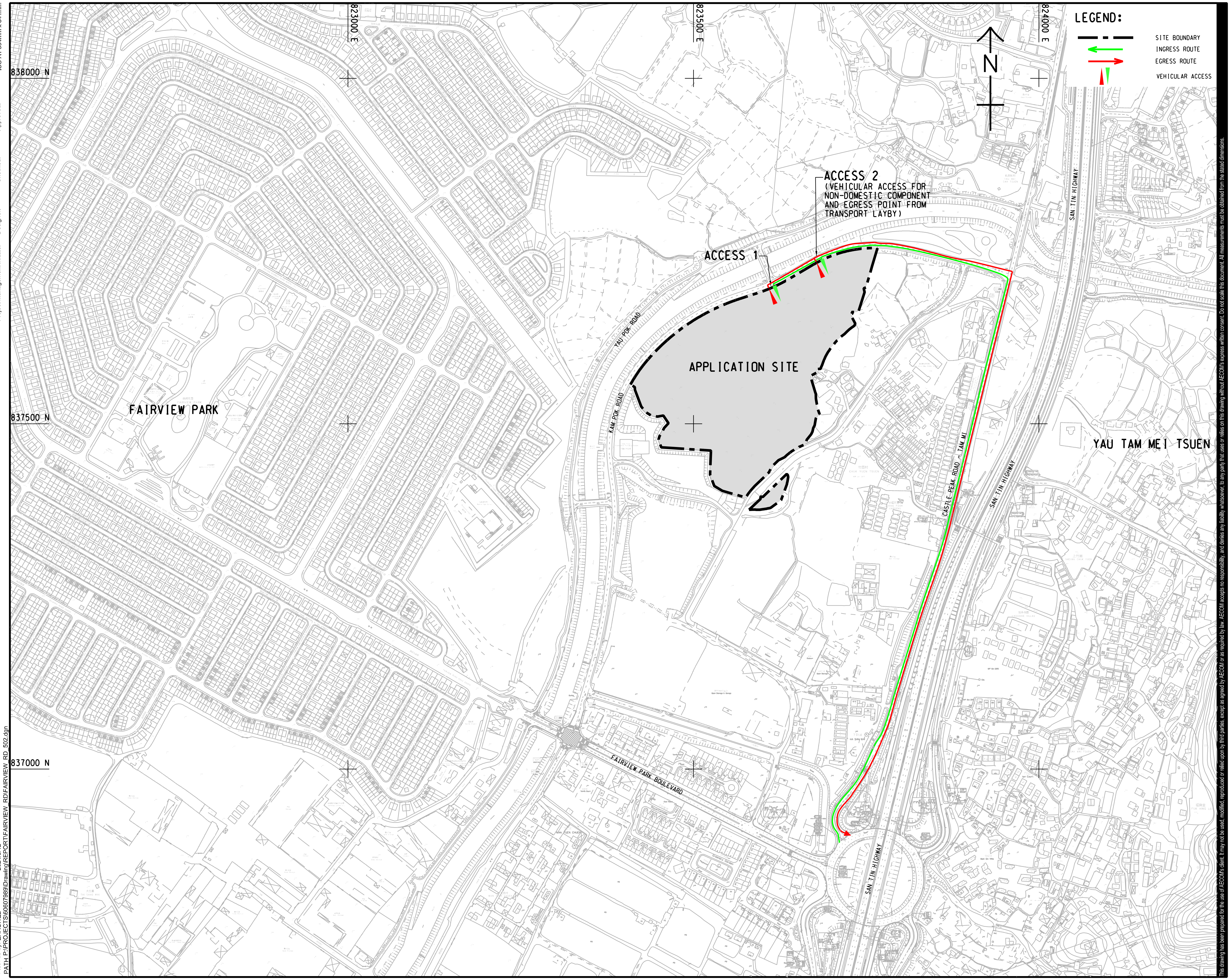

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SCALE: A3 1 : 5000

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KEY PLAN

PROJECT NO.: 60607989

CONTRACT NO.

SHEET TITLE

PROPOSED ACCESS LOCATION AND ROUTES

SHEET NUMBER

FIGURE 2.2

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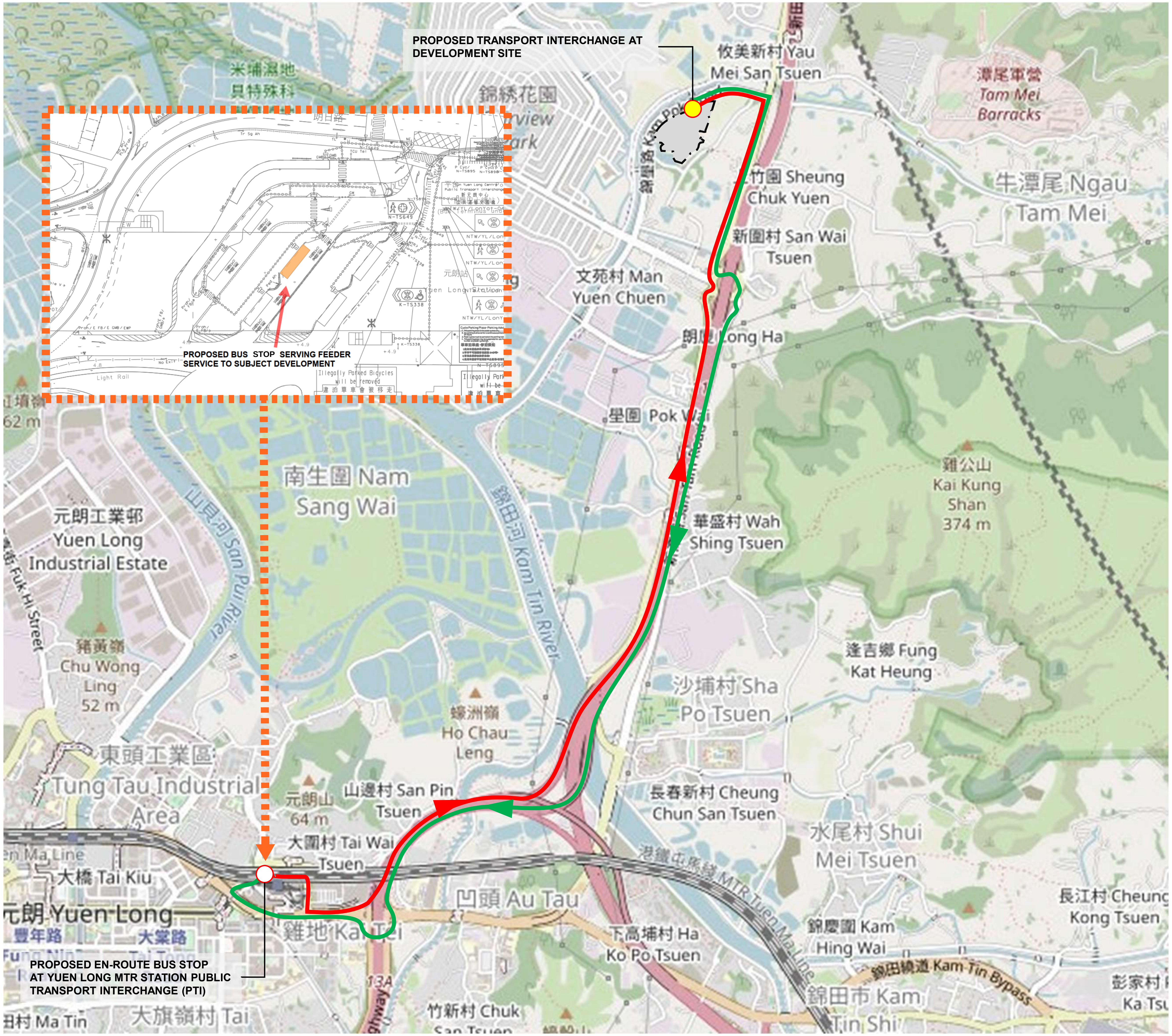

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S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

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DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60607989

CONTRACT NO. 合約編號

SHEET TITLE 圖紙名稱

PROPOSED ROUTING OF BUS SERVICE BETWEEN DEVELOPMENT SITE AND YUEN LONG MTR STATION PTI

SHEET NUMBER 圖紙編號

FIGURE 2.3 2.3

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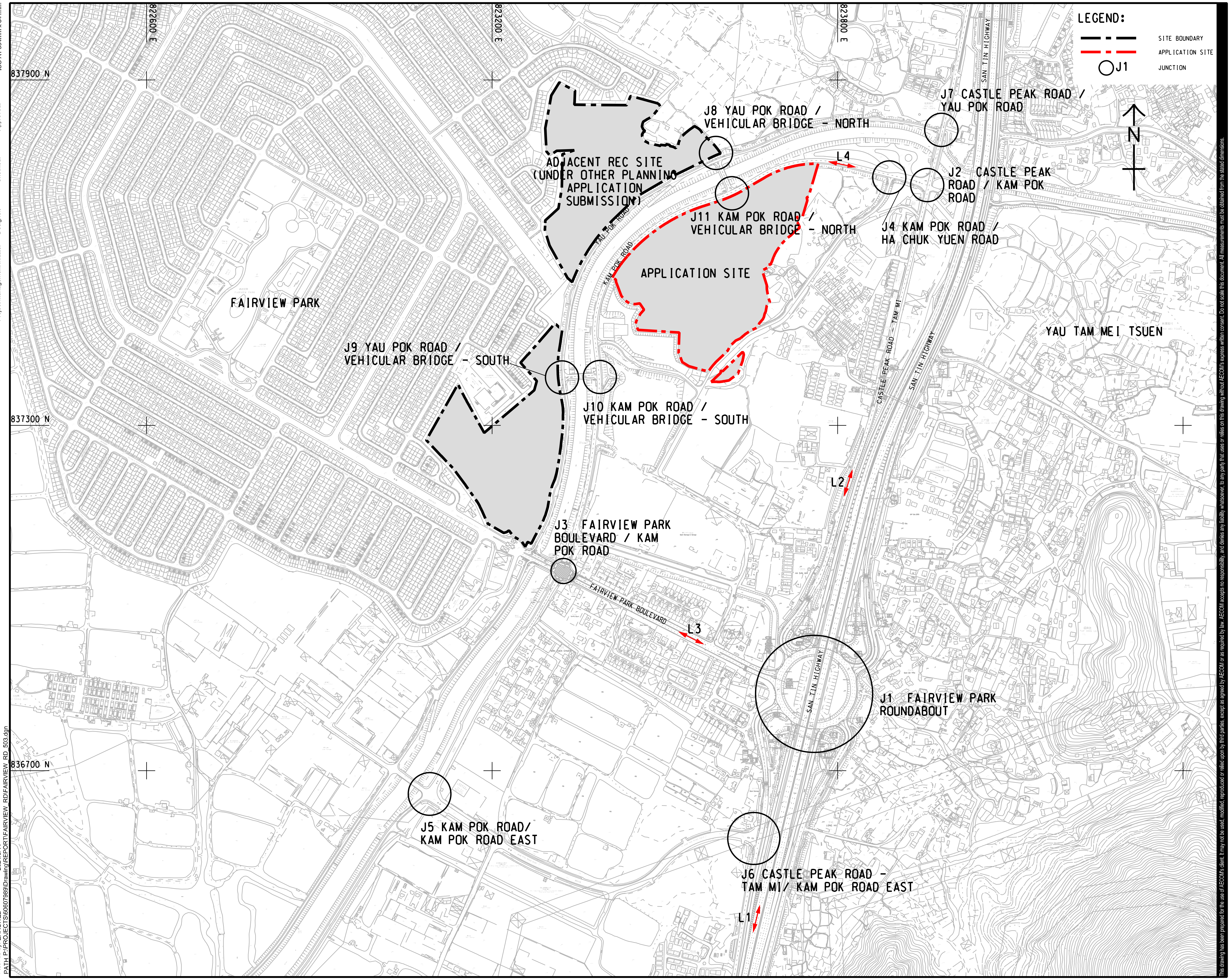

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SCALE: A3 1 : 6000

DIMENSION UNIT: METRES

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PROJECT NO.: 60607989

CONTRACT NO.

SHEET TITLE

CRITICAL JUNCTION LOCATION

SHEET NUMBER

FIGURE 3.1

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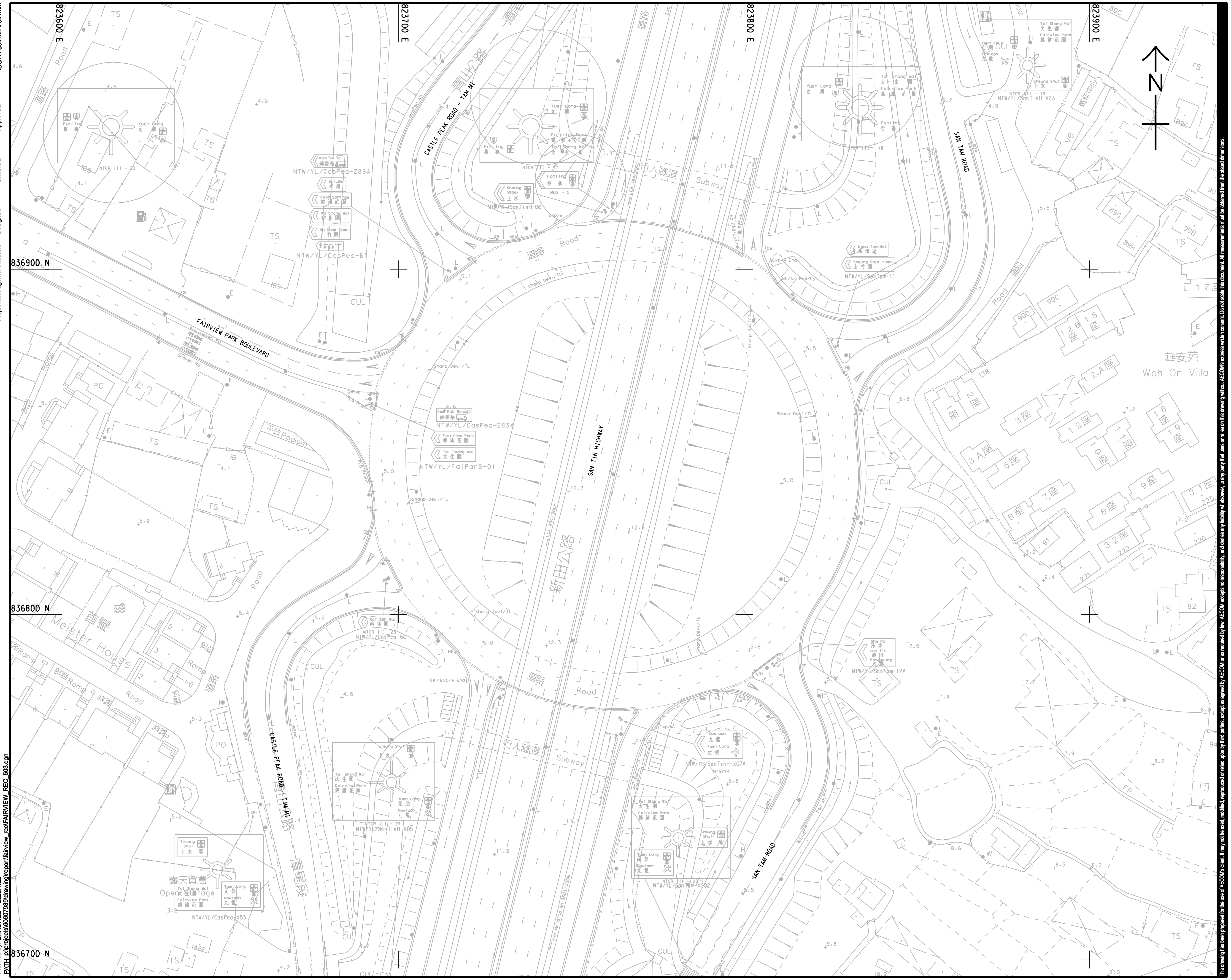

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S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

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SCALE
比例

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DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
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PROJECT NO.
項目編號

60607989

CONTRACT NO.
合約編號

SHEET TITLE
圖紙名稱

EXISTING LAYOUT FOR FAIRVIEW PARK ROUNDABOUT (J1)

SHEET NUMBER
圖紙編號

FIGURE 3.2

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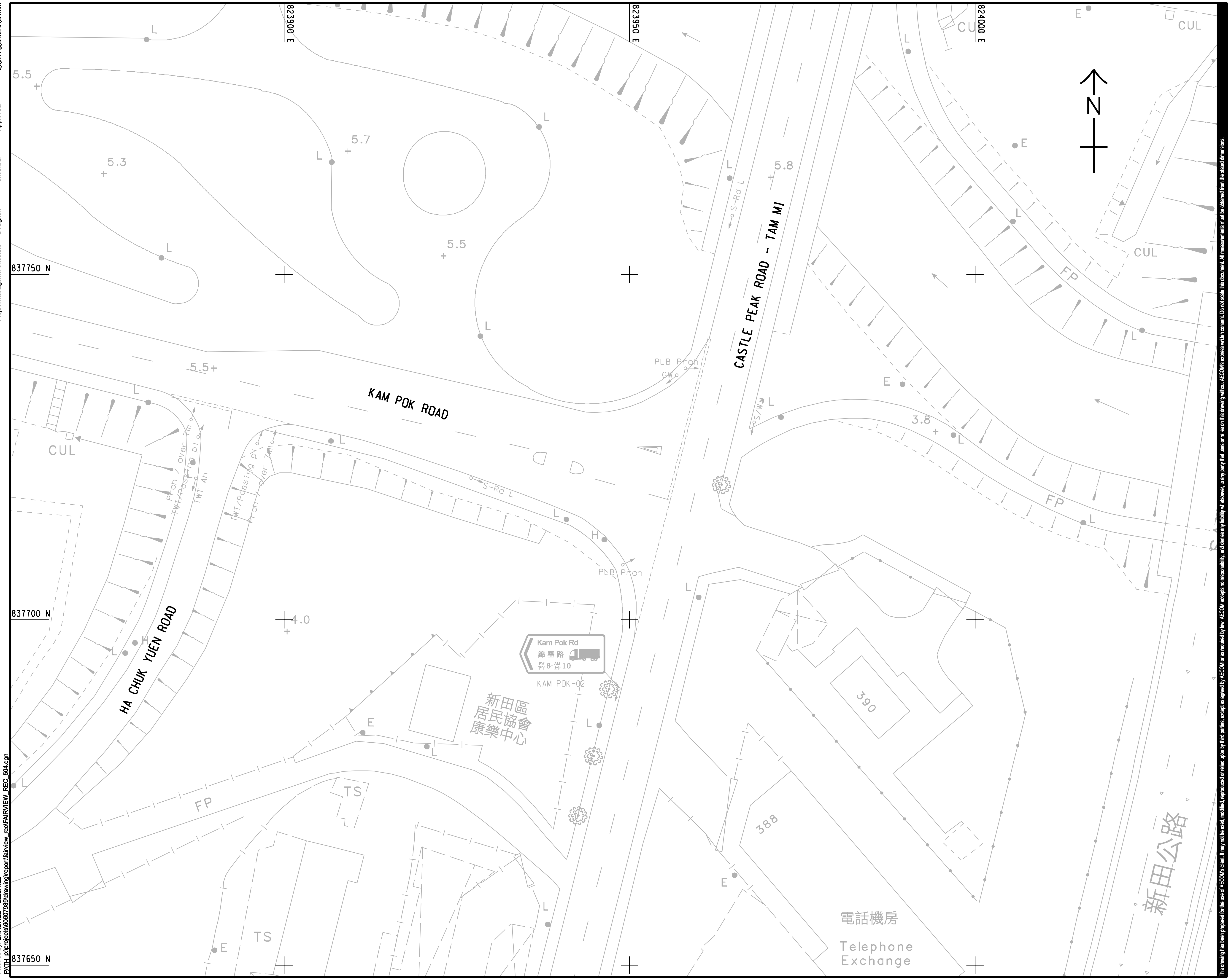

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SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60607989

CONTRACT NO. 合約編號

SHEET TITLE 圖紙名稱

EXISTING LAYOUT FOR CASTLE PEAK ROAD / KAM POK ROAD (J2)

SHEET NUMBER 圖紙編號

FIGURE 3.3

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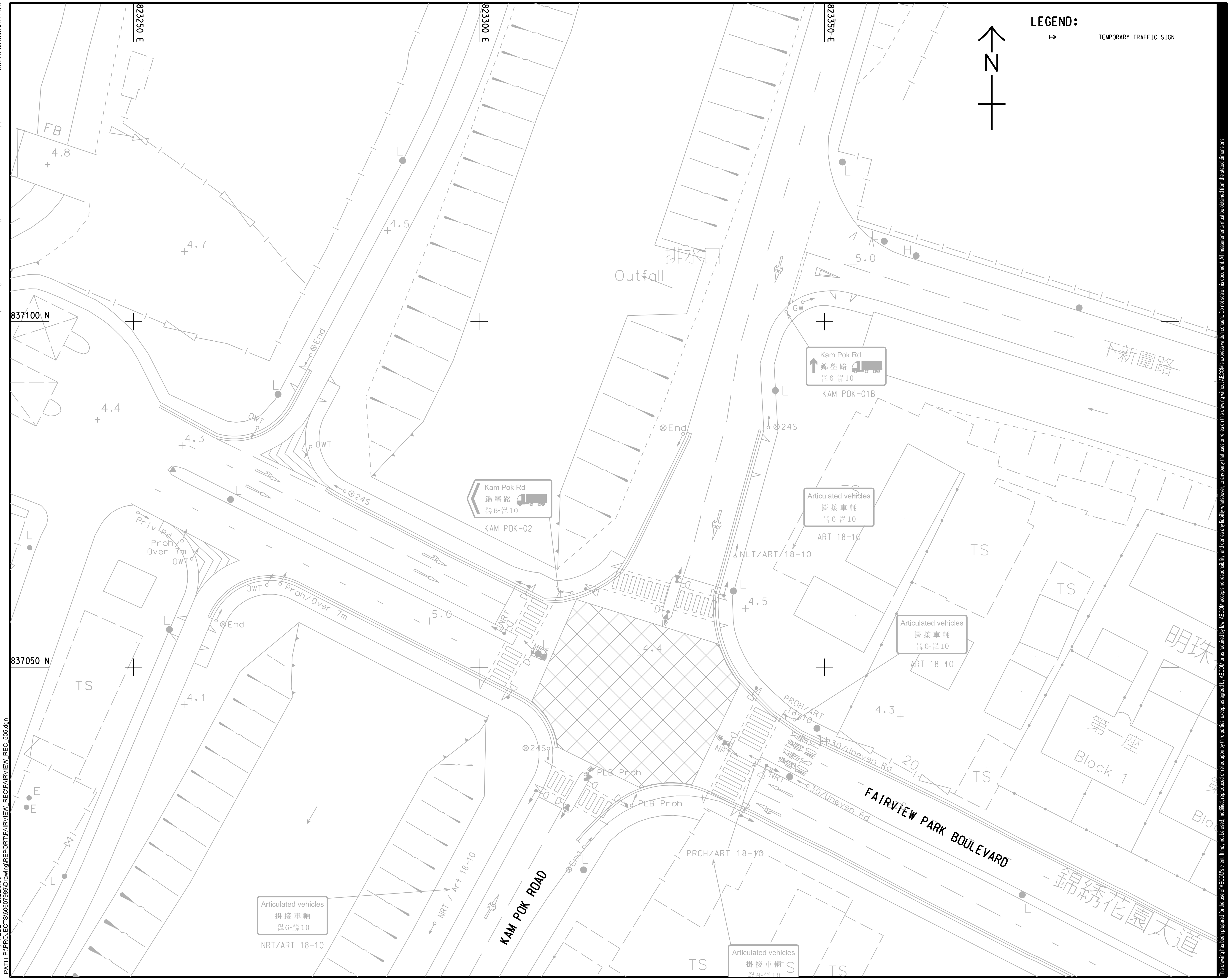

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S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

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SCALE
比例

A3 1 : 500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60607989

CONTRACT NO.
合約編號

SHEET TITLE
圖紙名稱

EXISTING LAYOUT FOR FAIRVIEW PARK BOULEVARD / KAM POK ROAD (J3)

SHEET NUMBER
圖紙編號

FIGURE 3.4

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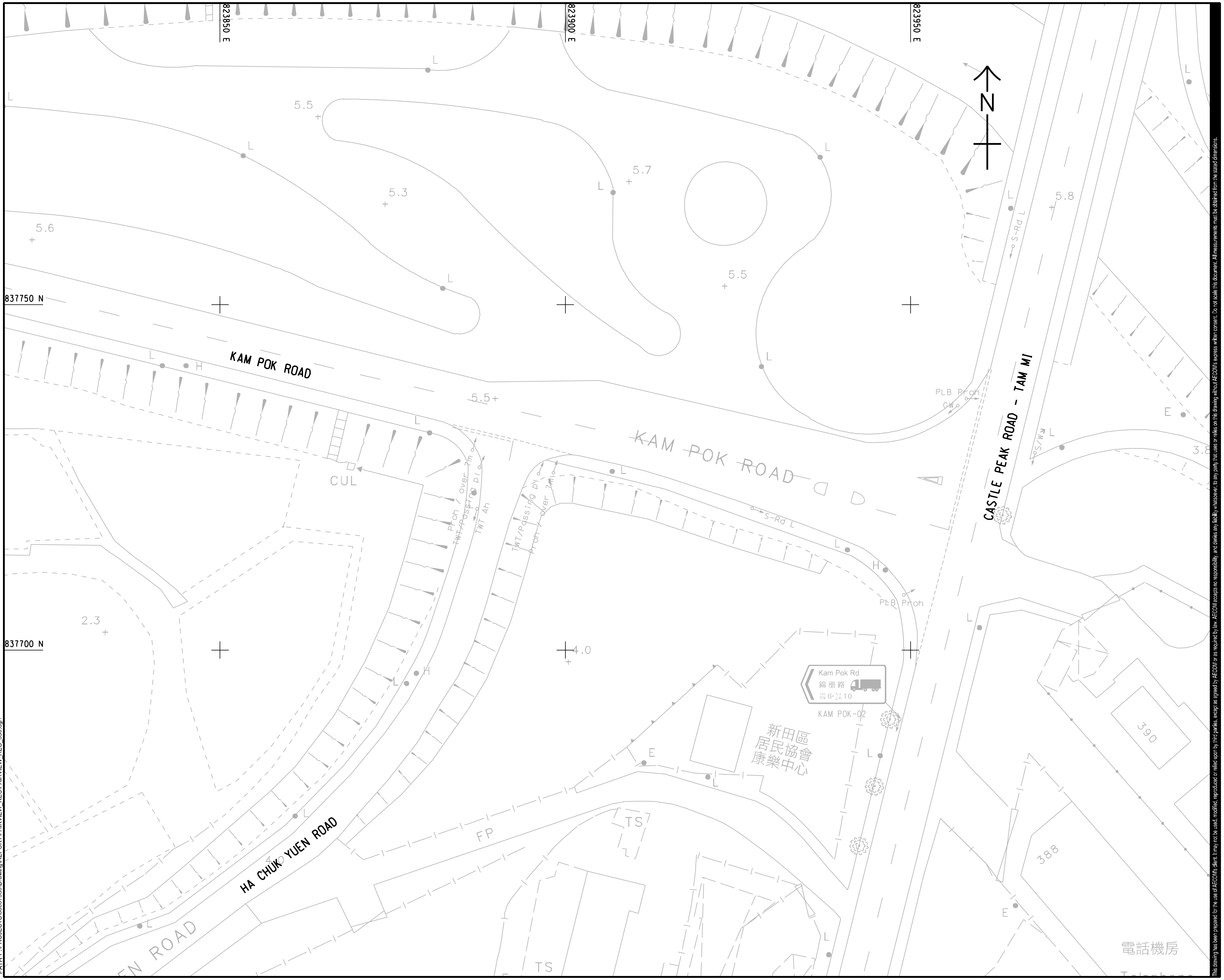

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S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

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SCALE

A3 1 : 500

DIMENSION UNIT

METRES

KEY PLAN

PROJECT NO.

60607989

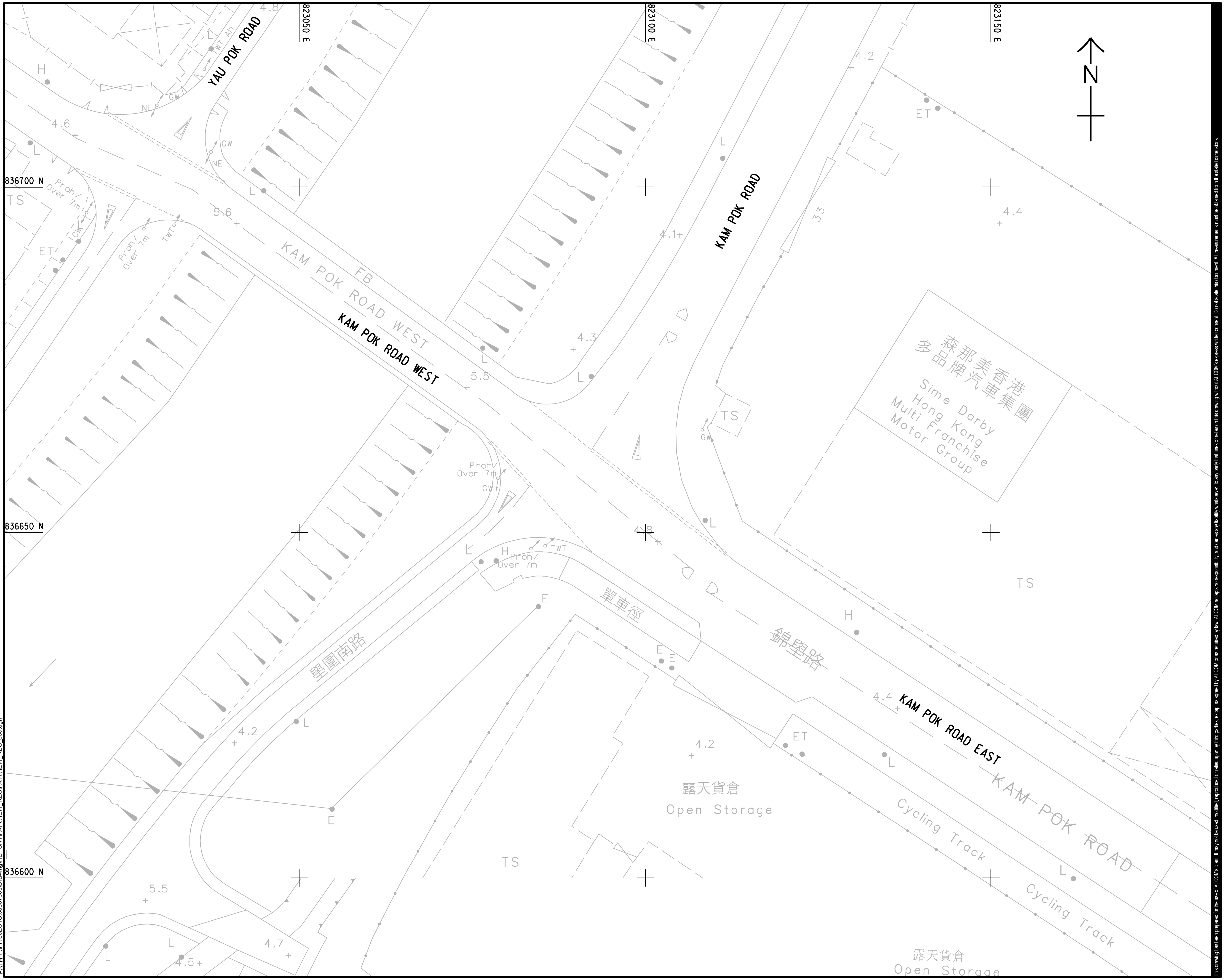
CONTRACT NO.

SHEET TITLE

EXISTING LAYOUT FOR KAM POK ROAD / HA CHUK YUEN ROAD (J4)

SHEET NUMBER

FIGURE 3.5



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S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

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STATUS

SCALE

A3 1 : 500

DIMENSION UNIT

METRES

KEY PLAN

PROJECT NO.

60607989

CONTRACT NO.

SHEET TITLE

EXISTING LAYOUT FOR KAM POK ROAD EAST / POK WAI SOUTH ROAD (J5)

SHEET NUMBER

FIGURE 3.6

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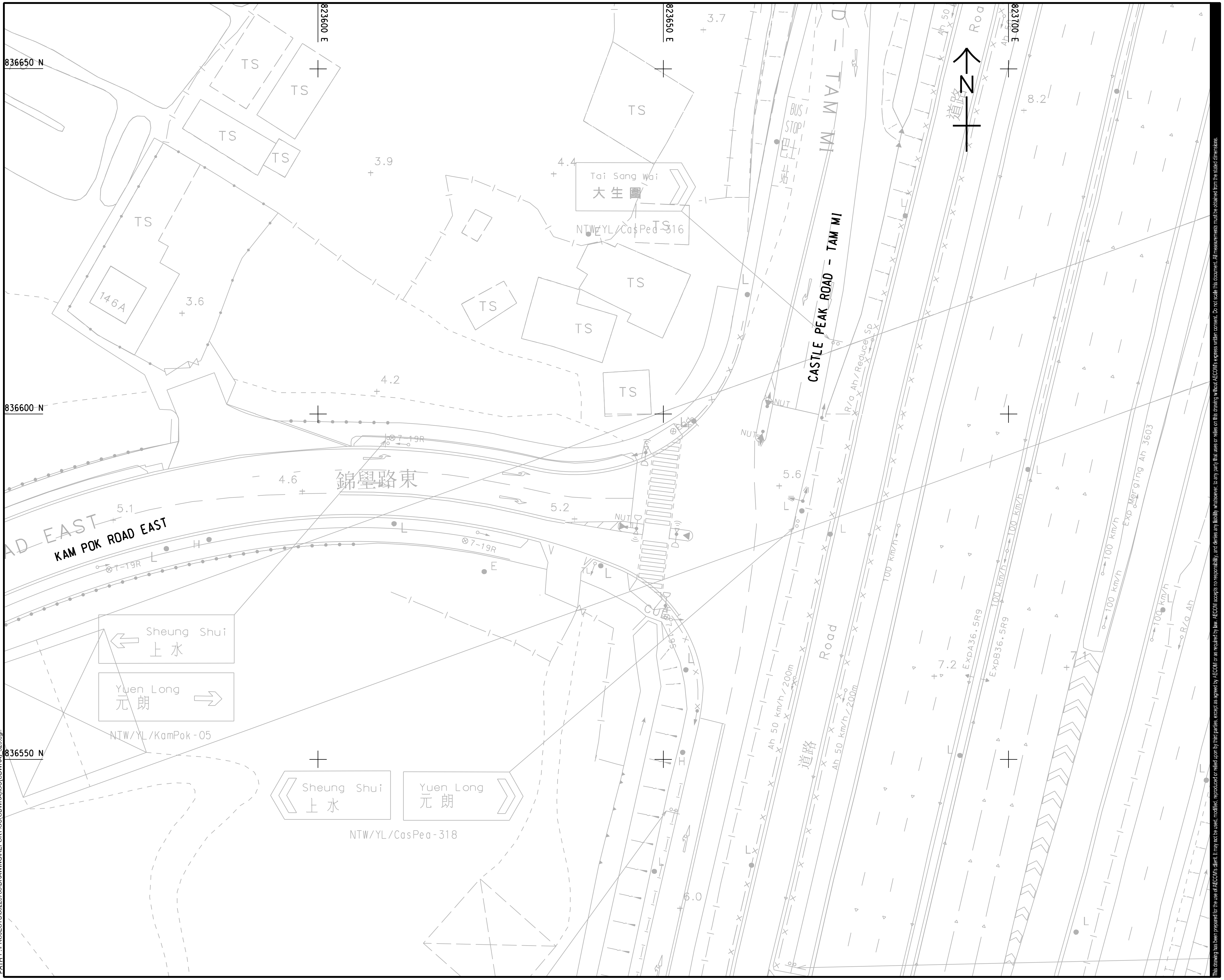

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S. 12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

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STATUS

SCALE: A3 1 : 500

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60223708

CONTRACT NO.

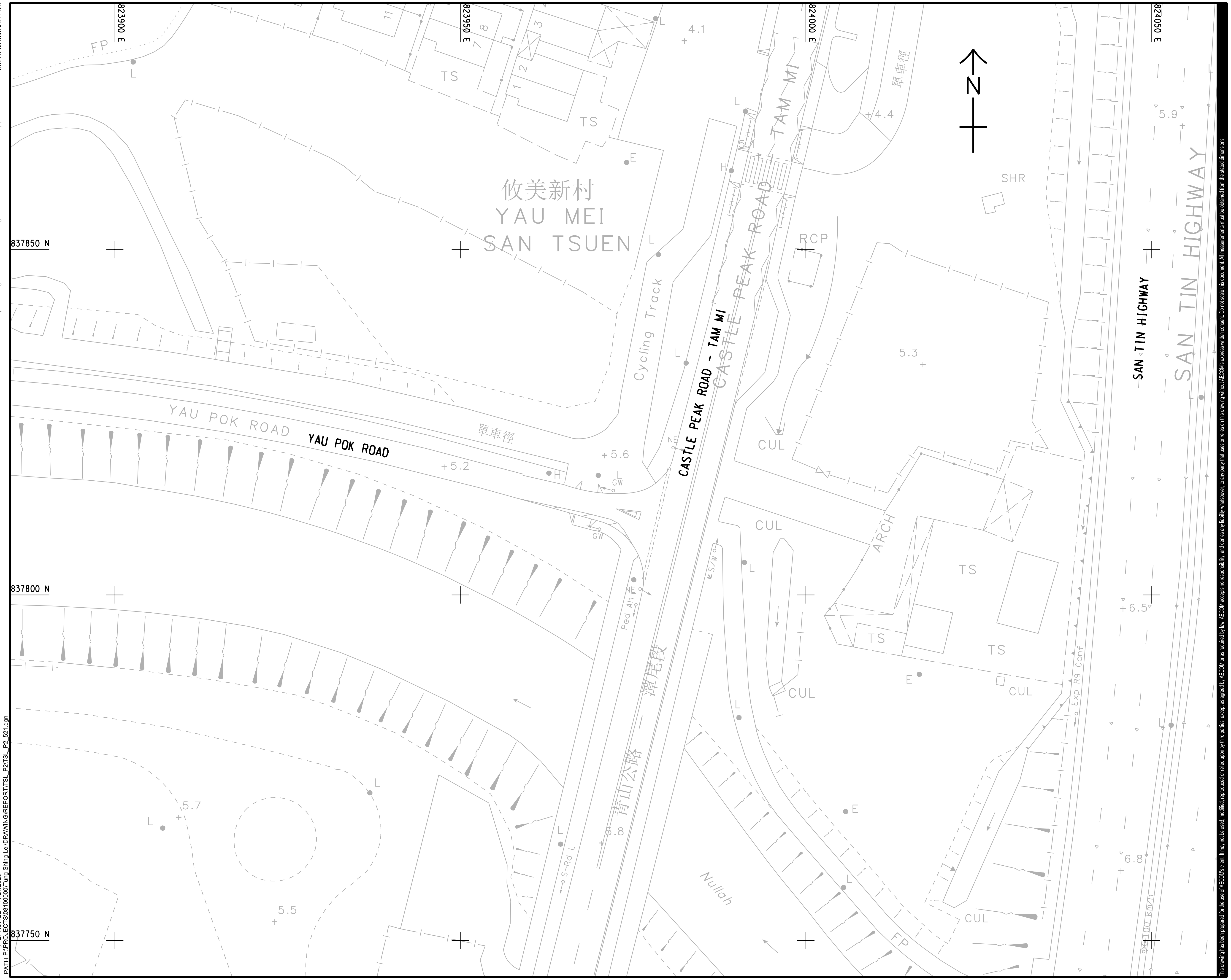
SHEET TITLE

EXISTING LAYOUT FOR JUNCTION OF CASTLE PEAK ROAD - TAM MI / KAM POK ROAD EAST (J6)

SHEET NUMBER

FIGURE 3.7

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:
Plot File by: ZHAOHQ2 12/17/2021
PATH P:\PROJECTS\60223708\DRAWING\REPORT\OU(CDWRA)\OU(CDWRA)_529.dgn



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STATUS

PRELIMINARY

SCALE

A3 1 : 500

DIMENSION UNIT

METRES

KEY PLAN

PROJECT NO.

CONTRACT NO.

SHEET TITLE

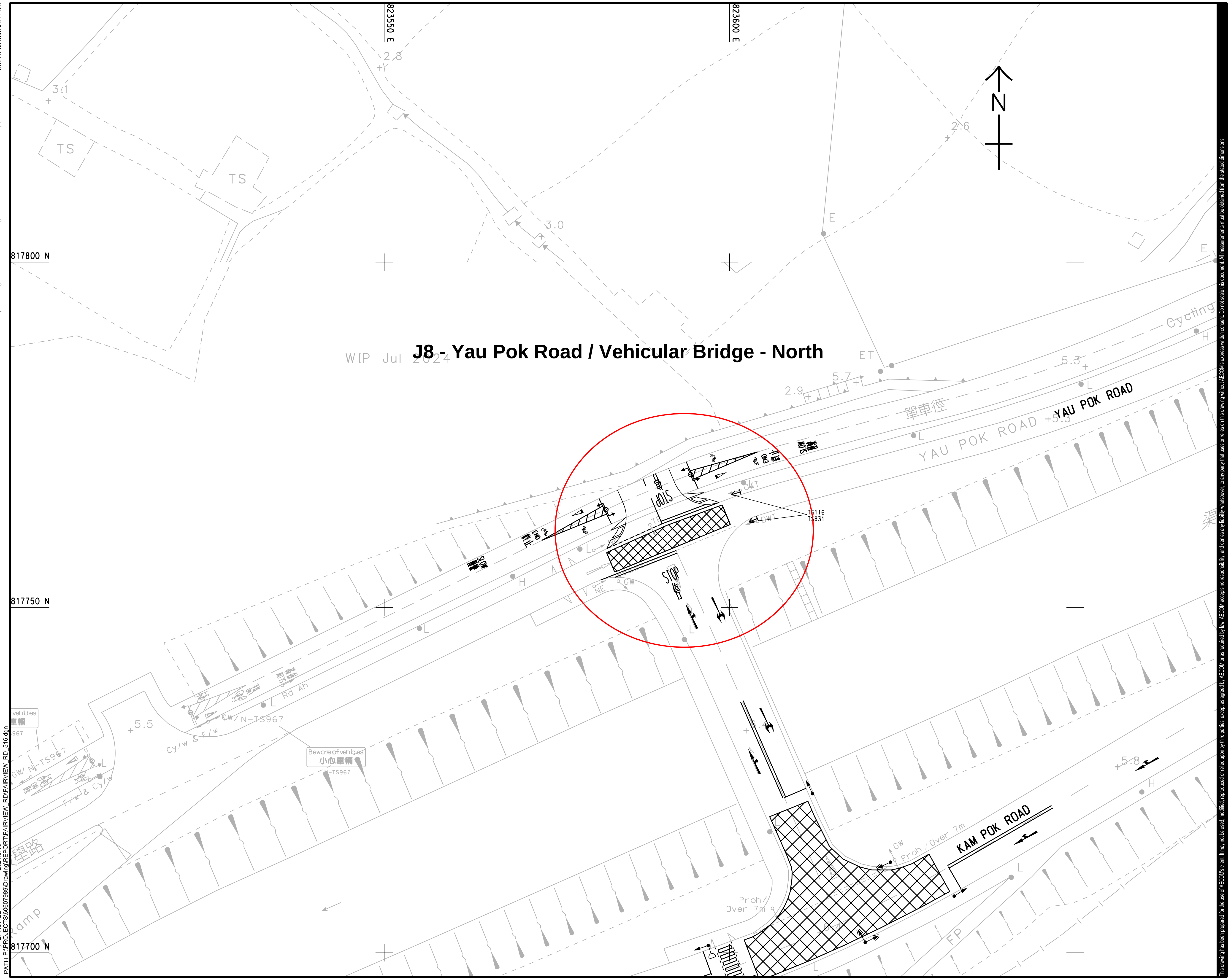
EXISTING JUNCTION OF CASTLE PEAK ROAD / YAU POK ROAD (J7)

SHEET NUMBER

FIGURE 3.8

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

Plot File by: ZHAOHQ2 11/21/2023



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STATUS

SCALE: A3 1 : 500

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60607989

CONTRACT NO.

SHEET TITLE

EXISTING JUNCTION LAYOUT OF YAU POK ROAD / VEHICULAR BRIDGE - NORTH (J8)

SHEET NUMBER

FIGURE 3.9

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

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Plot File by: ZHAOHQ2 2024/9/13
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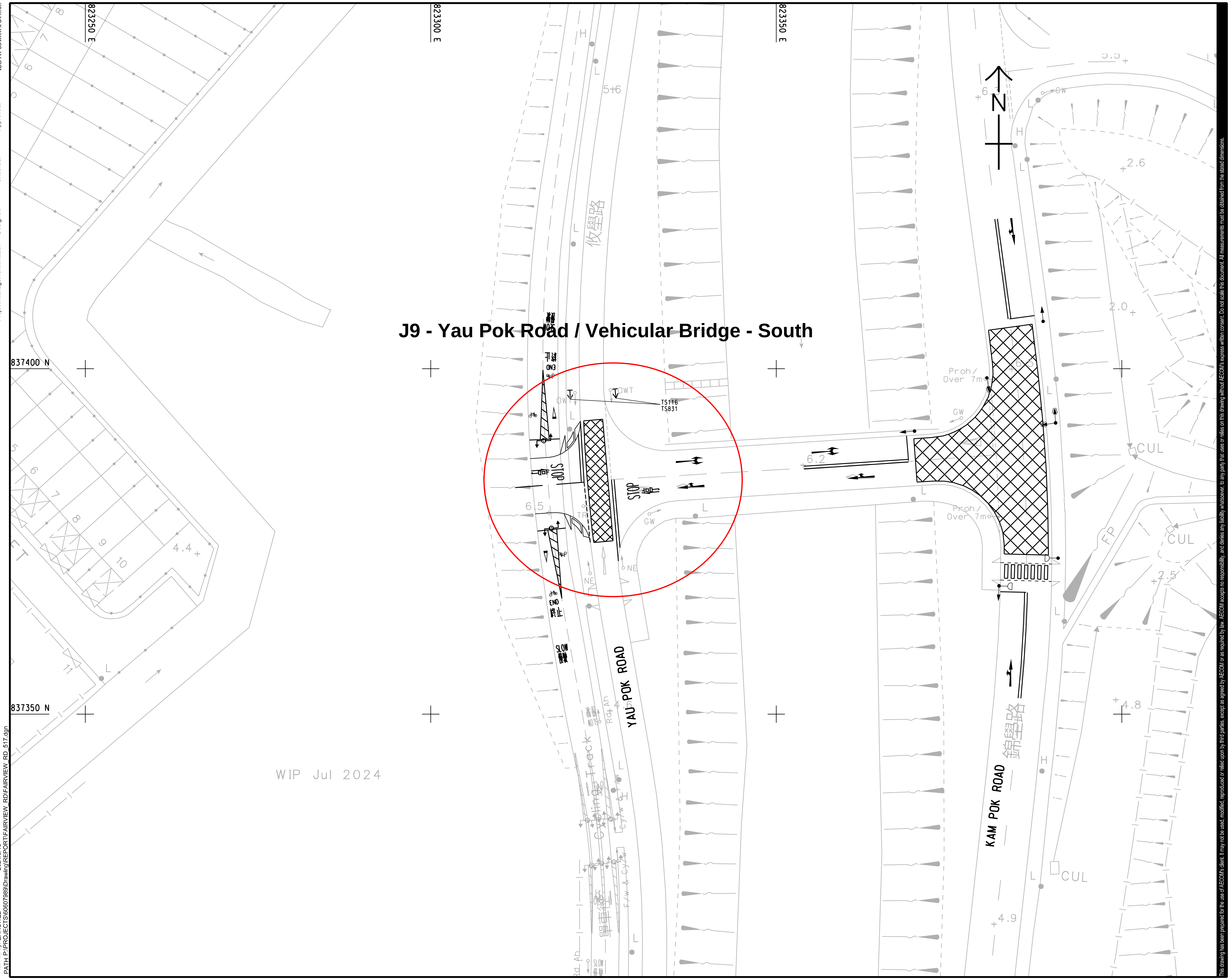

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STATUS

SCALE: A3 1 : 500

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60607989

CONTRACT NO.

SHEET TITLE

EXISTING JUNCTION LAYOUT OF YAU POK ROAD / VEHICULAR BRIDGE - SOUTH (J9)

SHEET NUMBER

FIGURE 3.10

ISO A1 594mm x 841mm Approved: Checked: Designer: Project Management Initials:

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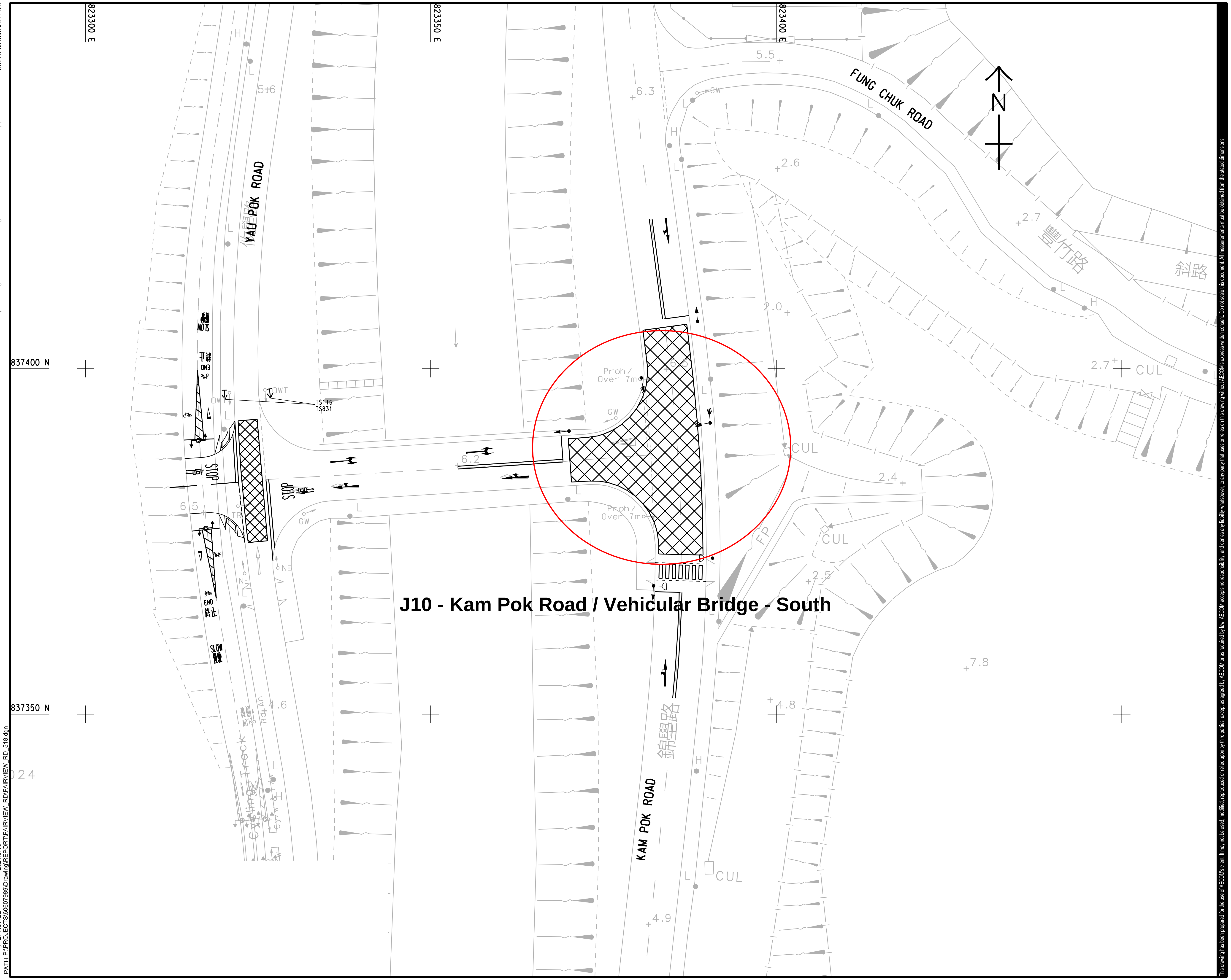

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SCALE: A3 1 : 500

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60607989

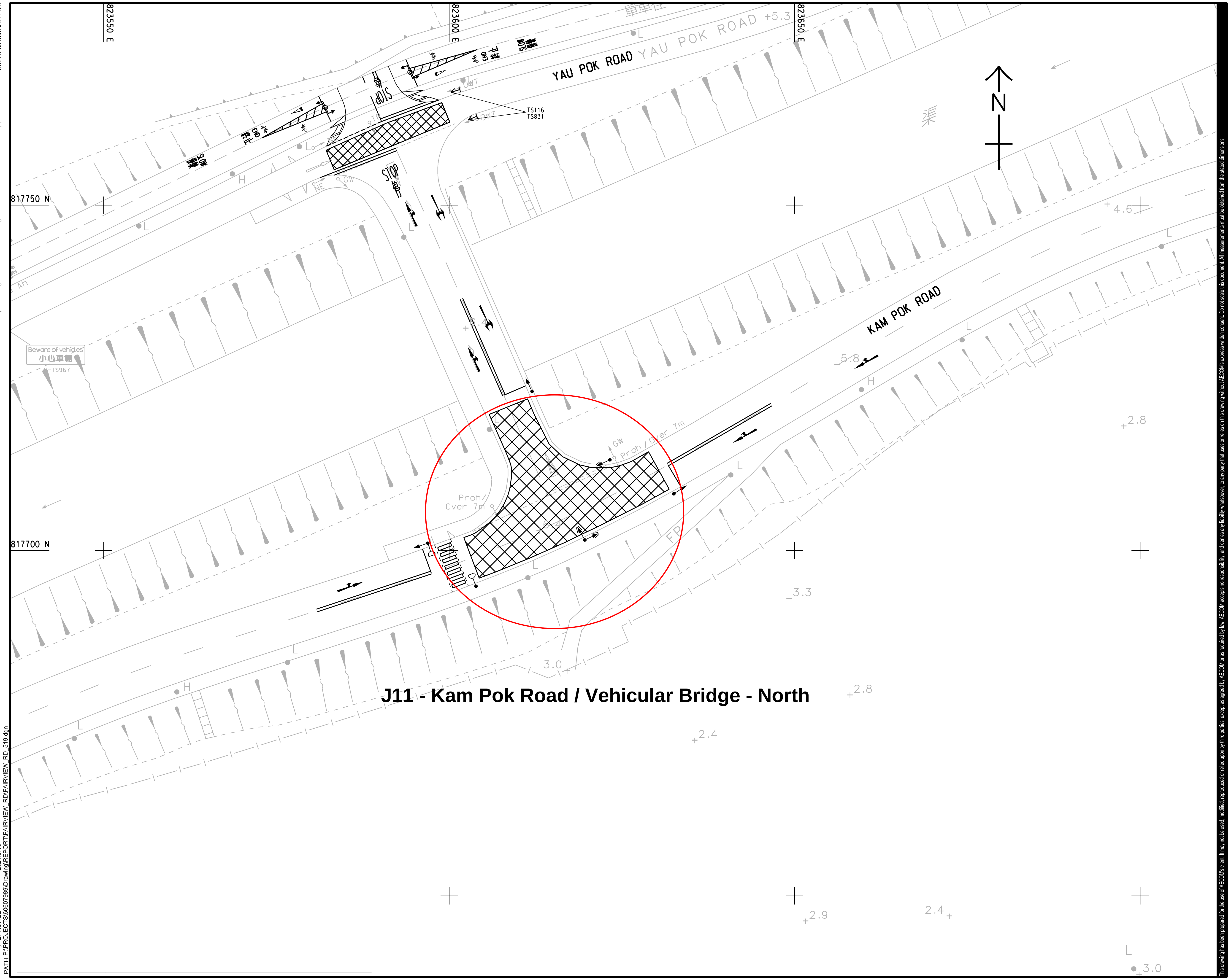
CONTRACT NO.

SHEET TITLE

EXISTING JUNCTION LAYOUT OF KAM POK ROAD / VEHICULAR BRIDGE - SOUTH (J10)

SHEET NUMBER

FIGURE 3.11



J11 - Kam Pok Road / Vehicular Bridge - North

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SCALE: A3 1 : 500

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60607989

CONTRACT NO.

SHEET TITLE

EXISTING JUNCTION LAYOUT OF KAM POK ROAD / VEHICULAR BRIDGE - NORTH (J11)

SHEET NUMBER

FIGURE 3.12

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

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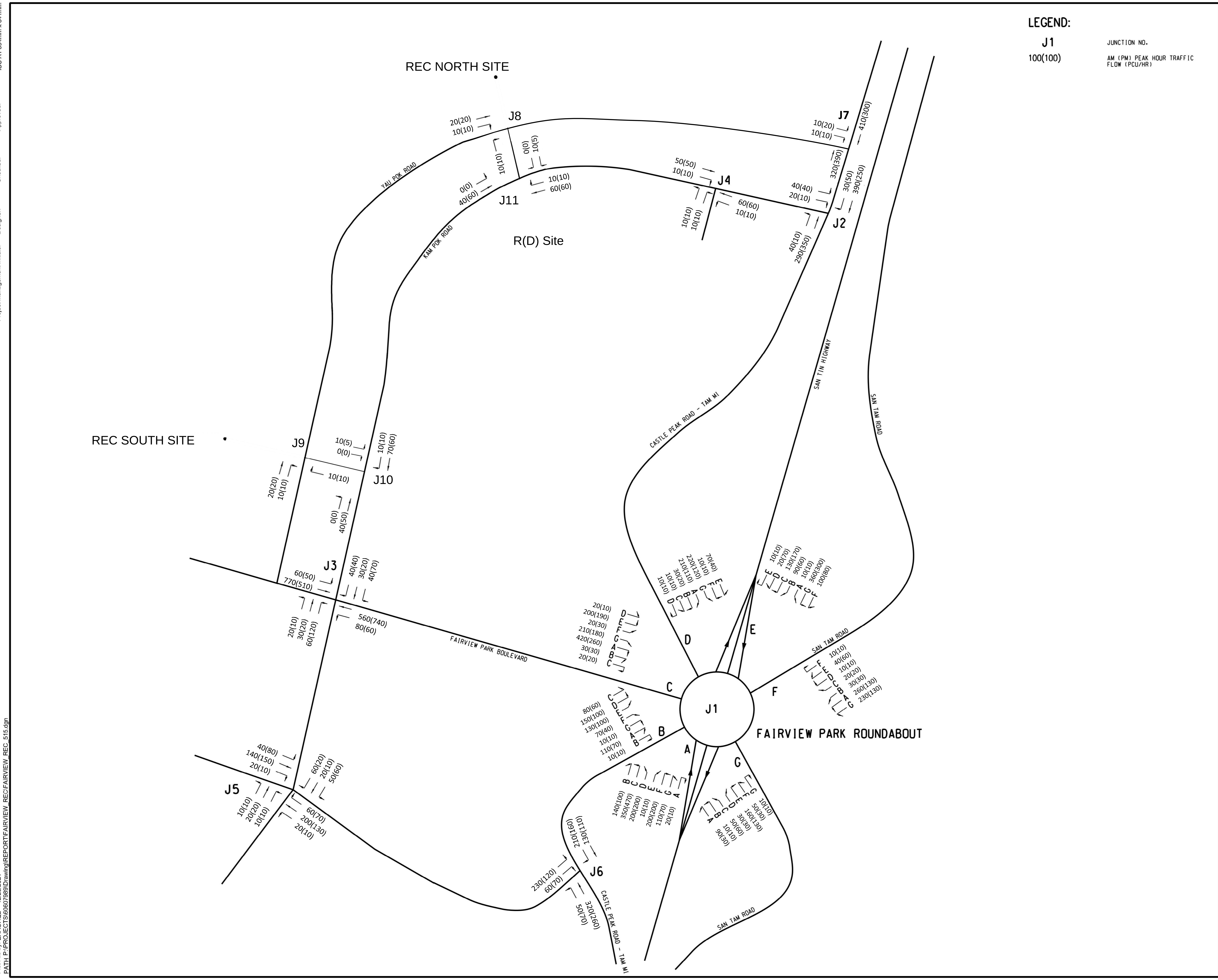

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STATUS

SCALE N.T.S.

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60607989

CONTRACT NO.

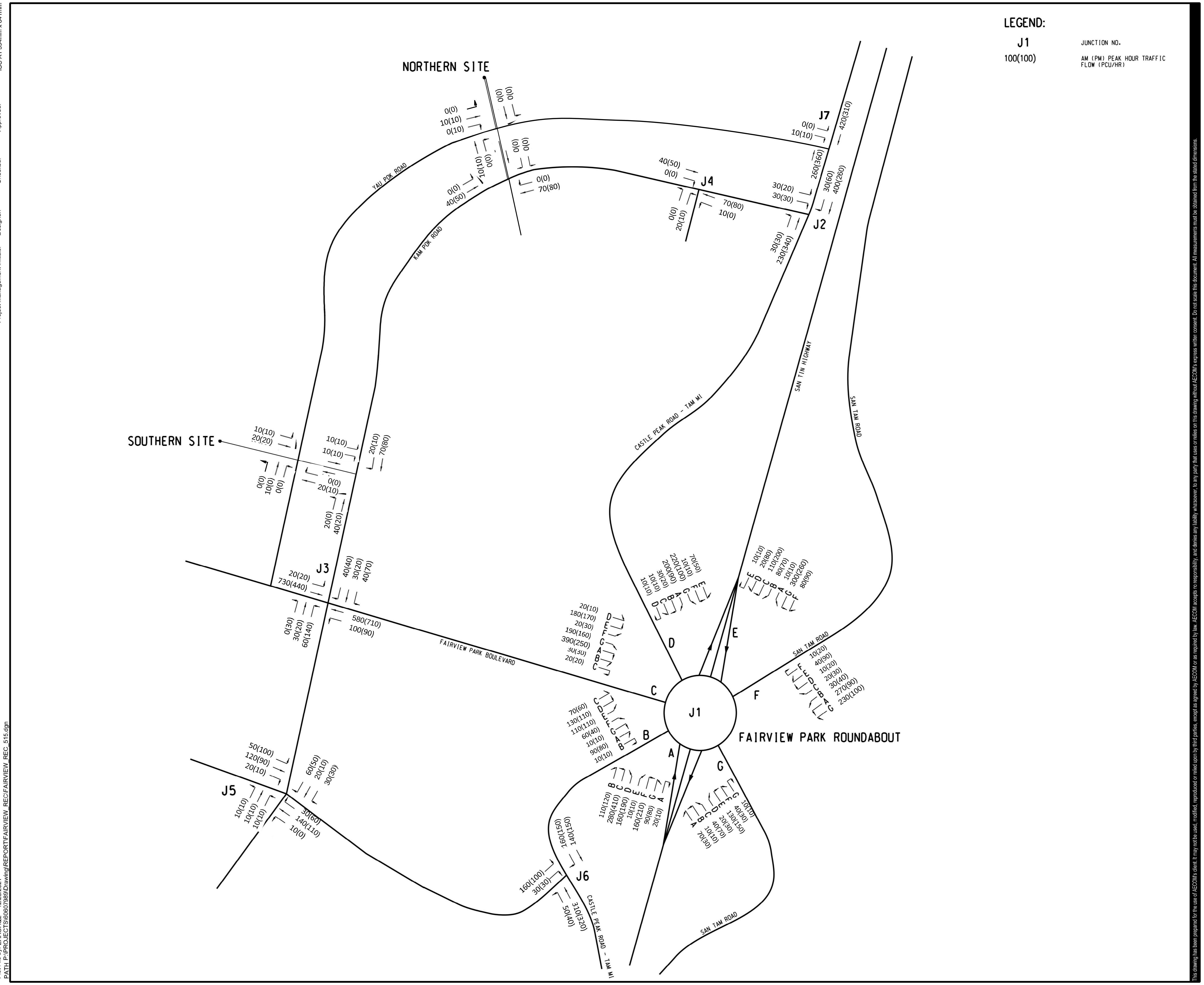
SHEET TITLE

2021 OBSERVED TRAFFIC FLOWS

SHEET NUMBER

FIGURE 3.13

ISO A1 594mm x 841mm
Approved: Checked: Designer: Project Management Initials:
Plot File by: ZHAOHQ2 12/28/2021
PATH P:\PROJECTS\60607989\Drawing\REPORT\FAIRVIEW_REC\FAIRVIEW_REC_515.dgn



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S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

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I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE
N.T.S.

DIMENSION UNIT
METRES

KEY PLAN

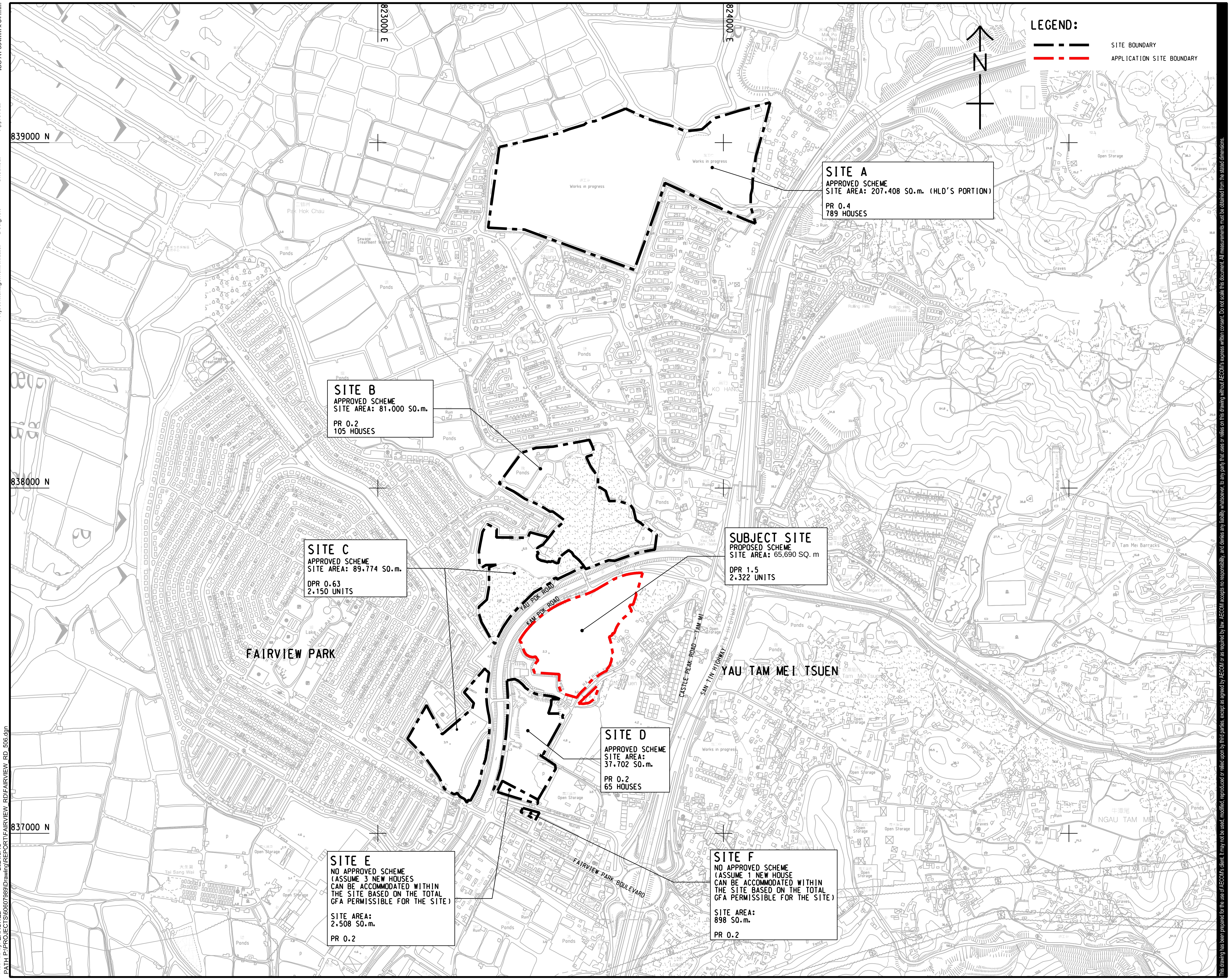
PROJECT NO.
60607989

CONTRACT NO.

SHEET TITLE
2025 OBSERVED TRAFFIC FLOWS

SHEET NUMBER
FIGURE 3.14

Plot File by: ZHAOHQ2 12/28/2021
PATH P:\PROJECTS\60607989\Drawing\REPORT\FAIRVIEW_REC\FAIRVIEW_REC_515.dgn
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



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STATUS

SCALE: A3 1 : 10000

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60607989

CONTRACT NO.

SHEET TITLE

FUTURE ADJACENT DEVELOPMENTS

SHEET NUMBER

FIGURE 4.1

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

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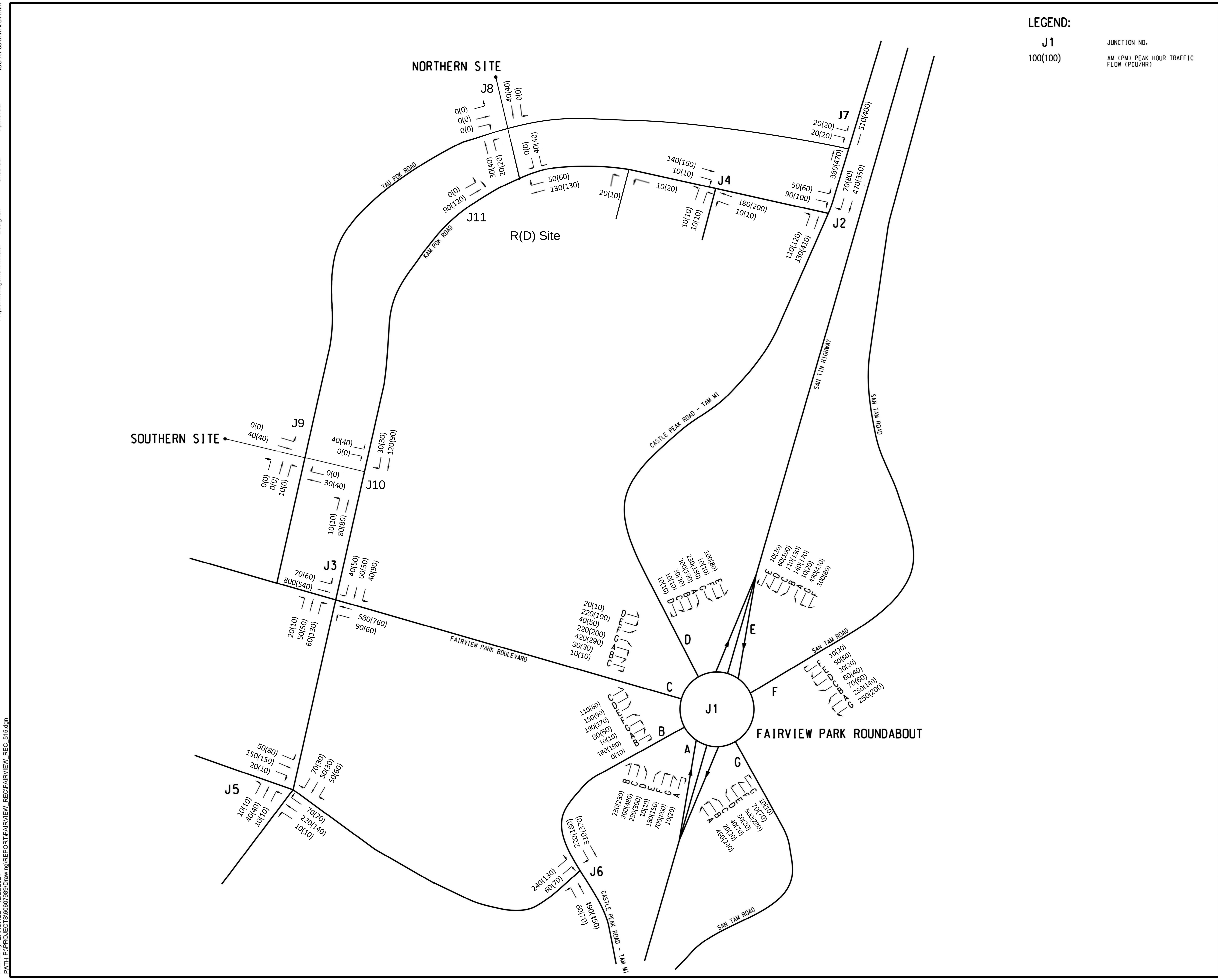

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STATUS

SCALE	DIMENSION UNIT
N.T.S.	METRES

KEY PLAN 位置圖

PROJECT NO.	CONTRACT NO.
60607989	

SHEET TITLE

2034 REFERENCE TRAFFIC FLOWS

SHEET NUMBER

FIGURE 4.2

Plot File by: ZHAOHQ2 12/28/2021
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Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

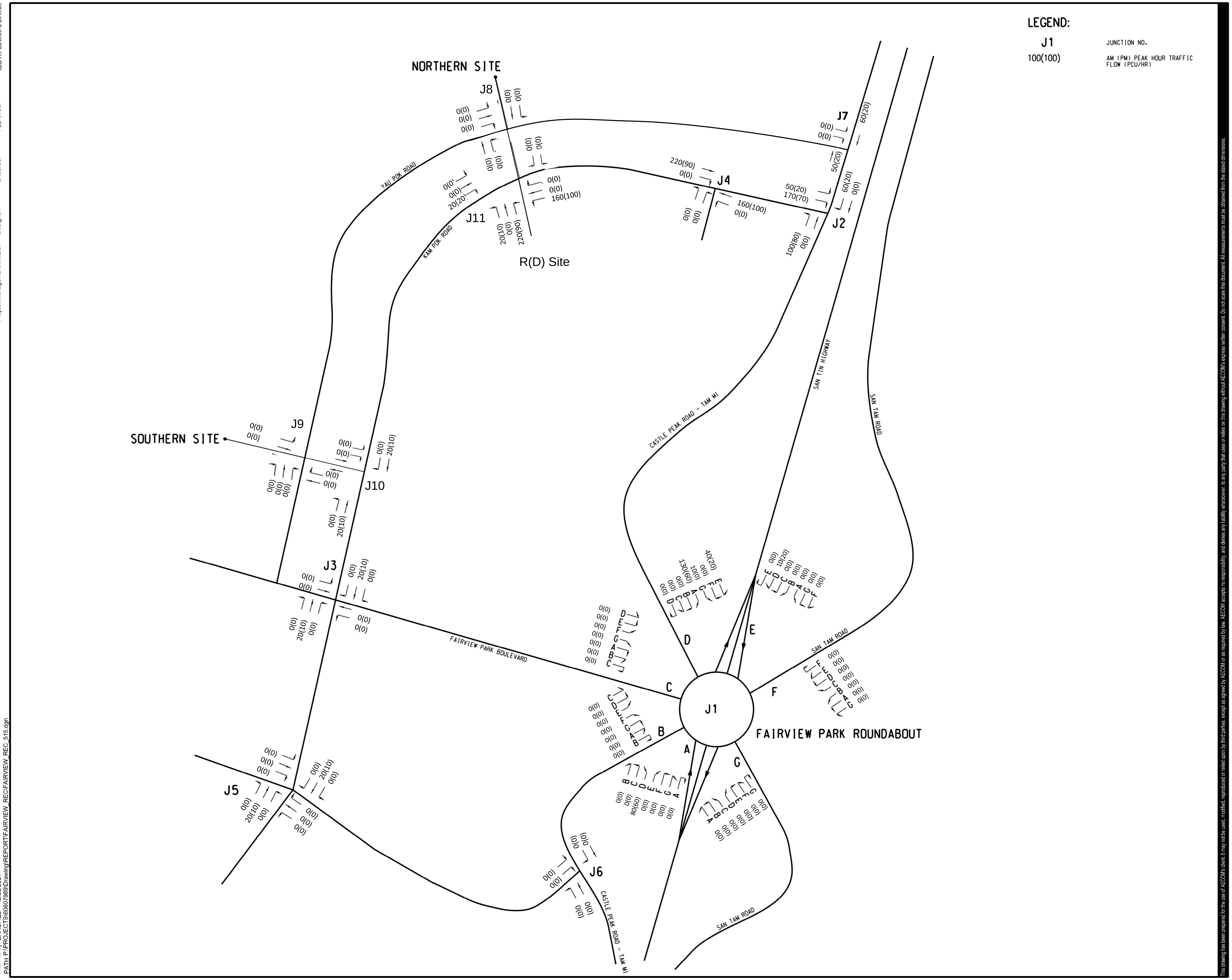
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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SCALE 比例	**DIMENSION UNIT** 尺寸單位
N.T.S.	METRES

KEY PLAN
位置圖

PROJECT NO. 項目編號	**CONTRACT NO.** 合約編號
60607989	

SHEET TITLE 圖紙名稱

R(D) SITE DEVELOPMENT TRAFFIC FLOWS (NET INCREASE)

SHEET NUMBER 圖紙編號

FIGURE 4.3

Plot File by: ZHAOHQ2 12/28/2021
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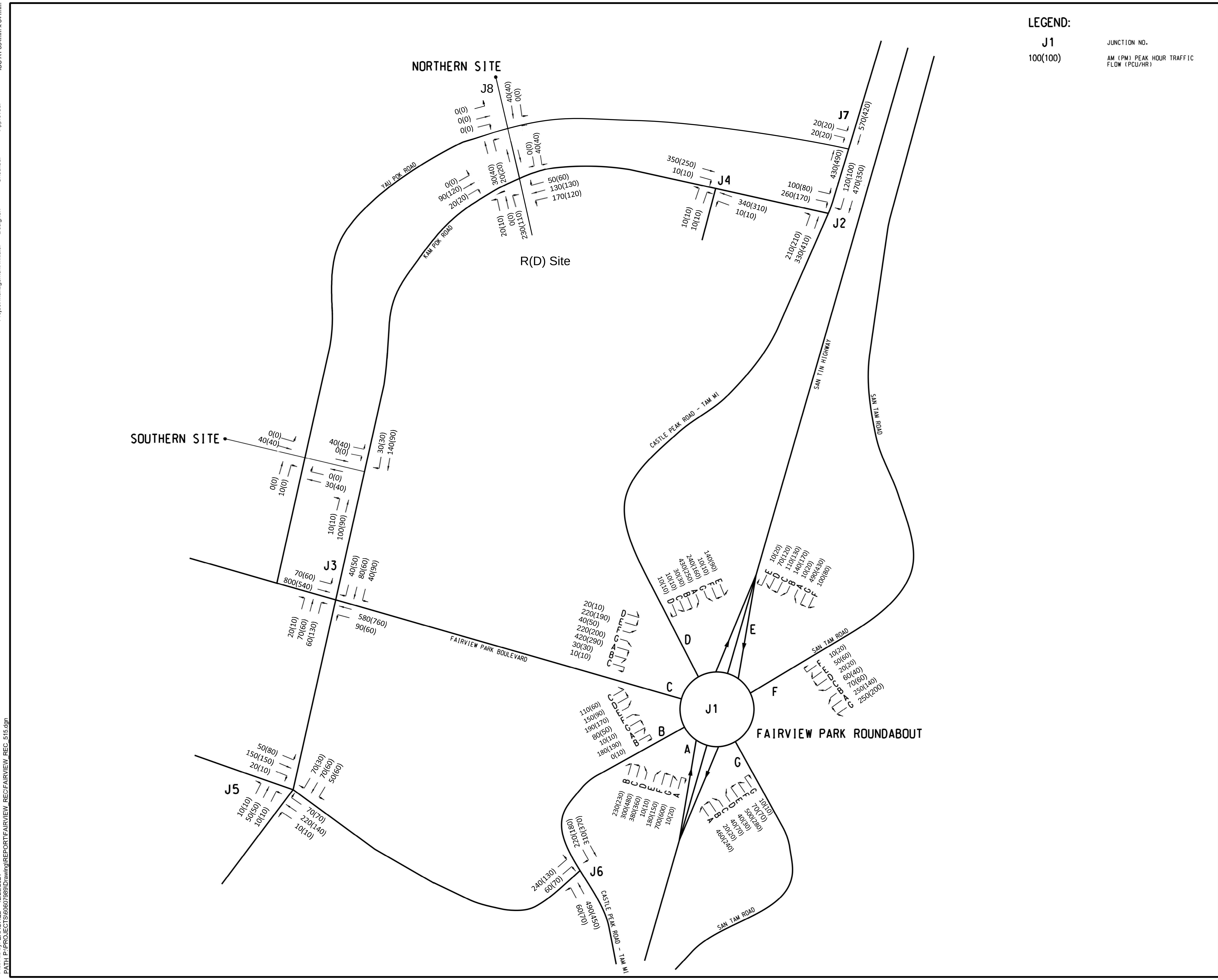

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SCALE: N.T.S.

