立法會工務小組委員會
2017 年 11 月 15 日的會議

工務計劃項目 765CL 號

安達臣道石礦場用地發展－
道路改善及基礎建設工程

補充資料

目的

在立法會工務小組委員會2017年11月15日的會議上，委員要求政府提供以下有關安達臣道石礦場用地發展的道路改善及基礎建設工程的補充資料 －

(a) *安達臣道發展計劃及安達臣道石礦場用地發展預計私人及資助房屋單位的整體供應比例；*

(b) *就上述石礦場用地發展而言，預計有關用地的私人及資助房屋(包括公共出租房屋、居者有其屋計劃及港人首次置業先導計劃)單位的供應比例；以及各類型房屋單位的分項數目；*

(c) *擬議工程計劃的建設費用估算中，用作緩解環境影響措施和環境監察及審核計劃的分項下(共涉及3億9,770萬元)，相關的開支細目詳情及金額；*

(d) *當局早前就擬議安達臣道石礦場用地發展進行的交通影響評估的報告全文；*

(e) *當局有否因應上述用地及周邊地區的最新發展，更新有關交通影響評估；若有，最新的評估詳情為何；若否，原因為何；*

(f) *擬議工程相關的建議道路改善工程可如何緩解上述用地的發展對觀塘區交通所造成的影響；及*

(g) *就擬議工程下計劃興建的由連德道通往秀茂坪道的行車天橋，說明若在該行車天橋近藍田康華苑段興建全密封式隔音罩、半開放式隔音罩／隔音屏障，以及不興建任何隔音設施，該行車天橋的交通對康華苑居民所產生的噪音水平分別為何。*

政府回應

(a)及(b) 資助和私人房屋單位比例

有關安達臣道石礦場用地和安達臣道發展計劃的資助和私人房屋比例如下：

	資助房屋單位約數	**私人房屋單位約數**	**總數**
安達臣道石礦場用地	2 880 [1] (31%)	6 530 (69%)	9 410 (100%)
安達臣道發展計劃（即毗鄰石礦場用地的安達邨及安泰邨）	17 920 [2] (100%)	0 (0%)	17 920 (100%)
	20 800 (76%)	6 530 (24%)	27 330 (100%)

1 包括擬在「港人首次置業先導計劃」下提供的 1 000 個單位及 1 880 個居屋單位。
2 全數為出租公屋單位。

(c) 緩解環境影響措施和環境監察及審核計劃的開支細目

2. 我們會根據已批准的環境影響評估報告（環評報告）及環境許可證的要求，就擬議工程實施環境影響緩解措施及推行環境監察及審核計劃。建議的噪音緩解措施主要包括在行車道路安裝隔音屏障／隔音罩，有關設計符合《環境影響評估條例》及《環評程序的技術備忘錄》內有關控制擬議道路工程所產生的噪音影

響的準則。至於施工期間，我們會採取緩解措施控制塵埃、噪音和地面流出的廢水，並使用低噪音機器和寧靜作業方法。

3. 我們估計上述措施所需費用共約 3 億 9,770 萬元，有關分項詳見如下：

	百萬元 （按 2017 年 9 月價格計算）
行車道路安裝隔音屏障／隔音罩 (i) 連德道／秀茂坪道路口 (ii) 安秀道／清水灣道路口 (iii) 新清水灣道	 121.2 122.0 100.3
安裝隔音屏障／隔音罩總計	343.5
施工期間實施的緩解環境影響措施和環境監察及審核計劃	54.2
總計	**397.7**

(d)、(e)及(f) 交通影響評估

4. 石礦場用地發展的顧問在 2016 年完成的交通影響評估報告載於**附件一**。由於該評估報告超過 400 頁，為減少用紙，我們建議存放一份完整的資料於立法會秘書處，供議員參閱；並同時提供有關電子複本，以便秘書處向議員提供超連結。

5. 有關交通影響評估的目的，是評估石礦場用地發展所產生的交通影響，並建議相關道路改善措施，以應付未來的交通需求。有關交通影響已計及安達臣道發展計劃所產生的交通流量，並採用以下方法進行評估－

(i) 搜集當時（即 2014 年）交通情況的數據，建立及測試石礦場用地發展區的地區交通模型。交通模型涵蓋觀塘區內所有主要道路和主要路口。

(ii) 搜集不同類型物業的交通出行率，以估算發展區內未來不同發展的交通出行量，同時亦應用最新的全港規劃數據和運用全港交通模型，提供初步預測數據，再以地區交通模型預測當區的遠期（即 2026 年）交通情況，找出可能會出現交通問題的路口。

(iii) 利用交通模型測試不同改善方法，並建議長期改善措施，最後建立綜合的長期交通運輸改善計劃。

6. 就石礦場用地及周邊地區的最新發展情況（主要包括已入伙的安達邨），我們審視了相關的規劃和交通流量資料，結果顯示與上述交通影響評估報告中相關的估算相約。一如以往，政府亦會因應香港的社會和經濟發展，以及交通需求的變化，適時推展道路基建項目以完善地區的交通網絡。

7. 另一方面，有關交通影響評估的結論顯示，需要實施數項道路／路口改善工程，以確保石礦場用地發展產生的交通流量不會對觀塘的交通造成不可接受的影響。所有有關改善工程已納入是次撥款申請，例如現有秀茂坪道與連德道的燈號控制路口將不能應付未來的新增車流，因此我們建議連德道與秀茂坪道的道路改善工程，包括興建一條長約 390 米，由連德道通往秀茂坪道的新行車天橋；及於連德道近藍田康華苑及興田邨的路段加長路旁上落客處。在興建新行車天橋後，連德道與秀茂坪道的路口將會由燈控路口改為無阻行車路口，令車輛可以直接由秀茂坪道右轉往將軍澳道。此外，清水灣道近順利邨道一段往九龍方向車道，將會由單線行車擴闊至雙線行車，可解決現時該樽頸路段出現車龍的問題。

<u>(g) 隔音設施</u>

8. 擬建連德道行車天橋近藍田康華苑段隔音屏障將採用懸臂式隔音屏障設計，有關設計符合《環境影響評估條例》及《環評程序的技術備忘錄》內有關控制擬議道路工程所產生的噪音影響的準則。另外，在噪音緩解效果方面，全密封式隔音罩對受影

響的單位沒有明顯的額外隔音功效，因此在考慮建築成本和隔音成效後，我們認為興建懸臂式隔音屏障是最能符合成本效益。

附件

附件一 石礦場用地發展交通影響評估報告
（此報告已存放於立法會秘書處）

發展局
土木工程拓展署
2017 年 11 月 28 日

附件一

AECOM Transportation

Traffic Review Report (Final)

(Ref. B9) – Issue 2

January 2016

土木工程拓展署
CEDD Civil Engineering and Development Department

Agreement No. CE 10/2014 (CE)

Development of Anderson Road Quarry Site – Investigation, Design and Construction

土木工程拓展署
CEDD Civil Engineering and Development Department
New Territories East Development Office

Agreement No. CE 10/2014 (CE)
Development of Anderson Road Quarry Site –
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Traffic Review Report (Final)

(Ref. B9) – Issue 2

January 2016

Reviewed:	Kelvin Cheng	20 January 2016
Approved for Issue:	Simon Illingworth	20 January 2016

AECOM ASIA COMPANY LIMITED

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1 BACKGROUND

1.1 Background

1.1.1 AECOM Asia Co. Ltd. ("AECOM") has been commissioned by Civil Engineering and Development Department (CEDD) on 18 July 2014 to undertake Assignment No. CE10/2014(CE) – Development of Anderson Road Quarry Site – Investigation, Design and Construction (hereinafter referred to as "the Project"). The location of the Development of Anderson Road Quarry Site (ARQ) is shown in **Figure 1.1**.

1.1.2 According to Clause 6.2.7 of the Brief of this Project, the Traffic Review Report (TRR) shall be prepared to review the Traffic Impact Assessment (TIA) carried out under the Feasibility Study for Development of Anderson Road Quarry site project (the FS) under Agreement no. CE18/2012(CE), and shall update the parameters and assumptions, update the TIA findings, and proposed necessary alternative or further traffic improvement measures.

1.1.3 To agree the general approach of the TRR in earlier stage, a Working Paper on Methodology and Approach of Traffic Survey and Modeling (Ref: WP06) was issued in September 2014. WP06 summarized and presented the proposed traffic survey approaches, transport forecast methodologies and model input assumptions for seeking the agreement with relevant government departments. Comments on WP06 were subsequently received from the concerned departments, and were taken into account in the traffic survey and traffic forecast for the TRR.

1.1.4 In view that increase of housing supply is one of the major government policy. The potential increase in population in ARQ was studied under this Project. The upper bound of the possible population increase was investigated by taking into consideration the identified constraints and limitations. [redacted]

1.1.5 The Brief Note on Preliminary Traffic Review was issued in December 2014 to summarize the preliminary findings/results of the traffic forecast and traffic assessment under the cases of original 25,000 [redacted]. Comments on the Brief Note were subsequently received from Transport Department and were incorporated into this TRR.

1.1.6 The Traffic Review Report (Final) was issued in May 2015, comments were subsequently received from various concerned departments. The table incorporating the responses to comments is enclosed in **Appendix F**.

1.2 Structure of This Working Paper

1.2.1 Apart from this introductory section, there are other sections of the report as follows:

- Section 2 summarizes the development schedule of ARQ;
- Section 3 reviews the existing traffic condition;

- Section 4 presents the modeling methodology and traffic forecast;
- Section 5 shows the traffic impact assessment results for population of 25,000;
- [redacted]
- Section 7 describes the ARQ internal road layout and traffic impact assessment;
- Section 8 discussed the construction impact assessment;
- Section 9 summarizes the existing public transport services and recommends the public transport services for ARQ;
- [redacted]
- Section 11 presents the conclusion.

2 DEVELOPMENT SCHEDULE OF ARQ

2.1 Development Schedule under the RODP

2.1.1 In accordance with the Agreement No. CE 4/2010 (TP) Planning Study on Future Land Use at Anderson Road Quarry – Feasibility Study, the Recommended Outline Development Plan (RODP) was based on a planned population of 25,000 and a private-to-subsidized housing ratio of 80:20. The development schedule of Residential, Commercial, Government, Institution or Community (G/IC) uses in ARQ were extracted from the Final Report of the said study. The development schedule of all land use zonings in the RODP is shown in **Appendix A** for easy reference. Among the commercial sites, the two cavern developments (C-2 and C-3) were deleted in this stage owing to the uncertainty of financial viability. Meanwhile, a cavern site located to the north of the ARQ Public Transport Terminus (as shown in the layout plan in **Appendix A**) was proposed for exhibition or similar nature. The updated development schedule of various land uses in ARQ is presented in **Table 2.1**.

Table 2.1 Development Schedule of Residential, Commercial and G/IC Uses in ARQ

Zoning	Site No.	Area (ha)	GFA (m^2)	Approx. No. of Flats	Remark
Residential Special	RS-1	1.49	94,000	1,880	Subsidized Housing
	Sub-total	*1.49*	*94,000*	*1,880*	---
Residential Zone 2	R2-1	0.53	24,100	400	Private Housing
	R2-2	1.82	69,300	1,160	Private Housing
	R2-3	0.60	18,000	300	Private Housing
	R2-4	1.07	48,000	800	Private Housing
	R2-5	1.52	57,800	960	Private Housing
	R2-6	0.90	49,500	830	Private Housing
	R2-7	0.60	21,100	350	Private Housing
	R2-8	1.69	67,400	1,120	Private Housing
	R2-9	1.06	53,200	890	Private Housing
	R2-10	0.95	42,900	720	Private Housing
	Sub-total	*10.75*	*451,300*	*7,530*	---
Commercial	C-1	0.09	450	---	---
	C-4	0.56	12,400	---	---
	C-5	0.44	9,800	---	---
	Sub-total	*1.09*	*22,650*	---	---
G/IC	E-1	0.62	---	---	Primary School
	E-2	0.62	---	---	Primary School
	E-3	0.72	---	---	Secondary School
	G-1	0.83	---	---	Sports and Recreational Facilities
	G-2	0.31	---	---	Police Station

Zoning	Site No.	Area (ha)	GFA (m^2)	Approx. No. of Flats	Remark
G/IC	G-3	0.31	---	---	Fire Station
	G-4	0.07	---	---	Refuse Collection Point
	G/IC-1	0.21	---	---	Community Hall and Social Services Facilities
	Sub-total	3.68	---	---	---
Cavern	---	---	Exhibition Area: 1,000 m^2	---	Exhibition Centre or similar nature

3 EXISTING TRAFFIC CONDITION

3.1 The Subject Site and Its Connection to External Road Network

3.1.1 ARQ is surrounded by Po Lam Road to the south, DAR to the southwest / west and Clear Water Bay Road to the north. To link up ARQ and the external road network, two access points for ARQ would be provided.

3.1.2 The eastern access point would be directly connected to Po Lam Road, which would allow the majority of traffic generated by ARQ to travel to the strategic highway network such as Tseung Kwan O Road and Kwun Tong Bypass for further access to the neighbouring districts.

3.1.3 The western access point would be linked to the internal road in DAR, i.e. On Sau Road (OSR), which would serve as the alternative access to the external road network that allow the traffic to access to CWBR and Lung Cheung Road. This access is considered important for maintaining the connection to the external road network in case of any accident or emergency situation occurred along the eastern route to TKOR.

3.2 Traffic Survey and Traffic Assessment for Existing Condition

3.2.1 Traffic surveys including manual traffic count survey and queue length survey were conducted at the nearby key junctions. The survey approaches were previously presented in the Working Paper on Methodology and Approach of Traffic Survey and Modeling (Ref: WP06) under this I,D&C Stage and additional junctions were surveyed based on the comments provided by Transport Department (TD) on the said WP06. The overall plan showing the assessed junctions is illustrated in **Figure 3.1A**, and the existing junction layouts are presented in **Figure 3.2** to **3.9** and **3.10A**.

3.2.2 The traffic surveys were conducted during 07:30 – 08:30 and 17:00 – 20:00 on a normal weekday in September 2014. It should be noted the survey period in evening peak had already included 19:00 - 20:00 in order to address TD's concern on the heavy traffic found on a number or roads during this period. Based on survey results, the morning and evening peak hour periods were found to be 07:45 – 08:45 and 17:30 – 18:30 respectively. The existing traffic flows are shown in **Figure 3.11** and **3.12B**.

3.2.3 The existing link performances for the major strategic links in the vicinity of ARQ were assessed based on the observed traffic flow. The link performances are represented by traffic volume / capacity ratio (v/c ratio) and are summarized in **Table 3.1**.

Table 3.1 Existing Critical Link Performance

Road	Section	Capacity (pcu/hr)	Flow (pcu/hr)	v/c ratio(1)
Clear Water Bay Road WB	Between Lung Cheung Road and PTI	5,400	4,280	0.79
	Outside PTI (middle and far side free flow lanes)	3,600	2,880	0.80
	Adjacent to the Ramp to No. 8 Clear Water Bay Road	3,600	3,420	0.95
Slip Road to Tseung Kwan O Road WB	Between Lin Tak Road and Tseung Kwan O Road (1-lane section)	1,800	1,570	0.87
Tseung Kwan O Road WB	Between Kai Tin Road and Lin Tak Road	4,800	5,440	1.13
New Clear Water Bay Road WB	Between Shun Lee Tsuen Road and San Lee Street	1,800	1,590	0.88

Note: (1) For v/c ratio between 0.75 and 1.0, traffic is in well used flow conditions where travel speeds are reduced by increasing traffic volumes. For v/c ratio between 1.0 and 1.2, travel speeds substantially reduced and are highly variable and unpredictable. For v/c ratio > 1.2 forced or breakdown flow condition and Crawling travel speed is observed.

3.2.4 It is found from **Table 3.1** that the v/c ratio of several critical sections of Clear Water Bay Road WB, the slip road to Tseung Kwan O Road WB and New Clear Water Bay Road WB are currently greater than 0.75 but below 1.0. For v/c ratio between 0.75 and 1.0, it represents a well used flow condition but minor disruptions may cause local congestion with traffic queues, which is considered acceptable.

3.2.5 The v/c ratio of existing Tseung Kwan O Road WB is greater than 1.0 but below 1.2, which refers to the unstable flow conditions and minor disruptions will cause substantial congestion with long traffic queues. It is expected that the link performance would be improved after the commissioning of Tseung Kwan O – Lam Tin Tunnel.

3.2.6 Apart from the link capacity analysis, the existing performances of the junctions were also assessed based on the observed traffic flows. Reserve Capacity (RC) in % was used to indicate the performance of signalized junctions, while design flow / capacity ratio (DFC) was adopted to present the performance of roundabouts and priority junctions.

3.2.7 When the observed queue length was found greater than the theoretical queue length calculated from the observed flows, it represented that the observed flows may not be reflecting the actual demand due to the downstream blockage. In order to present the junction performance close to the real situation, the queue length observed in the last signal cycle during the peak hour period (which was not counted in the peak hour flows) was added to the traffic flows in the junction assessment calculation. The existing junction performances are presented in **Table 3.2**. The detailed calculation sheets are shown in **Appendix B**.

Table 3.2 Existing Junction Performance

No.	Junction Name	Junction Type[(1)]	RC[(2)] (in %) / DFC[(3)]	
			AM	PM
J1	New Clear Water Bay Road / Clear Water Bay Road (Eastern)	S	31%	70%
J2	Lee On Road / Shun On Road	S	27%	88%
J3	Sau Mau Ping Road / Hip Wo Street	S	45%	94%
J4	Sau Mau Ping Road / Shun On Road	S	49%	64%
J5	Hip Wo Street / Hong Ning Road	S	6%	35%
J6	Hong Ning Road / Chun Wah Road	S	25%	49%
J7	Hip Wo Street / Sau Nga Road	S	18%	30%
J8	Hip Wo Street / Hui Kwong Street	S	13%	13%
J9	Hip Wo Street / Mut Wah Street / Yuet Wah Street	S	34%	64%
J10	Kwun Tong Road / Hong Ning Road	S	36%	45%
J11	Kwun Tong Road / Hip Wo Street	R	0.90	0.94
J12	Lei Yue Mun Road / Tseung Kwan O Road	S	27%	36%
J13	Sau Mau Ping Road / Sau Fung Street	S	77%	>100%
J14	Sau Mau Ping Road / Sau Ming Street	S	28%	27%
J15	Clear Water Bay Road / Lung Cheung Road	S	18%	18%
J16	New Clear Water Bay Road / Clear Water Bay Road (Western)	S	23%	35%
J17	Po Lam Road / Sau Mau Ping Road	S	57%	98%
J18	Po Lam Road / Access Road to Po Tat Estate	S	88%	>100%
J19	Po Lam Road / On Sau Road	S	0.32	0.20

No.	Junction Name	Junction Type(1)	RC(2) (in %) / DFC(3)	
			AM	PM
J20	Hiu Kwong Street / Sau Mau Ping Road	R	0.50	0.60
J21	Lin Tak Road / Slip Road to Tseung Kwan O Road	S	**-5%**	53%
J22	Clear Water Bay Road / On Sau Road	S	32%	74%
J23	New Clear Water Bay Road / Lee On Road	S	55%	88%
J24	Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harbour Crossing	R	0.96	**1.10**
J25	Kwun Tong Road / Tsui Ping Road	S	22%	22%
J26	New Clear Water Bay Road / San Lee Street	P	0.42	0.41
J27	Lin Tak Road / Pik Wan Road	R	0.64	0.52
J28	New Clear Water Bay Road / Choi Hung Lane	S	30%	27%
J29	Kwun Tong Road / Cha Kwo Ling Road	S	18%	24%
J45	Clear Water Bay Road / Fung Shing Street	S	16%	20%
J46	Choi Ha Road / Slip Road to Kwun Tong	S	>100%	>100%
J47	Hip Wo Street / Wan Hon Street	S	27%	28%
J48	Hoi Yuen Road / Shing Yip Street / How Ming Street	S	92%	76%
J51	Po Lam Road / Tsui Ping Road / Ma Yau Tong Road	S	17%	45%

Note:

(1) S - Signalized Junction, R – Roundabout, P – Priority Junction
(2) RC < 0% indicates congestion. RC ≥ 5% indicates that most vehicles will be able to clear the junction without waiting for more than one traffic signal cycle.
(3) DFC = 1.0 indicates continual queuing and could not be considered acceptable. DFC = 0.85 indicates that queuing would theoretically be avoided in 85% of cases, can be considered reasonable. DFC = 0.7 indicates that queuing will be avoided in 95% of cases.

3.2.8 From **Table 3.2**, all the existing junctions are operating within the capacities except J/O Lin Tak Road / Slip Road to Tseung Kwan O Road (J21) and J/O Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harbour Crossing (J24). In particular for J21, long traffic queue at Lin Tak Road / Sau Mau Ping Road eastbound approach was observed during morning commuting peak and the longest queue reached the upstream junction with Hiu Kwong Street. According to our site survey, the time having long queue lasted for around 45 minutes only and the queue dropped sharply within the morning peak hour period.

4 TRANSPORT MODELLING AND FORECASTS

4.1 Design Year

4.1.1 The Project is scheduled for commencing the site formation and infrastructural works at ARQ site in 2016, and providing land for land disposal and building construction of the subsidized housing development in 2018/2019. The initial population intake is anticipated in 2022. It is assumed that the intake of the 25,000 population of ARQ as in the original RODP would be in 2026, therefore year 2026 is adopted as the design year.

[redacted]

4.2 Overall Traffic Modelling Approach

Background

4.2.1 The detailed traffic modelling assumptions, approach and methodology for the Study were discussed in “Working Paper on Methodology and Approach of Traffic Survey and Modelling (Ref. WP06)” which was circulated in September 2014. No major comment on the working paper was received.

Model Structure and Coverage

4.2.2 The main purpose of establishing a transport demand model for the Assignment is to estimate the traffic activities within the AOI and to determine the demand and requirement of the transport infrastructure. The transport demand model incorporates the 2011-based TPEDM including the demographic and land use data, socio-economic characteristics, highway infrastructure, railway network assumptions, etc.

4.2.3 To produce robust traffic forecasts that would be responsive to dynamic changes in future land use and infrastructure development, a two-tier modelling approach is proposed for this Assignment. The two-tier model structure comprises a strategic territorial model in the upper tier and a local area traffic model in the lower tier. The upper tier strategic model follows a 4-stage multi-modal modelling process to produce cordoned matrices for input into the lower tier local area traffic model.

Strategic Territorial Model (STM)

4.2.4 AECOM’s in-house strategic transport demand model (in EMME platform) that covers the entire HKSAR territory was applied. This model has the architecture of a conventional 4-stage transport model that involves the four basic stages of Trip Generation, Trip Distribution, Modal Split and Assignment. It is well established to meet the particular requirements of HKSAR and is compatible with the Enhanced CTS-3 Model both in terms of model structure and validation criteria.

4.2.5 For this Assignment, our strategic transport demand model has been reviewed and refined, and also incorporated the latest 2011-based TPEDM in Planning Data Zones (PDZ) 454-zone system. In addition, the STM has also incorporated the latest travel characteristics for people and good vehicles from the “Travel Characteristics Survey 2011” (TCS2011), “Good Vehicle Travel Characteristic Survey 2011” (GVTCS2011), latest cross boundary travel survey data and 2011 Population Census.

Local Area Traffic Model (LATM)

4.2.6 The highway-based local area traffic model was developed (in SATURN platform) which is equipped with detailed junction simulation capability. This allows traffic behaviour at junctions including junction delays, traffic queues and platoon effects to be taken into account in a combined traffic simulation and assignment process.

4.2.7 Base District Traffic Models (BDTMs) was used as starting point for the LATM development. The latest version of BDTMs is “2008 BDTMs – 2009 update” which validated to 2008 base year traffic conditions. This would enable the traffic route choice patterns and any congestion or access issues to be properly accounted for in the traffic assignment process.

4.2.8 The latest version of BDTM zoning system was disaggregated from the PDZ zone system. It is generally of sufficient details in relation to the land use data available for disaggregation and is of reasonable fineness to represent the traffic movements within the AOI. The LATM zoning system adopted the BDTM zoning system initially and then adjusted and refined to match the PDZ454 zone system, and also refined to better replicate the local traffic movements and to improve the accuracy of the modelled results within the AOI.