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60607989

CONTRACT NO.

SHEET TITLE: 2034 DESIGN TRAFFIC FLOWS

SHEET NUMBER: FIGURE 4.4

ISO A1 594mm x 841mm
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Checked:
Designer:
Project Management Initials:
Plot File by: ZHAOHQ2 12/28/2021
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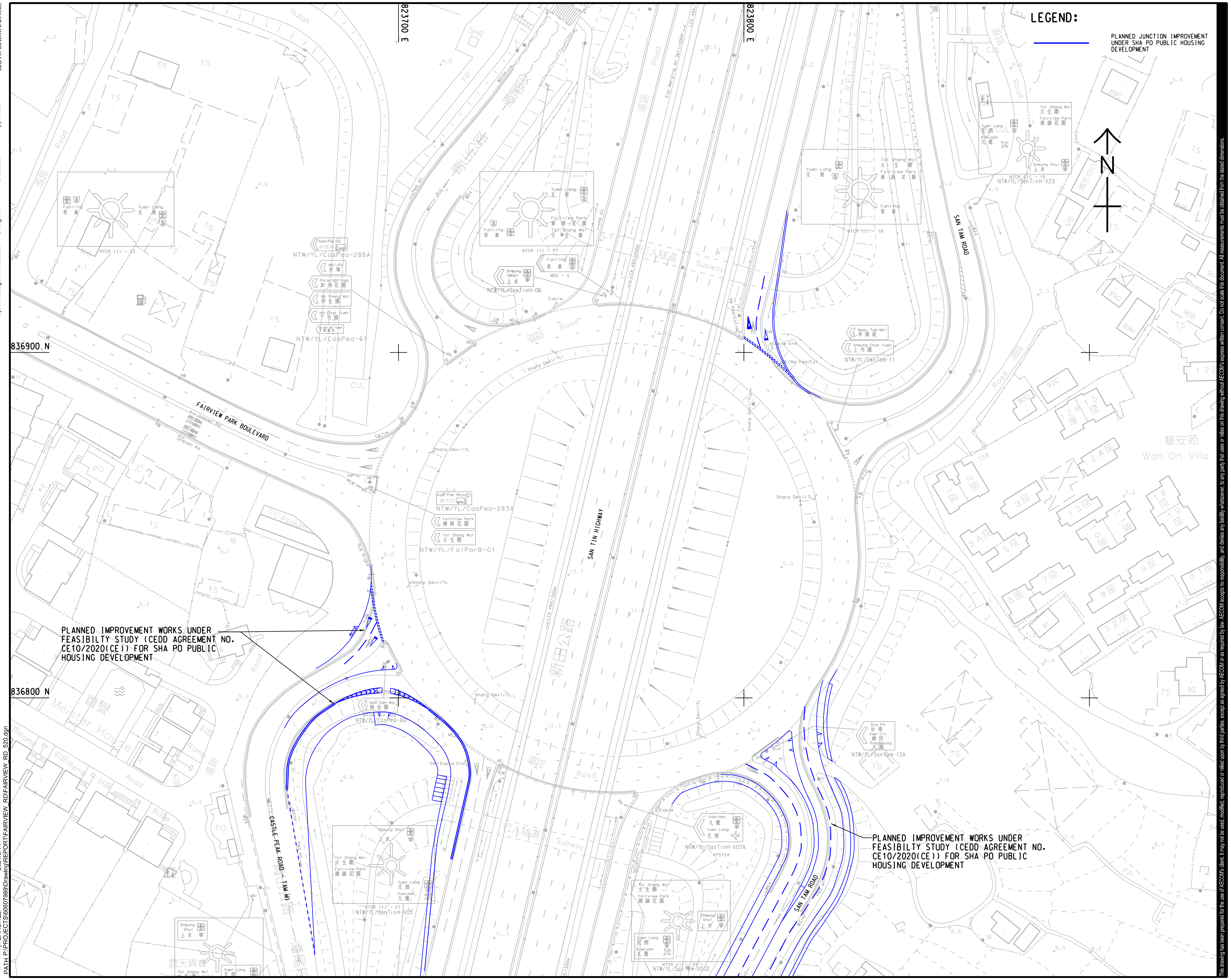

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

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DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60607989

CONTRACT NO. 合約編號

SHEET TITLE 圖紙名稱

PLANNED IMPROVEMENT LAYOUT FOR FAIRVIEW PARK INTERCHANGE (J1)

SHEET NUMBER 圖紙編號

FIGURE 4.5

ISO A1 594mm x 841mm

Approved:

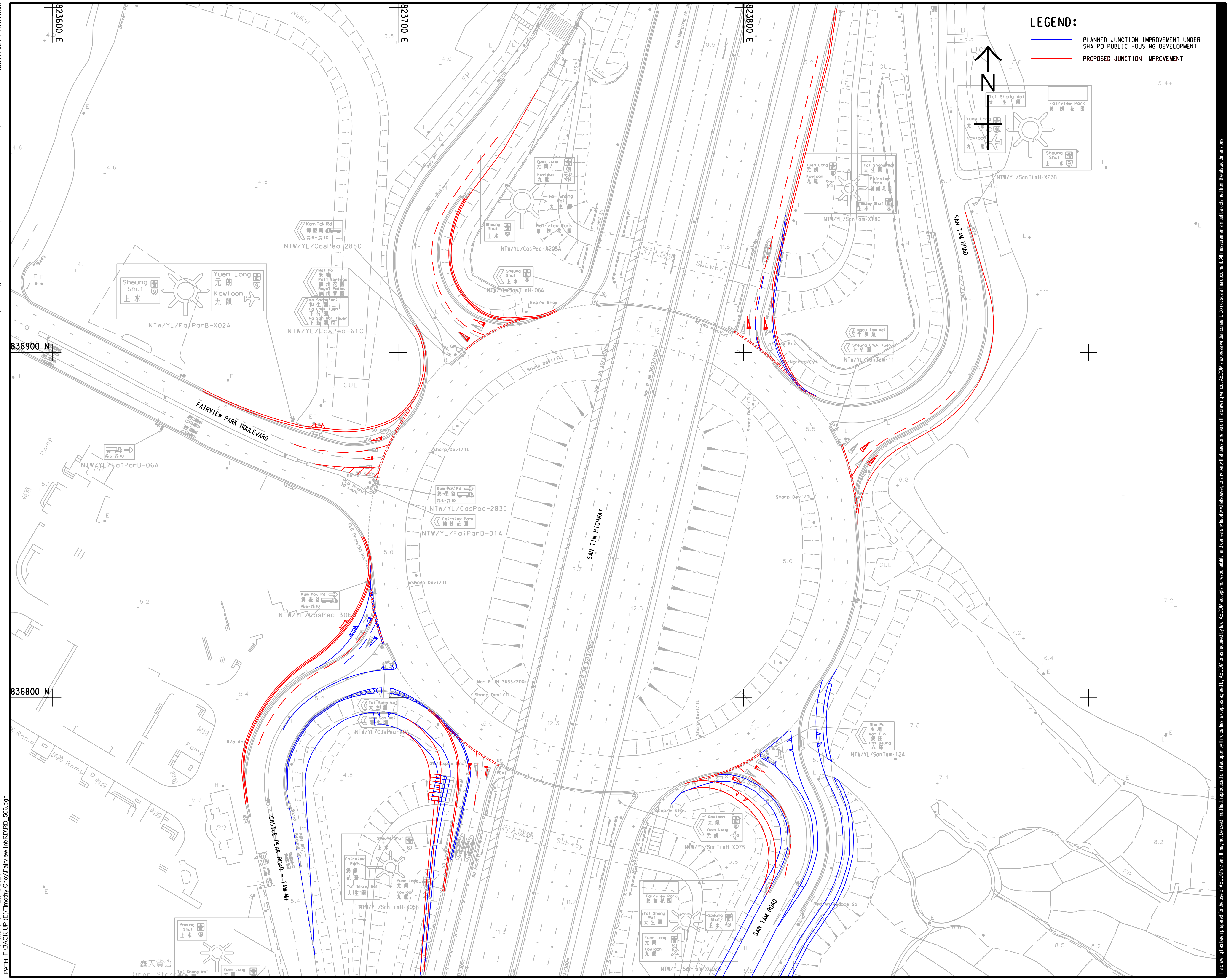
Checked:

Designer:

Project Management Initials:

Plot File by: chancwa 23/10/2024

PATH F:\BACK UP (E)\Timothy Choy\Fairview Int\RD\RD_506.dgn



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SCALE 比例	DIMENSION UNIT 尺寸單位
A3 1 : 1000	METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號	CONTRACT NO. 合約編號
60223708	

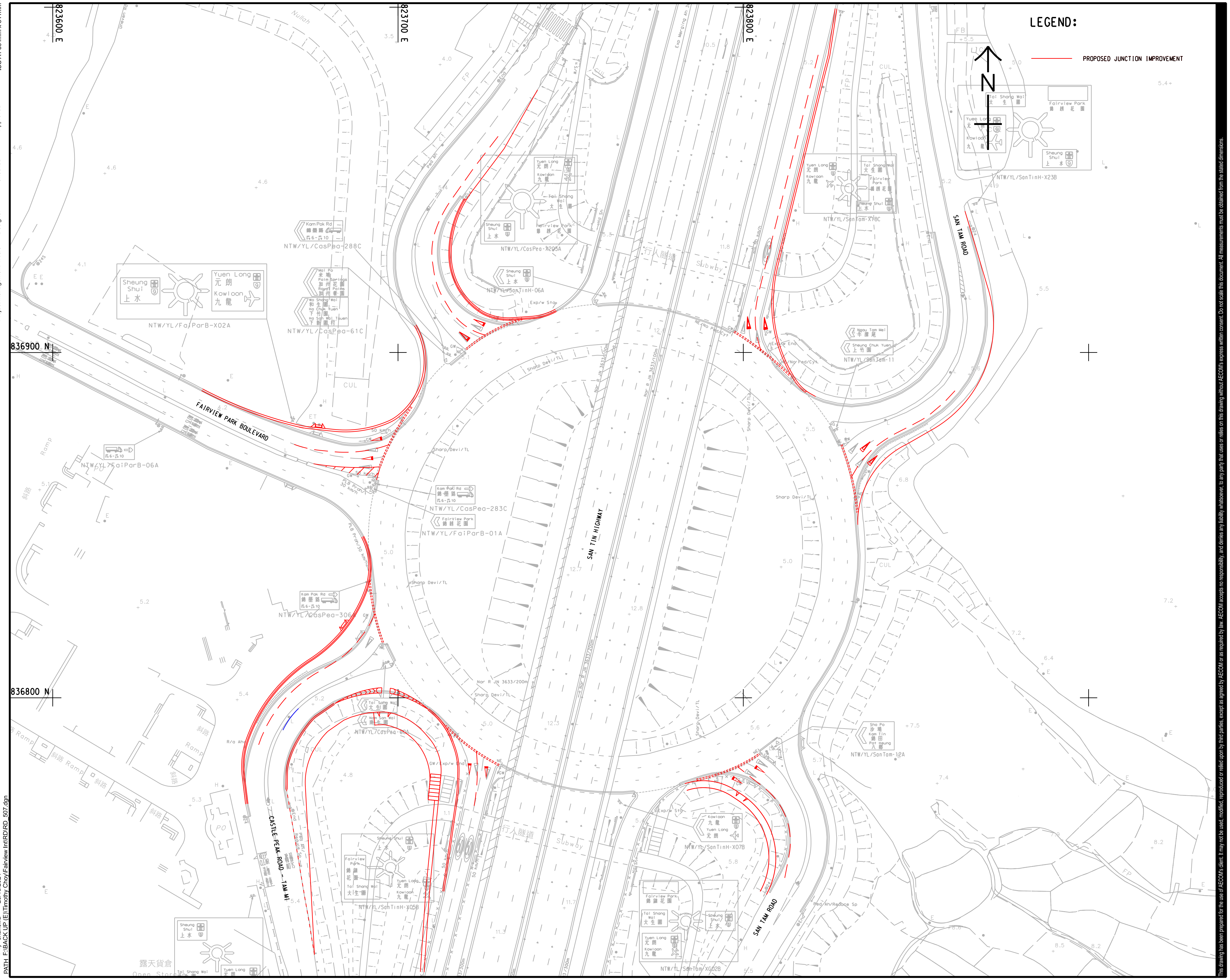
SHEET TITLE 圖紙名稱

PROPOSED IMPROVEMENT LAYOUT FOR FAIRVIEW PARK INTERCHANGE (J1)

SHEET NUMBER 圖紙編號

FIGURE 4.6

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



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S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "REC" SITE, KAM TIN, YUEN LONG

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SCALE 比例 A3 1 : 1000

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60223708

CONTRACT NO. 合約編號

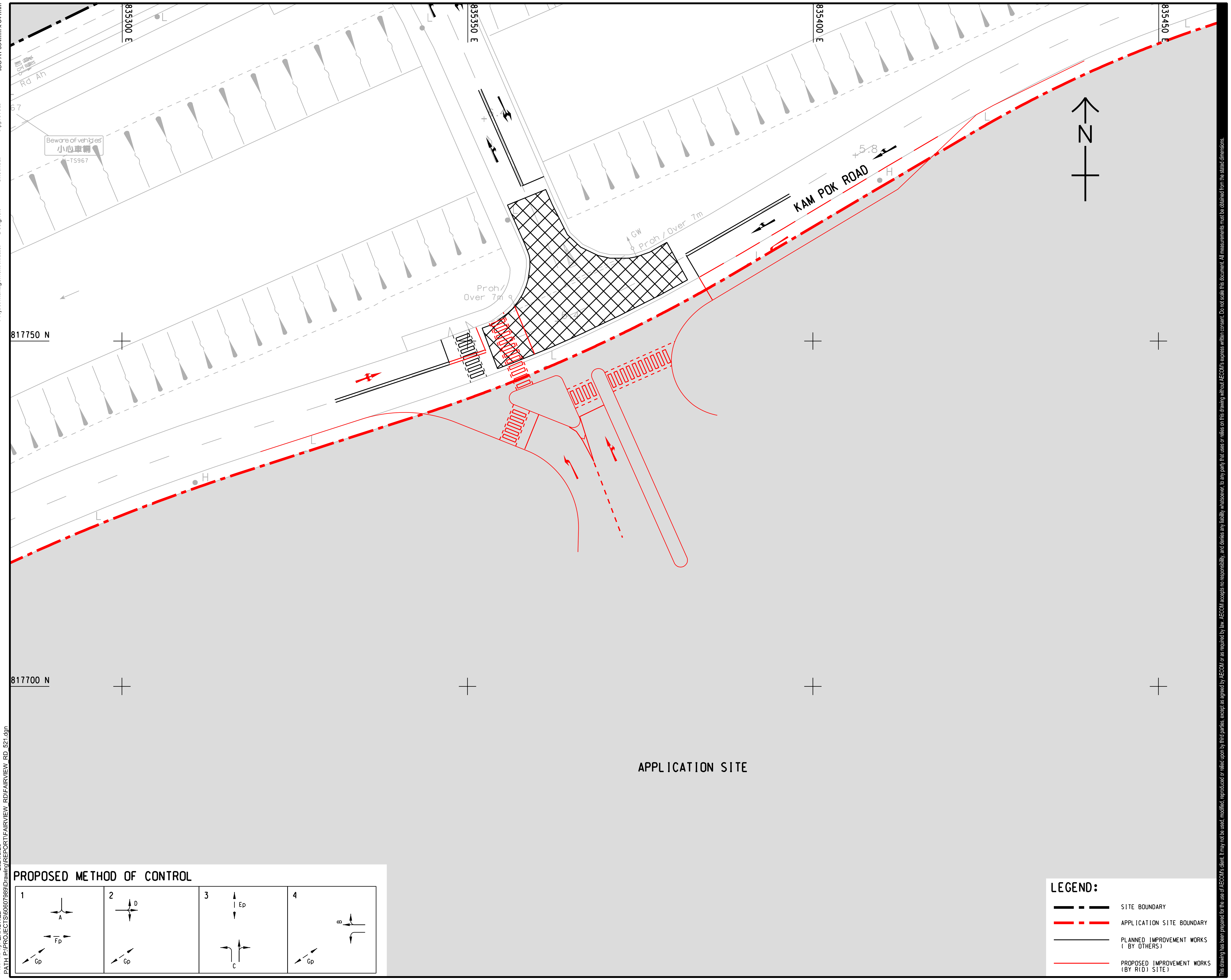
SHEET TITLE 圖紙名稱

PROPOSED IMPROVEMENT LAYOUT FOR FAIRVIEW PARK INTERCHANGE (J1) - WITHOUT SHA PO PUBLIC HOUSING PLANNED IMPROVEMENT

SHEET NUMBER 圖紙編號

FIGURE 4.7

Plot File by: chancwa 23/10/2024
PATH F:\BACK UP (E)\Timothy Choy\Fairview Int\RD\RD_507.dgn



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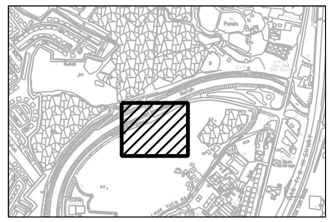
SCALE	DIMENSION UNIT
A3 1 : 500	METRES

KEY PLAN A3 1 : 20000



PROJECT NO.	CONTRACT NO.
60607989	

SHEET TITLE

PROPOSED JUNCTION IMPROVEMENT OF J11 - YAU POK ROAD / VEHICULAR BRIDGE - NORTH R(D) SITE ACCESS

SHEET NUMBER

FIGURE 4.8

ISO A1 594mm x 841mm
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Designer:
Project Management Initials:

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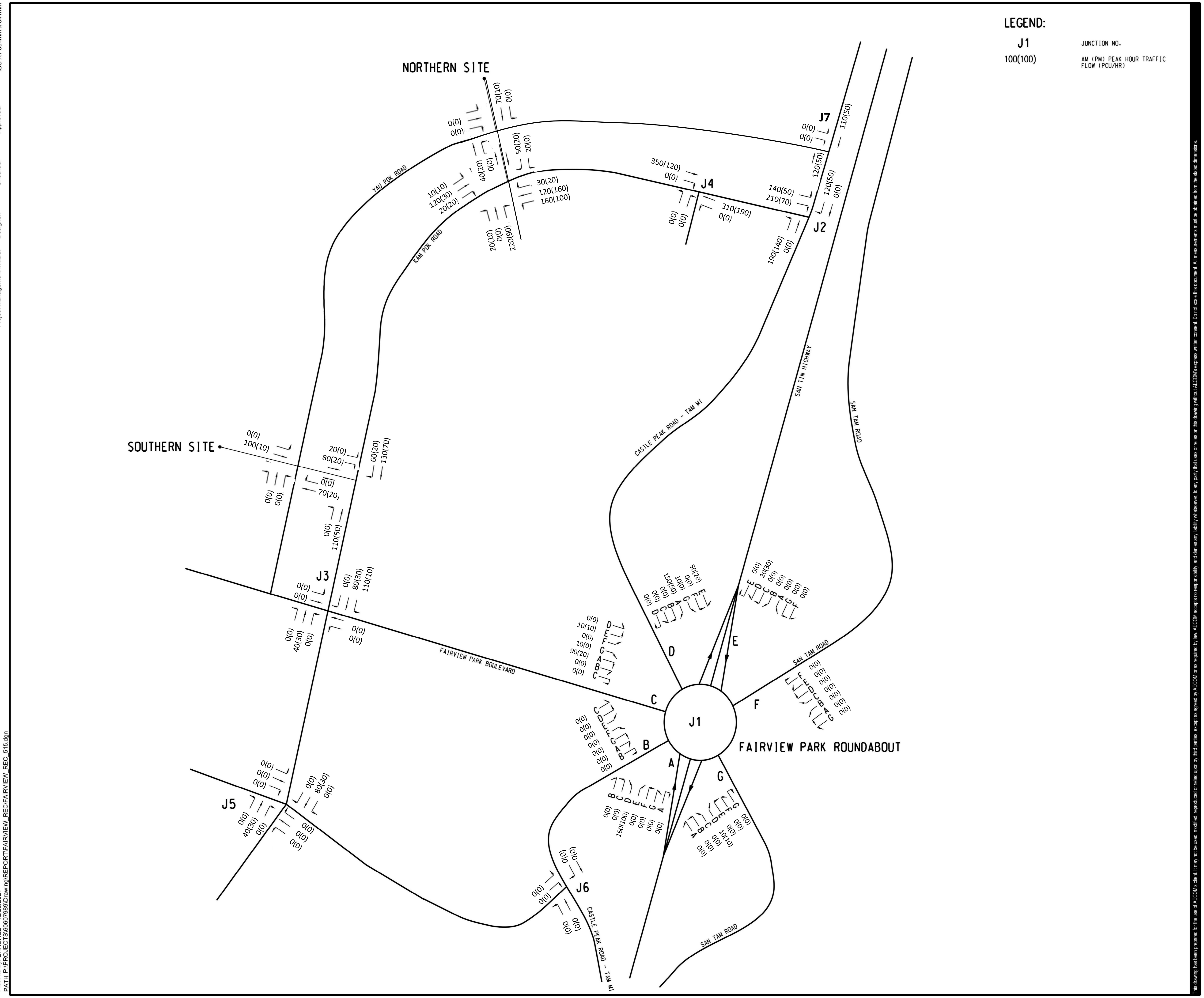

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SCALE N.T.S.

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60607989

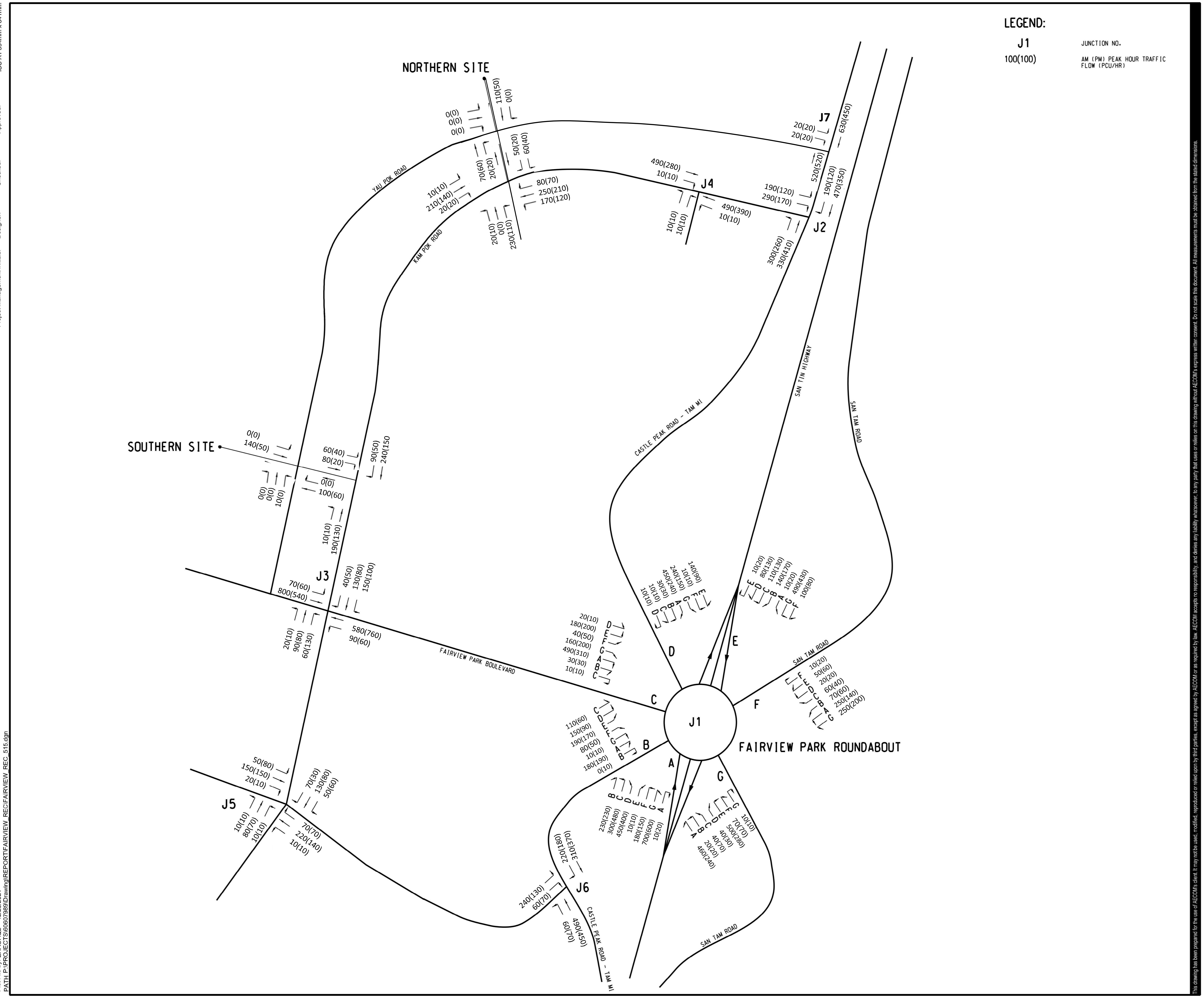
CONTRACT NO.

SHEET TITLE

SITE DEVELOPMENT TRAFFIC FLOWS (NET INCREASE) - SENSITIVITY TEST (I)

SHEET NUMBER

FIGURE 4.9



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STATUS

SCALE N.T.S.

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60607989

CONTRACT NO.

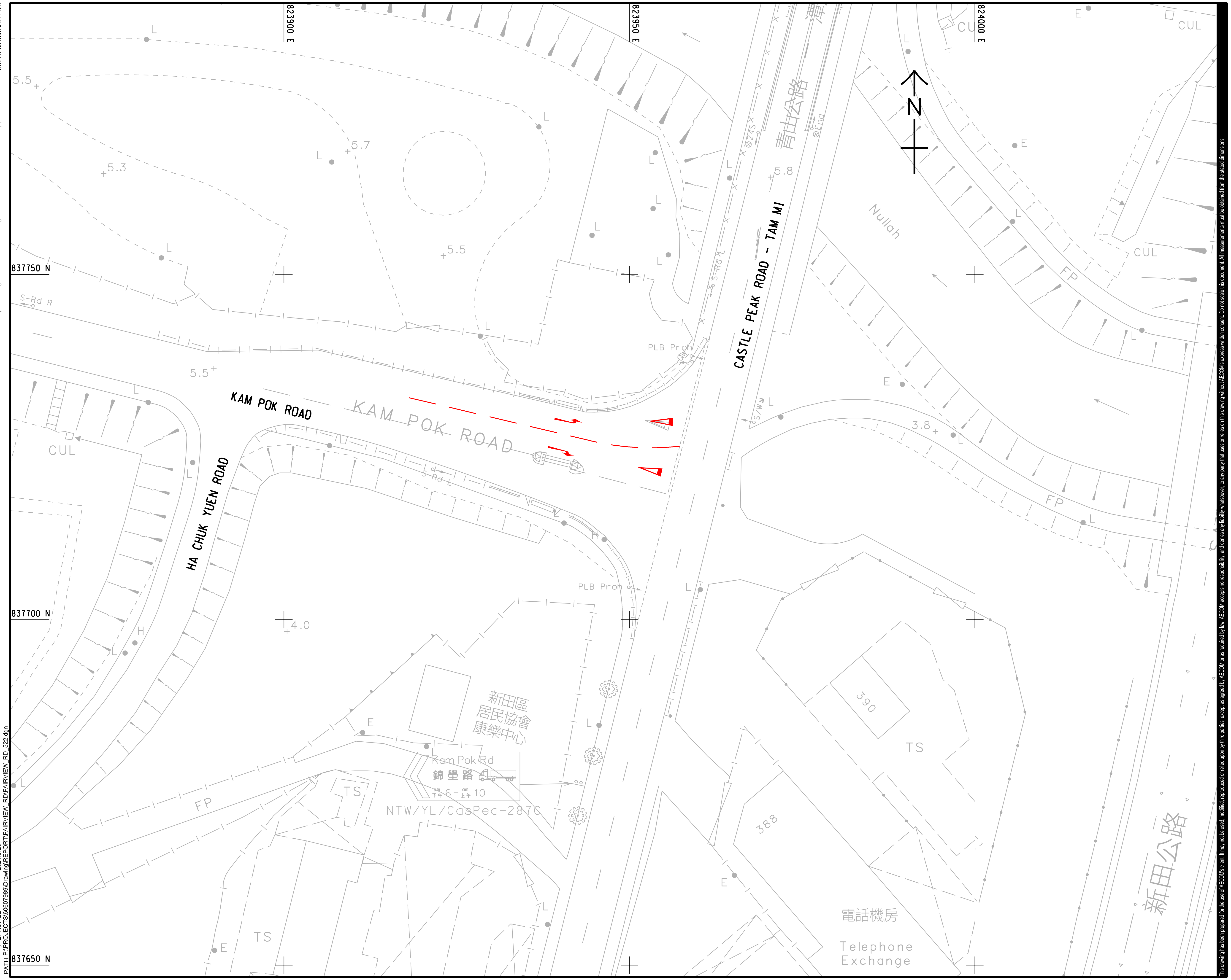
SHEET TITLE

2034 DESIGN TRAFFIC FLOWS (SENSITIVITY TEST I)

SHEET NUMBER

FIGURE 4.10

ISO A1 594mm x 841mm
Approved: Checked: Designer: Project Management Initials:
Plot File by: ZHAOHO2 12/28/2021
PATH: P:\PROJECTS\60607989\Drawing\REPORT\FAIRVIEW_REC\FAIRVIEW_REC_515.dgn



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STATUS

SCALE

A3 1 : 500

DIMENSION UNIT

METRES

KEY PLAN

PROJECT NO.

60607989

CONTRACT NO.

SHEET TITLE

PROPOSED IMPROVEMENT LAYOUT FOR CASTLE PEAK ROAD - TAM MI/ KAM POK ROAD (J2)

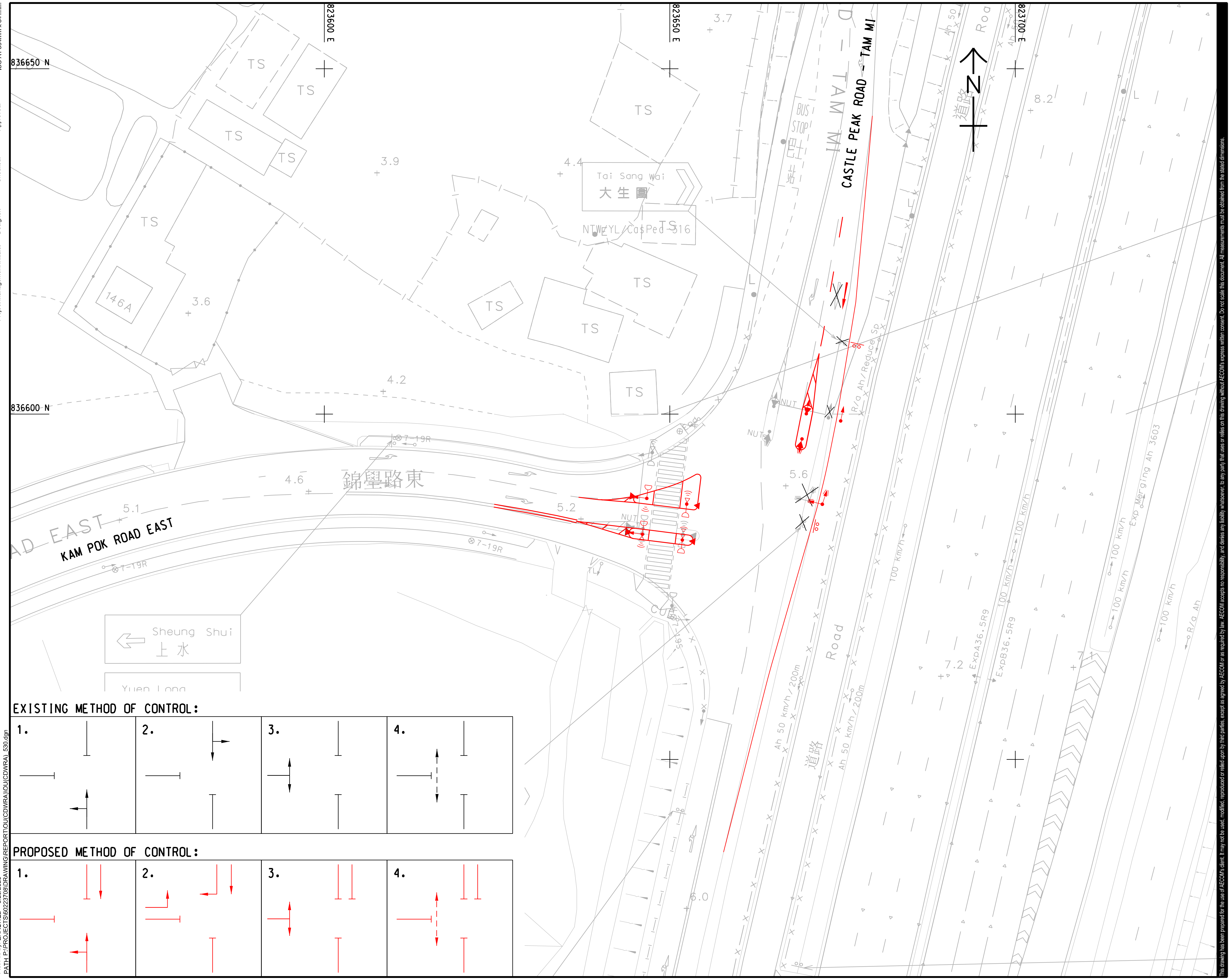
- UNDER SENSITIVITY TEST (I)

SHEET NUMBER

FIGURE 4.11

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

V:\BAK\US95-BAK\CSWP\plotdrv\Create Plt file\new\CSWP-75(color).plt
Plot File by: ZHAOHQ2 2024/9/20
PATH P:\PROJECTS\60607989\Drawing\REPORT\FAIRVIEW RD\FAIRVIEW_RD_522.dgn



AECOM

PROJECT 項目

S. 12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

CLIENT 業主

CONSULTANT 工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS 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	**CONTRACT NO.** 合約編號
60223708	

SHEET TITLE 圖紙名稱

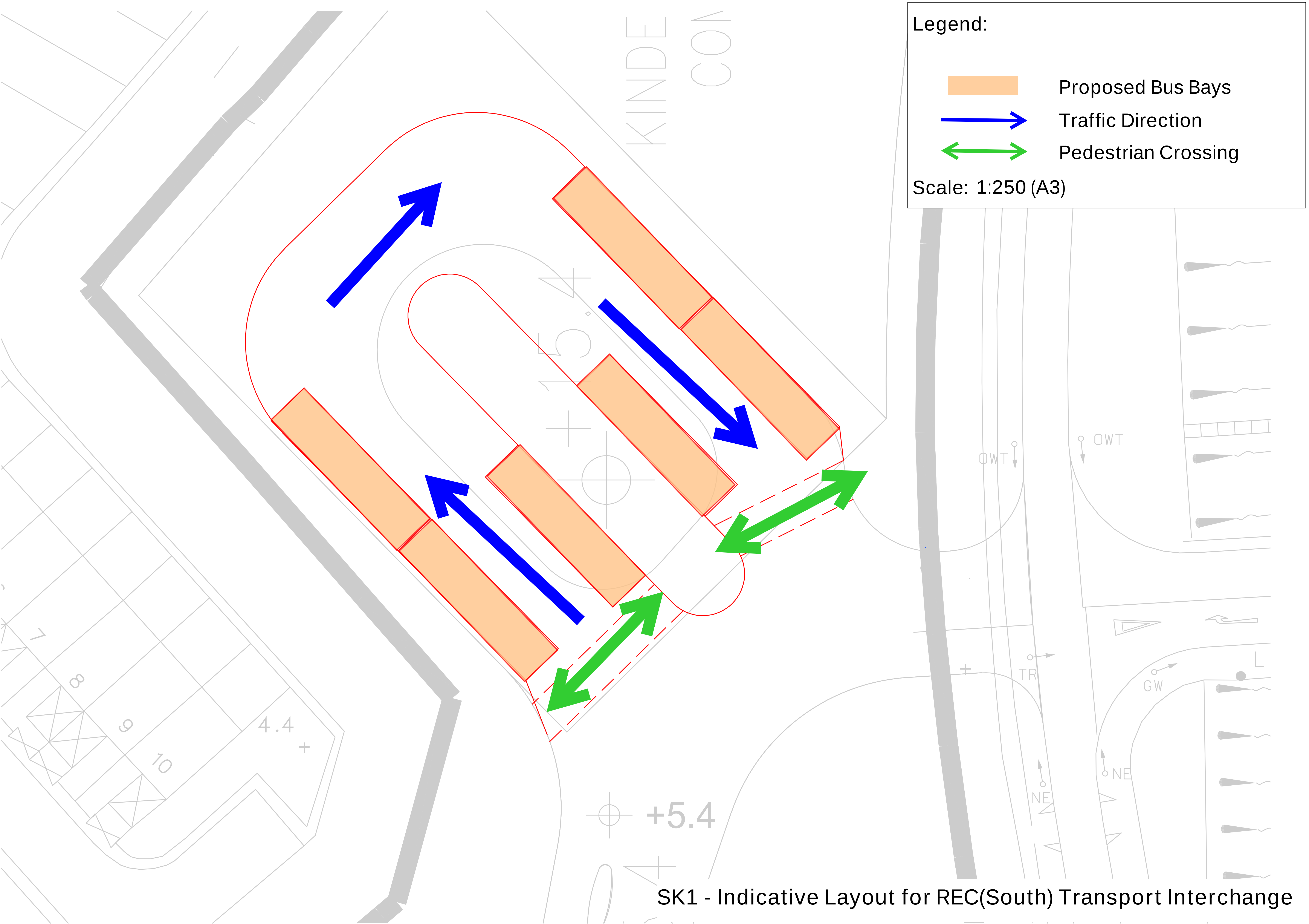
PROPOSED IMPROVEMENT SCHEME FOR JUNCTION OF CASTLE PEAK ROAD - TAM MI / KAM POK ROAD EAST (J6) - UNDER SENSITIVITY TEST (II)

SHEET NUMBER 圖紙編號

FIGURE 4.12

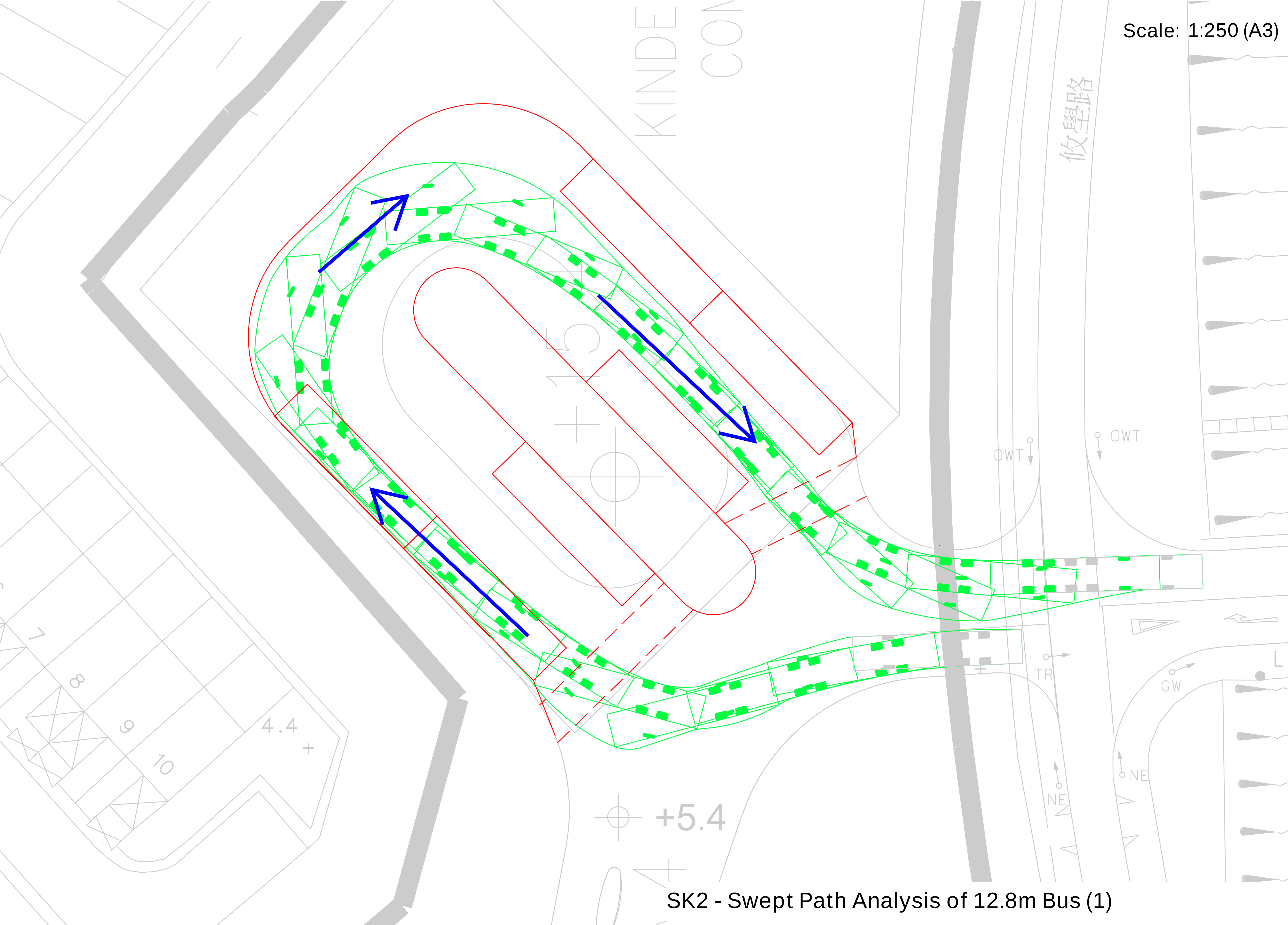
Appendix A

Indicative Layout of Transport Layby and Swept Path Analysis



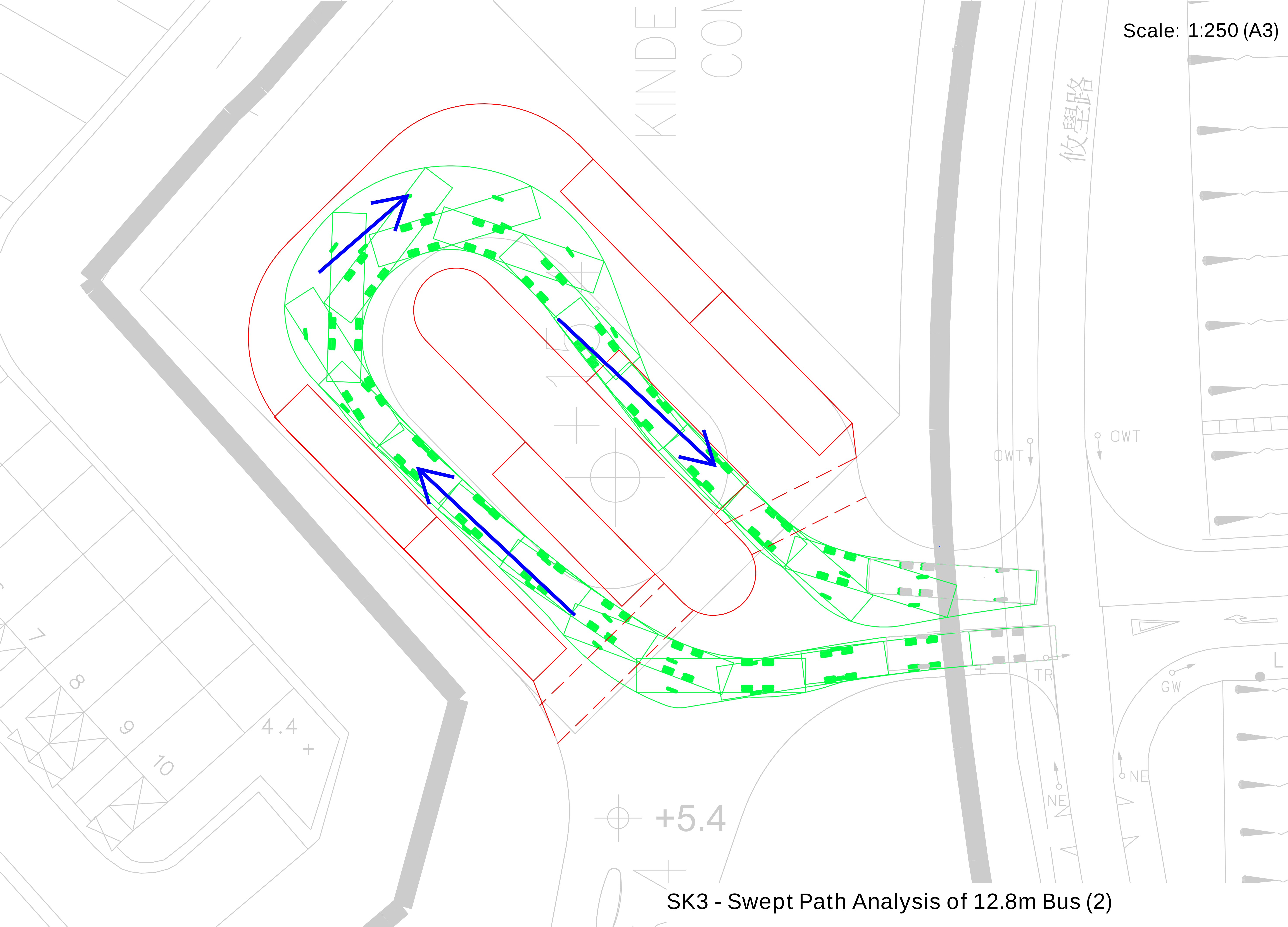
SK1 - Indicative Layout for REC(South) Transport Interchange

Scale: 1:250 (A3)

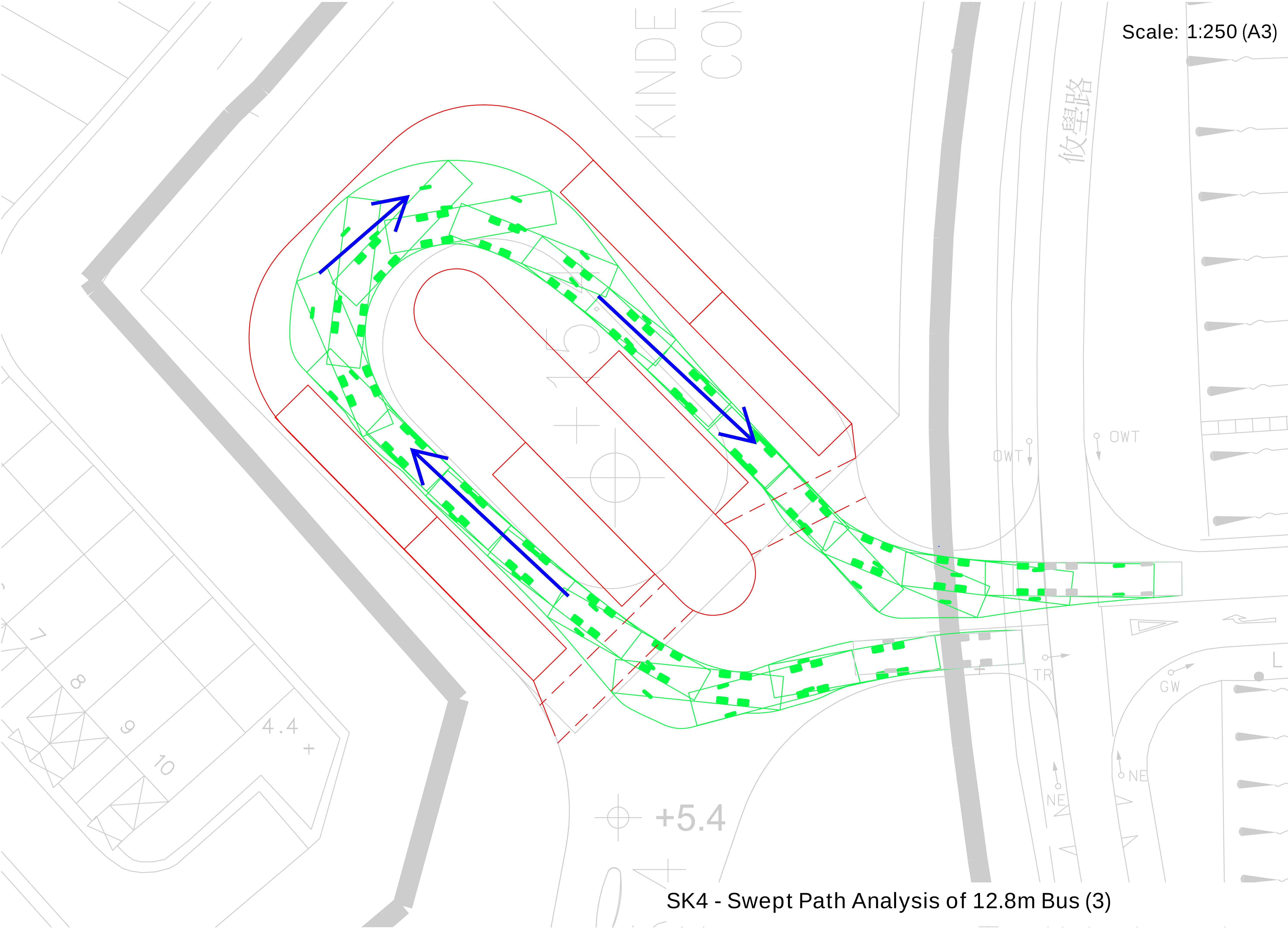


SK2 - Swept Path Analysis of 12.8m Bus (1)

Scale: 1:250 (A3)

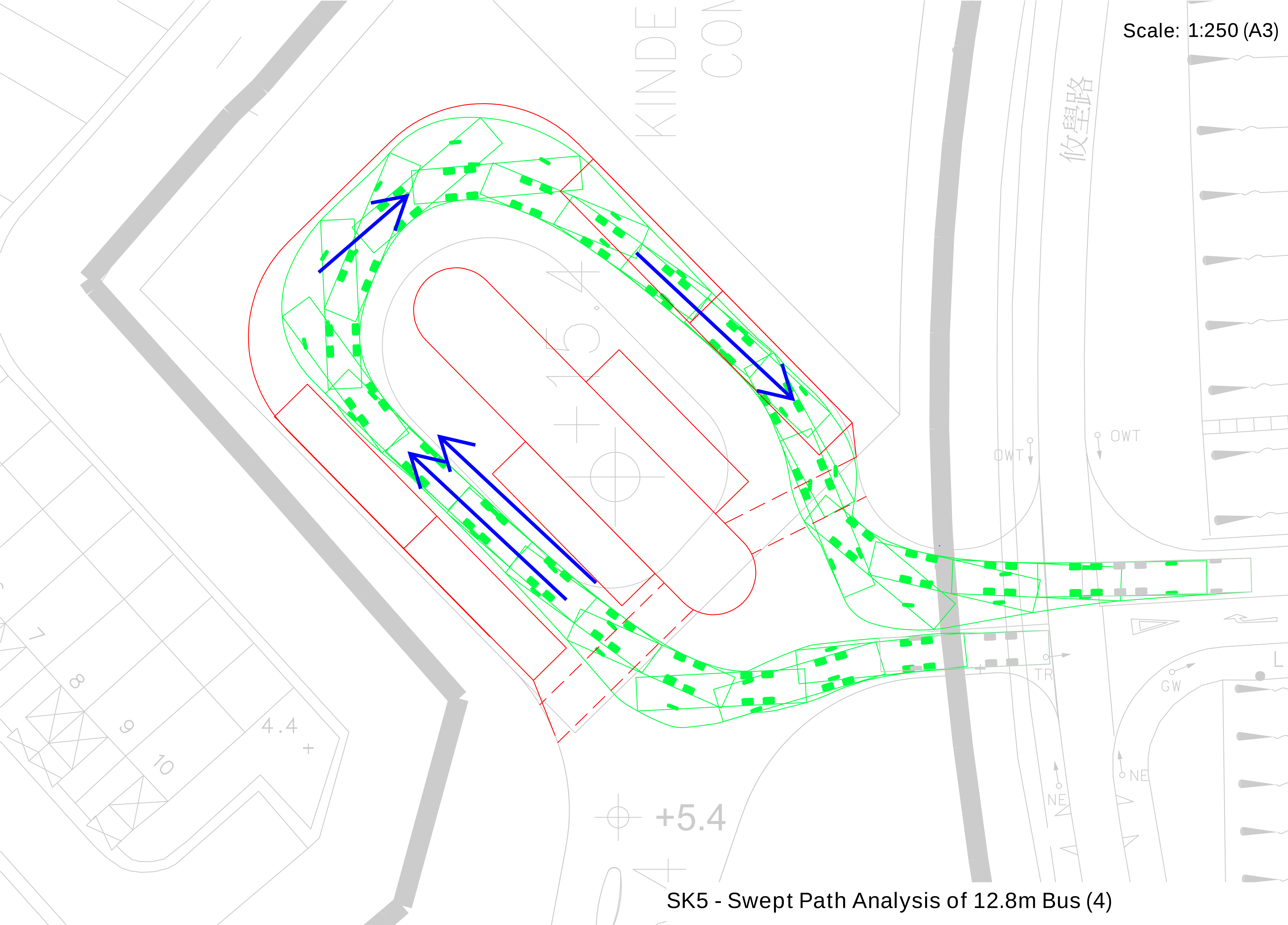


SK3 - Swept Path Analysis of 12.8m Bus (2)



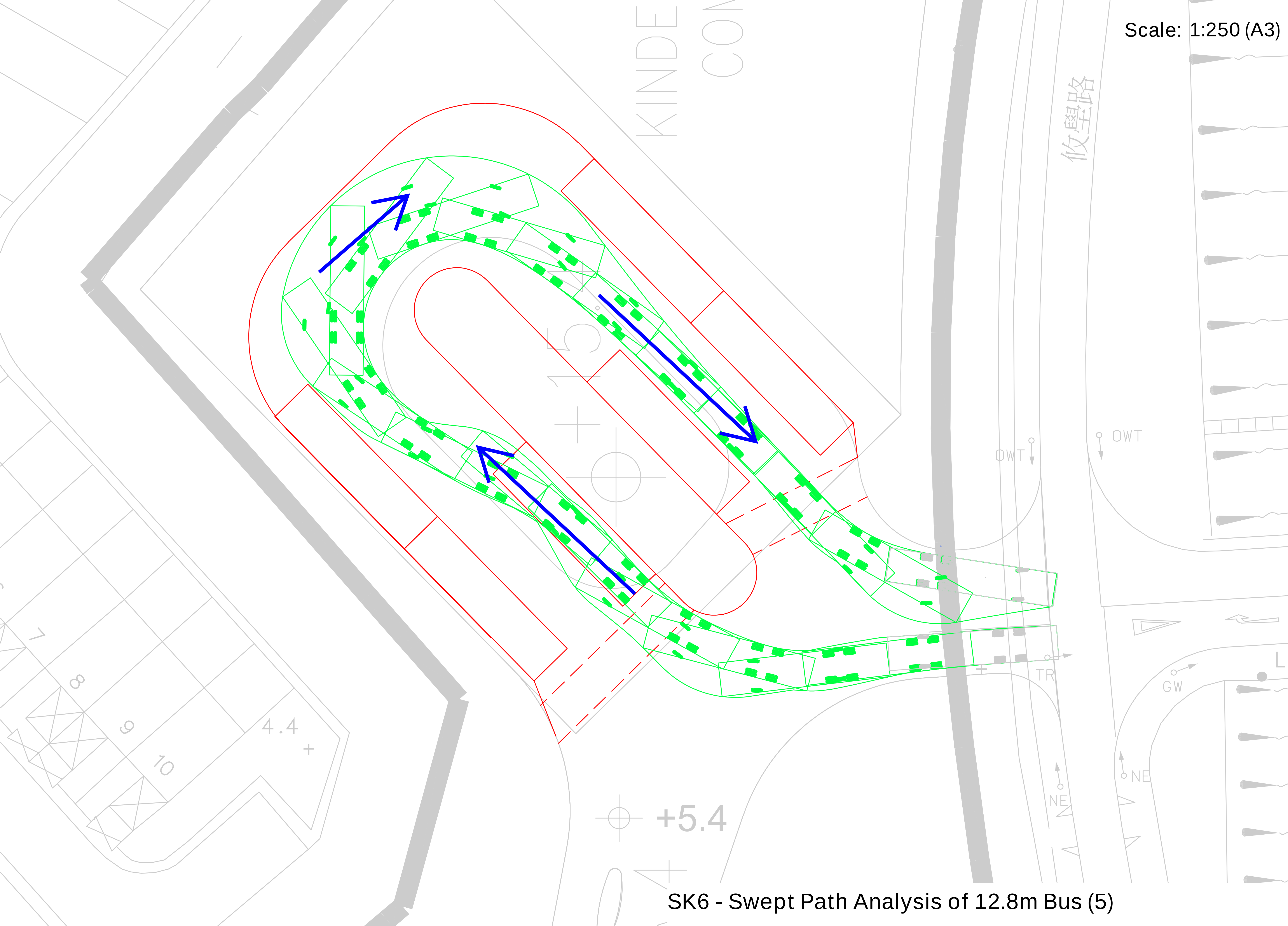
SK4 - Swept Path Analysis of 12.8m Bus (3)

Scale: 1:250 (A3)



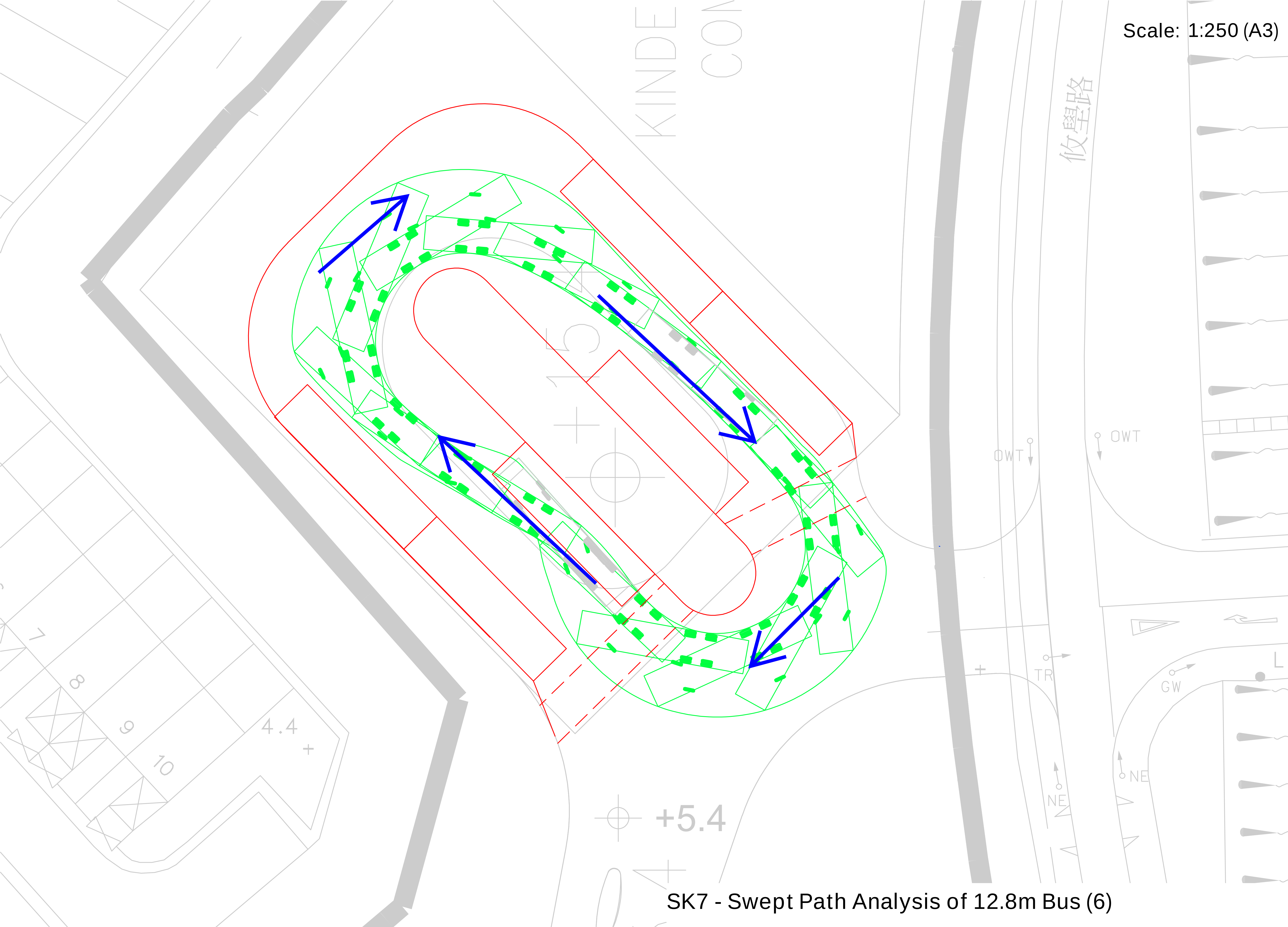
SK5 - Swept Path Analysis of 12.8m Bus (4)

Scale: 1:250 (A3)



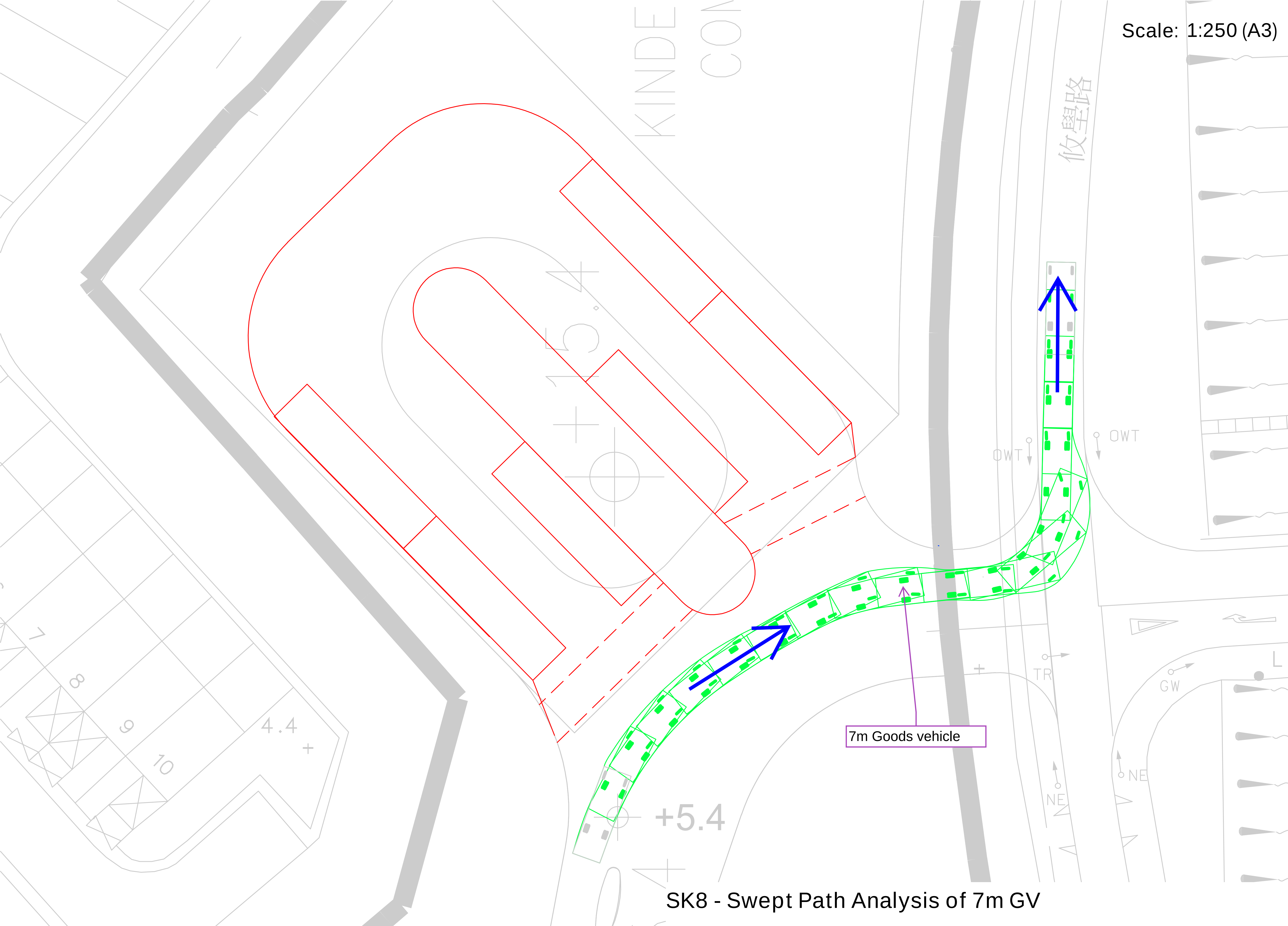
SK6 - Swept Path Analysis of 12.8m Bus (5)

Scale: 1:250 (A3)

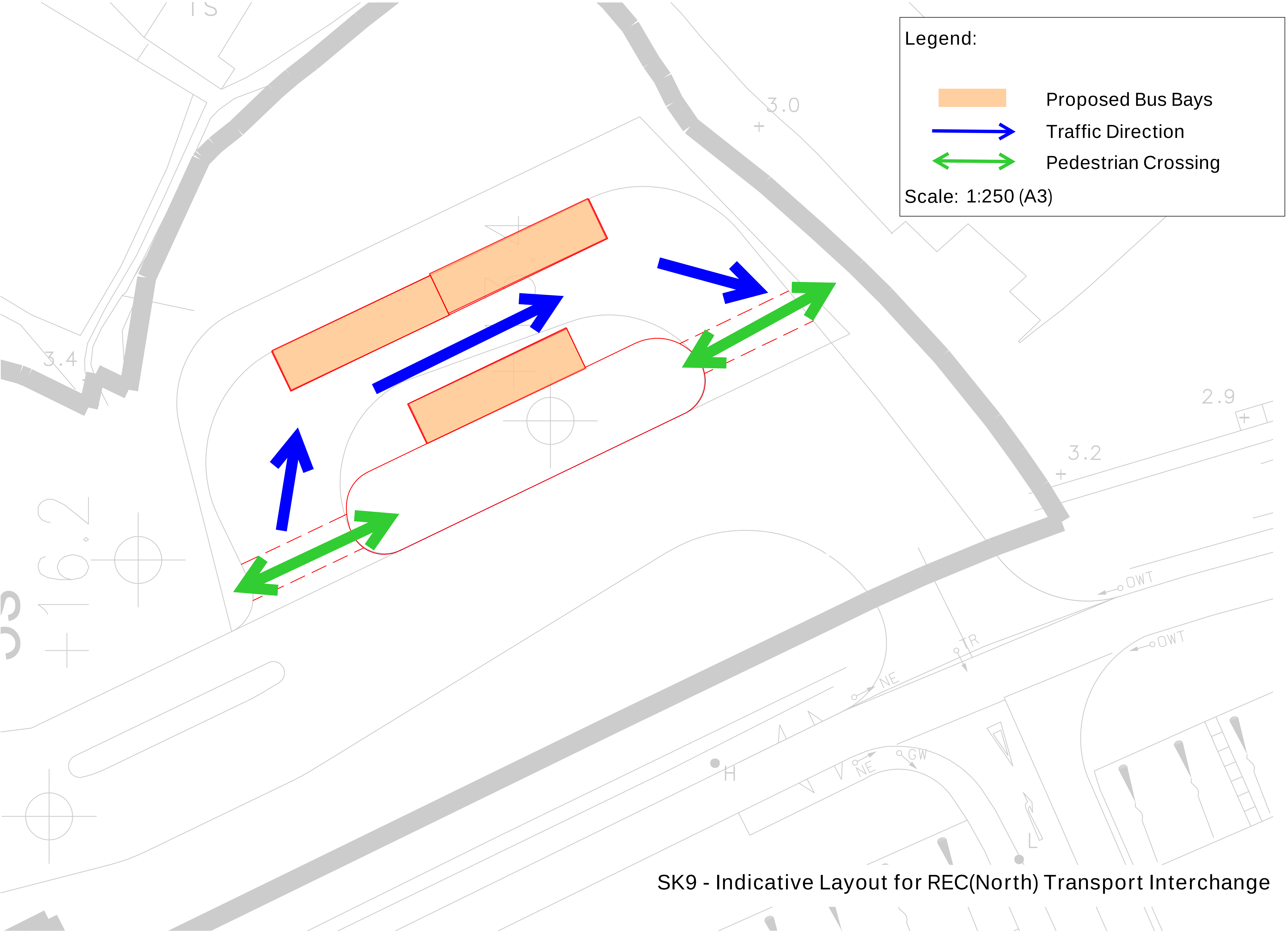


SK7 - Swept Path Analysis of 12.8m Bus (6)

Scale: 1:250 (A3)

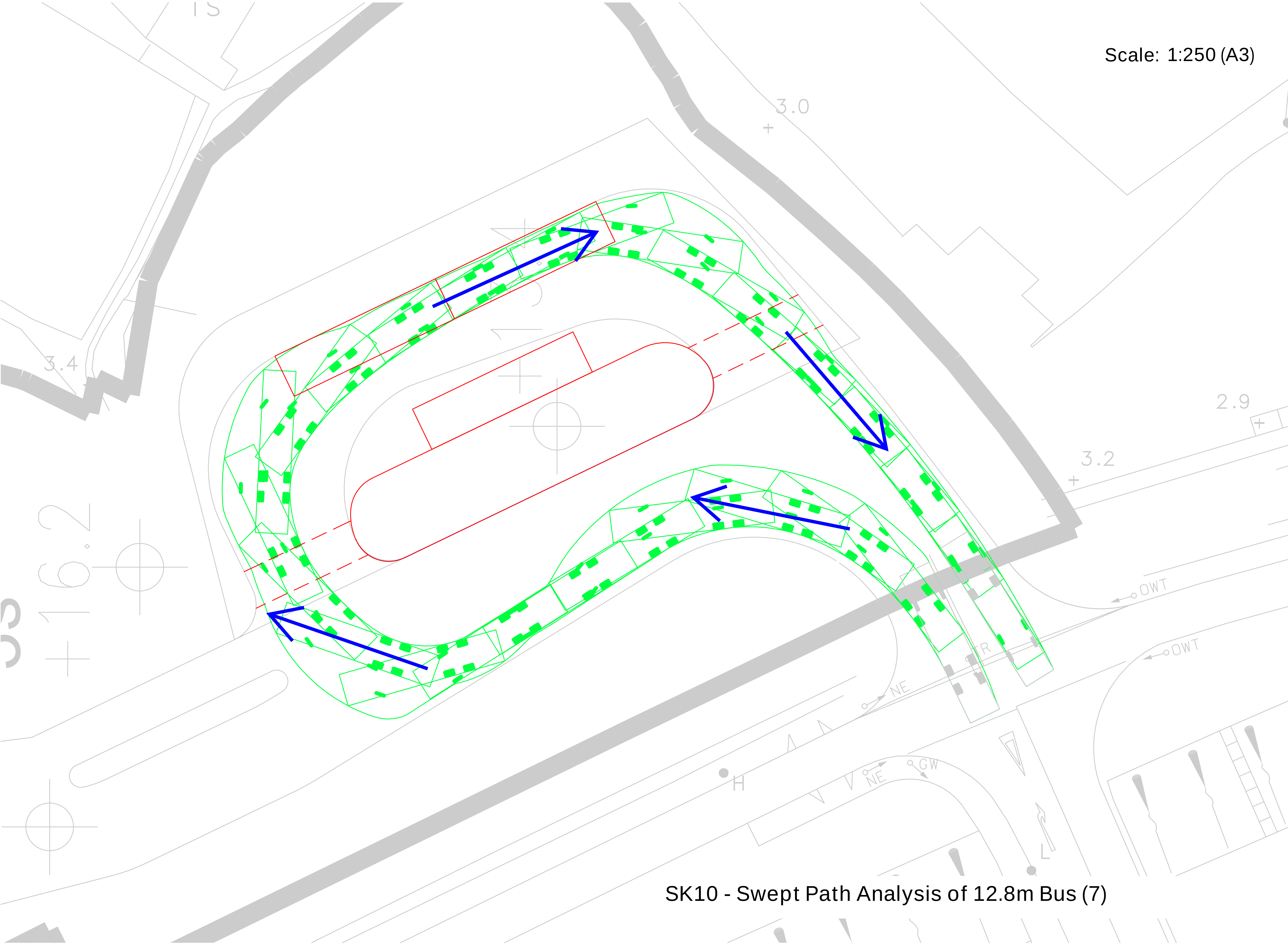


SK8 - Swept Path Analysis of 7m GV



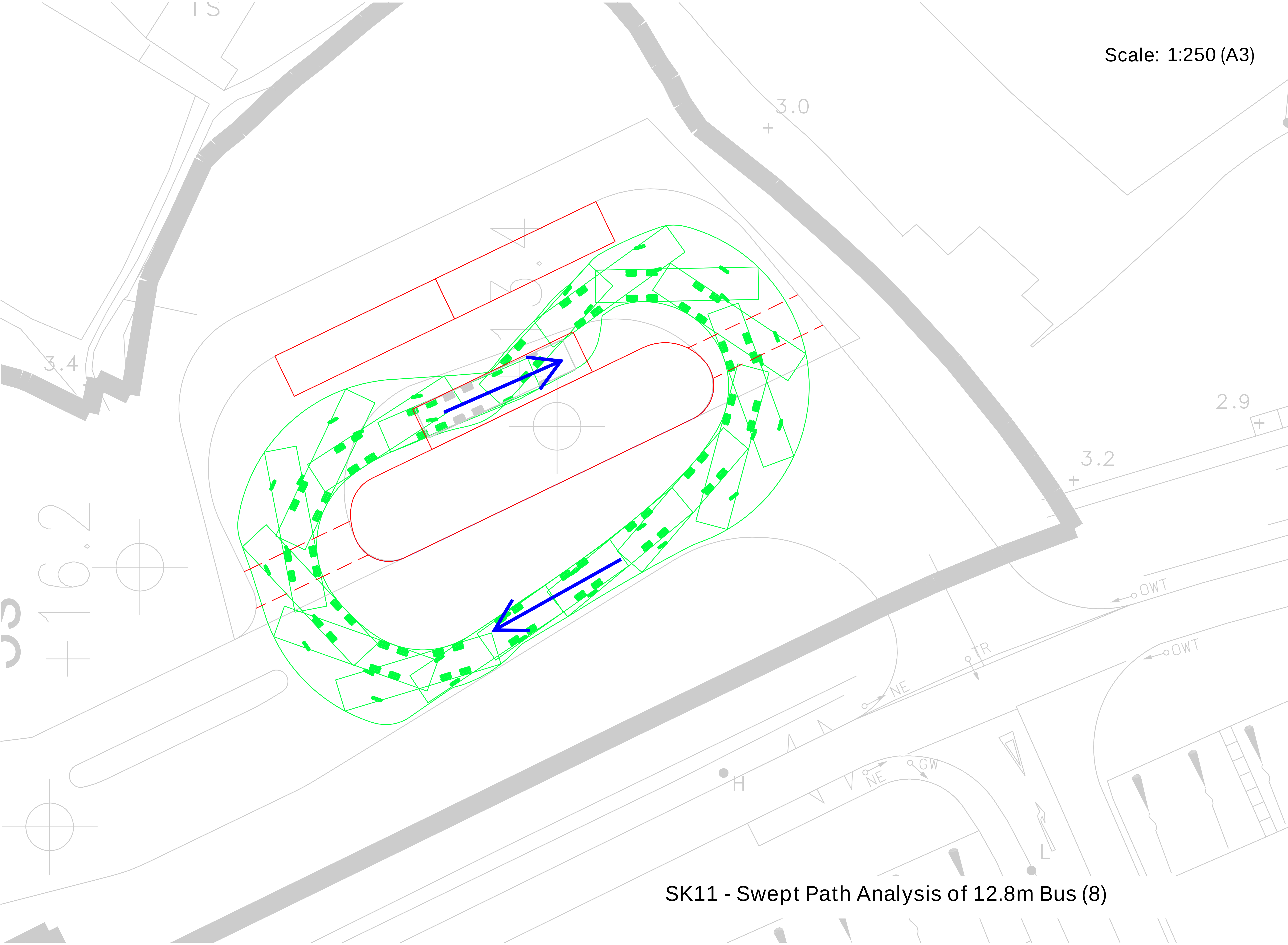
SK9 - Indicative Layout for REC(North) Transport Interchange

Scale: 1:250 (A3)



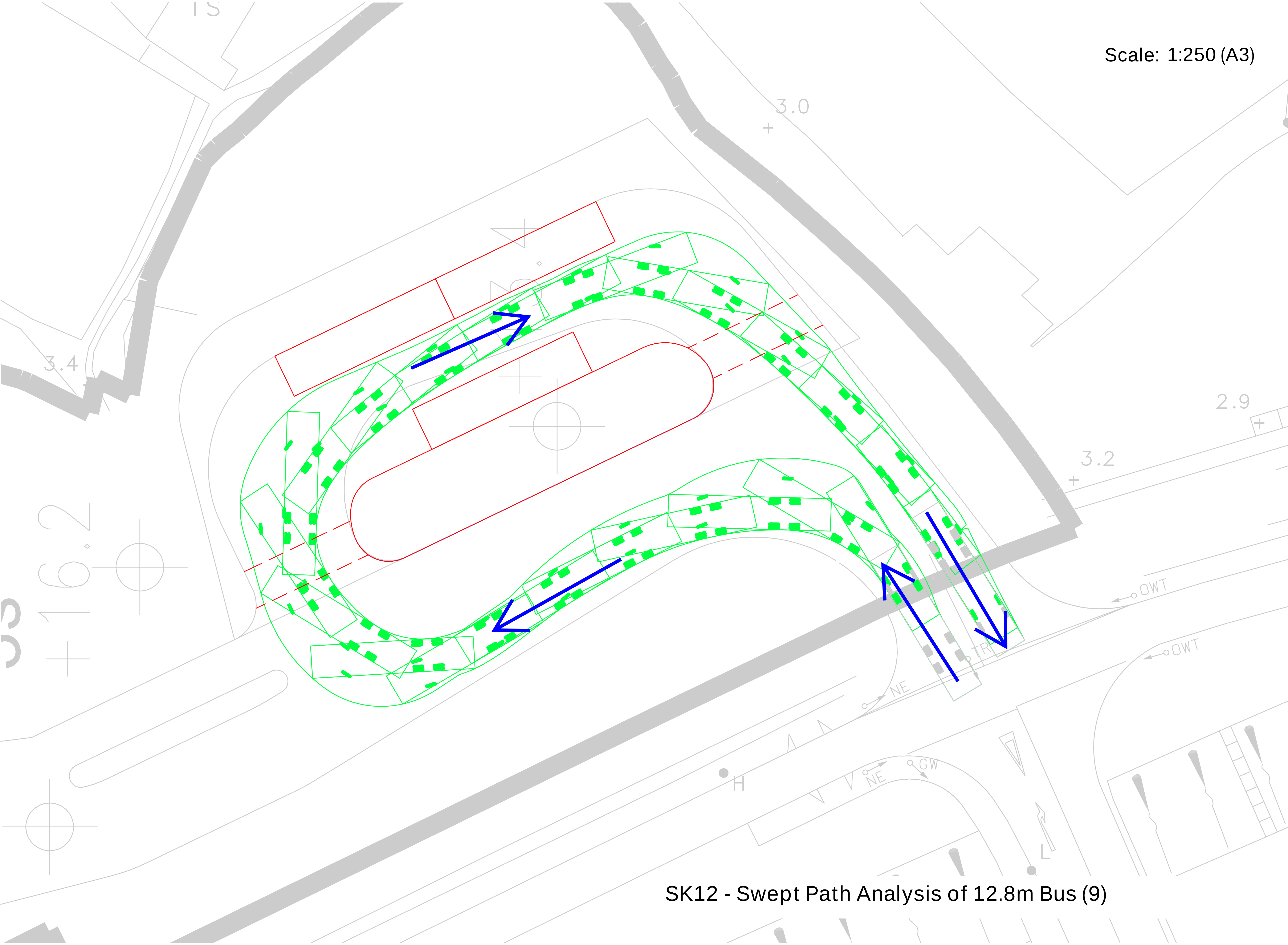
SK10 - Swept Path Analysis of 12.8m Bus (7)

Scale: 1:250 (A3)



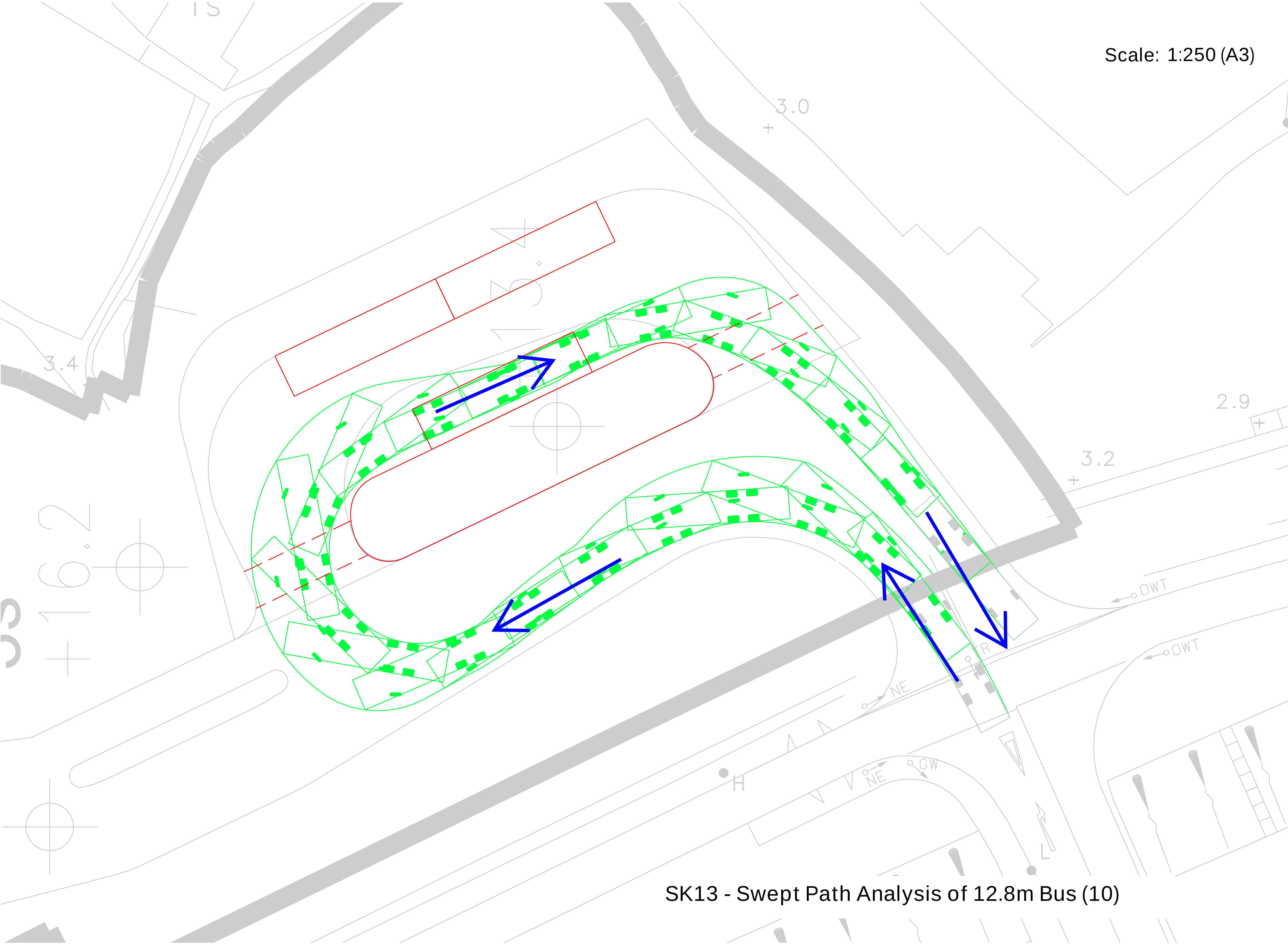
SK11 - Swept Path Analysis of 12.8m Bus (8)

Scale: 1:250 (A3)



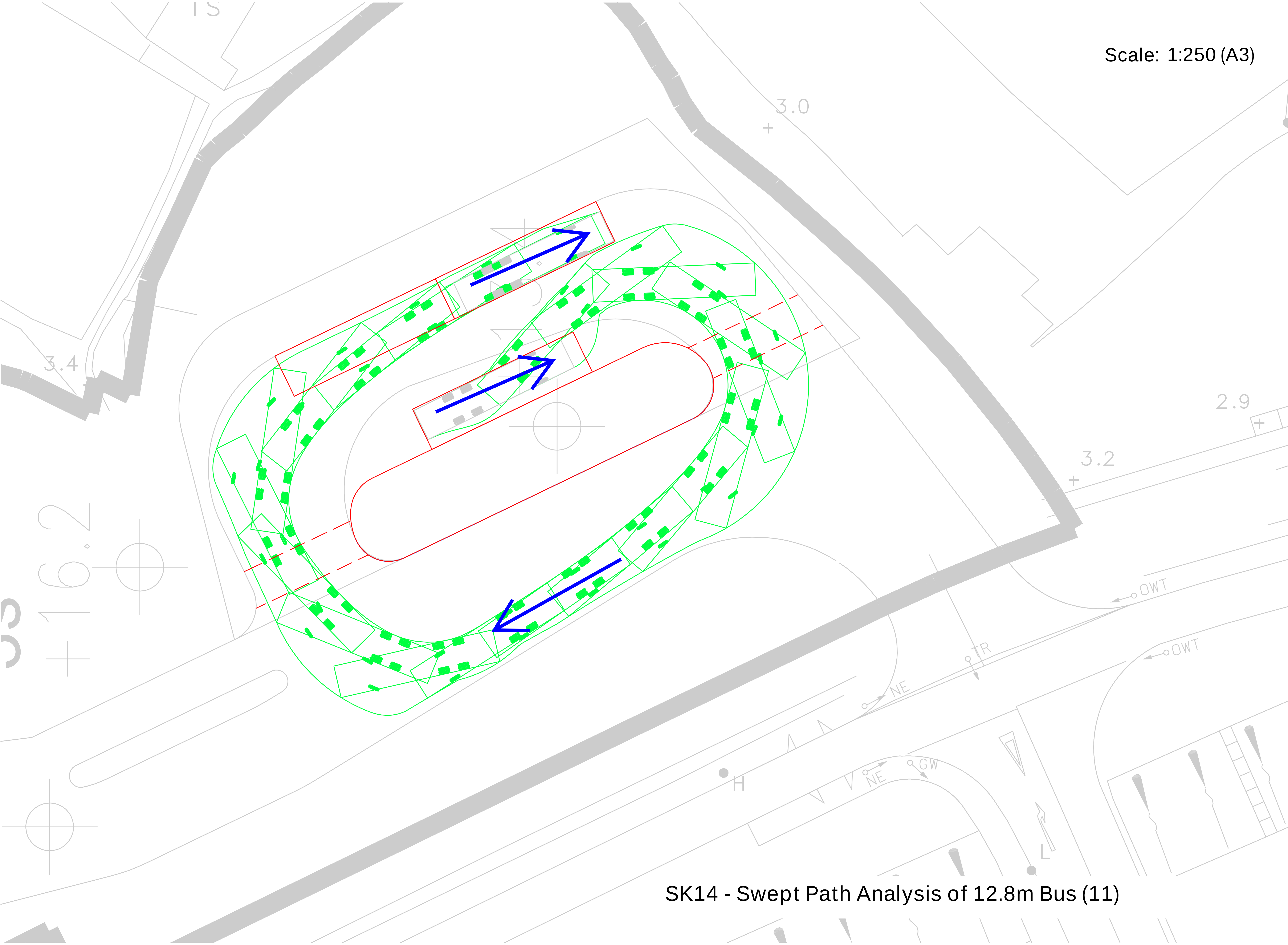
SK12 - Swept Path Analysis of 12.8m Bus (9)

Scale: 1:250 (A3)



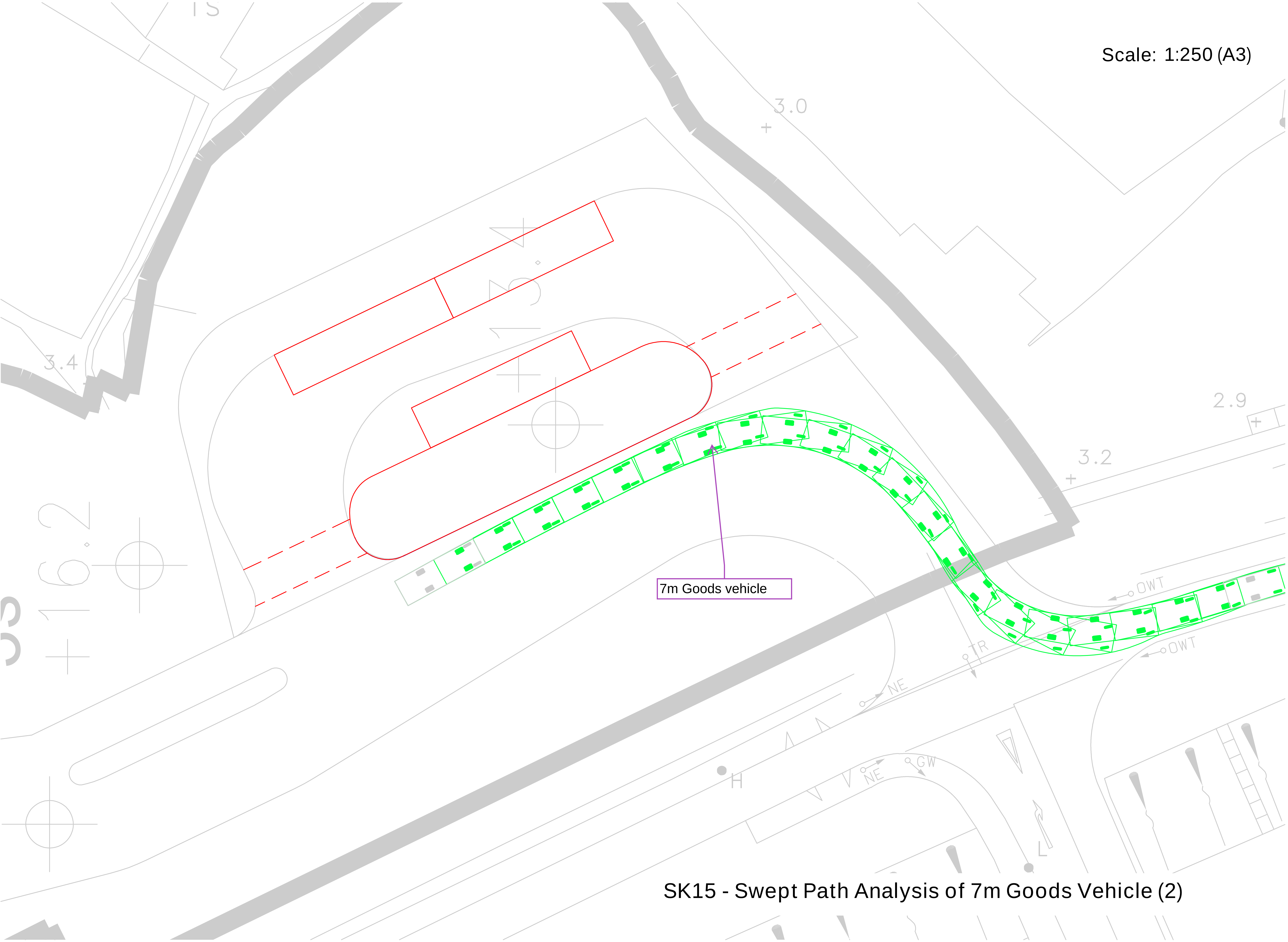
SK13 - Swept Path Analysis of 12.8m Bus (10)

Scale: 1:250 (A3)

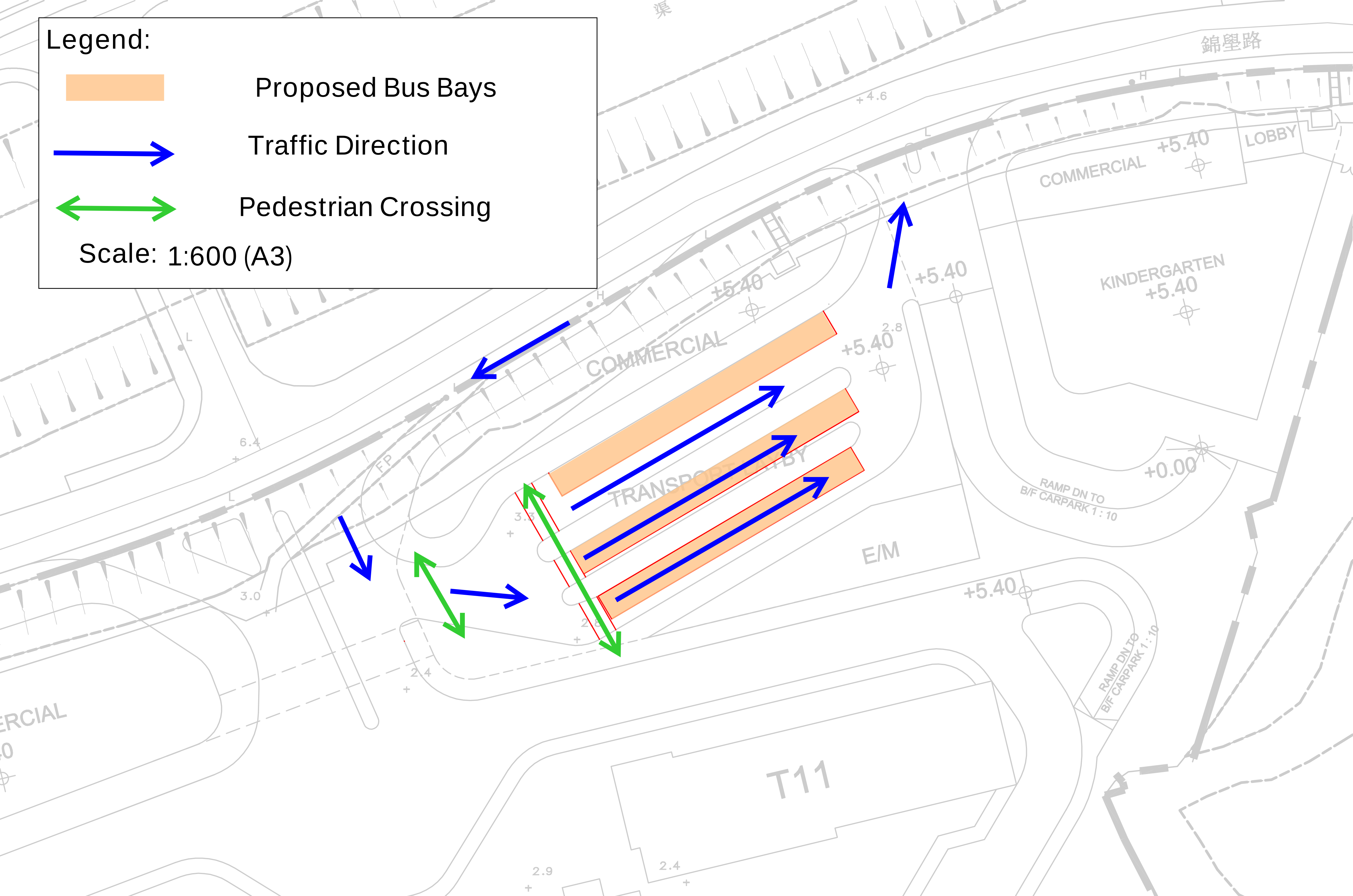


SK14 - Swept Path Analysis of 12.8m Bus (11)

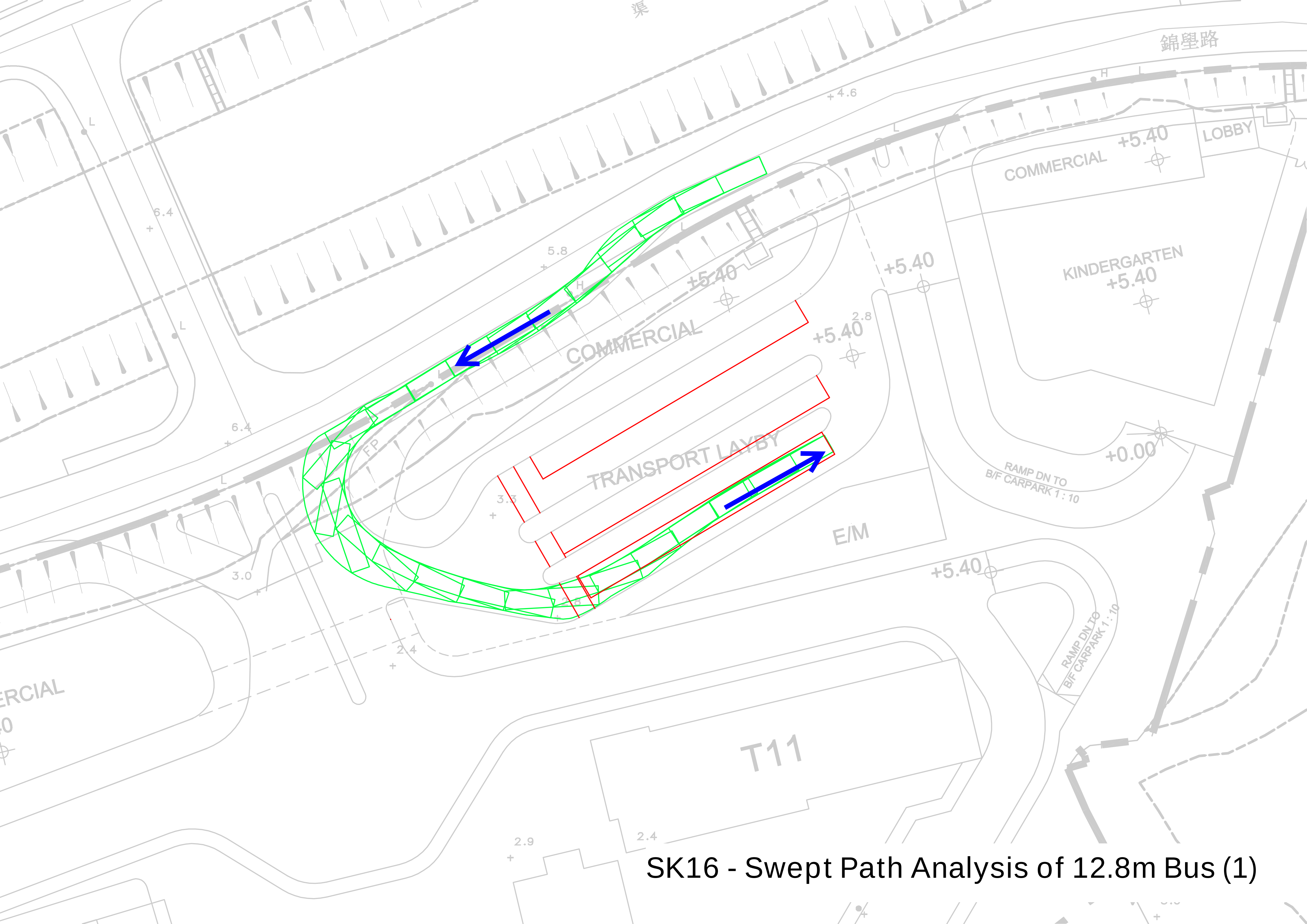
Scale: 1:250 (A3)



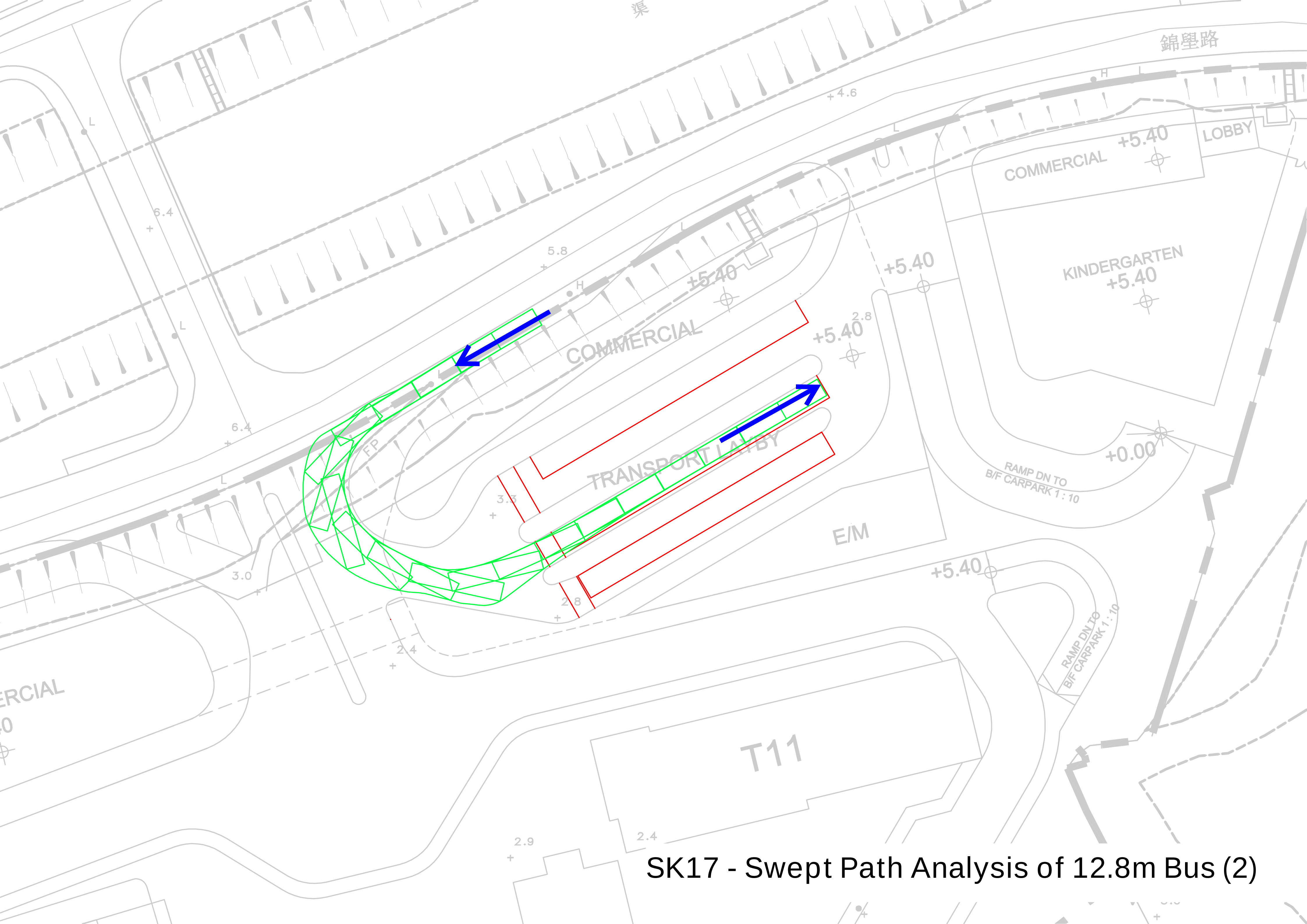
SK15 - Swept Path Analysis of 7m Goods Vehicle (2)



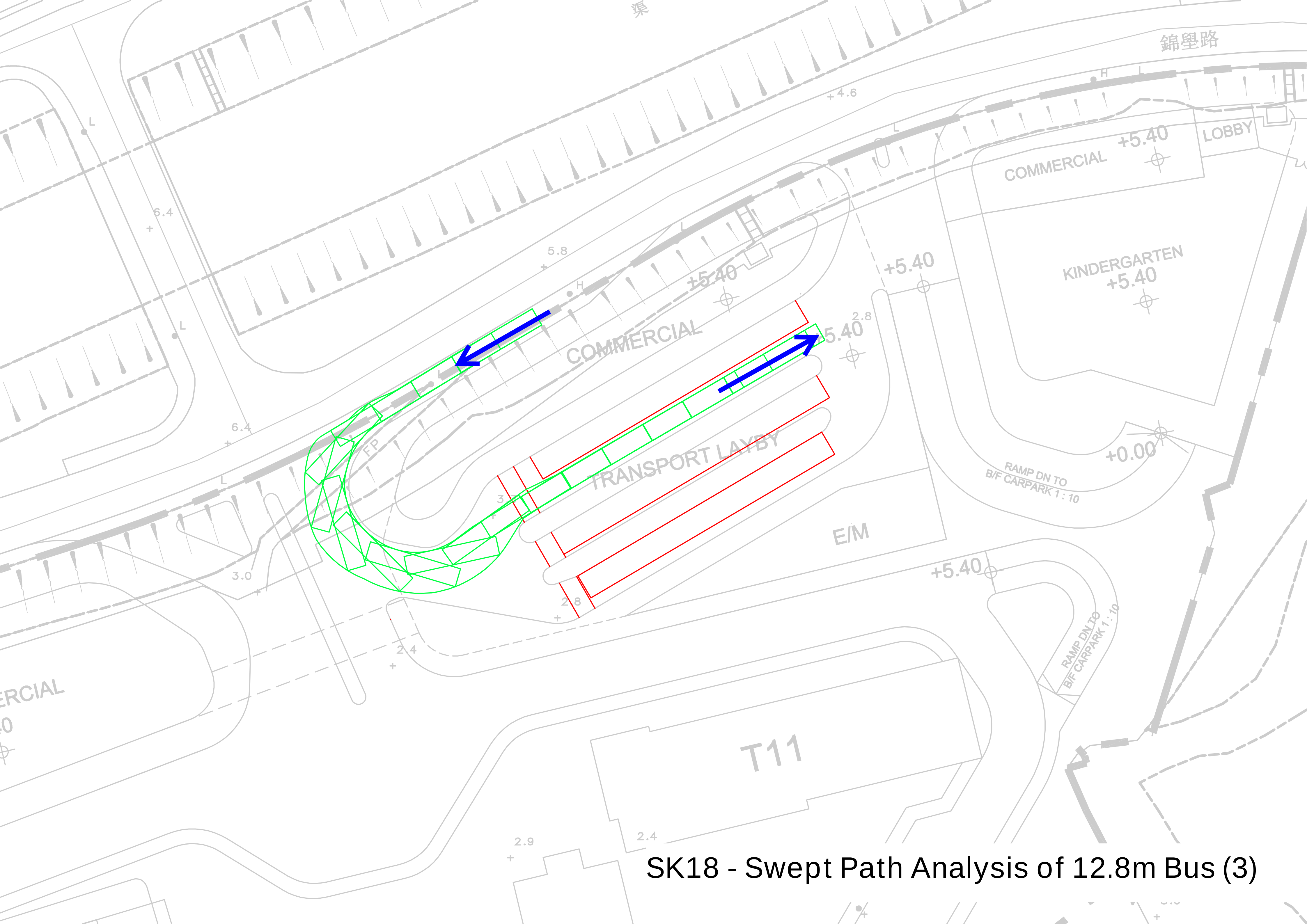
SK16 - Indicative Layout for R(D) Transport Interchange



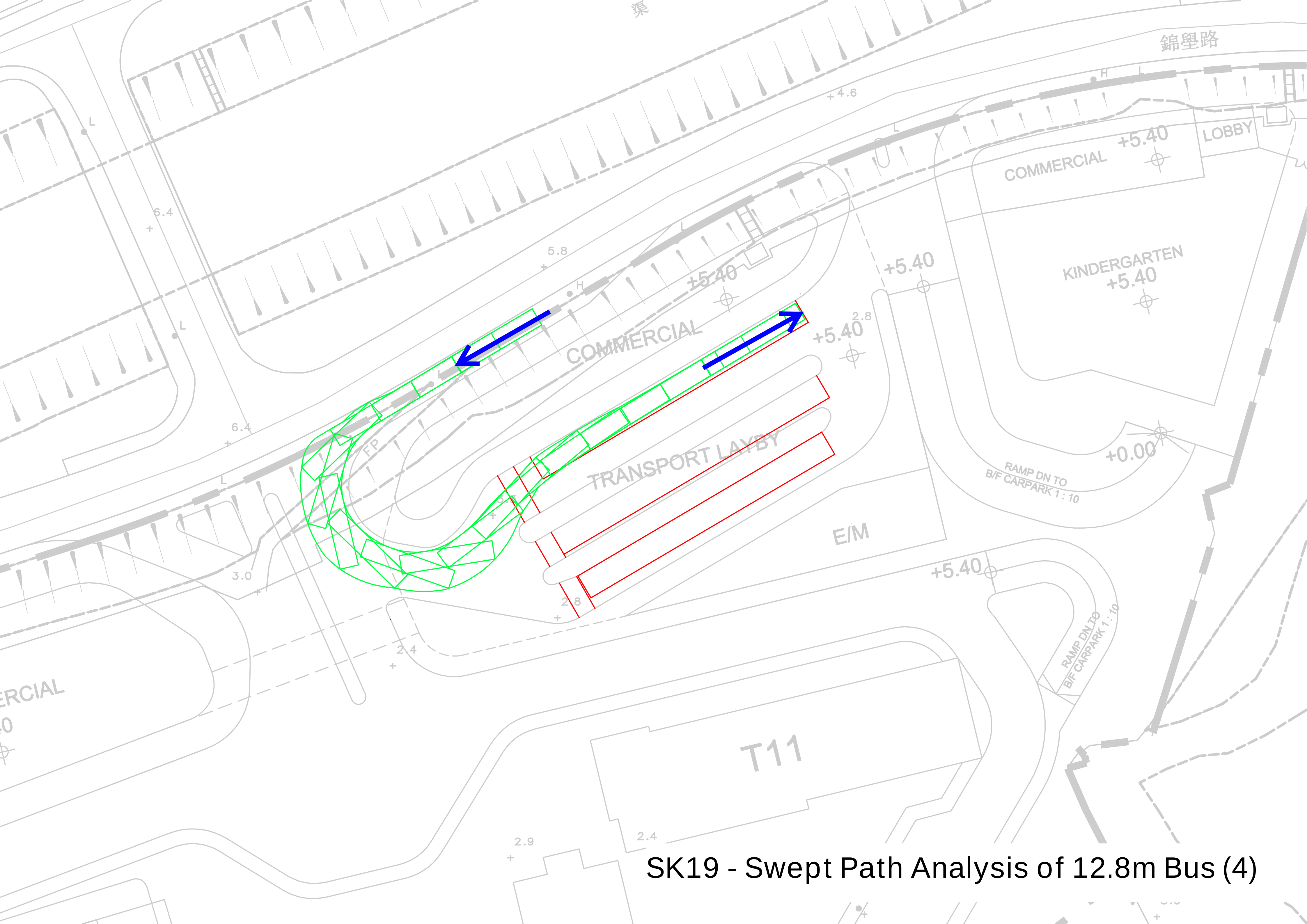
SK16 - Swept Path Analysis of 12.8m Bus (1)



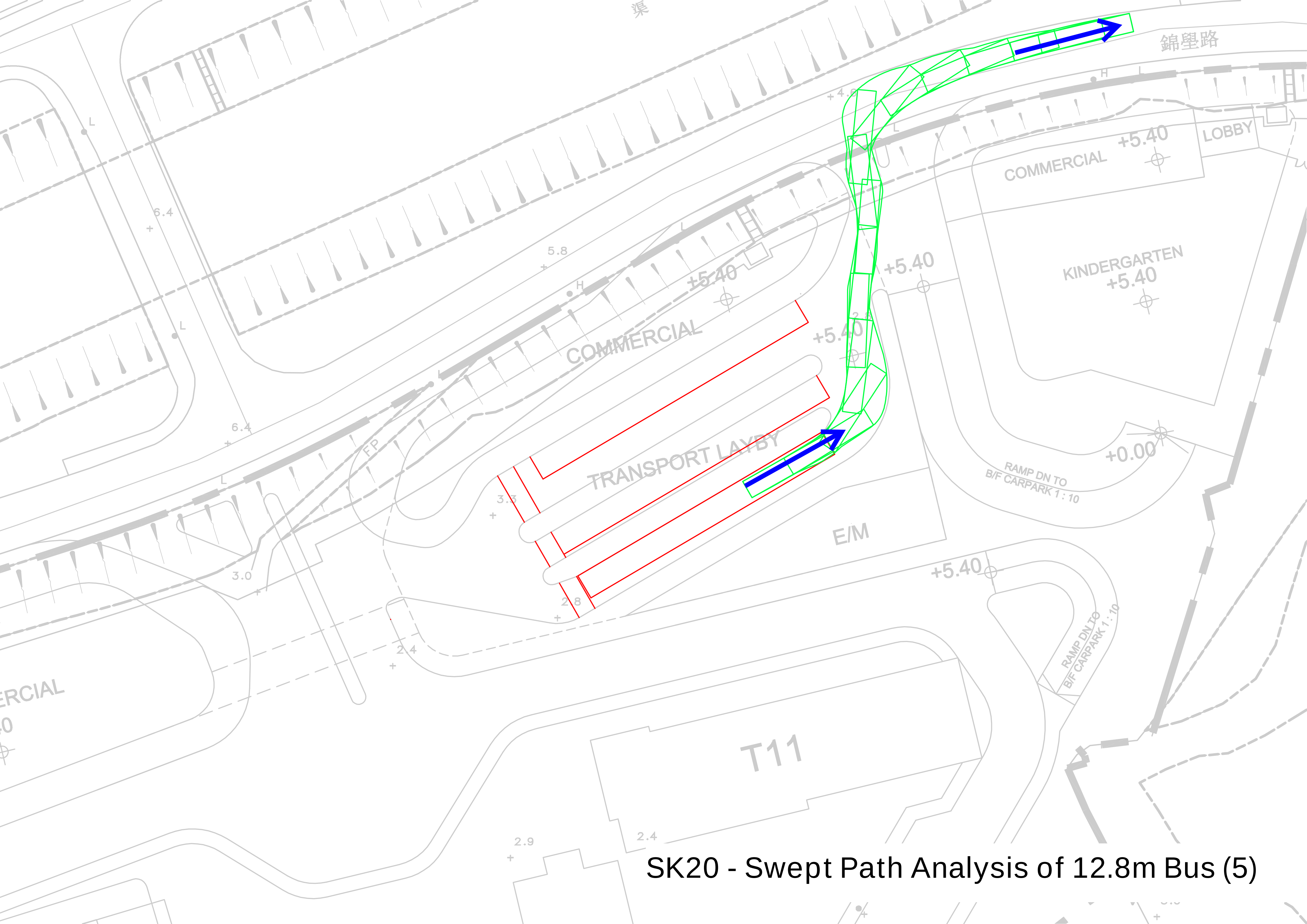
SK17 - Swept Path Analysis of 12.8m Bus (2)



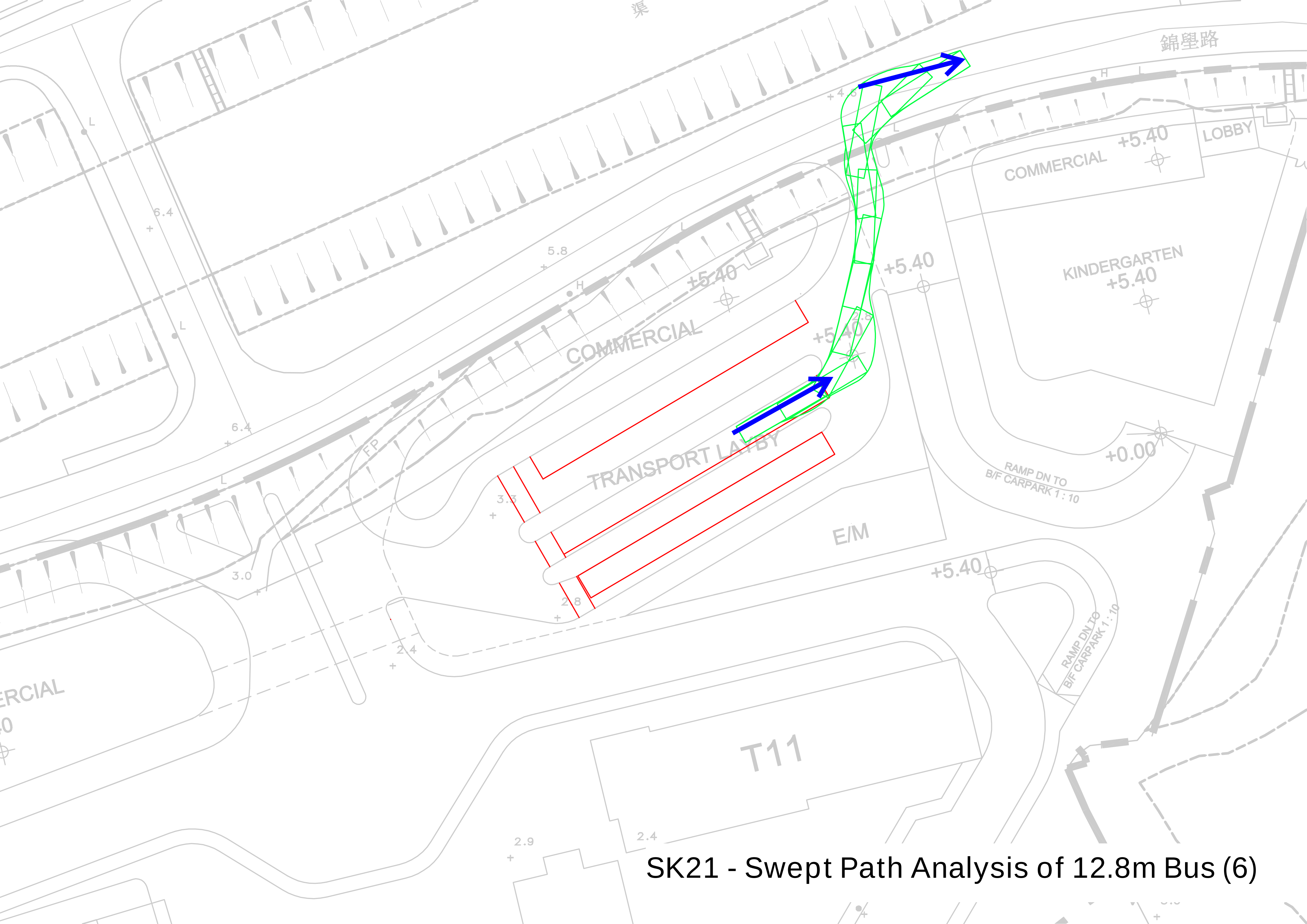
SK18 - Swept Path Analysis of 12.8m Bus (3)



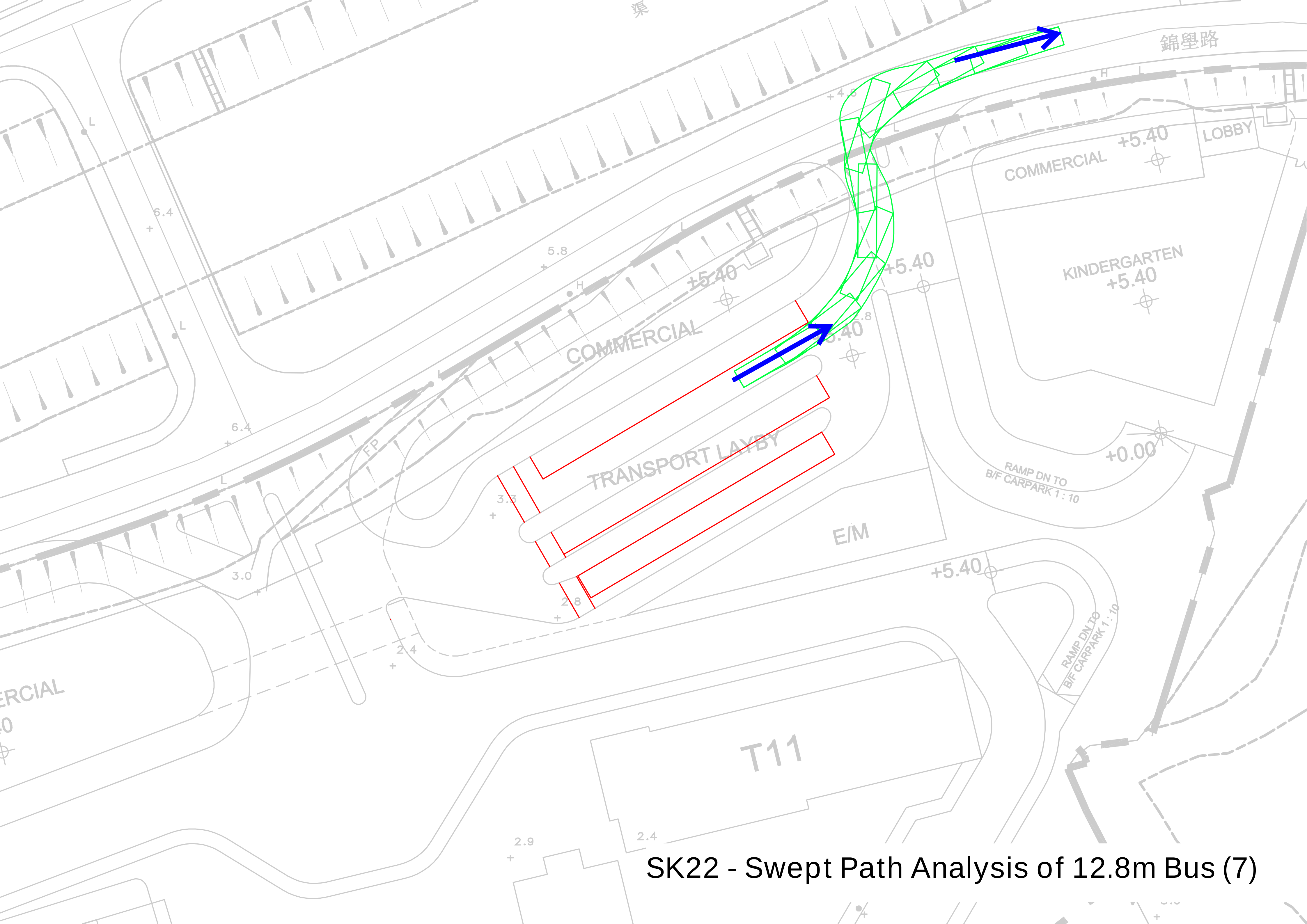
SK19 - Swept Path Analysis of 12.8m Bus (4)



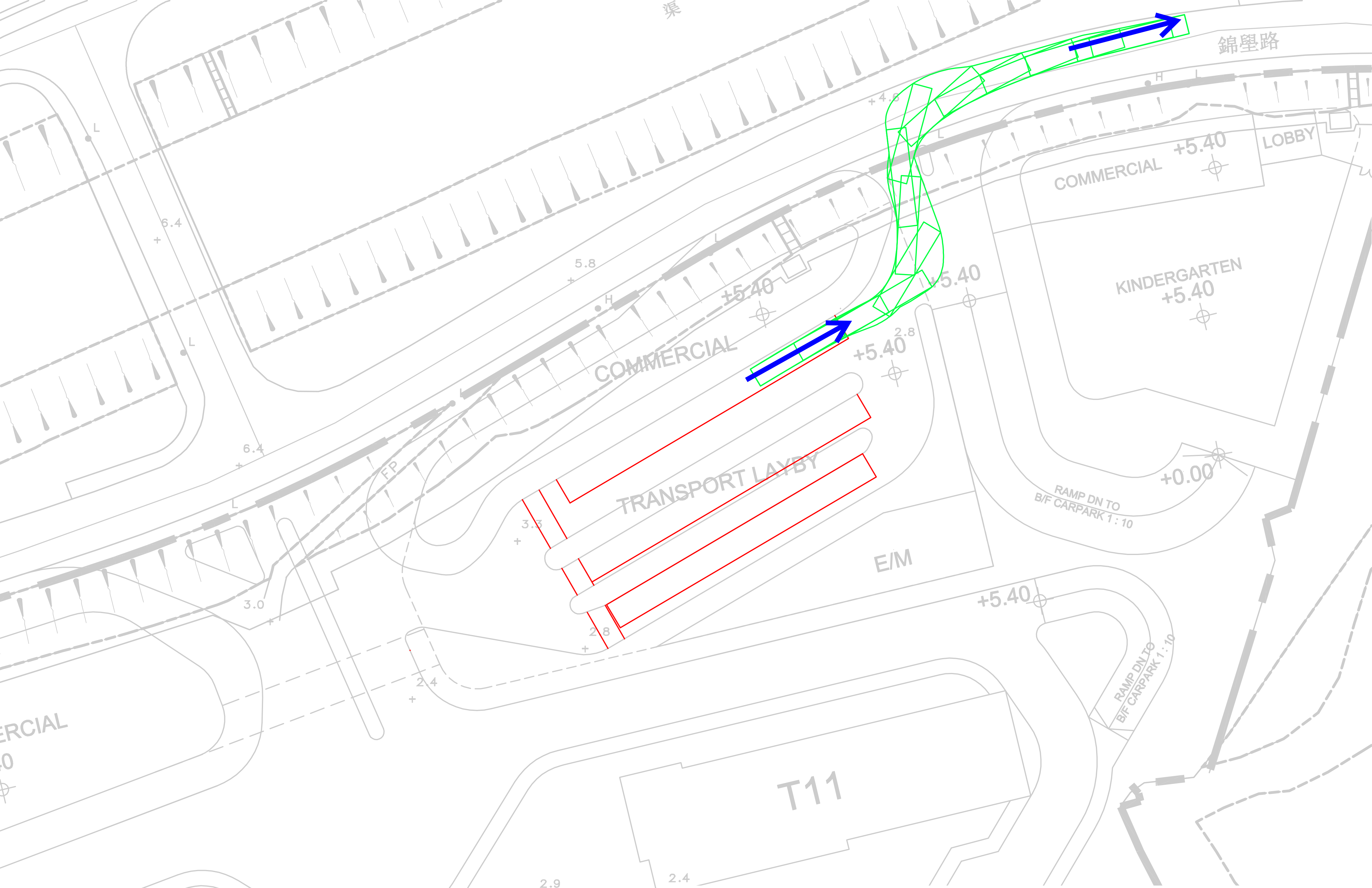
SK20 - Swept Path Analysis of 12.8m Bus (5)



SK21 - Swept Path Analysis of 12.8m Bus (6)



SK22 - Swept Path Analysis of 12.8m Bus (7)



SK23 - Swept Path Analysis of 12.8m Bus (8)

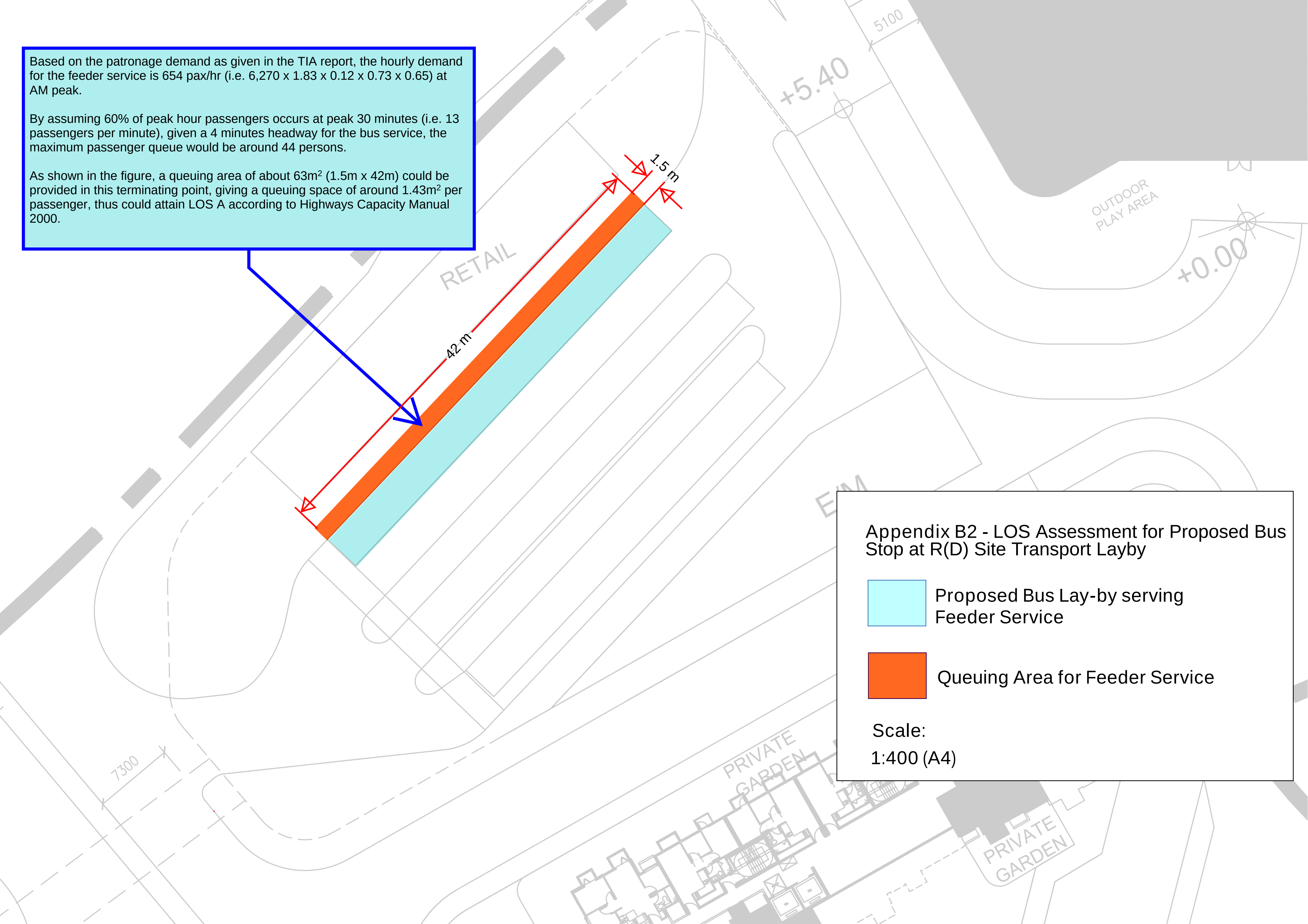
Appendix B

LOS Assessment for Proposed Bus Stops

Based on the patronage demand as given in the TIA report, the hourly demand for the feeder service is 654 pax/hr (i.e. 6,270 x 1.83 x 0.12 x 0.73 x 0.65) at AM peak.

By assuming 60% of peak hour passengers occurs at peak 30 minutes (i.e. 13 passengers per minute), given a 4 minutes headway for the bus service, the maximum passenger queue would be around 44 persons.

As shown in the figure, a queuing area of about 63m^2 (1.5m x 42m) could be provided in this terminating point, giving a queuing space of around 1.43m^2 per passenger, thus could attain LOS A according to Highways Capacity Manual 2000.



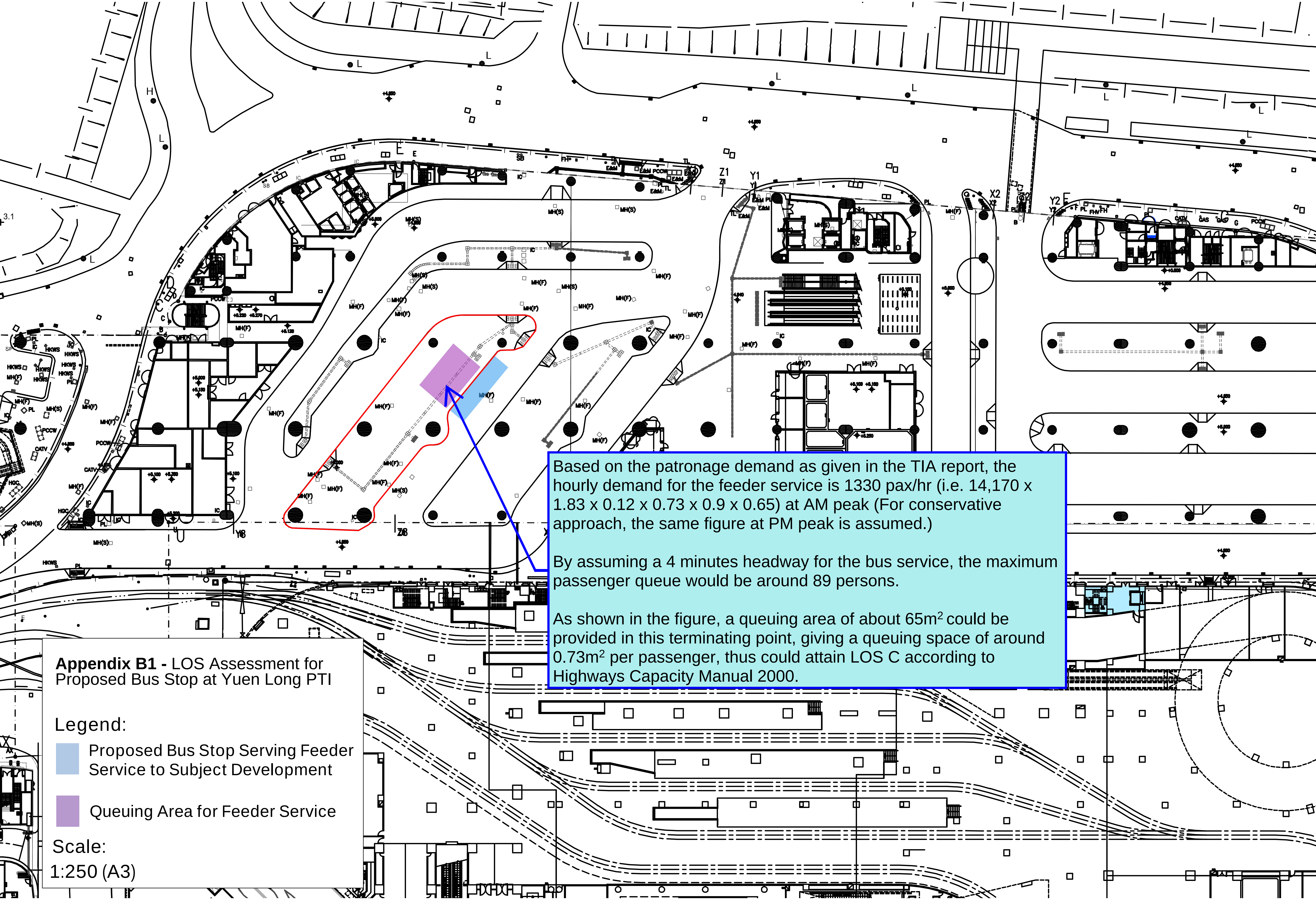
Appendix B2 - LOS Assessment for Proposed Bus Stop at R(D) Site Transport Layby

Proposed Bus Lay-by serving Feeder Service

Queuing Area for Feeder Service

Scale:

1:400 (A4)



Appendix B1 - LOS Assessment for Proposed Bus Stop at Yuen Long PTI

Based on the patronage demand as given in the TIA report, the hourly demand for the feeder service is 1330 pax/hr (i.e. 14,170 x 1.83 x 0.12 x 0.73 x 0.9 x 0.65) at AM peak (For conservative approach, the same figure at PM peak is assumed.)

By assuming a 4 minutes headway for the bus service, the maximum passenger queue would be around 89 persons.

As shown in the figure, a queuing area of about 65m^2 could be provided in this terminating point, giving a queuing space of around 0.73m^2 per passenger, thus could attain LOS C according to Highways Capacity Manual 2000.

Legend:

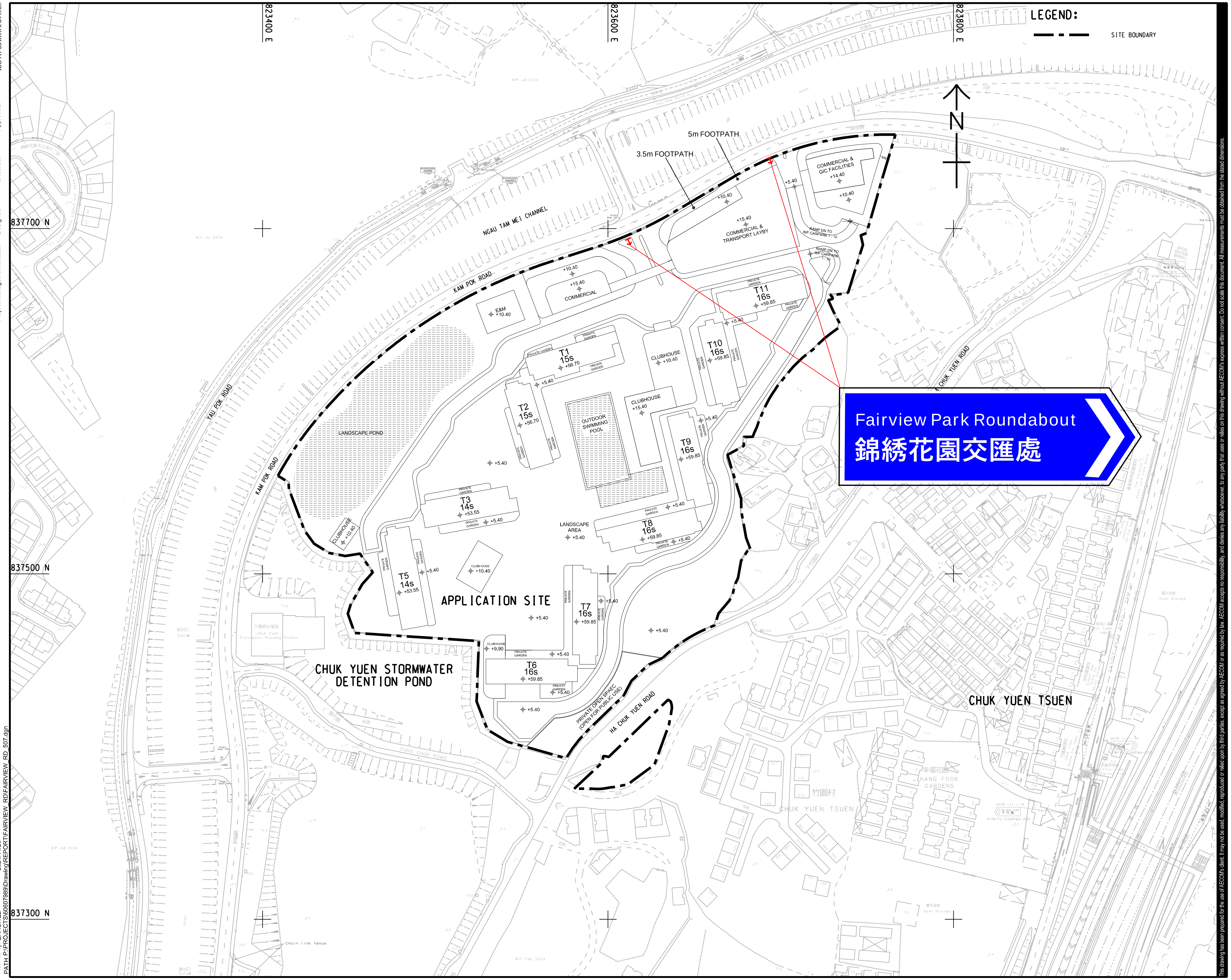
- Proposed Bus Stop Serving Feeder Service to Subject Development
- Queuing Area for Feeder Service

Scale:

1:250 (A3)

Appendix C

Preliminary Design of Directional Signs at Egresses of Application Site



AECOM

PROJECT

S.12A PLANNING APPLICATION FOR REZONING VARIOUS LOTS & ADJACENT G.L. IN DD 104, "R(D)" SITE, KAM TIN, YUEN LONG

CLIENT

CONSULTANT

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE: A3 1 : 2000

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO. 60607989

CONTRACT NO.

SHEET TITLE

PRELIMINARY DESIGN OF DIRECTIONAL SIGNS AT EGRESSES OF APPLICATION SITE

SHEET NUMBER

Appendix C

ISO A1 594mm x 841mm
Approved: Checked: Designer: Project Management Initials:

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Plot File by: ZHAOHQ2 2024/11/26
PATH P:\PROJECTS\60607989\Drawing\REPORT\FAIRVIEW_RD\FAIRVIEW_RD_507.dgn

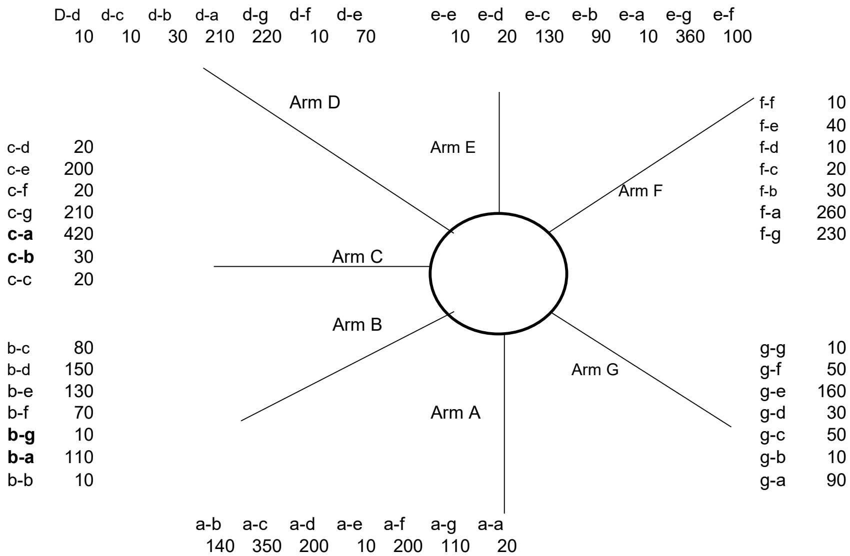
Appendix D

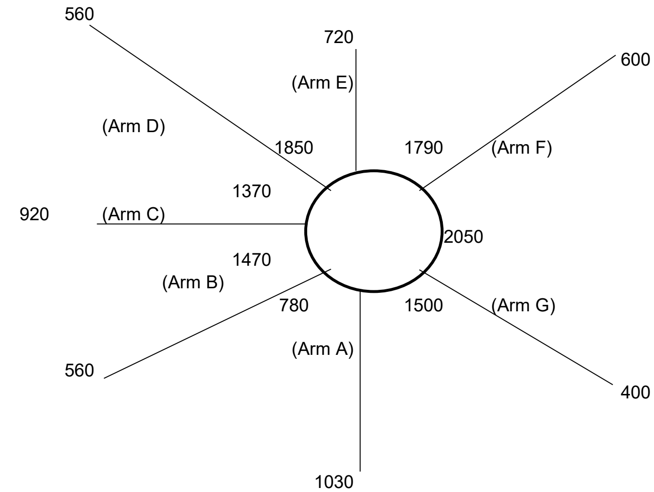
Junction Calculation Sheets

Observed Flow

ROUNDABOUT CAPACITY CALCULATIC **AECOM**

Junction	Junction J1 - Fairview Roundabout	cenar	2021 AM Observed Flows	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Sep 2024





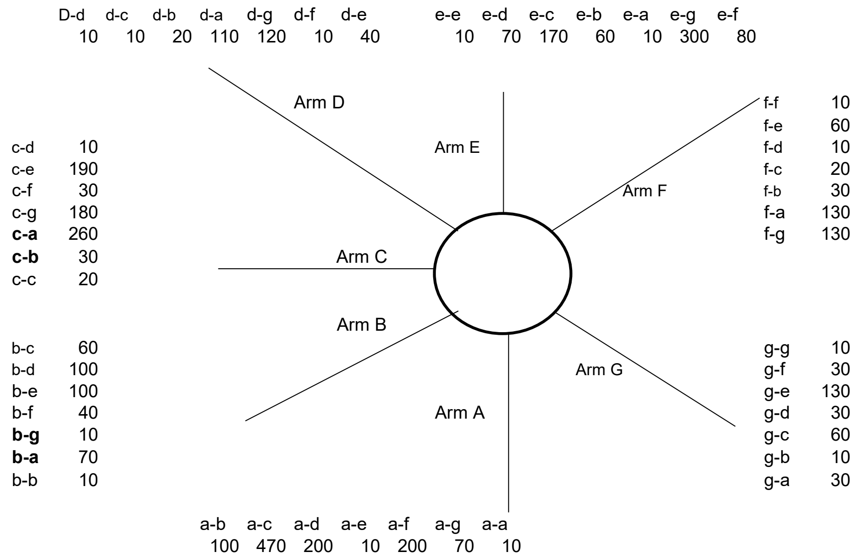
ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	5.00	7.00	5.50	6.30	5.90	5.50
E = Entry width (m)	8.00	5.80	10.00	10.00	7.30	8.50	7.80
L = Effective length of flare (m)	10.00	5.00	10.00	16.00	4.50	10.00	5.00
R = Entry radius (m)	20.00	25.00	22.00	20.00	18.00	20.00	20.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	65.00	50.00	40.00	45.00	41.00	60.00	50.00
Q = Entry flow (pcu/h)	1030	560	920	560	720	600	400
Qc= Circulating flow across entry (pcu/h)	780	1470	1370	1850	1790	2050	1500
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.26	0.48	0.45	0.36	0.42	0.74
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	0.94	0.97	0.95	0.96	0.90	0.93
X2= V + ((E-V)/(1+2S))	7.22	5.53	8.53	7.87	6.88	7.32	6.43
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2188	1675	2585	2384	2086	2218	1948
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.57	0.54	0.50	0.52	0.48
Qe= K(F-Fc*Qc)	1570	964	1751	1312	1140	1036	1143
DFC = Design flow/Capacity = Q/Qe	0.66	0.58	0.53	0.43	0.63	0.58	0.35

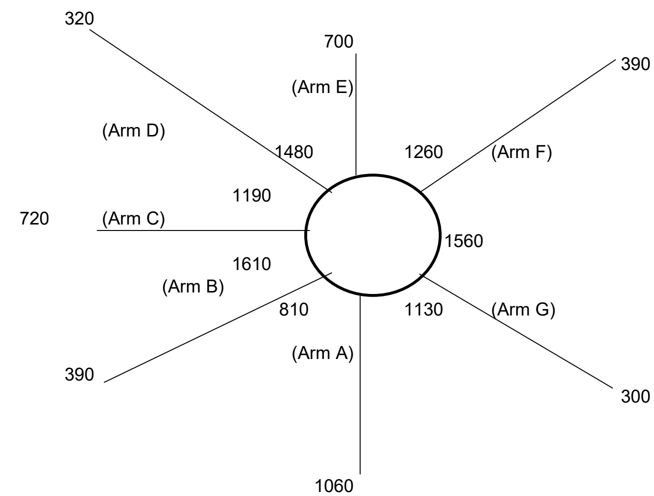
TOTAL ENTRY FLOWS = 4790 PCU

CRITICAL DFC = 0.66

ROUNDABOUT CAPACITY CALCULATIC **AECOM**

Junction	Junction J1 - Fairview Roundabout	cenar	2021 PM Observed Flows	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Sep 2024





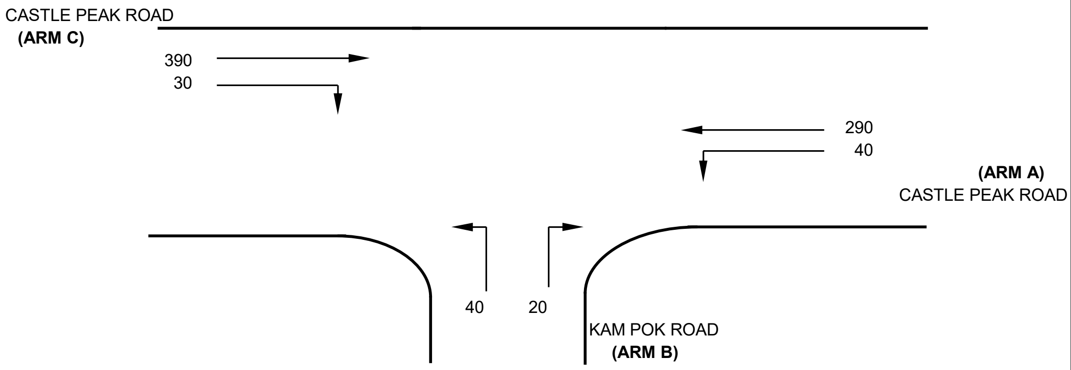
ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	5.00	7.00	5.50	6.30	5.90	5.50
E = Entry width (m)	8.00	5.80	10.00	10.00	7.30	8.50	7.80
L = Effective length of flare (m)	10.00	5.00	10.00	16.00	4.50	10.00	5.00
R = Entry radius (m)	20.00	25.00	22.00	20.00	18.00	20.00	20.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	65.00	50.00	40.00	45.00	41.00	60.00	50.00
Q = Entry flow (pcu/h)	1060	390	720	320	700	390	300
Qc= Circulating flow across entry (pcu/h)	810	1610	1190	1480	1260	1560	1130
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.26	0.48	0.45	0.36	0.42	0.74
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	0.94	0.97	0.95	0.96	0.90	0.93
X2= V + ((E-V)/(1+2S))	7.22	5.53	8.53	7.87	6.88	7.32	6.43
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2188	1675	2585	2384	2086	2218	1948
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.57	0.54	0.50	0.52	0.48
Qe= K(F-Fc*Qc)	1557	906	1851	1502	1393	1264	1308
DFC = Design flow/Capacity = Q/Qe	0.68	0.43	0.39	0.21	0.50	0.31	0.23

TOTAL ENTRY FLOWS = 3880 PCU

CRITICAL DFC = 0.68

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2021 AM 2021 Observed	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)				*MAJOR ROAD (ARM C)*				*MINOR ROAD (ARM B)*			
W	=	7.3	(metres)	W c-b	=	2.05	(metres)	W b-a	=	4.07	(metres)
W cr	=	0	(metres)	Vr c-b	=	30	(metres)	W b-c	=	4.07	(metres)
q a-b	=	40	(pcu/hr)	q c-a	=	390	(pcu/hr)	Vl b-a	=	100	(metres)
q a-c	=	290	(pcu/hr)	q c-b	=	30	(pcu/hr)	Vr b-a	=	100	(metres)
								Vr b-c	=	80	(metres)
								q b-a	=	20	(pcu/hr)
								q b-c	=	40	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	461
Q b-c	=	663
Q c-b	=	512
Q b-ac	=	578

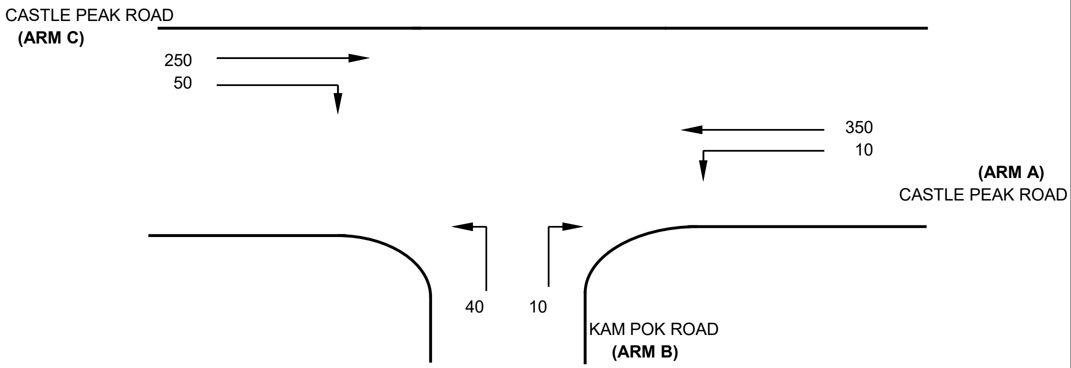
CRITICAL DFC = 0.10

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.04
DFC b-c	=	0.06
DFC c-b	=	0.06
DFC b-ac	=	0.10

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	**2021 PM 2021 Observed**	Designed By :	Checked By :	Job No. :	Date : Dec 21



NOTES : (GEOMETRIC INPUT DATA)

W	= Major Road Width (6.4 - 20.0)
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W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)			*MAJOR ROAD (ARM C)*			*MINOR ROAD (ARM B)*		
W	=	7.3 (metres)	W c-b	=	2.05 (metres)	W b-a	=	4.07 (metres)
W cr	=	0 (metres)	Vr c-b	=	30 (metres)	W b-c	=	4.07 (metres)
q a-b	=	10 (pcu/hr)	q c-a	=	250 (pcu/hr)	Vl b-a	=	100 (metres)
q a-c	=	350 (pcu/hr)	q c-b	=	50 (pcu/hr)	Vr b-a	=	100 (metres)
						Vr b-c	=	80 (metres)
						q b-a	=	10 (pcu/hr)
						q b-c	=	40 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	464
Q b-c	=	650
Q c-b	=	505
Q b-ac	=	602

CRITICAL DFC = 0.10

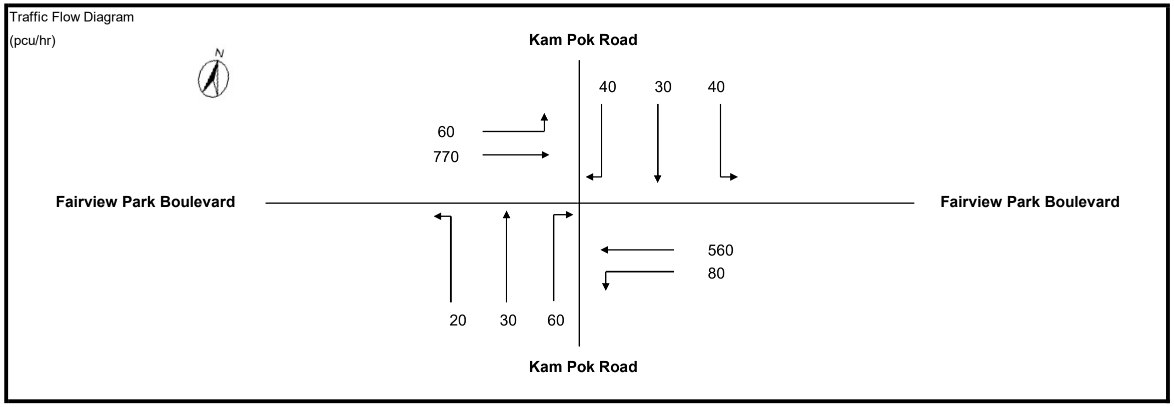
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.06
DFC c-b	=	0.10
DFC b-ac	=	0.08

JUNCTION CAPACITY CALCULATION

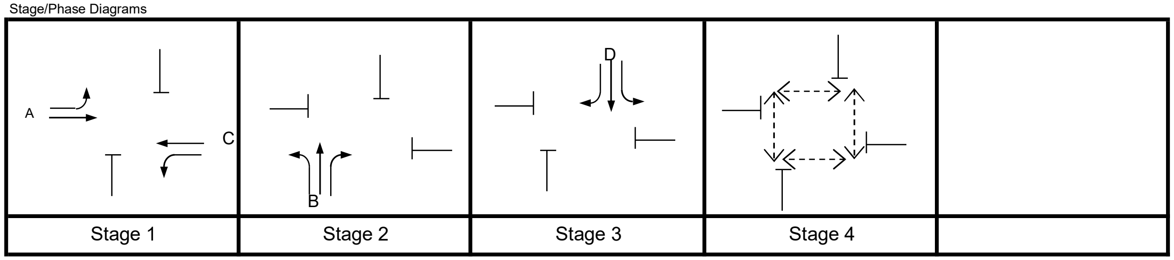
Junction J3 - Fairview Park Boulevard - Kam Pok Road	2021 AM Existing Traffic Flows	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Sep 24

J3



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.329	
Lost time	L =	44	sec
Total Flow	=	11,870	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	106	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	66	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.570	
R.C.$_{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	73.4	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	69	sec
Y_{max} = $1-L/C$	=	0.633	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : A,B,D,Ep

R.C.(C) = $(0.9\times Y_{max}-Y)/Y\times100\%$ = 73%

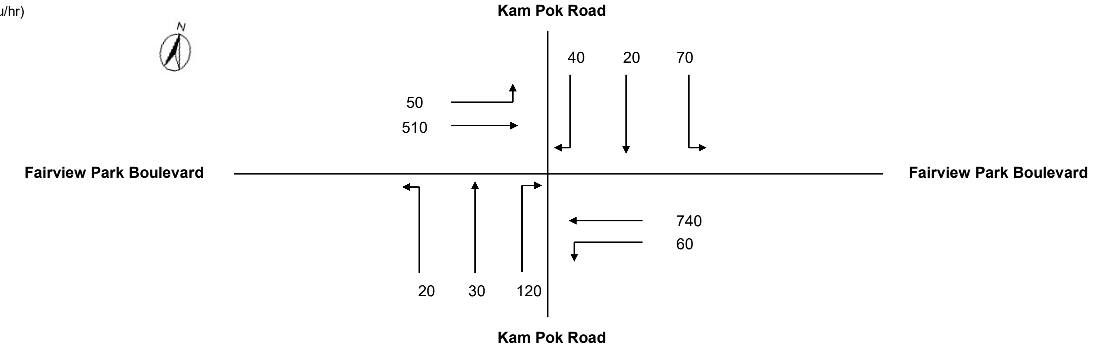
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	60	352		412	15%		1917	0.215	0.215
	A	1	3.300	1				1		0		1945		418		418			1945	0.215	
	B	2	3.600	1	13	20	0	1		0		1975	20	30	60	110	18%	55%	1860	0.059	0.059
	C	1	3.000	1	17			1		0		1915	80	234		314	25%		1873	0.168	
	C	1	3.300	1				1		0		1945		326		326			1945	0.168	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	40	30	40	110	36%	36%	2012	0.055	0.055
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2021 PM Existing Traffic Flows	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Sep 24

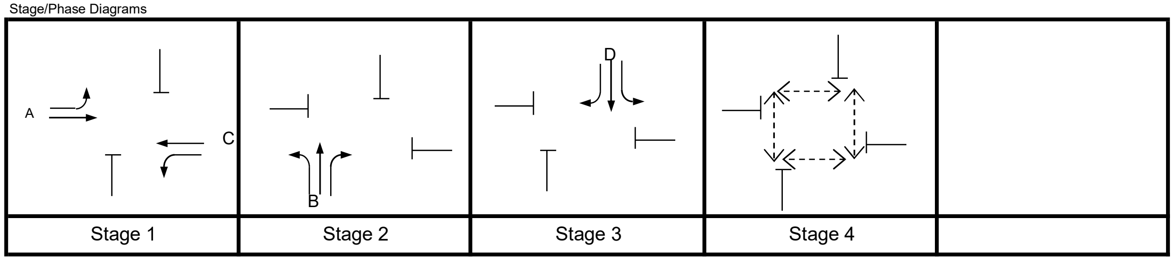
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.366	
Lost time	L =	44	sec
Total Flow	=	11,870	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	112	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	69	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.570	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	55.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	74	sec
Y_{max} = $1-L/C$	=	0.633	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : B,C,D,Ep