4.2.9 The LATM was developed and validated to year 2014 traffic condition representing the morning peak (AM) and afternoon peak (PM) relevant to the AOI.

4.3 Modeling Assumptions

4.3.1 The agreed planning data and network assumptions for the assessment year 2026 under this TIA (as discussed in the “Working Paper on Methodology and Approach of Traffic Survey and Modelling (Ref. WP06)”) are listed below and are tabulated in **Tables 4.1** to **4.6**:

- 2011 Demographic and Employment Data based on 2011-based TPEDM
- Design Years’ Planning Data based on 2011-based TPEDM
- Strategic Highway Network Assumptions for the Design Years
- Railway Network Assumptions for the Design Years

Table 4.1 2011 Demographic and Employment Data based on 2011-based TPEDM

[redacted]

Table 4.2 Design Years' Planning Data based on 2011-based TPEDM

[redacted]

Table 4.3 Design Years' Planning Data based on 2011-based TPEDM (Con'd)

[redacted]

Table 4.4 Strategic Highway Network Assumptions for the Design Years

2016 Road network assumptions (in addition to 2011 network)	Configuration
Hong Kong	
No new projects	
Kowloon	
No new projects	
New Territories	
Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling (Stage 1 – Section between Island House Interchange and Tai Hang)	D4
Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road	D3
Reconstruction and Improvement to Tuen Mun Road	D3
Tuen Mun – Chek Lap Kok Link Southern Connection (Southern Connection to Urban)	D2
Traffic Improvement to Tuen Mun Road (Town Centre Section)	D3
Cross Boundary	
Hong Kong – Zhuhai – Macao Bridge	D3
2021 Road network assumptions (in addition to 2016 network)	**Configuration**
Hong Kong	
Road P2 and realigned Hung Hing Road on Wan Chai Development Phase II	D2
Road P1, P2 and Distributor Roads on Central Reclamation Phase III	D2*
Central – Wan Chai Bypass and Island Eastern Corridor Link	D3/D4*
Island Eastern Corridor Improvement between Causeway Bay and North Point	D4/D5*
Kowloon	
Route 6 (formerly Route 11) – Central Kowloon Route	D3
Proposed Road Improvement Works in West Kowloon Reclamation Development	Add 1 lane slip road
New Territories	
Dualling of Hiram's Highway between Clear Water Bay Road and Marina Cove	D2
Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling (Stage 2 – Section between Tai Hang and Wo Hop Shek Interchange)	D4
Route 6 (formerly Route 11) Tseung Kwan O – Lam Tin Tunnel	D2
Cross Bay Link at Tseung Kwan O	D2
Tuen Mun – Chek Lap Kok Link Southern Connection (Southern Connection to Tung Chung)	D2
Tuen Mun – Chek Lap Kok Link Northern Connection	D2
Widening of Castle Peak Road (Castle Peak Bay Section)	D2
Link Road to Liantang/Heung Yuen Wai Cross-Boundary Control Point	D2
Widening of section of Lin Ma Hang Road between Ping Che Road and Tsung Yuen Ha	S2
Widening of Fuk Hang Tsuen Road	S2
Improvement of Fan Kam Road	S2

Table 4.5 Strategic Highway Network Assumptions for the Design Years (Cont'd)

2026 Road network assumptions (in addition to 2021 network)	**Configuration**
Hong Kong	
No new projects	
Kowloon	
Route 6 (formerly Route 11) – Trunk Road T2 (Kai Tak – Cha Kwo Ling Link)	D2
Widening of Gascoigne Road Flyover	D2
New Territories	
Dualling of Hiram's Highway between Marina Cove and Sai Kung Town	D2
Tsuen Wan Bypass, Widening of Tsuen Wan Road between Tsuen Tsing Interchange and Kwai Tsing Interchange and Associated Junction Improvement Works Widening	Add 2 lanes per direction
Tuen Mun Western Bypass(1)	D2
Lantau Road P1 between Sham Shui Kok and Sunny Bay	D2
Widening of Fanling Highway between Pak Shek Au Interchange and Po Shek Wu Interchange	D4
Widening of Tai Po Road (existing remaining D2 Shatin section)	D3
Beyond year 2031 Road network assumptions (in addition to 2026 network)	**Configuration**
No new projects	

Note: The implementation program of Sha Tin Trunk Road T4 with dual-2 carriageway is still uncertain. Thus, it would not be included in this study.

* The configuration of these proposed highways vary at different sections of the roads.

(1) For the highway projects "Tuen Mun Western Bypass" where without available implementation program, it is proposed to assume that they will be in placed in year 2026. These highway projects are far away from the study area, it is considered that the operation of these infrastructures will not have any significant impact to the traffic pattern in the study area.

Table 4.6 Railway Network Assumptions for the Design Years

By 2016 (in addition to 2011 rail network)
Kwun Tong Line Extension
West Island Line (from Sheung Wan to Kennedy Town)
South Island Line (East)
Guangzhou – Shenzhen – Hong Kong Express Rail Link (Hong Kong Section)
By 2021 (in addition to 2016 rail network)
Shatin to Central Link (East-West Line)
Shatin to Central Link (North-South Line)
By 2026 (in addition to 2021 rail network)
Hung Shui Kiu Station(1)
Kwu Tung Station(1) Tung Chung West Extension(1) South Island Line (West)(1) Tuen Mun South Extension(1) Northern Link (Between Kam Sheung Road Station and Kwu Tung Station)(1)
Beyond year 2031 (in addition to 2026 rail network)
North Island Line(1)

Note:
(1) Referring to the RDS2U's website (http://www.ourfuturerailway.hk/), it is noted that the Stage 1 public engagement exercise between April and July 2012, the government put forward three major regional railway corridors including the Hong Kong-Shenzhen Western Express Line (WEL), Northern Link (NOL) and Coastal Railway between Tuen Mun and Tsuen Wan. Afterward, the Stage 2 public engagement exercise to discuss the local enhancement schemes including North Island Line, Siu Sai Wan Line, South Island Line (West), Tuen Mun South Extension, Hung Shui Kiu Station, Tung Chung West Extension and Kwu Tung Station. In view of the on-going study of RDS2U, it has not made any commitment of new railway lines during the public engagement exercise Stage 1 and 2. With considering the available information and completion years of railway lines, the updated railway network assumptions are shown above for this assessment.
On the other hand, the proposed Tung Chung East Station is being studied by CEDD & PlanD in their Tung Chung New Town Extension Study. We are understand that the implication of the proposed Tung Chung East Station would not cause any significant change on the traffic volume within the study area. Thus, it would not be included on the above railway network assumptions.
Regarding the implementation programme of WEL, we understand that it would be completed far beyond the year 2036. Thus, it would not be included as well.

4.3.2 With reference to the major study within the AOI, there are 18 major developments to be planned and proposed in the vicinity as shown in **Figure 4.1A** and **4.2**. The 2011-based TPEDM have incorporated most of the latest development in the area of Kowloon East and Tseung Kwan O. Thus, the dynamic changes in future land use are sufficient reflected on the people travel behaviour in the strategic territorial model. The completion year and the incorporation of each major development are summarized in **Table 4.7**.

Table 4.7 Committed/Planned Major Developments in the Vicinity

Development	Completion Year	Incorporated in Design Years (Yes or No)	
		2026	2031
Kai Tak Development (adopt RODP/4)	Fully completed on or before year 2026	Yes	Yes
Ha Yuen Leng Development located between Diamond Hill and San Po Kong(1)	Fully completed on or before year 2026	Yes	Yes
Kwun Tong Town Centre Redevelopment(2)	Fully completed on or before year 2026	Yes	Yes
Cha Kwo Ling Kaolin Mine Site Development	Fully completed on or before year 2026	Yes	Yes
Yau Tong Bay Development(3)	Fully completed on or before year 2021	Yes	Yes
Anderson Road Development(4)	Fully completed on or before year 2021	Yes	Yes
Energizing Kowloon East(5)	Fully completed on or before year 2031	Partially(5)	Yes(5)
Lei Yue Mun Path Development(6)	Fully completed on or before year 2021	Yes	Yes
Pik Wan Road / Ko Chiu Road Development (7)	Fully completed on or before year 2021	Yes	Yes
Choi Hing Road Development(8)	Fully completed on or before year 2021	Yes	Yes
Development near Po Tat Estate, Po Lam Road(9)	Fully completed on or before year 2021	Yes	Yes
Ngau Chi Wan CDA Site (10)	Fully completed on or before year 2031	Yes(10)	Yes
Choi Wing Road Development(11)	Fully completed on or before year 2021	Yes	Yes
Hiu Ming Street Development(12)	Fully completed on or before year 2021	Yes	Yes
Tseung Kwan O Town Centre South(13)	Fully completed on or before year 2021	Yes	Yes
Tseung Kwan O Area 85(14)	Fully completed on or before year 2021	Yes	Yes
Tseung Kwan O Area 86 (Lohas Park)(15)	Fully completed on or before year 2021	Yes	Yes
Tseung Kwan O Area 137(16)	Fully completed on or before year 2021	Yes	Yes

Note: (1) The site falls within an area zoned "Comprehensive Development Area" on the approved Tsz Wan Shan, Diamond Hill and San Po Kong Outline Zoning Plan (OZP) No. S/K11/26. A large part of the Comprehensive Development Area site is currently being used as works sites for Shatin to Central Link (SCL) project until 2018/19 and can be released for development afterwards. The assumptions will adopt OZP Plan No. S/K11/26.
(2) The assumptions will adopt OZP Plan No. S/K14S/URA1/2.
(3) The assumptions will adopt Outline Zoning Plan (OZP) No. S/K15/20.
(4) With reference to the latest information from Hong Kong Housing Authority, the building completion year of Anderson Road Development will be fully completed on or before 2016/17. The assumptions will adopt Outline Zoning Plan (OZP) No. S/K14N/13.
(5) The development of Energizing Kowloon East has been incorporated in 2011-based TPEDM.
(6) The development of Lei Yue Mun Path with about 375 flats (Pri. Res.) is assumed to be completed on or before year 2021.
(7) The development of Pik Wan Road/Ko Chiu Road with about 660 flats (HOS) will be completed on or before year 2019/2020.
(8) The development of Choi Hing Road with about 1,330 flats (HOS) will be completed on or before year 2017/2018.
[redacted]
(10) The Ngau Chi Wan CDA Site near Lung Chi Path with about 2,100 flats (Pri. Res.) is assumed to be completed on or before year 2031. For conservative reason, traffic generation of fully completed development is assumed in year 2026.
(11) The development of Choi Wing Road with about 800 flats (PRH) will be completed on or before year 2021.
(12) The development of Hiu Ming Street with about 1,100 flats (PRH) will be completed on or before year 2021.
(13) With reference to the 2011-based TPEDM, the population intake of Tseung Kwan O Town Centre South will be included in design year 2021.
(14) The development of Tsueng Kwan O Area 85 with about 3,436 flats will be completed on or before year 2021.
(15) The development of Tsueng Kwan O Area 86 (Lohas Park) with about 21,392 flats will be completed on or before year 2021.
[redacted]

4.4 Base Year Model Development

4.4.1 With the cordoned input matrices from the STM, the base year LATM was validated to year 2014 traffic condition for both AM and PM peak periods. The model flows were rigorously validated against a vast amount of 2014 observed traffic flows. The LATM was validated which meet all the validation criteria and the results of validation for LATM have been presented in **Appendix C**. The screenlines and key links/ junctions for LATM validation are shown in **Figure 4.3** and **Figure 3.1** respectively.

4.4.2 To conclude, the validation results illustrate that the LATM satisfactorily replicate the base year traffic flow pattern and have high degree of agreement between the modelled flows and observed traffic count data within the AOI of the TIA Study. The accuracy obtained for the base year traffic model results demonstrate that the LATM are robust and provide reliable platforms for carrying out traffic projections. These models in turn will provide sound basis for the development of design year traffic models to facilitate traffic forecasting and TIA purposes.

4.5 Trip Generation and Attraction

4.5.1 The trip rates adopted for the major residential developments within ARQ are presented in **Table 4.8**, and the trip generations of various types of development within ARQ are shown in **Table 4.9**.

Table 4.8 Adopted Trip Rates for Major Residential Developments in ARQ

Development Type	Unit	AM Peak		PM Peak	
		Generation	Attraction	Generation	Attraction
Subsidized Housing	pcu/hr/flat	0.0432	0.0326	0.0237	0.0301
Private Housing	pcu/hr/flat	0.0888	0.0515	0.0356	0.0480

Table 4.9 Trip Generation of Various Developments in ARQ

Development Type	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Subsidized Housing	81	61	45	57
Private Housing	669	388	268	361
Others	90	96	116	115
Total	840	545	429	533

4.6 Junction Improvement Scheme under Other Projects

4.6.1 The planned / committed junction improvement schemes to be implemented under other projects were incorporated in the model. The improvement schemes were proposed under (i) CE 94/98 Development near Choi Wan Road and Jordan Valley, (ii) DAR and (iii) Kwun Tong Town Centre Redevelopment. The detailed locations are listed as follows and shown in **Appendix D**:

Improvement Schemes under CE 94/98 Development near Choi Wan Road and Jordan Valley:-

- J4 - Sau Mau Ping Road / Shun On Road
- J5 - Hip Wo Street / Hong Ning Road (According to the latest observed flow pattern, this improvement would not be beneficial to the junction performance, thus existing layout and MOC is proposed to be adopted)
- J14 - Sau Mau Ping Road / Sau Ming Road

Improvement Schemes under DAR:-

- J1 - New Clear Water Bay Road / On Sau Road
- J19 - Po Lam Road / On Sau Road
- J23 - New Clear Water Bay Road / Lee On Road

Improvement Schemes under Kwun Tong Town Centre Redevelopment:-

- J9 - Hip Wo Street / Mut Wah Street / Yuet Wah Street
- J10 - Kwun Tong Road / Hong Ning Road
- J11 - Kwun Tong Road / Hip Wo Street
- Reverse of traffic direction to 1-way westbound at Mut Wah Street

4.7 Proposed Road Improvement Works under ARQ

4.7.1 Off-site road improvement works (RIW) were recommended in the FS Stage under Agreement No. CE/18/2012 (CE) to improve the future traffic operation and to cater for the additional traffic demand arisen from populations at ARQ. The three RIW includes:

- Junction improvement at J/O Lin Tak Road / slip road to Tseung Kwan O Road; widening of Lin Tak Road between Hong Wah Court and Pik Wan Road; and bus-bus interchange at the toll plaza of Tseung Kwan O Tunnel

- Junction improvement at J/O Clear Water Bay Road / On Sau Road and J/O Clear Water Bay Road / New Clear Water Bay Road

- Widening of a section of New Clear Water Bay Road near Shun Lee Tsuen Road and realignment of Shun Lee Tsuen Road merging lane with New Clear Water Bay Road

4.7.2 The layout and arrangement of the RIW as proposed in the FS Stage was reviewed, and further modification / refinement / alternatives to the RIW were proposed in the Working Paper on Review of Road Improvement Works Design Scheme (Ref: WP04) under this I,D&C Stage. Subsequent to the submission of the WP04, meeting with TD and Highways Department (HyD) was held on 1st December 2014 to discuss the RIW. The arrangements of the proposed RIW were then further reviewed by taking into consideration TD's and HyD's comments provided in the meeting as well as TD's comments on Draft Review Report of RIWs. The latest proposed arrangements for the RIW are presented below.

Junction of Clear Water Bay Road / New Clear Water Bay Road (J1) and Clear Water Bay Road / On Sau Road (J22)

4.7.3 The arrangements are basically the same as the one presented in WP04, which is to (i) maintain the heavily loaded right-turn movement (around 470 - 650 pcu/hr) from CWBR eastbound to OSR southbound and (ii) detouring the less trafficked right-turn movement (20 – 50 pcu/hr) from OSR northbound onto CWBR eastbound. The detoured traffic will have to turn left onto CWBR westbound, turn right onto CWBR at the J/O CWBR/NCWBR, make a U-turn at the newly introduced U-turn facility at CWBR and then turn left onto CWBR eastbound. The layout is illustrated in **Figure 4.4A**.

4.7.4 At the J/O CWBR / New Clear Water Bay Road (NCWBR), it is noted that the "lane drop" at NCWBR westbound to the west of the junction as firstly proposed in FS Stage could not physically provide two "full lane"; therefore, the effective capacity of the 2-lane NCWBR westbound approach should be reduced. To enhance the capacity of the approach, it is proposed to make use of the existing "push button" at the pedestrian crossing across NCWBR WB, so that the pedestrian phase would only be activated by on-demand basis.

4.7.5 Currently, the demand on the pedestrian crossing is insignificant (1 pedestrian per 30 minutes), and contribution by residents in ARQ / DAR would be very low as well as this would not be the commuting route. As such, it is expected the traffic along NCWBR would only be stopped a few times in an hour, and it would be close to free-flow condition. Two lanes would still be proposed at the approach to increase the stacking capacity during the red signal.

Junction of Lin Tak Road / Slip Road to Tseung Kwan O Road (J21)

4.7.6 In both FS scheme (free-flow junction) and the proposed alternative scheme (signalized junction with additional lane at Lin Tak Road southbound approach), the slip road to TKOR was proposed to be widened to 2-lane to cater for the additional traffic. However, in view of the site constraints such as the gradient of slip road, weaving length along TKOR, lot boundary of adjacent development, it is not likely to accommodate two lanes merging into TKOR, so lane drop should be adopted at the lower end of slip road, and the practical capacity of the slip road would be less than standard two “full lanes”.

4.7.7 In the light of above, the slip road would not be able to accommodate the future traffic flows and the capacity of the upstream junction would likely be affected by the vehicles queuing along the slip road. As the capacity issue at slip road would occur in both FS scheme and proposed alternative scheme, the “free-flow” junction in FS scheme would possibly be preferable as traffic would not encounter delay due to traffic signal in the proposed alternative scheme.

4.7.8 Nonetheless, the potential safety issue due to the sub-standard turning radii of the free-flow lanes in FS scheme should be addressed. Appropriate signage and road markings should be provided at Lin Tak Road both bounds to alert drivers about the sharp bend ahead.

4.7.9 The layout of FS scheme is shown in **Figure 4.5A**.

Merging of New Clear Water Bay Road and Shun Lee Chuen Road

4.7.10 The arrangement in FS scheme would generally be adopted, which is to (i) widen the NCWBR westbound between Shun Lee Tsuen Road and San Lee Street from 1 lane to 2 lanes and (ii) extend Shun Lee Tsuen Road to the west and provide direct merging NCWBR westbound. The layout is shown in **Figure 4.6A**.

4.8 Traffic Forecast

4.8.1 Traffic forecasts were prepared for the reference scenario (without ARQ) and design scenario (with ARQ) in year 2026. **Figure 4.7**, **4.8B**, **4.9A** and **4.10B** shows the traffic forecasts for the said scenarios.

5 TRAFFIC IMPACT ASSESSMENT FOR POPULATION OF 25,000

5.1 Link Capacity Analysis

5.1.1 The most critical strategic road links were assessed based on the traffic forecasts for the reference (without ARQ) and design (with ARQ population of 25,000) scenarios in year 2026. The link performances are shown in **Table 5.1**.

Table 5.1 Critical Link Performance in Year 2026

Road	Section	Capacity (pcu/hr)	Reference Scenario (W/O ARQ)		Design Scenario (With 25,000 ARQ Population)	
			Flow (pcu/hr)	v/c ratio(1)	Flow (pcu/hr)	v/c ratio(1)
Clear Water Bay Road WB	Between Lung Cheung Road and PTI	5,400	5,020	0.93	5,340	0.99
	Outside PTI (middle and far side free flow lanes)	3,600	3,580	0.99	3,710	1.03
	Adjacent to the Ramp to No. 8 Clear Water Bay Road	3,600	4,180	1.16	4,300	1.19
Slip Road to Tseung Kwan O Road WB	Between Lin Tak Road and Tseung Kwan O Road (1-lane section)	1,800	1,690	0.94	2,190	**1.22**
Tseung Kwan O Road WB	Between Kai Tin Road and Lin Tak Road	4,800	4,210	0.88	4,710	0.98
New Clear Water Bay Road WB	Between Shun Lee Tsuen Road and San Lee Street – Without RIW	1,800	1,950	1.08	2,180	**1.21**
	Between Shun Lee Tsuen Road and San Lee Street – With RIW	3,600	N/A	N/A	2,180	0.61

Note: (1) For v/c ratio between 0.75 and 1.0, traffic is in well used flow conditions where travel speeds are reduced by increasing traffic volumes. For v/c ratio between 1.0 and 1.2, travel speeds substantially reduced and are highly variable and unpredictable. For v/c ratio > 1.2 forced or breakdown flow condition and Crawling travel speed is observed.

5.1.2 From **Table 5.1**, the v/c ratios of CWBR WB (between Lung Cheung Road and PTI), TKOR WB and NCWBR WB (with RIW) would be less than 1.0 in the design scenario, which means that the critical road links would still operate within its capacities when ARQ is in operation. Meanwhile, the v/c ratios of remaining critical sections of CWBR WB would be between 1.0 and 1.2, which would be operate with marginal capacities but would still be manageable.

5.1.3 The most critical road link would be the slip road leading to TKOR WB, of which the v/c ratio would be slightly over 1.2. In view of the site constraints such as the adjacent lot boundaries and the gradient of the slip road, the 1-lane section of the slip road could not be widened.

5.1.4 Nonetheless, the traffic condition along this slip road is expected to be tolerable taking into account the slip road configuration. Along the slip road, the traffic from Sau Mau Ping Road EB would travel slowly under free flow condition, while the traffic from LTR WB would need to cut to the right at the merging point. Taking into account the capacity of the 1-lane section, around 30 pcu could not be handled during the morning peak hour period, which would result in approximate 180m long queue along the left-turn lane from LTR WB, but would not block the immediate upstream junction. With reference to the existing observation, the traffic flow from Sau Mau Ping Raod EB would drop sharply near end of the morning peak hour period, thus it is expected that the queue would be cleared soon right after the morning peak hour period. Hence, traffic condition at this critical slip road should be tolerable.

5.2 Junction Capacity Analysis

5.2.1 The performances of the junctions were assessed based on the traffic forecasts for the reference and design scenarios, and are summarized in **Table 5.2**. The detailed calculation sheets are shown in **Appendix C**.