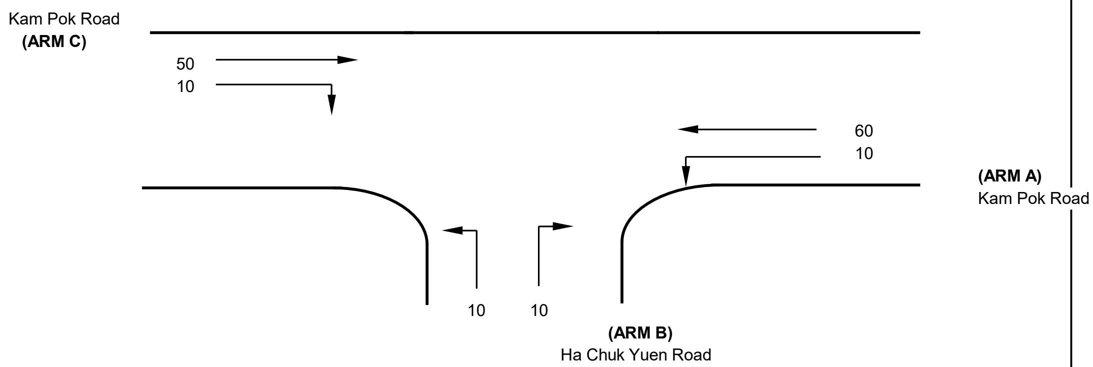
R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 56%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	50	228		278	18%		1911	0.145	
	A	1	3.300	1				1		0		1945		283		283			1945	0.145	
	B	2	3.600	1	13	20	0	1		0		1975	20	30	120	170	12%	71%	1852	0.092	0.092
	C	1	3.000	1	17			1		0		1915	60	334		394	15%		1890	0.209	0.209
	C	1	3.300	1				1		0		1945		406		406			1945	0.209	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	70	20	40	130	54%	31%	1989	0.065	0.065
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2021 AM Observed Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Sep 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	60	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5	(metres)
Vr c-b	=	50	(metres)
q c-a	=	50	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	449
Q b-c	=	580
Q c-b	=	672
Q b-ac	=	506

CRITICAL DFC = 0.04

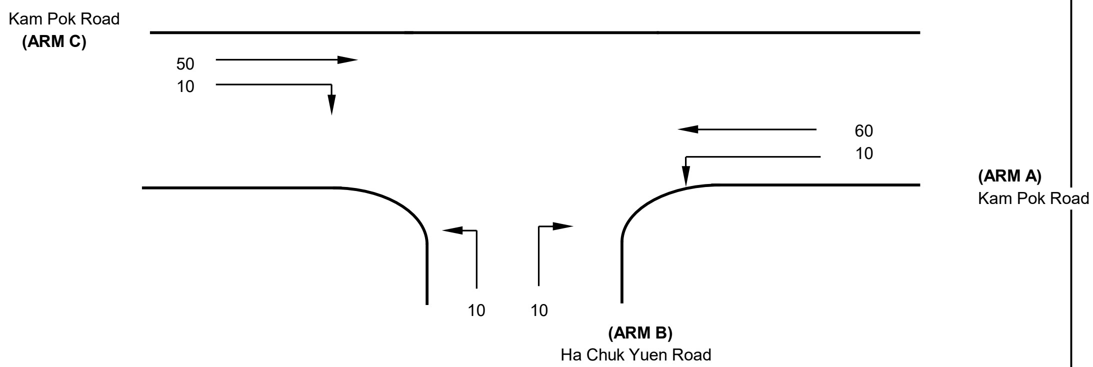
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.02
DFC c-b	=	0.01
DFC b-ac	=	0.04

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2021 PM Observed Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Sep 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3 (metres)
W cr	=	0 (metres)
q a-b	=	10 (pcu/hr)
q a-c	=	60 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5 (metres)
Vr c-b	=	50 (metres)
q c-a	=	50 (pcu/hr)
q c-b	=	10 (pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05 (metres)
W b-c	=	2.05 (metres)
Vl b-a	=	50 (metres)
Vr b-a	=	50 (metres)
Vr b-c	=	50 (metres)
q b-a	=	10 (pcu/hr)
q b-c	=	10 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	449
Q b-c	=	580
Q c-b	=	672
Q b-ac	=	506

CRITICAL DFC = 0.04

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.02
DFC c-b	=	0.01
DFC b-ac	=	0.04

```
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                 PICADY 5.1  ANALYSIS PROGRAM
                    RELEASE 5.0 (JUNE 2010)

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SOLUTION

 Run with file:- "C:\Users\Sam.Wong\Downloads\21OBS_KPR-PWSR_V1.vpi"
(drive-on-the-left) at 16:02:22 on Wednesday, 11 September 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : 2021 Observed - Kam Pok Road/ Pok Wai South Road
 LOCATION        :
 DATE            : 21/12/13
 CLIENT          :
 ENUMERATOR      : nokhinnaomi.tam [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  **************************************

  INPUT DATA
  ----------

                                   MINOR ROAD (ARM D)
                                          I
                                          I
                                          I
                                          I
                                          I
                                          I
                     MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                          I
                                          I
                                          I
                                          I
                                          I
                                          I
                                   MINOR ROAD (ARM B)

 ARM A IS Kam Pok Road
 ARM B IS Pok Wai South Road
 ARM C IS Kam Pok Road West
 ARM D IS Kam Pok Road

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

---------------------------------------------------------------------------------
-------------------------
 I               DATA ITEM                                    I   MINOR ROAD
B    I   MINOR ROAD D    I

---------------------------------------------------------------------------------
-------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                        I ( W  )  8.80
M.   I ( W  )  8.80 M.   I
 I  CENTRAL RESERVE WIDTH                                     I (WCR )  0.00
M.   I (WCR )  0.00 M.   I
 I                                                            I
   I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                            I (WC-B)  2.20
M.   I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                       I (VC-B) 50.00
M.   I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)          I         YES
( 0) I          NO  ( 0) I
 I                                                            I
   I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                           I (VB-C)  50.0
M.   I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                          I (VB-A)  50.0
M.   I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                 I (WB-C)  2.20
M.   I (WD-A)  5.00 M.   I
 I             - LANE 2 WIDTH                                 I (WB-A)  0.00
M.   I (WD-C)  0.00 M.   I

---------------------------------------------------------------------------------
-------------------------
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.21	0.29	0.21

```
 B-D Stream From Left Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
-----------------
 I     476.98           0.19                0.19                 0.08
    0.28       I

--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
-----------------
 I                      0.12                0.12
               I

--------------------------------------------------------------------------------
-----------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
-----------------
 I     476.98           0.19                0.19                 0.08
    0.28       I

--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
-----------------
 I                      0.12                0.12
               I

--------------------------------------------------------------------------------
-----------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
-----------------
 I     622.33           0.25                0.25                 0.10
    0.36       I

--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
-----------------
 I                      0.16                0.16
               I

--------------------------------------------------------------------------------
-----------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
-----------------
 I     622.33           0.25                0.25                 0.10
    0.36       I
```

```
---------------------------------------------------------------------------------
-----------------

---------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

---------------------------------------------------------------------------------
-----------------
 I                       0.16                0.16
                I

---------------------------------------------------------------------------------
-----------------


.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        2023 Observed AM - Kam Pok Road/ Pok Wai South Road


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


---------------------------------------------------------------------------------
---
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
  I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
  I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
  I
 I        I             I             I            I        I         I
  I

---------------------------------------------------------------------------------
---
 I ARM  A I     15.00   I     45.00   I    75.00   I  3.38  I   5.06  I  3.38
  I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38
  I
 I ARM  C I     15.00   I     45.00   I    75.00   I  2.50  I   3.75  I  2.50
  I
 I ARM  D I     15.00   I     45.00   I    75.00   I  1.50  I   2.25  I  1.50
  I

---------------------------------------------------------------------------------
---

.Demand set:        2023 Observed AM - Kam Pok Road/ Pok Wai South Road
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ------------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.037 I  0.741 I  0.222 I
 I                    I         I    0.0 I   10.0 I  200.0 I   60.0 I
 I                    I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.333 I  0.000 I  0.333 I  0.333 I
 I                    I         I   10.0 I    0.0 I   10.0 I   10.0 I
 I                    I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.700 I  0.100 I  0.000 I  0.200 I
 I                    I         I  140.0 I   20.0 I    0.0 I   40.0 I
 I                    I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.417 I  0.083 I  0.500 I  0.000 I
 I                    I         I   50.0 I   10.0 I   60.0 I    0.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ---------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               ---------------------------------------------------------
                FOR DEMAND SET        2023 Observed AM - Kam Pok Road/ Pok Wai
South Road
                AND FOR TIME PERIOD       1
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                I
```

```
 I   B-ACD     0.38      6.81    0.055               0.00   0.06        0.8
                                I
 I   A-B       0.13
                                I
 I   A-C       2.51
                                I
 I   A-D       0.75      8.60    0.088               0.00   0.10        1.4
                                I
 I   D-ABC     1.51      9.24    0.163               0.00   0.19        2.8
                                I
 I   C-ABD     0.32      9.93    0.032               0.00   0.04        0.6
                                I
 I   C-D       0.49
                                I
 I   C-A       1.70
                                I
 I
                                I
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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                I
 I   B-ACD     0.45      6.62    0.068               0.06   0.07        1.1
                                I
 I   A-B       0.15
                                I
 I   A-C       3.00
                                I
 I   A-D       0.90      8.49    0.106               0.10   0.12        1.7
                                I
 I   D-ABC     1.80      9.02    0.199               0.19   0.25        3.6
                                I
 I   C-ABD     0.40     10.09    0.040               0.04   0.06        0.8
                                I
 I   C-D       0.58
                                I
 I   C-A       2.02
                                I
 I
                                I
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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                I
 I   B-ACD     0.55      6.35    0.087               0.07   0.09        1.4
                                I
 I   A-B       0.18
                                I
 I   A-C       3.67
                                I
 I   A-D       1.10      8.35    0.132               0.12   0.15        2.2
                                I
 I   D-ABC     2.20      8.71    0.253               0.25   0.33        4.9
                                I
 I   C-ABD     0.53     10.32    0.051               0.06   0.08        1.2
                                I
 I   C-D       0.70
                                I
 I   C-A       2.44
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                I
 I   B-ACD     0.55      6.35    0.087               0.09   0.09        1.4
                                I
 I   A-B       0.18
                                I
 I   A-C       3.67
                                I
 I   A-D       1.10      8.35    0.132               0.15   0.15        2.3
                                I
 I   D-ABC     2.20      8.71    0.253               0.33   0.34        5.0
                                I
 I   C-ABD     0.53     10.32    0.051               0.08   0.08        1.2
                                I
 I   C-D       0.70
                                I
 I   C-A       2.44
                                I
 I
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TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.45	6.61	0.068		0.09	0.07	1.1		
A-B	0.15								
A-C	3.00								
A-D	0.90	8.49	0.106		0.15	0.12	1.8		
D-ABC	1.80	9.01	0.199		0.34	0.25	3.9		
C-ABD	0.41	10.09	0.040		0.08	0.06	0.9		
C-D	0.58								
C-A	2.02								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.15-09.30									
B-ACD	0.38	6.81	0.055		0.07	0.06	0.9		
A-B	0.13								
A-C	2.51								
A-D	0.75	8.60	0.088		0.12	0.10	1.5		
D-ABC	1.51	9.23	0.163		0.25	0.20	3.0		
C-ABD	0.32	9.93	0.033		0.06	0.04	0.7		
C-D	0.49								
C-A	1.70								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.1
09.30	0.1

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.30	0.2
08.45	0.3
09.00	0.3
09.15	0.3
09.30	0.2

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.1

08.45 0.1
09.00 0.1
09.15 0.1
09.30 0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * * DELAY * (MIN)	* QUEUEING * * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * * DELAY * (MIN)	* INCLUSIVE QUEUEING * * DELAY * (MIN/VEH)
B-ACD	41.3	27.5	6.7	0.16	6.7	0.16
A-B	13.8	9.2				
A-C	275.3	183.5				
A-D	82.6	55.1	10.9	0.13	10.9	0.13
D-ABC	165.2	110.1	23.2	0.14	23.2	0.14
C-ABD	37.8	25.2	5.4	0.14	5.4	0.14
C-D	52.8	35.2				
C-A	184.7	123.2				
ALL	853.4	568.9	46.2	0.05	46.2	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.21	0.29	0.21

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
476.98	0.19	0.19	0.08	0.28

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.12	0.12		

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
476.98	0.19	0.19	0.08	0.28

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.12	0.12		

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
622.33	0.25	0.25	0.10	0.36

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 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

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 I                       0.16                0.16
                I

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 D-B Stream From Right Hand Lane

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 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

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-----------------
 I     622.33            0.25                0.25                  0.10
     0.36       I

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-----------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

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-----------------
 I                       0.16                0.16
                I

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.TRAFFIC DEMAND DATA
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 I ARM I FLOW SCALE(%) I
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 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
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.Demand set:        2023 Observed PM - Kam Pok Road/ Pok Wai South Road


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


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---
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
  I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
  I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
  I
 I        I             I             I            I        I         I
  I

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---
 I ARM  A I     15.00   I     45.00   I    75.00   I  2.63  I   3.94  I  2.63
  I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
  I
 I ARM  C I     15.00   I     45.00   I    75.00   I  3.00  I   4.50  I  3.00
  I
 I ARM  D I     15.00   I     45.00   I    75.00   I  1.13  I   1.69  I  1.13
  I

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.Demand set:        2023 Observed PM - Kam Pok Road/ Pok Wai South Road
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 I                    I         TURNING PROPORTIONS                I
 I                    I         TURNING COUNTS                     I
 I                    I        (PERCENTAGE OF H.V.S)               I
 I                    ---------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
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 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.048 I  0.619 I  0.333 I
 I                    I         I    0.0 I   10.0 I  130.0 I   70.0 I
 I                    I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
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 I                    I ARM  B  I  0.250 I  0.000 I  0.250 I  0.500 I
 I                    I         I   10.0 I    0.0 I   10.0 I   20.0 I
 I                    I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.625 I  0.042 I  0.000 I  0.333 I
 I                    I         I  150.0 I   10.0 I    0.0 I   80.0 I
 I                    I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.667 I  0.111 I  0.222 I  0.000 I
 I                    I         I   60.0 I   10.0 I   20.0 I    0.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         2023 Observed PM - Kam Pok Road/ Pok Wai
South Road
                AND FOR TIME PERIOD        1
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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                I
 I   B-ACD     0.50      6.80    0.074                0.00   0.08        1.1
                                I
 I   A-B       0.13
                                I
 I   A-C       1.63
                                I
 I   A-D       0.88      8.51    0.103                0.00   0.11        1.6
                                I
 I   D-ABC     1.13     10.02    0.113                0.00   0.13        1.8
                                I
 I   C-ABD     0.17     10.48    0.016                0.00   0.02        0.3
                                I
 I   C-D       0.99
                                I
 I   C-A       1.85
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                I
 I   B-ACD     0.60      6.64    0.090                0.08   0.10        1.4
                                I
 I   A-B       0.15
                                I
 I   A-C       1.95
                                I
 I   A-D       1.05      8.38    0.125                0.11   0.14        2.1
                                I
 I   D-ABC     1.35      9.84    0.137                0.13   0.16        2.3
                                I
 I   C-ABD     0.22     10.75    0.020                0.02   0.02        0.4
                                I
 I   C-D       1.18
                                I
 I   C-A       2.20
                                I
 I
                                I
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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                I
 I   B-ACD     0.73      6.41    0.115                0.10   0.13        1.9
                                I
 I   A-B       0.18
                                I
 I   A-C       2.39
                                I
 I   A-D       1.28      8.22    0.156                0.14   0.18        2.7
                                I
 I   D-ABC     1.65      9.58    0.172                0.16   0.21        3.0
                                I
 I   C-ABD     0.29     11.12    0.026                0.02   0.03        0.5
                                I
 I   C-D       1.43
                                I
 I   C-A       2.69
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                               I
 I   B-ACD     0.73      6.41    0.115                0.13   0.13        1.9
                               I
 I   A-B       0.18
                               I
 I   A-C       2.39
                               I
 I   A-D       1.28      8.21    0.156                0.18   0.18        2.8
                               I
 I   D-ABC     1.65      9.57    0.172                0.21   0.21        3.1
                               I
 I   C-ABD     0.29     11.12    0.026                0.03   0.03        0.5
                               I
 I   C-D       1.43
                               I
 I   C-A       2.69
                               I
 I
                               I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                               I
 I   B-ACD     0.60      6.63    0.090                0.13   0.10        1.5
                               I
 I   A-B       0.15
                               I
 I   A-C       1.95
                               I
 I   A-D       1.05      8.38    0.125                0.18   0.14        2.2
                               I
 I   D-ABC     1.35      9.83    0.137                0.21   0.16        2.5
                               I
 I   C-ABD     0.22     10.75    0.020                0.03   0.02        0.4
                               I
 I   C-D       1.18
                               I
 I   C-A       2.20
                               I
 I
                               I
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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                               I
 I   B-ACD     0.50      6.80    0.074                0.10   0.08        1.2
                               I
 I   A-B       0.13
                               I
 I   A-C       1.63
                               I
 I   A-D       0.88      8.51    0.103                0.14   0.12        1.8
                               I
 I   D-ABC     1.13     10.02    0.113                0.16   0.13        2.0
                               I
 I   C-ABD     0.17     10.48    0.016                0.02   0.02        0.3
                               I
 I   C-D       0.99
                               I
 I   C-A       1.85
                               I
 I
                               I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
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QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.1
09.30	0.1

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.2
09.15	0.2
09.30	0.1

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	55.1	36.7	9.1	0.17	9.1	0.17
A-B	13.8	9.2				
A-C	178.9	119.3				
A-D	96.3	64.2	13.2	0.14	13.2	0.14
D-ABC	123.9	82.6	14.7	0.12	14.7	0.12
C-ABD	20.2	13.5	2.3	0.11	2.3	0.11
C-D	107.9	71.9				
C-A	202.2	134.8				
ALL	798.3	532.2	39.3	0.05	39.3	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

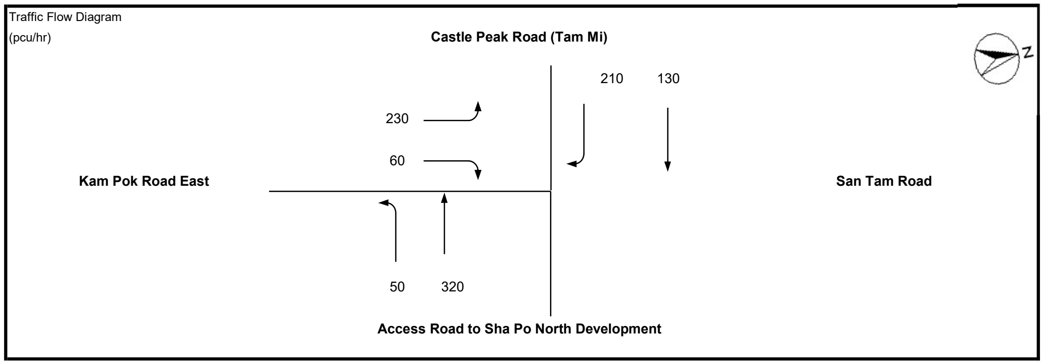
****** PICADY 5 run completed.

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2021 AM Peak Hour Observed Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

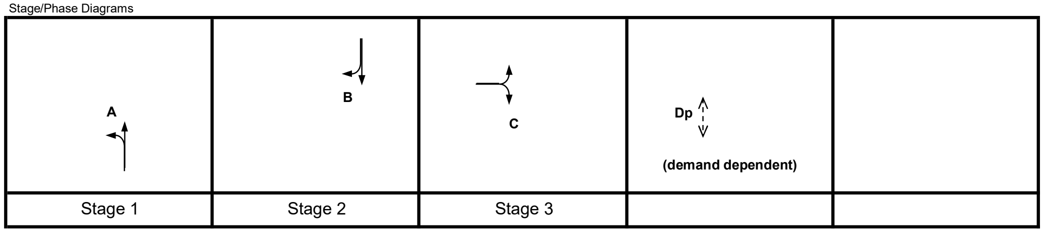
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.419	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	42	sec
Min. Cycle Time C_m = L/(1-Y)	=	22	sec
Y_{ult} = 0.9-0.0075×L	=	0.803	
$R.C._{ult}$ = (Y_{ult}-Y)/Yx100%	=	91.4	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	24	sec
Y_{max} = 1-L/C	=	0.856	

Stage/Phase Diagrams



I/G = 6   I/G = 5   I/G = 5

Critical Case : A,B,C,Dp

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 84%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	50	320		370	14%		1949	0.190	0.190
	B	2	3.400	1				1		0		1955		130		130			1955	0.066	
	B	2	3.500	1		30	0	0		0		2105			210	210		100%	2005	0.105	0.105
	C	3	3.400	1	25			1		0		1955	230			230	100%		1844	0.125	0.125
	C	3	3.400	1		30	0	0		0		2095			60	60		100%	1995	0.030	

Pedestrian Crossing

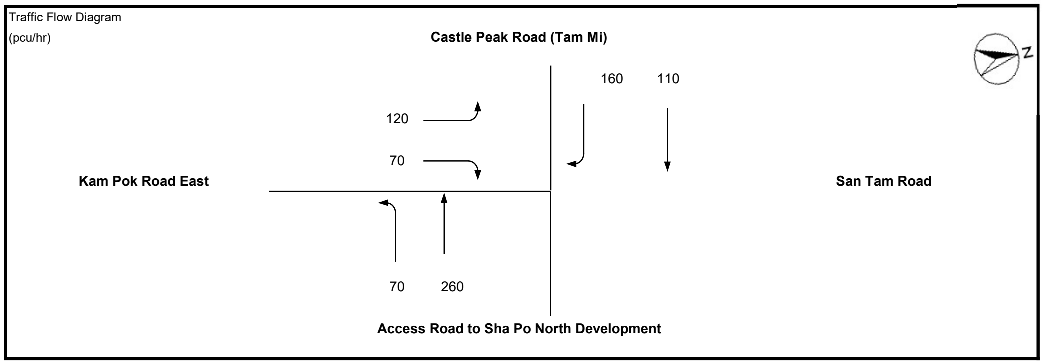
				GM		FGM				
	Dp	4	min.	13	+	12	=	25	sec	

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2021 PM Peak Hour Observed Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

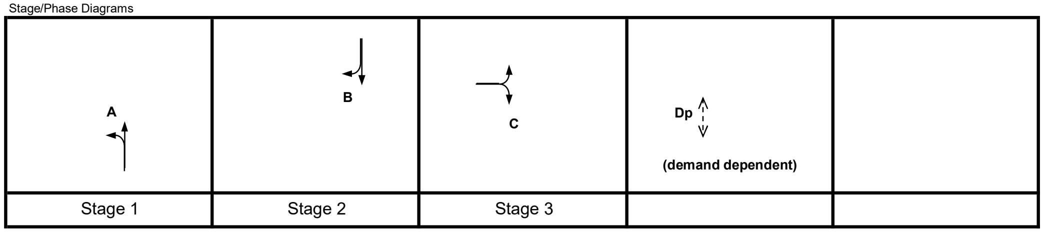
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.315	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	36	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	19	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\text{x}100\%$	=	154.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	20	sec
Y_{max} = $1-L/C$	=	0.856	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 5

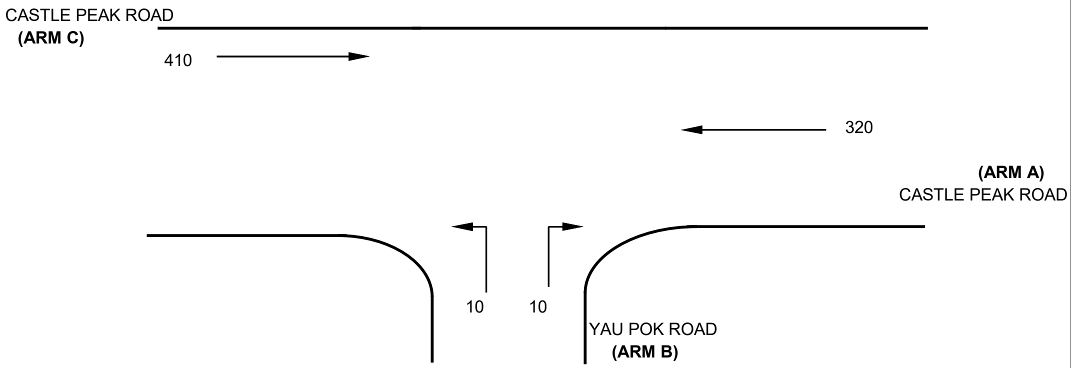
Critical Case : A,B,C,Dp

R.C.(C) = $(0.9\text{x}Y_{max}-Y)/Y\text{x}100\%$ = 144%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	70	260		330	21%		1940	0.170	0.170
	B	2	3.400	1				1		0		1955		110		110			1955	0.056	
	B	2	3.500	1		30	0	0		0		2105			160	160		100%	2005	0.080	0.080
	C	3	3.400	1	25			1		0		1955	120			120	100%		1844	0.065	0.065
	C	3	3.400	1		30	0	0		0		2095			70	70		100%	1995	0.035	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2033 AM Observed Flow	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.5	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	320	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	25	(metres)
q c-a	=	410	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.8	(metres)
W b-c	=	1.8	(metres)
Vl b-a	=	25	(metres)
Vr b-a	=	25	(metres)
Vr b-c	=	25	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	324
Q b-c	=	495
Q c-b	=	393
Q b-ac	=	392

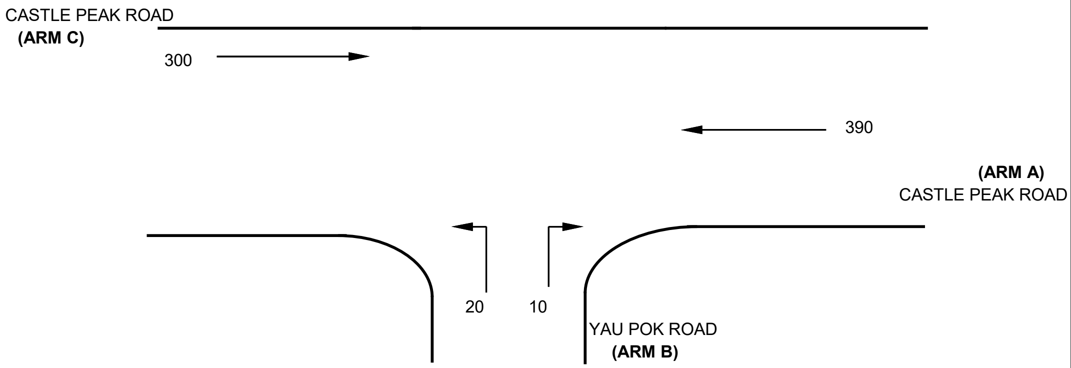
CRITICAL DFC = 0.03

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.02
DFC c-b	=	0.00

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2033 PM Observed Flow	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.5	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	390	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	25	(metres)
q c-a	=	300	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.8	(metres)
W b-c	=	1.8	(metres)
Vl b-a	=	25	(metres)
Vr b-a	=	25	(metres)
Vr b-c	=	25	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	324
Q b-c	=	480
Q c-b	=	381
Q b-ac	=	413

CRITICAL DFC = 0.04

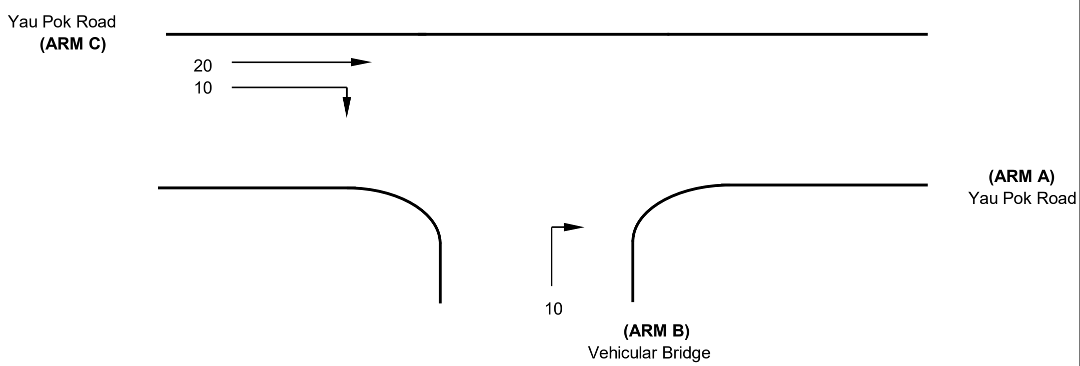
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.04
DFC c-b	=	0.00

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Vehicular Bridge/ Yau Pok Rd	2021 AM Observed Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



NOTES : (GEOMETRIC INPUT DATA)

J8

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)				*MAJOR ROAD (ARM C)*				*MINOR ROAD (ARM B)*			
W	=	6.4	(metres)	W c-b	=	2.05	(metres)	W b-a	=	3.6	(metres)
W cr	=	0	(metres)	Vr c-b	=	20	(metres)	W b-c	=	2.05	(metres)
q a-b	=	0	(pcu/hr)	q c-a	=	20	(pcu/hr)	Vl b-a	=	20	(metres)
q a-c	=	0	(pcu/hr)	q c-b	=	10	(pcu/hr)	Vr b-a	=	20	(metres)
								Vr b-c	=	20	(metres)
								q b-a	=	10	(pcu/hr)
								q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.773136
F	=	0.773136
Y	=	0.779200

THE CAPACITY OF MOVEMENT :

Q b-a	=	517
Q b-c	=	576
Q c-b	=	576
Q b-ac	=	517

CRITICAL DFC = 0.02

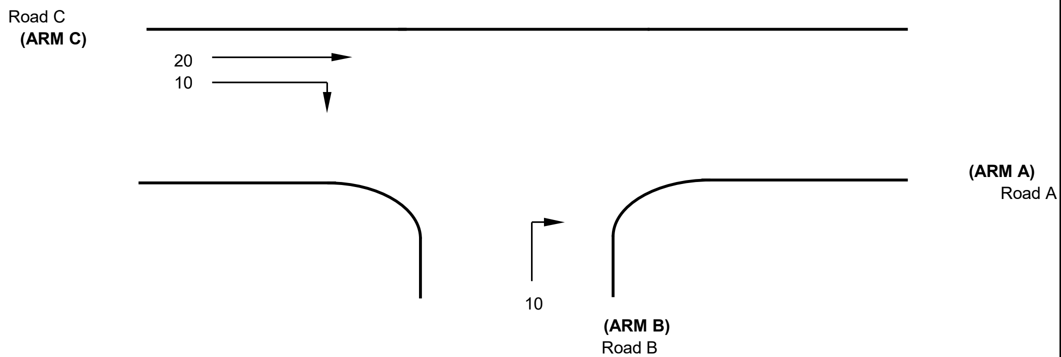
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.00
DFC c-b	=	0.02
DFC b-ac	=	0.02

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Vehicular Bridge/ Yau Pok Rd	2021 PM Observed Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



NOTES : (GEOMETRIC INPUT DATA)

J8

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.4	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	20	(metres)
q c-a	=	20	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.6	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	20	(metres)
Vr b-c	=	20	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.773136
F	=	0.773136
Y	=	0.779200

THE CAPACITY OF MOVEMENT :

Q b-a	=	517
Q b-c	=	576
Q c-b	=	576
Q b-ac	=	517

CRITICAL DFC = 0.02

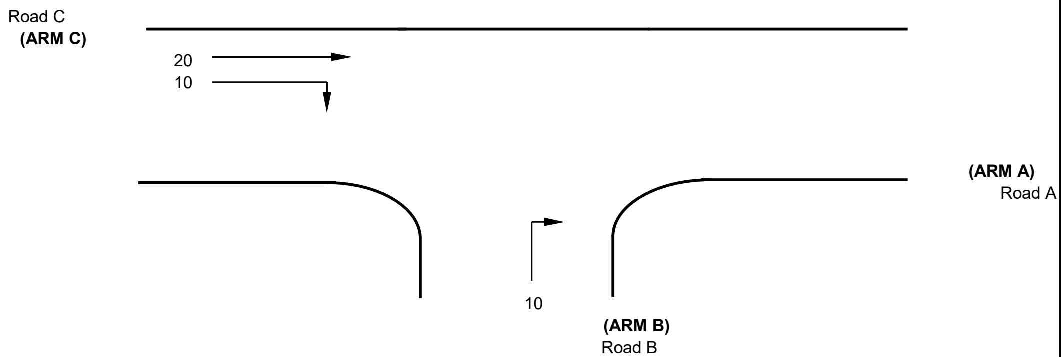
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.00
DFC c-b	=	0.02
DFC b-ac	=	0.02

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J9 - Vehicular Bridge/ Yau Pok Rd	2021 AM Observed Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



J9

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.4	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	20	(metres)
q c-a	=	20	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.6	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	20	(metres)
Vr b-c	=	20	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.773136
F	=	0.773136
Y	=	0.779200

THE CAPACITY OF MOVEMENT :

Q b-a	=	517
Q b-c	=	576
Q c-b	=	576
Q b-ac	=	517

CRITICAL DFC = 0.02

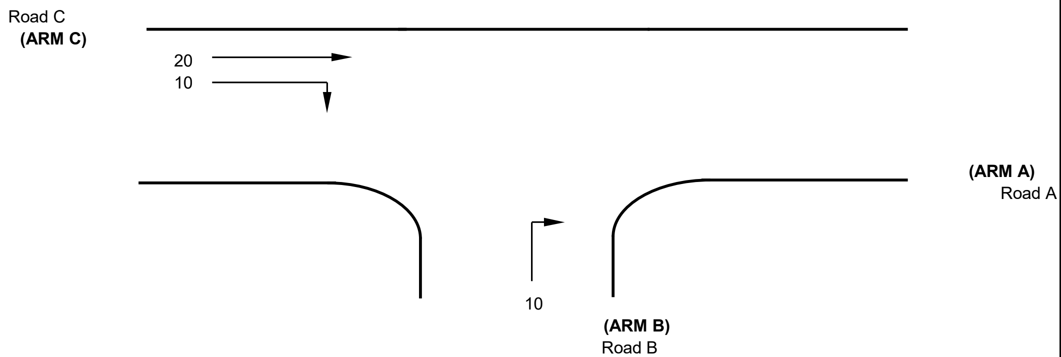
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.00
DFC c-b	=	0.02
DFC b-ac	=	0.02

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J9 - Vehicular Bridge/ Yau Pok Rd	2021 PM Observed Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



NOTES : (GEOMETRIC INPUT DATA)

J9

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)			*MAJOR ROAD (ARM C)*			*MINOR ROAD (ARM B)*		
W	=	6.4 (metres)	W c-b	=	2.05 (metres)	W b-a	=	3.6 (metres)
W cr	=	0 (metres)	Vr c-b	=	20 (metres)	W b-c	=	2.05 (metres)
q a-b	=	0 (pcu/hr)	q c-a	=	20 (pcu/hr)	Vl b-a	=	20 (metres)
q a-c	=	0 (pcu/hr)	q c-b	=	10 (pcu/hr)	Vr b-a	=	20 (metres)
						Vr b-c	=	20 (metres)
						q b-a	=	10 (pcu/hr)
						q b-c	=	0 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.773136
F	=	0.773136
Y	=	0.779200

THE CAPACITY OF MOVEMENT :

Q b-a	=	517
Q b-c	=	576
Q c-b	=	576
Q b-ac	=	517

CRITICAL DFC = 0.02

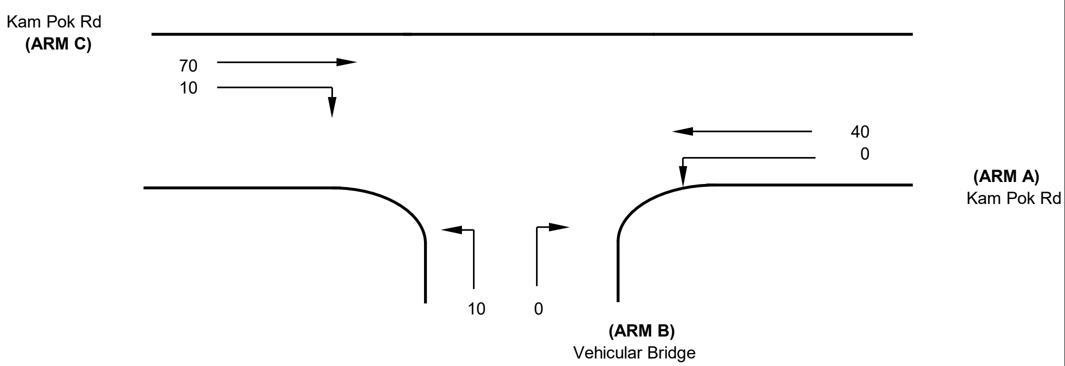
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.00
DFC c-b	=	0.02
DFC b-ac	=	0.02

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Vehicular Bridge/ Kam Pok Road	**2021 AM Observed Flow**	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



J10

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	40	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	20	(metres)
q c-a	=	70	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.6	(metres)
W b-c	=	3.6	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	20	(metres)
Vr b-c	=	20	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.905723
F	=	0.905723
Y	=	0.751600

THE CAPACITY OF MOVEMENT :

Q b-a	=	501
Q b-c	=	665
Q c-b	=	665
Q b-ac	=	665

CRITICAL DFC = 0.02

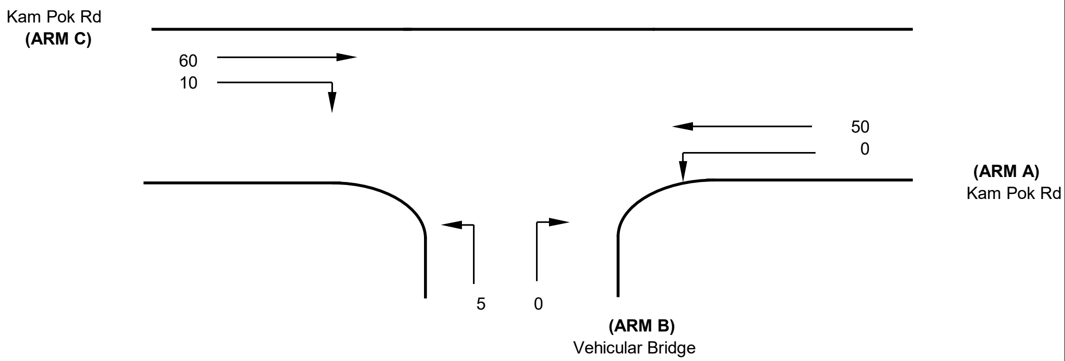
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.00
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.02

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Vehicular Bridge/ Kam Pok Road	2021 PM Observed Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



J10

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	50	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	20	(metres)
q c-a	=	60	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.6	(metres)
W b-c	=	3.6	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	20	(metres)
Vr b-c	=	20	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.905723
F	=	0.905723
Y	=	0.751600

THE CAPACITY OF MOVEMENT :

Q b-a	=	500
Q b-c	=	662
Q c-b	=	662
Q b-ac	=	662

CRITICAL DFC = 0.02

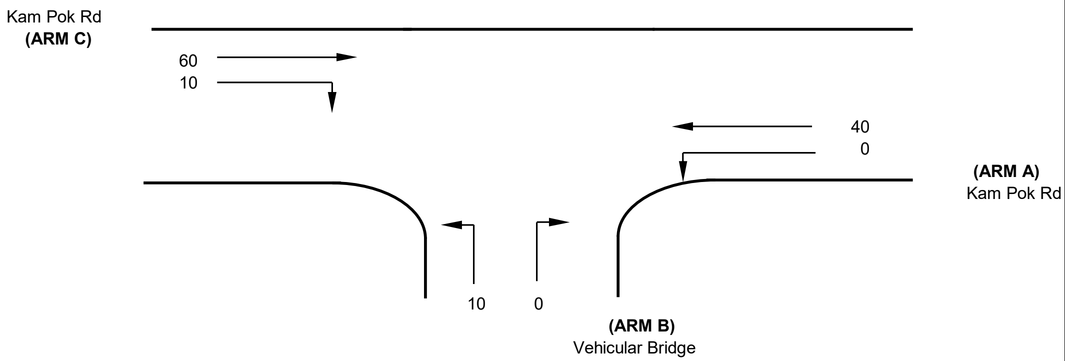
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.00
DFC b-c	=	0.01
DFC c-b	=	0.02
DFC b-ac	=	0.01

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Vehicular Bridge/ Kam Pok Road	2021 AM Observed Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



NOTES : (GEOMETRIC INPUT DATA)

J11

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	40	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	20	(metres)
q c-a	=	60	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.6	(metres)
W b-c	=	3.6	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	20	(metres)
Vr b-c	=	20	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.905723
F	=	0.905723
Y	=	0.751600

THE CAPACITY OF MOVEMENT :

Q b-a	=	503
Q b-c	=	665
Q c-b	=	665
Q b-ac	=	665

COMPARISION OF DESIGN FLOW TO CAPACITY :

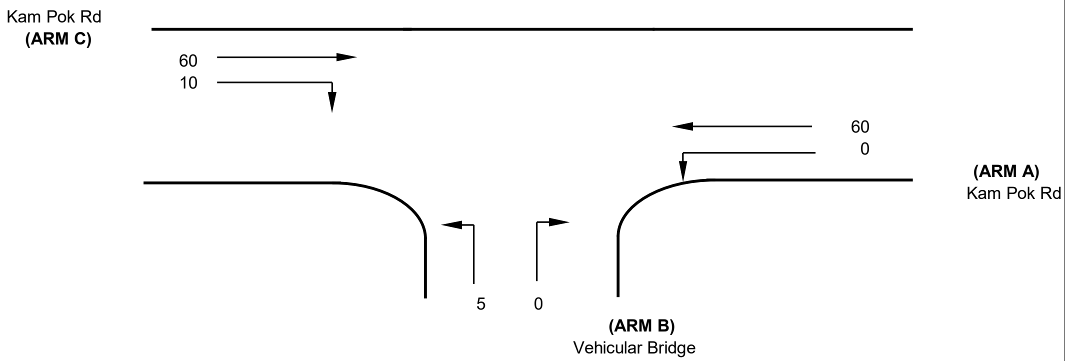
DFC b-a	=	0.00
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.02

CRITICAL DFC = 0.02

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Vehicular Bridge/ Kam Pok Road	2021 PM Observed Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Sep 24



NOTES : (GEOMETRIC INPUT DATA)

J11

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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)				*MAJOR ROAD (ARM C)*				*MINOR ROAD (ARM B)*			
W	=	7.2	(metres)	W c-b	=	3.6	(metres)	W b-a	=	3.6	(metres)
W cr	=	0	(metres)	Vr c-b	=	20	(metres)	W b-c	=	3.6	(metres)
q a-b	=	0	(pcu/hr)	q c-a	=	60	(pcu/hr)	Vl b-a	=	20	(metres)
q a-c	=	60	(pcu/hr)	q c-b	=	10	(pcu/hr)	Vr b-a	=	20	(metres)
								Vr b-c	=	20	(metres)
								q b-a	=	0	(pcu/hr)
								q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.835077
E	=	0.905723
F	=	0.905723
Y	=	0.751600

THE CAPACITY OF MOVEMENT :

Q b-a	=	498
Q b-c	=	660
Q c-b	=	660
Q b-ac	=	660

CRITICAL DFC = 0.02

COMPARISION OF DESIGN FLOW TO CAPACITY :

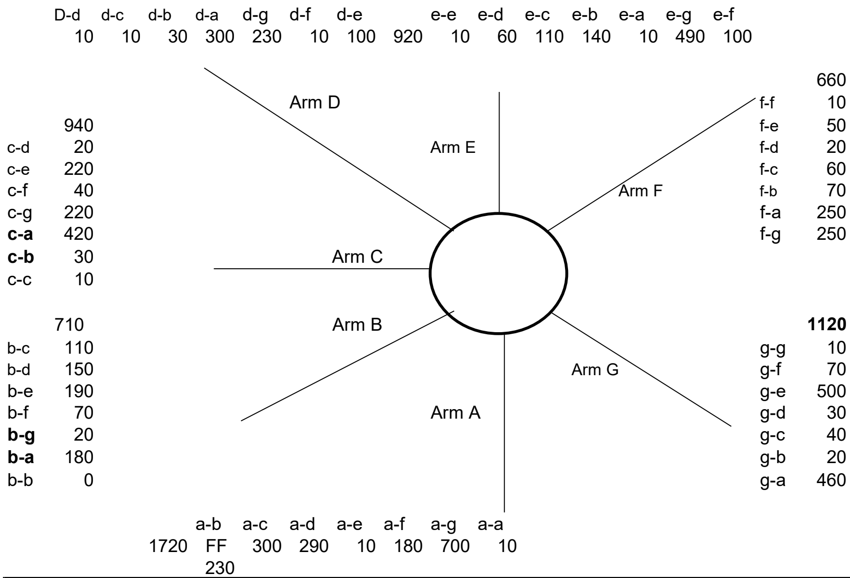
DFC b-a	=	0.00
DFC b-c	=	0.01
DFC c-b	=	0.02
DFC b-ac	=	0.01

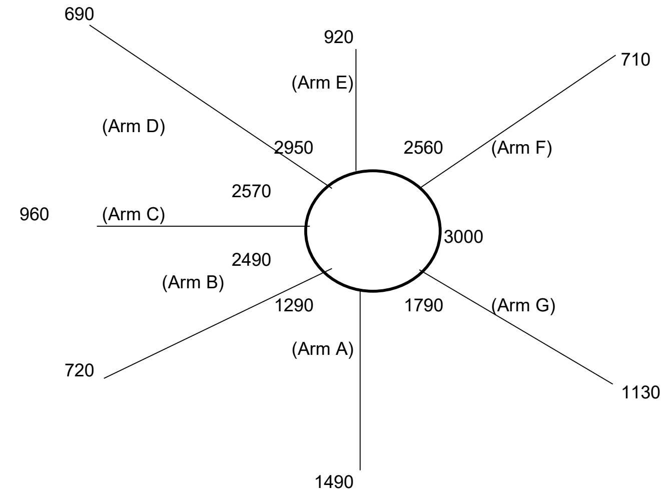
Reference Flow

ROUNDABOUT CAPACITY CALCULATIC

AECOM

Junction	**Junction J1 - Fairview Roundabout**	cenar	**2034 AM Reference Flows**	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025





ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	5.00	7.00	5.50	6.30	5.90	6.75
E = Entry width (m)	8.00	8.00	10.00	10.00	10.00	8.50	8.50
L = Effective length of flare (m)	10.00	25.00	10.00	16.00	30.00	10.00	20.00
R = Entry radius (m)	20.00	22.00	22.00	20.00	23.00	20.00	20.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	65.00	30.00	40.00	45.00	30.00	60.00	35.00
Q = Entry flow (pcu/h)	1490	720	960	690	920	710	1130
Qc= Circulating flow across entry (pcu/h)	1290	2490	2570	2950	2560	3000	1790
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.19	0.48	0.45	0.20	0.42	0.14
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.00	0.97	0.95	1.01	0.90	0.98
X2= V + ((E-V)/(1+2S))	7.22	7.17	8.53	7.87	8.95	7.32	8.12
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2188	2172	2585	2384	2713	2218	2460
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.51	0.51	0.57	0.54	0.59	0.52	0.55
Qe= K(F-Fc*Qc)	1340	903	1090	748	1220	596	1448
DFC = Design flow/Capacity = Q/Qe	1.11	0.80	0.88	0.92	0.75	1.19	0.78

TOTAL ENTRY FLOWS = 6620 PCU

CRITICAL DFC = 1.19

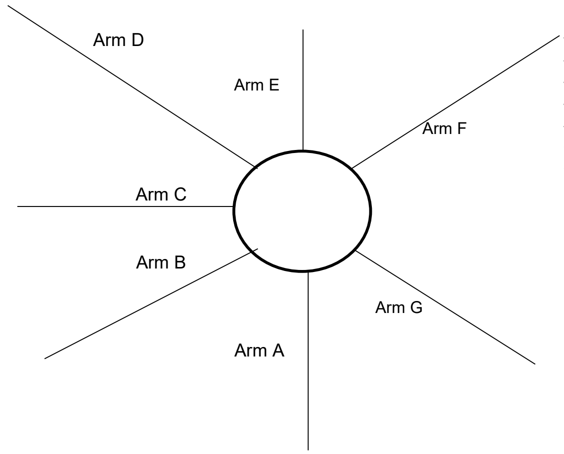
ROUNDABOUT CAPACITY CALCULATIC **AECOM**

Junction	Junction J1 - Fairview Roundabout	cenar	2034 PM Reference Flows	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025

D-d	d-c	d-b	d-a	d-g	d-f	d-e
10	10	30	150	150	10	70

e-e	e-d	e-c	e-b	e-a	e-g	e-f
20	100	130	170	20	430	80

c-d	10
c-e	190
c-f	50
c-g	200
c-a	290
c-b	30
c-c	10

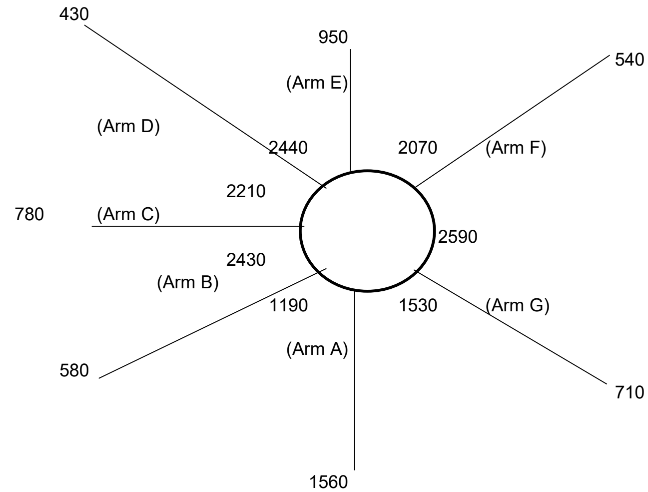


f-f	20
f-e	60
f-d	20
f-c	40
f-b	60
f-a	140
f-g	200

b-c	60
b-d	90
b-e	170
b-f	50
b-g	10
b-a	190
b-b	10

g-g	10
g-f	70
g-e	280
g-d	20
g-c	70
g-b	20
g-a	240

a-b	a-c	a-d	a-e	a-f	a-g	a-a
FF 230	480	300	10	150	600	20



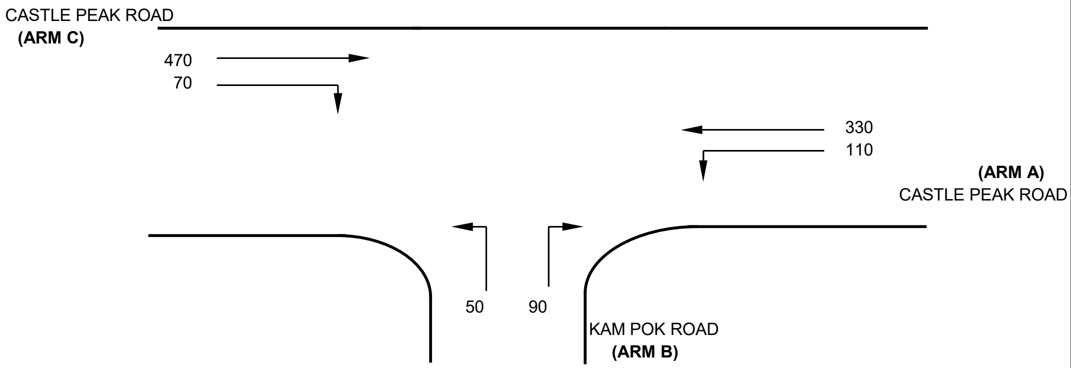
ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	5.00	7.00	5.50	6.30	5.90	6.75
E = Entry width (m)	8.00	8.00	10.00	10.00	10.00	8.50	8.50
L = Effective length of flare (m)	10.00	25.00	10.00	16.00	30.00	10.00	20.00
R = Entry radius (m)	20.00	22.00	22.00	20.00	23.00	20.00	20.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	65.00	30.00	40.00	45.00	30.00	60.00	35.00
Q = Entry flow (pcu/h)	1560	580	780	430	950	540	710
Qc= Circulating flow across entry (pcu/h)	1190	2430	2210	2440	2070	2590	1530
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.19	0.48	0.45	0.20	0.42	0.14
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.00	0.97	0.95	1.01	0.90	0.98
X2= V + ((E-V)/(1+2S))	7.22	7.17	8.53	7.87	8.95	7.32	8.12
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2188	2172	2585	2384	2713	2218	2460
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.51	0.51	0.57	0.54	0.59	0.52	0.55
Qe= K(F-Fc*Qc)	1385	934	1288	1010	1509	786	1588
DFC = Design flow/Capacity = Q/Qe	1.13	0.62	0.61	0.43	0.63	0.69	0.45

TOTAL ENTRY FLOWS = 5550 PCU

CRITICAL DFC = 1.13

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 AM Reference Flows	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.3	(metres)
W cr	=	0	(metres)
q a-b	=	110	(pcu/hr)
q a-c	=	330	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	30	(metres)
q c-a	=	470	(pcu/hr)
q c-b	=	70	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.07	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	80	(metres)
q b-a	=	90	(pcu/hr)
q b-c	=	50	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	413
Q b-c	=	645
Q c-b	=	488
Q b-ac	=	474

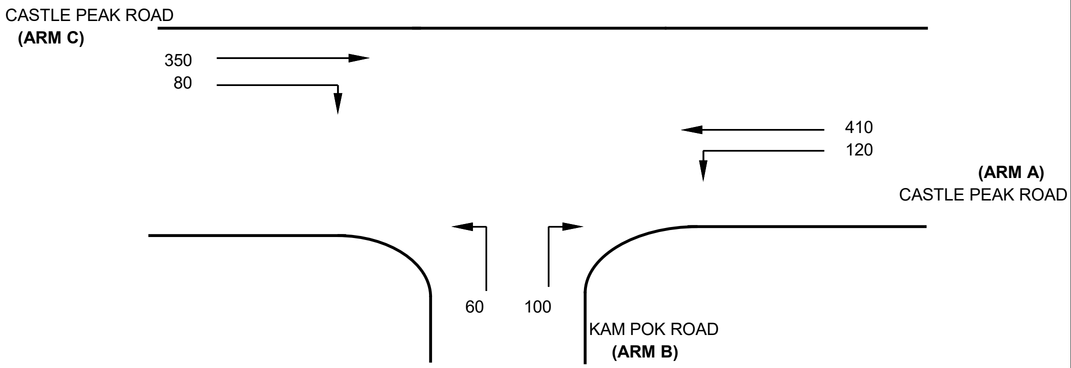
CRITICAL DFC = 0.30

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.22
DFC b-c	=	0.08
DFC c-b	=	0.14
DFC b-ac	=	0.30

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 PM Reference Flows	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.3	(metres)
W cr	=	0	(metres)
q a-b	=	120	(pcu/hr)
q a-c	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	30	(metres)
q c-a	=	350	(pcu/hr)
q c-b	=	80	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.07	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	80	(metres)
q b-a	=	100	(pcu/hr)
q b-c	=	60	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	407
Q b-c	=	622
Q c-b	=	469
Q b-ac	=	468

CRITICAL DFC = 0.34

COMPARISION OF DESIGN FLOW TO CAPACITY :

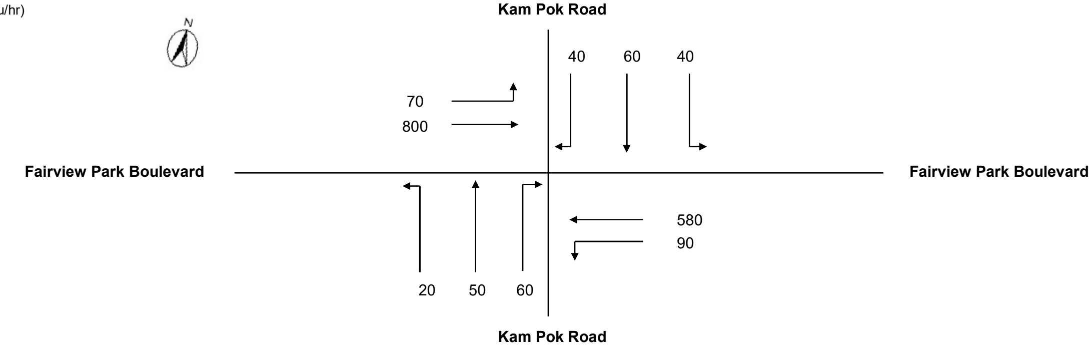
DFC b-a	=	0.25
DFC b-c	=	0.10
DFC c-b	=	0.17
DFC b-ac	=	0.34

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 AM Reference Flows	DESIGN: MHS	CHECK: WCS	JOB NO: -	DATE: Sep 24

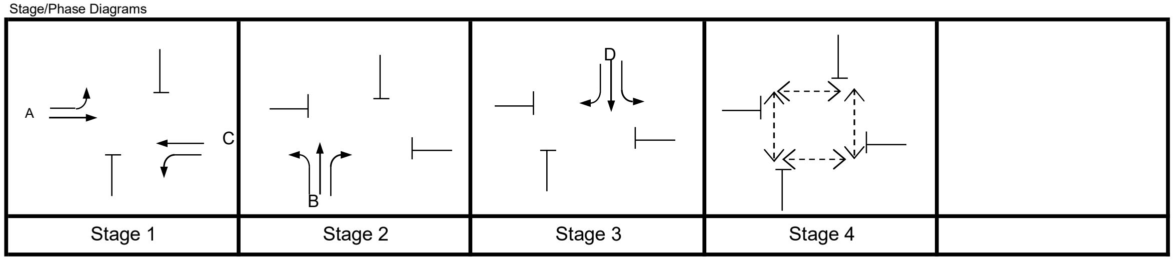
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.360	
Lost time		L =	44	sec
Total Flow		=	11,980	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	111	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	69	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	58.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	73	sec
Y_{max}	$= 1-L/C$	=	0.633	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

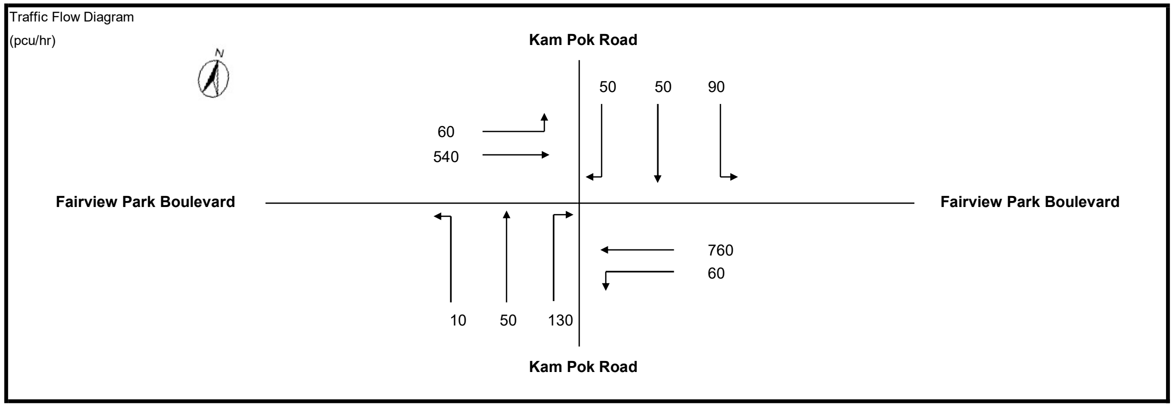
Critical Case : A,B,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 58%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	70	362		432	16%		1914	0.225	0.225
	A	1	3.300	1				1		0		1945		439		439			1945	0.225	
	B	2	3.600	1	13	20	0	1		0		1975	20	50	60	130	15%	46%	1877	0.069	0.069
	C	1	3.000	1	17			1		0		1915	90	238		328	27%		1870	0.176	
	C	1	3.300	1				1		0		1945		342		342			1945	0.176	
	D	3	6.400	1	15.5	17.5	0	1		0		2255	40	60	40	140	29%	29%	2143	0.065	0.065
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

JUNCTION CAPACITY CALCULATION

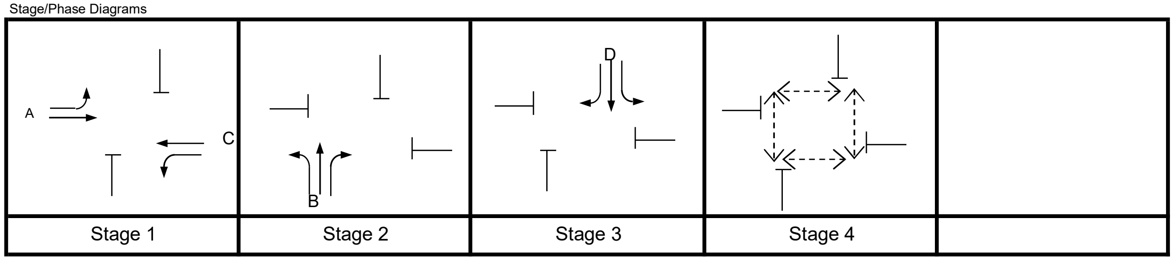
Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 PM Existing Traffic Flows	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Sep 24



J3

No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.406
Lost time		L =	44 sec
Total Flow		=	11,980 pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	119 sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	74 sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.570
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	40.5 %
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	80 sec
Y_{max}	$= 1-L/C$	=	0.633

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : C,B,D,Ep

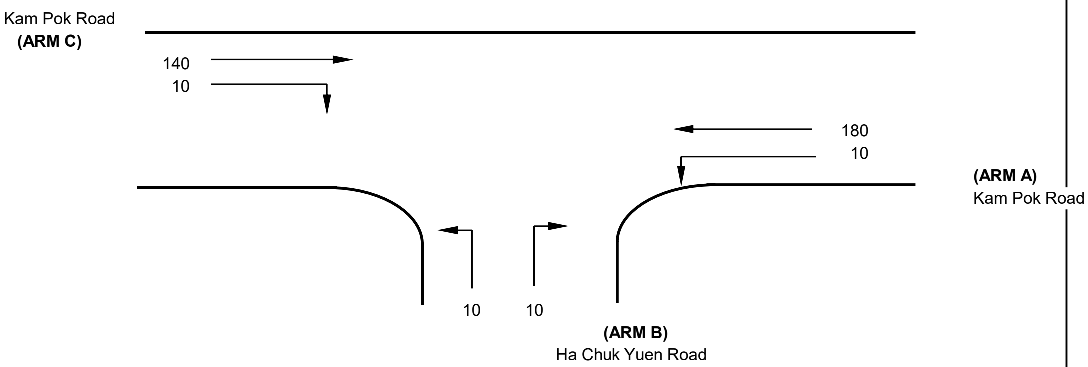
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 41%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	60	237		297	20%		1906	0.156	
	A	1	3.300	1				1		0		1945		303		303			1945	0.156	
	B	2	3.600	1	13	20	0	1		0		1975	10	50	130	190	5%	68%	1868	0.102	0.102
	C	1	3.000	1	17			1		0		1915	60	344		404	15%		1890	0.214	
	C	1	3.300	1				1		0		1945		416		416			1945	0.214	0.214
	D	3	6.400	1	15.5	17.5	0	1		0		2255	90	50	50	190	47%	26%	2111	0.090	0.090
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 AM Reference Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Sep 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	180	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5	(metres)
Vr c-b	=	50	(metres)
q c-a	=	140	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	416
Q b-c	=	557
Q c-b	=	645
Q b-ac	=	476

CRITICAL DFC = 0.04

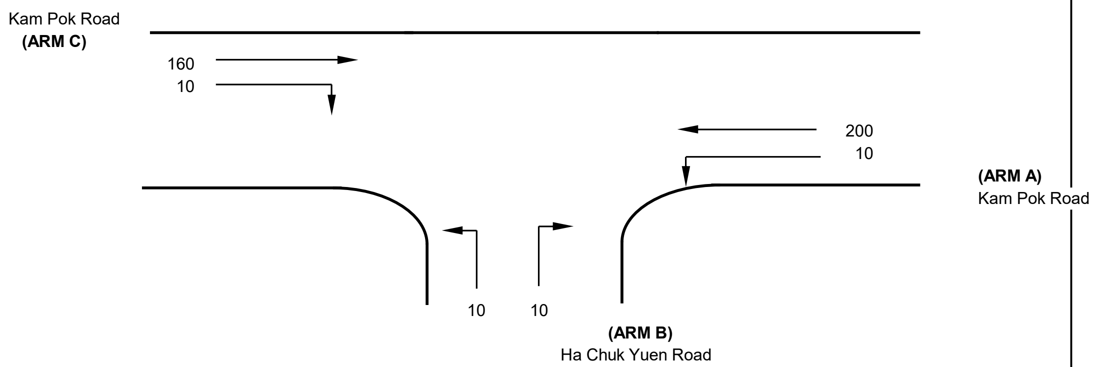
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.04

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 PM Reference Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Sep 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	200	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5	(metres)
Vr c-b	=	50	(metres)
q c-a	=	160	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	410
Q b-c	=	553
Q c-b	=	640
Q b-ac	=	471

CRITICAL DFC = 0.04

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.02
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.04

```
                                TRL LIMITED

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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                       PICADY 5.1  ANALYSIS PROGRAM
                          RELEASE 5.0 (JUNE 2010)

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 Run with file:- "C:\Users\Sam.Wong\Downloads\J5\34_KPR-PWSR_REF.vpi"
(drive-on-the-left) at 12:27:45 on Friday, 13 September 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : 2034 - J5 Kam Pok Road/ Pok Wai South Road
 LOCATION        :
 DATE            : 21/12/13
 CLIENT          :
 ENUMERATOR      : nokhinnaomi.tam [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  *************************************

  INPUT DATA
  ----------

                                            MINOR ROAD (ARM D)
                                                   I
                                                   I
                                                   I
                                                   I
                                                   I
                                                   I
                     MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                   I
                                                   I
                                                   I
                                                   I
                                                   I
                                                   I
                                            MINOR ROAD (ARM B)

 ARM A IS Kam Pok Road
 ARM B IS Pok Wai South Road
 ARM C IS Kam Pok Road West
 ARM D IS Kam Pok Road

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

--------------------------------------------------------------------------------
--------------------------
 I                DATA ITEM                                  I   MINOR ROAD
B    I   MINOR ROAD D    I

--------------------------------------------------------------------------------
--------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                       I ( W  )  8.80
M.   I ( W  )  8.80 M.   I
 I  CENTRAL RESERVE WIDTH                                    I (WCR )  0.00
M.   I (WCR )  0.00 M.   I
 I                                                           I
    I                    I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                           I (WC-B)  2.20
M.   I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                      I (VC-B) 50.00
M.   I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)         I         YES
( 0) I          NO  ( 0) I
 I                                                           I
    I                    I
 I  MINOR ROAD - VISIBILITY TO LEFT                          I (VB-C)  50.0
M.   I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                         I (VB-A)  50.0
M.   I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                I (WB-C)  2.20
M.   I (WD-A)  5.00 M.   I
 I             - LANE 2 WIDTH                                I (WB-A)  0.00
M.   I (WD-C)  0.00 M.   I

--------------------------------------------------------------------------------
--------------------------
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.21	0.29	0.21

B-D Stream From Left Hand Lane

```
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
------------------
 I     476.98           0.19                0.19                 0.08
     0.28       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
------------------
 I                      0.12                0.12
                I

--------------------------------------------------------------------------------
------------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
------------------
 I     476.98           0.19                0.19                 0.08
     0.28       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
------------------
 I                      0.12                0.12
                I

--------------------------------------------------------------------------------
------------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
------------------
 I     622.33           0.25                0.25                 0.10
     0.36       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                      0.16                0.16
                I

--------------------------------------------------------------------------------
------------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
------------------
 I     622.33           0.25                0.25                 0.10
     0.36       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
```

```
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                       0.16                 0.16
                I

--------------------------------------------------------------------------------
------------------
```

.TRAFFIC DEMAND DATA

```
 ------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------
```

.Demand set: 2034 Reference AM - J5 Kam Pok Road/ Pok Wai South Road

TIME PERIOD BEGINS 08.00 AND ENDS 09.30

LENGTH OF TIME PERIOD -   90 MIN.
LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

```
--------------------------------------------------------------------------------
----
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
   I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
   I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
   I
 I        I             I             I            I        I         I
   I

--------------------------------------------------------------------------------
----
 I ARM  A I     15.00   I     45.00   I    75.00   I  3.75  I    5.63  I  3.75
   I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.75  I    1.13  I  0.75
   I
 I ARM  C I     15.00   I     45.00   I    75.00   I  2.75  I    4.13  I  2.75
   I
 I ARM  D I     15.00   I     45.00   I    75.00   I  2.13  I    3.19  I  2.13
   I
```

```
--------------------------------------------------------------------------------
----

.Demand set:        2034 Reference AM - J5 Kam Pok Road/ Pok Wai South Road
 -------------------------------------------------------------------
 I                   I         TURNING PROPORTIONS                 I
 I                   I         TURNING COUNTS                      I
 I                   I        (PERCENTAGE OF H.V.S)                I
 I                    ---------------------------------------------
 I       TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 -------------------------------------------------------------------
 I   08.00 - 09.30   I         I        I        I        I        I
 I                   I ARM  A  I  0.000 I  0.033 I  0.733 I  0.233 I
 I                   I         I    0.0 I   10.0 I  220.0 I   70.0 I
 I                   I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                   I         I        I        I        I        I
 I                   I ARM  B  I  0.167 I  0.000 I  0.167 I  0.667 I
 I                   I         I   10.0 I    0.0 I   10.0 I   40.0 I
 I                   I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                   I         I        I        I        I        I
 I                   I ARM  C  I  0.682 I  0.091 I  0.000 I  0.227 I
 I                   I         I  150.0 I   20.0 I    0.0 I   50.0 I
 I                   I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                   I         I        I        I        I        I
 I                   I ARM  D  I  0.294 I  0.294 I  0.412 I  0.000 I
 I                   I         I   50.0 I   50.0 I   70.0 I    0.0 I
 I                   I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                   I         I        I        I        I        I
 -------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED
```

```
.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET        2034 Reference AM - J5 Kam Pok Road/ Pok
Wai South Road
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                 I
 I   B-ACD     0.75      6.40    0.118               0.00   0.13       1.9
                                 I
 I   A-B       0.13
                                 I
 I   A-C       2.76
                                 I
 I   A-D       0.88      8.55    0.103               0.00   0.11       1.6
                                 I
```

```
 I   D-ABC     2.13      8.73    0.244               0.00   0.32        4.6
                                 I
 I   C-ABD     0.33     10.02    0.033               0.00   0.04        0.7
                                 I
 I   C-D       0.61
                                 I
 I   C-A       1.82
                                 I
 I
                                 I
.-------------------------------------------------------------------------------
-----------------------------------

.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                 I
 I   B-ACD     0.90      6.18    0.145               0.13   0.17        2.4
                                 I
 I   A-B       0.15
                                 I
 I   A-C       3.30
                                 I
 I   A-D       1.05      8.43    0.124               0.11   0.14        2.1
                                 I
 I   D-ABC     2.55      8.47    0.301               0.32   0.42        6.2
                                 I
 I   C-ABD     0.42     10.20    0.041               0.04   0.06        0.9
                                 I
 I   C-D       0.72
                                 I
 I   C-A       2.16
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                 I
 I   B-ACD     1.10      5.88    0.187               0.17   0.23        3.3
                                 I
 I   A-B       0.18
                                 I
 I   A-C       4.04
                                 I
 I   A-D       1.28      8.27    0.155               0.14   0.18        2.7
                                 I
 I   D-ABC     3.12      8.10    0.385               0.42   0.61        8.8
                                 I
 I   C-ABD     0.55     10.46    0.053               0.06   0.08        1.2
                                 I
 I   C-D       0.87
                                 I
 I   C-A       2.61
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                 I
 I   B-ACD     1.10      5.88    0.187               0.23   0.23        3.4
                                 I
 I   A-B       0.18
                                 I
 I   A-C       4.04
                                 I
 I   A-D       1.28      8.27    0.155               0.18   0.18        2.7
                                 I
 I   D-ABC     3.12      8.10    0.385               0.61   0.62        9.3
                                 I
 I   C-ABD     0.55     10.46    0.053               0.08   0.08        1.2
                                 I
 I   C-D       0.87
                                 I
 I   C-A       2.61
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
```

```
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                 I
 I   B-ACD     0.90      6.18    0.146               0.23   0.17        2.7
                                 I
 I   A-B       0.15
                                 I
 I   A-C       3.30
                                 I
 I   A-D       1.05      8.43    0.124               0.18   0.14        2.2
                                 I
 I   D-ABC     2.55      8.46    0.301               0.62   0.44        6.8
                                 I
 I   C-ABD     0.42     10.20    0.041               0.08   0.06        0.9
                                 I
 I   C-D       0.72
                                 I
 I   C-A       2.16
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                 I
 I   B-ACD     0.75      6.39    0.118               0.17   0.14        2.1
                                 I
 I   A-B       0.13
                                 I
 I   A-C       2.76
                                 I
 I   A-D       0.88      8.55    0.103               0.14   0.12        1.8
                                 I
 I   D-ABC     2.13      8.72    0.244               0.44   0.33        5.1
                                 I
 I   C-ABD     0.33     10.02    0.033               0.06   0.05        0.7
                                 I
 I   C-D       0.61
                                 I
 I   C-A       1.82
                                 I
 I
                                 I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
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.
QUEUE FOR STREAM    B-ACD
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.1
  08.30           0.2
  08.45           0.2
  09.00           0.2
  09.15           0.2
  09.30           0.1
.
QUEUE FOR STREAM    A-D
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.1
  08.30           0.1
  08.45           0.2
  09.00           0.2
  09.15           0.1
  09.30           0.1
.
QUEUE FOR STREAM    D-ABC
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.3
  08.30           0.4
  08.45           0.6    *
  09.00           0.6    *
  09.15           0.4
  09.30           0.3
.
QUEUE FOR STREAM    C-ABD
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.0
  08.30           0.1
  08.45           0.1
  09.00           0.1
  09.15           0.1
  09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I-----------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
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B-ACD	82.6	55.1	15.8	0.19	15.8	0.19
A-B	13.8	9.2				
A-C	302.8	201.9				
A-D	96.3	64.2	13.1	0.14	13.1	0.14
D-ABC	234.0	156.0	40.7	0.17	40.7	0.17
C-ABD	39.1	26.1	5.6	0.14	5.6	0.14
C-D	65.9	43.9				
C-A	197.8	131.8				
ALL	1032.3	688.2	75.1	0.07	75.1	0.07

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.21	0.29	0.21

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
476.98	0.19	0.19	0.08	0.28

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.12	0.12		

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
476.98	0.19	0.19	0.08	0.28

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.12	0.12		

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
622.33	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing	Slope For Opposing
	0.16	0.16		

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
622.33	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing	Slope For Opposing
	0.16	0.16		

.TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

.Demand set: 2034 Reference PM - J5 Kam Pok Road/ Pok Wai South Road

TIME PERIOD BEGINS 08.00 AND ENDS 09.30

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.75	4.13	2.75
ARM B	15.00	45.00	75.00	0.75	1.13	0.75
ARM C	15.00	45.00	75.00	3.00	4.50	3.00
ARM D	15.00	45.00	75.00	1.50	2.25	1.50

.Demand set: 2034 Reference PM - J5 Kam Pok Road/ Pok Wai South Road

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
08.00 - 09.30					
	ARM A	0.000	0.045	0.636	0.318
		0.0	10.0	140.0	70.0
		(0.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.167	0.000	0.167	0.667
		10.0	0.0	10.0	40.0
		(10.0)	(0.0)	(10.0)	(10.0)
	ARM C	0.625	0.042	0.000	0.333
		150.0	10.0	0.0	80.0
		(10.0)	(10.0)	(0.0)	(10.0)
	ARM D	0.500	0.250	0.250	0.000
		60.0	30.0	30.0	0.0
		(10.0)	(10.0)	(10.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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               FOR DEMAND SET         2034 Reference PM - J5 Kam Pok Road/ Pok
Wai South Road
               AND FOR TIME PERIOD       1
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                 I
 I   B-ACD     0.75      6.61    0.114              0.00   0.13        1.8
                                 I
 I   A-B       0.13
                                 I
 I   A-C       1.76
                                 I
 I   A-D       0.88      8.51    0.103              0.00   0.11        1.6
                                 I
 I   D-ABC     1.51      9.46    0.159              0.00   0.19        2.7
                                 I
 I   C-ABD     0.17     10.46    0.016              0.00   0.02        0.3
                                 I
 I   C-D       0.99
                                 I
 I   C-A       1.85
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                 I
 I   B-ACD     0.90      6.43    0.140              0.13   0.16        2.3
                                 I
 I   A-B       0.15
                                 I
 I   A-C       2.10
                                 I
 I   A-D       1.05      8.38    0.125              0.11   0.14        2.1
                                 I
 I   D-ABC     1.80      9.24    0.194              0.19   0.24        3.5
                                 I
 I   C-ABD     0.22     10.72    0.020              0.02   0.02        0.4
                                 I
 I   C-D       1.18
                                 I
 I   C-A       2.20
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                 I
 I   B-ACD     1.10      6.19    0.178              0.16   0.21        3.1
                                 I
 I   A-B       0.18
                                 I
 I   A-C       2.57
                                 I
 I   A-D       1.28      8.22    0.156              0.14   0.18        2.7
                                 I
 I   D-ABC     2.20      8.95    0.246              0.24   0.32        4.7
                                 I
 I   C-ABD     0.29     11.08    0.026              0.02   0.03        0.5
                                 I
 I   C-D       1.43
                                 I
 I   C-A       2.68
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                 I
 I   B-ACD     1.10      6.19    0.178              0.21   0.21        3.2
                                 I
 I   A-B       0.18
                                 I
 I   A-C       2.57
                                 I
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 I   A-D       1.28      8.21    0.156              0.18   0.18        2.8
                                 I
 I   D-ABC     2.20      8.94    0.246              0.32   0.32        4.9
                                 I
 I   C-ABD     0.29     11.08    0.026              0.03   0.03        0.5
                                 I
 I   C-D       1.43
                                 I
 I   C-A       2.68
                                 I
 I
                                 I
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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                 I
 I   B-ACD     0.90      6.43    0.140              0.21   0.16        2.5
                                 I
 I   A-B       0.15
                                 I
 I   A-C       2.10
                                 I
 I   A-D       1.05      8.38    0.125              0.18   0.14        2.2
                                 I
 I   D-ABC     1.80      9.24    0.195              0.32   0.24        3.8
                                 I
 I   C-ABD     0.22     10.72    0.020              0.03   0.02        0.4
                                 I
 I   C-D       1.18
                                 I
 I   C-A       2.20
                                 I
 I
                                 I
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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                 I
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```
 I   B-ACD     0.75      6.60    0.114              0.16   0.13        2.0
                                 I
 I   A-B       0.13
                                 I
 I   A-C       1.76
                                 I
 I   A-D       0.88      8.51    0.103              0.14   0.12        1.8
                                 I
 I   D-ABC     1.51      9.46    0.159              0.24   0.19        2.9
                                 I
 I   C-ABD     0.17     10.46    0.016              0.02   0.02        0.3
                                 I
 I   C-D       0.99
                                 I
 I   C-A       1.85
                                 I
 I
                                 I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.2
   08.45           0.2
   09.00           0.2
   09.15           0.2
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.2
   09.00           0.2
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.2
   08.45           0.3
   09.00           0.3
   09.15           0.2
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  09.30           0.2

QUEUE FOR STREAM    C-ABD
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.0
  08.30           0.0
  08.45           0.0
  09.00           0.0
  09.15           0.0
  09.30           0.0

                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I--------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-ACD I   82.6 I   55.1 I    15.0 I    0.18   I      15.0  I    0.18   I
I  A-B   I   13.8 I    9.2 I         I           I            I           I
I  A-C   I  192.7 I  128.5 I         I           I            I           I
I  A-D   I   96.3 I   64.2 I    13.2 I    0.14   I      13.2  I    0.14   I
I  D-ABC I  165.2 I  110.1 I    22.5 I    0.14   I      22.5  I    0.14   I
I  C-ABD I   20.3 I   13.5 I     2.3 I    0.11   I       2.3  I    0.11   I
I  C-D   I  107.9 I   71.9 I         I           I            I           I
I  C-A   I  202.2 I  134.8 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I  880.9 I  587.3 I    52.9 I    0.06   I      52.9  I    0.06   I
---------------------------------------------------------------------------
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******