Table 5.2 Junction Performance in Year 2026

No.	Junction Name		Junction Type (1)	RC(7) (in %) / DFC(8)			
				Reference Scenario (W/O ARQ)		Design Scenario (With 25,000 ARQ Population)	
				AM	PM	AM	PM
J1	New Clear Water Bay Road / Clear Water Bay Road (Eastern)	Without RIW (2)	S	17%(6)	29%	6%(6)	19%
		With RIW	S	N/A	N/A	2%	13%
J2	Lee On Road / Shun On Road		S	27%	88%	27%	88%
J3	Sau Mau Ping Road / Hip Wo Street		S	44%	93%	44%	93%
J4	Sau Mau Ping Road / Shun On Road (3)		S	48%	59%	48%	59%
J5	Hip Wo Street / Hong Ning Road		S	5%	33%	5%	33%
J6	Hong Ning Road / Chun Wah Road		S	24%	47%	24%	47%
J7	Hip Wo Street / Sau Nga Road		S	18%	30%	18%	30%
J8	Hip Wo Street / Hui Kwong Street		S	11%	11%	11%	11%
J9	Hip Wo Street / Mut Wah Street / Yuet Wah Street (4)		S	30%	56%	30%	56%
J10	Kwun Tong Road / Hong Ning Road (4)		S	8%	9%	8%	8%
J11	Kwun Tong Road / Hip Wo Street (4)		R	0.97	0.96	1.00	0.98
J12	Lei Yue Mun Road / Tseung Kwan O Road		S	11%	23%	11%	23%
J13	Sau Mau Ping Road / Sau Fung Street		S	74%	>100%	74%	>100%
J14	Sau Mau Ping Road / Sau Ming Street (3)		S	62%	55%	62%	55%
J15	Clear Water Bay Road / Lung Cheung Road		S	7%	5%	1%	2%
J16	New Clear Water Bay Road / Clear Water Bay Road (Western)		S	5%	13%	1%	9%
J17	Po Lam Road / Sau Mau Ping Road		S	48%	79%	25%	48%
J18	Po Lam Road / Access Road to Po Tat Estate		S	85%	93%	55%	55%
J19	Po Lam Road / On Sau Road (2)		S	>100%	>100%	84%	>100%
J20	Hiu Kwong Street / Sau Mau Ping Road		R	0.58	0.69	0.78	0.88

No.	Junction Name		Junction Type (1)	RC(7) (in %) / DFC(8)			
				Reference Scenario (W/O ARQ)		Design Scenario (With 25,000 ARQ Population)	
				AM	PM	AM	PM
J21	Lin Tak Road / Slip Road to Tseung Kwan O Road	Without RIW	S	**-9%**	45%	**-29%**	16%
		With RIW	F / S (5)	N/A	N/A	>100%	>100%
J22	Clear Water Bay Road / On Sau Road	Without RIW (2)	S	1%	17%	**-10%**	3%
		With RIW	S	N/A	N/A	15%	32%
J23	New Clear Water Bay Road / Lee On Road (2)		S	22%	21%	11%	10%
J24	Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harbour Crossing		R	**1.22**	**1.32**	**1.22**	**1.32**
J25	Kwun Tong Road / Tsui Ping Road		S	17%	21%	17%	20%
J26	New Clear Water Bay Road / San Lee Street		P	0.44	0.42	0.44	0.42
J27	Lin Tak Road / Pik Wan Road		R	0.66	0.56	0.67	0.57
J28	New Clear Water Bay Road / Choi Hung Lane		S	13%	10%	11%	6%
J29	Kwun Tong Road / Cha Kwo Ling Road		S	10%	13%	9%	12%
J45	Clear Water Bay Road / Fung Shing Street		S	5%	5%	3%	3%
J46	Choi Ha Road / Slip Road to Kwun Tong		S	>100%	>100%	>100%	>100%
J47	Hip Wo Street / Wan Hon Street		S	25%	24%	25%	24%
J48	Hoi Yuen Road / Shing Yip Street / How Ming Street		S	50%	73%	48%	72%
J49	Po Lam Road / Road L1 (Access to ARQ site)		S	83%	>100%	22%	73%
J50	Road L4 (Access to ARQ site) / Access Road of DAR		S	>100%	>100%	39%	78%
J51	Po Lam Road / Tsui Ping Road / Ma Yau Tong Road		S	26%	49%	12%	36%

Note:

(1) S - Signalized Junction, R – Roundabout, P – Priority Junction, F – Free Flow

(2) With improvement scheme proposed under DAR.

(3) With improvement scheme proposed under CE 94/98 Development near Choi Wan Road and Jordan Valley.

(4) With improvement scheme proposed under Kwun Tong Town Centre Redevelopment.

(5) Free flow condition for vehicular traffic would be provided at the J/O Lin Tak Road / Slip Road to Tseung Kwan O Road, whereas signalized pedestrian crossing to be activated by push-button would be provided at Lin Tak Road to the south of the said junction.

(6) The shown RC is the weighted average of RC taken into account the cases with and without the pedestrian phase across CWBR WB. It was observed that only 1 person to use the pedestrian crossing for every 30 mins during peak hour peaks. Taking a conservative approach, it was assumed the pedestrian phase would be activated once in 10 cycle (i.e. 1 person per 15 mins). Then, the MOC in 9 out of 10 cycles would not include that pedestrian phase. Hence, the RC was calculated by the below formula:

$RC_W = (RC_1 + RC_2 \times 9)/10$

RC_W: The weighted average RC
RC_1: The RC calculated with the pedestrian phase across CWBR WB being activated
RC_2: The RC calculated without the pedestrian phase across CWBR WB

(7) RC < 0% indicates congestion. RC ≥ 5% indicates that most vehicles will be able to clear the junction without waiting for more than one traffic signal cycle.

(8) DFC = 1.0 indicates continual queuing and could not be considered acceptable. DFC = 0.85 indicates that queuing would theoretically be avoided in 85% of cases, can be considered reasonable. DFC = 0.7 indicates that queuing will be avoided in 95% of cases.

5.2.2 From **Table 5.2**, J/O CWBR / OSR (J22) would be operating beyond its capacity in the design scenario under the layout proposed under DAR. With the RIW, J22 would be improved to operate with sufficient capacity. As the RIW would detour some traffic to J1, therefore the performance of J/O CWBR / NCWBR (Eastern) (J1) would be slightly affected after the implementation of RIW.

5.2.3 J/O Lin Tak Road / slip road to TKOR (J21) would be modified to free-flow junction with RIW. It should be noted that the newly introduced bus-bus interchange (BBI) at TKOR would attract the pedestrian from the surrounding residential developments, and there would likely be certain pedestrian demand between Hong Wah Court and the BBI, It is expected that pedestrian would need to cross Lin Tak Road via the push-button crossing in every signal cycle during commuting peaks, thus the performance of that mid-block crossing was also assessed.

5.2.4 For the junction performance, the reasonable capacity for signalized junction would be RC ≥ 5%, which represents the traffic situation that most vehicles will be able to clear the junction without waiting for more than one traffic signal cycle (Reference: Agreement No. TD 54/2008 West Kowloon Reclamation Development Traffic Study - Executive Summary); whereas the reasonable capacity for priority junction or roundabout would be DFC ≤ 0.85, which indicates that queuing in the majority (85%) of cases would be prevented (Reference: TPDM Vol.2 Ch.4.3 and Ch.4.5).

5.2.5 Among the assessed junctions, the DFC of J/O Kwun Tong Road / Hip Wo Street (J11) would be equal to 1.0, which would be marginal case, while that of J/O Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harbour Crossing (J24) would be greater than 1.0, which would not be acceptable. It should be noted that the capacity problems at these two junctions are pre-existing as discussed in Chapter 2 and the additional traffic at the junctions would be mainly due to background growth but not ARQ. Therefore, the capacity problems at these two junctions should be addressed under separate study.

5.2.6 Apart from J11 and J24, the performances of five critical junctions (J1, J15, J16, J20 and J45) would be slightly worse than the reasonable capacity (i.e. RC < 5% or DFC > 0.85). Since the RC values of the concerned signalized junctions are still greater than 0% and the DFC value of the concerned roundabout junction is just slightly greater than 0.85, the overall junction performances would still be acceptable.

5.3 Effect of East Kowloon Line

5.3.1 It was announced by Transport and Housing Bureau (THB) on 17 September 2014 that East Kowloon Line (EKL) would go ahead. According to the preliminary concept scheme of the EKL, it would run from Po Lam to Diamond Hill with intermediate stations at Po Tat Estate, Sau Mau Ping Estate, Shun Tin Estate, and Choi Wan Estate. EKL would serve the following functions:

- Provide a direct rail service to areas currently not within the railway existing catchment such as Choi Wan, Shun Tin, Sau Mau Ping and Po Tat communities as well as future catchments in DAR and ARQ;
- Provide additional transport capacity along this corridor to address the growing transport demand; and
- Provide an alternative route to the existing routes of Kwun Tong Line (KTL) and Tseung Kwan O Line for trips between the Tseung Kwan O area and Kowloon, and enhance network robustness by operating a parallel line to the existing KTL.

5.3.2 By considering the above functions of EKL, it is believed that EKL would reduce the road base traffic demand. The performances of the above five critical junctions (as mentioned in Para 5.2.6) with marginal capacities could be improved with the implementation of EKL.

5.3.3 To reflect the impact of EKL on road base traffic, traffic forecast was conducted. The implication of EKL on the through traffic was determined by the Strategic Territorial Model (STM). The implication of EKL on the local developments around 500m of the future stations of EKL, was making reference with the difference between the relevant sets of trip rates (i.e. within and not within 500m from metro stations).

5.3.4 According to the announcement by THB, the seven new railway projects would be completed by 2031. In particular, with reference to the "Railway Development 2014" published by THB, the indicative implementation window of EKL for planning purpose would be 2019 to 2025. In view that the traffic condition in the vicinity of ARQ should be the worst in 2031, therefore 2031 was adopted as the design year for the purpose of traffic impact assessment for the case with EKL.

5.3.5 With the EKL, the v/c ratio of the critical slip road to TKOR WB would be reduced to 1.10, which means that the traffic condition should be manageable.

5.3.6 The five critical junctions were assessed for the scenario with EKL in year 2031, and are summarized in **Table 5.3**. The detailed calculation sheets are shown in **Appendix C**.

Table 5.3 Junction Performance in Year 2031 with EKL

No.	Junction Name	Junction Type (1)	RC(4) (in %) / DFC(5)			
			Year 2026 without EKL (With 25,000 ARQ Population)		Year 2031 with EKL (With 25,000 ARQ Population)	
			AM	PM	AM	PM
J1	New Clear Water Bay Road / Clear Water Bay Road (Eastern) (2)	S	2%(3)	13%	8%	16%
J15	Clear Water Bay Road / Lung Cheung Road	S	1%	2%	8%	6%
J16	New Clear Water Bay Road / Clear Water Bay Road (Western)	S	1%	9%	6%	14%
J20	Hiu Kwong Street / Sau Mau Ping Road	R	0.78	0.88	0.68	0.80
J45	Clear Water Bay Road / Fung Shing Street	S	3%	3%	7%	6%

Note:

(1) S - Signalized Junction, R – Roundabout

(2) With RIW

(3) The shown RC is the weighted average of RC taken into account the cases with and without the pedestrian phase across CWBR WB. It was observed that only 1 person to use the pedestrian crossing for every 30 mins during peak hour peaks. Taking a conservative approach, it was assumed the pedestrian phase would be activated once in 10 cycle (i.e. 1 person per 15 mins). Then, the MOC in 9 out of 10 cycles would not include that pedestrian phase. Hence, the RC was calculated by the below formula:

$RC_W = (RC_1 + RC_2 \times 9)/10$

RC_W: The weighted average RC
RC_1: The RC calculated with the pedestrian phase across CWBR WB being activated
RC_2: The RC calculated without the pedestrian phase across CWBR WB

(4) RC < 0% indicates congestion. RC ≥ 5% indicates that most vehicles will be able to clear the junction without waiting for more than one traffic signal cycle.

(5) DFC = 1.0 indicates continual queuing and could not be considered acceptable. DFC = 0.85 indicates that queuing would theoretically be avoided in 85% of cases, can be considered reasonable. DFC = 0.7 indicates that queuing will be avoided in 95% of cases.

5.3.7 From **Table 5.3**, the performances of all critical junctions in 2031 with EKL would be better than the reasonable capacity (i.e. RC > 5% or DFC < 0.85).

7 INTERNAL ROAD NETWORK

7.1 Vehicular Access Arrangement

7.1.1 The ARQ site is bounded by Clear Water Bay Road, On Sau Road and Po Lam Road with 2 vehicular accesses located at the east and west. The eastern access would connect the site to Po Lam Road while the western access would link it up to On Sau Road. Both accesses would form a signalized junction with the existing On Sau Road and Po Lam Road. The above arrangement is shown in **Figure 7.1B**.

7.2 Internal Road Layout

7.2.1 The proposed internal road netwoek serving the whole development site consists of four local roads, namely Road L1 to Road L4, as illustrated in **Figure 7.1B**. Details of the local roads are described below:

- Road L1 would be a single-4 carriageway running in the south-north direction. It would form a signalized junction with Po Lam Road at its eastern end and would connect to the public transport terminus of the ARQ site at its northern end. A single-2 carriageway with a cul-de-sac nearby its eastern end branched off from Road L1 and a priority junction would be formed by Road L1 and the said branch road.

- Road L2 would be a single-2 carriageway with a C-shaped alignment. Both ends of Road L2 would link to Road L1 and would form two signalized junctions.

- Road L3 would be a single-4 carriageway running in east-west direction. It would connect with the midway of Road L1 at its eastern end in the form of a signalized junction, while its western end would form a roundabout with Road L4.

- Road L4 would be a single-2 carriageway with its southern end connecting to Road L3. It would join the internal road of DAR at its northern end.

7.3 Traffic Impact Assessment for Internal Road Network

7.3.1 Based on the traffic forecasts discussed in the earlier section, the junction assessment for the internal road system in year 2026 [redacted] were carried out and the results are summarized in **Table 7.1**. The junction index and the traffic flows for year 2026 (with ARQ population of 25,000 without EKL) [redacted] are presented in **Figure 7.2**.

Table 7.1 Junction Performance in Different Scenarios

No.	Junction Name	Junction Type (1)	RC(2) (%) / DFC(3)		
			Year 2026 (With ARQ Population of 25,000 Without EKL)		[redacted]
			AM	PM	
JA	Road L1 / Access Road	P	0.17	0.11	
JB	Road L1 / Road L3	S	85%	>100%	
JC	Road L1 / Road L2 (South)	S	86%	>100%	
JD	Road L1 / Road L2 (North)	S	98%	>100%	
JE	Road L3 / Road L4	R	0.24	0.17	

Note:

(1) S - Signalized Junction, R – Roundabout, P – Priority Junction

(2) RC < 0% indicates congestion. RC ≥ 5% indicates that most vehicles will be able to clear the junction without waiting for more than one traffic signal cycle.

(3) DFC = 1.0 indicates continual queuing and could not be considered acceptable. DFC = 0.85 indicates that queuing would theoretically be avoided in 85% of cases, can be considered reasonable. DFC = 0.7 indicates that queuing will be avoided in 95% of cases.

7.3.2 The above results show that all junctions within the development site would have a RC > 25% or DFC > 0.85, which reveals that the internal road junctions would operate with adequate capacities in the future design years.

8 CONSTRUCTION TRAFFIC IMPACT ASSESSMENT

8.1 Overview

8.1.1 Construction Traffic Impact Assessment (CTIA) would be conducted for various construction phases. The objective of CTIA is to identify critical construction haul route(s) with the anticipated traffic volumes, and to evaluate traffic impact on the road links along haul route(s) caused by additional construction traffic.

8.1.2 Temporary Traffic Management (TTM) schemes would be derived to facilitate the construction works at the public roads and footpaths. Safety of the general public and construction workers would be ensured during the implementation of the TTM schemes. At locations that fall under the list of red/pink routes, i.e. Tseung Kwan O Tunnel Road and Kwun Tong Road, daytime road closure should be prohibited. TTM schemes would then be developed in concurrence with construction staging and would be conducted during night-time.

8.1.3 According to the Clause 6.3.5.1 of the Brief, Working Paper on Temporary Traffic Arrangement during Construction for SF&I, PC and RIW (Ref.: C13) should be prepared to outline the schematic TTM necessary for the works and the CTIA for the critical stage(s) of the TTM. Therefore, the detailed construction works including the disposal volume, disposal routings, construction sequences and corresponding traffic impact assessment should refer to the said working paper.

9 PUBLIC TRANSPORT SERVICES AND FACILITIES

9.1 Existing Public Transport Services

9.1.1 The area in the vicinity of ARQ is currently well served by road-based public transport (PT) services including franchised buses and GMBs. Some PT routes are acting as feeder services connecting to the nearby rail stations such as MTR Lam Tin Station, some are short journey routes leading to the surrounding districts such as Kwun Tong and Kowloon Bay, and the remaining are long journey routes providing services to other Kowloon districts and Hong Kong Island.

9.1.2 The existing PT services are mainly located at Sau Mau Ping Road and Po Lam Road as well as the bus / GMB termini at Po Tat Estate and Sau Mau Ping Estate, which are far away with long walking distance from ARQ and would not be taken into account in the PT analysis for ARQ. The existing franchised bus and GMB routes at the aforesaid the locations are illustrated in **Figure 9.1**, and the details of each PT routes are listed in **Table 9.1** and **9.2** for reference only.

Table 9.1 Details of Existing Bus and GMB Routes with Termini in the nearby Area (For Reference Only)

Terminus	Route No.	Terminating Points	Frequency (min)
Sau Mau Ping Bus Terminus	Franchised Bus Service		
	1A	Sau Mau Ping B/T (Central) – Star Ferry B/T	5-10
Po Tat Bus Terminus	Franchised Bus Service		
	13D	Po Tat Estate – Island Harbourview (via Mongkok)	15-20
	13M#	Po Tat – Kwun Tong (Elegance Road)	15-25
	13P	Po Tat Estate –> Lai Kok B/T (Cheung Sha Wan)	07:30, 07:50*
	13S	Po Tat Estate – Lam Tin Railway Station	07:00, 08:25, 08:50*
	13X	Po Tat Estate – Tsim Sha Tsui East	10-25
	601	Po Tat Estate – Admiralty Railway Station (East)	5-19
	601P	Po Tat Estate – Sheung Wan	Mon to Fri: 06:50, 07:00, 07:10, 07:20, 07:26, 07:30, 07:36, 07:41, 07:47, 07:52, 07:58, 08:03, 08:09, 08:14, 08:20* Sat: 06:58, 07:10, 07:20, 07:30, 07:40, 07:46, 07:52, 07:58, 08:05, 08:12, 08:20*
	GMB Service		
	71A#	Po Tat Estate – Lam Tin Station	4-9
Hiu Kwong Street Bus Terminus	Franchised Bus Service		
	11C	Sau Mau Ping B/T (Upper) – Chuk Yuen Estate B/T	15-25
	11X	Sau Mau Ping B/T (Upper) – Hung Hom Railway Station B/T	10-20
	GMB Service		
	34S	Sau Mau Ping B/T (Upper) – Kwun Tong (Yue Man Square)	7-10

Terminus	Route No.	Terminating Points	Frequency (min)
Sau Fung Street Terminus	GMB Service		
	71B	Sau Mau Ping Estate (Phase 5) – Lam Tin Station	6-10

Note: # Circular
* Departure Time / Departure Period

Table 9.2 Details of Existing Bus and GMB Routes with En-route Stops in the nearby Area (For Reference Only)

Route No.	Terminating Points	Frequency (min)
Franchised Bus Service		
15P	Kai Yip B/T –> Ping Tin	07:15*
93A	Po Lam B/T – Kwun Tong Ferry B/T	12-25
93K	Po Lam B/T – Mongkok East Railway Station B/T	15-25
93M	Choi Ming –> Po Lam B/T (Via Lam Tin)	06:50, 07:05*
95	Tsui Lam B/T – Jordan (To Wah Road)	10-25
95M	Tsui Lam B/T – Kwun Tong B/T (Elegance Road)	13-25
98A#	Hang Hau (North) B/T (Tseung Kwan O Hospital) – Ngau Tau Kok Railway Station	7-15
98C	Hang Hau (North) B/T (Tseung Kwan O Hospital) – Mei Foo B/T	7-20
98P	Tsim Sha Tsui East – hang Hau (North) B/T (Tseung Kwan O Hospital)	18:05*
619	Shun Lee B/T – Macau Ferry B/T	3-20
619P	Shun Lee B/T –> Macau Ferry B/T	07:43, 07:50*
N293	Sheung Tak – Mongkok East Railway Station B/T	15-20 (overnight)
N691	Tiu Keng Leng – Macau Ferry B/T	20-30 (overnight)
GMB Service		
12	Sai Kung – Po Lam (Po Lam Station)	10-15
13	Hong Sing Garden – Kwun Tong (Tung Yan Street)	15-23
17	Tsui Lam – Lam Tin Station (Sceneway Garden)	8-15
19S#	Hang Hau (Tseung Kwan O Hospital) – Causeway Bay (Morrison Hill Road)	15 (overnight)
76A#	Kwong Tin – United Christian Hospital	10-15
106	Po Lam (Po Lam Station) – Kowloon Bay (Kowloon Bay Public Transport Terminus)	7-20
111	Po Lam (Po Lam Station) – San Po Kong (Hong Keung Street)	8-15

Note: # Circular
* Departure Time / Departure Period

9.2 Public Transport Services for DAR

9.2.1 According to the Document No. 8/2015 for Traffic and Transport Committee Meeting of Kwun Tong District Council concerning the PT plan for DAR, which was prepared by Transport Department, 2 new GMB routes and 4 new franchised bus routes would be provided whereas 2 existing bus routes would be rationalized. As the proposed PT services for DAR is still in a planning stage and it is not appropriate to assume that there are additional carrying capacity for serving ARQ. Hence, the PT services for DAR would not be taken into consideration in the PT analysis for ARQ. The brief information of the PT routes for DAR extracted from the Document No. 8/2015 are presented in **Table 9.3** and **9.4** for reference only. The whole Document No. 8/2015 is enclosed in **Appendix E** for easy reference.

Table 9.3 GMB and Bus Service for DAR (Service within AOI) – For Reference Only

Recommended Route	Origin – Destination
New GMB Route No. A	DAR – Ngau Tau Kok Jordan Valley North Road (Circular)
New GMB Route No. B	DAR – Kowloon Bay Sheung Yee Road (Circular)
New Bus Route No. 1	DAR – Lam Tin MTR Station (Circular)

Table 9.4 Bus Service for DAR (Service outside AOI) – For Reference Only

Recommended Route	Origin – Destination
(i) Hong Kong (East)	
New Bus Route No. 2	DAR – Shau Kei Wan (Peak Hours Only)
(ii) New Territories (East)	
New Bus Route No. 3	Sau Mau Ping (Middle) – Tai Wai MTR Station (via DAR)
(iii) Kowloon	
New Bus Route No. 4	Yau Tong – Cheung Sha Wan (Kom Tsun Street) (via DAR)
Reformed KMB Route No. 13D	Po Tat – Island Harbourview
Reformed KMB Route No. 13X	Po Tat – Tsim Sha Tsui (East)

9.3 Public Transport Services for ARQ

9.3.1 As discussed in Chapter 6, there would be EKL in the future, which should also be taken into account for PT planning for ARQ. However, once the EKL is in place, it is expected that certain PT passengers of ARQ would directly walk to the EKL stations, which would potentially be located at Po Tat Estate and Sau Mau Ping Estate, without the need of using ARQ road-based PT routes. As such, the demand on ARQ on-site road-based PT services would be reduced after the commissioning of EKL [redacted] For the purpose of estimating the on-site PT provisions under the most critical case, the scenario without EKL with ARQ population of 25,000 in year 2026 was adopted.

9.3.2 The public transport demand for ARQ was estimated based on the patronage forecast of the strategic transport model, which is shown in **Table 9.5**. By comparing with the directional split in FS Stage, the share for AOI in this study (49%) is higher than that in FS Stage (37%), this shall be related to the updated planning data in 2009-based TPEDM which include the development of Central Business District No.2 (CBD2) in East Kowloon. On the other hand, the share for Hong Kong Island in this stage (14%) is less than that of FS Stage (22%), which is considered reasonable due to the aforementioned development of CBD2. The provisions of PT services were then derived based on the PT directional split.

Table 9.5 Directional Split of ARQ PT Patronage (2-way Daily)

Area	PT Mode			
	Rail	Road-Based	Total	
Area of Influence (AOI)	300	19,300	19,600	49%
Hong Kong Island	4,300	1,200	5,500	14%
Kowloon	3,200	7,900	11,100	28%
Tsuen Wan & Kwai Tsing	200	500	700	2%
Tseung Kwan O	100	600	700	2%

Area	PT Mode			
	Rail	Road-Based	Total	
New Territories (except Tsuen Wan, Kwai Tsing and TKO)	600	1,800	2,400	6%
Total	8,700	31,300	40,000	100%

9.3.3 In FS Stage, three feeder bus routes were proposed to connect with the MTR stations including (i) Lam Tin Station, (ii) Diamond Hill Station and (iii) Po Lam Station. Based on the directional split as presented in **Table 9.5**, the patronage for Hong Kong Island and Kowloon by rail would be considerable, thus the principle of connecting to nearby rail stations along Kwun Tong Line would still be valid.

9.3.4 In view of congested bus boarding and alighting at Lam Tin Station, it may not be suitable to provide additional feeder service to this station. Instead, connection to Yau Tong Station (PTI underneath Domain Mall) would be more appropriate taking into account the fewer numbers of bus routes at that PTI. Also, shifting the connection from Lam Tin Station to Yau Tong Station would be beneficial to passengers heading to Hong Kong Island as transit from Kwun Tong Line to Tseung Kwan O Line would be avoid.