****** PICADY 5 run completed.
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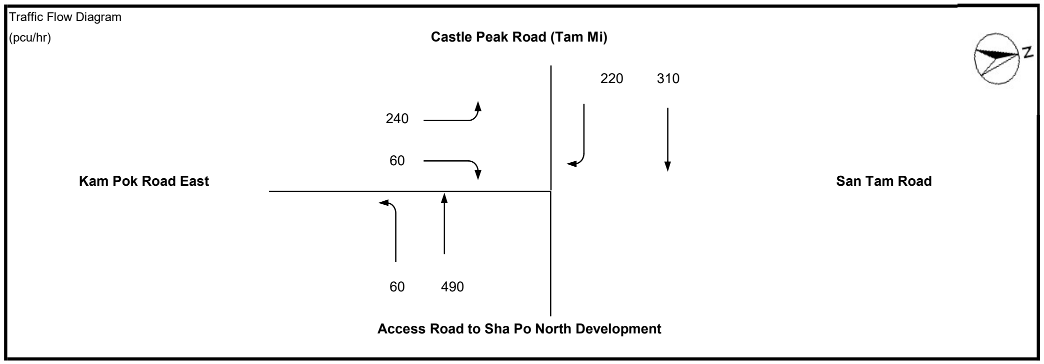
JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 AM Peak Hour Reference Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

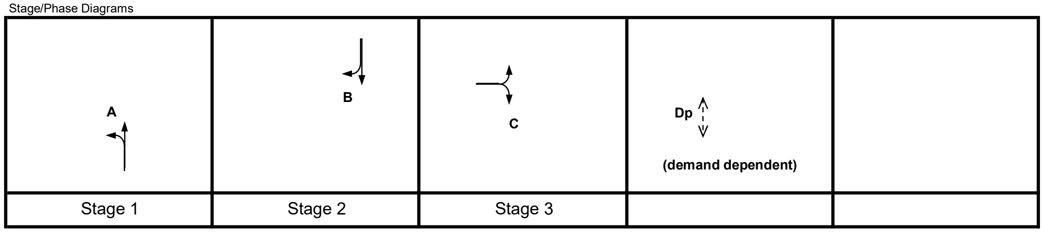
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.570	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	57	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	30	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	40.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	36	sec
Y_{max} = $1-L/C$	=	0.856	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 5

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 35%

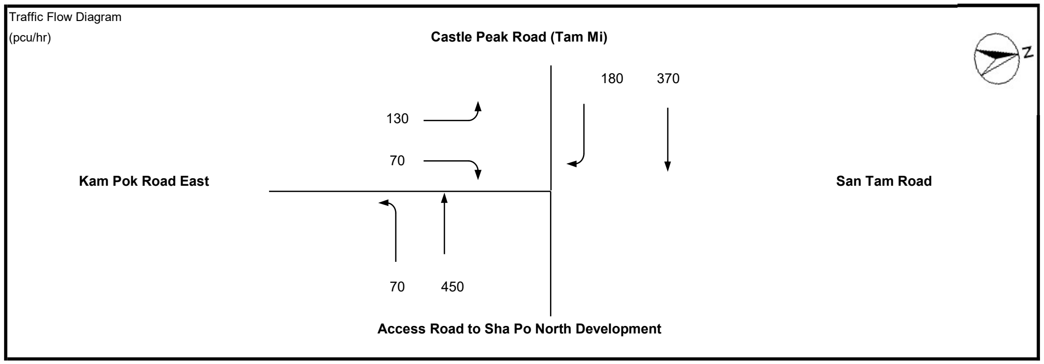
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	60	490		550	11%		1952	0.282	0.282
	B	2	3.400	1				1		0		1955		310		310			1955	0.159	0.159
	B	2	3.500	1		30	0	0		0		2105			220	220		100%	2005	0.110	
	C	3	3.400	1	25			1		0		1955	240			240	100%		1844	0.130	0.130
	C	3	3.400	1		30	0	0		0		2095			60	60		100%	1995	0.030	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 PM Peak Hour Reference Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

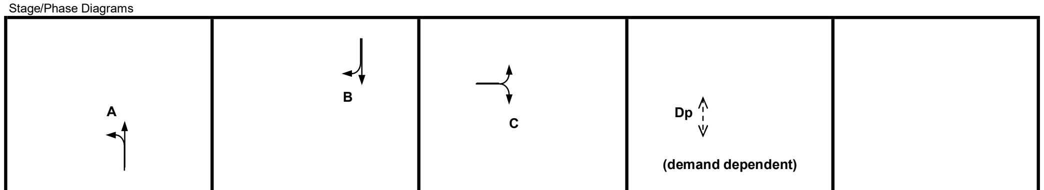
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.527	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	52	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	27	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	52.4	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	31	sec
Y_{max}	$= 1-L/C =$	0.856	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

I/G = 6 I/G = 5 I/G = 5

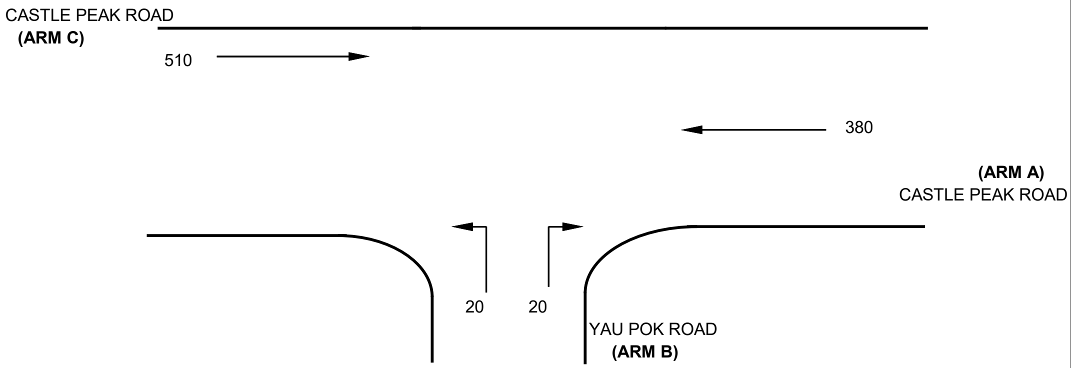
Critical Case : A,B,C,Dp

R.C.(C) $= (0.9\text{x}Y_{max}\text{-}Y)/Y\text{x}100\% =$ 46%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	70	450		520	13%		1949	0.267	0.267
	B	2	3.400	1				1		0		1955		370		370			1955	0.189	0.189
	B	2	3.500	1		30	0	0		0		2105			180	180		100%	2005	0.090	
	C	3	3.400	1	25			1		0		1955	130			130	100%		1844	0.070	0.070
	C	3	3.400	1		30	0	0		0		2095			70	70		100%	1995	0.035	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 AM Reference Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.5	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	380	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	25	(metres)
q c-a	=	510	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.8	(metres)
W b-c	=	1.8	(metres)
Vl b-a	=	25	(metres)
Vr b-a	=	25	(metres)
Vr b-c	=	25	(metres)
q b-a	=	20	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	300
Q b-c	=	482
Q c-b	=	383
Q b-ac	=	370

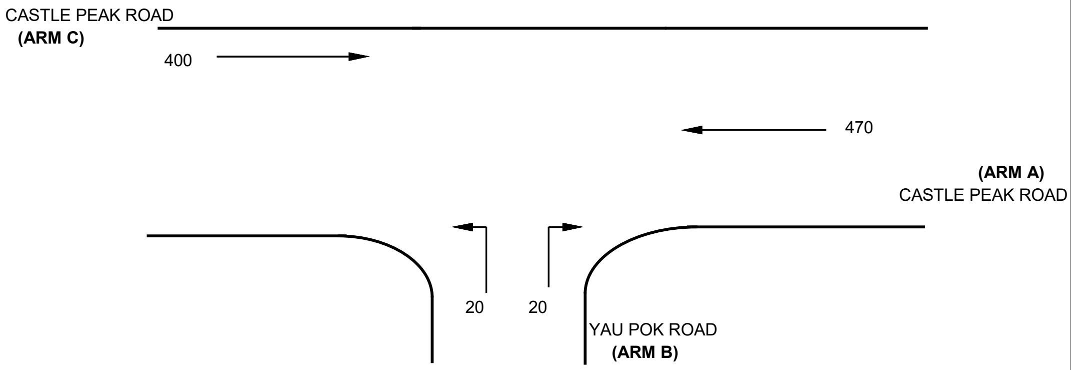
CRITICAL DFC = 0.07

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.07
DFC b-c	=	0.04
DFC c-b	=	0.00

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 PM Reference Flow	Designed By : MHS	Checked By : WCS	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)			*MAJOR ROAD (ARM C)*			*MINOR ROAD (ARM B)*		
W	=	6.5 (metres)	W c-b	=	0 (metres)	W b-a	=	1.8 (metres)
W cr	=	0 (metres)	Vr c-b	=	25 (metres)	W b-c	=	1.8 (metres)
q a-b	=	0 (pcu/hr)	q c-a	=	400 (pcu/hr)	Vl b-a	=	25 (metres)
q a-c	=	470 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	25 (metres)
						Vr b-c	=	25 (metres)
						q b-a	=	20 (pcu/hr)
						q b-c	=	20 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	296
Q b-c	=	463
Q c-b	=	368
Q b-ac	=	361

CRITICAL DFC = 0.07

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.07
DFC b-c	=	0.04
DFC c-b	=	0.00

```
                              TRL LIMITED

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  CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                       PICADY 5.1  ANALYSIS PROGRAM
                          RELEASE 5.0 (JUNE 2010)

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           --------------------------------------------------------


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 IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION

 Run with file:- "C:\Users\Sam.Wong\Downloads\J8\REF\J8_2034 AM Ref.vpi"
(drive-on-the-left) at 12:37:31 on Friday, 13 September 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : J8 - Yau Pok Road / REC North Access
 LOCATION        : Fairview
 DATE            : 09/02/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

                                         MINOR ROAD (ARM D)
                                                I
                                                I
                                                I
                                                I
                                                I
```

```
                                  I
        MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                  I
                                  I
                                  I
                                  I
                                  I
                                  I
                           MINOR ROAD (ARM B)

 ARM A IS Yau Pok Road exit
 ARM B IS Vehicular Bridge
 ARM C IS Yau Pok Road entry
 ARM D IS REC North

.STREAM LABELLING CONVENTION
 --------------------------
         STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
         STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
         ETC.

.GEOMETRIC DATA
 -------------

--------------------------------------------------------------------------------------
--------------------
 I                DATA ITEM                                      I   MINOR ROAD B
I   MINOR ROAD D    I

--------------------------------------------------------------------------------------
--------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                           I ( W  )  6.00 M.
I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                        I (WCR )  0.00 M.
I (WCR )  0.00 M.   I
 I                                                               I
I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                               I (WC-B)  2.20 M.
I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                          I (VC-B) 50.00 M.
I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)             I         YES  ( 0)
I         NO  ( 0) I
 I                                                               I
I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                              I (VB-C)  50.0 M.
I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                             I (VB-A)  50.0 M.
I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                    I (WB-C)  3.50 M.
I (WD-A)  3.50 M.   I
 I             - LANE 2 WIDTH                                    I (WB-A)  0.00 M.
I (WD-C)  0.00 M.   I
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

I Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B I
688.22	0.27	0.11

STREAM D-A

I Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D I
688.22	0.27	0.11

STREAM B-A

I Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B I
544.46	0.25	0.25	0.25	0.25

I	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C I
	0.10	0.16	0.36	0.13

STREAM D-C

I Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D I
544.46	0.25	0.25	0.25	0.25

I	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A I
	0.10	0.16	0.36	0.13

STREAM C-B

I Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D I
602.92	0.23	0.23	0.33

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
544.46	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.16	0.16		

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
544.46	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.16	0.16		

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
544.46	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing	Slope For Opposing
	0.16	0.16		

D-B Stream From Right Hand Lane

```
------------------------------------------------------------------------------------
-----------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D          STREAM
 A-D      I

------------------------------------------------------------------------------------
-----------
 I     544.46            0.25                0.25                  0.10
0.36      I

------------------------------------------------------------------------------------
-----------

------------------------------------------------------------------------------------
-----------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I                 STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
-----------
 I                       0.16                0.16
          I

------------------------------------------------------------------------------------
-----------
```

```
.TRAFFIC DEMAND DATA
 -------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

.Demand set:        J8 2034 REF AM - Yau Pok Road / REC North Access


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

 -----------------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)       I
```

```
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER       I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK        I
 I        I             I             I            I        I         I             I
 -----------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I    0.00  I  0.00      I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.63  I    0.94  I  0.63      I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I    0.00  I  0.00      I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I    0.75  I  0.50      I
 -----------------------------------------------------------------------------------

.Demand set:        J8 2034 REF AM - Yau Pok Road / REC North Access
 -------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                I
 I                    I         TURNING COUNTS                     I
 I                    I        (PERCENTAGE OF H.V.S)               I
 I                    ---------------------------------------------
 I       TIME         I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 -------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.400 I  0.000 I  0.000 I  0.600 I
 I                    I         I   20.0 I    0.0 I    0.0 I   30.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 -------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         J8 2034 REF AM - Yau Pok Road / REC North
Access
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------------
-----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                            I
```

```
 I   B-ACD     0.63      9.02    0.070                0.00   0.07        1.1
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   D-ABC     0.50      9.07    0.055                0.00   0.06        0.8
                          I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   C-D       0.00
                          I
 I   C-A       0.00
                          I
 I
                          I
.------------------------------------------------------------------------------------
----------------------------

.------------------------------------------------------------------------------------
----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                          I
 I   B-ACD     0.75      9.01    0.083                0.07   0.09        1.3
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   D-ABC     0.60      9.07    0.066                0.06   0.07        1.0
                          I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   C-D       0.00
                          I
 I   C-A       0.00
                          I
 I
                          I
.------------------------------------------------------------------------------------
----------------------------

.------------------------------------------------------------------------------------
----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                          I
 I   B-ACD     0.92      9.00    0.102                0.09   0.11        1.7
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   D-ABC     0.73      9.07    0.081                0.07   0.09        1.3
                          I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   C-D       0.00
                          I
 I   C-A       0.00
                          I
 I
                          I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                          I
 I   B-ACD     0.92      9.00    0.102                0.11   0.11        1.7
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   D-ABC     0.73      9.07    0.081                0.09   0.09        1.3
                          I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   C-D       0.00
```

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                          I
 I   C-A       0.00
                          I
 I
                          I
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----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                          I
 I   B-ACD     0.75      9.01    0.083                0.11   0.09        1.4
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   D-ABC     0.60      9.07    0.066                0.09   0.07        1.1
                          I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   C-D       0.00
                          I
 I   C-A       0.00
                          I
 I
                          I
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----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                          I
 I   B-ACD     0.63      9.02    0.070                0.09   0.08        1.2
                          I
 I   A-B       0.00
                          I
```

```
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   D-ABC     0.50      9.07    0.055                0.07   0.06        0.9
                          I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                          I
 I   C-D       0.00
                          I
 I   C-A       0.00
                          I
 I
                          I
.-------------------------------------------------------------------------------------
----------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
```

```
QUEUE FOR STREAM    C-ABD
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.0
  08.30           0.0
  08.45           0.0
  09.00           0.0
  09.15           0.0
  09.30           0.0

                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I---------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-ACD I   68.8 I   45.9 I     8.3 I    0.12   I       8.3  I    0.12   I
I  A-B   I    0.0 I    0.0 I         I           I            I           I
I  A-C   I    0.0 I    0.0 I         I           I            I           I
I  A-D   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
I  D-ABC I   55.1 I   36.7 I     6.5 I    0.12   I       6.5  I    0.12   I
I  C-ABD I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
I  C-D   I    0.0 I    0.0 I         I           I            I           I
I  C-A   I    0.0 I    0.0 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I  123.9 I   82.6 I    14.8 I    0.12   I      14.8  I    0.12   I
---------------------------------------------------------------------------
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******



.SLOPES AND INTERCEPT
 --------------------
 (NB:Streams may be combined, in which case capacity will be adjusted)

STREAM   B-C
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C         STREAM A-B        I
---------------------------------------------------------
I     688.22           0.27               0.11         I
---------------------------------------------------------
```

```
 STREAM   D-A
 ---------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing I
 I STREAM D-A     STREAM  C-A         STREAM C-D        I
 ---------------------------------------------------------
 I     688.22           0.27               0.11         I
 ---------------------------------------------------------


 STREAM   B-A

--------------------------------------------------------------------------------------
------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I STREAM B-A     STREAM  A-C         STREAM A-D         STREAM  D-A          STREAM
 D-B      I

--------------------------------------------------------------------------------------
------------
 I     544.46           0.25               0.25                 0.25
0.25      I

--------------------------------------------------------------------------------------
------------



--------------------------------------------------------------------------------------
------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I                 STREAM  A-B         STREAM C-A         STREAM  C-B          STREAM
 D-C      I

--------------------------------------------------------------------------------------
------------
 I                      0.10               0.16                 0.36
0.13      I

--------------------------------------------------------------------------------------
------------


 STREAM   D-C

--------------------------------------------------------------------------------------
------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I STREAM D-C     STREAM  C-A         STREAM C-B         STREAM  B-C          STREAM
 B-D      I
```

```
-------------------------------------------------------------------------------------
-----------
 I     544.46           0.25               0.25                 0.25
0.25       I

-------------------------------------------------------------------------------------
-----------


-------------------------------------------------------------------------------------
-----------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I                 STREAM  C-D          STREAM A-C          STREAM  A-D          STREAM
 B-A       I

-------------------------------------------------------------------------------------
-----------
 I                      0.10               0.16                 0.36
0.13       I

-------------------------------------------------------------------------------------
-----------


 STREAM   C-B
 ----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D       I
 ----------------------------------------------------------------------------
 I     602.92           0.23               0.23               0.33       I
 ----------------------------------------------------------------------------


 STREAM   A-D
 ----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D       I
 ----------------------------------------------------------------------------
 I     602.92           0.23               0.33               0.23       I
 ----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

-------------------------------------------------------------------------------------
-----------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B          STREAM
 C-B       I

-------------------------------------------------------------------------------------
-----------
 I     544.46           0.25               0.25                 0.10
0.36       I

-------------------------------------------------------------------------------------
-----------


-------------------------------------------------------------------------------------
-----------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I                 STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
-----------
 I                      0.16               0.16
           I

-------------------------------------------------------------------------------------
-----------


 B-D Stream From Right Hand Lane

-------------------------------------------------------------------------------------
-----------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B          STREAM
 C-B       I

-------------------------------------------------------------------------------------
-----------
 I     544.46           0.25               0.25                 0.10
0.36       I

-------------------------------------------------------------------------------------
-----------


-------------------------------------------------------------------------------------
-----------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I                 STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
-----------
 I                      0.16               0.16
           I

-------------------------------------------------------------------------------------
-----------
```

```
 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------------
------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D          STREAM
 A-D      I

--------------------------------------------------------------------------------------
------------
 I     544.46            0.25                0.25                 0.10
0.36      I

--------------------------------------------------------------------------------------
------------

--------------------------------------------------------------------------------------
------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I                 STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------------
------------
 I                       0.16                0.16
          I

--------------------------------------------------------------------------------------
------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------------
------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D          STREAM
 A-D      I

--------------------------------------------------------------------------------------
------------
 I     544.46            0.25                0.25                 0.10
0.36      I

--------------------------------------------------------------------------------------
------------

--------------------------------------------------------------------------------------
------------
```

```
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing   Slope
For OpposingI
 I                 STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------------
------------
 I                       0.16                0.16
          I

--------------------------------------------------------------------------------------
------------


.TRAFFIC DEMAND DATA
 ------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        J8 2034 REF PM - Yau Pok Road / REC North Access


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

 ------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)       I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER       I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK        I
 I        I             I             I            I        I         I             I
 ------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00       I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.75  I   1.13  I  0.75       I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00       I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50       I
 ------------------------------------------------------------------------------------

.Demand set:        J8 2034 REF PM - Yau Pok Road / REC North Access
 ---------------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                        I
 I                    I         TURNING COUNTS                             I
 I                    I        (PERCENTAGE OF H.V.S)                       I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
```

```
 -------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.333 I  0.000 I  0.000 I  0.667 I
 I                    I         I   20.0 I    0.0 I    0.0 I   40.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 -------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         J8 2034 REF PM - Yau Pok Road / REC North
Access
                AND FOR TIME PERIOD       1
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----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                          I
 I   B-ACD     0.75      9.03    0.083               0.00   0.09        1.3
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                          I
 I   D-ABC     0.50      9.07    0.055               0.00   0.06        0.8
                          I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                          I
 I   C-D       0.00
                          I
 I   C-A       0.00
                          I
 I
                          I
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----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                          I
 I   B-ACD     0.90      9.02    0.100               0.09   0.11        1.6
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                          I
 I   D-ABC     0.60      9.07    0.066               0.06   0.07        1.0
                          I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                          I
 I   C-D       0.00
                          I
 I   C-A       0.00
                          I
 I
                          I
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----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                          I
 I   B-ACD     1.10      9.01    0.122               0.11   0.14        2.0
                          I
 I   A-B       0.00
                          I
 I   A-C       0.00
                          I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                          I
```

```
 I   D-ABC     0.73      9.07    0.081               0.07   0.09        1.3
                            I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                            I
 I   C-D       0.00
                            I
 I   C-A       0.00
                            I
 I
                            I
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-----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                            I
 I   B-ACD     1.10      9.01    0.122               0.14   0.14        2.1
                            I
 I   A-B       0.00
                            I
 I   A-C       0.00
                            I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                            I
 I   D-ABC     0.73      9.07    0.081               0.09   0.09        1.3
                            I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                            I
 I   C-D       0.00
                            I
 I   C-A       0.00
                            I
 I
                            I
.--------------------------------------------------------------------------------------
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-----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                            I
 I   B-ACD     0.90      9.02    0.100               0.14   0.11        1.7
                            I
 I   A-B       0.00
                            I
 I   A-C       0.00
                            I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                            I
 I   D-ABC     0.60      9.07    0.066               0.09   0.07        1.1
                            I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                            I
 I   C-D       0.00
                            I
 I   C-A       0.00
                            I
 I
                            I
.--------------------------------------------------------------------------------------
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.--------------------------------------------------------------------------------------
-----------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                            I
 I   B-ACD     0.75      9.03    0.083               0.11   0.09        1.4
                            I
 I   A-B       0.00
                            I
 I   A-C       0.00
                            I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                            I
 I   D-ABC     0.50      9.07    0.055               0.07   0.06        0.9
                            I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                            I
 I   C-D       0.00
                            I
 I   C-A       0.00
                            I
 I
                            I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
```

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	82.6	55.1	10.1	0.12	10.1	0.12
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	55.1	36.7	6.5	0.12	6.5	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	137.6	91.8	16.6	0.12	16.6	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

****** PICADY 5 run completed.

```
                           TRL LIMITED

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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                    PICADY 5.1  ANALYSIS PROGRAM
                       RELEASE 5.0 (JUNE 2010)

                ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
                   BY PERMISSION OF THE CONTROLLER OF HMSO

            --------------------------------------------------------
                   FOR SALES AND DISTRIBUTION INFORMATION,
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            --------------------------------------------------------


 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
 IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION

 Run with file:- "C:\Users\Sam.Wong\Downloads\J9\REF\J9_2034 AM REF.vpi"
(drive-on-the-left) at 14:18:48 on Friday, 13 September 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : J9 - Yau Pok Road / REC South Access
 LOCATION        : Fairview
 DATE            : 09/02/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

                                         MINOR ROAD (ARM D)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                     MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)

 ARM A IS Yau Pok Road exit
 ARM B IS Vehicular Bridge
 ARM C IS Yau Pok Road entry
 ARM D IS REC South

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

-------------------------------------------------------------------------------------
----------------------
 I                DATA ITEM                                       I   MINOR ROAD B
 I   MINOR ROAD D    I

-------------------------------------------------------------------------------------
----------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                            I ( W  )  6.00 M.
 I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                         I (WCR )  0.00 M.
 I (WCR )  0.00 M.   I
 I                                                                I
 I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                                I (WC-B)  2.20 M.
 I (WA-D)  2.20 M.   I
 I                          - VISIBILITY                          I (VC-B) 50.00 M.
 I (VA-D) 50.00 M.   I
 I                          - BLOCKS TRAFFIC (SPACES)             I         YES  (
0) I          NO  ( 0) I
 I                                                                I
 I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                               I (VB-C)  50.0 M.
 I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                              I (VB-A)  50.0 M.
 I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                     I (WB-C)  3.50 M.
 I (WD-A)  3.50 M.   I
 I             - LANE 2 WIDTH                                     I (WB-A)  0.00 M.
 I (WD-C)  0.00 M.   I

-------------------------------------------------------------------------------------
----------------------
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

I Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B I
688.22	0.27	0.11

STREAM D-A

I Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D I
688.22	0.27	0.11

STREAM B-A

I Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B I
544.46	0.25	0.25	0.25	0.25

I	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C I
	0.10	0.16	0.36	0.13

STREAM D-C

I Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D I
544.46	0.25	0.25	0.25	0.25

I	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A I
	0.10	0.16	0.36	0.13

STREAM C-B

I Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D I
602.92	0.23	0.23	0.33

STREAM A-D

I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D I
602.92	0.23	0.33	0.23

B-D Stream From Left Hand Lane

```
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

------------------------------------------------------------------------------------
-------------
 I                        0.16                0.16
             I

------------------------------------------------------------------------------------
-------------


 B-D Stream From Right Hand Lane

------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

------------------------------------------------------------------------------------
-------------
 I                        0.16                0.16
             I

------------------------------------------------------------------------------------
-------------


 D-B Stream From Left Hand Lane

------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
-------------
 I                        0.16                0.16
             I

------------------------------------------------------------------------------------
-------------


 D-B Stream From Right Hand Lane

------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
```

```
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
             I

------------------------------------------------------------------------------------
--------------


.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        J9 REF AM- Yau Pok Road / REC South Access


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.13  I   0.19  I  0.13
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I

------------------------------------------------------------------------------------
```

```
.Demand set:        J9 REF AM- Yau Pok Road / REC South Access
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I   30.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   10.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         J9 REF AM- Yau Pok Road / REC South Access
                AND FOR TIME PERIOD       1
.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                             I
 I   B-ACD     0.38      9.03    0.042                0.00   0.04        0.6
                             I
 I   A-B       0.00

                             I
 I   A-C       0.00

                             I
 I   A-D       0.00      9.10    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.50      9.04    0.056                0.00   0.06        0.8
                             I
 I   C-ABD     0.13     10.05    0.012                0.00   0.01        0.2
                             I
 I   C-D       0.00
                             I
```

```
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------------
-------------------------------

.-------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     0.45      9.02    0.050              0.04   0.05        0.8
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.09    0.000              0.00   0.00        0.0
                             I
 I   D-ABC     0.60      9.04    0.066              0.06   0.07        1.0
                             I
 I   C-ABD     0.15     10.05    0.015              0.01   0.02        0.2
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------------
-------------------------------

.-------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     0.55      9.01    0.061              0.05   0.06        0.9
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.08    0.000              0.00   0.00        0.0
                             I
 I   D-ABC     0.73      9.03    0.081              0.07   0.09        1.3
                             I
 I   C-ABD     0.18     10.05    0.018              0.02   0.02        0.3
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------------
-------------------------------

.-------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     0.55      9.01    0.061              0.06   0.06        1.0
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.08    0.000              0.00   0.00        0.0
                             I
 I   D-ABC     0.73      9.03    0.081              0.09   0.09        1.3
                             I
 I   C-ABD     0.18     10.05    0.018              0.02   0.02        0.3
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------------
-------------------------------

.-------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     0.45      9.02    0.050              0.06   0.05        0.8
                             I
```

```
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.09    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.60      9.04    0.066                0.09   0.07        1.1
                             I
 I   C-ABD     0.15     10.05    0.015                0.02   0.02        0.2
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------

.----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     0.38      9.03    0.042                0.05   0.04        0.7
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.10    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.50      9.04    0.056                0.07   0.06        0.9
                             I
 I   C-ABD     0.13     10.05    0.012                0.02   0.01        0.2
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.0
.
 QUEUE FOR STREAM    A-D
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-ACD I   41.3 I   27.5 I     4.8 I    0.12   I       4.8  I    0.12   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I    0.0 I    0.0 I         I           I            I           I
 I  A-D   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  D-ABC I   55.1 I   36.7 I     6.5 I    0.12   I       6.5  I    0.12   I
```

```
I  C-ABD I   13.8 I    9.2 I     1.4 I    0.10   I       1.4  I    0.10   I
I  C-D   I    0.0 I    0.0 I         I           I            I           I
I  C-A   I    0.0 I    0.0 I         I           I            I           I
----------------------------------------------------------------------------
I  ALL   I  110.1 I   73.4 I    12.7 I    0.12   I      12.7  I    0.12   I
----------------------------------------------------------------------------
```

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

```
STREAM   B-C
----------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C          STREAM A-B        I
----------------------------------------------------------
I     688.22           0.27               0.11          I
----------------------------------------------------------
```

```
STREAM   D-A
----------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM D-A     STREAM  C-A          STREAM C-D        I
----------------------------------------------------------
I     688.22           0.27               0.11          I
----------------------------------------------------------
```

```
STREAM   B-A

------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D          STREAM  D-A
STREAM  D-B       I

------------------------------------------------------------------------------------
-------------
 I     544.46           0.25               0.25                 0.25
  0.25       I

------------------------------------------------------------------------------------
-------------
```

```
------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-B          STREAM C-A           STREAM  C-B
STREAM  D-C       I

------------------------------------------------------------------------------------
-------------
 I                      0.10               0.16                 0.36
  0.13       I

------------------------------------------------------------------------------------
-------------
```

```
 STREAM   D-C

------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B           STREAM  B-C
STREAM  B-D       I

------------------------------------------------------------------------------------
-------------
 I     544.46           0.25               0.25                 0.25
  0.25       I

------------------------------------------------------------------------------------
-------------
```

```
------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-D          STREAM A-C           STREAM  A-D
STREAM  B-A       I

------------------------------------------------------------------------------------
-------------
 I                      0.10               0.16                 0.36
  0.13       I

------------------------------------------------------------------------------------
-------------
```

```
 STREAM   C-B
 ------------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
 ------------------------------------------------------------------------------
 I     602.92           0.23               0.23                0.33        I
```

```
 ------------------------------------------------------------------------------


 STREAM   A-D
 ------------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 ------------------------------------------------------------------------------
 I     602.92            0.23                0.33                0.23        I
 ------------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

--------------------------------------------------------------------------------------
--------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

--------------------------------------------------------------------------------------
--------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

--------------------------------------------------------------------------------------
--------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------------
--------------
```

```
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------------
--------------
 I    544.46            0.25               0.25                 0.10
  0.36       I

-------------------------------------------------------------------------------------
--------------

-------------------------------------------------------------------------------------
--------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
--------------
 I                      0.16               0.16
             I

-------------------------------------------------------------------------------------
--------------
```

```
.TRAFFIC DEMAND DATA
 -------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

.Demand set:        J9 REF PM - Yau Pok Road / REC South Access

 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

-------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

-------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I

-------------------------------------------------------------------------------------
```

```
.Demand set:        J9 REF PM - Yau Pok Road / REC South Access
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I   40.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ---------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET        J9 REF PM - Yau Pok Road / REC South Access
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
```

```
 I 08.00-08.15
                             I
 I   B-ACD     0.50      9.07    0.055                0.00   0.06        0.8
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.50      9.07    0.055                0.00   0.06        0.8
                             I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     0.60      9.07    0.066                0.06   0.07        1.0
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.60      9.07    0.066                0.06   0.07        1.0
                             I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     0.73      9.07    0.081                0.07   0.09        1.3
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.73      9.07    0.081                0.07   0.09        1.3
                             I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
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.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     0.73      9.07    0.081                0.09   0.09        1.3
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.73      9.07    0.081                0.09   0.09        1.3
                             I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
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                             I
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------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     0.60      9.07    0.066                0.09   0.07        1.1
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.60      9.07    0.066                0.09   0.07        1.1
                             I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------

.----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     0.50      9.07    0.055                0.07   0.06        0.9
                             I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                             I
 I   D-ABC     0.50      9.07    0.055                0.07   0.06        0.9
                             I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
```

```
                             I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
```

09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * * DELAY * (MIN)	* QUEUEING * * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * * DELAY * (MIN)	* INCLUSIVE QUEUEING * * DELAY * (MIN/VEH)
B-ACD	55.1	36.7	6.5	0.12	6.5	0.12
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	55.1	36.7	6.5	0.12	6.5	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	110.1	73.4	12.9	0.12	12.9	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

****** PICADY 5 run completed.

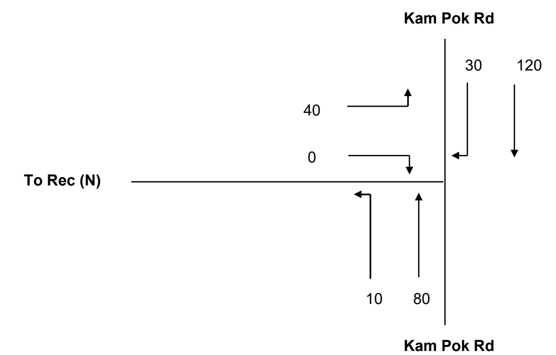
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 AM Reference Flows	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Sep 24

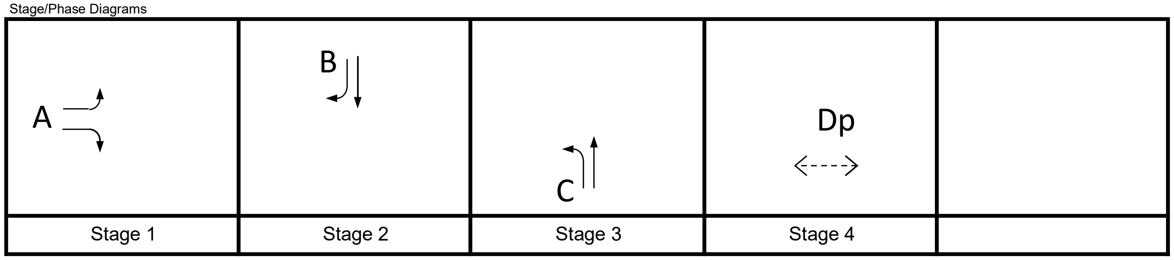
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	60	sec
Sum(y)		Y =	0.125	
Lost time		L =	34	sec
Total Flow		=	280	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	64	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	39	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.645	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	414.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	40	sec
Y_{max}	$= 1-L/C$	=	0.433	

Stage/Phase Diagrams



G = 5 I/G = 5 I/G = 7 I/G = 3 G = 7 I/G = 9

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 211%

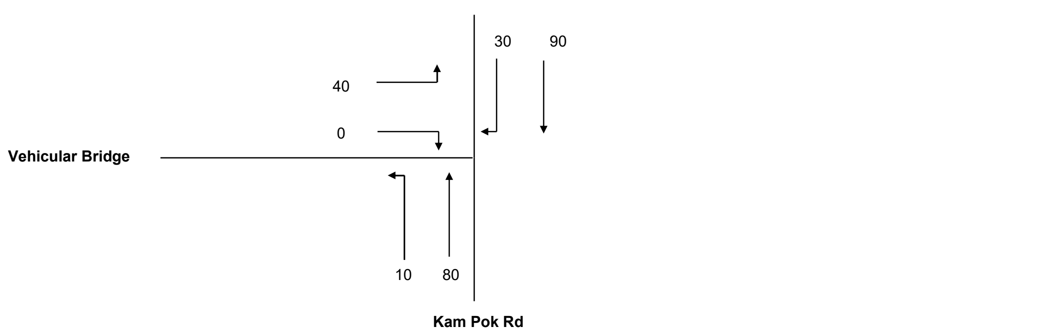
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.600	1	5	10	0	0		0		2115	40		0	40	100%	0%	1627	0.025	
	B	2	3.600	1		10	0	1		0		1975		120	30	150		20%	1917	0.078	0.078
	C	3	3.600	1	5			1		0		1975	10	80		90	11%		1911	0.047	0.047
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 PM Reference Flows	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Sep 24

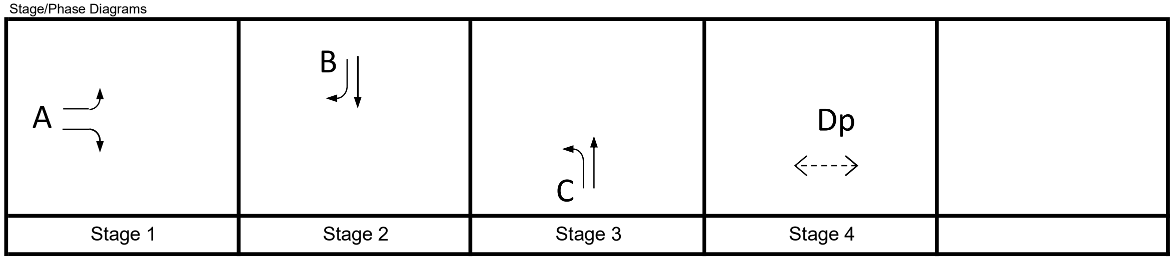
Traffic Flow Diagram
(pcu/hr)



J10

No. of stages per cycle	N =	4	
Cycle time	C =	60	sec
Sum(y)	Y =	0.135	
Lost time	L =	27	sec
Total Flow	=	250	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	53	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	31	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\% =$	417.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	32	sec
Y_{max}	$= 1-L/C =$	0.550	

Stage/Phase Diagrams



I/G = 5 I/G = 5 I/G = 4 G = 7 I/G = 9

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9\text{x}Y_{max}-Y)/Y\text{x}100\% =$ 267%

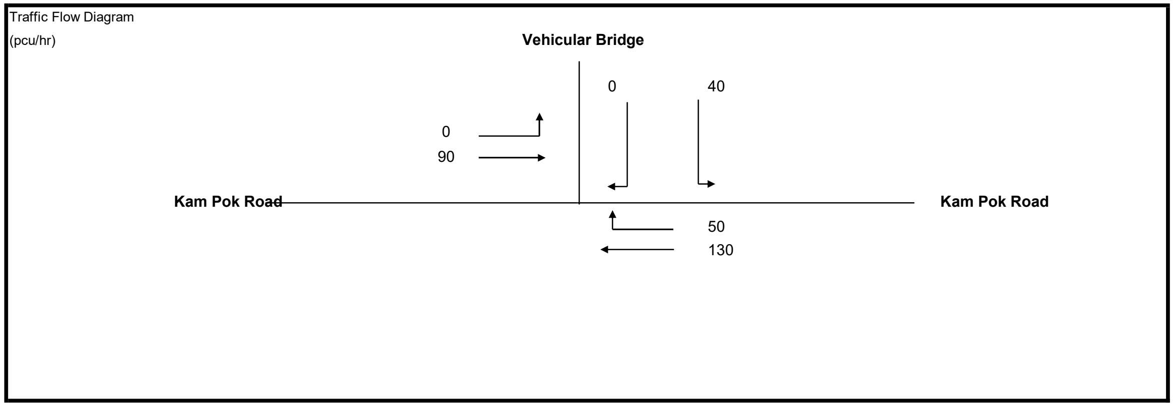
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.600	1	5	10	0	0		0		2115	40		0	40	100%	0%	1627	0.025	0.025
	B	2	3.600	1		10	0	1		0		1975		90	30	120		25%	1904	0.063	0.063
	C	3	3.600	1	5			1		0		1975	10	80		90	11%		1911	0.047	0.047
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Kam Pok Road / Vehicular Bridge	2034 AM Reference Traffic Flows	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24

Traffic Flow Diagram
(pcu/hr)

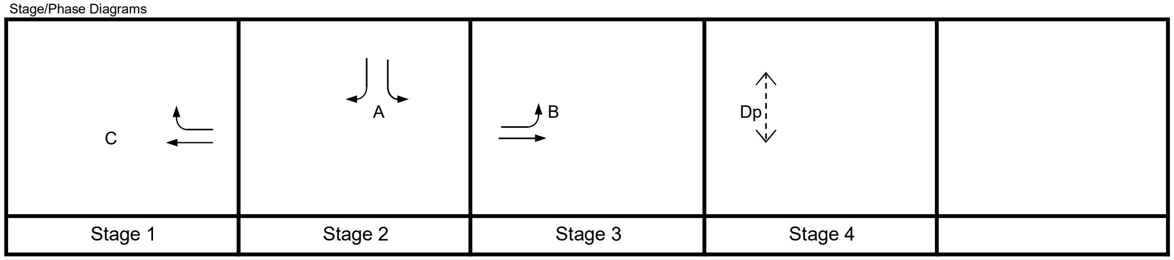


J11

No. of stages per cycle	N =	4	
Cycle time	C =	60	sec
Sum(y)	Y =	0.138	
Lost time	L =	34	sec
Total Flow	=	310	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	65	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	39	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.645	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	367.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	40	sec
Y_{max}	$= 1-L/C =$	0.433	

Stage/Phase Diagrams



I/G = 5 G = 5 I/G = 5 I/G = 5 G = 7 I/G = 9

Critical Case : C,A,B,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 183%

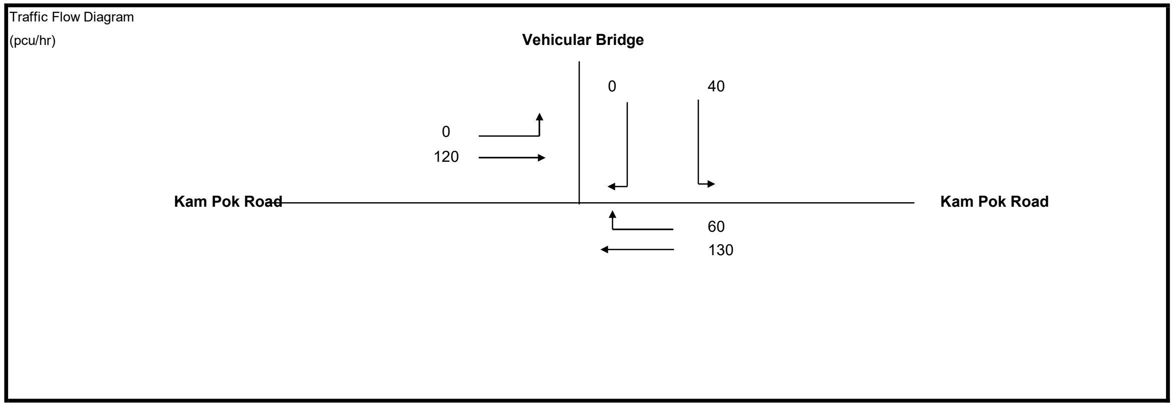
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	1	3.650	1		25	0	1		0		1980		130	50	180		28%	1948	0.092	0.092
	B	3	3.650	1	20			1		0		1980	0	90		90	0%		1980	0.045	0.045
	A	2	3.650	1	20	25	0	1		0		1980	40		0	40	100%	0%	1842	0.022	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Kam Pok Road / Vehicular Bridge	2034 PM Reference Traffic Flows	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24

Traffic Flow Diagram
(pcu/hr)

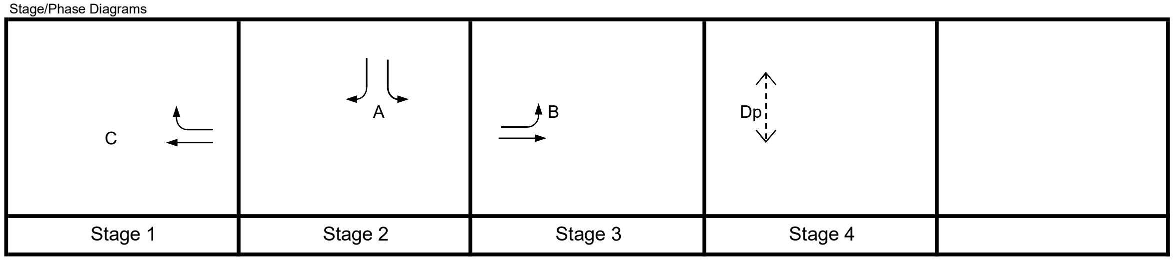


J11

No. of stages per cycle	N =	4	
Cycle time	C =	60	sec
Sum(y)	Y =	0.158	
Lost time	L =	34	sec
Total Flow	=	350	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	67	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	40	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.645	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	307.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	41	sec
Y_{max}	$= 1-L/C =$	0.433	

Stage/Phase Diagrams



I/G = 5 G = 5 I/G = 5 I/G = 5 G = 7 I/G = 9

Critical Case : C,A,B,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 146%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	1	3.650	1		25	0	1		0		1980		130	60	190		32%	1943	0.098	0.098
	B	3	3.650	1	20			1		0		1980	0	120		120	0%		1980	0.061	0.061
	A	2	3.650	1	20	25	0	1		0		1980	40		0	40	100%	0%	1842	0.022	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

Design Flow

ROUNDABOUT CAPACITY CALCULATIC

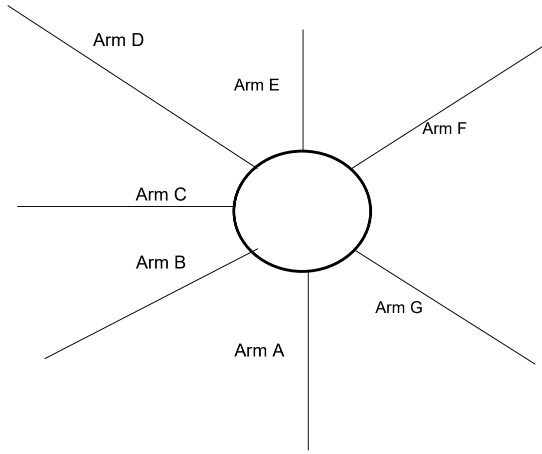
AECOM

Junction	Junction J1 - Fairview Roundabout	cenar	2034 AM Design Flows	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025

D-d	d-c	d-b	d-a	d-g	d-f	d-e		e-e	e-d	e-c	e-b	e-a	e-g	e-f
10	10	30	430	240	10	140	930	10	70	110	140	10	490	100

	940
c-d	20
c-e	220
c-f	40
c-g	220
c-a	420
c-b	30
c-c	10

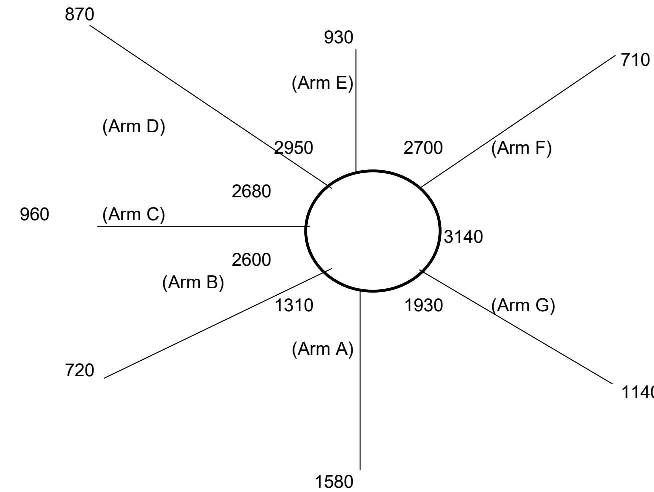
	710
b-c	110
b-d	150
b-e	190
b-f	80
b-g	10
b-a	180
b-b	0



	660
f-f	10
f-e	50
f-d	20
f-c	60
f-b	70
f-a	250
f-g	250

	1130
g-g	10
g-f	70
g-e	500
g-d	40
g-c	40
g-b	20
g-a	460

	a-b	a-c	a-d	a-e	a-f	a-g	a-a
1810	FF	300	380	10	180	700	10
	230						



ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	5.00	7.00	5.50	6.30	5.90	6.75
E = Entry width (m)	8.00	8.00	10.00	10.00	10.00	8.50	8.50
L = Effective length of flare (m)	10.00	25.00	10.00	16.00	30.00	10.00	20.00
R = Entry radius (m)	20.00	22.00	22.00	20.00	23.00	20.00	20.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	65.00	30.00	40.00	45.00	30.00	60.00	35.00
Q = Entry flow (pcu/h)	1580	720	960	870	930	710	1140
Qc= Circulating flow across entry (pcu/h)	1310	2600	2680	2950	2700	3140	1930
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.19	0.48	0.45	0.20	0.42	0.14
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.00	0.97	0.95	1.01	0.90	0.98
X2= V + ((E-V)/(1+2S))	7.22	7.17	8.53	7.87	8.95	7.32	8.12
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2188	2172	2585	2384	2713	2218	2460
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.51	0.51	0.57	0.54	0.59	0.52	0.55
Qe= K(F-Fc*Qc)	1331	847	1029	748	1137	531	1372
DFC = Design flow/Capacity = Q/Qe	1.19	0.85	0.93	1.16	0.82	1.34	0.83

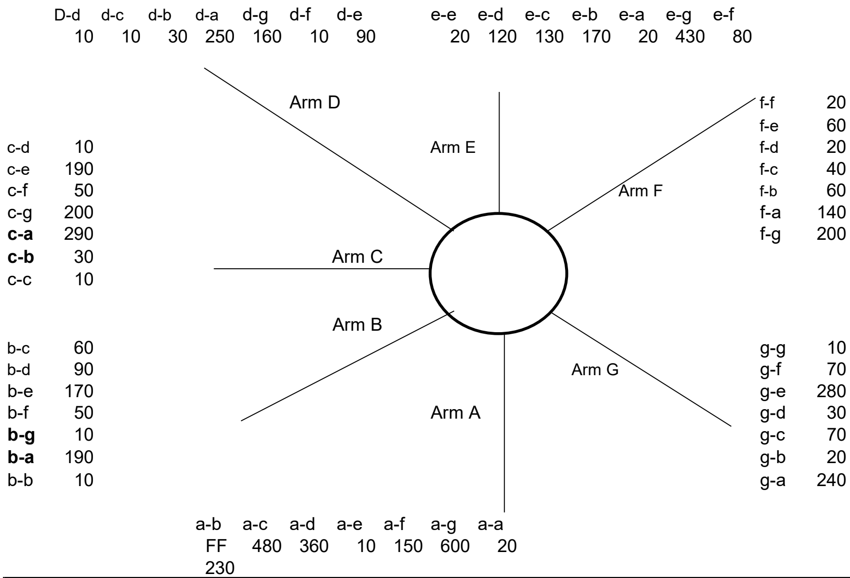
TOTAL ENTRY FLOWS = 6910 PCU

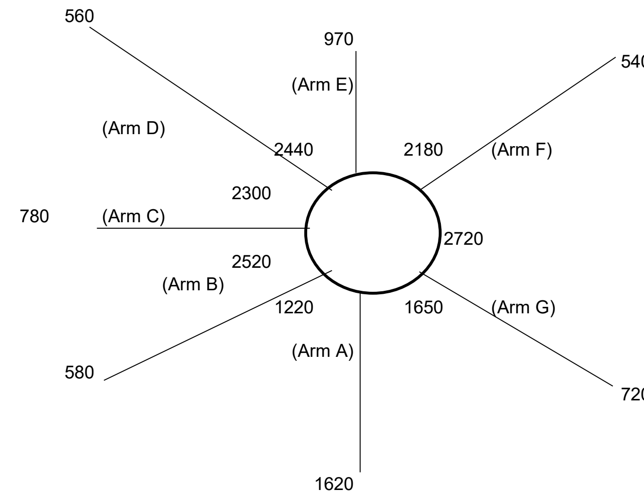
CRITICAL DFC = 1.34

ROUNDABOUT CAPACITY CALCULATIC

AECOM

Junction	Junction J1 - Fairview Roundabout	cenar	2034 PM Design Flows	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025





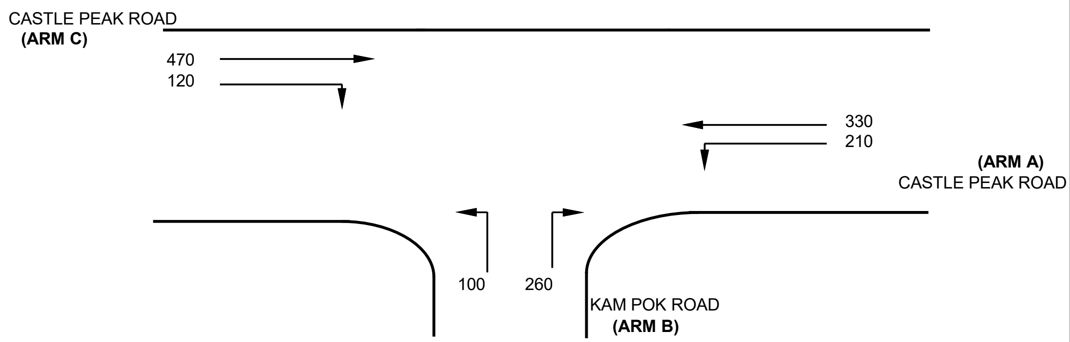
ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	5.00	7.00	5.50	6.30	5.90	6.75
E = Entry width (m)	8.00	8.00	10.00	10.00	10.00	8.50	8.50
L = Effective length of flare (m)	10.00	25.00	10.00	16.00	30.00	10.00	20.00
R = Entry radius (m)	20.00	22.00	22.00	20.00	23.00	20.00	20.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	65.00	30.00	40.00	45.00	30.00	60.00	35.00
Q = Entry flow (pcu/h)	1620	580	780	560	970	540	720
Qc= Circulating flow across entry (pcu/h)	1220	2520	2300	2440	2180	2720	1650
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.19	0.48	0.45	0.20	0.42	0.14
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.00	0.97	0.95	1.01	0.90	0.98
X2= V + ((E-V)/(1+2S))	7.22	7.17	8.53	7.87	8.95	7.32	8.12
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2188	2172	2585	2384	2713	2218	2460
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.51	0.51	0.57	0.54	0.59	0.52	0.55
Qe= K(F-Fc*Qc)	1372	888	1239	1010	1444	726	1523
DFC = Design flow/Capacity = Q/Qe	1.18	0.65	0.63	0.55	0.67	0.74	0.47

TOTAL ENTRY FLOWS = 5770 PCU

CRITICAL DFC = 1.18

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 AM Design Flows	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)				*MAJOR ROAD (ARM C)*				*MINOR ROAD (ARM B)*			
W	=	7.3	(metres)	W c-b	=	2.05	(metres)	W b-a	=	4.07	(metres)
W cr	=	0	(metres)	Vr c-b	=	30	(metres)	W b-c	=	4.07	(metres)
q a-b	=	210	(pcu/hr)	q c-a	=	470	(pcu/hr)	Vl b-a	=	100	(metres)
q a-c	=	330	(pcu/hr)	q c-b	=	120	(pcu/hr)	Vr b-a	=	100	(metres)
								Vr b-c	=	80	(metres)
								q b-a	=	260	(pcu/hr)
								q b-c	=	100	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	383
Q b-c	=	634
Q c-b	=	467
Q b-ac	=	431

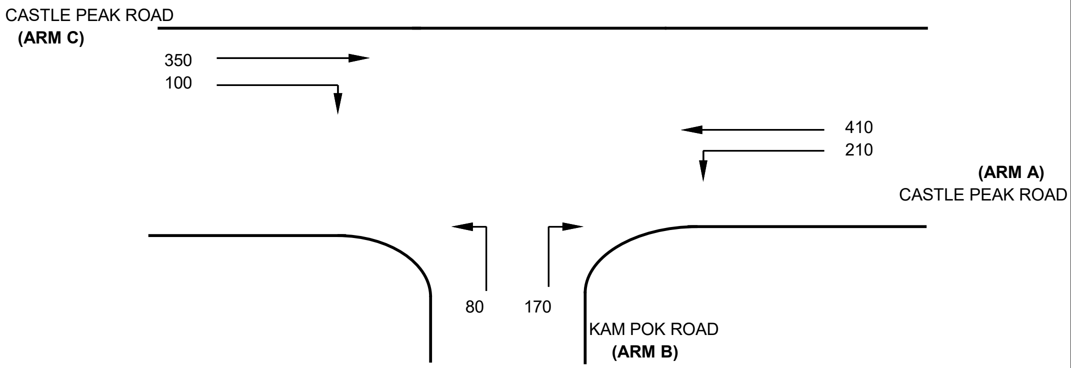
CRITICAL DFC = 0.84

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.68
DFC b-c	=	0.16
DFC c-b	=	0.26
DFC b-ac	=	0.84

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 PM Design Flows	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.3	(metres)
W cr	=	0	(metres)
q a-b	=	210	(pcu/hr)
q a-c	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	30	(metres)
q c-a	=	350	(pcu/hr)
q c-b	=	100	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.07	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	80	(metres)
q b-a	=	170	(pcu/hr)
q b-c	=	80	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	390
Q b-c	=	612
Q c-b	=	450
Q b-ac	=	441

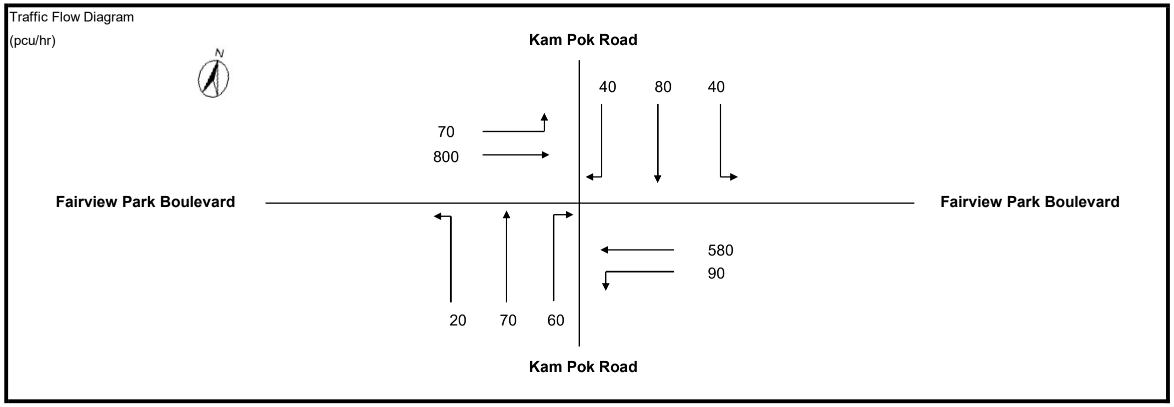
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.44
DFC b-c	=	0.13
DFC c-b	=	0.22
DFC b-ac	=	0.57

CRITICAL DFC = 0.57

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 AM Design Traffic Flows	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Sep 24

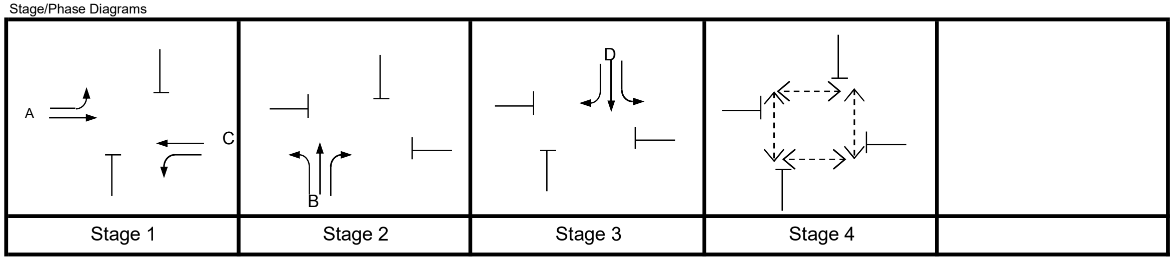


J3

No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.385	
Lost time	L =	44	sec
Total Flow	=	11,840	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}	$= 0.9-0.0075\times L =$	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	48.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	77	sec
Y_{max}	$= 1-L/C =$	0.633	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : A,B,D,Ep

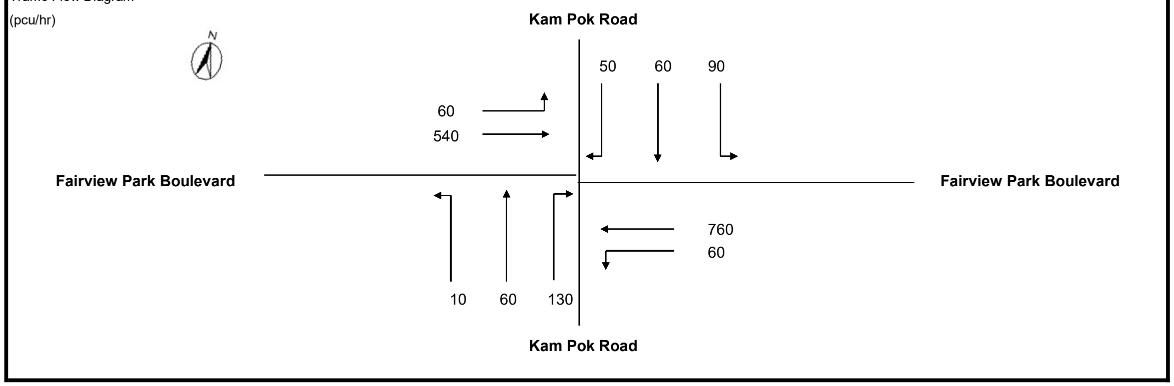
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 48%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.100	1	15			1		0		1925	70	360		430	16%		1894	0.227	
	A	1	3.200	1				1		0		1935		440		440			1935	0.227	0.227
	B	2	3.600	1	13	20	0	1		0		1975	20	70	60	150	13%	40%	1889	0.079	0.079
	C	1	3.000	1	17			1		0		1915	90	238		328	27%		1870	0.176	
	C	1	3.300	1				1		0		1945		342		342			1945	0.176	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	40	80	40	160	25%	25%	2051	0.078	0.078
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 PM Design Traffic Flows	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Sep 24

Traffic Flow Diagram
(pcu/hr)

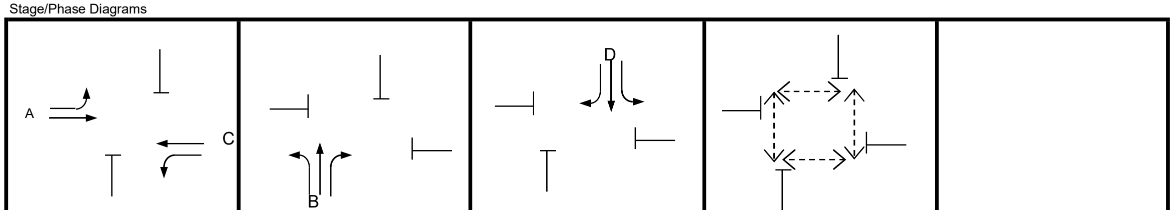


J3

No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.420	
Lost time	L =	44	sec
Total Flow	=	11,840	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	122	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	76	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	35.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	82	sec
Y_{max}	$= 1-L/C =$	0.633	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : B,C,D,Ep

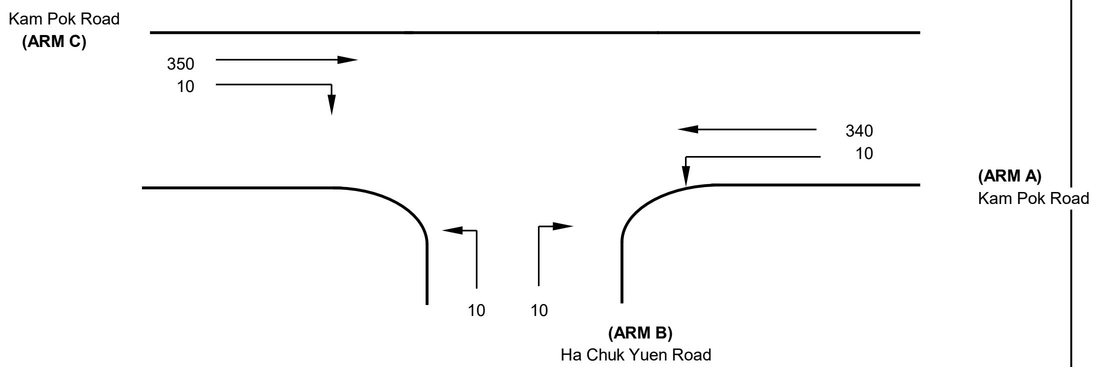
R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 36%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.100	1	15			1		0		1925	60	236		296	20%		1887	0.157	
	A	1	3.200	1				1		0		1935		304		304			1935	0.157	
	B	2	3.600	1	13	20	0	1		0		1975	10	60	130	200	5%	65%	1873	0.107	0.107
	C	1	3.000	1	17			1		0		1915	60	344		404	15%		1890	0.214	0.214
	C	1	3.300	1				1		0		1945		416		416			1945	0.214	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	90	60	50	200	45%	25%	2014	0.099	0.099
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 AM Design Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Sep 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)				*MAJOR ROAD (ARM C)*				*MINOR ROAD (ARM B)*			
W	=	9.3	(metres)	W c-b	=	3.5	(metres)	W b-a	=	2.05	(metres)
W cr	=	0	(metres)	Vr c-b	=	50	(metres)	W b-c	=	2.05	(metres)
q a-b	=	10	(pcu/hr)	q c-a	=	350	(pcu/hr)	Vl b-a	=	50	(metres)
q a-c	=	340	(pcu/hr)	q c-b	=	10	(pcu/hr)	Vr b-a	=	50	(metres)
								Vr b-c	=	50	(metres)
								q b-a	=	10	(pcu/hr)
								q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	362
Q b-c	=	525
Q c-b	=	608
Q b-ac	=	429

CRITICAL DFC = 0.05

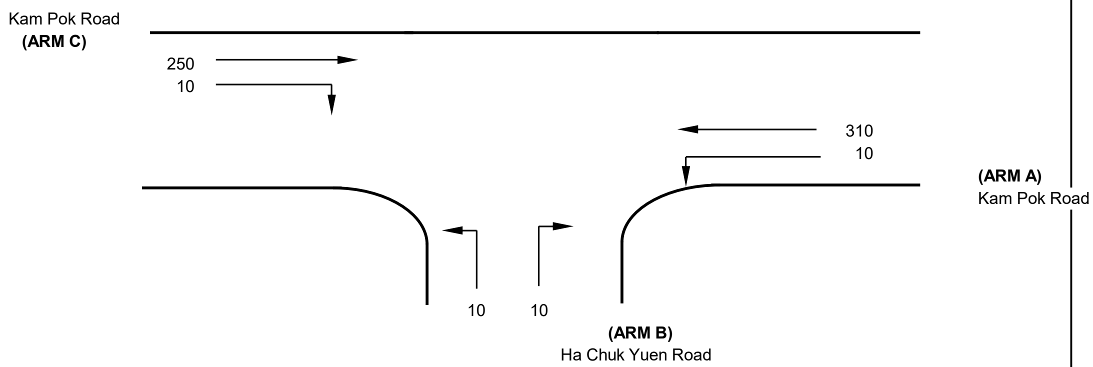
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.05

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 PM Design Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Sep 24



NOTES : (GEOMETRIC INPUT DATA)

J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	310	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5	(metres)
Vr c-b	=	50	(metres)
q c-a	=	250	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	379
Q b-c	=	531
Q c-b	=	615
Q b-ac	=	443

CRITICAL DFC = 0.05

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.05

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

FOR SALES AND DISTRIBUTION INFORMATION,
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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"T:\Anthony Sun\20240920 Picidy\Junction 5_Picaddy\2034 REF DES SEN\0920 Des RD\RD Des.vpi"
(drive-on-the-left) at 12:36:19 on Friday, 20 September 2024

.RUN INFORMATION
****

```
RUN TITLE       : 2034 - J5 Kam Pok Road/ Pok Wai South Road
LOCATION        :
DATE            : 13/12/21
CLIENT          :
ENUMERATOR      : nokhinnaomi.tam [HKSHT1PC0702]
JOB NUMBER      :
STATUS          :
DESCRIPTION     :
```

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

```
                         MINOR ROAD (ARM D)
                                I
                                I
                                I
                                I
                                I
                                I
  MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                I
                                I
                                I
                                I
                                I
                                I
                         MINOR ROAD (ARM B)
```

ARM A IS Kam Pok Road
ARM B IS Pok Wai South Road
ARM C IS Kam Pok Road West
ARM D IS Kam Pok Road

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH		(W) 8.80 M.	(W) 8.80 M.
CENTRAL RESERVE WIDTH		(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN	- WIDTH	(WC-B) 2.20 M.	(WA-D) 2.20 M.
	- VISIBILITY	(VC-B) 50.00 M.	(VA-D) 50.00 M.
	- BLOCKS TRAFFIC (SPACES)	YES (0)	NO (0)
MINOR ROAD	- VISIBILITY TO LEFT	(VB-C) 50.0 M.	(VD-A) 50.0 M.
	- VISIBILITY TO RIGHT	(VB-A) 50.0 M.	(VD-C) 50.0 M.
	- LANE 1 WIDTH	(WB-C) 2.20 M.	(WD-A) 5.00 M.
	- LANE 2 WIDTH	(WB-A) 0.00 M.	(WD-C) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.21	0.29	0.21

B-D Stream From Left Hand Lane

I Intercept For Slope For Opposing Slope For Opposing Slope For Opposing Slope For OpposingI

```
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

------------------------------------------------------------------------------------
---------------
 I     476.98            0.19                0.19                   0.08
   0.28       I

------------------------------------------------------------------------------------
---------------

------------------------------------------------------------------------------------
---------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

------------------------------------------------------------------------------------
---------------
 I                       0.12                0.12
              I

------------------------------------------------------------------------------------
---------------


 B-D Stream From Right Hand Lane

------------------------------------------------------------------------------------
---------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

------------------------------------------------------------------------------------
---------------
 I     476.98            0.19                0.19                   0.08
   0.28       I

------------------------------------------------------------------------------------
---------------

------------------------------------------------------------------------------------
---------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

------------------------------------------------------------------------------------
---------------
 I                       0.12                0.12
              I

------------------------------------------------------------------------------------
---------------


 D-B Stream From Left Hand Lane

------------------------------------------------------------------------------------
---------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

------------------------------------------------------------------------------------
---------------
 I     622.33            0.25                0.25                   0.10
   0.36       I

------------------------------------------------------------------------------------
---------------

------------------------------------------------------------------------------------
---------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
---------------
 I                       0.16                0.16
              I

------------------------------------------------------------------------------------
---------------


 D-B Stream From Right Hand Lane

------------------------------------------------------------------------------------
---------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

------------------------------------------------------------------------------------
---------------
 I     622.33            0.25                0.25                   0.10
   0.36       I

------------------------------------------------------------------------------------
---------------

------------------------------------------------------------------------------------
---------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
```

```
---------------
 I                       0.16                0.16
             I

-----------------------------------------------------------------------------------
---------------


.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        0920 Des Rd AM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


-----------------------------------------------------------------------------------
-
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

-----------------------------------------------------------------------------------
-
 I ARM  A I     15.00   I     45.00   I    75.00   I  3.75  I    5.63  I  3.75
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.88  I    1.31  I  0.88
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  2.75  I    4.13  I  2.75
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  2.38  I    3.56  I  2.38
I

-----------------------------------------------------------------------------------
-

.Demand set:        0920 Des Rd AM
 ----------------------------------------------------------------------
```

```
I                   I         TURNING PROPORTIONS                I
I                   I         TURNING COUNTS                     I
I                   I        (PERCENTAGE OF H.V.S)               I
I                   ------------------------------------------------
I        TIME       I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
--------------------------------------------------------------------
I   08.00 - 09.30   I         I        I        I        I        I
I                   I ARM  A  I  0.000 I  0.033 I  0.733 I  0.233 I
I                   I         I    0.0 I   10.0 I  220.0 I   70.0 I
I                   I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
I                   I         I        I        I        I        I
I                   I ARM  B  I  0.143 I  0.000 I  0.143 I  0.714 I
I                   I         I   10.0 I    0.0 I   10.0 I   50.0 I
I                   I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
I                   I         I        I        I        I        I
I                   I ARM  C  I  0.682 I  0.091 I  0.000 I  0.227 I
I                   I         I  150.0 I   20.0 I    0.0 I   50.0 I
I                   I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
I                   I         I        I        I        I        I
I                   I ARM  D  I  0.263 I  0.368 I  0.368 I  0.000 I
I                   I         I   50.0 I   70.0 I   70.0 I    0.0 I
I                   I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
I                   I         I        I        I        I        I
--------------------------------------------------------------------
TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               ------------------------------------------------------
                FOR DEMAND SET        0920 Des Rd AM
                AND FOR TIME PERIOD       1
.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                              I
 I   B-ACD     0.88      6.35    0.138              0.00   0.16        2.3
                    0.18      I
 I   A-B       0.13
                              I
 I   A-C       2.76
                              I
 I   A-D       0.88      8.55    0.103              0.00   0.11        1.6
                    0.13      I
 I   D-ABC     2.38      8.64    0.276              0.00   0.38        5.4
                    0.16      I
 I   C-ABD     0.33     10.02    0.033              0.00   0.04        0.7
                    0.10      I
 I   C-D       0.61
                              I
 I   C-A       1.82
                              I
```

```
 I
                             I
.-------------------------------------------------------------------------------
--------------------------------

.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     1.05      6.13    0.171               0.16   0.20        3.0
                    0.20     I
 I   A-B       0.15
                             I
 I   A-C       3.30
                             I
 I   A-D       1.05      8.43    0.124               0.11   0.14        2.1
                    0.14     I
 I   D-ABC     2.85      8.37    0.340               0.38   0.51        7.3
                    0.18     I
 I   C-ABD     0.42     10.20    0.041               0.04   0.06        0.9
                    0.10     I
 I   C-D       0.72
                             I
 I   C-A       2.16
                             I
 I
                             I
.-------------------------------------------------------------------------------
--------------------------------

.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     1.28      5.83    0.220               0.20   0.28        4.0
                    0.22     I
 I   A-B       0.18
                             I
 I   A-C       4.04
                             I
 I   A-D       1.28      8.27    0.155               0.14   0.18        2.7
                    0.14     I
 I   D-ABC     3.49      8.00    0.436               0.51   0.75       10.8
                    0.22     I
 I   C-ABD     0.55     10.46    0.053               0.06   0.08        1.2
                    0.10     I
 I   C-D       0.87
                             I
 I   C-A       2.61
                             I
 I
                             I
.-------------------------------------------------------------------------------
--------------------------------

.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     1.28      5.83    0.220               0.28   0.28        4.2
                    0.22     I
 I   A-B       0.18
                             I
 I   A-C       4.04
                             I
 I   A-D       1.28      8.27    0.155               0.18   0.18        2.7
                    0.14     I
 I   D-ABC     3.49      8.00    0.436               0.75   0.76       11.4
                    0.22     I
 I   C-ABD     0.55     10.46    0.053               0.08   0.08        1.2
                    0.10     I
 I   C-D       0.87
                             I
 I   C-A       2.61
                             I
 I
                             I
.-------------------------------------------------------------------------------
--------------------------------

.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     1.05      6.13    0.171               0.28   0.21        3.3
                    0.20     I
 I   A-B       0.15
                             I
 I   A-C       3.30
                             I
```

```
 I   A-D       1.05      8.43    0.124                0.18   0.14        2.2
                    0.14      I
 I   D-ABC     2.85      8.37    0.340                0.76   0.52        8.2
                    0.18      I
 I   C-ABD     0.42     10.20    0.041                0.08   0.06        0.9
                    0.10      I
 I   C-D       0.72
                              I
 I   C-A       2.16
                              I
 I
                              I
.-------------------------------------------------------------------------------
-------------------------------

.-------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                              I
 I   B-ACD     0.88      6.35    0.138                0.21   0.16        2.5
                    0.18      I
 I   A-B       0.13
                              I
 I   A-C       2.76
                              I
 I   A-D       0.88      8.55    0.103                0.14   0.12        1.8
                    0.13      I
 I   D-ABC     2.38      8.63    0.276                0.52   0.39        6.0
                    0.16      I
 I   C-ABD     0.33     10.02    0.033                0.06   0.05        0.7
                    0.10      I
 I   C-D       0.61
                              I
 I   C-A       1.82
                              I
 I
                              I
.-------------------------------------------------------------------------------
-------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.2
   08.45           0.3
   09.00           0.3
   09.15           0.2
   09.30           0.2
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.2
   09.00           0.2
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.4
   08.30           0.5    *
   08.45           0.8    *
   09.00           0.8    *
   09.15           0.5    *
   09.30           0.4
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-ACD I   96.3 I   64.2 I    19.2 I    0.20   I      19.2  I    0.20   I
 I  A-B   I   13.8 I    9.2 I         I           I            I           I
 I  A-C   I  302.8 I  201.9 I         I           I            I           I
 I  A-D   I   96.3 I   64.2 I    13.1 I    0.14   I      13.1  I    0.14   I
 I  D-ABC I  261.5 I  174.3 I    49.1 I    0.19   I      49.1  I    0.19   I
 I  C-ABD I   39.1 I   26.1 I     5.6 I    0.14   I       5.6  I    0.14   I
 I  C-D   I   65.9 I   43.9 I         I           I            I           I
 I  C-A   I  197.8 I  131.8 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1073.6 I  715.7 I    86.9 I    0.08   I      86.9  I    0.08   I
 ---------------------------------------------------------------------------
```

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D

```
 I     602.92            0.21                0.29                0.21        I
 ------------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

---------------------------------------------------------------------------------
---------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

---------------------------------------------------------------------------------
---------------
 I     476.98            0.19                0.19                  0.08
   0.28       I

---------------------------------------------------------------------------------
---------------

---------------------------------------------------------------------------------
---------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

---------------------------------------------------------------------------------
---------------
 I                       0.12                0.12
             I

---------------------------------------------------------------------------------
---------------


 B-D Stream From Right Hand Lane

---------------------------------------------------------------------------------
---------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

---------------------------------------------------------------------------------
---------------
 I     476.98            0.19                0.19                  0.08
   0.28       I

---------------------------------------------------------------------------------
---------------

---------------------------------------------------------------------------------
---------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

---------------------------------------------------------------------------------
---------------
 I                       0.12                0.12
             I

---------------------------------------------------------------------------------
---------------


 D-B Stream From Left Hand Lane

---------------------------------------------------------------------------------
---------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

---------------------------------------------------------------------------------
---------------
 I     622.33            0.25                0.25                  0.10
   0.36       I

---------------------------------------------------------------------------------
---------------

---------------------------------------------------------------------------------
---------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

---------------------------------------------------------------------------------
---------------
 I                       0.16                0.16
             I

---------------------------------------------------------------------------------
---------------


 D-B Stream From Right Hand Lane

---------------------------------------------------------------------------------
---------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

---------------------------------------------------------------------------------
---------------
 I     622.33            0.25                0.25                  0.10
   0.36       I
```

```
-------------------------------------------------------------------------------------
---------------

-------------------------------------------------------------------------------------
---------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
---------------
 I                         0.16                0.16
             I

-------------------------------------------------------------------------------------
---------------
```

.TRAFFIC DEMAND DATA

```
 ------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------
```

.Demand set: 0920 Des RD PM

TIME PERIOD BEGINS 08.00 AND ENDS 09.30

LENGTH OF TIME PERIOD -   90 MIN.
LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

```
-------------------------------------------------------------------------------------
-
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

-------------------------------------------------------------------------------------
-
 I ARM  A I     15.00   I     45.00   I    75.00   I  2.75  I   4.13  I  2.75
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.88  I   1.31  I  0.88
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  3.00  I   4.50  I  3.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  1.75  I   2.63  I  1.75
I

-------------------------------------------------------------------------------------
-
```

.Demand set: 0920 Des RD PM

```
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.045 I  0.636 I  0.318 I
 I                    I         I    0.0 I   10.0 I  140.0 I   70.0 I
 I                    I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.143 I  0.000 I  0.143 I  0.714 I
 I                    I         I   10.0 I    0.0 I   10.0 I   50.0 I
 I                    I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.625 I  0.042 I  0.000 I  0.333 I
 I                    I         I  150.0 I   10.0 I    0.0 I   80.0 I
 I                    I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.429 I  0.357 I  0.214 I  0.000 I
 I                    I         I   60.0 I   50.0 I   30.0 I    0.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ---------------------------------------------------------------------
```

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

```
.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         0920 Des RD PM
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                              I
 I   B-ACD     0.88      6.56    0.134                0.00   0.15        2.2
                    0.18      I
 I   A-B       0.13
                              I
 I   A-C       1.76
                              I
```