9.3.5 Diamond Hill Station would become a railway interchange between Kwun Tong Line and Shatin to Central Link (SCL) in the future, the bus routes connecting to this station should be reviewed under a separate holistic study for bus route. Therefore, whether it is suitable for one of the ARQ feeder routed to connect to Diamond Hill Station should be subject to the review findings. If connection to Diamond Hill Station is found infeasible, it may consider to link to Kai Tak Station of SCL as there may be more space available for pick-up/drop-off; however, it may not be as convenient as Diamond Hill Station due to its connectivity.

9.3.6 In view that only 2% would travel to/from Tseung Kwan O according to **Table 9.5**, it may not be cost effective to introduce a new feeder bus route leading to Po Lam Station as suggested in FS Stage. Instead, people going to AOI would attribute the highest proportion among all destinations, therefore a PT route heading to Kwun Tong south rather than Po Lam Station was recommended. This route would mainly serve the area to the south of Kwun Tong Road and would not connect to Kwun Tong Station as this station is currently overloaded and could not handle additional demand from ARQ.

9.3.7 Moreover, a long haul bus routes heading to Kowloon Central or South could also be considered so that ARQ population could have a direct access to the popular districts such as Mongkok or Tsim Sha Tsui.

9.3.8 To summarize, the potential destinations of the PT services for ARQ would include (i) Yau Tong Station, (ii) Diamond Hill Station / Kai Tak Station, (iii) Kwun Tong South (excluding Kwun Tong Station), and (iv) Kowloon Central / South.

9.3.9 By considering the principle of choice of mass carriers (i.e. Franchised Bus (FB)) having priority over the less efficient modes (i.e. GMB), FB would be the major PT mode while GMB would be the supplementary role in ARQ. Therefore, three FB routes and one GMB route leading to the aforementioned destinations were recommended for ARQ. According to the directional split, it is proposed to adopt GMB for destination to Yau Tong Station, and FB for destinations to Diamond Hill Station / Kai Tak Station, Kwun Tong South (excluding Kwun Tong Station), and Kowloon Central / South.

9.3.10 By assuming the occupancy of 120 and 16 passengers for FB and GMB respectively, and peak hour headway of 5 mins and 3 mins for FB and GMB respectively, the handling capacity of each proposed PT route could be estimated and are presented in Table 9.6. The critical AM peak hour patronage demand and the occupancy for each route are also shown in the same table. It is found that the proposed PT services should be able to cope with the PT demand of ARQ.

Table 9.6 Capacities and Patronage Demand of the Proposed PT Routes

Proposed Routes	Mode	Carrying Capacity (pax/veh)	Headway (min)	Hourly Capacity (pax/hr)	Estimated Patronage (pax/hr)	Occupancy
Yau Tong Station	GMB	16	3	320	300	93%
Diamond Hill Station / Kai Tak Station	FB	120	5	1,440	1,390	96%
Kwun Tong South (excluding Kwun Tong Station)	FB	120	5	1,440	1,380	96%
Kowloon Central / South	FB	120	5	1,440	1,180	82%

9.3.11 Further to the above recommendation of PT services, the possible destination of the PT services should be subject to numerous factors such as future bus planning strategy, consideration of bus operators, government policy and consultation with the stakeholders. Therefore, it would be more appropriate to further review the PT routes by relevant parties at later stage prior to the population intake of ARQ.

9.4 Public Transport Facilities in ARQ

9.4.1 A Public Transport Terminus (PTT) would be provided at the northern corner of the ARQ site. Based on the requirements from TD provided in FS Stage, the PTT would consist of 2 double-width bus bay, 1 double-width GMB bay, and 1 double-width taxi bay of 40-50m long. With such provision in PTT, two FB routes, one GMB route and taxi operation would be accommodated. Apart from the PTT, double-width bus bay would be provided near the southern tip of Road L4 as illustrated in **Figure 7.1**, one FB route could possibly be accommodated at the bus bay.

9.4.2 With reference to Transport Planning and Design Manual (TPDM) and Hong Kong Planning Standards and Guidelines (HKPSG), the ideal walking distance to a bus stop should not exceed 400 metres in urban areas. The bus stops would generally be provided with walking distances no more than 400m from each land parcel. As shown in **Figure 7.1**, bus Lay-bys would be provided along Road L1, L2 and L4. On Road L3, on-street bus stops would be provided taking into account the lot boundaries of the adjacent sites. The on-street bus stops should not adversely affect the traffic circulation in view of the single-4 carriageway and low traffic volume along this road.

11 CONCLUSION

11.1 Conclusion

11.1.1 This report reviewed the TIA carried out under the FS Stage by taking into account the latest planning parameters and assumptions. Traffic impact assessment for the scenarios of ARQ population of 25,000 [redacted] were conducted. The public transport services for ARQ were recommended [redacted]

11.1.2 With the planning data and assumptions as agreed in "Working Paper on Methodology and Approach of Traffic Survey and Modelling (Ref. WP06)", the traffic forecast was updated. The latest traffic assessment results indicated that the traffic impact due to the original 25,000 population of ARQ would be marginally acceptable in year 2026 condition, and the traffic condition would be improved upon the commissioning of EKL (assumed to be completed by year 2031).

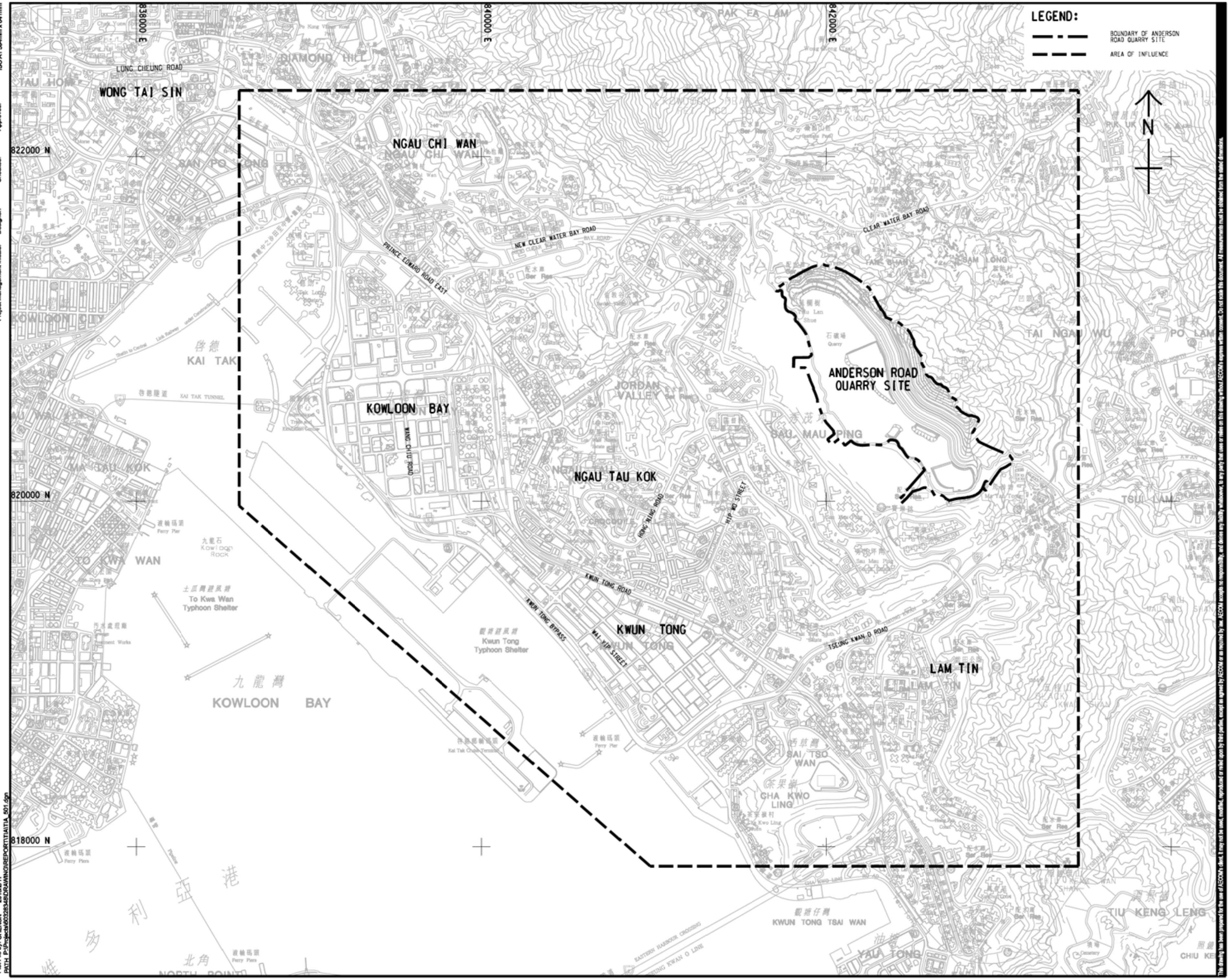
11.1.3 [redacted]

11.1.4 Working Paper on Temporary Traffic Arrangement during Construction for SF&I, PC and RIW (Ref.: C13) should be prepared to outline the schematic TTM necessary for the works and the CTIA for the critical stage(s) of the TTM. Therefore, the detailed construction works including the disposal volume, disposal routings, construction sequences and corresponding traffic impact assessment should refer to the said working paper.

11.1.5 By taking into account the public transport demand forecast, four PT routes for ARQ with destinations including (i) Yau Tong Station, (ii) Diamond Hill Station / Kai Tak Station, (iii) Kwun Tong South (excluding Kwun Tong Station), and (iv) Kowloon Central / South were recommended, the PT routes should be able to cope with the PT demand of ARQ. Anyway, it would be more appropriate to further review the PT routes by relevant parties at later stage prior to the population intake of ARQ.

11.1.6 [redacted]

Figure



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AECOM

PROJECT 項目

DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT 業主

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DIMENSION UNIT METRES

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PROJECT NO. 60328348

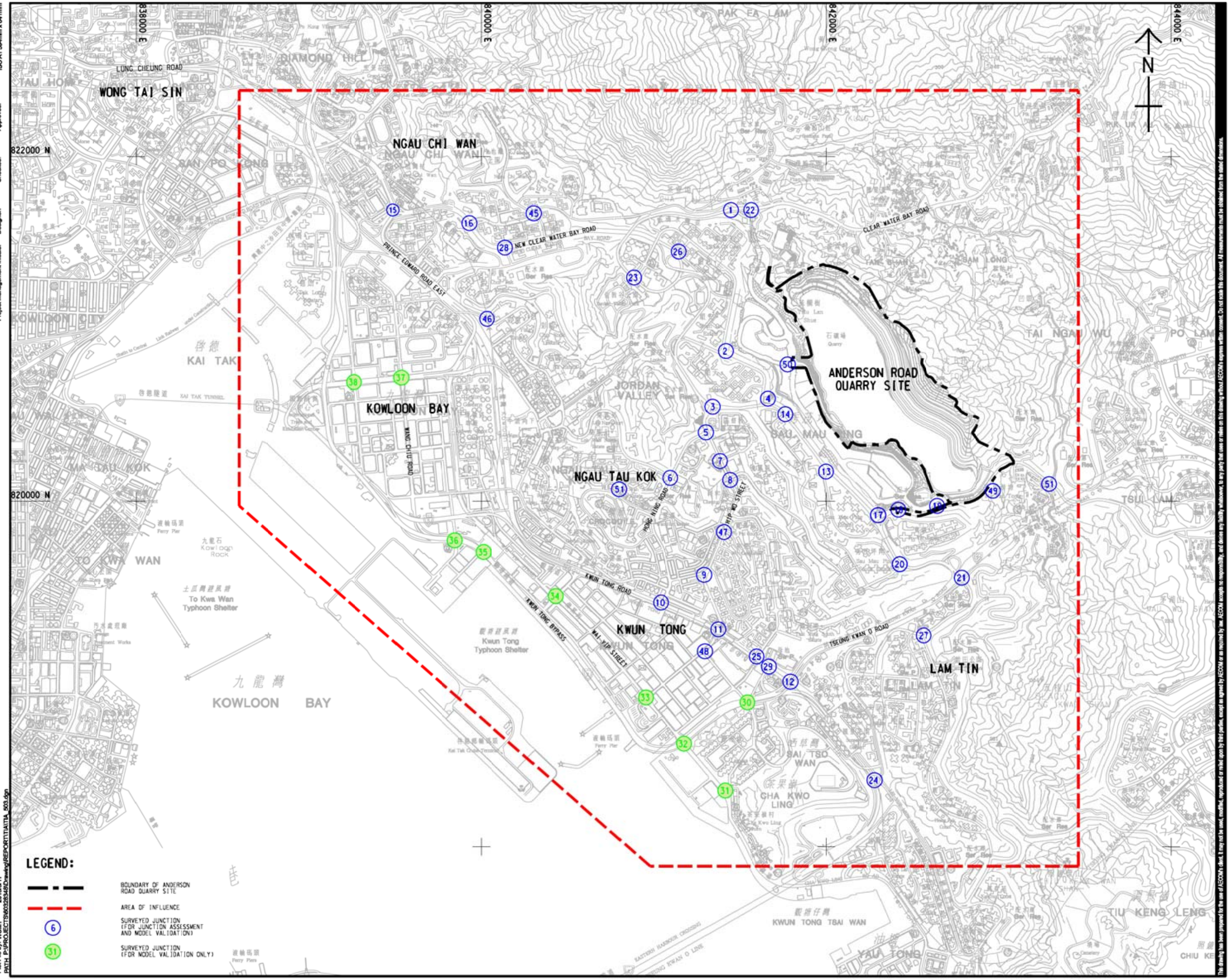
CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

LOCATION PLAN AND AREA OF INFLUENCE

SHEET NUMBER

60328348/TIA/FIGURE 1.1



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DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT

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A	MAY.15	R TO C	KHL
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STATUS

SCALE: A1 1 : 8000
DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348
CONTRACT NO.: CE 10/2014 (CE)

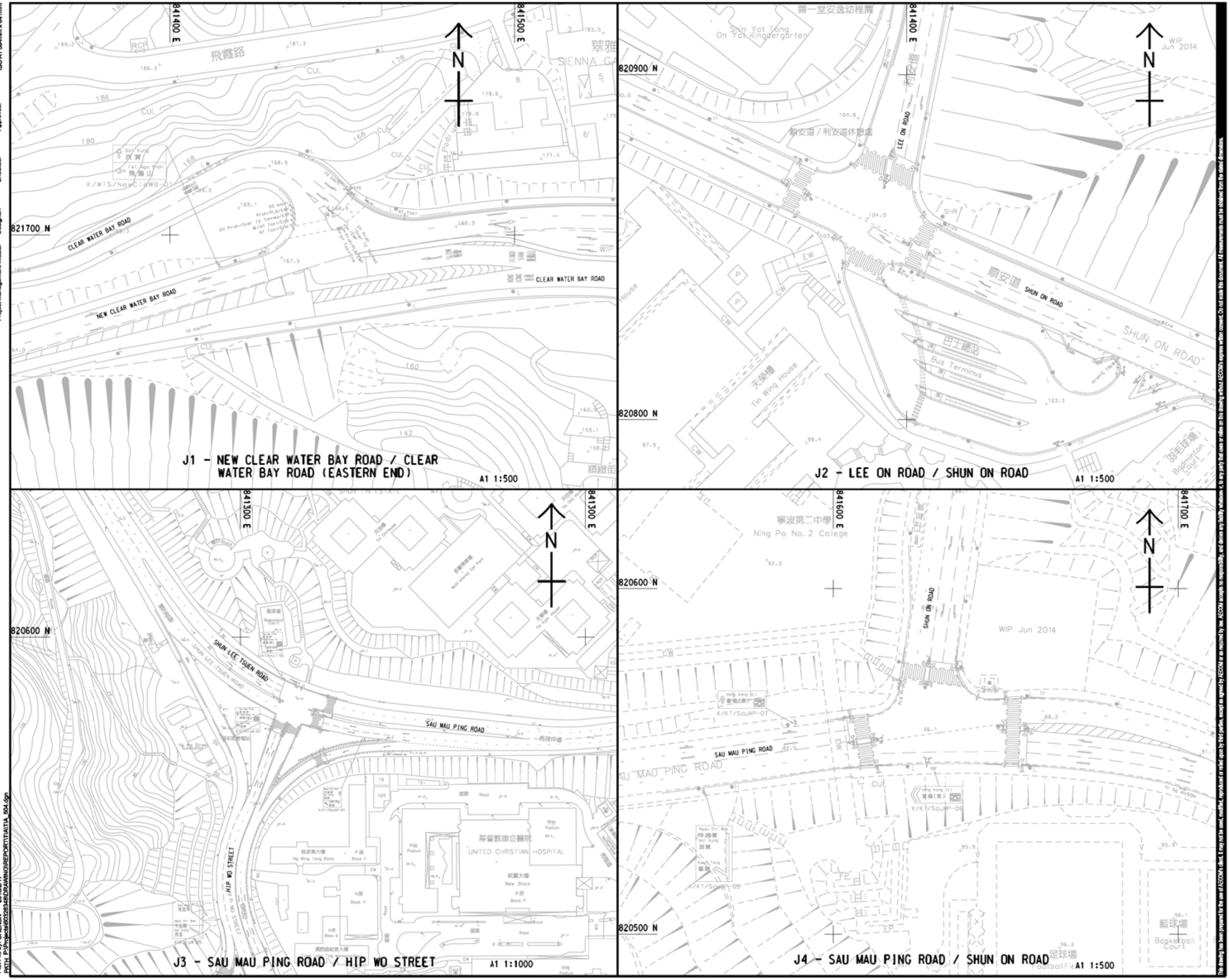
SHEET TITLE

JUNCTION INDEX PLAN

SHEET NUMBER

60328348/TIA/FIGURE 3.1A

ISO A1 594mm x 841mm
Project Management Initials: Designer: Checked: Approved:
Plot File by: WUMT 2015/5/11
PATH: P:\PROJECTS\60328348\Drawing\REPORT\TIA\TIA_503.dgn



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STATUS

SCALE: A1 AS SHOWN

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

SHEET TITLE

EXISTING JUNCTION LAYOUT

SHEET 1 OF 9

SHEET NUMBER

60328348/TIA/FIGURE 3.2

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

Plot File by: CHENSN 2015/2/11
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_504.dgn

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STATUS

SCALE: A1 1:500

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

EXISTING JUNCTION LAYOUT

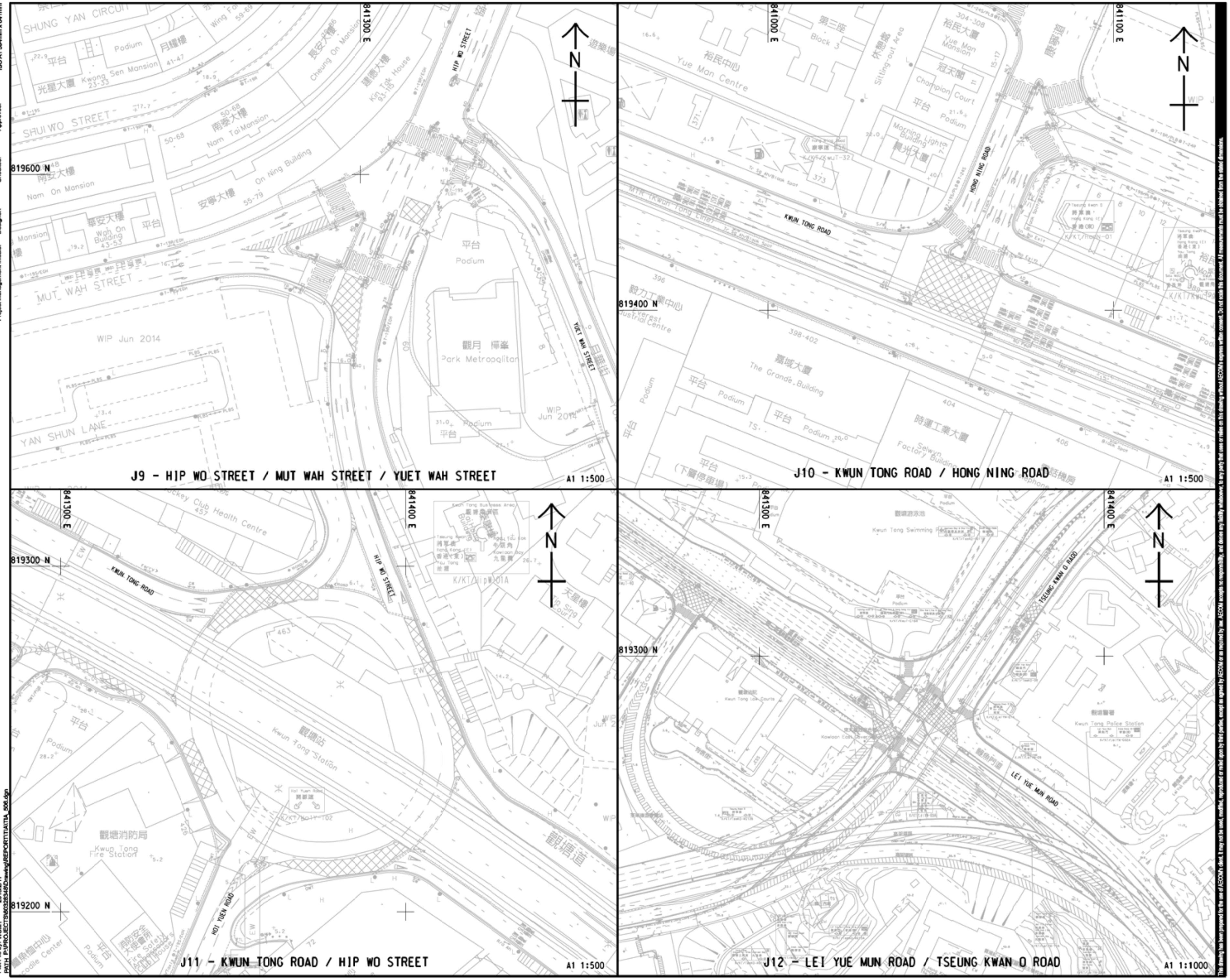
SHEET 2 OF 9

SHEET NUMBER

60328348/TIA/FIGURE 3.3

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

Plot File by: CHENSN 2015/2/11
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_505.dgn



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SCALE: A1 AS SHOWN

DIMENSION UNIT: METRES

KEY PLAN

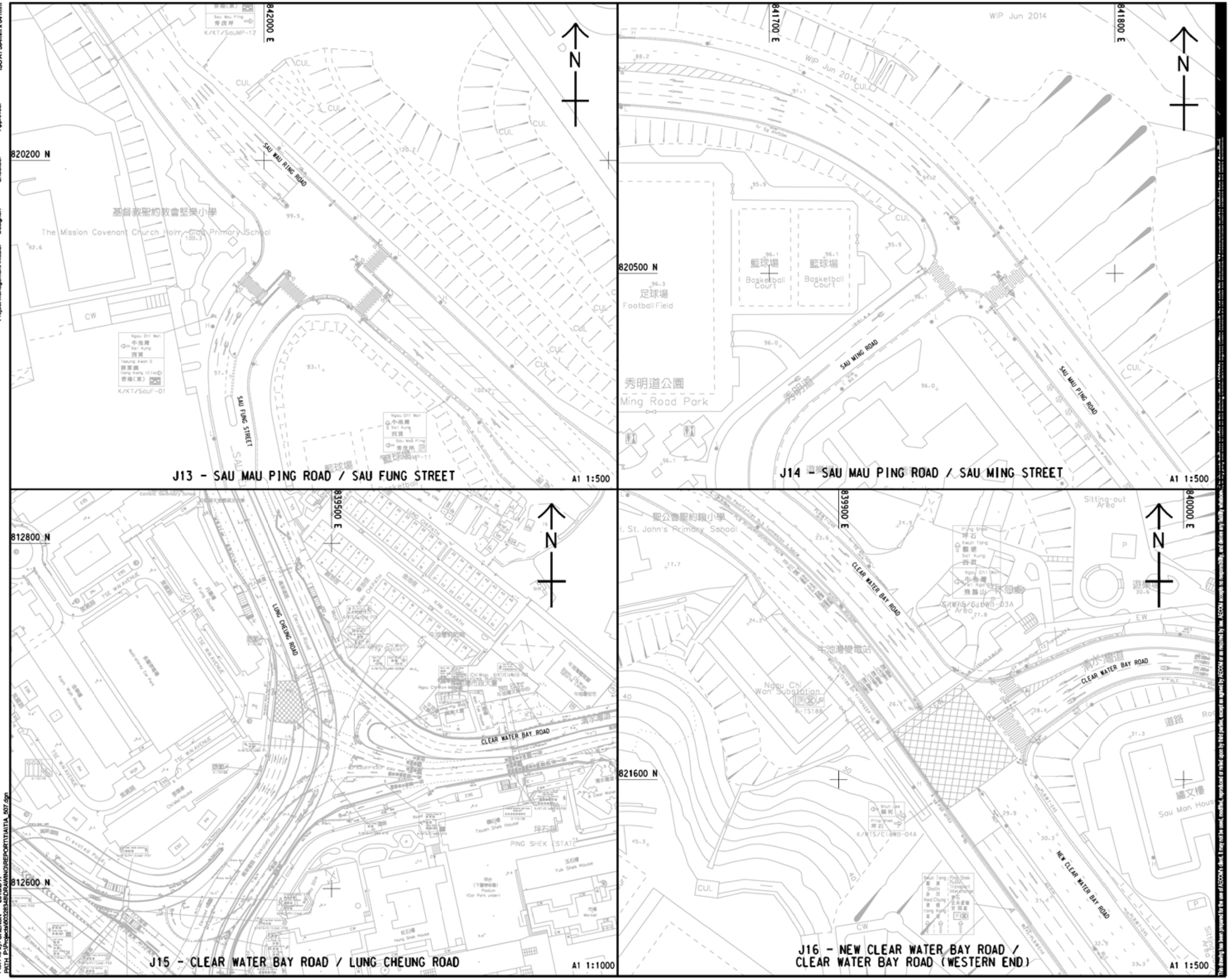
PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