```
 I   A-D       0.88      8.51    0.103               0.00   0.11        1.6
                    0.13      I
 I   D-ABC     1.76      9.25    0.190               0.00   0.23        3.3
                    0.13      I
 I   C-ABD     0.17     10.46    0.016               0.00   0.02        0.3
                    0.10      I
 I   C-D       0.99
                              I
 I   C-A       1.85
                              I
 I
                              I
.---------------------------------------------------------------------------------
-------------------------------

.---------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                              I
 I   B-ACD     1.05      6.38    0.164               0.15   0.19        2.8
                    0.19      I
 I   A-B       0.15
                              I
 I   A-C       2.10
                              I
 I   A-D       1.05      8.38    0.125               0.11   0.14        2.1
                    0.14      I
 I   D-ABC     2.10      9.03    0.232               0.23   0.30        4.4
                    0.14      I
 I   C-ABD     0.22     10.72    0.020               0.02   0.02        0.4
                    0.10      I
 I   C-D       1.18
                              I
 I   C-A       2.20
                              I
 I
                              I
.---------------------------------------------------------------------------------
-------------------------------

.---------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                              I
 I   B-ACD     1.28      6.14    0.209               0.19   0.26        3.8
```

```
                    0.21      I
 I   A-B       0.18
                              I
 I   A-C       2.57
                              I
 I   A-D       1.28      8.22    0.156               0.14   0.18        2.7
                    0.14      I
 I   D-ABC     2.57      8.72    0.295               0.30   0.41        6.0
                    0.16      I
 I   C-ABD     0.29     11.08    0.026               0.02   0.03        0.5
                    0.09      I
 I   C-D       1.43
                              I
 I   C-A       2.68
                              I
 I
                              I
.---------------------------------------------------------------------------------
-------------------------------

.---------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                              I
 I   B-ACD     1.28      6.14    0.209               0.26   0.26        3.9
                    0.21      I
 I   A-B       0.18
                              I
 I   A-C       2.57
                              I
 I   A-D       1.28      8.21    0.156               0.18   0.18        2.8
                    0.14      I
 I   D-ABC     2.57      8.72    0.295               0.41   0.41        6.2
                    0.16      I
 I   C-ABD     0.29     11.08    0.026               0.03   0.03        0.5
                    0.09      I
 I   C-D       1.43
                              I
 I   C-A       2.68
                              I
 I
                              I
.---------------------------------------------------------------------------------
-------------------------------

.---------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
```

```
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                              I
 I   B-ACD     1.05      6.38    0.164               0.26   0.20        3.1
                    0.19      I
 I   A-B       0.15
                              I
 I   A-C       2.10
                              I
 I   A-D       1.05      8.38    0.125               0.18   0.14        2.2
                    0.14      I
 I   D-ABC     2.10      9.02    0.232               0.41   0.31        4.7
                    0.14      I
 I   C-ABD     0.22     10.72    0.020               0.03   0.02        0.4
                    0.10      I
 I   C-D       1.18
                              I
 I   C-A       2.20
                              I
 I
                              I
.--------------------------------------------------------------------------------
-------------------------------

.--------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                              I
 I   B-ACD     0.88      6.55    0.134               0.20   0.16        2.4
                    0.18      I
 I   A-B       0.13
                              I
 I   A-C       1.76
                              I
 I   A-D       0.88      8.51    0.103               0.14   0.12        1.8
                    0.13      I
 I   D-ABC     1.76      9.25    0.190               0.31   0.24        3.6
                    0.13      I
 I   C-ABD     0.17     10.46    0.016               0.02   0.02        0.3
                    0.10      I
 I   C-D       0.99
                              I
 I   C-A       1.85
                              I
 I
                              I
.--------------------------------------------------------------------------------
-------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
```

```
QUEUE FOR STREAM    B-ACD
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.2
  08.30           0.2
  08.45           0.3
  09.00           0.3
  09.15           0.2
  09.30           0.2
.
QUEUE FOR STREAM    A-D
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.1
  08.30           0.1
  08.45           0.2
  09.00           0.2
  09.15           0.1
  09.30           0.1
.
QUEUE FOR STREAM    D-ABC
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.2
  08.30           0.3
  08.45           0.4
  09.00           0.4
  09.15           0.3
  09.30           0.2
.
QUEUE FOR STREAM    C-ABD
-------------------------
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.0
  08.30           0.0
  08.45           0.0
  09.00           0.0
  09.15           0.0
  09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I--------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-ACD I   96.3 I   64.2 I    18.2 I    0.19   I      18.2  I    0.19   I
```

A-B	13.8	9.2				
A-C	192.7	128.5				
A-D	96.3	64.2	13.2	0.14	13.2	0.14
D-ABC	192.7	128.5	28.3	0.15	28.3	0.15
C-ABD	20.3	13.5	2.3	0.11	2.3	0.11
C-D	107.9	71.9				
C-A	202.2	134.8				
ALL	922.2	614.8	62.0	0.07	62.0	0.07

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

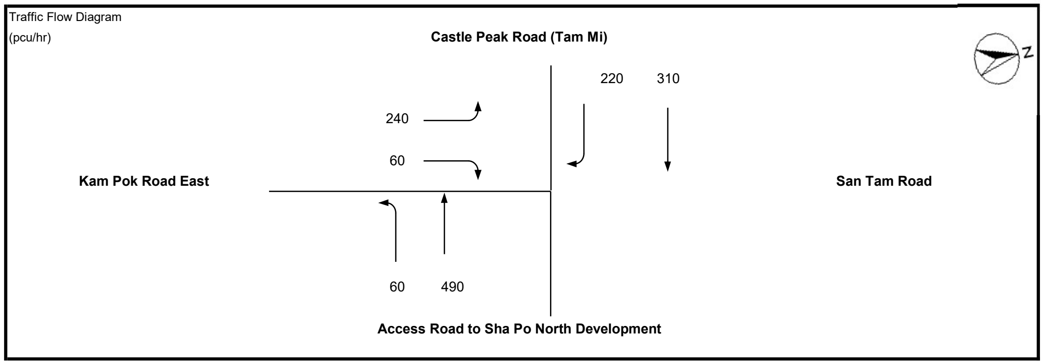
*******END OF RUN*******

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 AM Peak Hour Design Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

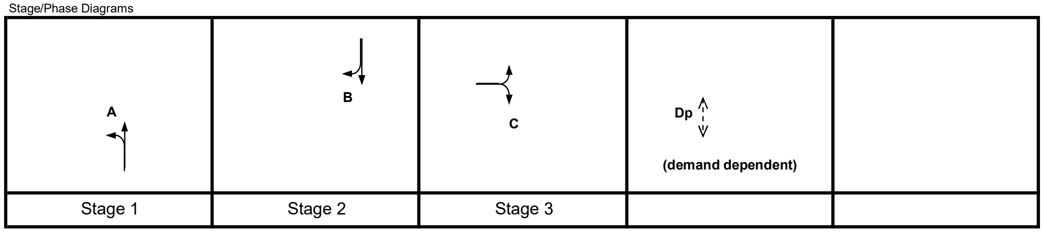
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.570	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	57	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	30	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	40.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	36	sec
Y_{max}	$= 1-L/C =$	0.856	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 5

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 35%

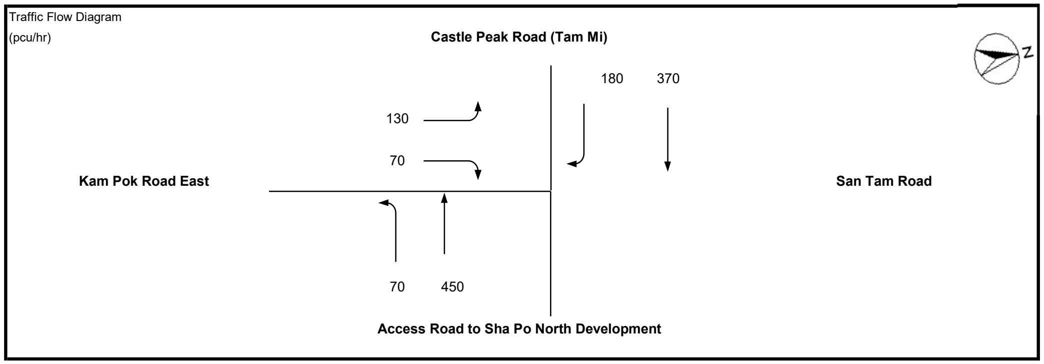
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	60	490		550	11%		1952	0.282	0.282
	B	2	3.400	1				1		0		1955		310		310			1955	0.159	0.159
	B	2	3.500	1		30	0	0		0		2105			220	220		100%	2005	0.110	
	C	3	3.400	1	25			1		0		1955	240			240	100%		1844	0.130	0.130
	C	3	3.400	1		30	0	0		0		2095			60	60		100%	1995	0.030	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 PM Peak Hour Design Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

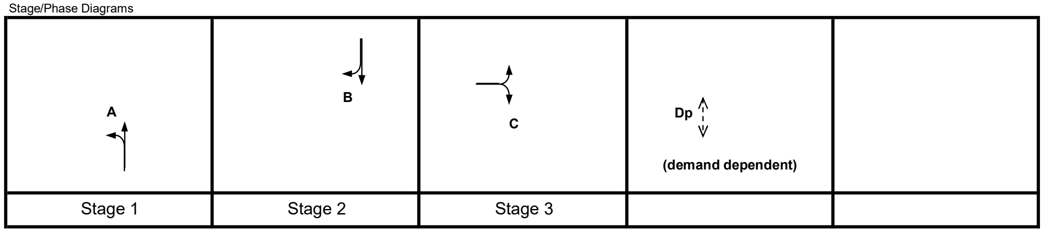
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.527	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	52	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	27	sec
Y_{ult}	$= 0.9-0.0075\times L$ =	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\%$ =	52.4	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$ =	31	sec
Y_{max}	= 1-L/C =	0.856	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 5

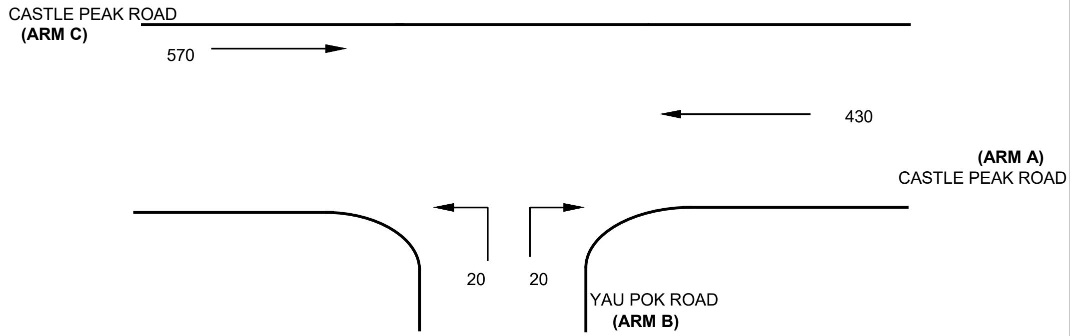
Critical Case : A,B,C,Dp

R.C.(C) $= (0.9\text{x}Y_{max}-Y)/Y\text{x}100\% =$ 46%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	70	450		520	13%		1949	0.267	0.267
	B	2	3.400	1				1		0		1955		370		370			1955	0.189	0.189
	B	2	3.500	1		30	0	0		0		2105			180	180		100%	2005	0.090	
	C	3	3.400	1	25			1		0		1955	130			130	100%		1844	0.070	0.070
	C	3	3.400	1		30	0	0		0		2095			70	70		100%	1995	0.035	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 AM Design Flow	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.5	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	430	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	25	(metres)
q c-a	=	570	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.8	(metres)
W b-c	=	1.8	(metres)
Vl b-a	=	25	(metres)
Vr b-a	=	25	(metres)
Vr b-c	=	25	(metres)
q b-a	=	20	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	283
Q b-c	=	471
Q c-b	=	375
Q b-ac	=	353

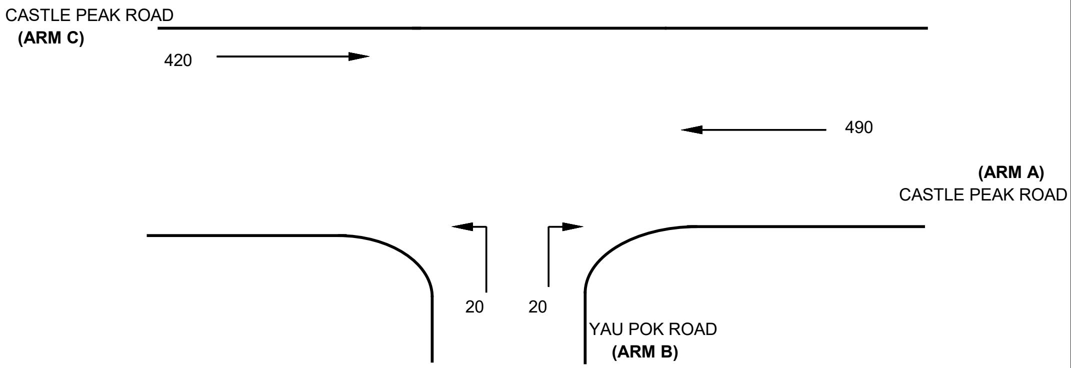
CRITICAL DFC = 0.07

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.07
DFC b-c	=	0.04
DFC c-b	=	0.00

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 PM Design Flow	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)			*MAJOR ROAD (ARM C)*			*MINOR ROAD (ARM B)*		
W	=	6.5 (metres)	W c-b	=	0 (metres)	W b-a	=	1.8 (metres)
W cr	=	0 (metres)	Vr c-b	=	25 (metres)	W b-c	=	1.8 (metres)
q a-b	=	0 (pcu/hr)	q c-a	=	420 (pcu/hr)	Vl b-a	=	25 (metres)
q a-c	=	490 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	25 (metres)
						Vr b-c	=	25 (metres)
						q b-a	=	20 (pcu/hr)
						q b-c	=	20 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	289
Q b-c	=	458
Q c-b	=	364
Q b-ac	=	355

CRITICAL DFC = 0.07

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.07
DFC b-c	=	0.04
DFC c-b	=	0.00

```
                         TRL LIMITED

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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                  PICADY 5.1  ANALYSIS PROGRAM
                     RELEASE 5.0 (JUNE 2010)

              ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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                           TRL SOFTWARE SALES
               TEL: CROWTHORNE (01344) 770758, FAX: 770356
                       EMAIL: software@trl.co.uk
            --------------------------------------------------------


 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
 IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION

 Run with file:-
 "T:\Anthony Sun\20240920 Picidy\Junction 8 - Yau Pok Road REC N\0920 Des RD\Des
Rd.vpi"
(drive-on-the-left) at 12:19:54 on Friday, 20 September 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : J8 - Yau Pok Road / REC North Access
 LOCATION        : Fairview
 DATE            : 02/09/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

                                         MINOR ROAD (ARM D)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)

 ARM A IS Yau Pok Road exit
 ARM B IS Vehicular Bridge
 ARM C IS Yau Pok Road entry
 ARM D IS REC North

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

------------------------------------------------------------------------------------
---------------------
 I                DATA ITEM                                      I   MINOR ROAD B
 I   MINOR ROAD D    I

------------------------------------------------------------------------------------
---------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                           I ( W  )  6.00 M.
 I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                        I (WCR )  0.00 M.
 I (WCR )  0.00 M.   I
 I                                                               I
 I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                               I (WC-B)  2.20 M.
 I (WA-D)  2.20 M.   I
 I                          - VISIBILITY                         I (VC-B) 50.00 M.
 I (VA-D) 50.00 M.   I
 I                          - BLOCKS TRAFFIC (SPACES)            I        YES  (
0) I          NO  ( 0) I
 I                                                               I
 I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                              I (VB-C)  50.0 M.
 I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                             I (VB-A)  50.0 M.
 I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                    I (WB-C)  3.50 M.
 I (WD-A)  3.50 M.   I
 I             - LANE 2 WIDTH                                    I (WB-A)  0.00 M.
 I (WD-C)  0.00 M.   I

------------------------------------------------------------------------------------
---------------------
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
688.22	0.27	0.11

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
688.22	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.10	0.16	0.36	0.13

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.23	0.23	0.33

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.23	0.33	0.23

B-D Stream From Left Hand Lane

```
--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------------
--------------
 I     544.46            0.25               0.25                 0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------------
--------------
 I                       0.16               0.16
             I

--------------------------------------------------------------------------------------
--------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------------
--------------
 I     544.46            0.25               0.25                 0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------------
--------------
 I                       0.16               0.16
             I

--------------------------------------------------------------------------------------
--------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------------
--------------
 I     544.46            0.25               0.25                 0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------------
--------------
 I                       0.16               0.16
             I

--------------------------------------------------------------------------------------
--------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------------
--------------
 I     544.46            0.25               0.25                 0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
```

```
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
--------------
 I                        0.16                0.16
             I

-------------------------------------------------------------------------------------
--------------


.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        0920 Des RD AM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


-------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

-------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.63  I   0.94  I  0.63
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I
```

```
-------------------------------------------------------------------------------------

.Demand set:        0920 Des RD AM
 --------------------------------------------------------------------
 I                   I         TURNING PROPORTIONS                  I
 I                   I         TURNING COUNTS                       I
 I                   I        (PERCENTAGE OF H.V.S)                 I
 I                   -----------------------------------------------
 I       TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30   I         I        I        I        I        I
 I                   I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                   I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I ARM  B  I  0.400 I  0.000 I  0.000 I  0.600 I
 I                   I         I   20.0 I    0.0 I    0.0 I   30.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                   I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                   I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               --------------------------------------------------------
                FOR DEMAND SET         0920 Des RD AM
                AND FOR TIME PERIOD       1
.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                             I
 I   B-ACD     0.63      9.02    0.070                0.00   0.07        1.1
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.50      9.07    0.055                0.00   0.06        0.8
                   0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
```

```
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
-------------------------------

.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     0.75      9.01    0.083               0.07   0.09        1.3
                0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                0.00      I
 I   D-ABC     0.60      9.07    0.066               0.06   0.07        1.0
                0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
-------------------------------

.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     0.92      9.00    0.102               0.09   0.11        1.7
                0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                0.00      I
 I   D-ABC     0.73      9.07    0.081               0.07   0.09        1.3
                0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
-------------------------------

.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     0.92      9.00    0.102               0.11   0.11        1.7
                0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                0.00      I
 I   D-ABC     0.73      9.07    0.081               0.09   0.09        1.3
                0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
-------------------------------

.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
```

```
 I   B-ACD     0.75      9.01    0.083               0.11   0.09        1.4
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.60      9.07    0.066               0.09   0.07        1.1
                   0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------

.----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     0.63      9.02    0.070               0.09   0.08        1.2
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.50      9.07    0.055               0.07   0.06        0.9
                   0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I---------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-ACD I    68.8 I   45.9 I     8.3 I    0.12   I       8.3  I    0.12   I
 I  A-B   I     0.0 I    0.0 I         I           I            I           I
 I  A-C   I     0.0 I    0.0 I         I           I            I           I
```

```
I  A-D   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
I  D-ABC I   55.1 I   36.7 I     6.5 I    0.12   I       6.5  I    0.12   I
I  C-ABD I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
I  C-D   I    0.0 I    0.0 I         I           I            I           I
I  C-A   I    0.0 I    0.0 I         I           I            I           I
-----------------------------------------------------------------------------
I  ALL   I  123.9 I   82.6 I    14.8 I    0.12   I      14.8  I    0.12   I
-----------------------------------------------------------------------------
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******



.SLOPES AND INTERCEPT
 -------------------
 (NB:Streams may be combined, in which case capacity will be adjusted)

STREAM   B-C
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C          STREAM A-B        I
---------------------------------------------------------
I     688.22           0.27                0.11         I
---------------------------------------------------------


STREAM   D-A
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM D-A     STREAM  C-A          STREAM C-D        I
---------------------------------------------------------
I     688.22           0.27                0.11         I
---------------------------------------------------------


 STREAM   B-A

-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D          STREAM  D-A
STREAM  D-B       I

-------------------------------------------------------------------------------------
-------------
 I     544.46           0.25                0.25                  0.25
  0.25       I

-------------------------------------------------------------------------------------
-------------
```

```
-------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-B          STREAM C-A          STREAM  C-B
STREAM  D-C       I

-------------------------------------------------------------------------------------
-------------
 I                      0.10                0.16                  0.36
  0.13       I

-------------------------------------------------------------------------------------
-------------


 STREAM   D-C

-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B          STREAM  B-C
STREAM  B-D       I

-------------------------------------------------------------------------------------
-------------
 I     544.46           0.25                0.25                  0.25
  0.25       I

-------------------------------------------------------------------------------------
-------------


-------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-D          STREAM A-C          STREAM  A-D
STREAM  B-A       I

-------------------------------------------------------------------------------------
-------------
 I                      0.10                0.16                  0.36
  0.13       I

-------------------------------------------------------------------------------------
-------------


 STREAM   C-B
 -------------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
```

```
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.23                0.33        I
 -----------------------------------------------------------------------------


 STREAM   A-D
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.33                0.23        I
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
--------------

-------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

-------------------------------------------------------------------------------------
--------------


 B-D Stream From Right Hand Lane

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------------
```

```
--------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
--------------

-------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

-------------------------------------------------------------------------------------
--------------


 D-B Stream From Left Hand Lane

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
--------------

-------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

-------------------------------------------------------------------------------------
--------------


 D-B Stream From Right Hand Lane
```

```
-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------------
-------------
 I    544.46           0.25                0.25                   0.10
  0.36      I

-------------------------------------------------------------------------------------
-------------

-------------------------------------------------------------------------------------
-------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
-------------
 I                     0.16                0.16
            I

-------------------------------------------------------------------------------------
-------------
```

.TRAFFIC DEMAND DATA

```
 ------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------
```

.Demand set: 0920 Des RD PM

TIME PERIOD BEGINS 08.00 AND ENDS 09.30

LENGTH OF TIME PERIOD -   90 MIN.
LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

```
-------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

-------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.75  I   1.13  I  0.75
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I

-------------------------------------------------------------------------------------
```

.Demand set: 0920 Des RD PM

```
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                  I
 I                    I         TURNING COUNTS                       I
 I                    I        (PERCENTAGE OF H.V.S)                 I
 I                    ------------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.333 I  0.000 I  0.000 I  0.667 I
 I                    I         I   20.0 I    0.0 I    0.0 I   40.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ---------------------------------------------------------------------
```

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

```
.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         0920 Des RD PM
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
```

```
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                             I
 I   B-ACD     0.75      9.03    0.083               0.00   0.09        1.3
              0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   D-ABC     0.50      9.07    0.055               0.00   0.06        0.8
              0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
-------------------------------

.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     0.90      9.02    0.100               0.09   0.11        1.6
              0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   D-ABC     0.60      9.07    0.066               0.06   0.07        1.0
              0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
-------------------------------

.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     1.10      9.01    0.122               0.11   0.14        2.0
              0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   D-ABC     0.73      9.07    0.081               0.07   0.09        1.3
              0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
-------------------------------

.------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     1.10      9.01    0.122               0.14   0.14        2.1
              0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   D-ABC     0.73      9.07    0.081               0.09   0.09        1.3
              0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
              0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
```

```
                             I
 I                           I
.--------------------------------------------------------------------------------------------
------------------------------

.--------------------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     0.90      9.02    0.100               0.14   0.11        1.7
               0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
               0.00      I
 I   D-ABC     0.60      9.07    0.066               0.09   0.07        1.1
               0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
               0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.--------------------------------------------------------------------------------------------
------------------------------

.--------------------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     0.75      9.03    0.083               0.11   0.09        1.4
               0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
               0.00      I
 I   D-ABC     0.50      9.07    0.055               0.07   0.06        0.9
               0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
               0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.--------------------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
```

08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	82.6	55.1	10.1	0.12	10.1	0.12
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	55.1	36.7	6.5	0.12	6.5	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	137.6	91.8	16.6	0.12	16.6	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

```
                    TRL LIMITED

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  CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

             PICADY 5.1  ANALYSIS PROGRAM
                RELEASE 5.0 (JUNE 2010)

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 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
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 Run with file:-
 "T:\Anthony Sun\20240920 Picidy\Junction 9 - Yau Pok Road REC S\0920 Des Rd\Des
RD.vpi"
(drive-on-the-left) at 12:26:10 on Friday, 20 September 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : J9 - Yau Pok Road / REC South Access
 LOCATION        : Fairview
 DATE            : 02/09/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

                                          MINOR ROAD (ARM D)
                                                 I
                                                 I
                                                 I
                                                 I
                                                 I
                                                 I
                    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                 I
                                                 I
                                                 I
                                                 I
                                                 I
                                                 I
                                          MINOR ROAD (ARM B)

 ARM A IS Yau Pok Road exit
 ARM B IS Vehicular Bridge
 ARM C IS Yau Pok Road entry
 ARM D IS REC South

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

------------------------------------------------------------------------------------
----------------------
 I                DATA ITEM                                     I   MINOR ROAD B
 I   MINOR ROAD D    I

------------------------------------------------------------------------------------
----------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                          I ( W  )  6.00 M.
 I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                       I (WCR )  0.00 M.
 I (WCR )  0.00 M.   I
 I                                                              I
 I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                              I (WC-B)  2.20 M.
 I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                         I (VC-B) 50.00 M.
 I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)            I         YES  (
0) I          NO  ( 0) I
 I                                                              I
 I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                             I (VB-C)  50.0 M.
 I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                            I (VB-A)  50.0 M.
 I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                   I (WB-C)  3.50 M.
 I (WD-A)  3.50 M.   I
 I             - LANE 2 WIDTH                                   I (WB-A)  0.00 M.
 I (WD-C)  0.00 M.   I

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.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
688.22	0.27	0.11

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
688.22	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.10	0.16	0.36	0.13

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.23	0.23	0.33

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.23	0.33	0.23

B-D Stream From Left Hand Lane

```
---------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

---------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                 0.10
  0.36       I

---------------------------------------------------------------------------------------
--------------

---------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

---------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

---------------------------------------------------------------------------------------
--------------


 B-D Stream From Right Hand Lane

---------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

---------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                 0.10
  0.36       I

---------------------------------------------------------------------------------------
--------------

---------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM C-D

---------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

---------------------------------------------------------------------------------------
--------------


 D-B Stream From Left Hand Lane

---------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

---------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                 0.10
  0.36       I

---------------------------------------------------------------------------------------
--------------

---------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-A          STREAM A-B

---------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

---------------------------------------------------------------------------------------
--------------


 D-B Stream From Right Hand Lane

---------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

---------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                 0.10
  0.36       I

---------------------------------------------------------------------------------------
--------------

---------------------------------------------------------------------------------------
```

```
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
--------------
 I                         0.16                0.16
             I

------------------------------------------------------------------------------------
--------------
```

```
.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        0920 Des RD AM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.13  I   0.19  I  0.13
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I
```

```
------------------------------------------------------------------------------------

.Demand set:        0920 Des RD AM
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                  I
 I                    I         TURNING COUNTS                       I
 I                    I        (PERCENTAGE OF H.V.S)                 I
 I                    -----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I   30.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   10.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ---------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               --------------------------------------------------------
                FOR DEMAND SET         0920 Des RD AM
                AND FOR TIME PERIOD       1
.-----------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                              I
 I   B-ACD     0.38      9.03    0.042                0.00   0.04        0.6
                   0.12      I
 I   A-B       0.00
                              I
 I   A-C       0.00
                              I
 I   A-D       0.00      9.10    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.50      9.04    0.056                0.00   0.06        0.8
                   0.12      I
 I   C-ABD     0.13     10.05    0.012                0.00   0.01        0.2
                   0.10      I
```

```
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     0.45      9.02    0.050                0.04   0.05        0.8
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.09    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.60      9.04    0.066                0.06   0.07        1.0
                   0.12      I
 I   C-ABD     0.15     10.05    0.015                0.01   0.02        0.2
                   0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     0.55      9.01    0.061                0.05   0.06        0.9
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
```

```
 I   A-D       0.00      9.08    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.73      9.03    0.081                0.07   0.09        1.3
                   0.12      I
 I   C-ABD     0.18     10.05    0.018                0.02   0.02        0.3
                   0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     0.55      9.01    0.061                0.06   0.06        1.0
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.08    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.73      9.03    0.081                0.09   0.09        1.3
                   0.12      I
 I   C-ABD     0.18     10.05    0.018                0.02   0.02        0.3
                   0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
```

```
 I   B-ACD     0.45      9.02    0.050               0.06   0.05        0.8
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.09    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.60      9.04    0.066               0.09   0.07        1.1
                   0.12      I
 I   C-ABD     0.15     10.05    0.015               0.02   0.02        0.2
                  0.10       I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------
------------------------------

.-------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     0.38      9.03    0.042               0.05   0.04        0.7
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.10    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.50      9.04    0.056               0.07   0.06        0.9
                   0.12      I
 I   C-ABD     0.13     10.05    0.012               0.02   0.01        0.2
                  0.10       I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.0
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I---------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-ACD I   41.3 I   27.5 I     4.8 I     0.12  I       4.8  I     0.12  I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I    0.0 I    0.0 I         I           I            I           I
```

```
I  A-D   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
I  D-ABC I   55.1 I   36.7 I     6.5 I    0.12   I       6.5  I    0.12   I
I  C-ABD I   13.8 I    9.2 I     1.4 I    0.10   I       1.4  I    0.10   I
I  C-D   I    0.0 I    0.0 I         I           I            I           I
I  C-A   I    0.0 I    0.0 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I  110.1 I   73.4 I    12.7 I    0.12   I      12.7  I    0.12   I
---------------------------------------------------------------------------
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******



.SLOPES AND INTERCEPT
 --------------------
 (NB:Streams may be combined, in which case capacity will be adjusted)

STREAM   B-C
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C         STREAM A-B         I
---------------------------------------------------------
I     688.22           0.27               0.11          I
---------------------------------------------------------


STREAM   D-A
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM D-A     STREAM  C-A         STREAM C-D         I
---------------------------------------------------------
I     688.22           0.27               0.11          I
---------------------------------------------------------


 STREAM   B-A

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C         STREAM A-D          STREAM  D-A
STREAM  D-B       I

-------------------------------------------------------------------------------------
--------------
 I     544.46           0.25               0.25                 0.25
  0.25       I

-------------------------------------------------------------------------------------
--------------
```

```
-------------------------------------------------------------------------------------
--------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-B          STREAM C-A          STREAM  C-B
STREAM  D-C       I

-------------------------------------------------------------------------------------
--------------
 I                      0.10               0.16                  0.36
  0.13       I

-------------------------------------------------------------------------------------
--------------


 STREAM   D-C

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A         STREAM C-B          STREAM  B-C
STREAM  B-D       I

-------------------------------------------------------------------------------------
--------------
 I     544.46           0.25               0.25                  0.25
  0.25       I

-------------------------------------------------------------------------------------
--------------


-------------------------------------------------------------------------------------
--------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-D          STREAM A-C          STREAM  A-D
STREAM  B-A       I

-------------------------------------------------------------------------------------
--------------
 I                      0.10               0.16                  0.36
  0.13       I

-------------------------------------------------------------------------------------
--------------


 STREAM   C-B
 -------------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
```

602.92	0.23	0.23	0.33

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
544.46	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.16	0.16		

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
544.46	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.16	0.16		

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
544.46	0.25	0.25	0.10	0.36

	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing	Slope For Opposing
	0.16	0.16		

D-B Stream From Right Hand Lane

```
-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------------
-------------
 I    544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
-------------

-------------------------------------------------------------------------------------
-------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
-------------
 I                        0.16                0.16
             I

-------------------------------------------------------------------------------------
-------------
```

```
.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        0920 Des RD PM

 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

-------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I            I            I        I         I
I

-------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.50  I   0.75  I  0.50
I

-------------------------------------------------------------------------------------
```

```
.Demand set:        0920 Des RD PM
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                  I
 I                    I         TURNING COUNTS                       I
 I                    I        (PERCENTAGE OF H.V.S)                 I
 I                    --------------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I   40.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   40.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ---------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         0920 Des RD PM
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
```

```
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                             I
 I   B-ACD     0.50      9.07    0.055                0.00   0.06        0.8
               0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   D-ABC     0.50      9.07    0.055                0.00   0.06        0.8
               0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
-------------------------------

.-----------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     0.60      9.07    0.066                0.06   0.07        1.0
               0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   D-ABC     0.60      9.07    0.066                0.06   0.07        1.0
               0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     0.73      9.07    0.081                0.07   0.09        1.3
               0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   D-ABC     0.73      9.07    0.081                0.07   0.09        1.3
               0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     0.73      9.07    0.081                0.09   0.09        1.3
               0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   D-ABC     0.73      9.07    0.081                0.09   0.09        1.3
               0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
               0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
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                             I
 I                           I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     0.60      9.07    0.066              0.09   0.07        1.1
               0.12          I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000              0.00   0.00        0.0
               0.00          I
 I   D-ABC     0.60      9.07    0.066              0.09   0.07        1.1
               0.12          I
 I   C-ABD     0.00      9.14    0.000              0.00   0.00        0.0
               0.00          I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     0.50      9.07    0.055              0.07   0.06        0.9
               0.12          I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000              0.00   0.00        0.0
               0.00          I
 I   D-ABC     0.50      9.07    0.055              0.07   0.06        0.9
               0.12          I
 I   C-ABD     0.00      9.14    0.000              0.00   0.00        0.0
               0.00          I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
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08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * * DELAY * (MIN)	* QUEUEING * * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * * DELAY * (MIN)	* INCLUSIVE QUEUEING * * DELAY * (MIN/VEH)
B-ACD	55.1	36.7	6.5	0.12	6.5	0.12
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	55.1	36.7	6.5	0.12	6.5	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	110.1	73.4	12.9	0.12	12.9	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

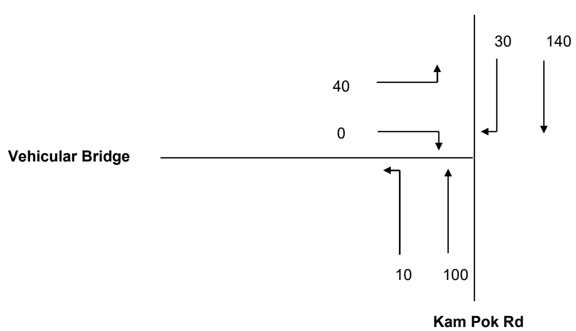
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 AM Design Flows	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Sep 24

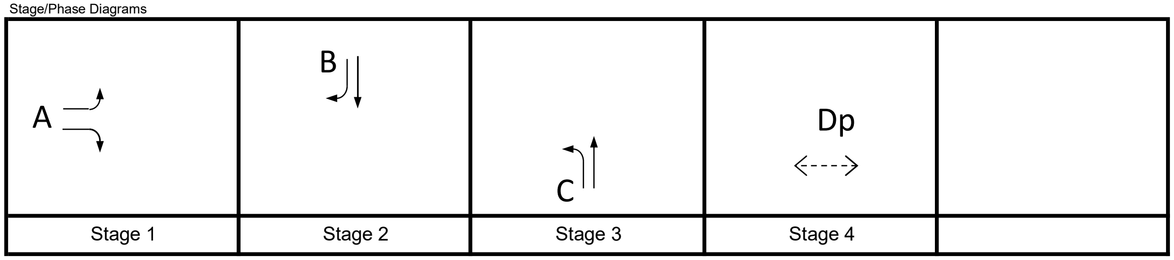
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	60	sec
Sum(y)		Y =	0.146	
Lost time		L =	34	sec
Total Flow		=	320	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	66	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	40	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.645	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	343.1	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.433	

Stage/Phase Diagrams



G = 5 I/G = 5 I/G = 7 I/G = 3 G = 7 I/G = 9

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 168%

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	5	10	0	0		0		2115	40		0	40	100%	0%	1627	0.025	
	B	2	3.600	1		10	0	1		0		1975		140	30	170		18%	1924	0.088	0.088
	C	3	3.600	1	5			1		0		1975	10	100		110	9%		1923	0.057	0.057
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

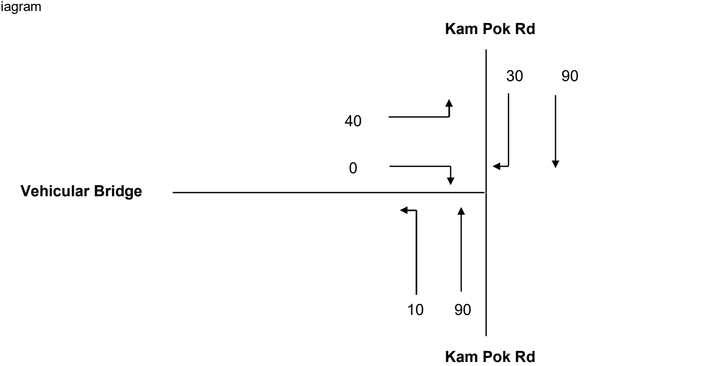
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 PM Design Flows	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Sep 24

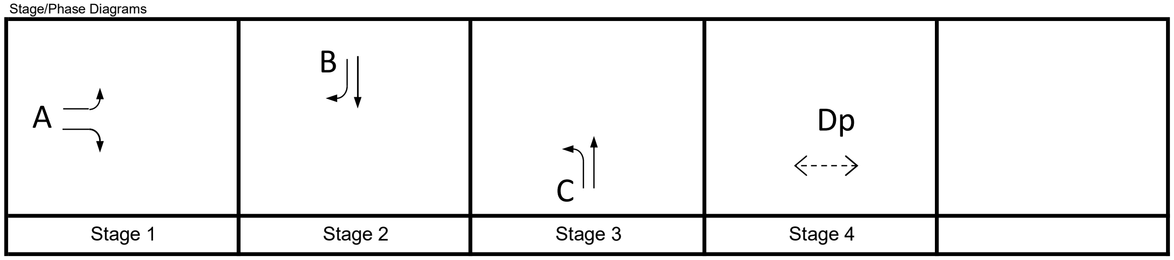
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	60	sec
Sum(y)		Y =	0.115	
Lost time		L =	33	sec
Total Flow		=	260	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	62	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	37	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.653	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	466.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	38	sec
Y_{max}	$= 1-L/C$	=	0.450	

Stage/Phase Diagrams



G = 5 I/G = 5 I/G = 5 I/G = 4 G = 7 I/G = 9

Critical Case : A,B,C,Dp

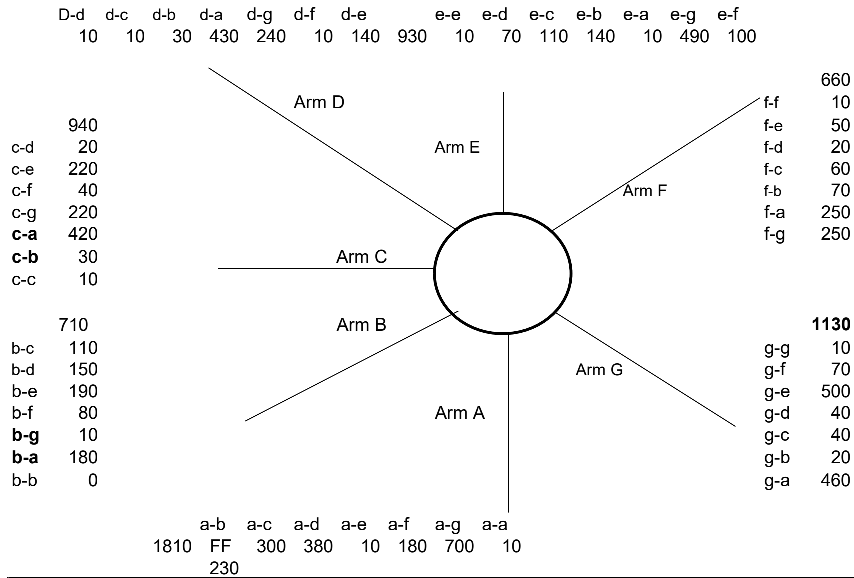
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 252%

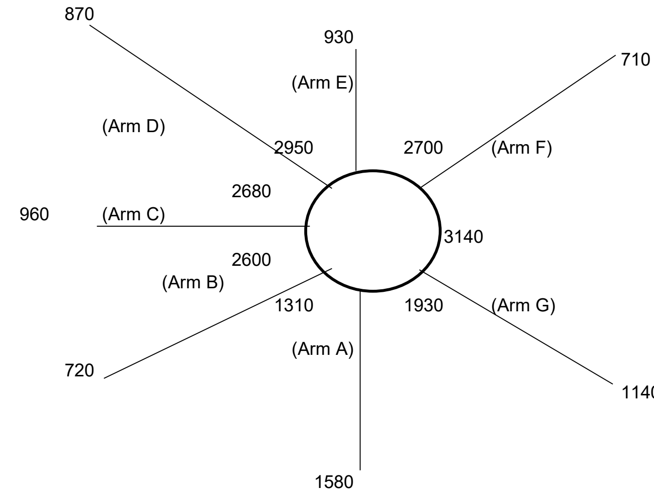
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.600	1	5	10	0	0		0		2115	40		0	40	100%	0%	1627	0.025	
	B	2	3.600	1		10	0	1		0		1975		90	30	120		25%	1904	0.063	0.063
	C	3	3.600	1	5			1		0		1975	10	90		100	10%		1917	0.052	0.052
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

ROUNDABOUT CAPACITY CALCULATIC

AECOM

Junction	Junction J1 - Fairview Roundabout	cenar	2034 AM Design Flows (with Improvement)	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025





ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	6.50	7.00	7.30	7.30	7.30	7.30
E = Entry width (m)	11.00	11.20	11.80	12.00	12.00	11.00	12.00
L = Effective length of flare (m)	30.00	22.00	20.00	36.00	18.00	23.00	27.00
R = Entry radius (m)	25.00	25.00	25.00	30.00	45.00	25.00	25.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	40.00	35.00	35.00	25.00	30.00	35.00	45.00
Q = Entry flow (pcu/h)	1580	720	960	870	930	710	1140
Qc= Circulating flow across entry (pcu/h)	1310	2600	2680	2950	2700	3140	1930
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.34	0.38	0.21	0.42	0.26	0.28
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.99	0.99	1.03	1.03	0.99	0.96
X2= V + ((E-V)/(1+2S))	9.26	9.29	9.71	10.62	9.86	9.74	10.32
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2806	2815	2944	3216	2988	2952	3127
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.66	0.62	0.62	0.64
Qe= K(F-Fc*Qc)	1971	1245	1277	1324	1338	1000	1805
DFC = Design flow/Capacity = Q/Qe	0.80	0.58	0.75	0.66	0.70	0.71	0.63

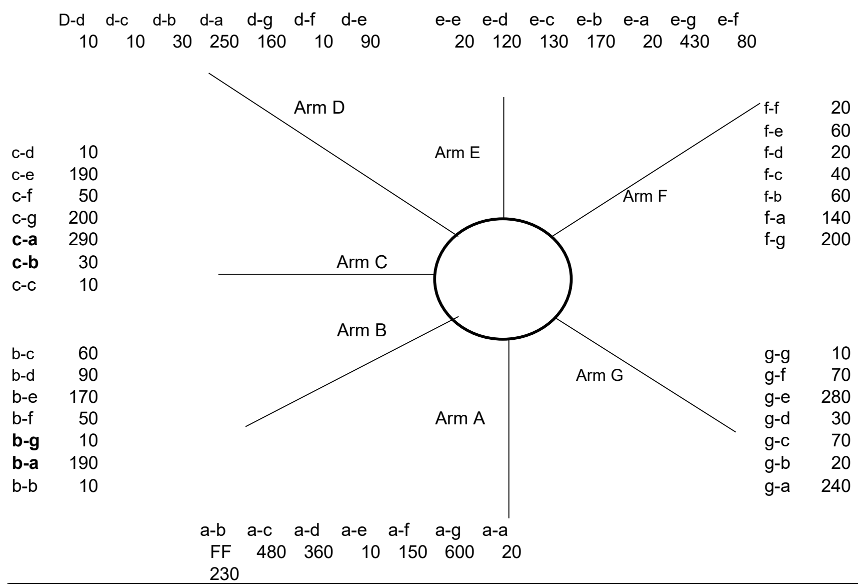
TOTAL ENTRY FLOWS = 6910 PCU

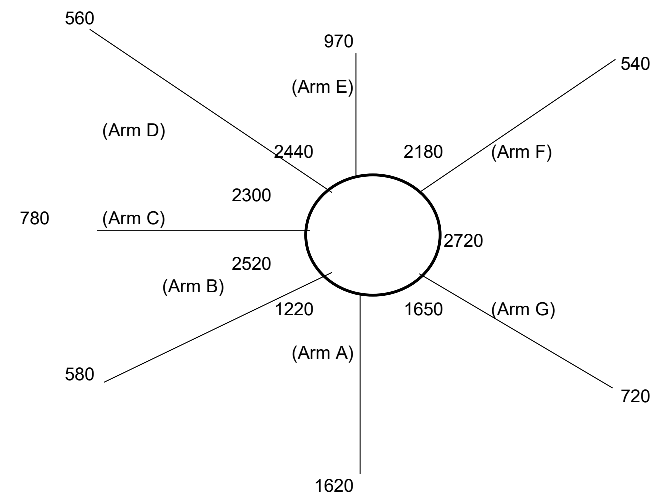
CRITICAL DFC = 0.80

ROUNDABOUT CAPACITY CALCULATIC

AECOM

Junction	Junction J1 - Fairview Roundabout	cenar	2034 PM Design Flows (with Improvement)	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025





ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	6.50	7.00	7.30	7.30	7.30	7.30
E = Entry width (m)	11.00	11.20	11.80	12.00	12.00	11.00	12.00
L = Effective length of flare (m)	30.00	22.00	20.00	36.00	18.00	23.00	27.00
R = Entry radius (m)	25.00	25.00	25.00	30.00	45.00	25.00	25.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	40.00	35.00	35.00	25.00	30.00	35.00	45.00
Q = Entry flow (pcu/h)	1620	580	780	560	970	540	720
Qc= Circulating flow across entry (pcu/h)	1220	2520	2300	2440	2180	2720	1650
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.34	0.38	0.21	0.42	0.26	0.28
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.99	0.99	1.03	1.03	0.99	0.96
X2= V + ((E-V)/(1+2S))	9.26	9.29	9.71	10.62	9.86	9.74	10.32
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2806	2815	2944	3216	2988	2952	3127
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.66	0.62	0.62	0.64
Qe= K(F-Fc*Qc)	2023	1293	1510	1670	1671	1258	1977
DFC = Design flow/Capacity = Q/Qe	0.80	0.45	0.52	0.34	0.58	0.43	0.36

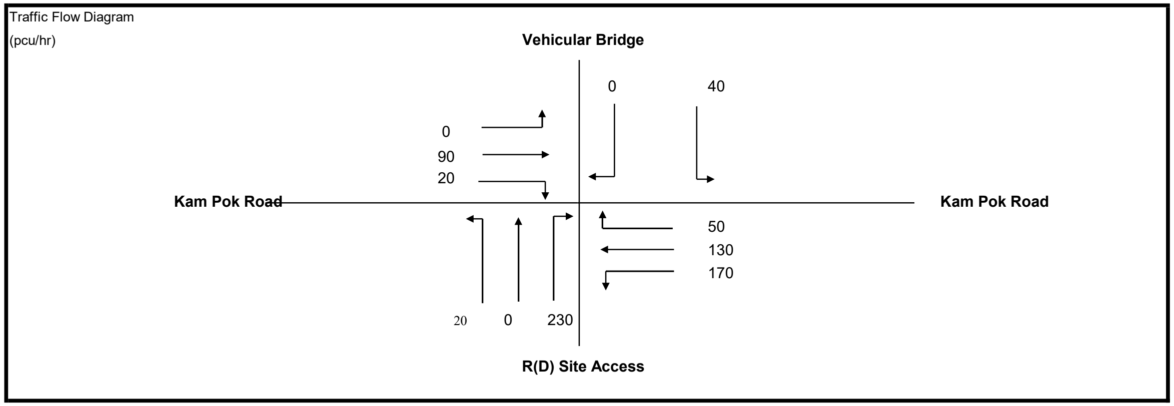
TOTAL ENTRY FLOWS = 5770 PCU

CRITICAL DFC = 0.80

JUNCTION CAPACITY CALCULATION

AECOM

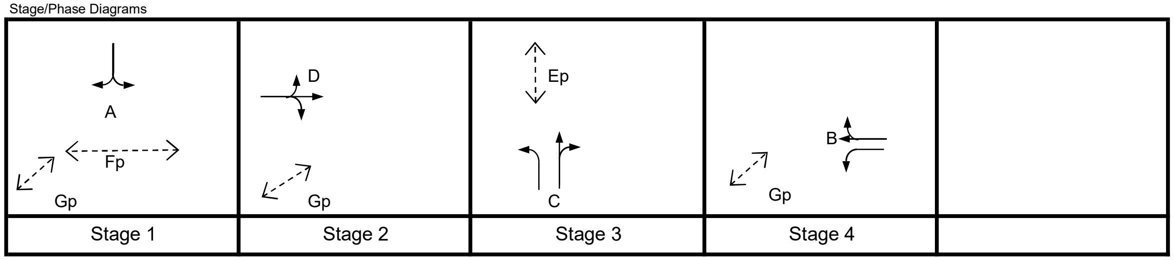
Junction J11 - Kam Pok Road / Vehicular Bridge / R(D) Site Access	Year 2034 AM R(D)Design Flow	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24



J11

No. of stages per cycle		N =	4	
Cycle time		C =	90	sec
Sum(y)		Y =	0.295	
Lost time		L =	37	sec
Total Flow		=	750	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		86	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	52	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.623	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	110.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	55	sec
Y_{max}	$= 1-L/C$	=	0.589	

Stage/Phase Diagrams



G = 11 I/G = 12 I/G = 5 I/G = 5 I/G = 7

Critical Case : Fp,D,C,B

R.C.(C) $= (0.9\text{x}Y_{max}\text{-}Y)/Y\text{x}100\% =$ 80%

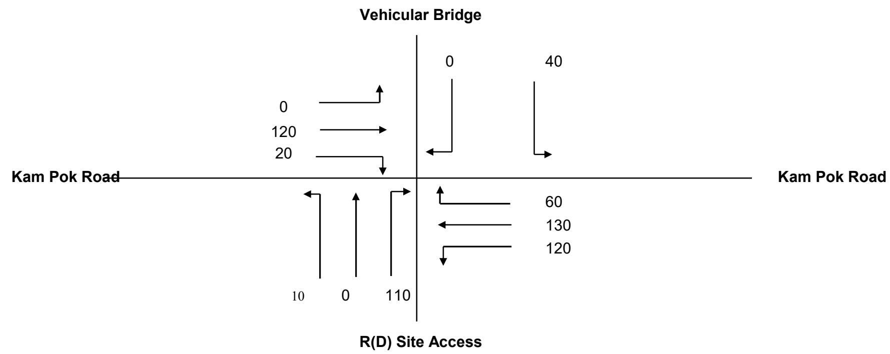
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	10	12	0	0		0		2105	40		0	40	100%	0%	1830	0.022	
	B	4	3.650	1	15			1		0		1980	170			170	100%		1800	0.094	0.094
	B	4	3.650	1		15	0	0		0		2120		130	50	180		28%	2063	0.087	
	C	3	3.000	1	12	15	0	1		0		1915	20	0	230	250	8%	92%	1738	0.144	0.144
	D	2	3.650	1	10	12	0	1		0		1980	0	90	20	110	0%	18%	1936	0.057	0.057
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	10	=	20	sec												
	Fp	1	min.	11	+	10	=	21	sec												*
	Gp	1,2,4	min.	5	+	5	=	10	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Kam Pok Road / Vehicular Bridge / R(D) Site Access	Year 2034 PM R(D)Design Flow	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24

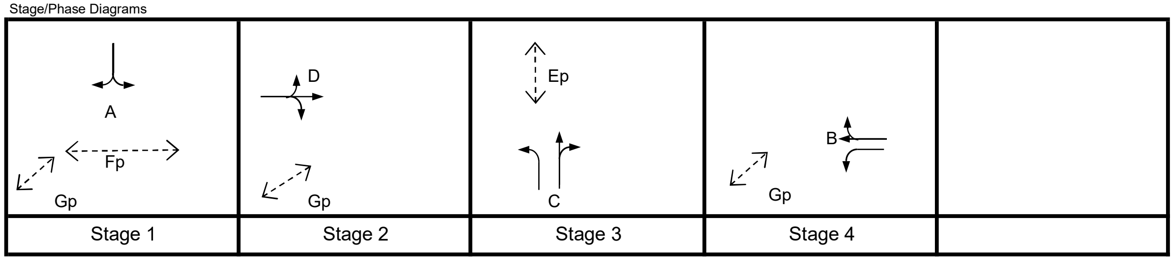
Traffic Flow Diagram
(pcu/hr)



J11

No. of stages per cycle	N =	4	
Cycle time	C =	90	sec
Sum(y)	Y =	0.233	
Lost time	L =	37	sec
Total Flow	=	610	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	79	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	48	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.623	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times 100\%$	=	166.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	50	sec
Y_{max} = $1-L/C$	=	0.589	

Stage/Phase Diagrams



G = 11 I/G = 12 I/G = 5 I/G = 5 I/G = 7

Critical Case : Fp,D,C,B

R.C.(C) = $(0.9\times Y_{max}-Y)/Y\times 100\%$ = 127%

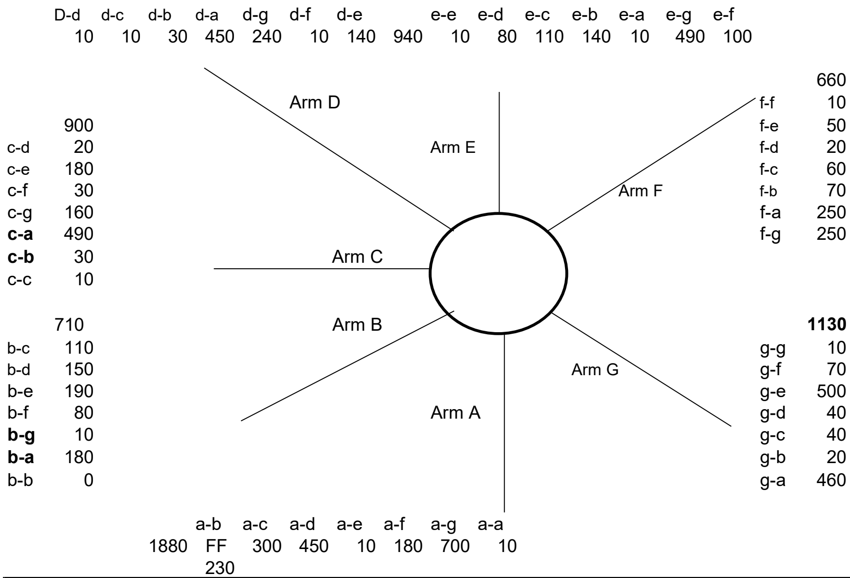
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	10	12	0	0		0		2105	40		0	40	100%	0%	1830	0.022	
	B	4	3.650	1	15			1		0		1980	120			120	100%		1800	0.067	
	B	4	3.650	1		15	0	0		0		2120		130	60	190		32%	2055	0.092	0.092
	C	3	3.000	1	12	15	0	1		0		1915	10	0	110	120	8%	92%	1738	0.069	0.069
	D	2	3.650	1	10	12	0	1		0		1980	0	120	20	140	0%	14%	1945	0.072	0.072
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	10	=	20	sec												
	Fp	1	min.	11	+	10	=	21	sec												*
	Gp	1,2,4	min.	5	+	5	=	10	sec												

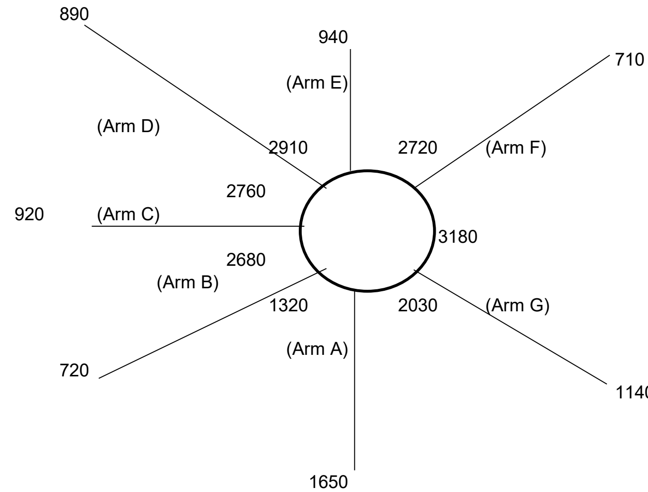
Design Flow

Sensitivity Test (I)

ROUNDABOUT CAPACITY CALCULATIC **AECOM**

Junction	Junction J1 - Fairview Roundabout	cenar	2034 AM Design Flows (Sensitivity Test w IMP)	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025





ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	6.50	7.00	7.30	7.30	7.30	7.30
E = Entry width (m)	11.00	11.20	11.80	12.00	12.00	11.00	12.00
L = Effective length of flare (m)	30.00	22.00	20.00	36.00	18.00	23.00	27.00
R = Entry radius (m)	25.00	25.00	25.00	30.00	45.00	25.00	25.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	40.00	35.00	35.00	25.00	30.00	35.00	45.00
Q = Entry flow (pcu/h)	1650	720	920	890	940	710	1140
Qc= Circulating flow across entry (pcu/h)	1320	2680	2760	2910	2720	3180	2030
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.34	0.38	0.21	0.42	0.26	0.28
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.99	0.99	1.03	1.03	0.99	0.96
X2= V + ((E-V)/(1+2S))	9.26	9.29	9.71	10.62	9.86	9.74	10.32
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2806	2815	2944	3216	2988	2952	3127
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.66	0.62	0.62	0.64
Qe= K(F-Fc*Qc)	1965	1197	1228	1352	1325	975	1743
DFC = Design flow/Capacity = Q/Qe	0.84	0.60	0.75	0.66	0.71	0.73	0.65

TOTAL ENTRY FLOWS = 6970 PCU

CRITICAL DFC = 0.84

ROUNDABOUT CAPACITY CALCULATIC

AECOM

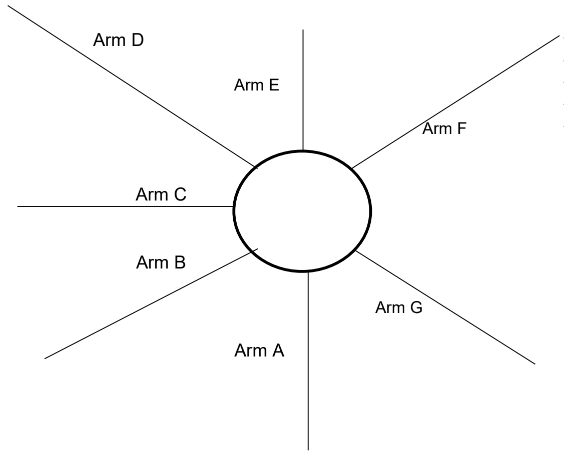
Junction	Junction J1 - Fairview Roundabout	cenar	2034 PM Design Flows (Sensitivity Test w IMP)	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025

D-d	d-c	d-b	d-a	d-g	d-f	d-e
10	10	30	270	160	10	100

e-e	e-d	e-c	e-b	e-a	e-g	e-f
20	130	130	170	20	430	80

c-d	10
c-e	190
c-f	50
c-g	200
c-a	290
c-b	30
c-c	10

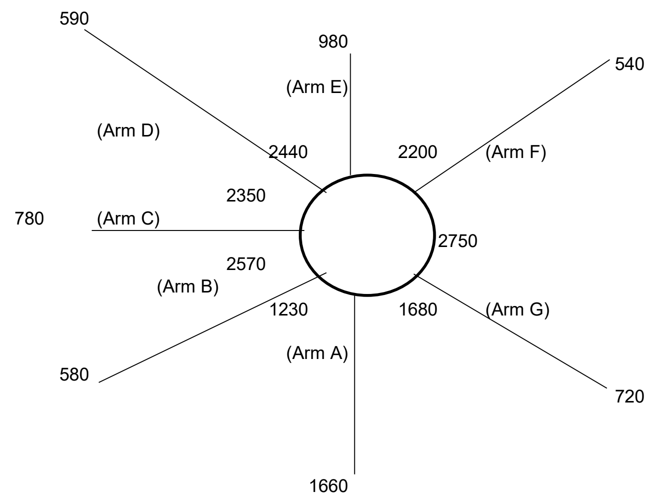
f-f	20
f-e	60
f-d	20
f-c	40
f-b	60
f-a	140
f-g	200



b-c	60
b-d	90
b-e	170
b-f	50
b-g	10
b-a	190
b-b	10

g-g	10
g-f	70
g-e	280
g-d	30
g-c	70
g-b	20
g-a	240

a-b	a-c	a-d	a-e	a-f	a-g	a-a
FF 230	480	400	10	150	600	20



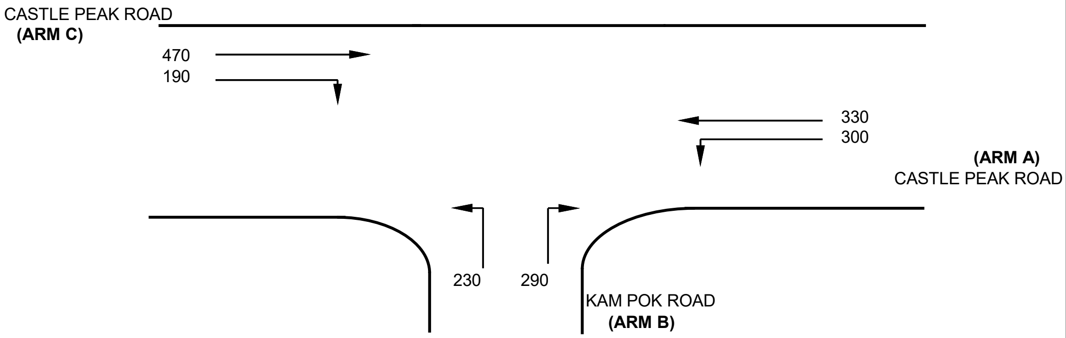
ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	6.50	7.00	7.30	7.30	7.30	7.30
E = Entry width (m)	11.00	11.20	11.80	12.00	12.00	11.00	12.00
L = Effective length of flare (m)	30.00	22.00	20.00	36.00	18.00	23.00	27.00
R = Entry radius (m)	25.00	25.00	25.00	30.00	45.00	25.00	25.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	40.00	35.00	35.00	25.00	30.00	35.00	45.00
Q = Entry flow (pcu/h)	1660	580	780	590	980	540	720
Qc= Circulating flow across entry (pcu/h)	1230	2570	2350	2440	2200	2750	1680
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.34	0.38	0.21	0.42	0.26	0.28
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.99	0.99	1.03	1.03	0.99	0.96
X2= V + ((E-V)/(1+2S))	9.26	9.29	9.71	10.62	9.86	9.74	10.32
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2806	2815	2944	3216	2988	2952	3127
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.66	0.62	0.62	0.64
Qe= K(F-Fc*Qc)	2018	1263	1480	1670	1658	1239	1959
DFC = Design flow/Capacity = Q/Qe	0.82	0.46	0.53	0.35	0.59	0.44	0.37

TOTAL ENTRY FLOWS = 5850 PCU

CRITICAL DFC = 0.82

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 AM Design Flows Sensitivity Test 1	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.3	(metres)
W cr	=	0	(metres)
q a-b	=	300	(pcu/hr)
q a-c	=	330	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	30	(metres)
q c-a	=	470	(pcu/hr)
q c-b	=	190	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.07	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	80	(metres)
q b-a	=	290	(pcu/hr)
q b-c	=	230	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	347
Q b-c	=	624
Q c-b	=	448
Q b-ac	=	432

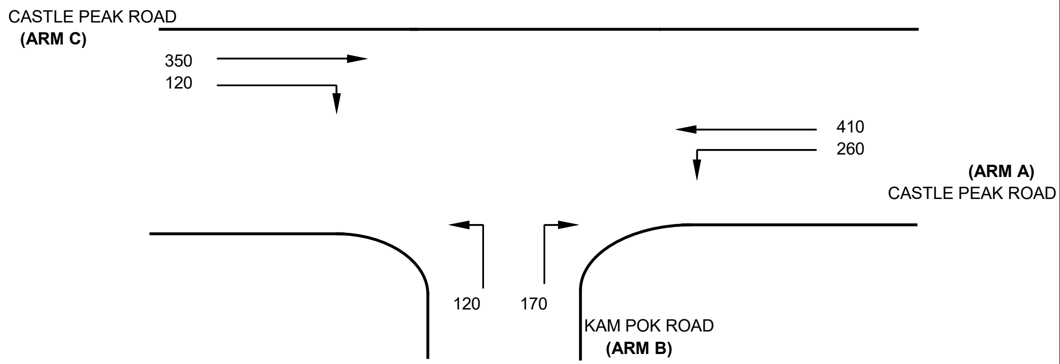
CRITICAL DFC = 1.20

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.84
DFC b-c	=	0.37
DFC c-b	=	0.42
DFC b-ac	=	1.20

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 PM Design Flows Sensitivity Test 1	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)				*MAJOR ROAD (ARM C)*				*MINOR ROAD (ARM B)*			
W	=	7.3	(metres)	W c-b	=	2.05	(metres)	W b-a	=	4.07	(metres)
W cr	=	0	(metres)	Vr c-b	=	30	(metres)	W b-c	=	4.07	(metres)
q a-b	=	260	(pcu/hr)	q c-a	=	350	(pcu/hr)	Vl b-a	=	100	(metres)
q a-c	=	410	(pcu/hr)	q c-b	=	120	(pcu/hr)	Vr b-a	=	100	(metres)
								Vr b-c	=	80	(metres)
								q b-a	=	170	(pcu/hr)
								q b-c	=	120	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	377
Q b-c	=	607
Q c-b	=	439
Q b-ac	=	447

CRITICAL DFC = 0.65

COMPARISION OF DESIGN FLOW TO CAPACITY :

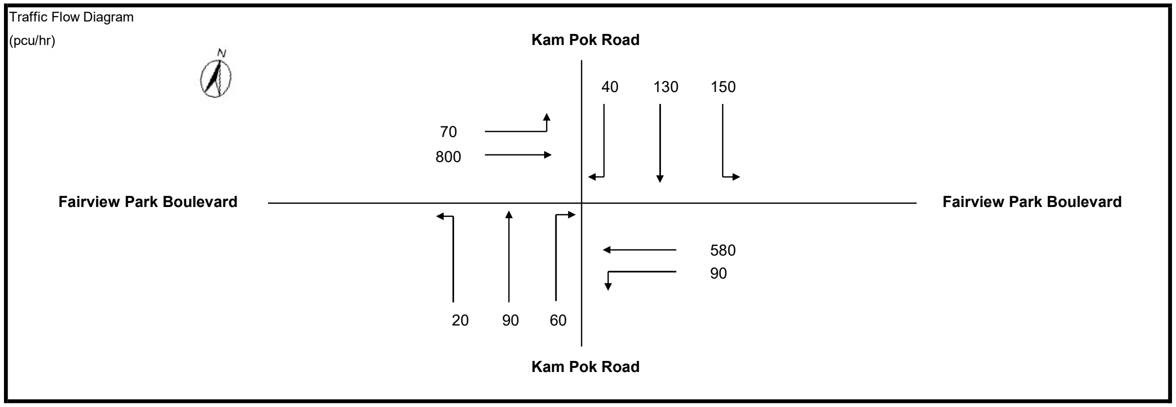
DFC b-a	=	0.45
DFC b-c	=	0.20
DFC c-b	=	0.27
DFC b-ac	=	0.65

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 AM Design Traffic Flows (Sensitivity Test)	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Oct 24

J3

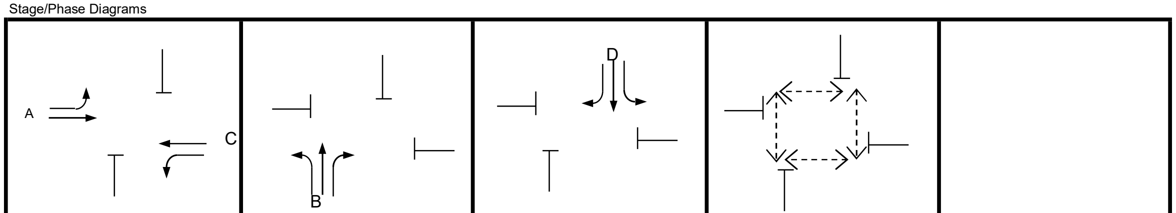
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.473	
Lost time	L =	44	sec
Total Flow	=	11,870	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	135	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	83	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	20.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	93	sec
Y_{max}	$= 1-L/C =$	0.633	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : A,B,D,Ep

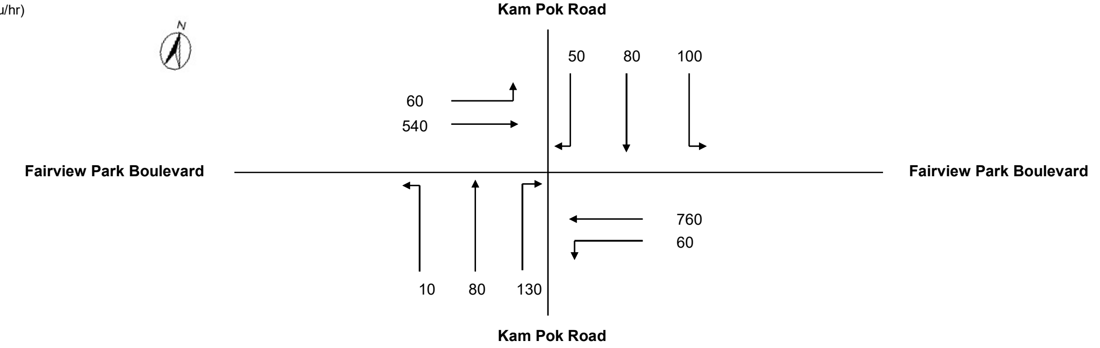
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 21%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	70	362		432	16%		1914	0.225	0.225
	A	1	3.300	1				1		0		1945		439		439			1945	0.225	
	B	2	3.600	1	13	20	0	1		0		1975	20	90	60	170	12%	35%	1899	0.090	0.090
	C	1	3.000	1	17			1		0		1915	90	238		328	27%		1870	0.176	
	C	1	3.300	1				1		0		1945		342		342			1945	0.176	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	150	130	40	320	47%	13%	2031	0.158	0.158
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 PM Design Traffic Flows (Sensitivity Test)	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Oct 24

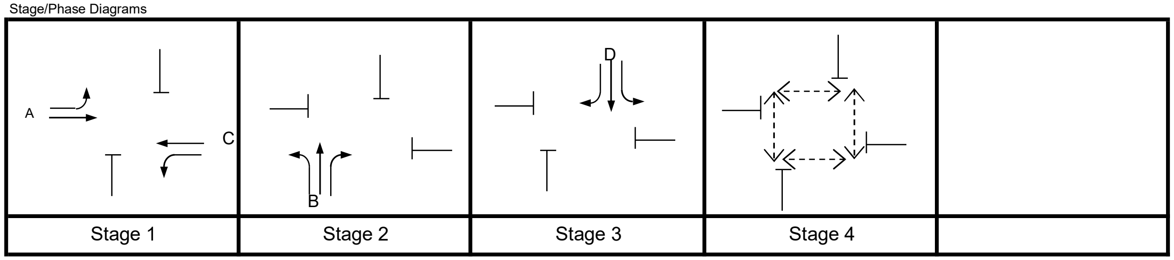
Traffic Flow Diagram
(pcu/hr)



J3

No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.444	
Lost time	L =	44	sec
Total Flow	=	11,870	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	128	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	79	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	28.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	87	sec
Y_{max}	$= 1-L/C =$	0.633	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : B,C,D,Ep

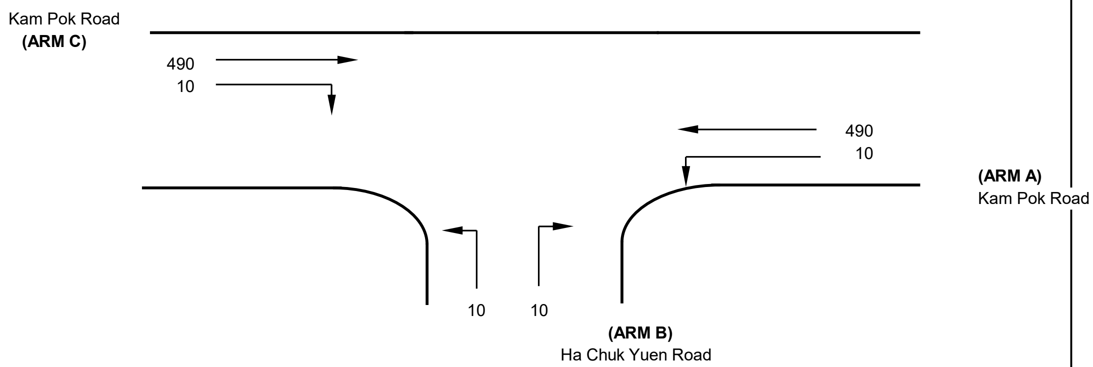
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 28%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	60	237		297	20%		1906	0.156	
	A	1	3.300	1				1		0		1945		303		303			1945	0.156	
	B	2	3.600	1	13	20	0	1		0		1975	10	80	130	220	5%	59%	1882	0.117	0.117
	C	1	3.000	1	17			1		0		1915	60	344		404	15%		1890	0.214	0.214
	C	1	3.300	1				1		0		1945		416		416			1945	0.214	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	100	80	50	230	43%	22%	2022	0.114	0.114
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 AM Design Traffic Flows - Sensitivity Test	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Oct 24



NOTES : (GEOMETRIC INPUT DATA)

J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	490	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5	(metres)
Vr c-b	=	50	(metres)
q c-a	=	490	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	318
Q b-c	=	496
Q c-b	=	574
Q b-ac	=	388

CRITICAL DFC = 0.05

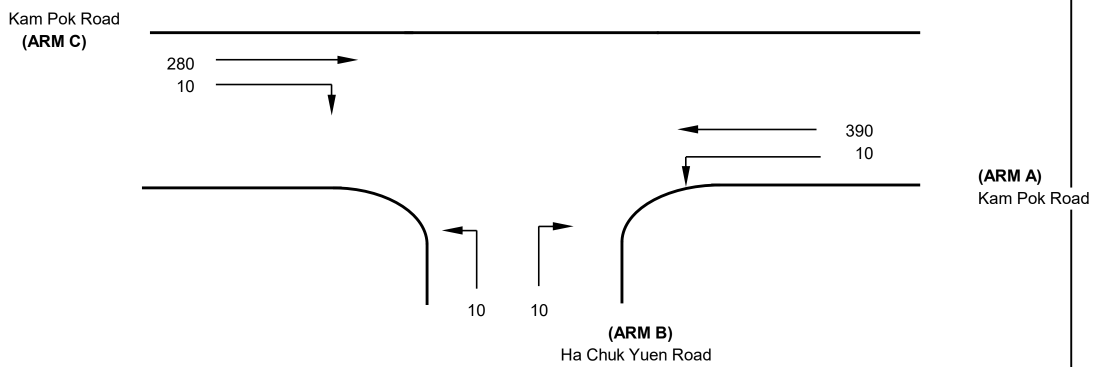
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.05

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 PM Design Traffic Flows - Sensitivity Test	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Oct 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	390	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5	(metres)
Vr c-b	=	50	(metres)
q c-a	=	280	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	361
Q b-c	=	516
Q c-b	=	597
Q b-ac	=	425

CRITICAL DFC = 0.05

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.05

```
                         TRL LIMITED

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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                  PICADY 5.1  ANALYSIS PROGRAM
                     RELEASE 5.0 (JUNE 2010)

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            --------------------------------------------------------


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 IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY  FOR THE CORRECTNESS  OF THE
SOLUTION

 Run with file:-
 "L:\Secure\Transportation\Group\TTP_TE\Private Job\Fairview\Info\TIA Working RD
and REC\Flow\
  V13 202407_RD1.5+REC1.2 Combined\Junction 5_Picaddy\20241031 Sen 1\Sen 1.vpi"
(drive-on-the-left) at 13:56:27 on Thursday, 31 October 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : 2034 - J5 Kam Pok Road/ Pok Wai South Road
 LOCATION        :
 DATE            : 13/12/21
 CLIENT          :
 ENUMERATOR      : nokhinnaomi.tam [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ****************************************

  INPUT DATA
  ----------

                                         MINOR ROAD (ARM D)
                                                I
                                                I
                                                I
```

```
                                                I
                                                I
                                                I
     MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)

 ARM A IS Kam Pok Road
 ARM B IS Pok Wai South Road
 ARM C IS Kam Pok Road West
 ARM D IS Kam Pok Road

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

--------------------------------------------------------------------------------
-------------------------
 I                DATA ITEM                                      I   MINOR ROAD
B    I   MINOR ROAD D    I

--------------------------------------------------------------------------------
-------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                           I ( W  )  8.80
M.   I ( W  )  8.80 M.   I
 I  CENTRAL RESERVE WIDTH                                        I (WCR )  0.00
M.   I (WCR )  0.00 M.   I
 I                                                               I
     I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                               I (WC-B)  2.20
M.   I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                          I (VC-B) 50.00
M.   I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)             I         YES
( 0) I          NO  ( 0) I
 I                                                               I
     I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                              I (VB-C)  50.0
M.   I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                             I (VB-A)  50.0
M.   I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                    I (WB-C)  2.20
M.   I (WD-A)  5.00 M.   I
 I             - LANE 2 WIDTH                                    I (WB-A)  0.00
M.   I (WD-C)  0.00 M.   I
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D

```
 I     602.92            0.21                0.29                0.21        I
 ----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
------------------
 I     476.98            0.19                0.19                  0.08
     0.28       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
------------------
 I                       0.12                0.12
                I

--------------------------------------------------------------------------------
------------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
------------------
 I     476.98            0.19                0.19                  0.08
     0.28       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
------------------
 I                       0.12                0.12
                I

--------------------------------------------------------------------------------
------------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
------------------
 I     622.33            0.25                0.25                  0.10
     0.36       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                       0.16                0.16
                I

--------------------------------------------------------------------------------
------------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
```

```
------------------
 I    622.33           0.25               0.25                 0.10
     0.36      I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                       0.16               0.16
                I

--------------------------------------------------------------------------------
------------------
```

.TRAFFIC DEMAND DATA

```
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------
```

.Demand set: 20241031 Sen 1 AM

TIME PERIOD BEGINS 08.00 AND ENDS 09.30

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

```
--------------------------------------------------------------------------------
----
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
   I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
   I
 I       I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
   I
 I       I             I             I            I        I         I
   I
--------------------------------------------------------------------------------
----
 I ARM  A I     15.00   I     45.00   I    75.00   I  3.75  I   5.63  I  3.75
   I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.25  I   1.88  I  1.25
   I
 I ARM  C I     15.00   I     45.00   I    75.00   I  2.75  I   4.13  I  2.75
   I
 I ARM  D I     15.00   I     45.00   I    75.00   I  3.13  I   4.69  I  3.13
   I

--------------------------------------------------------------------------------
----
```

.Demand set: 20241031 Sen 1 AM

```
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.033 I  0.733 I  0.233 I
 I                    I         I    0.0 I   10.0 I  220.0 I   70.0 I
 I                    I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.100 I  0.000 I  0.100 I  0.800 I
 I                    I         I   10.0 I    0.0 I   10.0 I   80.0 I
 I                    I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.682 I  0.091 I  0.000 I  0.227 I
 I                    I         I  150.0 I   20.0 I    0.0 I   50.0 I
 I                    I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.200 I  0.520 I  0.280 I  0.000 I
 I                    I         I   50.0 I  130.0 I   70.0 I    0.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
```

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

```
.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET        20241031 Sen 1 AM
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
```

```
 I 08.00-08.15
                                 I
 I   B-ACD     1.25      6.27    0.200               0.00   0.25        3.5
                       0.20      I
 I   A-B       0.13
                                 I
 I   A-C       2.76
                                 I
 I   A-D       0.88      8.55    0.103               0.00   0.11        1.6
                       0.13      I
 I   D-ABC     3.14      8.46    0.371               0.00   0.58        8.2
                       0.19      I
 I   C-ABD     0.33     10.02    0.033               0.00   0.04        0.7
                       0.10      I
 I   C-D       0.61
                                 I
 I   C-A       1.82
                                 I
 I
                                 I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                 I
 I   B-ACD     1.50      6.05    0.248               0.25   0.32        4.7
                       0.22      I
 I   A-B       0.15
                                 I
 I   A-C       3.30
                                 I
 I   A-D       1.05      8.43    0.124               0.11   0.14        2.1
                       0.14      I
 I   D-ABC     3.75      8.19    0.458               0.58   0.82       11.8
                       0.22      I
 I   C-ABD     0.42     10.20    0.041               0.04   0.06        0.9
                       0.10      I
 I   C-D       0.72
                                 I
 I   C-A       2.16
                                 I
 I
                                 I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
```

```
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                 I
 I   B-ACD     1.84      5.74    0.319               0.32   0.46        6.6
                       0.25      I
 I   A-B       0.18
                                 I
 I   A-C       4.04
                                 I
 I   A-D       1.28      8.27    0.155               0.14   0.18        2.7
                       0.14      I
 I   D-ABC     4.59      7.80    0.588               0.82   1.36       19.0
                       0.30      I
 I   C-ABD     0.55     10.46    0.053               0.06   0.08        1.2
                       0.10      I
 I   C-D       0.87
                                 I
 I   C-A       2.61
                                 I
 I
                                 I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                 I
 I   B-ACD     1.84      5.74    0.320               0.46   0.46        6.9
                       0.26      I
 I   A-B       0.18
                                 I
 I   A-C       4.04
                                 I
 I   A-D       1.28      8.27    0.155               0.18   0.18        2.7
                       0.14      I
 I   D-ABC     4.59      7.80    0.588               1.36   1.39       20.7
                       0.31      I
 I   C-ABD     0.55     10.46    0.053               0.08   0.08        1.2
                       0.10      I
 I   C-D       0.87
                                 I
 I   C-A       2.61
```

```
                                I
 I
                                I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
-----------------------------------
 I TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                I
 I   B-ACD     1.50      6.05    0.248               0.46   0.34        5.2
                       0.22     I
 I   A-B       0.15
                                I
 I   A-C       3.30
                                I
 I   A-D       1.05      8.43    0.124               0.18   0.14        2.2
                       0.14     I
 I   D-ABC     3.75      8.18    0.458               1.39   0.87       13.8
                       0.23     I
 I   C-ABD     0.42     10.20    0.041               0.08   0.06        0.9
                       0.10     I
 I   C-D       0.72
                                I
 I   C-A       2.16
                                I
 I
                                I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
-----------------------------------
 I TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                I
 I   B-ACD     1.25      6.27    0.200               0.34   0.25        3.9
                       0.20     I
 I   A-B       0.13
                                I
 I   A-C       2.76
                                I
 I   A-D       0.88      8.55    0.103               0.14   0.12        1.8
                       0.13     I
```

```
 I   D-ABC     3.14      8.45    0.371               0.87   0.60        9.4
                       0.19     I
 I   C-ABD     0.33     10.02    0.033               0.06   0.05        0.7
                       0.10     I
 I   C-D       0.61
                                I
 I   C-A       1.82
                                I
 I
                                I
.--------------------------------------------------------------------------------
-----------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.3
   08.45           0.5
   09.00           0.5
   09.15           0.3
   09.30           0.3
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.2
   09.00           0.2
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.6    *
   08.30           0.8    *
   08.45           1.4    *
   09.00           1.4    *
   09.15           0.9    *
   09.30           0.6    *
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
```

08.15	0.0
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * * DELAY * (MIN)	* QUEUEING * * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * * DELAY * (MIN)	* INCLUSIVE QUEUEING * * DELAY * (MIN/VEH)
B-ACD	137.6	91.8	30.9	0.22	30.9	0.22
A-B	13.8	9.2				
A-C	302.8	201.9				
A-D	96.3	64.2	13.1	0.14	13.1	0.14
D-ABC	344.1	229.4	82.9	0.24	82.9	0.24
C-ABD	39.1	26.1	5.6	0.14	5.6	0.14
C-D	65.9	43.9				
C-A	197.8	131.8				
ALL	1197.5	798.3	132.4	0.11	132.4	0.11

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.21	0.29	0.21

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
476.98	0.19	0.19	0.08	0.28

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.12	0.12		

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
476.98	0.19	0.19	0.08	0.28

	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing
	0.12	0.12		

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
622.33	0.25	0.25	0.10	

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     0.36       I

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------------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

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------------------
 I                        0.16                 0.16
                I

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 D-B Stream From Right Hand Lane

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 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D      I

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------------------
 I     622.33             0.25                 0.25                 0.10
     0.36       I

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------------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

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------------------
 I                        0.16                 0.16
                I

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.TRAFFIC DEMAND DATA
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```
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        20241031 Sen 1 PM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


--------------------------------------------------------------------------------
----
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
   I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
   I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
   I
 I        I             I             I            I        I         I
   I

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----
 I ARM  A I     15.00   I     45.00   I    75.00   I  2.75  I   4.13  I  2.75
   I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.13  I   1.69  I  1.13
   I
 I ARM  C I     15.00   I     45.00   I    75.00   I  3.00  I   4.50  I  3.00
   I
 I ARM  D I     15.00   I     45.00   I    75.00   I  2.13  I   3.19  I  2.13
   I

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----

.Demand set:        20241031 Sen 1 PM
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                  I
 I                    I         TURNING COUNTS                       I
 I                    I        (PERCENTAGE OF H.V.S)                 I
 I                    -----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.045 I  0.636 I  0.318 I
 I                    I         I    0.0 I   10.0 I  140.0 I   70.0 I
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 I                    I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.111 I  0.000 I  0.111 I  0.778 I
 I                    I         I   10.0 I    0.0 I   10.0 I   70.0 I
 I                    I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.625 I  0.042 I  0.000 I  0.333 I
 I                    I         I  150.0 I   10.0 I    0.0 I   80.0 I
 I                    I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.353 I  0.471 I  0.176 I  0.000 I
 I                    I         I   60.0 I   80.0 I   30.0 I    0.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         20241031 Sen 1 PM
                AND FOR TIME PERIOD       1
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                  I
 I   B-ACD     1.13      6.50    0.174                0.00   0.21        3.0
                        0.19      I
 I   A-B       0.13
                                  I
 I   A-C       1.76
                                  I
 I   A-D       0.88      8.51    0.103                0.00   0.11        1.6
                        0.13      I
 I   D-ABC     2.13      9.03    0.236                0.00   0.31        4.4
                        0.14      I
 I   C-ABD     0.17     10.46    0.016                0.00   0.02        0.3
                        0.10      I
 I   C-D       0.99
                                  I
 I   C-A       1.85
                                  I
 I
                                  I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                  I
 I   B-ACD     1.35      6.32    0.214                0.21   0.27        3.9
                        0.20      I
 I   A-B       0.15
                                  I
 I   A-C       2.10
                                  I
 I   A-D       1.05      8.38    0.125                0.11   0.14        2.1
                        0.14      I
 I   D-ABC     2.55      8.80    0.289                0.31   0.40        5.8
                        0.16      I
 I   C-ABD     0.22     10.72    0.020                0.02   0.02        0.4
                        0.10      I
 I   C-D       1.18
                                  I
 I   C-A       2.20
                                  I
 I
                                  I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                  I
 I   B-ACD     1.65      6.07    0.272                0.27   0.37        5.3
                        0.23      I
 I   A-B       0.18
                                  I
 I   A-C       2.57
                                  I
 I   A-D       1.28      8.22    0.156                0.14   0.18        2.7
                        0.14      I
 I   D-ABC     3.12      8.49    0.368                0.40   0.57        8.2
                        0.19      I
 I   C-ABD     0.29     11.08    0.026                0.02   0.03        0.5
                        0.09      I
 I   C-D       1.43
                                  I
 I   C-A       2.68
                                  I
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 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                I
 I   B-ACD     1.65      6.07    0.272              0.37   0.37        5.5
                      0.23      I
 I   A-B       0.18
                                I
 I   A-C       2.57
                                I
 I   A-D       1.28      8.21    0.156              0.18   0.18        2.8
                      0.14      I
 I   D-ABC     3.12      8.48    0.368              0.57   0.58        8.6
                      0.19      I
 I   C-ABD     0.29     11.08    0.026              0.03   0.03        0.5
                      0.09      I
 I   C-D       1.43
                                I
 I   C-A       2.68
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                I
 I   B-ACD     1.35      6.31    0.214              0.37   0.28        4.3
                      0.20      I
 I   A-B       0.15
                                I
 I   A-C       2.10
                                I
 I   A-D       1.05      8.38    0.125              0.18   0.14        2.2
                      0.14      I
 I   D-ABC     2.55      8.80    0.289              0.58   0.41        6.4
                      0.16      I
 I   C-ABD     0.22     10.72    0.020              0.03   0.02        0.4
                      0.10      I
 I   C-D       1.18
                                I
 I   C-A       2.20
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                I
 I   B-ACD     1.13      6.49    0.174              0.28   0.21        3.3
                      0.19      I
 I   A-B       0.13
                                I
 I   A-C       1.76
                                I
 I   A-D       0.88      8.51    0.103              0.14   0.12        1.8
                      0.13      I
 I   D-ABC     2.13      9.03    0.236              0.41   0.31        4.8
                      0.15      I
 I   C-ABD     0.17     10.46    0.016              0.02   0.02        0.3
                      0.10      I
 I   C-D       0.99
                                I
 I   C-A       1.85
                                I
 I
                                I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.3
   08.45           0.4
   09.00           0.4
   09.15           0.3
   09.30           0.2
```

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.1
09.30	0.1

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.3	
08.30	0.4	
08.45	0.6	*
09.00	0.6	*
09.15	0.4	
09.30	0.3	

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	123.9	82.6	25.3	0.20	25.3	0.20
A-B	13.8	9.2				
A-C	192.7	128.5				
A-D	96.3	64.2	13.2	0.14	13.2	0.14
D-ABC	234.0	156.0	38.3	0.16	38.3	0.16
C-ABD	20.3	13.5	2.3	0.11	2.3	0.11
C-D	107.9	71.9				
C-A	202.2	134.8				
ALL	991.0	660.7	79.1	0.08	79.1	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

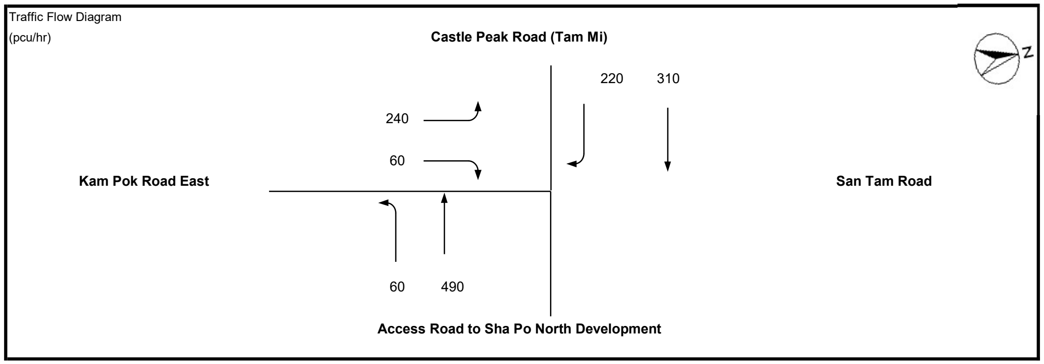
JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

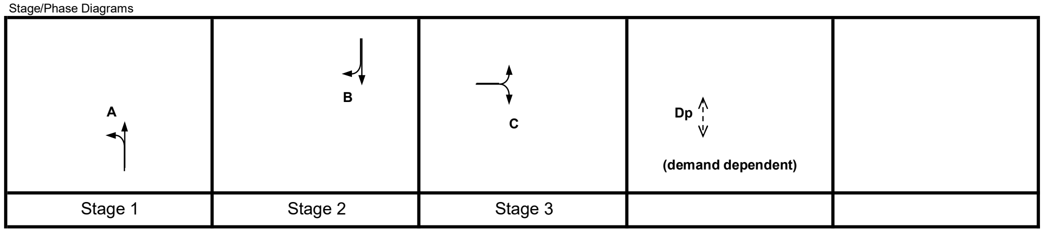
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.570	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	57	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	30	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times 100\%$	=	40.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	36	sec
Y_{max} = $1-L/C$	=	0.856	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 5

Critical Case : A,B,C,Dp

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 35%

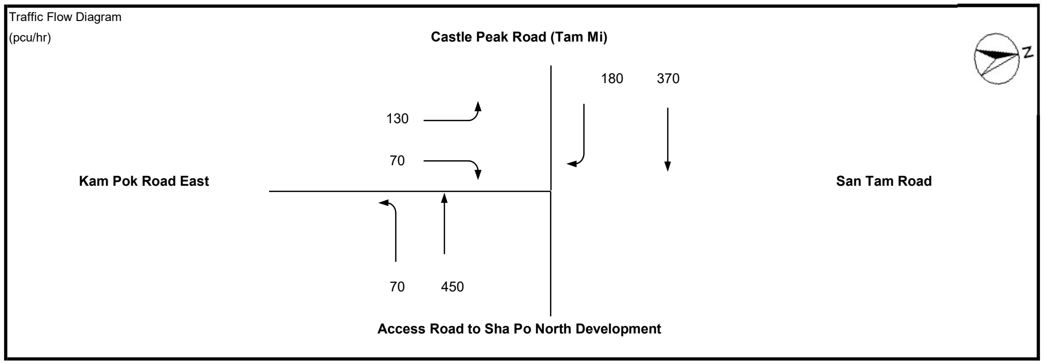
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	60	490		550	11%		1952	0.282	0.282
	B	2	3.400	1				1		0		1955		310		310			1955	0.159	0.159
	B	2	3.500	1		30	0	0		0		2105			220	220		100%	2005	0.110	
	C	3	3.400	1	25			1		0		1955	240			240	100%		1844	0.130	0.130
	C	3	3.400	1		30	0	0		0		2095			60	60		100%	1995	0.030	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

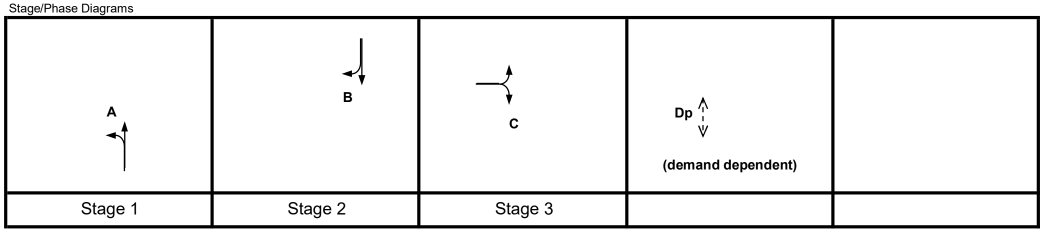
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.527	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	52	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	27	sec
Y_{ult}	$= 0.9-0.0075\times L$ =	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$ =	52.4	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$ =	31	sec
Y_{max}	= 1-L/C =	0.856	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 5

Critical Case : A,B,C,Dp

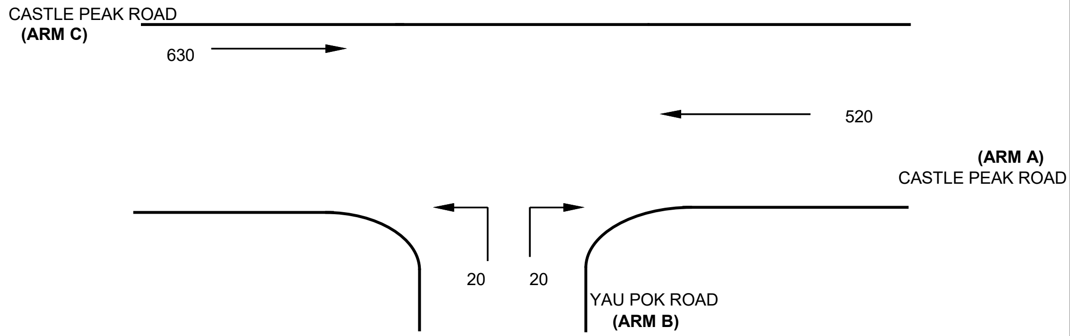
R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 46%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	70	450		520	13%		1949	0.267	0.267
	B	2	3.400	1				1		0		1955		370		370			1955	0.189	0.189
	B	2	3.500	1		30	0	0		0		2105			180	180		100%	2005	0.090	
	C	3	3.400	1	25			1		0		1955	130			130	100%		1844	0.070	0.070
	C	3	3.400	1		30	0	0		0		2095			70	70		100%	1995	0.035	

Pedestrian Crossing				GM		FGM			
	Dp	4	min.	13	+	12	=	25	sec

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 AM Design Flow (Sensitivity Test 1)	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.5	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	520	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	25	(metres)
q c-a	=	630	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.8	(metres)
W b-c	=	1.8	(metres)
Vl b-a	=	25	(metres)
Vr b-a	=	25	(metres)
Vr b-c	=	25	(metres)
q b-a	=	20	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	257
Q b-c	=	452
Q c-b	=	359
Q b-ac	=	328

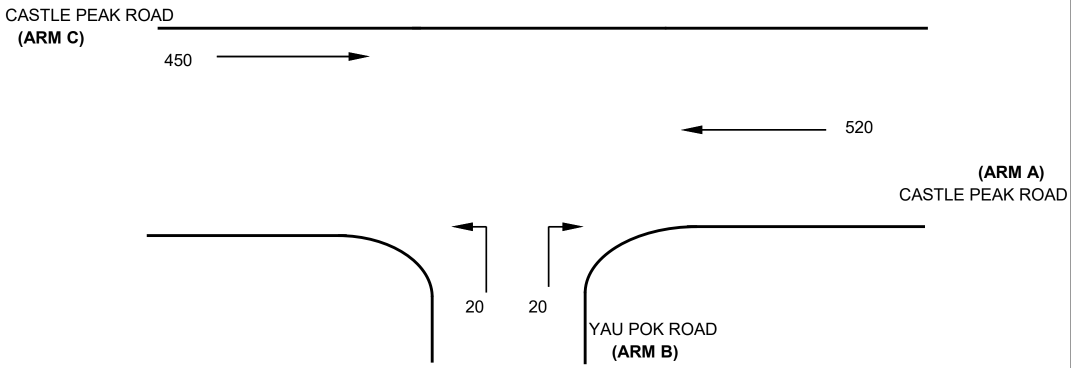
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.08
DFC b-c	=	0.04
DFC c-b	=	0.00

CRITICAL DFC = 0.08

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 PM Design Flow (Sensitivity Test 1)	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)			*MAJOR ROAD (ARM C)*			*MINOR ROAD (ARM B)*		
W	=	6.5 (metres)	W c-b	=	0 (metres)	W b-a	=	1.8 (metres)
W cr	=	0 (metres)	Vr c-b	=	25 (metres)	W b-c	=	1.8 (metres)
q a-b	=	0 (pcu/hr)	q c-a	=	450 (pcu/hr)	Vl b-a	=	25 (metres)
q a-c	=	520 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	25 (metres)
						Vr b-c	=	25 (metres)
						q b-a	=	20 (pcu/hr)
						q b-c	=	20 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	280
Q b-c	=	452
Q c-b	=	359
Q b-ac	=	346

CRITICAL DFC = 0.07

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.07
DFC b-c	=	0.04
DFC c-b	=	0.00

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"T:\Anthony Sun\20240920 Picidy\Junction 8 - Yau Pok Road REC N\0920 Cumu Des\Cumu Des.vpi"
(drive-on-the-left) at 12:21:52 on Friday, 20 September 2024

.RUN INFORMATION
****

```
 RUN TITLE       : J8 - Yau Pok Road / REC North Access
 LOCATION        : Fairview
 DATE            : 02/09/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :
```

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

```
                              MINOR ROAD (ARM D)
                                     I
                                     I
                                     I
                                     I
                                     I
                                     I
 MAJOR ROAD (ARM C) -------------------- MAJOR ROAD (ARM A)
                                     I
                                     I
                                     I
                                     I
                                     I
                                     I
                                     I
                              MINOR ROAD (ARM B)
```

ARM A IS Yau Pok Road exit
ARM B IS Vehicular Bridge
ARM C IS Yau Pok Road entry
ARM D IS REC North

.STREAM LABELLING CONVENTION

```
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.
```

.GEOMETRIC DATA

```
-------------------------------------------------------------------------------------------------------------
 I                DATA ITEM                                  I   MINOR ROAD B    I   MINOR ROAD D    I
-------------------------------------------------------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                       I ( W  )  6.00 M.   I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                    I (WCR )  0.00 M.   I (WCR )  0.00 M.   I
 I                                                           I                   I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                           I (WC-B)  2.20 M.   I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                      I (VC-B) 50.00 M.   I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)         I         YES ( 0)  I          NO  ( 0) I
 I                                                           I                   I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                          I (VB-C)  50.0 M.   I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                         I (VB-A)  50.0 M.   I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                I (WB-C)  3.50 M.   I (WD-A)  3.50 M.   I
 I             - LANE 2 WIDTH                                I (WB-A)  0.00 M.   I (WD-C)  0.00 M.   I
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
688.22	0.27	0.11

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
688.22	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.10	0.16	0.36	0.13

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.23	0.23	0.33

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.23	0.33	0.23

```
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

-----------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-----------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                 0.10
    0.36       I

-----------------------------------------------------------------------------------
-----------------

-----------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

-----------------------------------------------------------------------------------
-----------------
 I                      0.16                0.16
               I

-----------------------------------------------------------------------------------
-----------------


 B-D Stream From Right Hand Lane

-----------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-----------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                 0.10
    0.36       I

-----------------------------------------------------------------------------------
-----------------

-----------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

-----------------------------------------------------------------------------------
-----------------
 I                      0.16                0.16
               I

-----------------------------------------------------------------------------------
-----------------


 D-B Stream From Left Hand Lane

-----------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-----------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                 0.10
    0.36       I

-----------------------------------------------------------------------------------
-----------------

-----------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

-----------------------------------------------------------------------------------
-----------------
 I                      0.16                0.16
               I

-----------------------------------------------------------------------------------
-----------------


 D-B Stream From Right Hand Lane

-----------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-----------------------------------------------------------------------------------
-----------------
```

```
 I     544.46            0.25                0.25                 0.10
    0.36       I

----------------------------------------------------------------------------------
-----------------

----------------------------------------------------------------------------------
-----------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

----------------------------------------------------------------------------------
-----------------
 I                       0.16                0.16
               I

----------------------------------------------------------------------------------
-----------------
```

.TRAFFIC DEMAND DATA

```
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------
```

.Demand set: 0920 Cumu Des Am

TIME PERIOD BEGINS 08.00 AND ENDS 09.30

LENGTH OF TIME PERIOD -   90 MIN.
LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

```
----------------------------------------------------------------------------------
---
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
  I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
  I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
  I
 I        I             I             I            I        I         I
  I

----------------------------------------------------------------------------------
---
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
  I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.13  I   1.69  I  1.13
  I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
  I
 I ARM  D I     15.00   I     45.00   I    75.00   I  1.38  I   2.06  I  1.38
  I

----------------------------------------------------------------------------------
---
```

.Demand set: 0920 Cumu Des Am

```
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                I
 I                    I         TURNING COUNTS                     I
 I                    I        (PERCENTAGE OF H.V.S)               I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.222 I  0.000 I  0.000 I  0.778 I
 I                    I         I   20.0 I    0.0 I    0.0 I   70.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I  110.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
```

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

```
.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET         0920 Cumu Des Am
                AND FOR TIME PERIOD       1
.---------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                I
```

```
 I   B-ACD     1.13      9.00    0.126                0.00   0.14        2.1
                      0.13      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     1.38      9.07    0.152                0.00   0.18        2.6
                      0.13      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                I
 I   B-ACD     1.35      8.98    0.150                0.14   0.18        2.6
                      0.13      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     1.65      9.07    0.182                0.18   0.22        3.2
                      0.13      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
```

```
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                I
 I   B-ACD     1.65      8.96    0.184                0.18   0.22        3.3
                      0.14      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     2.02      9.07    0.222                0.22   0.28        4.1
                      0.14      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                I
 I   B-ACD     1.65      8.96    0.184                0.22   0.22        3.4
                      0.14      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     2.02      9.07    0.222                0.28   0.28        4.3
                      0.14      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
```

```
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                I
 I   B-ACD     1.35      8.98    0.150               0.22   0.18        2.7
                      0.13      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                      0.00      I
 I   D-ABC     1.65      9.07    0.182               0.28   0.22        3.4
                      0.13      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                I
 I   B-ACD     1.13      8.99    0.126               0.18   0.14        2.2
                      0.13      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                      0.00      I
 I   D-ABC     1.38      9.07    0.152               0.22   0.18        2.8
                      0.13      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.2
   08.45           0.2
   09.00           0.2
   09.15           0.2
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.2
   08.45           0.3
   09.00           0.3
   09.15           0.2
   09.30           0.2
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
```

08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * * DELAY * (MIN)	* QUEUEING * * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * * DELAY * (MIN)	* INCLUSIVE QUEUEING * * DELAY * (MIN/VEH)
B-ACD	123.9	82.6	16.2	0.13	16.2	0.13
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	151.4	100.9	20.4	0.13	20.4	0.13
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	275.3	183.5	36.6	0.13	36.6	0.13

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
688.22	0.27	0.11

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
688.22	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.10	0.16	0.36	0.13

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
544.46	0.25	0.25	0.25	0.25

```
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-D          STREAM A-C          STREAM  A-D
STREAM  B-A       I

-------------------------------------------------------------------------------
-----------------
 I                       0.10                 0.16                  0.36
    0.13       I

-------------------------------------------------------------------------------
-----------------


 STREAM   C-B
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                 0.23                 0.33       I
 -----------------------------------------------------------------------------


 STREAM   A-D
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                 0.33                 0.23       I
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

-------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------
-----------------
 I     544.46            0.25                 0.25                  0.10
    0.36       I

-------------------------------------------------------------------------------
-----------------

-------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D
```

```
-------------------------------------------------------------------------------
-----------------
 I                       0.16                 0.16
               I

-------------------------------------------------------------------------------
-----------------


 B-D Stream From Right Hand Lane

-------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------
-----------------
 I     544.46            0.25                 0.25                  0.10
    0.36       I

-------------------------------------------------------------------------------
-----------------

-------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------
-----------------
 I                       0.16                 0.16
               I

-------------------------------------------------------------------------------
-----------------


 D-B Stream From Left Hand Lane

-------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------
-----------------
 I     544.46            0.25                 0.25                  0.10
    0.36       I
```

```
---------------------------------------------------------------------------------
-----------------

---------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

---------------------------------------------------------------------------------
-----------------
 I                       0.16                0.16
               I

---------------------------------------------------------------------------------
-----------------


 D-B Stream From Right Hand Lane

---------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

---------------------------------------------------------------------------------
-----------------
 I     544.46            0.25                0.25                  0.10
     0.36      I

---------------------------------------------------------------------------------
-----------------

---------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

---------------------------------------------------------------------------------
-----------------
 I                       0.16                0.16
               I

---------------------------------------------------------------------------------
-----------------


.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        0920 cumu Des Pm


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


---------------------------------------------------------------------------------
---
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
  I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
  I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
  I
 I        I             I             I            I        I         I
  I

---------------------------------------------------------------------------------
---
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
  I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.00  I   1.50  I  1.00
  I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
  I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.63  I   0.94  I  0.63
  I

---------------------------------------------------------------------------------
---

.Demand set:        0920 cumu Des Pm
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
```

```
 I                    I ARM  B  I  0.250 I  0.000 I  0.000 I  0.750 I
 I                    I         I   20.0 I    0.0 I    0.0 I   60.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   50.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -----------------------------------------------------
                FOR DEMAND SET         0920 cumu Des Pm
                AND FOR TIME PERIOD       1
.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                I
 I   B-ACD     1.00      9.03    0.111                0.00   0.12        1.8
                      0.12      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     0.63      9.07    0.069                0.00   0.07        1.1
                      0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                I
 I   B-ACD     1.20      9.03    0.133                0.12   0.15        2.2
                      0.13      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     0.75      9.07    0.083                0.07   0.09        1.3
                      0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                I
 I   B-ACD     1.47      9.02    0.163                0.15   0.19        2.8
                      0.13      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     0.92      9.07    0.101                0.09   0.11        1.6
                      0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
```

```
--------------------------------

.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                I
 I   B-ACD     1.47      9.02    0.163              0.19   0.19        2.9
                     0.13       I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000              0.00   0.00        0.0
                     0.00       I
 I   D-ABC     0.92      9.07    0.101              0.11   0.11        1.7
                     0.12       I
 I   C-ABD     0.00      9.14    0.000              0.00   0.00        0.0
                     0.00       I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.-------------------------------------------------------------------------------
--------------------------------

.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                I
 I   B-ACD     1.20      9.03    0.133              0.19   0.15        2.4
                     0.13       I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000              0.00   0.00        0.0
                     0.00       I
 I   D-ABC     0.75      9.07    0.083              0.11   0.09        1.4
                     0.12       I
 I   C-ABD     0.00      9.14    0.000              0.00   0.00        0.0
                     0.00       I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.-------------------------------------------------------------------------------
--------------------------------

.-------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                I
 I   B-ACD     1.00      9.03    0.111              0.15   0.13        1.9
                     0.12       I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000              0.00   0.00        0.0
                     0.00       I
 I   D-ABC     0.63      9.07    0.069              0.09   0.07        1.1
                     0.12       I
 I   C-ABD     0.00      9.14    0.000              0.00   0.00        0.0
                     0.00       I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.-------------------------------------------------------------------------------
--------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME         NO. OF
  SEGMENT      VEHICLES
  ENDING       IN QUEUE
   08.15          0.1
   08.30          0.2
   08.45          0.2
   09.00          0.2
   09.15          0.2
   09.30          0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
```

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1
09.30	0.1

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	110.1	73.4	14.0	0.13	14.0	0.13
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	68.8	45.9	8.2	0.12	8.2	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	178.9	119.3	22.3	0.12	22.3	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

```
                                  TRL LIMITED

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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                          PICADY 5.1  ANALYSIS PROGRAM
                             RELEASE 5.0 (JUNE 2010)

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 IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY  FOR THE CORRECTNESS  OF THE
SOLUTION

 Run with file:-
 "T:\Anthony Sun\20240920 Picidy\Junction 9 - Yau Pok Road REC S\0920 Cumu
Des\Cumu Des.vpi"
(drive-on-the-left) at 12:27:46 on Friday, 20 September 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : J9 - Yau Pok Road / REC South Access
 LOCATION        : Fairview
 DATE            : 02/09/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

                                                   MINOR ROAD (ARM D)
                                                          I
                                                          I
                                                          I
                                                          I
                                                          I
                                                          I
                 MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                          I
                                                          I
                                                          I
                                                          I
                                                          I
                                                          I
                                                   MINOR ROAD (ARM B)

 ARM A IS Yau Pok Road exit
 ARM B IS Vehicular Bridge
 ARM C IS Yau Pok Road entry
 ARM D IS REC South

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

---------------------------------------------------------------------------------
------------------------
 I                DATA ITEM                                      I   MINOR ROAD
B    I   MINOR ROAD D    I

---------------------------------------------------------------------------------
------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                           I ( W  )  6.00
M.   I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                        I (WCR )  0.00
M.   I (WCR )  0.00 M.   I
 I                                                               I
    I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                               I (WC-B)  2.20
M.   I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                          I (VC-B) 50.00
M.   I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)             I         YES
( 0) I          NO  ( 0) I
 I                                                               I
    I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                              I (VB-C)  50.0
M.   I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                             I (VB-A)  50.0
M.   I (VD-C)  50.0 M.   I
 I             - LANE 1 WIDTH                                    I (WB-C)  3.50
M.   I (WD-A)  3.50 M.   I
 I             - LANE 2 WIDTH                                    I (WB-A)  0.00
M.   I (WD-C)  0.00 M.   I
```

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
688.22	0.27	0.11

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
688.22	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.10	0.16	0.36	0.13

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
544.46	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.23	0.23	0.33

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
602.92	0.23	0.33	0.23

```
 --------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

--------------------------------------------------------------------------------
----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
----------------
 I     544.46            0.25                0.25                 0.10
    0.36       I

--------------------------------------------------------------------------------
----------------

--------------------------------------------------------------------------------
----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
----------------
 I                      0.16                0.16
               I

--------------------------------------------------------------------------------
----------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------
----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
----------------
 I     544.46            0.25                0.25                 0.10
    0.36       I

--------------------------------------------------------------------------------
----------------

--------------------------------------------------------------------------------
----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
----------------
 I                      0.16                0.16
               I

--------------------------------------------------------------------------------
----------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------
----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
----------------
 I     544.46            0.25                0.25                 0.10
    0.36       I

--------------------------------------------------------------------------------
----------------

--------------------------------------------------------------------------------
----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
----------------
 I                      0.16                0.16
               I

--------------------------------------------------------------------------------
----------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------
----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
----------------
```

```
 I     544.46            0.25                0.25                 0.10
    0.36       I

--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
-----------------
 I                       0.16                0.16
               I

--------------------------------------------------------------------------------
-----------------
```

```
.TRAFFIC DEMAND DATA
 -------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

.Demand set:        0920 Cumu Des AM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


--------------------------------------------------------------------------------
---
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
  I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
  I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
  I
 I        I             I             I            I        I         I
  I

--------------------------------------------------------------------------------
---
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
  I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.25  I   1.88  I  1.25
  I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.13  I   0.19  I  0.13
  I
 I ARM  D I     15.00   I     45.00   I    75.00   I  1.75  I   2.63  I  1.75
  I

--------------------------------------------------------------------------------
---
```

```
.Demand set:        0920 Cumu Des AM
 -----------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                    I
 I                    I         TURNING COUNTS                         I
 I                    I        (PERCENTAGE OF H.V.S)                   I
 I                    ---------------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 -----------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I  100.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   10.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I  140.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 -----------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET        0920 Cumu Des AM
                AND FOR TIME PERIOD       1
.--------------------------------------------------------------------------------
---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                I
```

```
 I   B-ACD     1.25      9.03    0.139               0.00   0.16        2.3
                     0.13      I
 I   A-B       0.00
                               I
 I   A-C       0.00
                               I
 I   A-D       0.00      9.10    0.000               0.00   0.00        0.0
                     0.00      I
 I   D-ABC     1.76      9.04    0.194               0.00   0.24        3.4
                     0.14      I
 I   C-ABD     0.13     10.05    0.012               0.00   0.01        0.2
                     0.10      I
 I   C-D       0.00
                               I
 I   C-A       0.00
                               I
 I
                               I
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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                               I
 I   B-ACD     1.50      9.02    0.166               0.16   0.20        2.9
                     0.13      I
 I   A-B       0.00
                               I
 I   A-C       0.00
                               I
 I   A-D       0.00      9.09    0.000               0.00   0.00        0.0
                     0.00      I
 I   D-ABC     2.10      9.04    0.232               0.24   0.30        4.4
                     0.14      I
 I   C-ABD     0.15     10.05    0.015               0.01   0.02        0.2
                     0.10      I
 I   C-D       0.00
                               I
 I   C-A       0.00
                               I
 I
                               I
.--------------------------------------------------------------------------------
---------------------------------

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
```

```
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                               I
 I   B-ACD     1.84      9.01    0.204               0.20   0.25        3.7
                     0.14      I
 I   A-B       0.00
                               I
 I   A-C       0.00
                               I
 I   A-D       0.00      9.08    0.000               0.00   0.00        0.0
                     0.00      I
 I   D-ABC     2.57      9.03    0.285               0.30   0.39        5.7
                     0.15      I
 I   C-ABD     0.18     10.05    0.018               0.02   0.02        0.3
                     0.10      I
 I   C-D       0.00
                               I
 I   C-A       0.00
                               I
 I
                               I
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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                               I
 I   B-ACD     1.84      9.01    0.204               0.25   0.25        3.8
                     0.14      I
 I   A-B       0.00
                               I
 I   A-C       0.00
                               I
 I   A-D       0.00      9.08    0.000               0.00   0.00        0.0
                     0.00      I
 I   D-ABC     2.57      9.03    0.285               0.39   0.39        5.9
                     0.15      I
 I   C-ABD     0.18     10.05    0.018               0.02   0.02        0.3
                     0.10      I
 I   C-D       0.00
                               I
 I   C-A       0.00
                               I
 I
```

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                               I
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---------------------------------

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
  (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                               I
 I   B-ACD     1.50      9.02    0.166                0.25   0.20        3.1
                0.13      I
 I   A-B       0.00
                               I
 I   A-C       0.00
                               I
 I   A-D       0.00      9.09    0.000                0.00   0.00        0.0
                0.00      I
 I   D-ABC     2.10      9.04    0.232                0.39   0.31        4.7
                0.14      I
 I   C-ABD     0.15     10.05    0.015                0.02   0.02        0.2
                0.10      I
 I   C-D       0.00
                               I
 I   C-A       0.00
                               I
 I
                               I
.--------------------------------------------------------------------------------
---------------------------------

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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
  (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                               I
 I   B-ACD     1.25      9.03    0.139                0.20   0.16        2.5
                0.13      I
 I   A-B       0.00
                               I
 I   A-C       0.00
                               I
 I   A-D       0.00      9.10    0.000                0.00   0.00        0.0
                0.00      I
 I   D-ABC     1.76      9.04    0.194                0.31   0.24        3.7
                0.14      I
```

```
 I   C-ABD     0.13     10.05    0.012                0.02   0.01        0.2
                0.10      I
 I   C-D       0.00
                               I
 I   C-A       0.00
                               I
 I
                               I
.--------------------------------------------------------------------------------
---------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.2
   08.45           0.3
   09.00           0.3
   09.15           0.2
   09.30           0.2
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.3
   08.45           0.4
   09.00           0.4
   09.15           0.3
   09.30           0.2
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
```

```
 08.45          0.0
 09.00          0.0
 09.15          0.0
 09.30          0.0
.
               QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
               --------------------------------------------
---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I--------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-ACD I  137.6 I   91.8 I    18.3 I    0.13   I      18.3  I    0.13   I
I  A-B   I    0.0 I    0.0 I         I           I            I           I
I  A-C   I    0.0 I    0.0 I         I           I            I           I
I  A-D   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
I  D-ABC I  192.7 I  128.5 I    27.9 I    0.14   I      27.9  I    0.14   I
I  C-ABD I   13.8 I    9.2 I     1.4 I    0.10   I       1.4  I    0.10   I
I  C-D   I    0.0 I    0.0 I         I           I            I           I
I  C-A   I    0.0 I    0.0 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I  344.1 I  229.4 I    47.6 I    0.14   I      47.6  I    0.14   I
---------------------------------------------------------------------------
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******



.SLOPES AND INTERCEPT
 --------------------
 (NB:Streams may be combined, in which case capacity will be adjusted)

STREAM   B-C
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C          STREAM A-B        I
---------------------------------------------------------
I     688.22           0.27                0.11         I
---------------------------------------------------------


STREAM   D-A
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM D-A     STREAM  C-A          STREAM C-D        I
---------------------------------------------------------
I     688.22           0.27                0.11         I
---------------------------------------------------------

 STREAM   B-A

---------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D          STREAM  D-A
STREAM  D-B       I

---------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                 0.25
    0.25       I

---------------------------------------------------------------------------------
-----------------



---------------------------------------------------------------------------------
-----------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-B          STREAM C-A          STREAM  C-B
STREAM  D-C       I

---------------------------------------------------------------------------------
-----------------
 I                      0.10                0.16                 0.36
    0.13       I

---------------------------------------------------------------------------------
-----------------


 STREAM   D-C

---------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B          STREAM  B-C
STREAM  B-D       I

---------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                 0.25
    0.25       I

---------------------------------------------------------------------------------
-----------------


---------------------------------------------------------------------------------
-----------------
```

```
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-D          STREAM A-C          STREAM  A-D
STREAM  B-A       I

--------------------------------------------------------------------------------
-----------------
 I                       0.10                0.16                  0.36
    0.13       I

--------------------------------------------------------------------------------
-----------------


 STREAM   C-B
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
 -----------------------------------------------------------------------------
 I     602.92           0.23                0.23                0.33         I
 -----------------------------------------------------------------------------


 STREAM   A-D
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 -----------------------------------------------------------------------------
 I     602.92           0.23                0.33                0.23         I
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                  0.10
    0.36       I

--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D
```

```
--------------------------------------------------------------------------------
-----------------
 I                       0.16                0.16
               I

--------------------------------------------------------------------------------
-----------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                  0.10
    0.36       I

--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
-----------------
 I                       0.16                0.16
               I

--------------------------------------------------------------------------------
-----------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                0.25                  0.10
    0.36       I
```

```
--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
-----------------
 I                      0.16                 0.16
               I

--------------------------------------------------------------------------------
-----------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------
-----------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
-----------------
 I     544.46           0.25                 0.25                 0.10
    0.36       I

--------------------------------------------------------------------------------
-----------------

--------------------------------------------------------------------------------
-----------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
-----------------
 I                      0.16                 0.16
               I

--------------------------------------------------------------------------------
-----------------


.TRAFFIC DEMAND DATA
 ------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
```

```
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        0920 Cumu Des PM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


--------------------------------------------------------------------------------
---
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
  I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
  I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
  I
 I        I             I             I            I        I         I
  I

--------------------------------------------------------------------------------
---
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
  I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.75  I   1.13  I  0.75
  I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
  I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.63  I   0.94  I  0.63
  I

--------------------------------------------------------------------------------
---

.Demand set:        0920 Cumu Des PM
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
```

```
 I                    I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I   60.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   50.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -----------------------------------------------------
                FOR DEMAND SET         0920 Cumu Des PM
                AND FOR TIME PERIOD       1
.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                I
 I   B-ACD     0.75      9.07    0.083                0.00   0.09        1.3
                      0.12      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     0.63      9.07    0.069                0.00   0.07        1.1
                      0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
.--------------------------------------------------------------------------------
----------------------------------

.--------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                I
 I   B-ACD     0.90      9.07    0.099                0.09   0.11        1.6
                      0.12      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     0.75      9.07    0.083                0.07   0.09        1.3
                      0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                I
 I   B-ACD     1.10      9.07    0.121                0.11   0.14        2.0
                      0.13      I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   D-ABC     0.92      9.07    0.101                0.09   0.11        1.6
                      0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                      0.00      I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                I
 I   B-ACD     1.10      9.07    0.121                0.14   0.14        2.1
                     0.13       I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                     0.00       I
 I   D-ABC     0.92      9.07    0.101                0.11   0.11        1.7
                     0.12       I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                     0.00       I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                I
 I   B-ACD     0.90      9.07    0.099                0.14   0.11        1.7
                     0.12       I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                     0.00       I
 I   D-ABC     0.75      9.07    0.083                0.11   0.09        1.4
                     0.12       I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                     0.00       I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
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---------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
 TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                I
 I   B-ACD     0.75      9.07    0.083                0.11   0.09        1.4
                     0.12       I
 I   A-B       0.00
                                I
 I   A-C       0.00
                                I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                     0.00       I
 I   D-ABC     0.63      9.07    0.069                0.09   0.07        1.1
                     0.12       I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                     0.00       I
 I   C-D       0.00
                                I
 I   C-A       0.00
                                I
 I
                                I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
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```
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.0
  08.30           0.0
  08.45           0.0
  09.00           0.0
  09.15           0.0
  09.30           0.0
```

QUEUE FOR STREAM   D-ABC

```
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.1
  08.30           0.1
  08.45           0.1
  09.00           0.1
  09.15           0.1
  09.30           0.1
```

QUEUE FOR STREAM   C-ABD

```
 TIME          NO. OF
 SEGMENT       VEHICLES
 ENDING        IN QUEUE
  08.15           0.0
  08.30           0.0
  08.45           0.0
  09.00           0.0
  09.15           0.0
  09.30           0.0
```

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	82.6	55.1	10.1	0.12	10.1	0.12
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	68.8	45.9	8.2	0.12	8.2	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	151.4	100.9	18.3	0.12	18.3	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

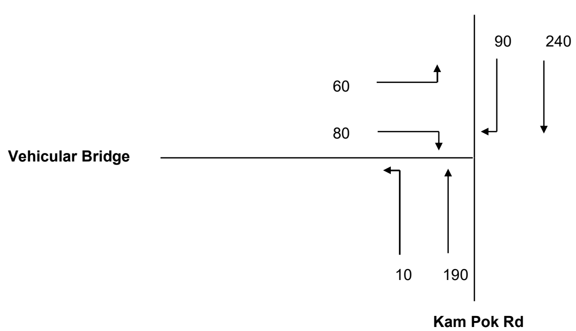
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 AM Design - Sensitivity Test (I)	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Oct 24

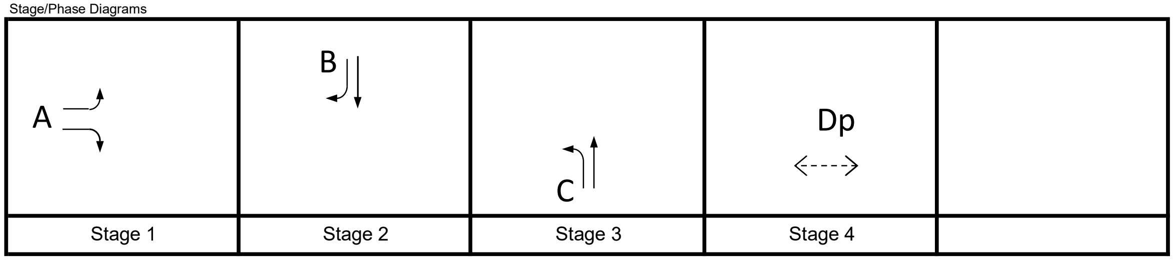
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	60	sec
Sum(y)		Y =	0.357	
Lost time		L =	28	sec
Total Flow		=	670	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	73	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	44	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	93.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	46	sec
Y_{max}	$= 1-L/C$	=	0.533	

Stage/Phase Diagrams



I/G = 5 I/G = 7 I/G = 3 G = 7 I/G = 9

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9\times Y_{max}-Y)/Y\times 100\%$ = 34%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.600	1	5	10	0	0		0		2115	60		80	140	43%	57%	1742	0.080	0.080
	B	2	3.600	1		10	0	1		0		1975		240	90	330		27%	1897	0.174	0.174
	C	3	3.600	1	5			1		0		1975	10	190		200	5%		1946	0.103	0.103
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

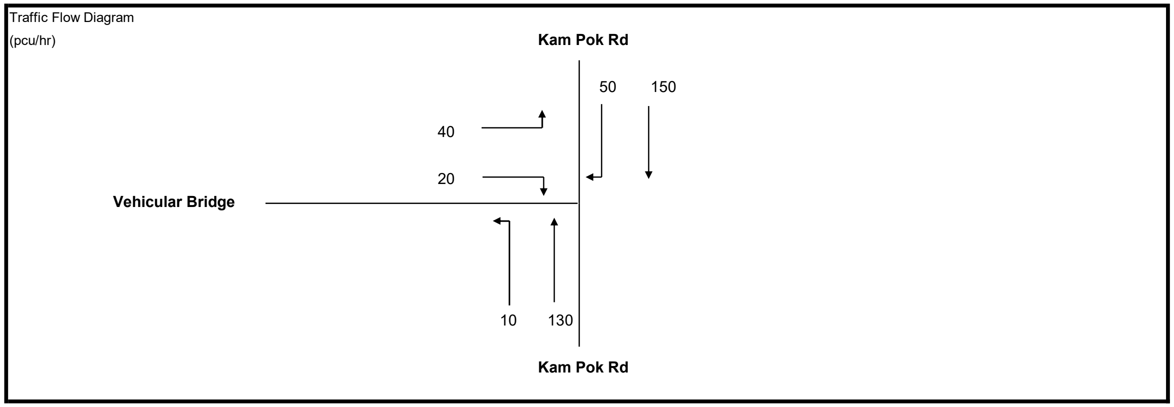
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 PM Design - Sensitivity Test (I)	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Oct 24

J10

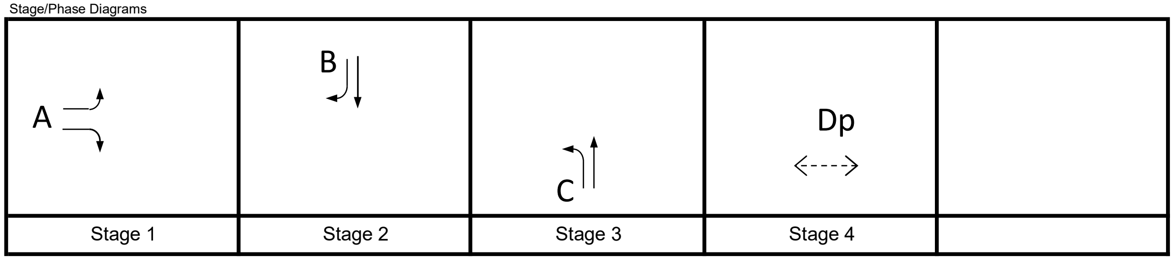
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	60	sec
Sum(y)	Y =	0.177	
Lost time	L =	33	sec
Total Flow	=	400	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	66	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	40	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.653	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	267.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	41	sec
Y_{max}	$= 1-L/C =$	0.450	

Stage/Phase Diagrams



G = 5 I/G = 5 I/G = 5 I/G = 4 G = 7 I/G = 9

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 128%

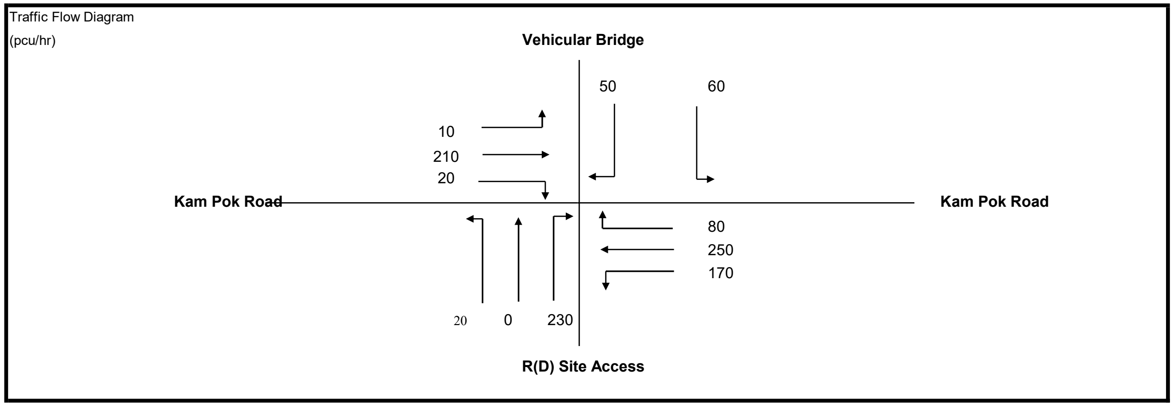
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.600	1	5	10	0	0		0		2115	40		20	60	67%	33%	1692	0.035	
	B	2	3.600	1		10	0	1		0		1975		150	50	200		25%	1904	0.105	0.105
	C	3	3.600	1	5			1		0		1975	10	130		140	7%		1934	0.072	0.072
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Kam Pok Road / Vehicular Bridge / R(D) Site Access	Year 2034 AM Cumulative Traffic Impact [R(D) + REC(NS)] & 100% Kam Pok R	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24

Traffic Flow Diagram
(pcu/hr)

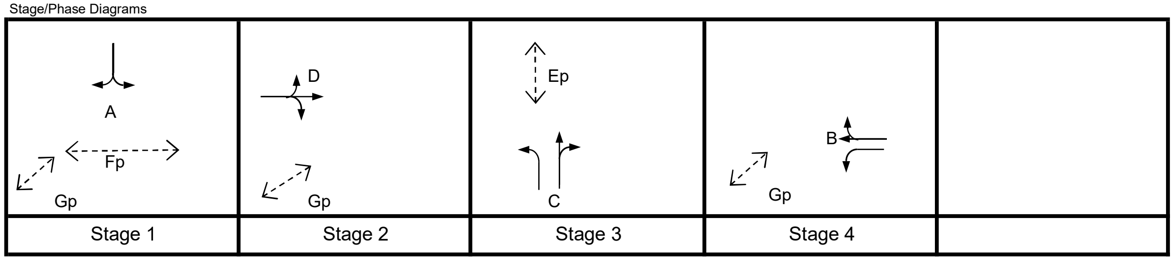


J11

No. of stages per cycle	N =	4	
Cycle time	C =	90	sec
Sum(y)	Y =	0.427	
Lost time	L =	37	sec
Total Flow	=	1,100	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	105	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	65	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.623	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	45.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	70	sec
Y_{max}	$= 1-L/C =$	0.589	

Stage/Phase Diagrams



G = 11 I/G = 12 I/G = 5 I/G = 5 I/G = 7

Critical Case : Fp,D,C,B

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

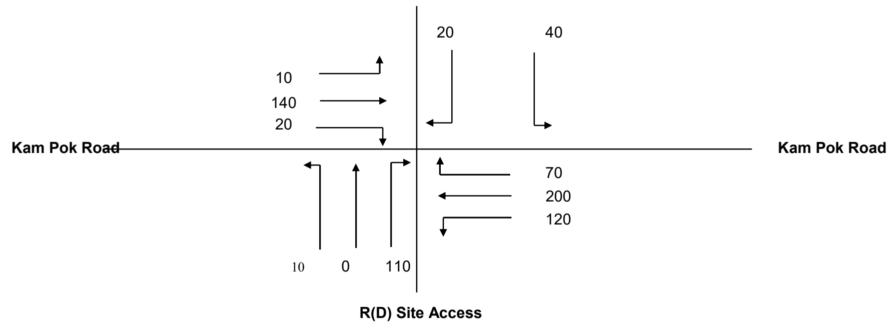
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	10	12	0	0		0		2105	60		50	110	55%	45%	1849	0.060	
	B	4	3.650	1	15			1		0		1980	170			170	100%		1800	0.094	
	B	4	3.650	1		15	0	0		0		2120		250	80	330		24%	2070	0.159	0.159
	C	3	3.000	1	12	15	0	1		0		1915	20	0	230	250	8%	92%	1738	0.144	0.144
	D	2	3.650	1	10	12	0	1		0		1980	10	210	20	240	4%	8%	1948	0.123	0.123
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	10	=	20	sec												
	Fp	1	min.	11	+	10	=	21	sec												*
	Gp	1,2,4	min.	5	+	5	=	10	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Kam Pok Road / Vehicular Bridge / R(D) Site Access	Year 2034 AM Cumulative Traffic Impact [R(D) + REC(NS)] & 100% Kam Pok R	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24

Traffic Flow Diagram
(pcu/hr)

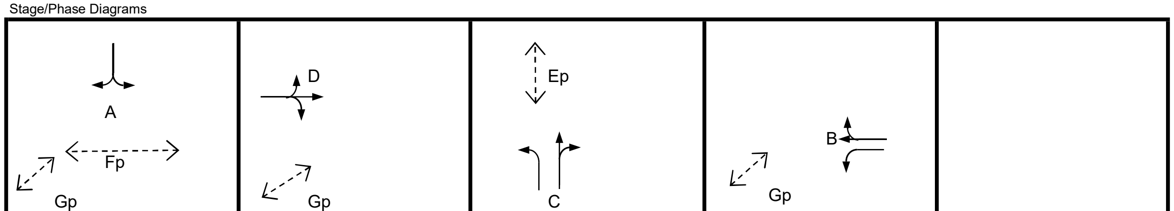


J11

No. of stages per cycle	N =	4	
Cycle time	C =	90	sec
Sum(y)	Y =	0.292	
Lost time	L =	37	sec
Total Flow	=	750	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	85	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	52	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.623	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	113.0	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	55	sec
Y_{max}	$= 1-L/C =$	0.589	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

G = 11 I/G = 12 I/G = 5 I/G = 5 I/G = 7

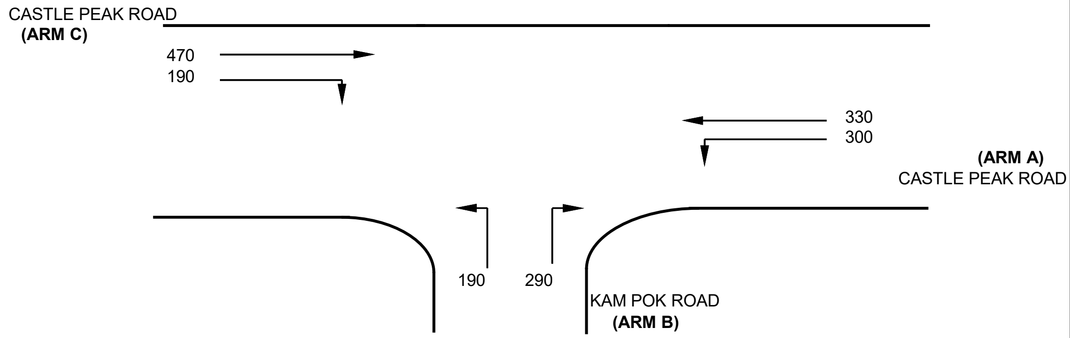
Critical Case : Fp,D,C,B

R.C.(C) $= (0.9\times Y_{max}-Y)/Y\times100\% =$ 81%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	10	12	0	0		0		2105	40		20	60	67%	33%	1844	0.033	
	B	4	3.650	1	15			1		0		1980	120			120	100%		1800	0.067	
	B	4	3.650	1		15	0	0		0		2120		210	70	280		25%	2068	0.135	0.135
	C	3	3.000	1	12	15	0	1		0		1915	10	0	110	120	8%	92%	1738	0.069	0.069
	D	2	3.650	1	10	12	0	1		0		1980	10	140	20	170	6%	12%	1934	0.088	0.088
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	10	=	20	sec												
	Fp	1	min.	11	+	10	=	21	sec												*
	Gp	1,2,4	min.	5	+	5	=	10	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 AM Design Flows Sensitivity Test 1 (with IMP)	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)			*MAJOR ROAD (ARM C)*			*MINOR ROAD (ARM B)*		
W	=	7.3 (metres)	W c-b	=	2.05 (metres)	W b-a	=	4.07 (metres)
W cr	=	(metres)	Vr c-b	=	30 (metres)	W b-c	=	4.07 (metres)
q a-b	=	300 (pcu/hr)	q c-a	=	470 (pcu/hr)	Vl b-a	=	100 (metres)
q a-c	=	330 (pcu/hr)	q c-b	=	190 (pcu/hr)	Vr b-a	=	100 (metres)
						Vr b-c	=	80 (metres)
						q b-a	=	290 (pcu/hr)
						q b-c	=	190 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	347
Q b-c	=	624
Q c-b	=	448
Q b-ac	=	421

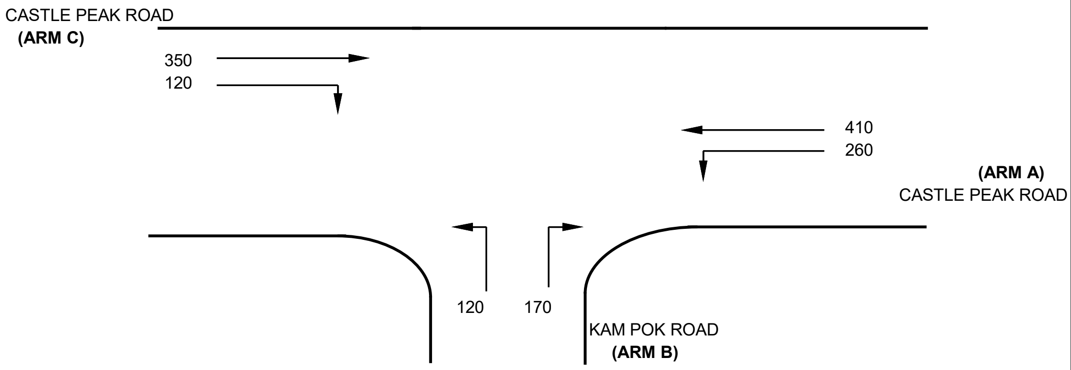
CRITICAL DFC = 0.84

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.84
DFC b-c	=	0.30
DFC c-b	=	0.42

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 PM Design Flows Sensitivity Test 1 (With IMP)	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)			*MAJOR ROAD (ARM C)*			*MINOR ROAD (ARM B)*		
W	=	7.3 (metres)	W c-b	=	2.05 (metres)	W b-a	=	4.07 (metres)
W cr	=	0 (metres)	Vr c-b	=	30 (metres)	W b-c	=	4.07 (metres)
q a-b	=	260 (pcu/hr)	q c-a	=	350 (pcu/hr)	Vl b-a	=	100 (metres)
q a-c	=	410 (pcu/hr)	q c-b	=	120 (pcu/hr)	Vr b-a	=	100 (metres)
						Vr b-c	=	80 (metres)
						q b-a	=	170 (pcu/hr)
						q b-c	=	120 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	377
Q b-c	=	607
Q c-b	=	439
Q b-ac	=	447

CRITICAL DFC = 0.45

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.45
DFC b-c	=	0.20
DFC c-b	=	0.27

Design Flow

Sensitivity Test (II)

ROUNDABOUT CAPACITY CALCULATIC

AECOM

Junction	Junction J1 - Fairview Roundabout	cenar	2034 AM Design Flows (Sensitivity Test with Soy Factory w IMP)	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025

D-d	d-c	d-b	d-a	d-g	d-f	d-e
10	10	30	450	240	10	140

1060

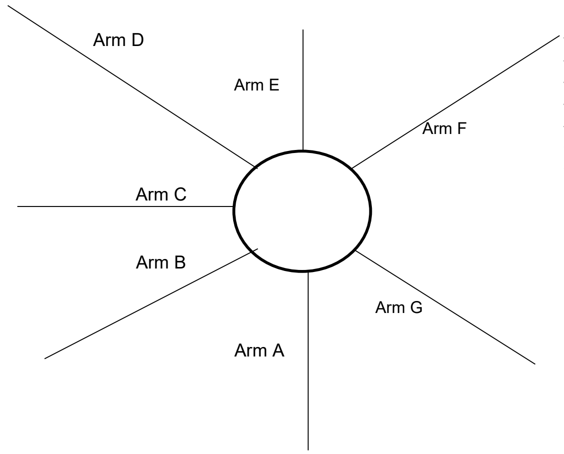
e-e	e-d	e-c	e-b	e-a	e-g	e-f
10	80	110	260	10	490	100

900

c-d	20
c-e	180
c-f	20
c-g	160
c-a	490
c-b	30
c-c	10

1090

b-c	110
b-d	150
b-e	400
b-f	80
b-g	10
b-a	350
b-b	0



680

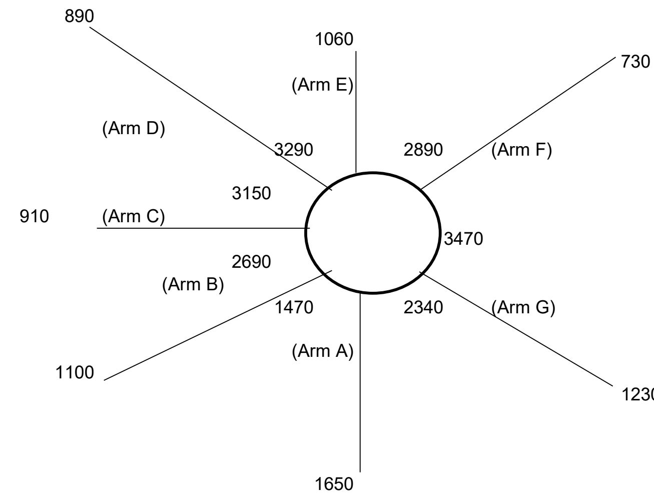
f-f	10
f-e	50
f-d	20
f-c	60
f-b	90
f-a	250
f-g	250

1210

g-g	10
g-f	80
g-e	500
g-d	40
g-c	40
g-b	20
g-a	540

2050

a-b	a-c	a-d	a-e	a-f	a-g	a-a
FF 400	300	450	10	180	700	10



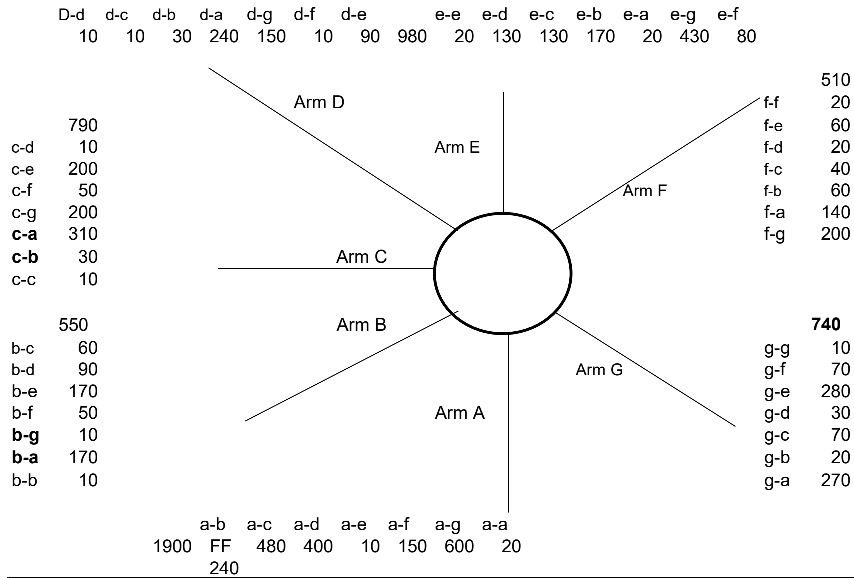
ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	6.50	7.00	7.30	7.30	7.30	7.30
E = Entry width (m)	11.00	11.20	11.80	12.00	12.00	11.00	12.00
L = Effective length of flare (m)	30.00	22.00	20.00	36.00	18.00	23.00	27.00
R = Entry radius (m)	25.00	25.00	25.00	30.00	45.00	25.00	25.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	40.00	35.00	35.00	25.00	30.00	35.00	45.00
Q = Entry flow (pcu/h)	1650	1100	910	890	1060	730	1230
Qc= Circulating flow across entry (pcu/h)	1470	2690	3150	3290	2890	3470	2340
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.34	0.38	0.21	0.42	0.26	0.28
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.99	0.99	1.03	1.03	0.99	0.96
X2= V + ((E-V)/(1+2S))	9.26	9.29	9.71	10.62	9.86	9.74	10.32
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2806	2815	2944	3216	2988	2952	3127
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.66	0.62	0.62	0.64
Qe= K(F-Fc*Qc)	1877	1191	989	1094	1216	797	1552
DFC = Design flow/Capacity = Q/Qe	0.88	0.92	0.92	0.81	0.87	0.92	0.79

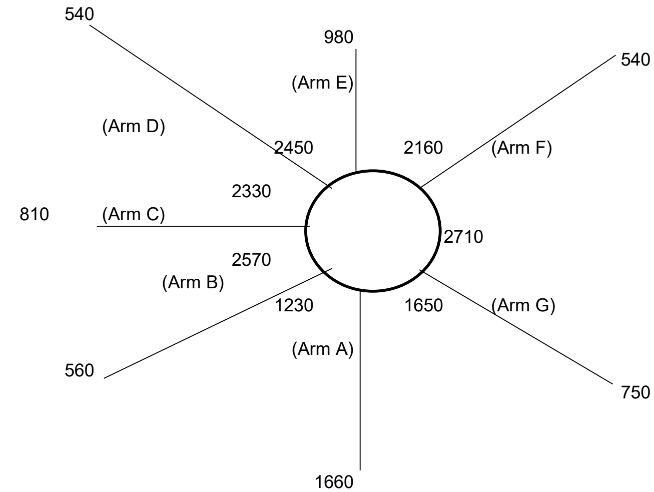
TOTAL ENTRY FLOWS = 7570 PCU

CRITICAL DFC = 0.92

ROUNDABOUT CAPACITY CALCULATIC **AECOM**

Junction	Junction J1 - Fairview Roundabout	cenar	2034 PM Design Flows (Sensitivity Test with Soy Factory w IMP)	Project No.	Prepared By	Checked By	Date
				-	MK	JL	Apr 2025





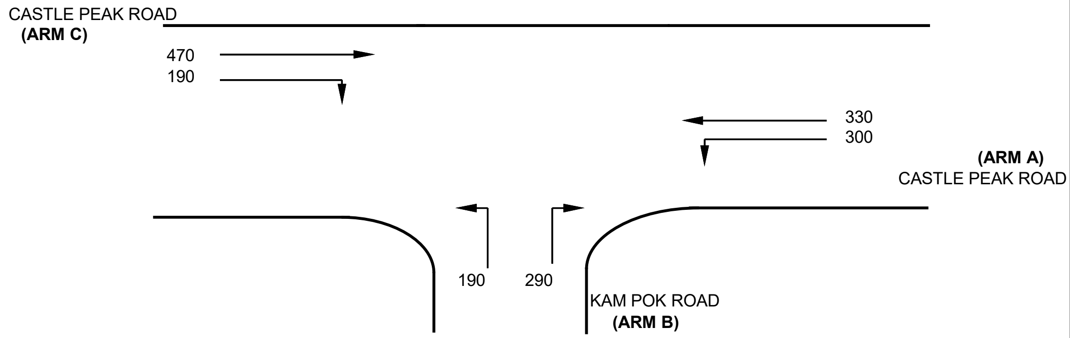
ARM	A	B	C	D	E	F	G
INPUT PARAMETERS:							
V = Approach half width (m)	6.00	6.50	7.00	7.30	7.30	7.30	7.30
E = Entry width (m)	11.00	11.20	11.80	12.00	12.00	11.00	12.00
L = Effective length of flare (m)	30.00	22.00	20.00	36.00	18.00	23.00	27.00
R = Entry radius (m)	25.00	25.00	25.00	30.00	45.00	25.00	25.00
D = Inscribed circle diameter (m)	140.00	140.00	140.00	140.00	140.00	140.00	140.00
A = Entry angle (degree)	40.00	35.00	35.00	25.00	30.00	35.00	45.00
Q = Entry flow (pcu/h)	1660	560	810	540	980	540	750
Qc= Circulating flow across entry (pcu/h)	1230	2570	2330	2450	2160	2710	1650
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.34	0.38	0.21	0.42	0.26	0.28
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.99	0.99	1.03	1.03	0.99	0.96
X2= V + ((E-V)/(1+2S))	9.26	9.29	9.71	10.62	9.86	9.74	10.32
M = EXP((D-60)/10)	2981	2981	2981	2981	2981	2981	2981
F = 303*X2	2806	2815	2944	3216	2988	2952	3127
Td= 1+(0.5/(1+M))	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.66	0.62	0.62	0.64
Qe= K(F-Fc*Qc)	2018	1263	1492	1663	1684	1264	1977
DFC = Design flow/Capacity = Q/Qe	0.82	0.44	0.54	0.32	0.58	0.43	0.38

TOTAL ENTRY FLOWS = 5840 PCU

CRITICAL DFC = 0.82

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 AM Design Flows (Sentivity Test with Soy Factory)(Wit	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.3	(metres)
W cr	=	0	(metres)
q a-b	=	300	(pcu/hr)
q a-c	=	330	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	30	(metres)
q c-a	=	470	(pcu/hr)
q c-b	=	190	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.07	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	80	(metres)
q b-a	=	290	(pcu/hr)
q b-c	=	190	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	347
Q b-c	=	624
Q c-b	=	448
Q b-ac	=	421

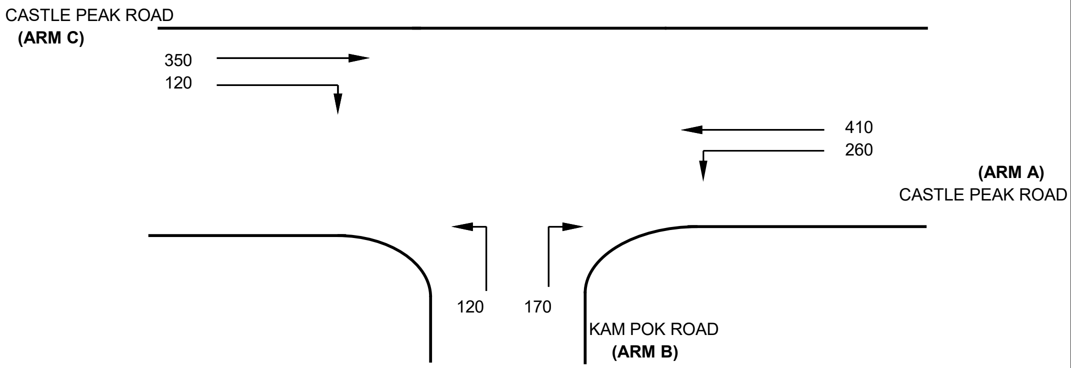
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.84
DFC b-c	=	0.30
DFC c-b	=	0.42

CRITICAL DFC = 0.84

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J2 - Castle Peak Road / Kam Pok Road	2034 PM Design Flows (Sentivity Test with Soy Factory)(Wit	Designed By :	Checked By :	Job No. :	Date : Dec 21



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.3	(metres)
W cr	=	0	(metres)
q a-b	=	260	(pcu/hr)
q a-c	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.05	(metres)
Vr c-b	=	30	(metres)
q c-a	=	350	(pcu/hr)
q c-b	=	120	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.07	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	80	(metres)
q b-a	=	170	(pcu/hr)
q b-c	=	120	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.990146
E	=	1.002059
F	=	0.780782
Y	=	0.748150

THE CAPACITY OF MOVEMENT :

Q b-a	=	377
Q b-c	=	607
Q c-b	=	439
Q b-ac	=	447

CRITICAL DFC = 0.45

COMPARISION OF DESIGN FLOW TO CAPACITY :

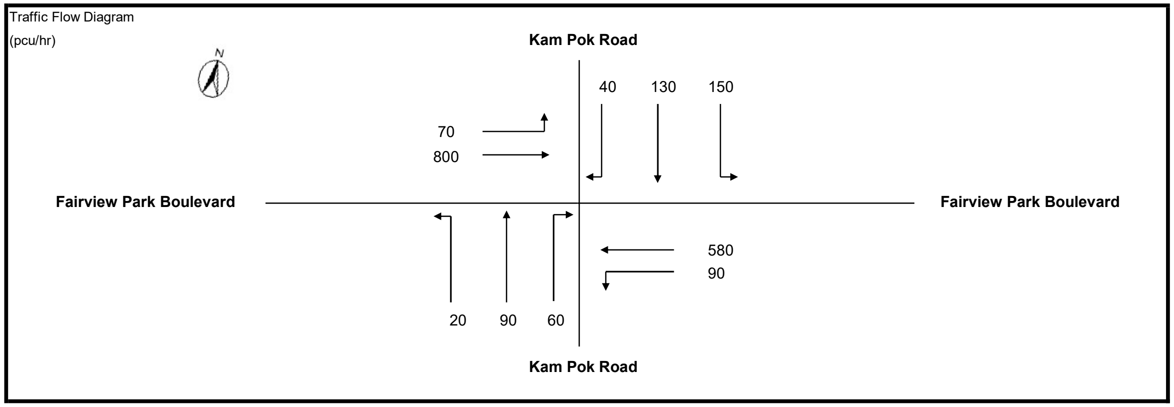
DFC b-a	=	0.45
DFC b-c	=	0.20
DFC c-b	=	0.27

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 AM Design Traffic Flows (SEN II)	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Oct 24

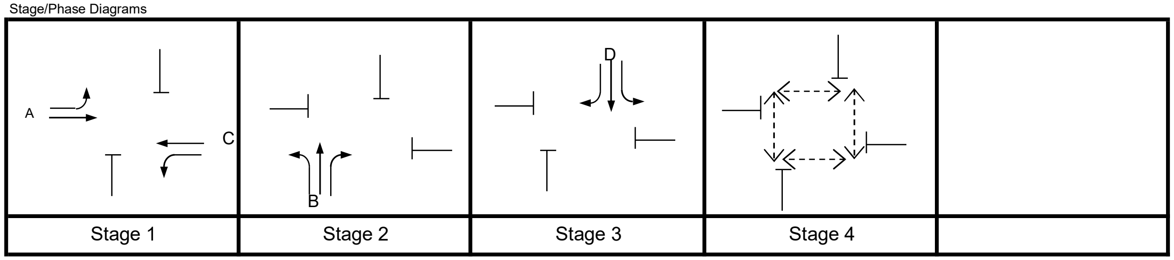
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.473	
Lost time		L =	44	sec
Total Flow		=	11,870	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	135	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	83	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	20.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	93	sec
Y_{max}	$= 1-L/C$	=	0.633	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : A,B,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 21%

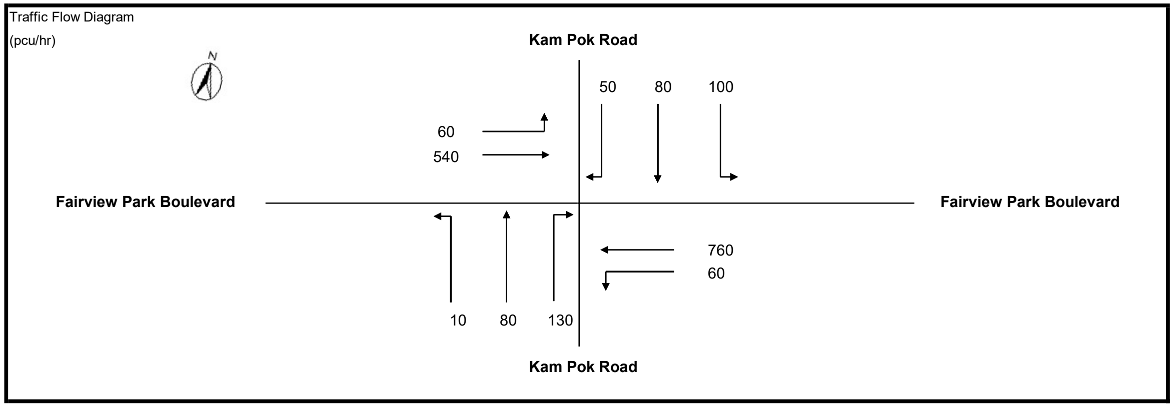
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	70	362		432	16%		1914	0.225	0.225
	A	1	3.300	1				1		0		1945		439		439			1945	0.225	
	B	2	3.600	1	13	20	0	1		0		1975	20	90	60	170	12%	35%	1899	0.090	0.090
	C	1	3.000	1	17			1		0		1915	90	238		328	27%		1870	0.176	
	C	1	3.300	1				1		0		1945		342		342			1945	0.176	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	150	130	40	320	47%	13%	2031	0.158	0.158
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

JUNCTION CAPACITY CALCULATION

Junction J3 - Fairview Park Boulevard - Kam Pok Road	2034 PM Design Traffic Flows (SEN II)	DESIGN: 0	CHECK: 0	JOB NO: -	DATE: Oct 24

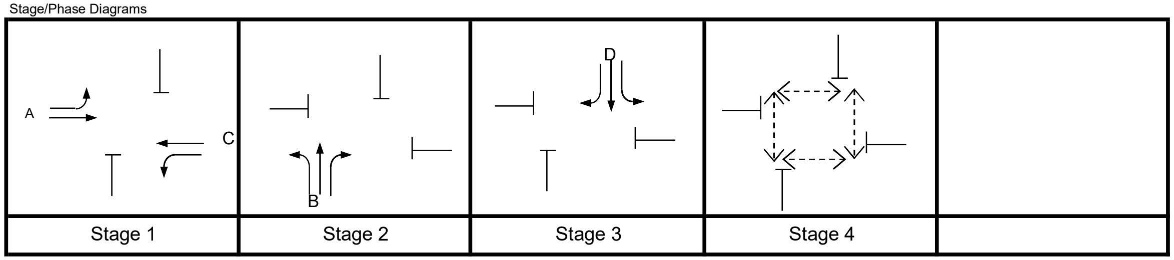
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.444	
Lost time	L =	44	sec
Total Flow	=	11,870	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	128	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	79	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	28.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	87	sec
Y_{max}	$= 1-L/C =$	0.633	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 11 G = 10 I/G = 12