SHEET TITLE: EXISTING JUNCTION LAYOUT

SHEET 3 OF 9

SHEET NUMBER: 60328348/TIA/FIGURE 3.4



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STATUS

SCALE: A1 AS SHOWN

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

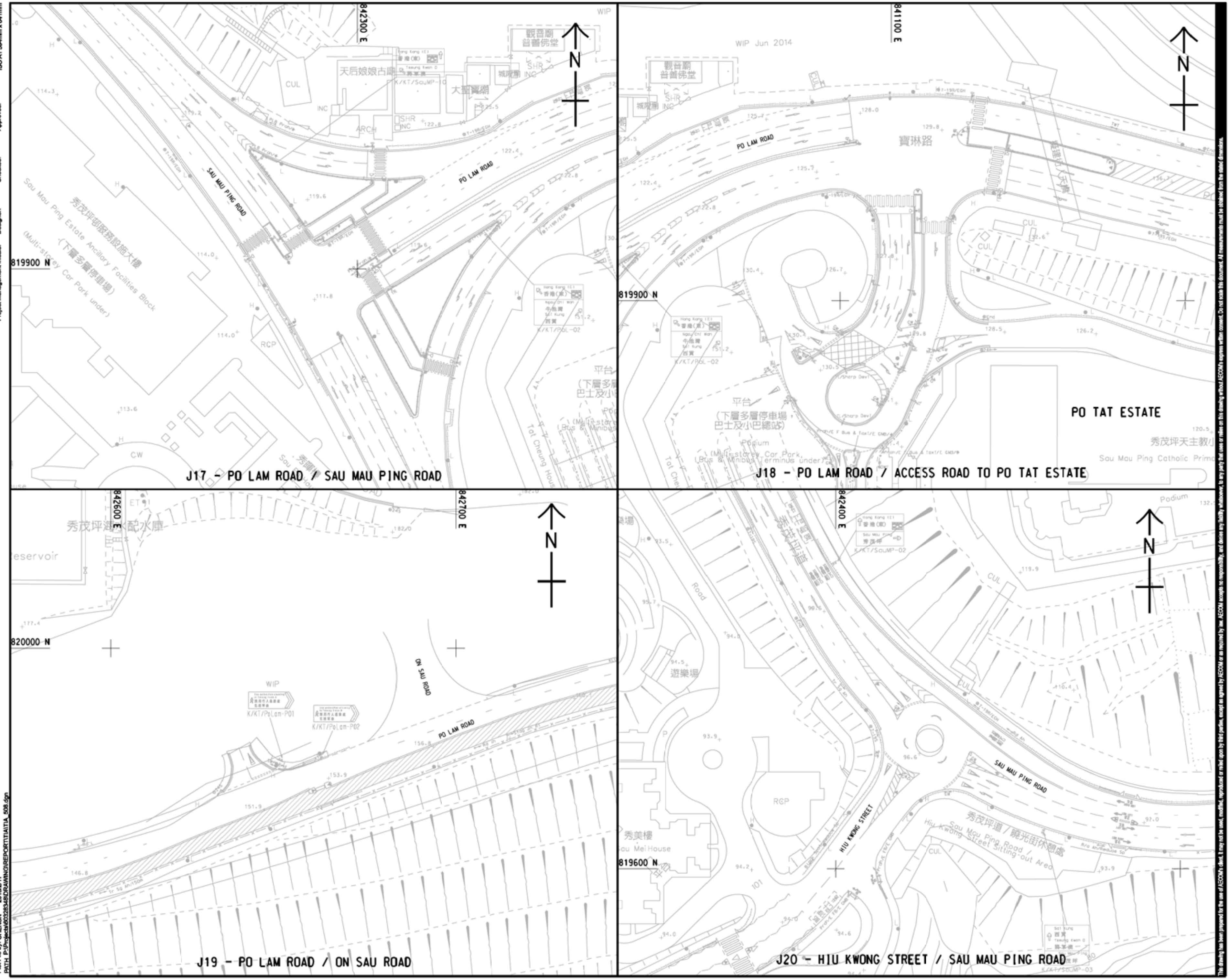
SHEET TITLE: EXISTING JUNCTION LAYOUT

SHEET 4 OF 9

SHEET NUMBER: 60328348/TIA/FIGURE 3.5

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

Plot File by: CHENSN 2015/2/11
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_507.dgn



Plot File by: CHENSN 2015/2/11
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_508.dgn

Project Management Initials: Designer: Checked: Approved:

ISO A1 594mm x 841mm

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STATUS 階段

SCALE 比例: A1 1:500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60328348

CONTRACT NO. 合約編號: CE 10/2014 (CE)

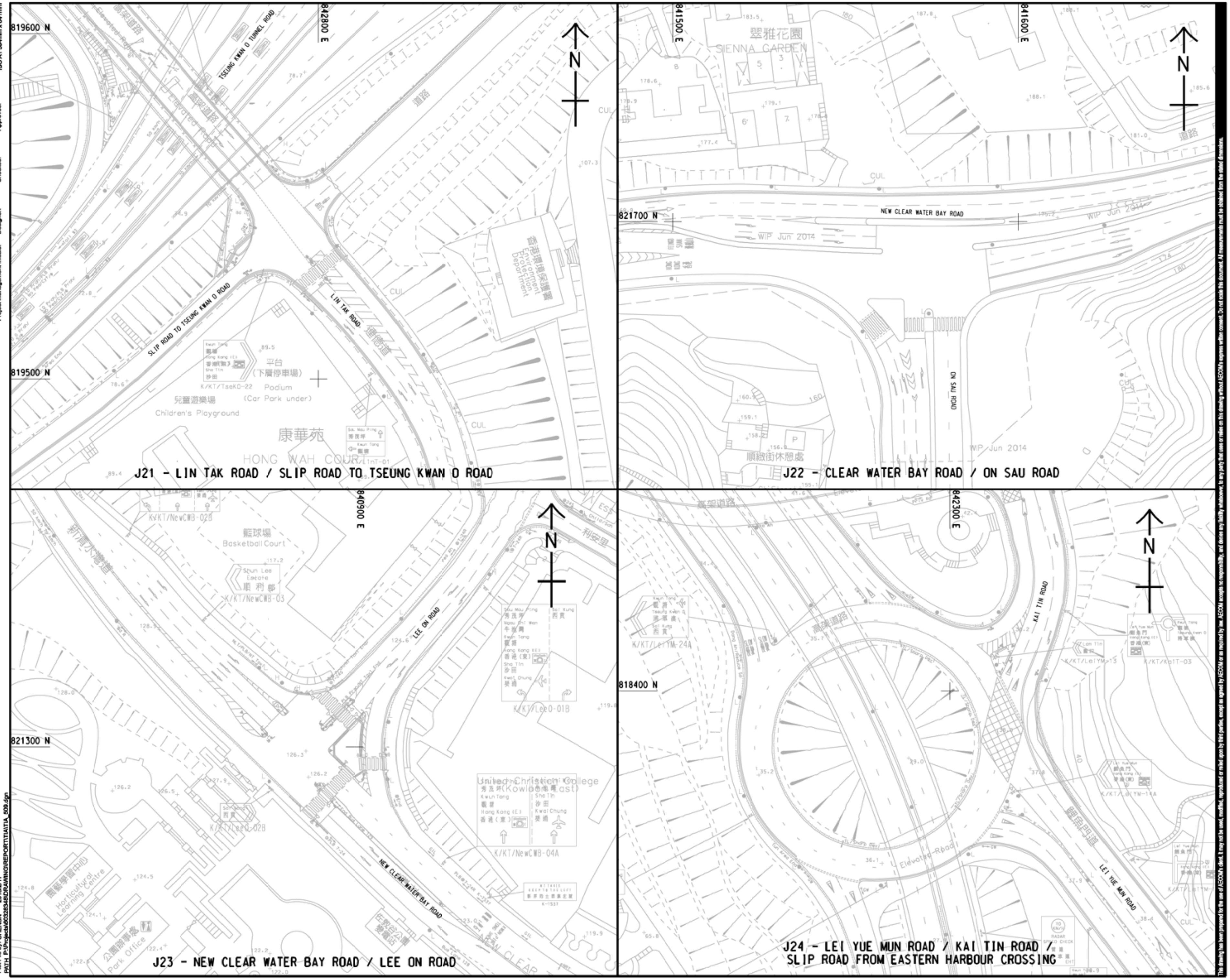
SHEET TITLE 圖紙名稱

EXISTING JUNCTION LAYOUT

SHEET 5 OF 9

SHEET NUMBER 圖紙編號

60328348/TIA/FIGURE 3.6



Project Management Initials: Designer: Checked: Approved:

ISO A1 594mm x 841mm

Plot File by: CHENSN 2015/2/11
PATH P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_509.dgn

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STATUS 狀態

SCALE 比例	**DIMENSION UNIT** 尺寸單位
A1 1 : 500	METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號	**CONTRACT NO.** 合約編號
60328348	CE 10/2014 (CE)

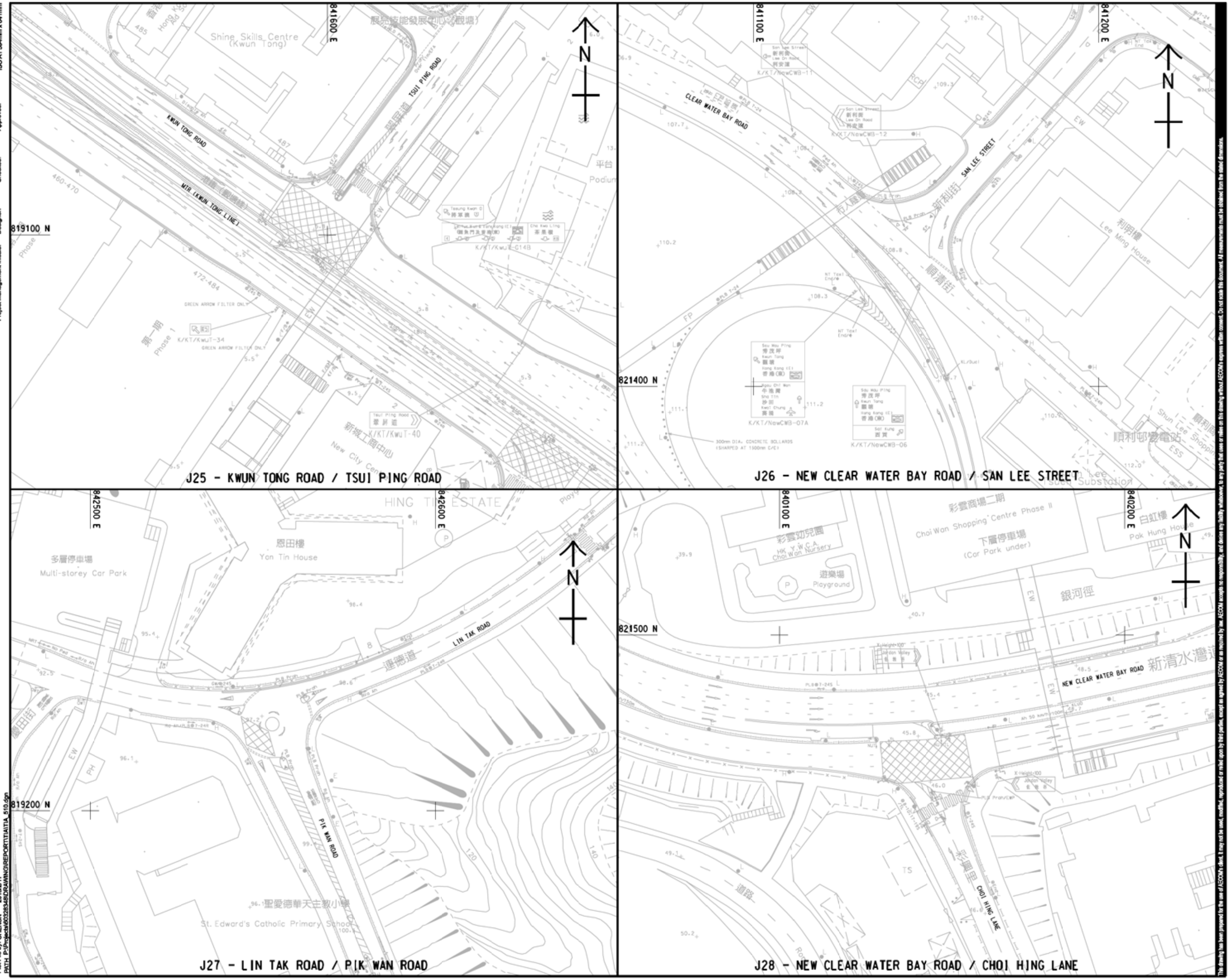
SHEET TITLE 圖紙名稱

EXISTING JUNCTION LAYOUT

SHEET 6 OF 9

SHEET NUMBER 圖紙編號

60328348/TIA/FIGURE 3.7



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SCALE: A1 1 : 500

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

SHEET TITLE

EXISTING JUNCTION LAYOUT

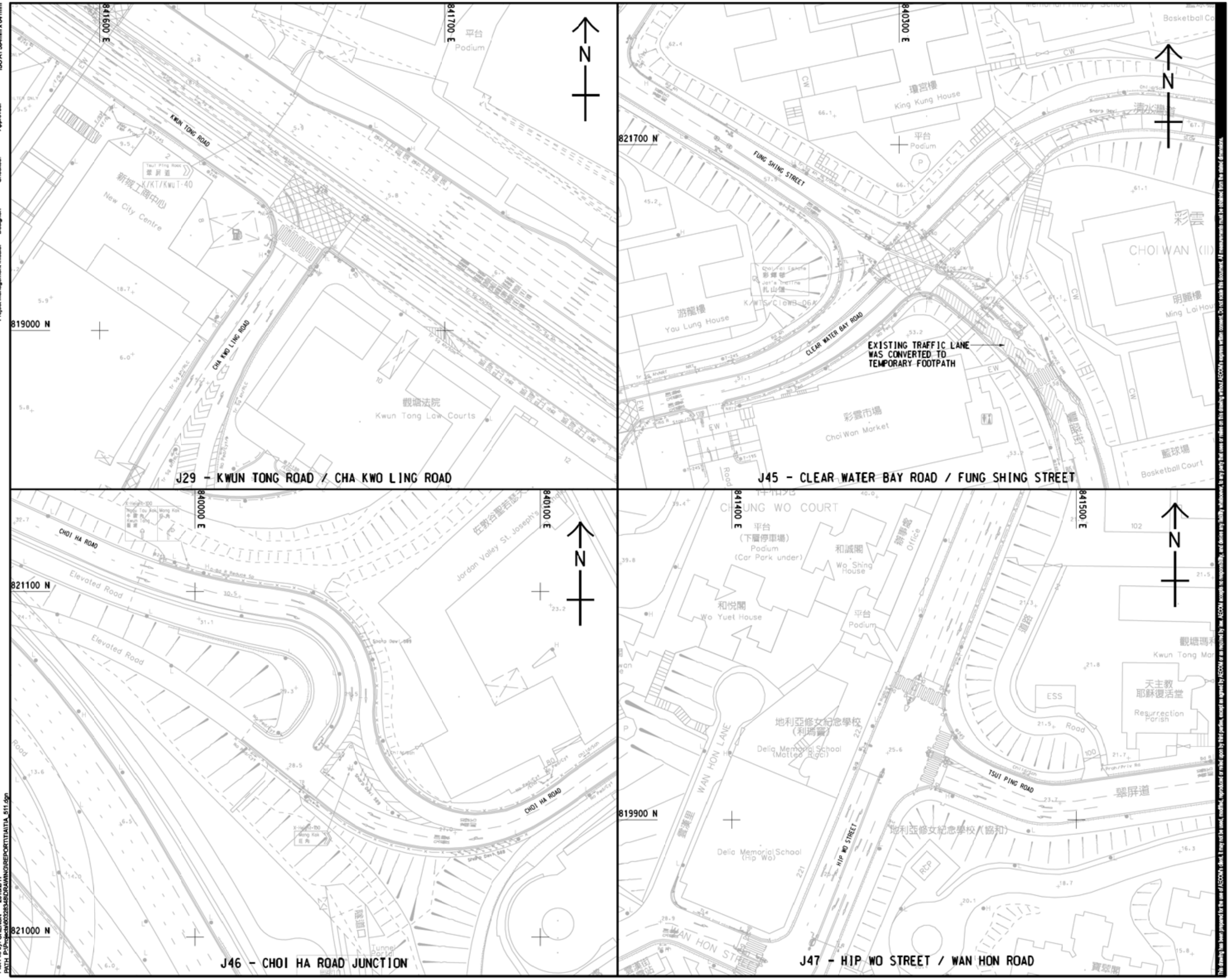
SHEET 7 OF 9

SHEET NUMBER

60328348/TIA/FIGURE 3.8

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

Plot File by: CHENSN 2015/2/11
PATH P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_510.dgn



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STATUS 狀況

SCALE 比例: A1 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60328348

CONTRACT NO. 合約編號: CE 10/2014 (CE)

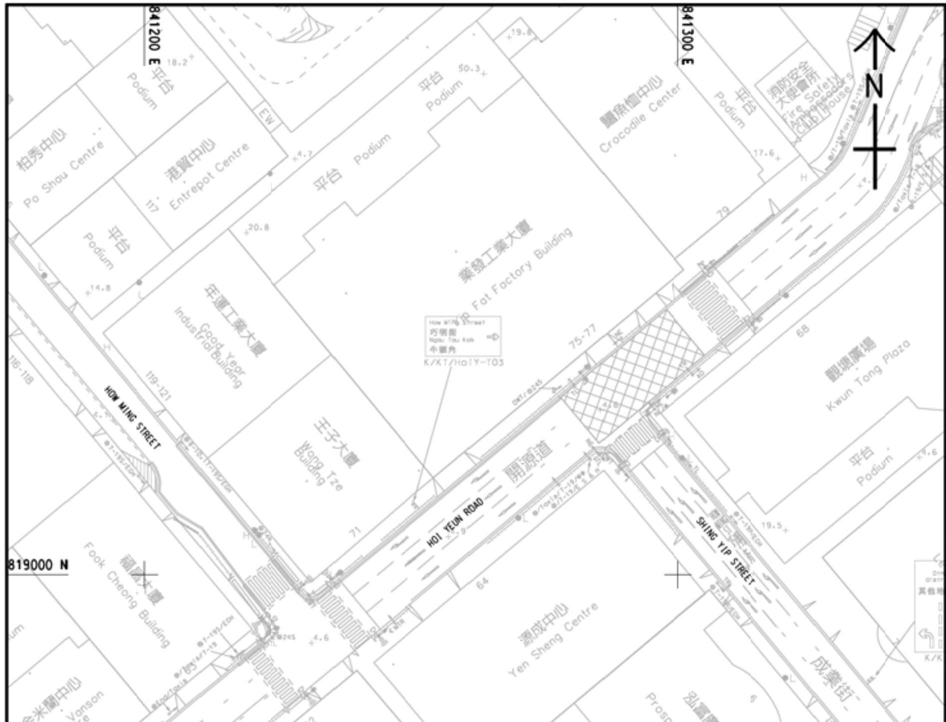
SHEET TITLE 圖紙名稱: EXISTING JUNCTION LAYOUT

SHEET 8 OF 9

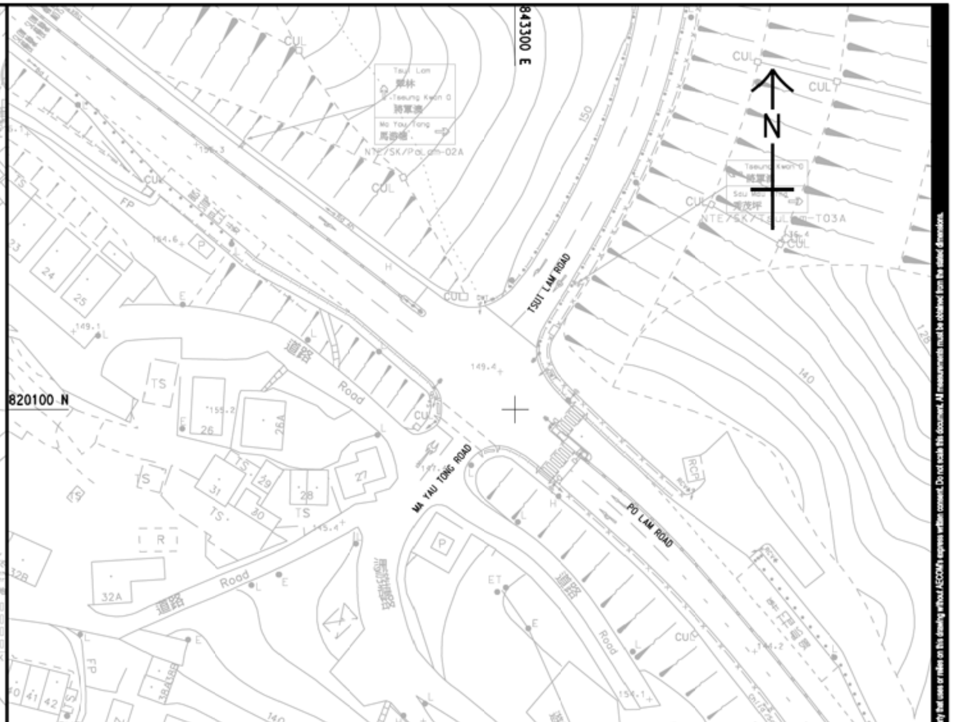
SHEET NUMBER 圖紙編號: 60328348/TIA/FIGURE 3.9

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

Plot File by: CHENSN 2015/2/11
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_511.dgn



J48 - HOI YUEN ROAD / SHING YIP STREET



J51 - PO LAM ROAD / TSUI LAM ROAD / MA YAU TONG ROAD

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SCALE A1 1 : 500

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

EXISTING JUNCTION LAYOUT

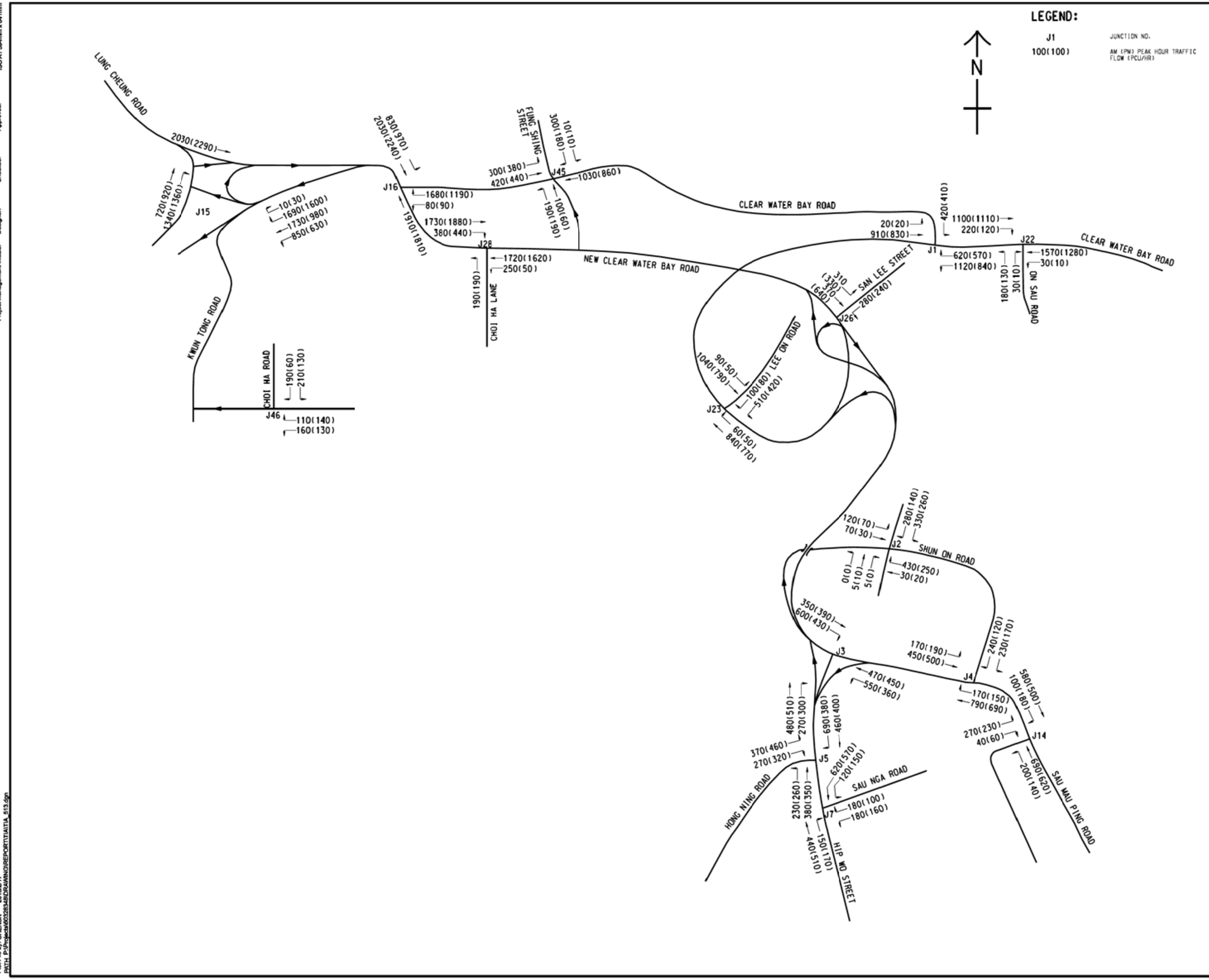
SHEET 9 OF 9

SHEET NUMBER

60328348/TIA/FIGURE 3.10A

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

Plot File by: WUMT 2015/5/11
PATH P:\PROJECTS\60328348\Drawing\REPORT\TIA\TIA_512.dgn



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STATUS

SCALE: N.T.S.

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

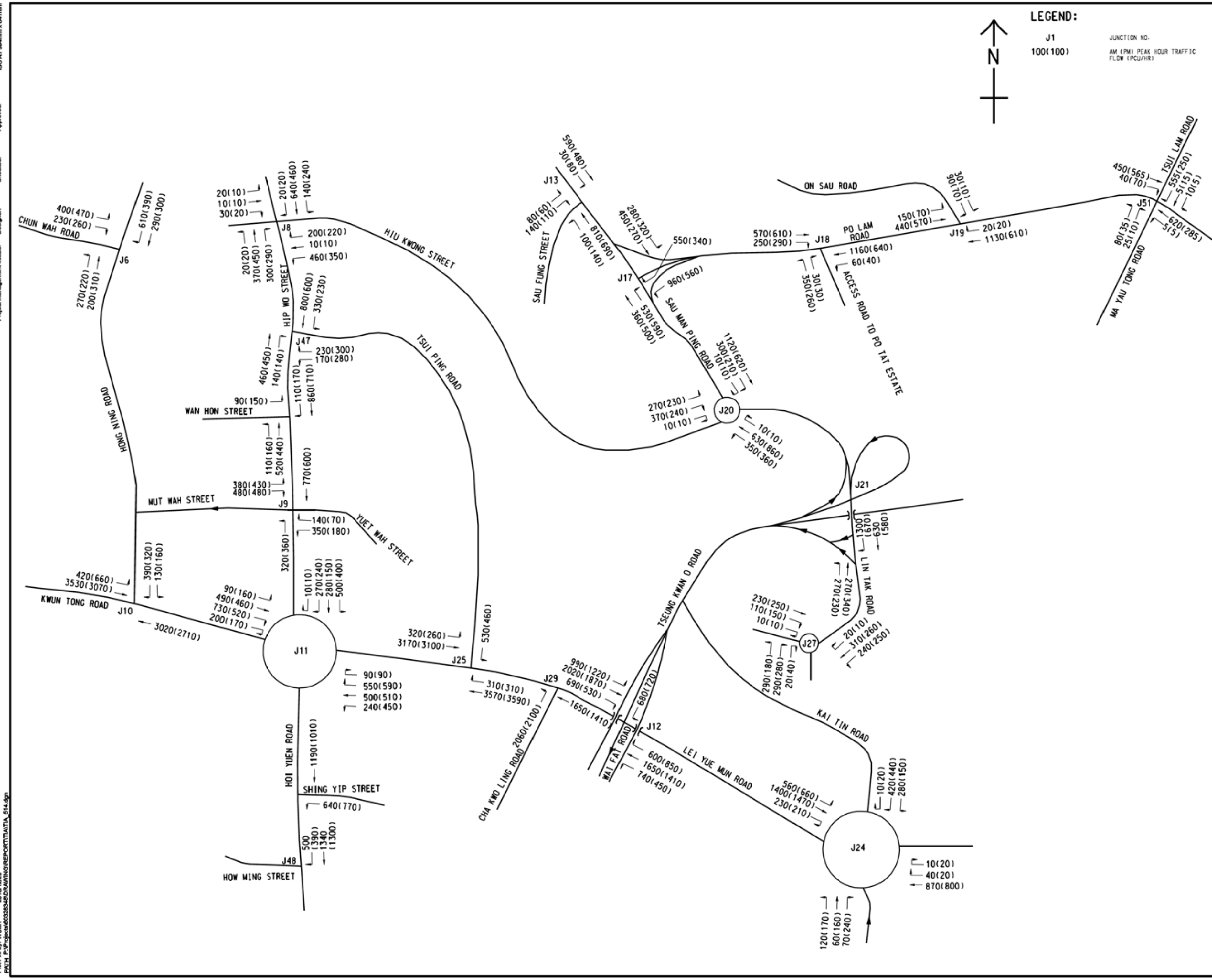
SHEET TITLE

2014 OBSERVED TRAFFIC FLOWS

SHEET 1 OF 2

SHEET NUMBER

60328348/TIA/FIGURE 3.11



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STATUS

SCALE: N.T.S.
DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348
CONTRACT NO.: CE 10/2014 (CE)

SHEET TITLE

2014 OBSERVED TRAFFIC FLOWS

SHEET 2 OF 2

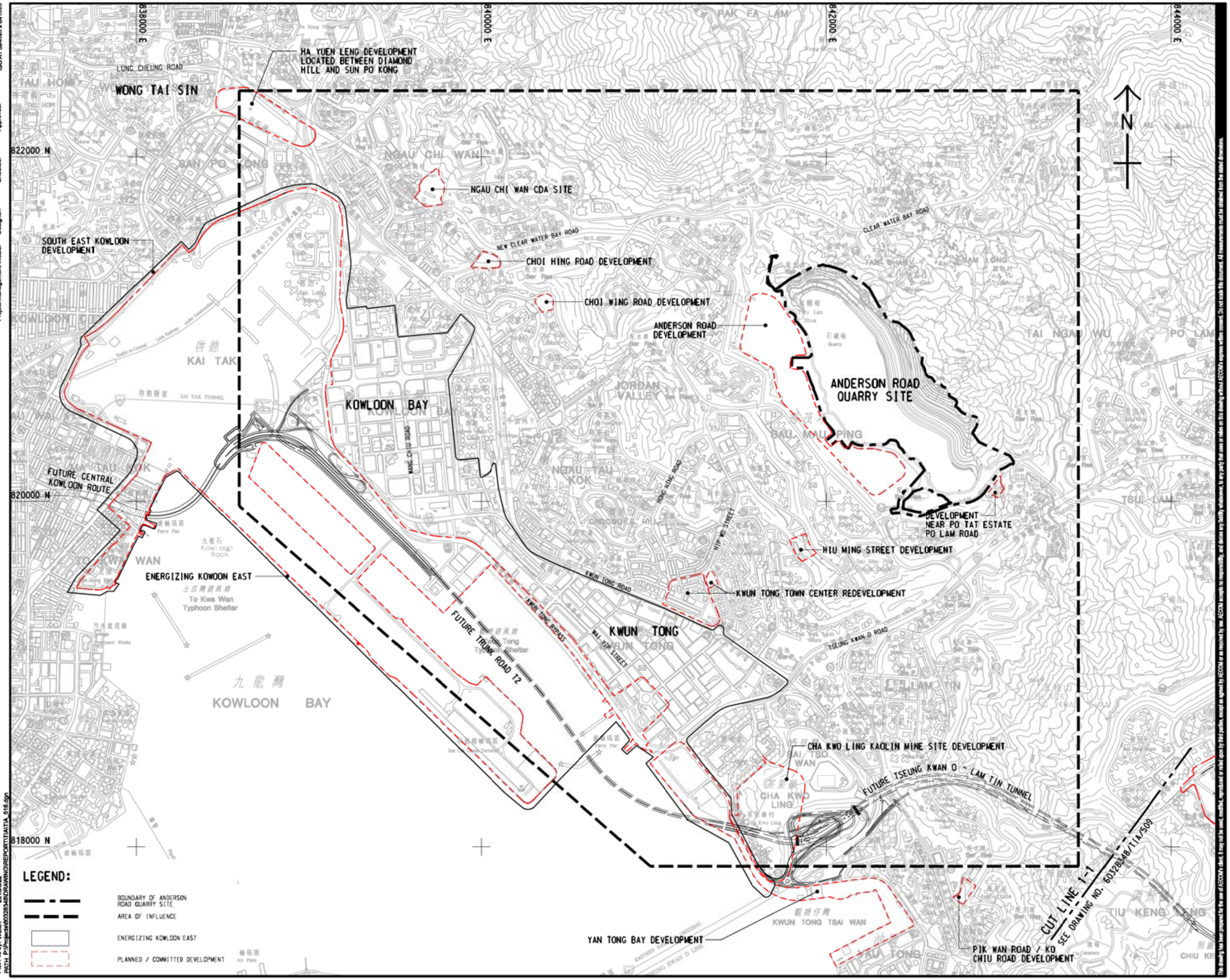
SHEET NUMBER

60328348/TIA/FIGURE 3.12B

Plot File by: WUMT 2016/12/29
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_514.dgn

Project Management Initials: Designer: Checked: Approved:

ISO A1 594mm x 841mm



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SCALE A1 1 : 10000

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

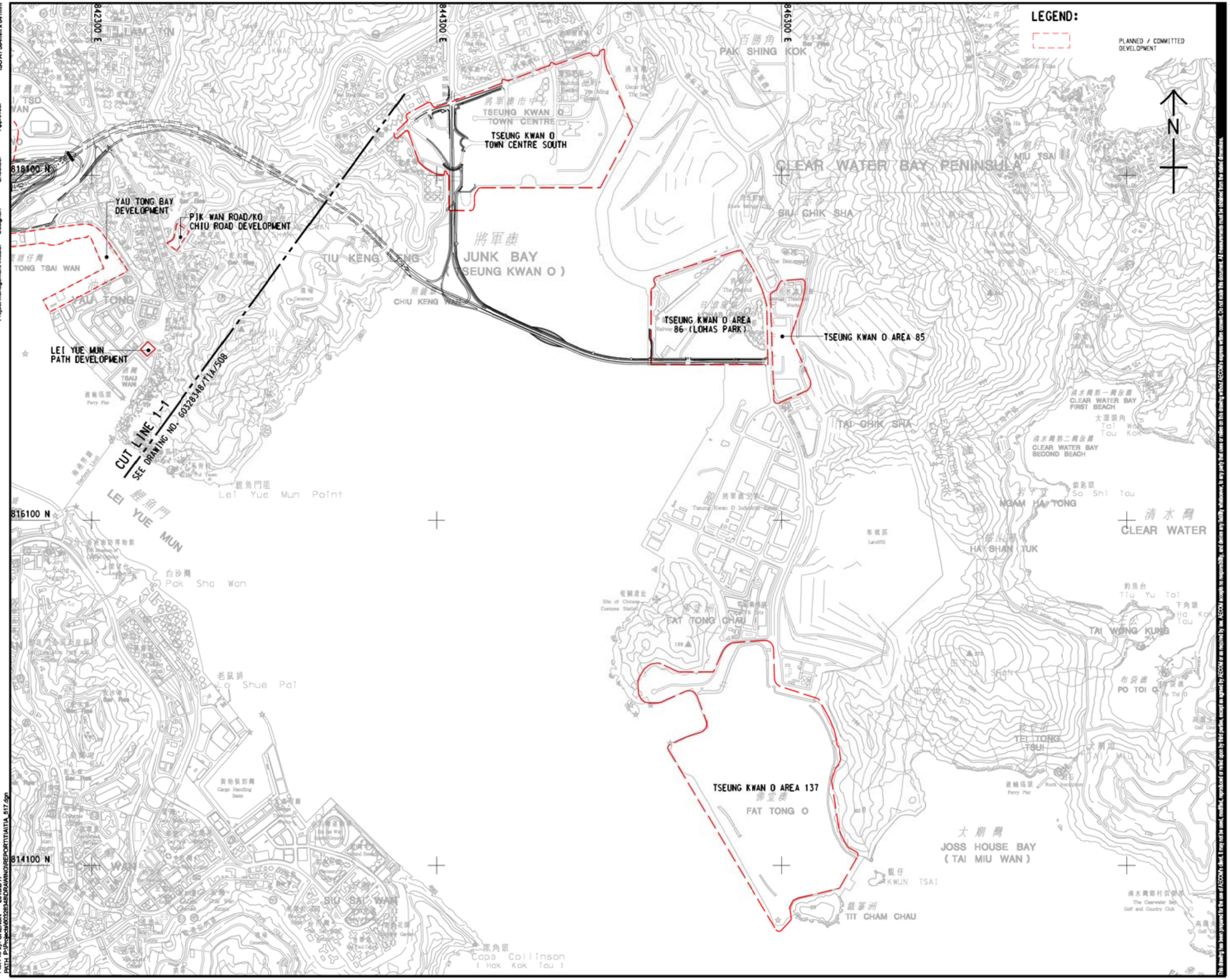
SHEET TITLE

COMMITTED AND PLANNED MAJOR DEVELOPMENTS

SHEET 1 OF 2

SHEET NUMBER

60328348/TIA/FIGURE 4.1A



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SCALE: A1 1 : 10000

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

SHEET TITLE

COMMITTED AND PLANNED MAJOR DEVELOPMENTS

SHEET 2 OF 2

SHEET NUMBER

60328348/TIA/FIGURE 4.2

Plot File by: CHENSN 2015/2/11
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_517.dgn

Project Management Initials: Designer: Checked: Approved:

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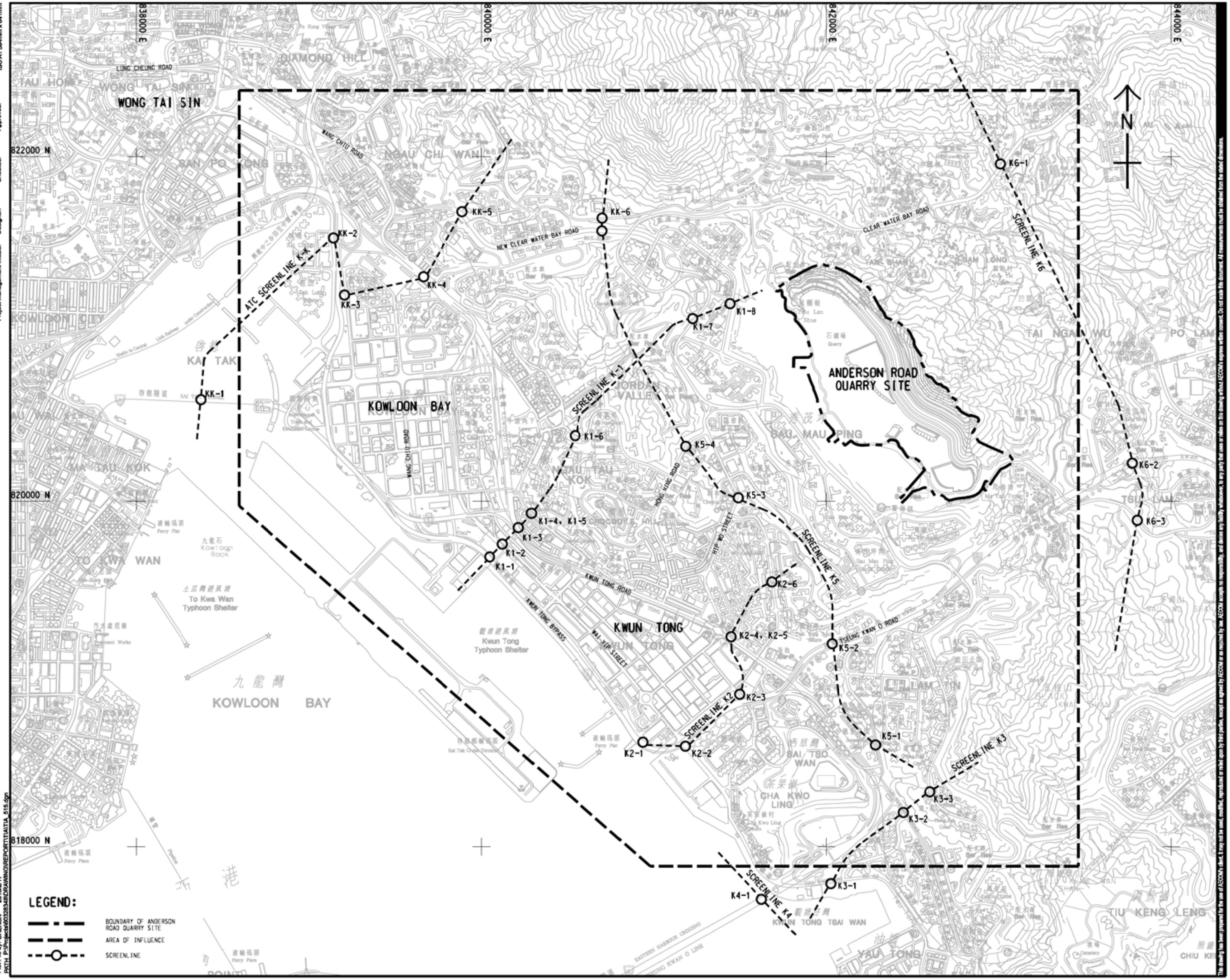

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SCALE A1 1 : 10000

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

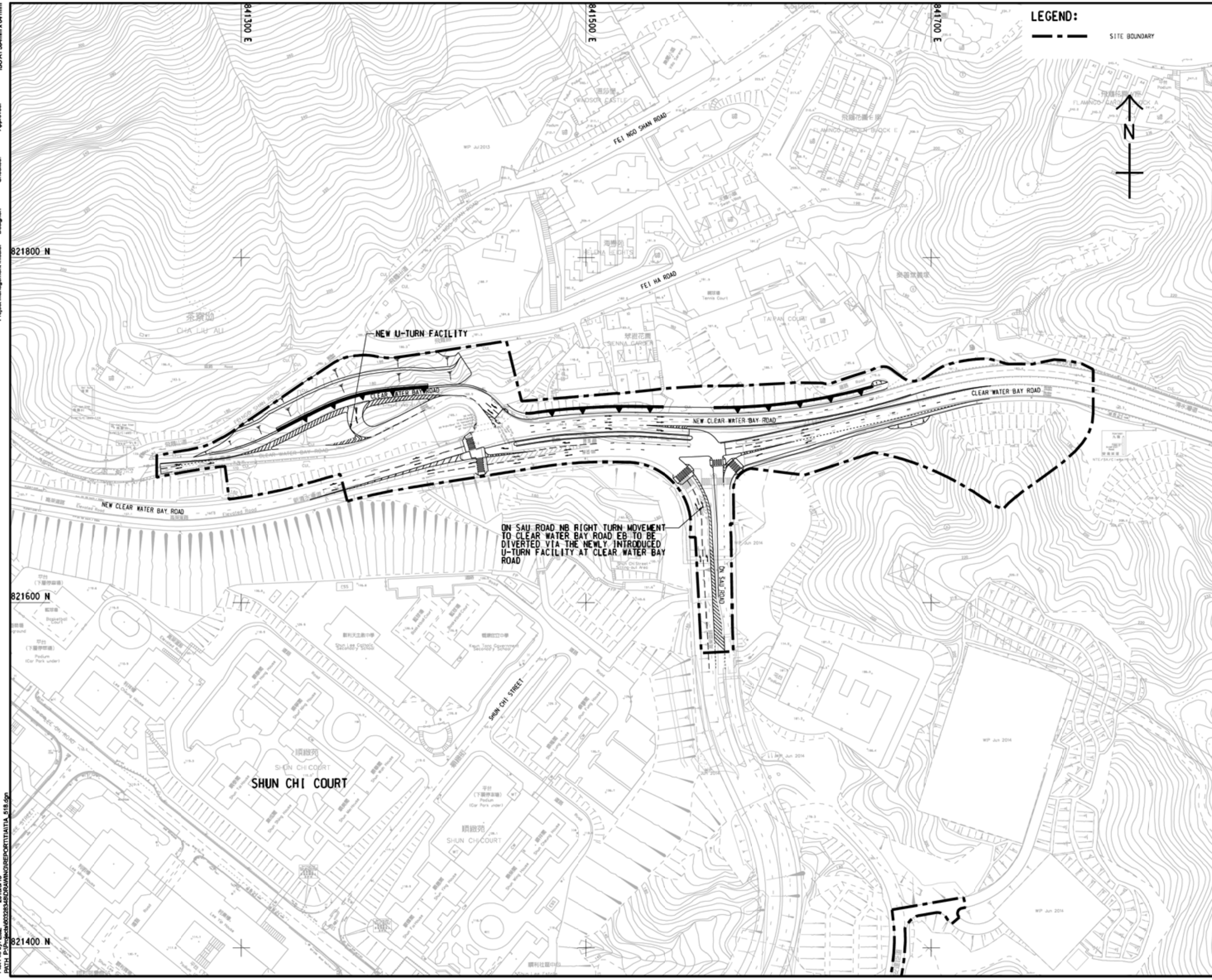
CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