Critical Case : B,C,D,Ep

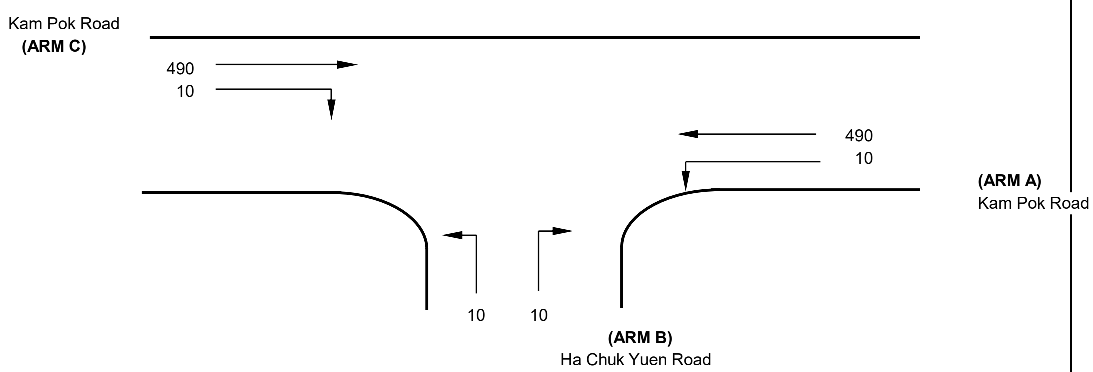
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 28%

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	3.300	1	15			1		0		1945	60	237		297	20%		1906	0.156	
	A	1	3.300	1				1		0		1945		303		303			1945	0.156	
	B	2	3.600	1	13	20	0	1		0		1975	10	80	130	220	5%	59%	1882	0.117	0.117
	C	1	3.000	1	17			1		0		1915	60	344		404	15%		1890	0.214	0.214
	C	1	3.300	1				1		0		1945		416		416			1945	0.214	
	D	3	5.300	1	15.5	17.5	0	1		0		2145	100	80	50	230	43%	22%	2022	0.114	0.114
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	10	+	9	=	19	sec												*

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 AM Design Traffic Flows - Sensitivity Test (with Soy Factory)	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Oct 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	9.3	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	490	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.5	(metres)
Vr c-b	=	50	(metres)
q c-a	=	490	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.05	(metres)
W b-c	=	2.05	(metres)
Vl b-a	=	50	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

`

THE CAPACITY OF MOVEMENT :

Q b-a	=	318
Q b-c	=	496
Q c-b	=	574
Q b-ac	=	388

CRITICAL DFC = 0.05

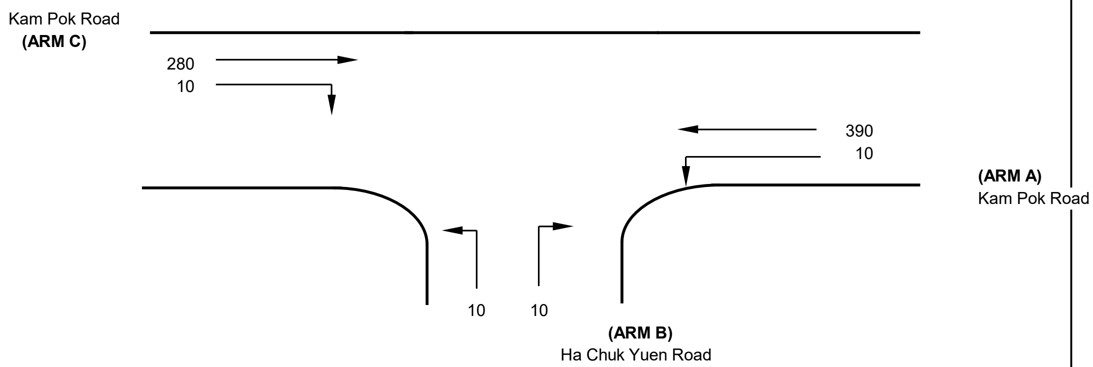
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.05

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

J4 - Kam Pok Road - Ha Chuk Yuen Road	2034 PM Design Traffic Flows - Sensitivity Test (with Soy Factory)	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Oct 24



J4

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 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)				*MAJOR ROAD (ARM C)*				*MINOR ROAD (ARM B)*			
W	=	9.3	(metres)	W c-b	=	3.5	(metres)	W b-a	=	2.05	(metres)
W cr	=	0	(metres)	Vr c-b	=	50	(metres)	W b-c	=	2.05	(metres)
q a-b	=	10	(pcu/hr)	q c-a	=	280	(pcu/hr)	Vl b-a	=	50	(metres)
q a-c	=	390	(pcu/hr)	q c-b	=	10	(pcu/hr)	Vr b-a	=	50	(metres)
								Vr b-c	=	50	(metres)
								q b-a	=	10	(pcu/hr)
								q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.748311
E	=	0.796075
F	=	0.923788
Y	=	0.679150

THE CAPACITY OF MOVEMENT :

Q b-a	=	361
Q b-c	=	516
Q c-b	=	597
Q b-ac	=	425

CRITICAL DFC = 0.05

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.03
DFC b-c	=	0.02
DFC c-b	=	0.02
DFC b-ac	=	0.05

TRL LIMITED

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

Run with file:-
"L:\Secure\Transportation\Group\TTP_TE\Private Job\Fairview\Info\TIA Working RD and REC\Flow\
V13 202407_RD1.5+REC1.2 Combined\Junction 5_Picaddy\20241031 Sen 2\Sen 2.vpi"
(drive-on-the-left) at 14:00:19 on Thursday, 31 October 2024

.RUN INFORMATION
****

RUN TITLE : 2034 - J5 Kam Pok Road/ Pok Wai South Road
LOCATION :
DATE : 13/12/21
CLIENT :
ENUMERATOR : nokhinnaomi.tam [HKSHT1PC0702]
JOB NUMBER :
STATUS :
DESCRIPTION :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

```
                    MINOR ROAD (ARM D)
                           I
                           I
                           I
                           I
                           I
                           I
MAJOR ROAD (ARM C) -------------------- MAJOR ROAD (ARM A)
                           I
                           I
                           I
                           I
                           I
                           I
                    MINOR ROAD (ARM B)
```

ARM A IS Kam Pok Road
ARM B IS Pok Wai South Road
ARM C IS Kam Pok Road West
ARM D IS Kam Pok Road

.STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 8.80 M.	(W) 8.80 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.	(WA-D) 2.20 M.
- VISIBILITY	(VC-B) 50.00 M.	(VA-D) 50.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (0)	NO (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 50.0 M.	(VD-A) 50.0 M.
- VISIBILITY TO RIGHT	(VB-A) 50.0 M.	(VD-C) 50.0 M.
- LANE 1 WIDTH	(WB-C) 2.20 M.	(WD-A) 5.00 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.	(WD-C) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
602.92	0.21	0.08

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
786.65	0.27	0.11

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
476.98	0.19	0.19	0.19	0.19

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.08	0.12	0.28	0.10

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
622.33	0.25	0.25	0.25	0.25

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.10	0.16	0.36	0.13

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
602.92	0.21	0.21	0.29

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D

```
 I     602.92            0.21                0.29                0.21        I
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
------------------
 I     476.98            0.19                0.19                  0.08
     0.28       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
------------------
 I                       0.12                0.12
                I

--------------------------------------------------------------------------------
------------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------
------------------
 I     476.98            0.19                0.19                  0.08
     0.28       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------
------------------
 I                       0.12                0.12
                I

--------------------------------------------------------------------------------
------------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
------------------
 I     622.33            0.25                0.25                  0.10
     0.36       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                       0.16                0.16
                I

--------------------------------------------------------------------------------
------------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------
```

```
------------------
 I     622.33            0.25                0.25                  0.10
     0.36       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                      0.16                0.16
                I

--------------------------------------------------------------------------------
------------------
```

```
.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        20241031 Sen 2 AM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


--------------------------------------------------------------------------------
----
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
   I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
   I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
   I
 I        I             I             I            I        I         I
   I
--------------------------------------------------------------------------------
----
 I ARM  A I     15.00   I     45.00   I    75.00   I  3.75  I   5.63  I  3.75
   I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.25  I   1.88  I  1.25
   I
 I ARM  C I     15.00   I     45.00   I    75.00   I  2.75  I   4.13  I  2.75
   I
 I ARM  D I     15.00   I     45.00   I    75.00   I  3.13  I   4.69  I  3.13
   I

--------------------------------------------------------------------------------
----
```

```
.Demand set:        20241031 Sen 2 AM
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.033 I  0.733 I  0.233 I
 I                    I         I    0.0 I   10.0 I  220.0 I   70.0 I
 I                    I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.100 I  0.000 I  0.100 I  0.800 I
 I                    I         I   10.0 I    0.0 I   10.0 I   80.0 I
 I                    I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.682 I  0.091 I  0.000 I  0.227 I
 I                    I         I  150.0 I   20.0 I    0.0 I   50.0 I
 I                    I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.200 I  0.520 I  0.280 I  0.000 I
 I                    I         I   50.0 I  130.0 I   70.0 I    0.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -------------------------------------------------------
                FOR DEMAND SET        20241031 Sen 2 AM
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
```

```
 I 08.00-08.15
                                I
 I   B-ACD     1.25      6.27   0.200                 0.00   0.25        3.5
                      0.20      I
 I   A-B       0.13
                                I
 I   A-C       2.76
                                I
 I   A-D       0.88      8.55   0.103                 0.00   0.11        1.6
                      0.13      I
 I   D-ABC     3.14      8.46   0.371                 0.00   0.58        8.2
                      0.19      I
 I   C-ABD     0.33     10.02   0.033                 0.00   0.04        0.7
                      0.10      I
 I   C-D       0.61
                                I
 I   C-A       1.82
                                I
 I
                                I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                I
 I   B-ACD     1.50      6.05   0.248                 0.25   0.32        4.7
                      0.22      I
 I   A-B       0.15
                                I
 I   A-C       3.30
                                I
 I   A-D       1.05      8.43   0.124                 0.11   0.14        2.1
                      0.14      I
 I   D-ABC     3.75      8.19   0.458                 0.58   0.82       11.8
                      0.22      I
 I   C-ABD     0.42     10.20   0.041                 0.04   0.06        0.9
                      0.10      I
 I   C-D       0.72
                                I
 I   C-A       2.16
                                I
 I
                                I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                I
 I   B-ACD     1.84      5.74   0.319                 0.32   0.46        6.6
                      0.25      I
 I   A-B       0.18
                                I
 I   A-C       4.04
                                I
 I   A-D       1.28      8.27   0.155                 0.14   0.18        2.7
                      0.14      I
 I   D-ABC     4.59      7.80   0.588                 0.82   1.36       19.0
                      0.30      I
 I   C-ABD     0.55     10.46   0.053                 0.06   0.08        1.2
                      0.10      I
 I   C-D       0.87
                                I
 I   C-A       2.61
                                I
 I
                                I
.--------------------------------------------------------------------------------
-----------------------------------

.--------------------------------------------------------------------------------
-----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                I
 I   B-ACD     1.84      5.74   0.320                 0.46   0.46        6.9
                      0.26      I
 I   A-B       0.18
                                I
 I   A-C       4.04
                                I
 I   A-D       1.28      8.27   0.155                 0.18   0.18        2.7
                      0.14      I
 I   D-ABC     4.59      7.80   0.588                 1.36   1.39       20.7
                      0.31      I
 I   C-ABD     0.55     10.46   0.053                 0.08   0.08        1.2
                      0.10      I
 I   C-D       0.87
                                I
 I   C-A       2.61
```

```
                               I
 I
                               I
.-------------------------------------------------------------------------------
----------------------------------

.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                               I
 I   B-ACD     1.50      6.05    0.248               0.46   0.34        5.2
                       0.22      I
 I   A-B       0.15
                                 I
 I   A-C       3.30
                                 I
 I   A-D       1.05      8.43    0.124               0.18   0.14        2.2
                       0.14      I
 I   D-ABC     3.75      8.18    0.458               1.39   0.87       13.8
                       0.23      I
 I   C-ABD     0.42     10.20    0.041               0.08   0.06        0.9
                       0.10      I
 I   C-D       0.72
                                 I
 I   C-A       2.16
                                 I
 I
                                 I
.-------------------------------------------------------------------------------
----------------------------------

.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                 I
 I   B-ACD     1.25      6.27    0.200               0.34   0.25        3.9
                       0.20      I
 I   A-B       0.13
                                 I
 I   A-C       2.76
                                 I
 I   A-D       0.88      8.55    0.103               0.14   0.12        1.8
                       0.13      I
```

```
 I   D-ABC     3.14      8.45    0.371               0.87   0.60        9.4
                       0.19      I
 I   C-ABD     0.33     10.02    0.033               0.06   0.05        0.7
                       0.10      I
 I   C-D       0.61
                                 I
 I   C-A       1.82
                                 I
 I
                                 I
.-------------------------------------------------------------------------------
----------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.3
   08.45           0.5
   09.00           0.5
   09.15           0.3
   09.30           0.3
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.2
   09.00           0.2
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.6    *
   08.30           0.8    *
   08.45           1.4    *
   09.00           1.4    *
   09.15           0.9    *
   09.30           0.6    *
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
```

```
  08.15           0.0
  08.30           0.1
  08.45           0.1
  09.00           0.1
  09.15           0.1
  09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I----------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-ACD I  137.6 I   91.8 I    30.9 I    0.22   I      30.9  I    0.22   I
I  A-B   I   13.8 I    9.2 I         I           I            I           I
I  A-C   I  302.8 I  201.9 I         I           I            I           I
I  A-D   I   96.3 I   64.2 I    13.1 I    0.14   I      13.1  I    0.14   I
I  D-ABC I  344.1 I  229.4 I    82.9 I    0.24   I      82.9  I    0.24   I
I  C-ABD I   39.1 I   26.1 I     5.6 I    0.14   I       5.6  I    0.14   I
I  C-D   I   65.9 I   43.9 I         I           I            I           I
I  C-A   I  197.8 I  131.8 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I 1197.5 I  798.3 I   132.4 I    0.11   I     132.4  I    0.11   I
---------------------------------------------------------------------------
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******



.SLOPES AND INTERCEPT
 --------------------
 (NB:Streams may be combined, in which case capacity will be adjusted)

STREAM   B-C
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C          STREAM A-B        I
---------------------------------------------------------
I     602.92            0.21                0.08        I
---------------------------------------------------------


STREAM   D-A
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM D-A     STREAM  C-A          STREAM C-D        I
---------------------------------------------------------
I     786.65            0.27                0.11        I
```

```
 ---------------------------------------------------------


 STREAM   B-A

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D          STREAM  D-A
STREAM  D-B       I

--------------------------------------------------------------------------------
------------------
 I     476.98            0.19                0.19                 0.19
     0.19       I

--------------------------------------------------------------------------------
------------------



--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-B          STREAM C-A          STREAM  C-B
STREAM  D-C       I

--------------------------------------------------------------------------------
------------------
 I                       0.08                0.12                 0.28
     0.10       I

--------------------------------------------------------------------------------
------------------


 STREAM   D-C

--------------------------------------------------------------------------------
------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B          STREAM  B-C
STREAM  B-D       I

--------------------------------------------------------------------------------
------------------
 I     622.33            0.25                0.25                 0.25
     0.25       I

--------------------------------------------------------------------------------
------------------
```

I	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A	I
I	0.10	0.16	0.36	0.13	I

STREAM C-B

I Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D I
I 602.92	0.21	0.21	0.29 I

STREAM A-D

I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D I
I 602.92	0.21	0.29	0.21 I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 476.98	0.19	0.19	0.08	0.28	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.12	0.12			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 476.98	0.19	0.19	0.08	0.28	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.12	0.12			I

D-B Stream From Left Hand Lane

I Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D	I
I 622.33	0.25	0.25	0.10		

```
     0.36       I

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------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                       0.16                 0.16
                I

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 D-B Stream From Right Hand Lane

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------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D      I

--------------------------------------------------------------------------------
------------------
 I     622.33            0.25                 0.25                  0.10
     0.36       I

--------------------------------------------------------------------------------
------------------

--------------------------------------------------------------------------------
------------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------
------------------
 I                       0.16                 0.16
                I

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------------------


.TRAFFIC DEMAND DATA
 -------------------
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```

```
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        20241031 Sen 2 PM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


--------------------------------------------------------------------------------
----
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
   I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
   I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
   I
 I        I             I             I            I        I         I
   I

--------------------------------------------------------------------------------
----
 I ARM  A I     15.00   I     45.00   I    75.00   I  2.75  I   4.13  I  2.75
   I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.13  I   1.69  I  1.13
   I
 I ARM  C I     15.00   I     45.00   I    75.00   I  3.00  I   4.50  I  3.00
   I
 I ARM  D I     15.00   I     45.00   I    75.00   I  2.13  I   3.19  I  2.13
   I

--------------------------------------------------------------------------------
----

.Demand set:        20241031 Sen 2 PM
 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                  I
 I                    I         TURNING COUNTS                       I
 I                    I        (PERCENTAGE OF H.V.S)                 I
 I                    ---------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 ---------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.045 I  0.636 I  0.318 I
 I                    I         I    0.0 I   10.0 I  140.0 I   70.0 I
```

```
 I                    I         I (  0.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.111 I  0.000 I  0.111 I  0.778 I
 I                    I         I   10.0 I    0.0 I   10.0 I   70.0 I
 I                    I         I ( 10.0)I (  0.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.625 I  0.042 I  0.000 I  0.333 I
 I                    I         I  150.0 I   10.0 I    0.0 I   80.0 I
 I                    I         I ( 10.0)I ( 10.0)I (  0.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.353 I  0.471 I  0.176 I  0.000 I
 I                    I         I   60.0 I   80.0 I   30.0 I    0.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
 DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               --------------------------------------------------------
                FOR DEMAND SET         20241031 Sen 2 PM
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                                 I
 I   B-ACD     1.13      6.50    0.174               0.00   0.21        3.0
                         0.19    I
 I   A-B       0.13
                                 I
 I   A-C       1.76
                                 I
 I   A-D       0.88      8.51    0.103               0.00   0.11        1.6
                         0.13    I
 I   D-ABC     2.13      9.03    0.236               0.00   0.31        4.4
                         0.14    I
 I   C-ABD     0.17     10.46    0.016               0.00   0.02        0.3
                         0.10    I
 I   C-D       0.99
                                 I
 I   C-A       1.85
                                 I
 I
                                 I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                                 I
 I   B-ACD     1.35      6.32    0.214               0.21   0.27        3.9
                         0.20    I
 I   A-B       0.15
                                 I
 I   A-C       2.10
                                 I
 I   A-D       1.05      8.38    0.125               0.11   0.14        2.1
                         0.14    I
 I   D-ABC     2.55      8.80    0.289               0.31   0.40        5.8
                         0.16    I
 I   C-ABD     0.22     10.72    0.020               0.02   0.02        0.4
                         0.10    I
 I   C-D       1.18
                                 I
 I   C-A       2.20
                                 I
 I
                                 I
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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
    (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                                 I
 I   B-ACD     1.65      6.07    0.272               0.27   0.37        5.3
                         0.23    I
 I   A-B       0.18
                                 I
 I   A-C       2.57
                                 I
 I   A-D       1.28      8.22    0.156               0.14   0.18        2.7
                         0.14    I
 I   D-ABC     3.12      8.49    0.368               0.40   0.57        8.2
                         0.19    I
 I   C-ABD     0.29     11.08    0.026               0.02   0.03        0.5
                         0.09    I
 I   C-D       1.43
                                 I
 I   C-A       2.68
                                 I
```

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 I
                                I
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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                                I
 I   B-ACD     1.65      6.07    0.272                0.37   0.37        5.5
                       0.23     I
 I   A-B       0.18
                                I
 I   A-C       2.57
                                I
 I   A-D       1.28      8.21    0.156                0.18   0.18        2.8
                       0.14     I
 I   D-ABC     3.12      8.48    0.368                0.57   0.58        8.6
                       0.19     I
 I   C-ABD     0.29     11.08    0.026                0.03   0.03        0.5
                       0.09     I
 I   C-D       1.43
                                I
 I   C-A       2.68
                                I
 I
                                I
.-------------------------------------------------------------------------------
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----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                                I
 I   B-ACD     1.35      6.31    0.214                0.37   0.28        4.3
                       0.20     I
 I   A-B       0.15
                                I
 I   A-C       2.10
                                I
 I   A-D       1.05      8.38    0.125                0.18   0.14        2.2
                       0.14     I
 I   D-ABC     2.55      8.80    0.289                0.58   0.41        6.4
```

```
                       0.16     I
 I   C-ABD     0.22     10.72    0.020                0.03   0.02        0.4
                       0.10     I
 I   C-D       1.18
                                I
 I   C-A       2.20
                                I
 I
                                I
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.-------------------------------------------------------------------------------
----------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
 GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
   (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                                I
 I   B-ACD     1.13      6.49    0.174                0.28   0.21        3.3
                       0.19     I
 I   A-B       0.13
                                I
 I   A-C       1.76
                                I
 I   A-D       0.88      8.51    0.103                0.14   0.12        1.8
                       0.13     I
 I   D-ABC     2.13      9.03    0.236                0.41   0.31        4.8
                       0.15     I
 I   C-ABD     0.17     10.46    0.016                0.02   0.02        0.3
                       0.10     I
 I   C-D       0.99
                                I
 I   C-A       1.85
                                I
 I
                                I
.-------------------------------------------------------------------------------
----------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 ------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15          0.2
   08.30          0.3
   08.45          0.4
   09.00          0.4
   09.15          0.3
   09.30          0.2
```

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.1
08.30	0.1
08.45	0.2
09.00	0.2
09.15	0.1
09.30	0.1

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.3	
08.30	0.4	
08.45	0.6	*
09.00	0.6	*
09.15	0.4	
09.30	0.3	

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	123.9	82.6	25.3	0.20	25.3	0.20
A-B	13.8	9.2				
A-C	192.7	128.5				
A-D	96.3	64.2	13.2	0.14	13.2	0.14
D-ABC	234.0	156.0	38.3	0.16	38.3	0.16
C-ABD	20.3	13.5	2.3	0.11	2.3	0.11
C-D	107.9	71.9				
C-A	202.2	134.8				
ALL	991.0	660.7	79.1	0.08	79.1	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

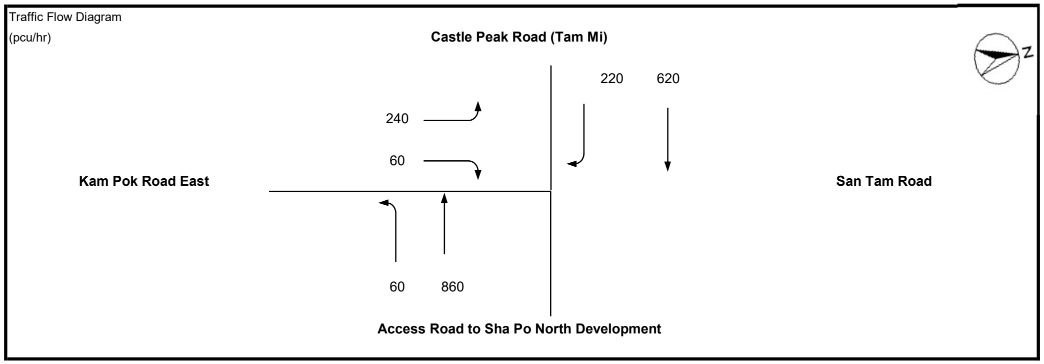
*******END OF RUN*******

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test (with Soy Factory)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

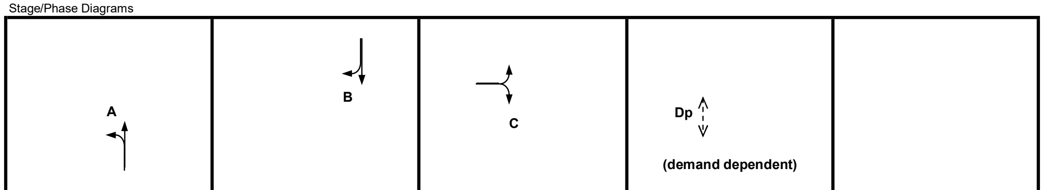
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.825	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	140	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	74	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	-2.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	157	sec
Y_{max} = 1-L/C	=	0.856	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

I/G = 6 I/G = 5 I/G = 5

Critical Case : A,B,C,Dp

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = -7%

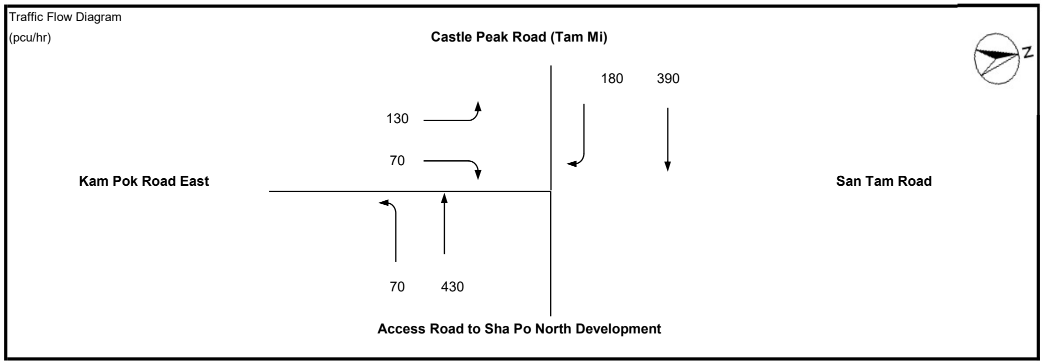
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	60	770		830	7%		1957	0.424	0.424
	B	2	3.400	1				1		0		1955		530		530			1955	0.271	0.271
	B	2	3.500	1		30	0	0		0		2105			220	220		100%	2005	0.110	
	C	3	3.400	1	25			1		0		1955	240			240	100%		1844	0.130	0.130
	C	3	3.400	1		30	0	0		0		2095			60	60		100%	1995	0.030	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test (with Soy Factory)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

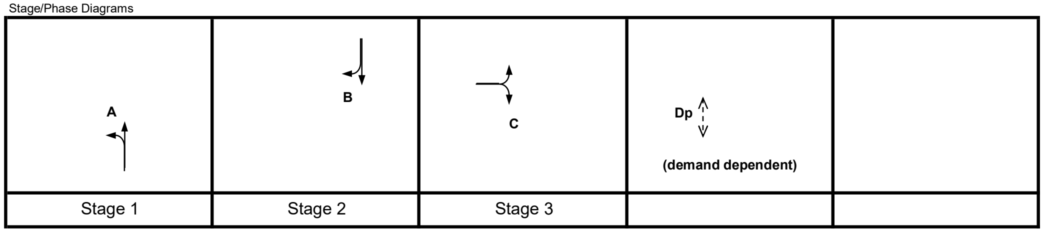
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.588	
Lost time	L =	13	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	59	sec
Min. Cycle Time C_m = L/(1-Y)	=	32	sec
Y_{ult} = 0.9-0.0075×L	=	0.803	
$R.C._{ult}$ = $(Y_{ult}$-Y)/Yx100%	=	36.5	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	37	sec
Y_{max} = 1-L/C	=	0.856	

Stage/Phase Diagrams



I/G = 6   I/G = 5   I/G = 5

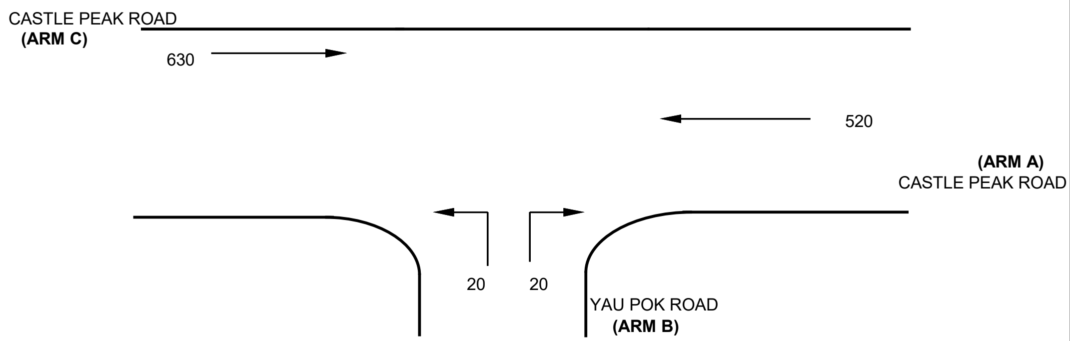
Critical Case : A,B,C,Dp

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 31%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	70	490		560	13%		1950	0.287	0.287
	B	2	3.400	1				1		0		1955		450		450			1955	0.230	0.230
	B	2	3.500	1		30	0	0		0		2105			180	180		100%	2005	0.090	
	C	3	3.400	1	25			1		0		1955	130			130	100%		1844	0.070	0.070
	C	3	3.400	1		30	0	0		0		2095			70	70		100%	1995	0.035	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 AM Design Flow (Sensitivity Test II)	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.5	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	520	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	25	(metres)
q c-a	=	630	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.8	(metres)
W b-c	=	1.8	(metres)
Vl b-a	=	25	(metres)
Vr b-a	=	25	(metres)
Vr b-c	=	25	(metres)
q b-a	=	20	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	257
Q b-c	=	452
Q c-b	=	359
Q b-ac	=	328

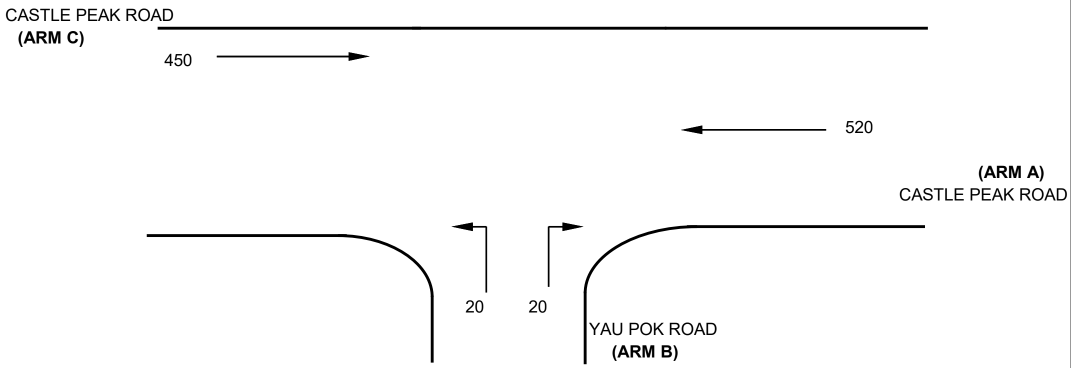
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.08
DFC b-c	=	0.04
DFC c-b	=	0.00

CRITICAL DFC = 0.08

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J7 - Castle Peak Road / Yau Pok Road	2034 PM Design Flow (Sensitivity Test II)	Designed By :	Checked By :	Job No. :	Date : Jan 00



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 - 4.07)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.07)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.07)
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	= Visibilitu 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)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.5	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	520	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	25	(metres)
q c-a	=	450	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.8	(metres)
W b-c	=	1.8	(metres)
Vl b-a	=	25	(metres)
Vr b-a	=	25	(metres)
Vr b-c	=	25	(metres)
q b-a	=	20	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.698808
E	=	0.755468
F	=	0.600735
Y	=	0.775750

THE CAPACITY OF MOVEMENT :

Q b-a	=	280
Q b-c	=	452
Q c-b	=	359
Q b-ac	=	346

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.07
DFC b-c	=	0.04
DFC c-b	=	0.00

CRITICAL DFC = 0.07

```
                         TRL LIMITED

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  CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                  PICADY 5.1  ANALYSIS PROGRAM
                     RELEASE 5.0 (JUNE 2010)

            ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
               BY PERMISSION OF THE CONTROLLER OF HMSO

          --------------------------------------------------------
                FOR SALES AND DISTRIBUTION INFORMATION,
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                          TRL SOFTWARE SALES
             TEL: CROWTHORNE (01344) 770758, FAX: 770356
                   EMAIL: software@trl.co.uk
          --------------------------------------------------------


 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
 IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION

 Run with file:- "T:\Anthony Sun\J8 Soy RD\1016 J8_2034 AM DesSoy Sen 2.vpi"
(drive-on-the-left) at 15:16:35 on Wednesday, 16 October 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : J8 - Yau Pok Road / REC North Access
 LOCATION        : Fairview
 DATE            : 02/09/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

                                              MINOR ROAD (ARM D)
                                                     I
                                                     I
                                                     I
                                                     I
                                                     I
                                                     I
    MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                     I
                                                     I
                                                     I
                                                     I
                                                     I
                                                     I
                                              MINOR ROAD (ARM B)

 ARM A IS Yau Pok Road exit
 ARM B IS Vehicular Bridge
 ARM C IS Yau Pok Road entry
 ARM D IS REC North

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

-------------------------------------------------------------------------------------
---------------------
 I               DATA ITEM                                   I   MINOR ROAD B
 I   MINOR ROAD D    I

-------------------------------------------------------------------------------------
---------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                       I ( W  )  6.00 M.
 I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                    I (WCR )  0.00 M.
 I (WCR )  0.00 M.   I
 I                                                           I
 I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                           I (WC-B)  2.20 M.
 I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                      I (VC-B) 50.00 M.
 I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)         I         YES  (
0) I          NO  ( 0) I
 I                                                           I
 I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                          I (VB-C)  50.0 M.
 I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                         I (VB-A)  50.0 M.
 I (VD-C)  50.0 M.   I
```

```
I              - LANE 1 WIDTH                                     I (WB-C)  3.50 M.
I (WD-A)  3.50 M.   I
I              - LANE 2 WIDTH                                     I (WB-A)  0.00 M.
I (WD-C)  0.00 M.   I

-------------------------------------------------------------------------------------
----------------------


.SLOPES AND INTERCEPT
 --------------------
 (NB:Streams may be combined, in which case capacity will be adjusted)

STREAM   B-C
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C          STREAM A-B        I
---------------------------------------------------------
I     688.22           0.27               0.11          I
---------------------------------------------------------


STREAM   D-A
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM D-A     STREAM  C-A          STREAM C-D        I
---------------------------------------------------------
I     688.22           0.27               0.11          I
---------------------------------------------------------


STREAM   B-A

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D          STREAM  D-A
STREAM  D-B       I

-------------------------------------------------------------------------------------
--------------
 I     544.46           0.25               0.25                0.25
  0.25       I

-------------------------------------------------------------------------------------
--------------


-------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-B          STREAM C-A          STREAM  C-B
STREAM  D-C       I

-------------------------------------------------------------------------------------
--------------
 I                       0.10                0.16                 0.36
  0.13       I

-------------------------------------------------------------------------------------
--------------


 STREAM   D-C

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B          STREAM  B-C
STREAM  B-D       I

-------------------------------------------------------------------------------------
--------------
 I     544.46           0.25               0.25                0.25
  0.25       I

-------------------------------------------------------------------------------------
--------------


-------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-D          STREAM A-C          STREAM  A-D
STREAM  B-A       I

-------------------------------------------------------------------------------------
--------------
 I                       0.10                0.16                 0.36
  0.13       I

-------------------------------------------------------------------------------------
--------------


 STREAM   C-B
 -------------------------------------------------------------------------------
```

```
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.23                0.33        I
 -----------------------------------------------------------------------------


 STREAM   A-D
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.33                0.23        I
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
-------------

-------------------------------------------------------------------------------------
-------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
-------------
 I                       0.16                0.16
             I

-------------------------------------------------------------------------------------
-------------


 B-D Stream From Right Hand Lane

-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
-------------

-------------------------------------------------------------------------------------
-------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
-------------
 I                       0.16                0.16
             I

-------------------------------------------------------------------------------------
-------------


 D-B Stream From Left Hand Lane

-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
-------------

-------------------------------------------------------------------------------------
-------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B
```

```
------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

------------------------------------------------------------------------------------
--------------


 D-B Stream From Right Hand Lane

------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

------------------------------------------------------------------------------------
--------------
 I     544.46            0.25                0.25                  0.10
  0.36      I

------------------------------------------------------------------------------------
--------------

------------------------------------------------------------------------------------
--------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
--------------
 I                       0.16                0.16
             I

------------------------------------------------------------------------------------
--------------


.TRAFFIC DEMAND DATA
 -------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
```

```
 -----------------------
.Demand set:        1016 Sen 2 AM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.13  I   1.69  I  1.13
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  1.38  I   2.06  I  1.38
I

------------------------------------------------------------------------------------

.Demand set:        1016 Sen 2 AM
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                I
 I                    I         TURNING COUNTS                     I
 I                    I        (PERCENTAGE OF H.V.S)               I
 I                    -------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.222 I  0.000 I  0.000 I  0.778 I
 I                    I         I   20.0 I    0.0 I    0.0 I   70.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
```

```
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I  110.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -----------------------------------------------------
                FOR DEMAND SET         1016 Sen 2 AM
                AND FOR TIME PERIOD       1
.----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                             I
 I   B-ACD     1.13      9.00    0.126                0.00   0.14        2.1
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     1.38      9.07    0.152                0.00   0.18        2.6
                   0.13      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------

.----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     1.35      8.98    0.150                0.14   0.18        2.6
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     1.65      9.07    0.182                0.18   0.22        3.2
                   0.13      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.----------------------------------------------------------------------------------
------------------------------

.----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     1.65      8.96    0.184                0.18   0.22        3.3
                   0.14      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     2.02      9.07    0.222                0.22   0.28        4.1
                   0.14      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
```

```
 I   C-A       0.00
                              I
 I
                              I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                              I
 I   B-ACD     1.65      8.96    0.184               0.22   0.22        3.4
                   0.14      I
 I   A-B       0.00
                              I
 I   A-C       0.00
                              I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     2.02      9.07    0.222               0.28   0.28        4.3
                   0.14      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                              I
 I   C-A       0.00
                              I
 I
                              I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                              I
 I   B-ACD     1.35      8.98    0.150               0.22   0.18        2.7
                   0.13      I
 I   A-B       0.00
```

```
                              I
 I   A-C       0.00
                              I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     1.65      9.07    0.182               0.28   0.22        3.4
                   0.13      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                              I
 I   C-A       0.00
                              I
 I
                              I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                              I
 I   B-ACD     1.13      8.99    0.126               0.18   0.14        2.2
                   0.13      I
 I   A-B       0.00
                              I
 I   A-C       0.00
                              I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     1.38      9.07    0.152               0.22   0.18        2.8
                   0.13      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                              I
 I   C-A       0.00
                              I
 I
                              I
.-----------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
```

```
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.2
   08.45           0.2
   09.00           0.2
   09.15           0.2
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.2
   08.45           0.3
   09.00           0.3
   09.15           0.2
   09.30           0.2
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-ACD I  123.9 I   82.6 I    16.2 I    0.13   I      16.2  I    0.13   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I    0.0 I    0.0 I         I           I            I           I
 I  A-D   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  D-ABC I  151.4 I  100.9 I    20.4 I    0.13   I      20.4  I    0.13   I
 I  C-ABD I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-D   I    0.0 I    0.0 I         I           I            I           I
 I  C-A   I    0.0 I    0.0 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  275.3 I  183.5 I    36.6 I    0.13   I      36.6  I    0.13   I
 ---------------------------------------------------------------------------
 * DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
 WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
  A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

 *******END OF RUN*******



 .SLOPES AND INTERCEPT
  --------------------
  (NB:Streams may be combined, in which case capacity will be adjusted)

 STREAM   B-C
 ---------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing I
 I STREAM B-C     STREAM  A-C          STREAM A-B        I
 ---------------------------------------------------------
 I     688.22            0.27                0.11        I
 ---------------------------------------------------------


 STREAM   D-A
 ---------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing I
 I STREAM D-A     STREAM  C-A          STREAM C-D        I
 ---------------------------------------------------------
 I     688.22            0.27                0.11        I
 ---------------------------------------------------------


 STREAM   B-A
---------------------------------------------------------------------------------
--------------
```

```
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D          STREAM  D-A
STREAM  D-B       I

-----------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.25
  0.25       I

-----------------------------------------------------------------------------------
-------------


-----------------------------------------------------------------------------------
-------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-B          STREAM C-A          STREAM  C-B
STREAM  D-C       I

-----------------------------------------------------------------------------------
-------------
 I                       0.10                0.16                  0.36
  0.13       I

-----------------------------------------------------------------------------------
-------------


 STREAM   D-C

-----------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B          STREAM  B-C
STREAM  B-D       I

-----------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.25
  0.25       I

-----------------------------------------------------------------------------------
-------------


-----------------------------------------------------------------------------------
-------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
```

```
Slope For OpposingI
 I                STREAM  C-D          STREAM A-C          STREAM  A-D
STREAM  B-A       I

-----------------------------------------------------------------------------------
-------------
 I                       0.10                0.16                  0.36
  0.13       I

-----------------------------------------------------------------------------------
-------------


 STREAM   C-B
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.23                0.33        I
 -----------------------------------------------------------------------------


 STREAM   A-D
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.33                0.23        I
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

-----------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-----------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-----------------------------------------------------------------------------------
-------------


-----------------------------------------------------------------------------------
-------------
 I               Slope For Opposing   Slope For Opposing   Slope For Opposing
```

```
Slope For OpposingI
 I               STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
             I

-------------------------------------------------------------------------------------
--------------


 B-D Stream From Right Hand Lane

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
--------------

-------------------------------------------------------------------------------------
--------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  C-A          STREAM C-D

-------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
             I

-------------------------------------------------------------------------------------
--------------


 D-B Stream From Left Hand Lane

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
--------------

-------------------------------------------------------------------------------------
--------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
             I

-------------------------------------------------------------------------------------
--------------


 D-B Stream From Right Hand Lane

-------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

-------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
--------------

-------------------------------------------------------------------------------------
--------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  A-C          STREAM A-B

-------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
```

```
            I

-------------------------------------------------------------------------------------
--------------


.TRAFFIC DEMAND DATA
 -------------------
 -----------------------
 I ARM I FLOW SCALE(%) I
 -----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 -----------------------

.Demand set:        1016 Sen 2 PM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


-------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

-------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I    0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.00  I    1.50  I  1.00
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I    0.00  I  0.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.63  I    0.94  I  0.63
I

-------------------------------------------------------------------------------------

.Demand set:        1016 Sen 2 PM
```

```
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.250 I  0.000 I  0.000 I  0.750 I
 I                    I         I   20.0 I    0.0 I    0.0 I   60.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   50.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               ------------------------------------------------------
                FOR DEMAND SET        1016 Sen 2 PM
                AND FOR TIME PERIOD       1
.-------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                              I
 I   B-ACD     1.00      9.03    0.111              0.00   0.12        1.8
                   0.12      I
 I   A-B       0.00
                              I
 I   A-C       0.00
                              I
 I   A-D       0.00      9.14    0.000              0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.63      9.07    0.069              0.00   0.07        1.1
                   0.12      I
```

```
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
------------------------------

.------------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     1.20      9.03    0.133                0.12   0.15        2.2
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.75      9.07    0.083                0.07   0.09        1.3
                   0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
------------------------------

.------------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     1.47      9.02    0.163                0.15   0.19        2.8
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.92      9.07    0.101                0.09   0.11        1.6
                   0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
------------------------------

.------------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     1.47      9.02    0.163                0.19   0.19        2.9
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.92      9.07    0.101                0.11   0.11        1.7
                   0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.------------------------------------------------------------------------------------
```

```
------------------------------

.-------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     1.20      9.03    0.133               0.19   0.15        2.4
                 0.13        I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                 0.00        I
 I   D-ABC     0.75      9.07    0.083               0.11   0.09        1.4
                 0.12        I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                 0.00        I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------
------------------------------

.-------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     1.00      9.03    0.111               0.15   0.13        1.9
                 0.12        I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                 0.00        I
 I   D-ABC     0.63      9.07    0.069               0.09   0.07        1.1
                 0.12        I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                 0.00        I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.2
   08.45           0.2
   09.00           0.2
   09.15           0.2
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
```

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	110.1	73.4	14.0	0.13	14.0	0.13
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	68.8	45.9	8.2	0.12	8.2	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	178.9	119.3	22.3	0.12	22.3	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

```
                        TRL LIMITED

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  CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                 PICADY 5.1  ANALYSIS PROGRAM
                    RELEASE 5.0 (JUNE 2010)

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           --------------------------------------------------------


 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
 IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION

 Run with file:- "T:\Anthony Sun\J9 Soy RD\1016 Soy RD Sen 2.vpi"
(drive-on-the-left) at 15:21:14 on Wednesday, 16 October 2024


.RUN INFORMATION
 ***************

 RUN TITLE       : J9 - Yau Pok Road / REC South Access
 LOCATION        : Fairview
 DATE            : 02/09/24
 CLIENT          : SHK
 ENUMERATOR      : sam.wong [HKSHT1PC0702]
 JOB NUMBER      :
 STATUS          :
 DESCRIPTION     :

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

                                         MINOR ROAD (ARM D)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
       MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
                                                I
                                                I
                                                I
                                                I
                                                I
                                                I
                                         MINOR ROAD (ARM B)

 ARM A IS Yau Pok Road exit
 ARM B IS Vehicular Bridge
 ARM C IS Yau Pok Road entry
 ARM D IS REC South

.STREAM LABELLING CONVENTION
 --------------------------
        STREAM  A-B  CONTAINS TRAFFIC GOING FROM ARM  A TO ARM B
        STREAM  B-AC CONTAINS TRAFFIC GOING FROM ARM  B TO ARM A AND TO ARM  C
        ETC.

.GEOMETRIC DATA
 -------------

------------------------------------------------------------------------------------
---------------------
 I               DATA ITEM                                        I   MINOR ROAD B
 I   MINOR ROAD D    I

------------------------------------------------------------------------------------
---------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH                            I ( W  )  6.00 M.
 I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                                         I (WCR )  0.00 M.
 I (WCR )  0.00 M.   I
 I                                                                I
 I                   I
 I  MAJOR ROAD RIGHT  TURN - WIDTH                                I (WC-B)  2.20 M.
 I (WA-D)  2.20 M.   I
 I                         - VISIBILITY                           I (VC-B) 50.00 M.
 I (VA-D) 50.00 M.   I
 I                         - BLOCKS TRAFFIC (SPACES)              I         YES  (
0) I          NO  ( 0) I
 I                                                                I
 I                   I
 I  MINOR ROAD - VISIBILITY TO LEFT                               I (VB-C)  50.0 M.
 I (VD-A)  50.0 M.   I
 I             - VISIBILITY TO RIGHT                              I (VB-A)  50.0 M.
 I (VD-C)  50.0 M.   I
```

```
I              - LANE 1 WIDTH                                     I (WB-C)  3.50 M.
I (WD-A)  3.50 M.   I
I              - LANE 2 WIDTH                                     I (WB-A)  0.00 M.
I (WD-C)  0.00 M.   I

--------------------------------------------------------------------------------------
----------------------



 .SLOPES AND INTERCEPT
  --------------------
  (NB:Streams may be combined, in which case capacity will be adjusted)

 STREAM   B-C
 ---------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing I
 I STREAM B-C     STREAM  A-C          STREAM A-B        I
 ---------------------------------------------------------
 I     688.22           0.27                0.11         I
 ---------------------------------------------------------


 STREAM   D-A
 ---------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing I
 I STREAM D-A     STREAM  C-A          STREAM C-D        I
 ---------------------------------------------------------
 I     688.22           0.27                0.11         I
 ---------------------------------------------------------


 STREAM   B-A

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D          STREAM  D-A
STREAM  D-B       I

--------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.25
  0.25       I

--------------------------------------------------------------------------------------
--------------


--------------------------------------------------------------------------------------
```

```
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  A-B          STREAM C-A           STREAM  C-B
STREAM  D-C       I

--------------------------------------------------------------------------------------
--------------
 I                       0.10                0.16                  0.36
  0.13       I

--------------------------------------------------------------------------------------
--------------


 STREAM   D-C

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B           STREAM  B-C
STREAM  B-D       I

--------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.25
  0.25       I

--------------------------------------------------------------------------------------
--------------


--------------------------------------------------------------------------------------
--------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                 STREAM  C-D          STREAM A-C           STREAM  A-D
STREAM  B-A       I

--------------------------------------------------------------------------------------
--------------
 I                       0.10                0.16                  0.36
  0.13       I

--------------------------------------------------------------------------------------
--------------


 STREAM   C-B
 ------------------------------------------------------------------------------
```

```
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.23                0.33        I
 -----------------------------------------------------------------------------
```

STREAM A-D

```
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.33                0.23        I
 -----------------------------------------------------------------------------
```

B-D Stream From Left Hand Lane

```
------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

------------------------------------------------------------------------------------
-------------
 I                       0.16                0.16
            I

------------------------------------------------------------------------------------
-------------
```

B-D Stream From Right Hand Lane

```
------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-A          STREAM C-D

------------------------------------------------------------------------------------
-------------
 I                       0.16                0.16
            I

------------------------------------------------------------------------------------
-------------
```

D-B Stream From Left Hand Lane

```
------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B
```

```
------------------------------------------------------------------------------------
-------------
 I                      0.16                0.16
            I

------------------------------------------------------------------------------------
-------------


 D-B Stream From Right Hand Lane

------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

------------------------------------------------------------------------------------
-------------
 I     544.46           0.25                0.25                  0.10
  0.36      I

------------------------------------------------------------------------------------
-------------

------------------------------------------------------------------------------------
-------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-C          STREAM A-B

------------------------------------------------------------------------------------
-------------
 I                      0.16                0.16
            I

------------------------------------------------------------------------------------
-------------


.TRAFFIC DEMAND DATA
 -------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
```

```
 -----------------------
.Demand set:        1016 Sen 2 AM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  1.25  I   1.88  I  1.25
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.13  I   0.19  I  0.13
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  1.75  I   2.63  I  1.75
I

------------------------------------------------------------------------------------

.Demand set:        1016 Sen 2 AM
 --------------------------------------------------------------------
 I                   I         TURNING PROPORTIONS                 I
 I                   I         TURNING COUNTS                      I
 I                   I        (PERCENTAGE OF H.V.S)                I
 I                   ------------------------------------------------
 I        TIME       I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30   I         I        I        I        I        I
 I                   I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                   I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                   I         I    0.0 I    0.0 I    0.0 I  100.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
```

```
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   10.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I  140.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -----------------------------------------------------
                FOR DEMAND SET         1016 Sen 2 AM
                AND FOR TIME PERIOD        1
.-----------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                             I
 I   B-ACD     1.25      9.03    0.139                0.00   0.16        2.3
               0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.10    0.000                0.00   0.00        0.0
               0.00      I
 I   D-ABC     1.76      9.04    0.194                0.00   0.24        3.4
               0.14      I
 I   C-ABD     0.13     10.05    0.012                0.00   0.01        0.2
               0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
-------------------------------

.-----------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     1.50      9.02    0.166                0.16   0.20        2.9
               0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.09    0.000                0.00   0.00        0.0
               0.00      I
 I   D-ABC     2.10      9.04    0.232                0.24   0.30        4.4
               0.14      I
 I   C-ABD     0.15     10.05    0.015                0.01   0.02        0.2
               0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
-------------------------------

.-----------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     1.84      9.01    0.204                0.20   0.25        3.7
               0.14      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.08    0.000                0.00   0.00        0.0
               0.00      I
 I   D-ABC     2.57      9.03    0.285                0.30   0.39        5.7
               0.15      I
 I   C-ABD     0.18     10.05    0.018                0.02   0.02        0.3
               0.10      I
 I   C-D       0.00
                             I
```

```
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     1.84      9.01    0.204               0.25   0.25        3.8
                   0.14      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.08    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     2.57      9.03    0.285               0.39   0.39        5.9
                   0.15      I
 I   C-ABD     0.18     10.05    0.018               0.02   0.02        0.3
                   0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     1.50      9.02    0.166               0.25   0.20        3.1
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.09    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     2.10      9.04    0.232               0.39   0.31        4.7
                   0.14      I
 I   C-ABD     0.15     10.05    0.015               0.02   0.02        0.2
                   0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------

.-----------------------------------------------------------------------------------
------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     1.25      9.03    0.139               0.20   0.16        2.5
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.10    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     1.76      9.04    0.194               0.31   0.24        3.7
                   0.14      I
 I   C-ABD     0.13     10.05    0.012               0.02   0.01        0.2
                   0.10      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
.-----------------------------------------------------------------------------------
------------------------------
*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
```

```
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.2
   08.45           0.3
   09.00           0.3
   09.15           0.2
   09.30           0.2
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.2
   08.30           0.3
   08.45           0.4
   09.00           0.4
   09.15           0.3
   09.30           0.2
.
 QUEUE FOR STREAM    C-ABD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------
 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
```

```
I        I                 I    * DELAY *        I       * DELAY *        I
I        I------------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-ACD I  137.6 I   91.8 I    18.3 I    0.13   I      18.3  I    0.13   I
I  A-B   I    0.0 I    0.0 I         I           I            I           I
I  A-C   I    0.0 I    0.0 I         I           I            I           I
I  A-D   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
I  D-ABC I  192.7 I  128.5 I    27.9 I    0.14   I      27.9  I    0.14   I
I  C-ABD I   13.8 I    9.2 I     1.4 I    0.10   I       1.4  I    0.10   I
I  C-D   I    0.0 I    0.0 I         I           I            I           I
I  C-A   I    0.0 I    0.0 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I  344.1 I  229.4 I    47.6 I    0.14   I      47.6  I    0.14   I
---------------------------------------------------------------------------
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******



.SLOPES AND INTERCEPT
 --------------------
 (NB:Streams may be combined, in which case capacity will be adjusted)

STREAM   B-C
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM B-C     STREAM  A-C          STREAM A-B        I
---------------------------------------------------------
I     688.22            0.27                0.11        I
---------------------------------------------------------


STREAM   D-A
---------------------------------------------------------
I Intercept For Slope For Opposing   Slope For Opposing I
I STREAM D-A     STREAM  C-A          STREAM C-D        I
---------------------------------------------------------
I     688.22            0.27                0.11        I
---------------------------------------------------------


STREAM   B-A

---------------------------------------------------------------------------------
--------------
```

```
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-A     STREAM  A-C          STREAM A-D         STREAM  D-A
STREAM  D-B       I

-------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.25
  0.25       I

-------------------------------------------------------------------------------------
-------------


-------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  A-B          STREAM C-A         STREAM  C-B
STREAM  D-C       I

-------------------------------------------------------------------------------------
-------------
 I                       0.10                0.16                  0.36
  0.13       I

-------------------------------------------------------------------------------------
-------------


 STREAM   D-C

-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-C     STREAM  C-A          STREAM C-B         STREAM  B-C
STREAM  B-D       I

-------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.25
  0.25       I

-------------------------------------------------------------------------------------
-------------


-------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I                STREAM  C-D          STREAM A-C         STREAM  A-D
STREAM  B-A       I

-------------------------------------------------------------------------------------
-------------
 I                       0.10                0.16                  0.36
  0.13       I

-------------------------------------------------------------------------------------
-------------


 STREAM   C-B
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM C-B     STREAM A-B          STREAM  A-C          STREAM A-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.23                0.33        I
 -----------------------------------------------------------------------------


 STREAM   A-D
 -----------------------------------------------------------------------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For OpposingI
 I STREAM A-D     STREAM C-A          STREAM  C-B          STREAM C-D        I
 -----------------------------------------------------------------------------
 I     602.92            0.23                0.33                0.23        I
 -----------------------------------------------------------------------------


 B-D Stream From Left Hand Lane

-------------------------------------------------------------------------------------
-------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D         STREAM  A-B
STREAM  C-B       I

-------------------------------------------------------------------------------------
-------------
 I     544.46            0.25                0.25                  0.10
  0.36       I

-------------------------------------------------------------------------------------
-------------


-------------------------------------------------------------------------------------
-------------
 I                Slope For Opposing   Slope For Opposing   Slope For Opposing
```

```
Slope For OpposingI
 I               STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
             I

--------------------------------------------------------------------------------------
--------------


 B-D Stream From Right Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  A-C          STREAM A-D          STREAM  A-B
STREAM  C-B       I

--------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  C-A          STREAM C-D

--------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
             I

--------------------------------------------------------------------------------------
--------------


 D-B Stream From Left Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM D-B     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
             I

--------------------------------------------------------------------------------------
--------------


 D-B Stream From Right Hand Lane

--------------------------------------------------------------------------------------
--------------
 I Intercept For Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I STREAM B-D     STREAM  C-A          STREAM C-B          STREAM  C-D
STREAM  A-D       I

--------------------------------------------------------------------------------------
--------------
 I     544.46           0.25                0.25                  0.10
  0.36       I

--------------------------------------------------------------------------------------
--------------

--------------------------------------------------------------------------------------
--------------
 I              Slope For Opposing   Slope For Opposing   Slope For Opposing
Slope For OpposingI
 I               STREAM  A-C          STREAM A-B

--------------------------------------------------------------------------------------
--------------
 I                      0.16                0.16
```

```
              I

-------------------------------------------------------------------------------------
--------------


.TRAFFIC DEMAND DATA
 -------------------
 ----------------------
 I ARM I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

.Demand set:        1016 Sen 2 PM


 TIME PERIOD BEGINS 08.00 AND ENDS  09.30

 LENGTH OF TIME PERIOD  -   90 MIN.
 LENGTH OF TIME SEGMENT -   15 MIN.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


-------------------------------------------------------------------------------------
 I        I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN)
I
 I  ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER
I
 I        I   TO RISE   I  IS REACHED I FALLING    I  PEAK  I OF PEAK I PEAK
I
 I        I             I             I            I        I         I
I

-------------------------------------------------------------------------------------
 I ARM  A I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  B I     15.00   I     45.00   I    75.00   I  0.75  I   1.13  I  0.75
I
 I ARM  C I     15.00   I     45.00   I    75.00   I  0.00  I   0.00  I  0.00
I
 I ARM  D I     15.00   I     45.00   I    75.00   I  0.63  I   0.94  I  0.63
I

-------------------------------------------------------------------------------------

.Demand set:        1016 Sen 2 PM
```

```
 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I ARM  A I ARM  B I ARM  C I ARM  D I
 --------------------------------------------------------------------
 I   08.00 - 09.30    I         I        I        I        I        I
 I                    I ARM  A  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  B  I  0.000 I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I   60.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  C  I  0.000 I  0.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I    0.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I ARM  D  I  0.000 I  1.000 I  0.000 I  0.000 I
 I                    I         I    0.0 I   50.0 I    0.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------
 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.              QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
               -----------------------------------------------------
                FOR DEMAND SET         1016 Sen 2 PM
                AND FOR TIME PERIOD       1
.---------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15
                             I
 I   B-ACD     0.75      9.07    0.083                0.00   0.09        1.3
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.63      9.07    0.069                0.00   0.07        1.1
                   0.12      I
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 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30
                             I
 I   B-ACD     0.90      9.07    0.099                0.09   0.11        1.6
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.75      9.07    0.083                0.07   0.09        1.3
                   0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45
                             I
 I   B-ACD     1.10      9.07    0.121                0.11   0.14        2.0
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.92      9.07    0.101                0.09   0.11        1.6
                   0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I        (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00
                             I
 I   B-ACD     1.10      9.07    0.121                0.14   0.14        2.1
                   0.13      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.92      9.07    0.101                0.11   0.11        1.7
                   0.12      I
 I   C-ABD     0.00      9.14    0.000                0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15
                             I
 I   B-ACD     0.90      9.07    0.099               0.14   0.11        1.7
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.75      9.07    0.083               0.11   0.09        1.4
                   0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
(VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 09.15-09.30
                             I
 I   B-ACD     0.75      9.07    0.083               0.11   0.09        1.4
                   0.12      I
 I   A-B       0.00
                             I
 I   A-C       0.00
                             I
 I   A-D       0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   D-ABC     0.63      9.07    0.069               0.09   0.07        1.1
                   0.12      I
 I   C-ABD     0.00      9.14    0.000               0.00   0.00        0.0
                   0.00      I
 I   C-D       0.00
                             I
 I   C-A       0.00
                             I
 I
                             I
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR
.
 QUEUE FOR STREAM    B-ACD
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    A-D
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0
   09.30           0.0
.
 QUEUE FOR STREAM    D-ABC
 -------------------------
  TIME          NO. OF
  SEGMENT       VEHICLES
  ENDING        IN QUEUE
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1
   09.30           0.1
.
 QUEUE FOR STREAM    C-ABD
```

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0
09.30	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	82.6	55.1	10.1	0.12	10.1	0.12
A-B	0.0	0.0				
A-C	0.0	0.0				
A-D	0.0	0.0	0.0	0.00	0.0	0.00
D-ABC	68.8	45.9	8.2	0.12	8.2	0.12
C-ABD	0.0	0.0	0.0	0.00	0.0	0.00
C-D	0.0	0.0				
C-A	0.0	0.0				
ALL	151.4	100.9	18.3	0.12	18.3	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN*******

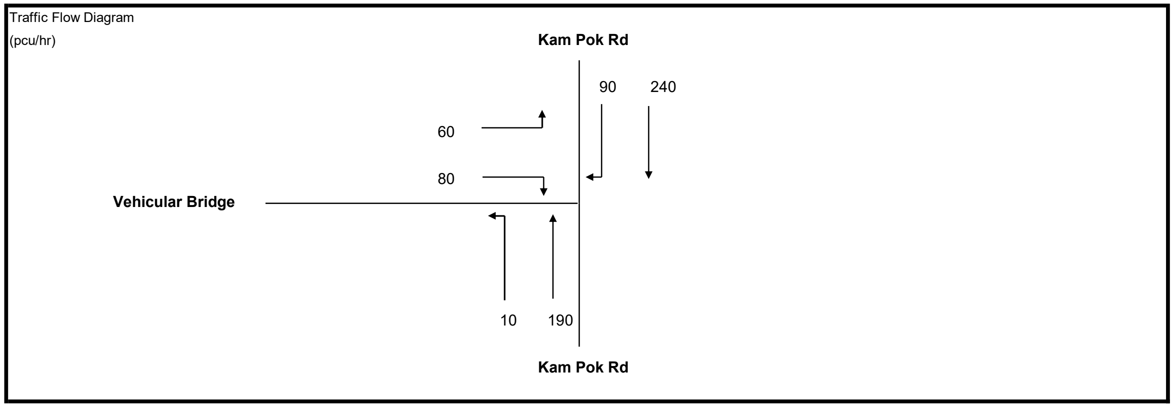
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 AM Design Flows - Sensitivity Test (II)	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Oct 24

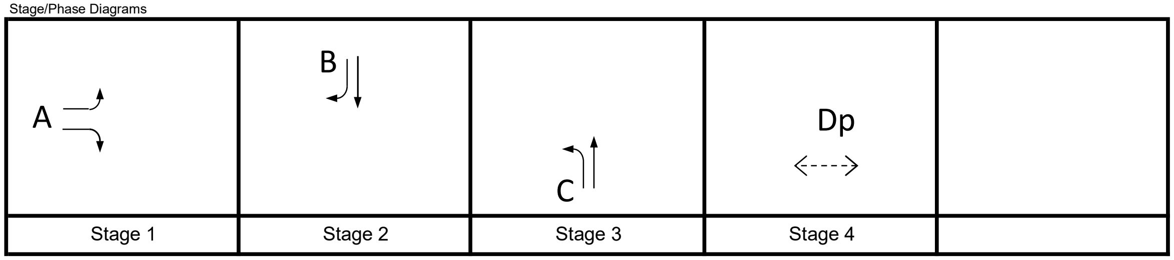
J10

Traffic Flow Diagram (pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	60	sec
Sum(y)		Y =	0.357	
Lost time		L =	28	sec
Total Flow		=	670	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	73	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	44	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	93.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	46	sec
Y_{max}	$= 1-L/C$	=	0.533	

Stage/Phase Diagrams



I/G = 5 I/G = 7 I/G = 3 G = 7 I/G = 9

Critical Case : A,B,C,Dp

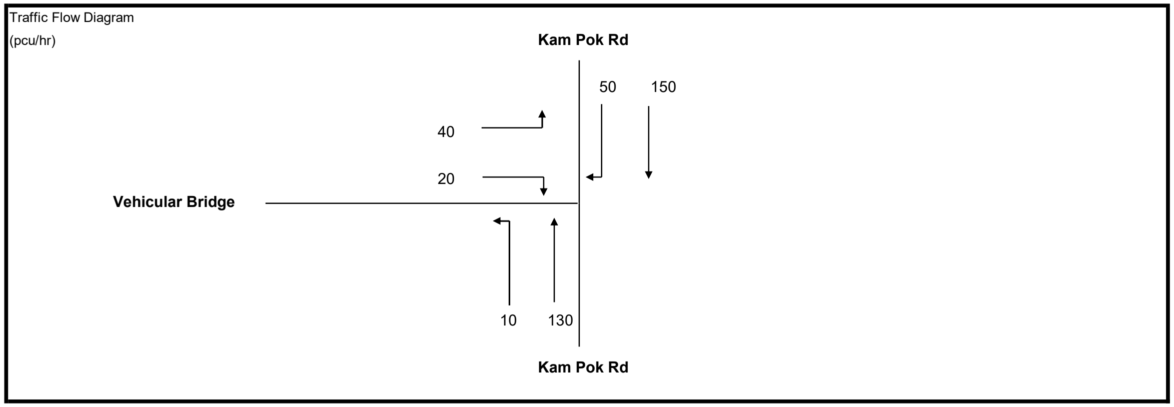
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 34%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.600	1	5	10	0	0		0		2115	60		80	140	43%	57%	1742	0.080	0.080
	B	2	3.600	1		10	0	1		0		1975		240	90	330		27%	1897	0.174	0.174
	C	3	3.600	1	5			1		0		1975	10	190		200	5%		1946	0.103	0.103
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kam Pok Road / Vehicular Bridge	2034 PM Design Flows - Sensitivity Test (II)	DESIGN: 0	CHECK: 0	JOB NO: 60XXXXXX	DATE: Oct 24

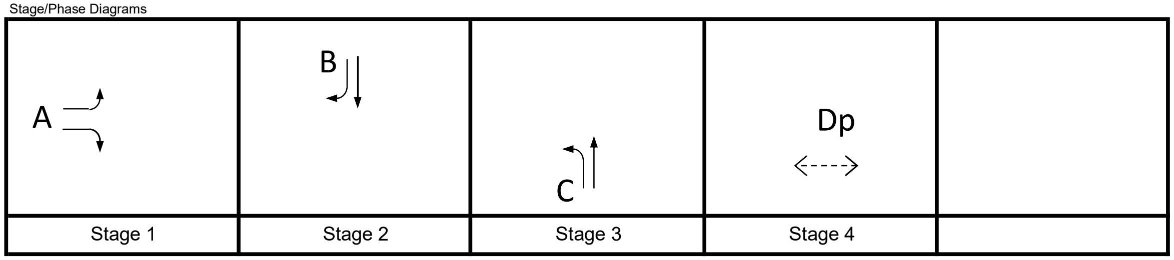


J10

No. of stages per cycle	N =	4	
Cycle time	C =	60	sec
Sum(y)	Y =	0.177	
Lost time	L =	33	sec
Total Flow	=	400	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	66	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	40	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.653	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	267.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	41	sec
Y_{max}	$= 1-L/C =$	0.450	

Stage/Phase Diagrams



G = 5 I/G = 5 I/G = 5 I/G = 4 G = 7 I/G = 9

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 128%

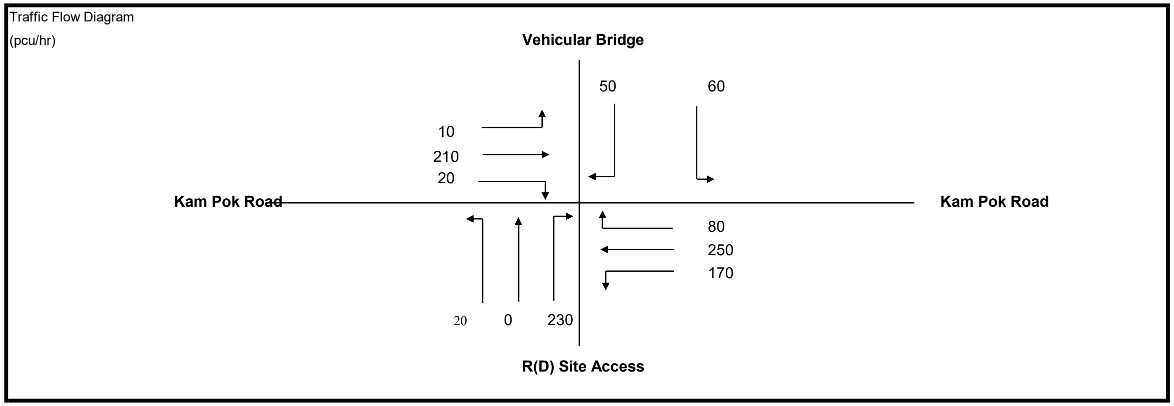
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.600	1	5	10	0	0		0		2115	40		20	60	67%	33%	1692	0.035	
	B	2	3.600	1		10	0	1		0		1975		150	50	200		25%	1904	0.105	0.105
	C	3	3.600	1	5			1		0		1975	10	130		140	7%		1934	0.072	0.072
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	7	=	14	sec												*

JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Kam Pok Road / Vehicular Bridge / R(D) Site Access	Year 2034 AM SENSITIVITY TEST II	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24

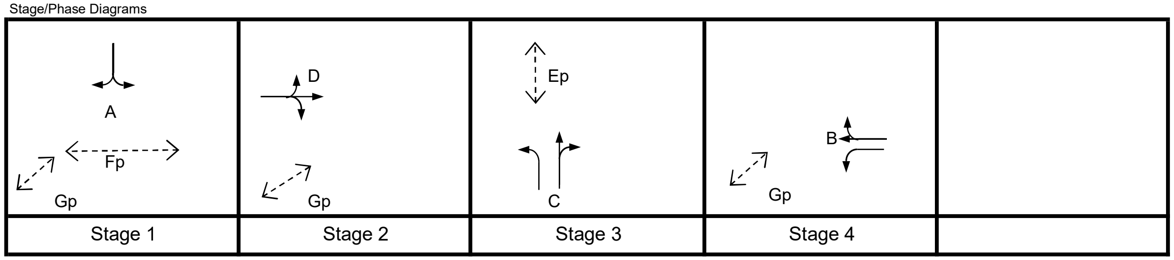
Traffic Flow Diagram
(pcu/hr)



J11

No. of stages per cycle	N =	4	
Cycle time	C =	90	sec
Sum(y)	Y =	0.427	
Lost time	L =	37	sec
Total Flow	=	1,100	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	105	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	65	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.623	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	45.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	70	sec
Y_{max}	$= 1-L/C =$	0.589	

Stage/Phase Diagrams



G = 11 I/G = 12 I/G = 5 I/G = 5 I/G = 7

Critical Case : Fp,D,C,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 24%

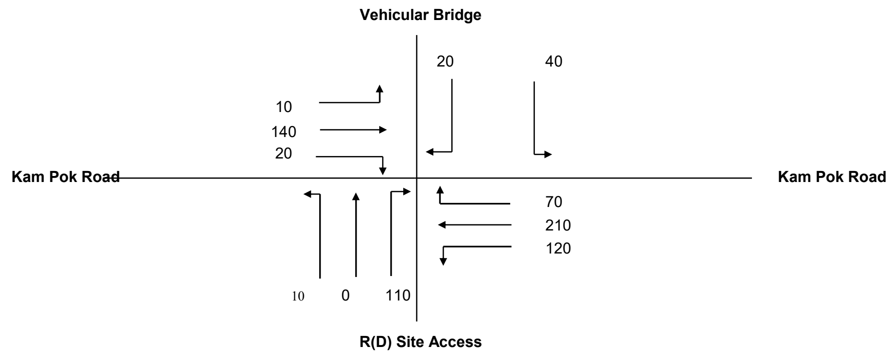
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	10	12	0	0		0		2105	60		50	110	55%	45%	1849	0.060	
	B	4	3.650	1	15			1		0		1980	170			170	100%		1800	0.094	
	B	4	3.650	1		15	0	0		0		2120		250	80	330		24%	2070	0.159	0.159
	C	3	3.000	1	12	15	0	1		0		1915	20	0	230	250	8%	92%	1738	0.144	0.144
	D	2	3.650	1	10	12	0	1		0		1980	10	210	20	240	4%	8%	1948	0.123	0.123
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	10	=	20	sec												
	Fp	1	min.	11	+	10	=	21	sec												*
	Gp	1,2,4	min.	5	+	5	=	10	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J11 - Kam Pok Road / Vehicular Bridge / R(D) Site Access	Year 2034 PM SENSITIVITY TEST II	DESIGN: 0	CHECK: 0	#VALUE!	DATE: Oct 24

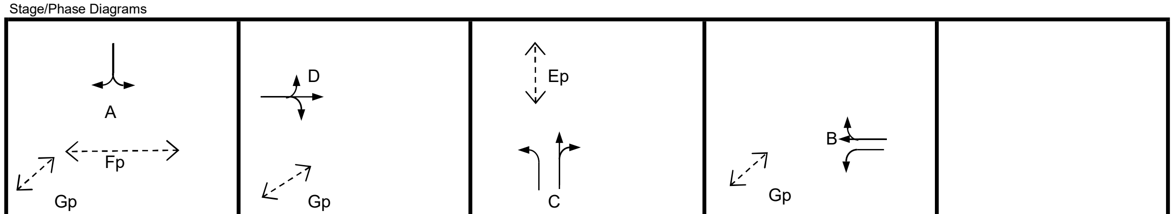
Traffic Flow Diagram
(pcu/hr)



J11

No. of stages per cycle	N =	4	
Cycle time	C =	90	sec
Sum(y)	Y =	0.292	
Lost time	L =	37	sec
Total Flow	=	750	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	85	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	52	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.623	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	113.0	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	55	sec
Y_{max} = $1-L/C$	=	0.589	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

G = 11 I/G = 12 I/G = 5 I/G = 5 I/G = 7

Critical Case : Fp,D,C,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 81%

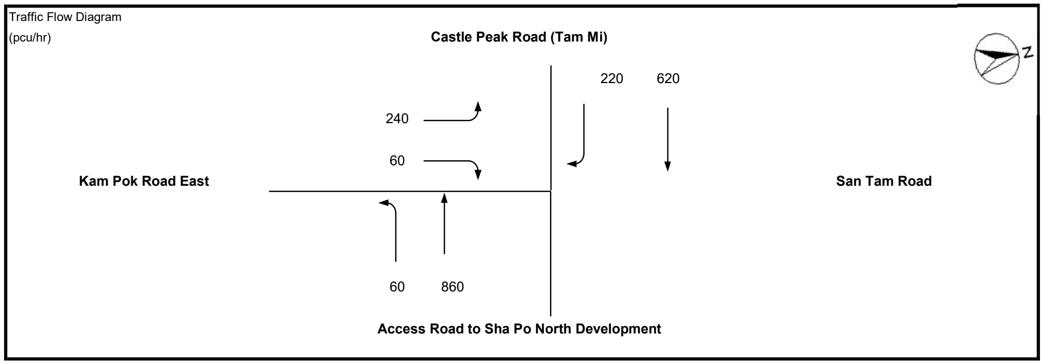
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	10	12	0	0		0		2105	40		20	60	67%	33%	1844	0.033	
	B	4	3.650	1	15			1		0		1980	120			120	100%		1800	0.067	
	B	4	3.650	1		15	0	0		0		2120		210	70	280		25%	2068	0.135	0.135
	C	3	3.000	1	12	15	0	1		0		1915	10	0	110	120	8%	92%	1738	0.069	0.069
	D	2	3.650	1	10	12	0	1		0		1980	10	140	20	170	6%	12%	1934	0.088	0.088
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	10	=	20	sec												
	Fp	1	min.	11	+	10	=	21	sec												*
	Gp	1,2,4	min.	5	+	5	=	10	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test (with Soy Factory) with Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

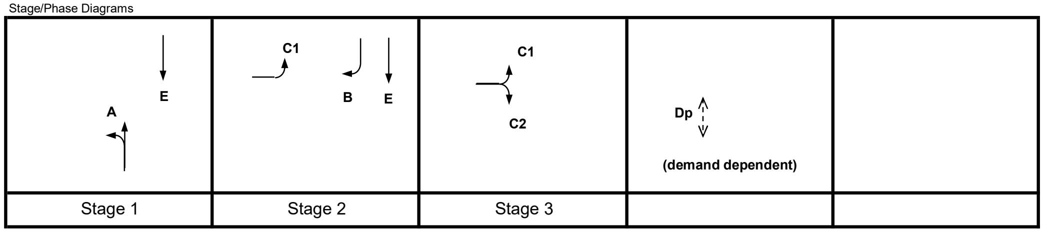
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.534	
Lost time	L =	19	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	72	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	41	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.758	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	41.9	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	47	sec
Y_{max} = $1-L/C$	=	0.810	

Stage/Phase Diagrams



I/G = 6 I/G = 5 G = 5 I/G = 5

Critical Case : A,B,C2

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 37%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	60	770		830	7%		1957	0.424	0.424
	E	1,2	3.400	1				1		0		1955		530		530			1955	0.271	
	B	2	3.500	1		30	0	0		0		2105			220	220		100%	2005	0.110	0.110
	C1	2,3	3.400	1	25			1		0		1955	240			240	100%		1844	0.130	
	C2	3	3.400	1		30	0	0		0		2095			60	60		100%	1995	0.030	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												

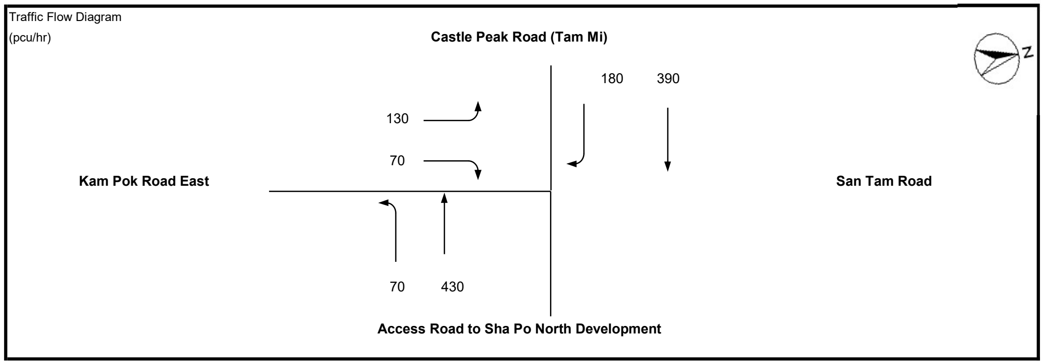
JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Castle Peak Road -Tam Mi / Kam Pok Road East	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test (with Soy Factory) with Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

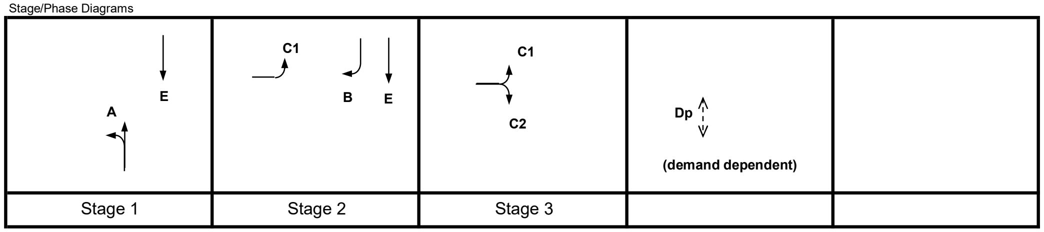
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.412	
Lost time	L =	18	sec
Total Flow	=	10,075	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	54	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	31	sec
Y_{ult}	$= 0.9-0.0075\times L$ =	0.765	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$ =	85.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$ =	33	sec
Y_{max}	= 1-L/C =	0.820	

Stage/Phase Diagrams



I/G = 6 I/G = 5 G = 5 I/G = 5

Critical Case : A,B,C2

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 79%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.500	1	25			1		0		1965	70	490		560	13%		1950	0.287	0.287
	E	1,2	3.400	1				1		0		1955		450		450			1955	0.230	
	B	2	3.500	1		30	0	0		0		2105			180	180		100%	2005	0.090	0.090
	C1	2,3	3.400	1	25			1		0		1955	130			130	100%		1844	0.070	
	C2	3	3.400	1		30	0	0		0		2095			70	70		100%	1995	0.035	0.035
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	13	+	12	=	25	sec												