SCREENLINES FOR LOCAL AREA TRAFFIC MODEL VALIDATION

SHEET NUMBER

60328348/TIA/FIGURE 4.3



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SCALE A1 1 : 1000

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

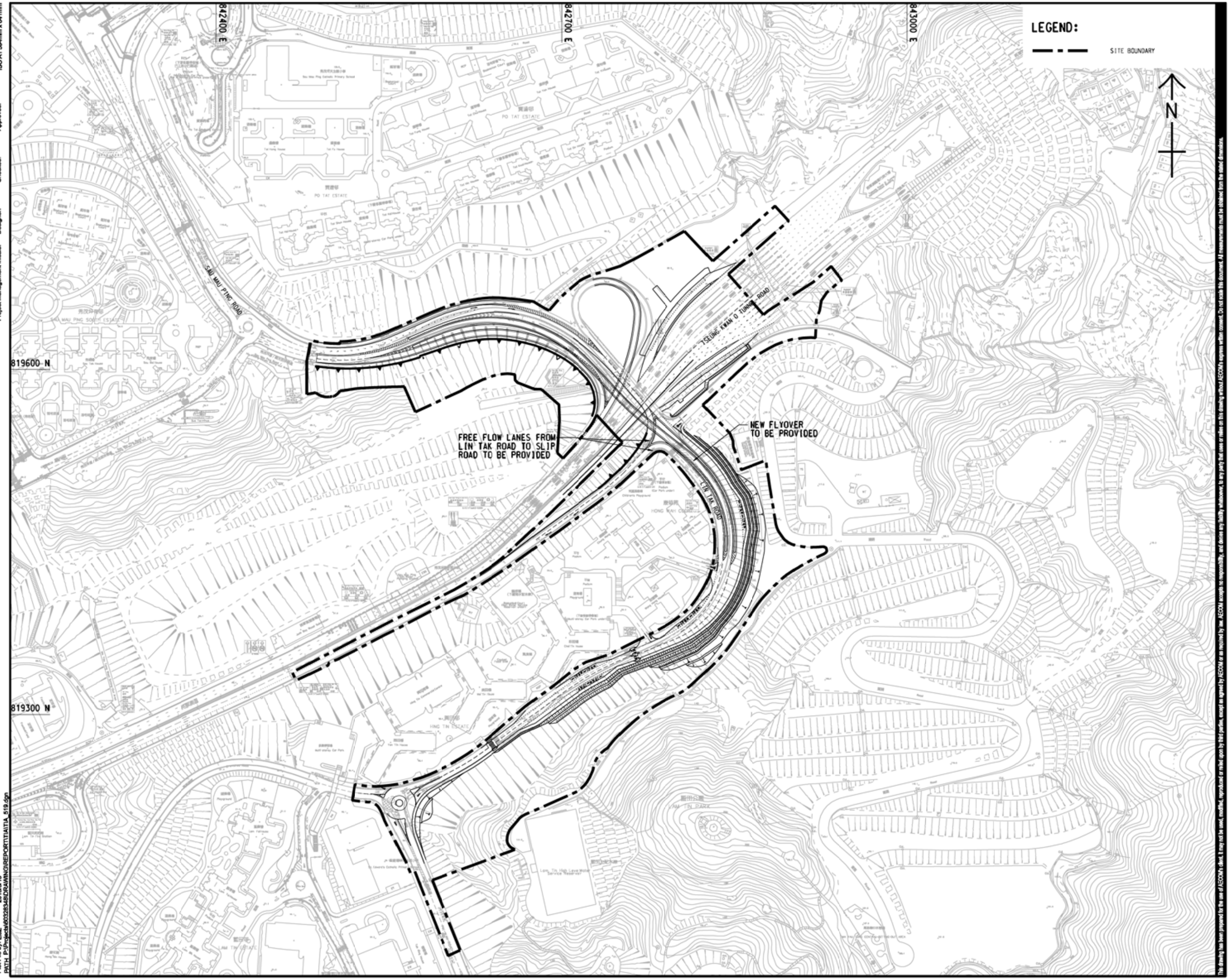
RECOMMENDED ROAD IMPROVEMENT WORKS - CLEAR WATER BAY ROAD / NEW CLEAR WATER BAY ROAD / ON SAU ROAD

SHEET NUMBER

60328348/TIA/FIGURE 4.4A

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

Plot File by: LIUZ 2015/5/15
PATH P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_518.dgn



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SCALE A1 1 : 1500

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

RECOMMENDED ROAD IMPROVEMENT WORKS - LIN TAK ROAD / SAU MAU PING ROAD / SLIP ROAD TO TSEUNG KWAN O ROAD

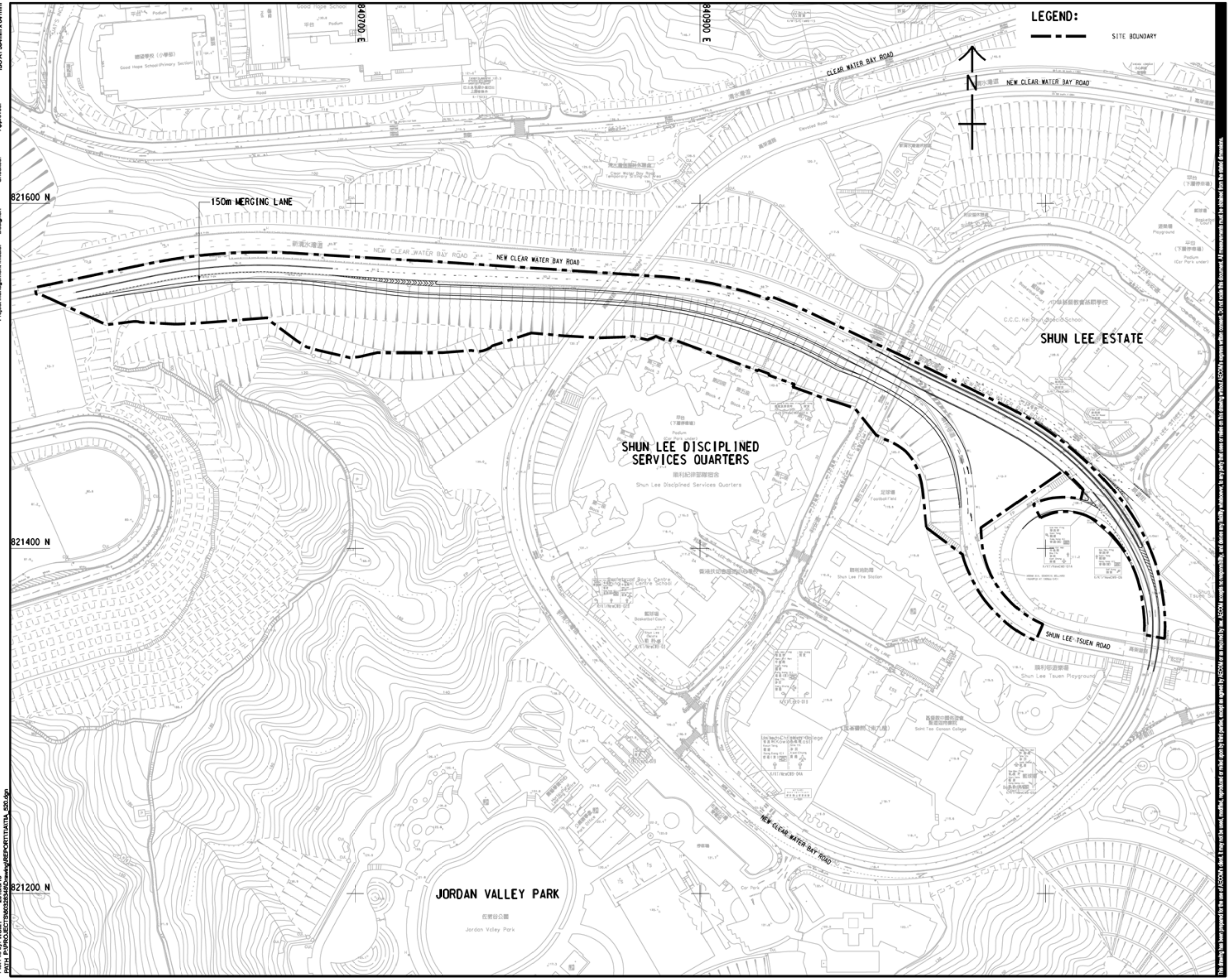
SHEET NUMBER

60328348/TIA/FIGURE 4.5A

Plot File by: LIUZ 2015/5/15
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_519.dgn

Project Management Initials: Designer: Checked: Approved:

ISO A1 594mm x 841mm



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DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

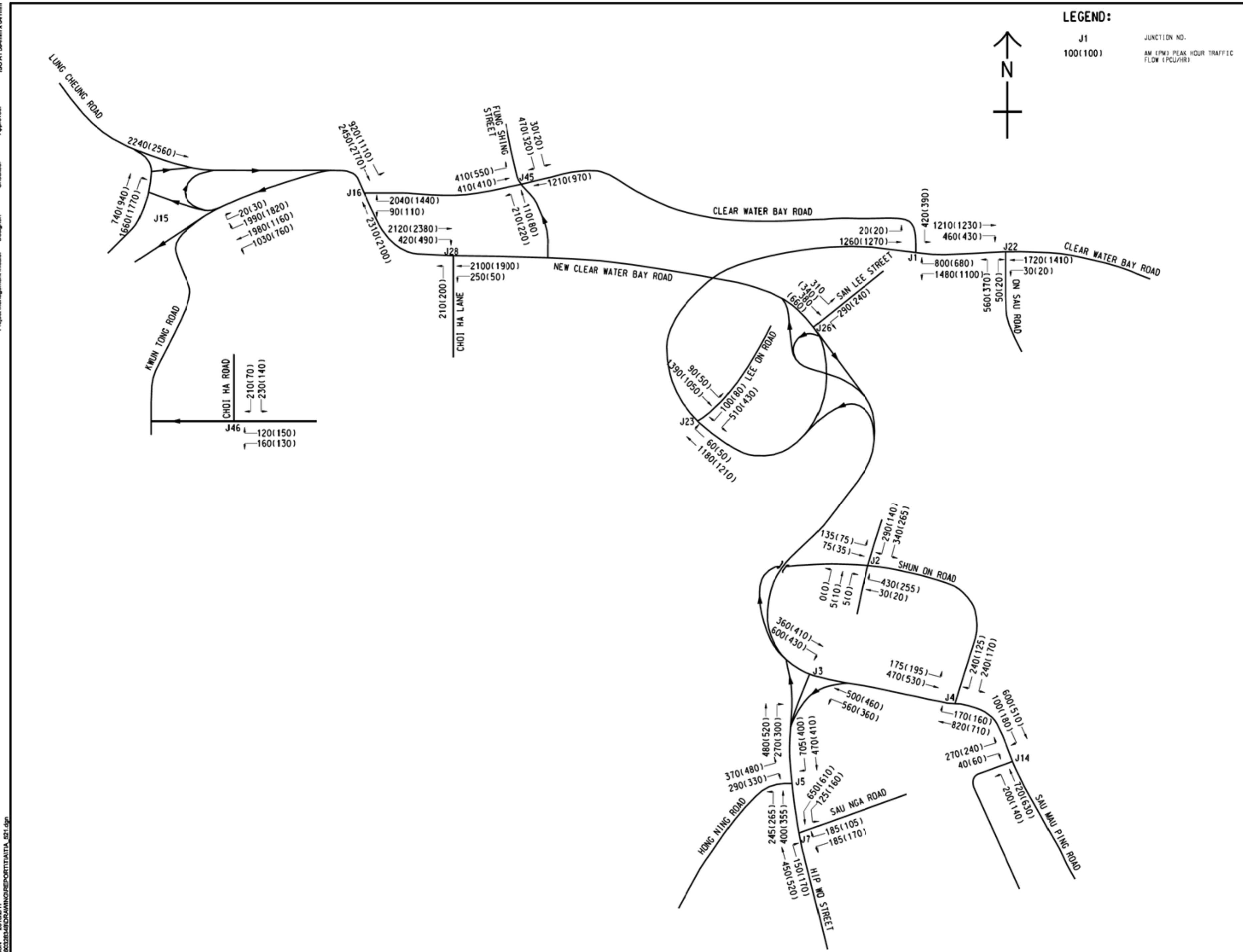
RECOMMENDED ROAD IMPROVEMENT WORKS - NEW CLEAR WATER BAY ROAD / SHUN LEE TSUEN ROAD

SHEET NUMBER

60328348/TIA/FIGURE 4.6A

Plot File by: WUMT 2015/5/13
PATH P:\PROJECTS\60328348\Drawing\REPORT\TIA\TIA_520.dgn

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



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DIMENSION UNIT METRES

KEY PLAN

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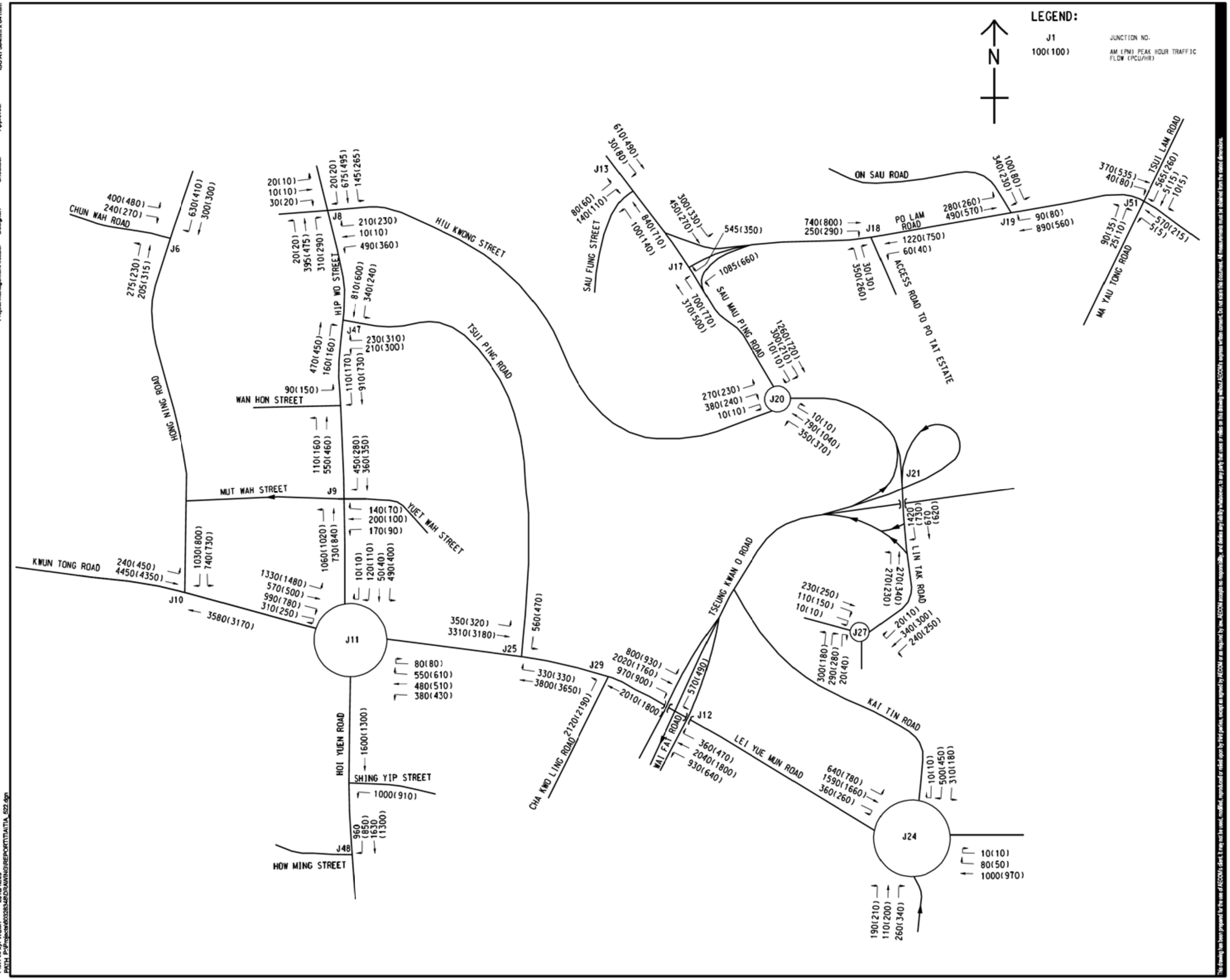
SHEET TITLE

2026 TRAFFIC FORECAST (REFERENCE SCENARIO)

SHEET 1 OF 2

SHEET NUMBER

60328348/TIA/FIGURE 4.7



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B	DEC.15	R TO C	KHL
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-	FEB.15	FIRST ISSUE	KHL

STATUS

SCALE: N.T.S.

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

SHEET TITLE

2026 TRAFFIC FORECAST (REFERENCE SCENARIO)

SHEET 2 OF 2

SHEET NUMBER

60328348/TIA/FIGURE 4.8B

Plot File by: WUMT 2016/12/29
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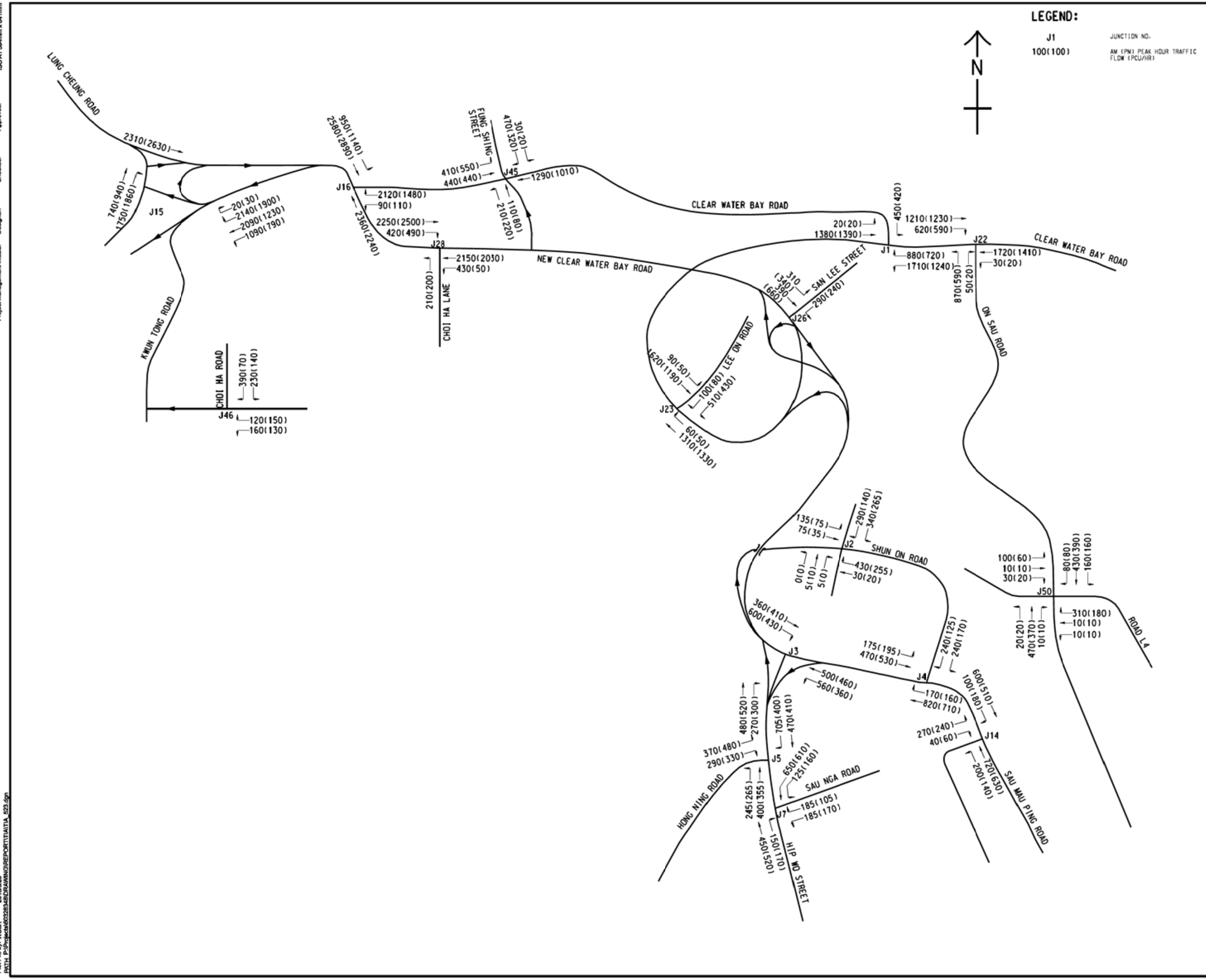
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



AECOM

PROJECT

DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT

CEDD 土木工程拓展署 Civil Engineering and Development Department

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I/R	DATE	DESCRIPTION	CHK.
A	MAY.15	MINOR AMENDMENT	KHL
-	FEB.15	FIRST ISSUE	KHL

STATUS

SCALE N.T.S.

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

2026 TRAFFIC FORECAST (ARQ POPULATION OF 25,000 WITHOUT EKL)

SHEET 1 OF 2

SHEET NUMBER

60328348/TIA/FIGURE 4.9A

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

Plot File by: WUMT 2015/5/20
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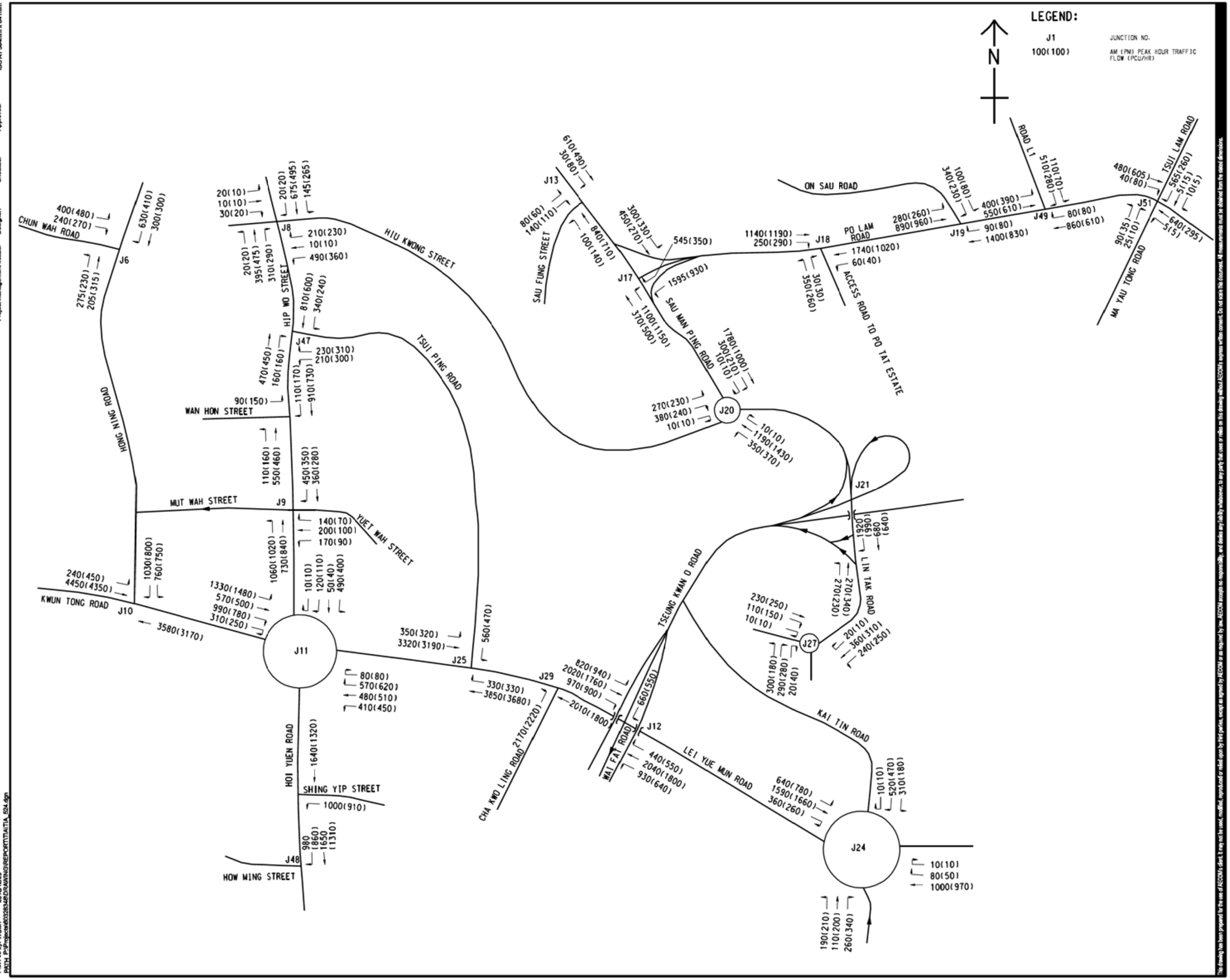

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I/R	DATE	DESCRIPTION	CHK.
B	DEC.15	R TO C	KHL
A	MAY.15	R TO C	KHL
-	FEB.15	FIRST ISSUE	KHL

STATUS

SCALE: N.T.S.

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60328348

CONTRACT NO.: CE 10/2014 (CE)

SHEET TITLE

2026 TRAFFIC FORECAST (ARQ POPULATION OF 25,000 WITHOUT EKL)

SHEET 2 OF 2

SHEET NUMBER

60328348/TIA/FIGURE 4.10B

Plot File by: WUMT 2016/12/29
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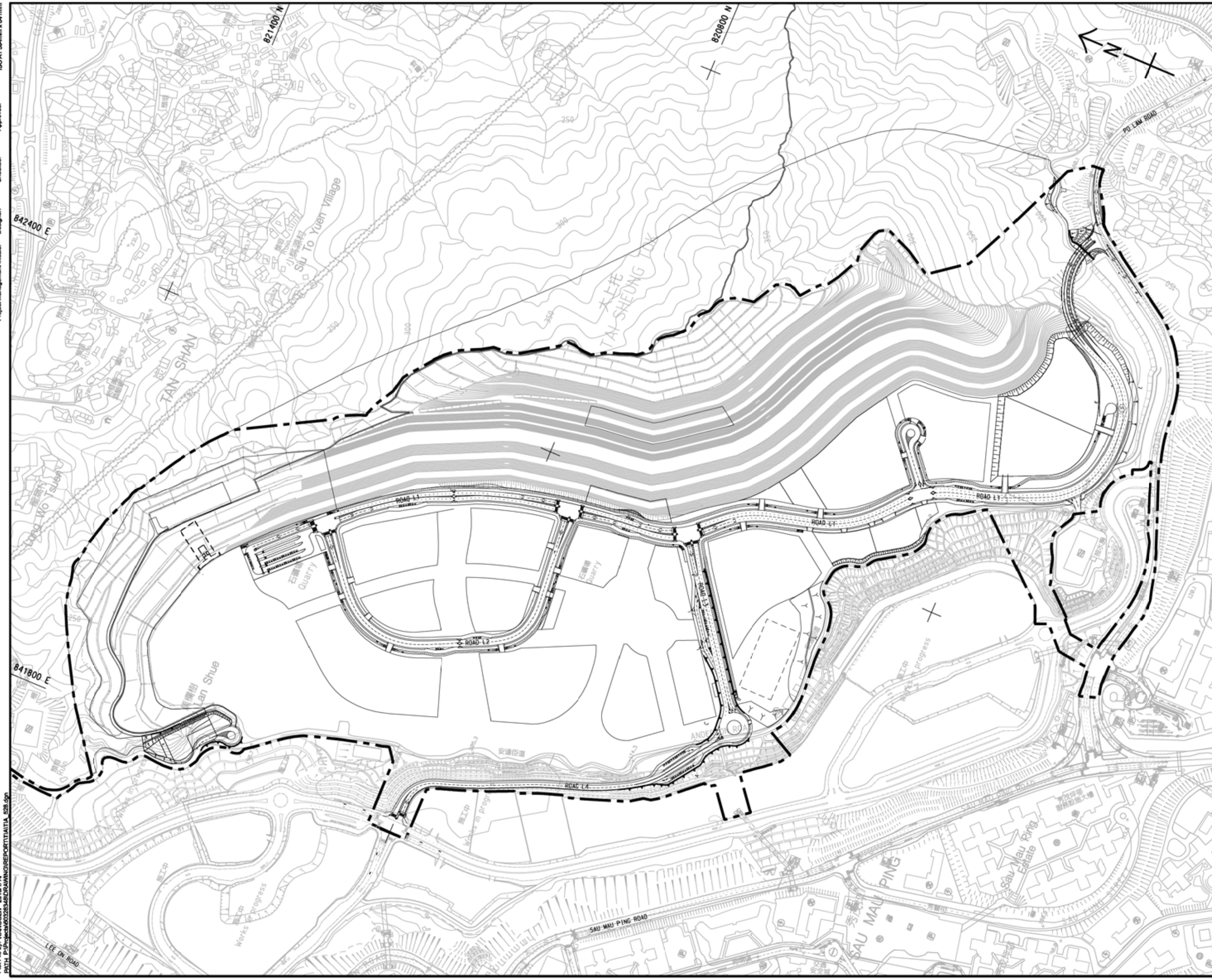

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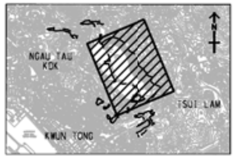
I/R	DATE	DESCRIPTION	CHK.
B	DEC.16	REVISED ROAD MARKING	KHL
A	MAY.15	REVISED ROAD LAYOUT	KHL
-	FEB.15	FIRST ISSUE	KHL

STATUS

SCALE A1 1 : 3000

DIMENSION UNIT

KEY PLAN



PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

ARQ INTERNAL ROAD LAYOUT

SHEET NUMBER

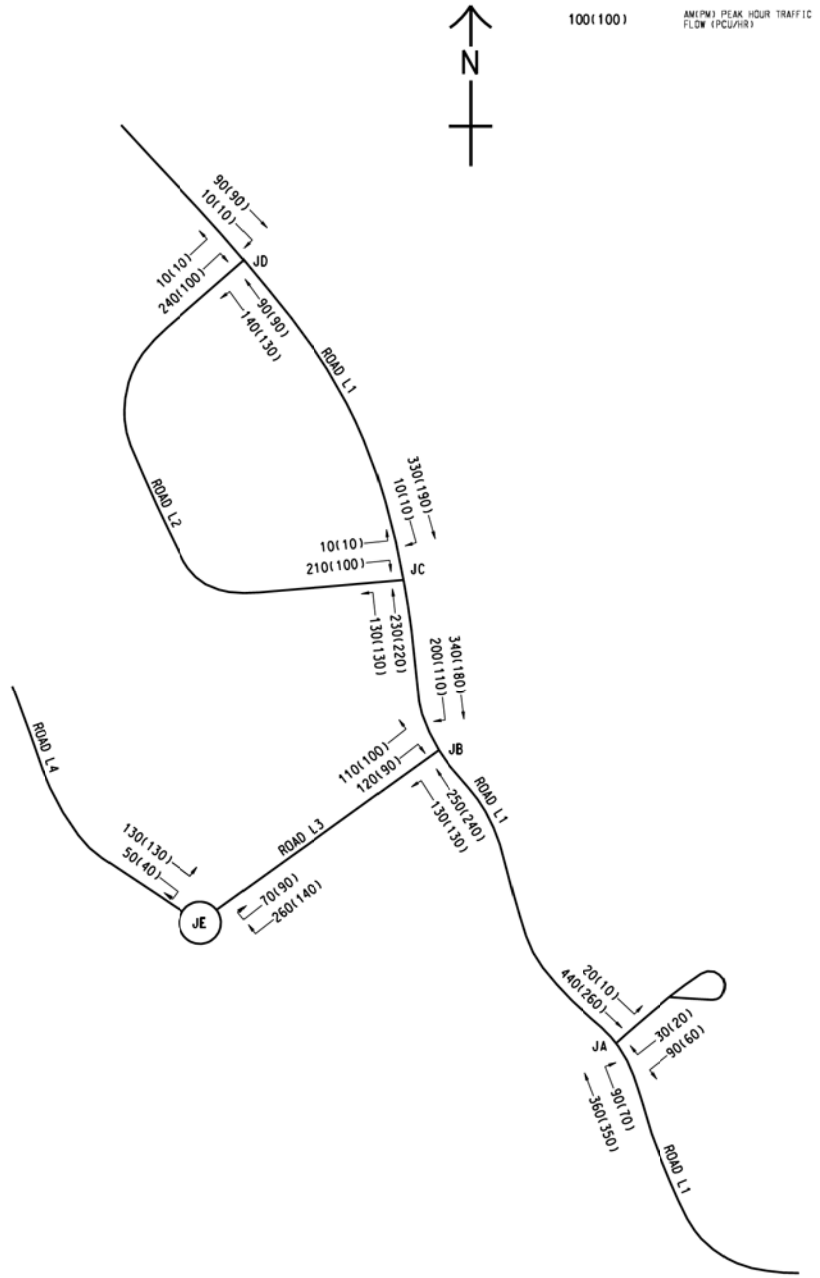
60328348/TIA/FIGURE 7.1B

Plot File by: WANGGLW 2016/1/14
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_528.dgn

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

LEGEND:

JA	JUNCTION NO.
100(100)	AM(PM) PEAK HOUR TRAFFIC FLOW (PCU/HR)



ARO POPULATION OF 25,000 WITHOUT EKL

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PROJECT

DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - INVESTIGATION, DESIGN AND CONSTRUCTION

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I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE N.T.S.

DIMENSION UNIT METRES

KEY PLAN

PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

TRAFFIC FORECAST WITHIN ARQ

SHEET NUMBER

60328348/TIA/FIGURE 7.2

Plot File by: CHENSN 2015/2/11
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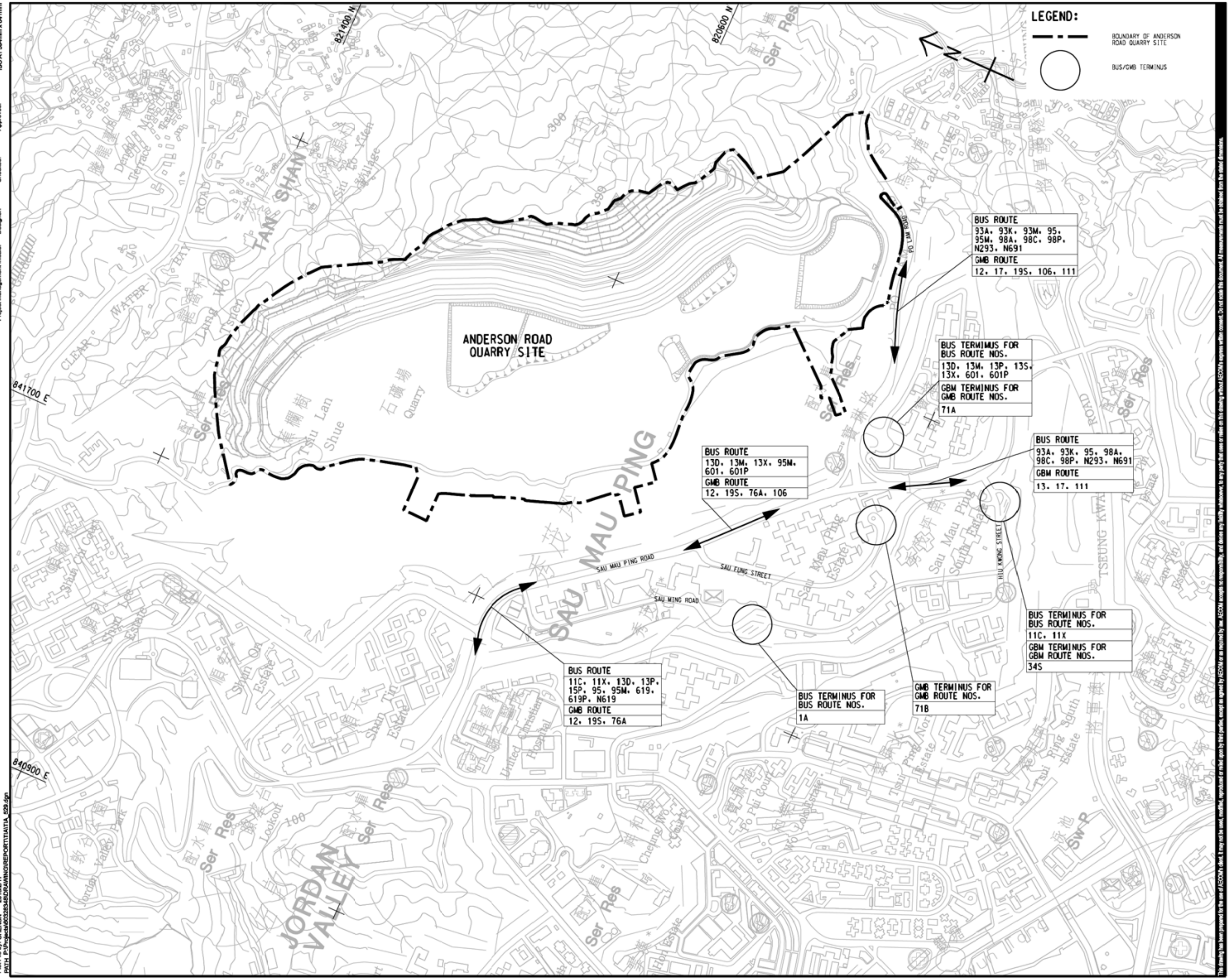
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



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PROJECT 項目

DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - INVESTIGATION, DESIGN AND CONSTRUCTION

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STATUS 階段

SCALE 比例: A1 1 : 4000

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60328348

CONTRACT NO. 合約編號: CE 10/2014 (CE)

SHEET TITLE 圖紙名稱

EXISTING PUBLIC TRANSPORT FACILITIES IN THE VICINITY OF ARQ

SHEET NUMBER 圖紙編號

60328348/TIA/FIGURE 9.1

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

Plot File by: CHENSN 2015/2/11
PATH: P:\Projects\60328348\DRAWING\REPORT\TIA\TIA_529.dgn

Appendix A

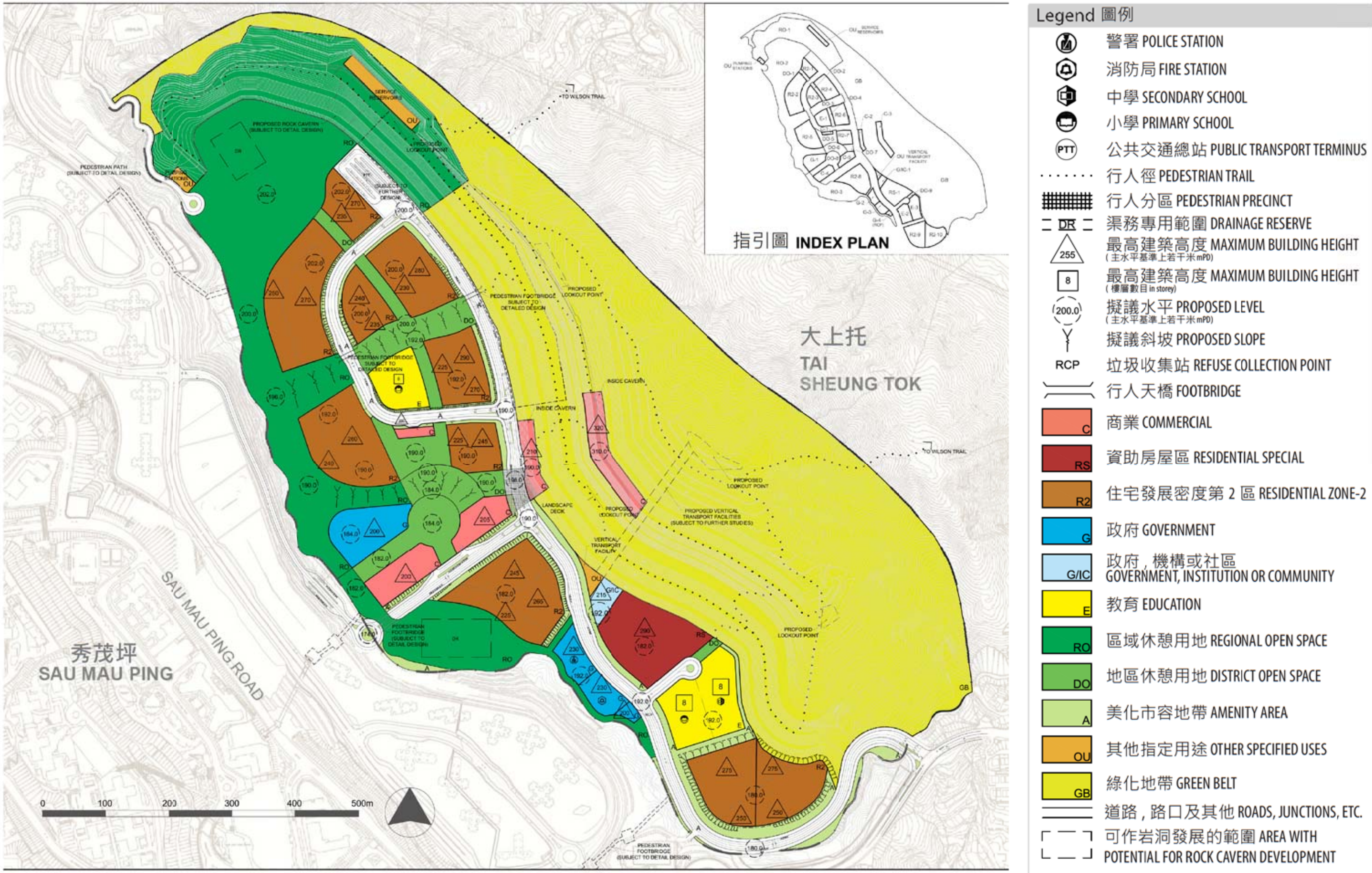


圖 3.2: 建議發展大綱圖

Figure 3.2: Recommended Outline Development Plan

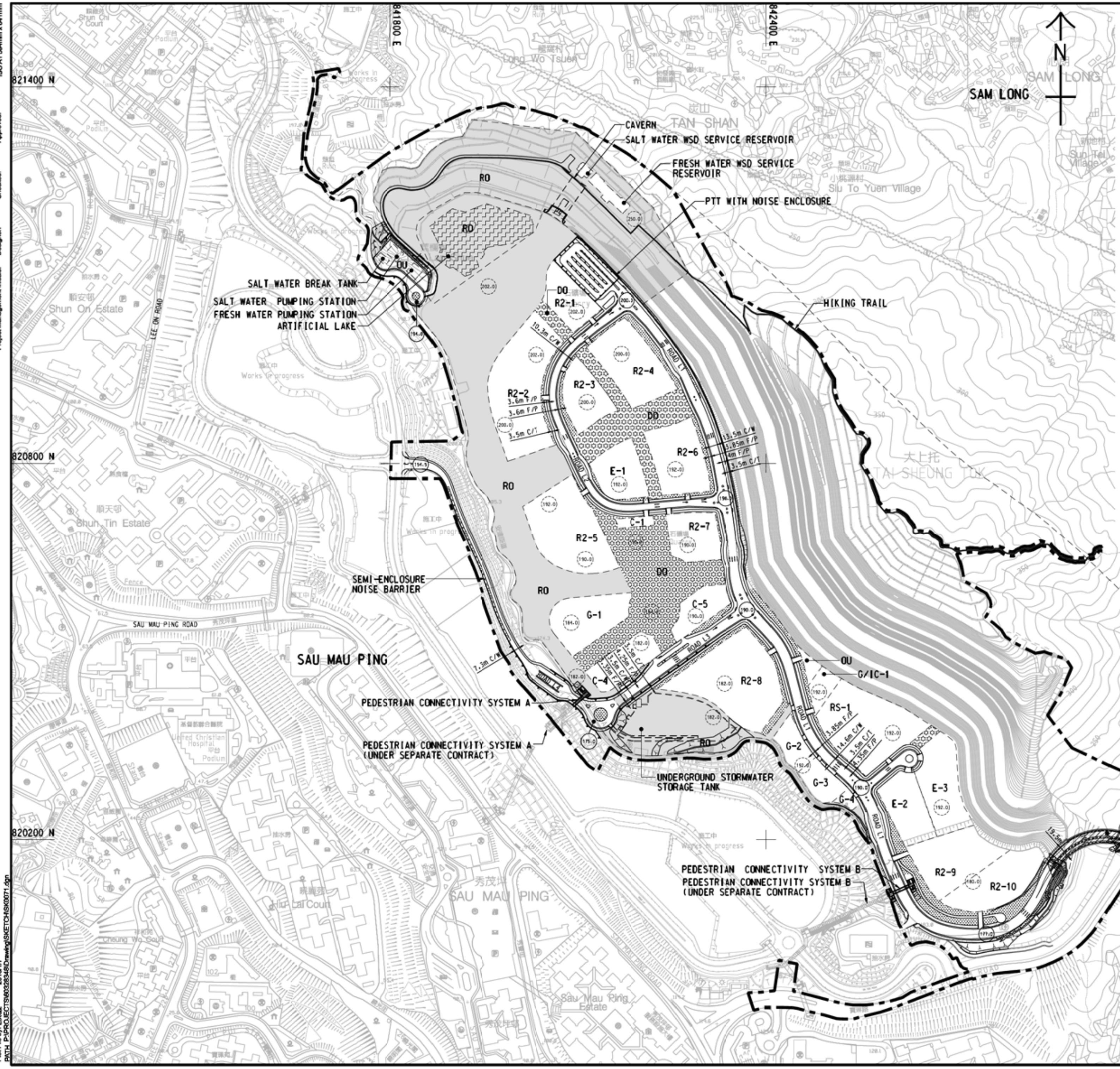
Appendix A Development Schedule of Land Use Zonings in the RODP

Zoning	Site No.	Area (ha)	Plot Ratio	GFA (m^2)	Approx. No of Flats	Max. Building Height (mPD/Equivalent No. of storeys**)	Remarks
Residential Special	RS	1.49	6.3	94,000	1,880	290mPD/ 33 storeys	Subsidized housing
Subtotal	---	**1.49**	---	***94,000**	***1,880**	---	---
Residential Zone 2	*Northern Community*						
	R2-1	0.53	4.5	24,100	400	235-270mPD/ 9-20 storeys	Private housing
	R2-2	1.82	3.8	69,300	1,160	250-270mPD/ 13-20 storeys	
	R2-3	0.60	3.0	18,000	300	235-240mPD/ 10-11 storeys	
	R2-4	1.07	4.5	48,000	800	230-280mPD/ 8-25 storeys	
	R2-5	1.52	3.8	57,800	960	240-260mPD/ 13-20 storeys	
	R2-6	0.90	5.5	49,500	830	225-290mPD/ 9-30 storeys	
	R2-7	0.60	3.5	21,100	350	225-245mPD/ 9-15 storeys	
	Southern Community						
	R2-8	1.69	4.0	67,400	1,120	225-265mPD/ 12-25 storeys	Private housing
	R2-9	1.06	5.0	53,200	890	250-275mPD/ 20-29 storeys	
	R2-10	0.95	4.5	42,900	720	250-275mPD/ 20-29 storeys	
Subtotal	---	**10.75**	---	***451,300**	***7,520**	---	---
Commercial	C-1	0.09	0.5	450	---	205mPD	Within Northern Community
	C-2	0.31	---	2,700	---	210mPD	Within caverns on rock face at 190mPD
	C-3	0.63	---	1,000	---	320mPD	Within caverns on rock face at 310mPD
	C-4	0.56	2.2	12,400	---	200mPD	Within Civic Core
	C-5	0.44	2.2	9,800	---	205mPD	Within Civic Core including a public car pack
Subtotal	---	**2.03**	---	***26,300**	---	---	---
G/IC	E-1	0.62	---	---	---	8 storeys	Primary school in Northern Community
	E-2	0.62	---	---	---	8 storeys	Primary school in Southern Community

Development Schedule of Land Use Zonings in the draft RODP (Cont'd)

Zoning	Site No.	Area (ha)	Plot Ratio	GFA (m2)	Approx. No of Flats	Max. Building Height (mPD/Equivalent No. of storeys)	Remarks
G/IC	E-3	0.72	---	---	---	8 storeys	Secondary school in Southern Community
	G-1	0.83	2.5	20,700	---	200mPD	Sports and recreational facilities in Civic Core
	G-2	0.31	---	---	---	230mPD	Police station in Southern Community
	G-3	0.31	---	---	---	230mPD	Fire station in Southern Community
	G-4	0.07	---	---	---	200mPD	Refuse collection point in Southern Community
	G/IC-1	0.21	2.5	5,100	---	215mPD	Community hall and social services facilities in Southern Community
Subtotal	---	**3.68**	---	---	---	---	---
Open Space	RO-1	6.18	---	---	---	---	Quarry Park
	RO-2	8.57	---	---	---	---	
	RO-3	2.56	---	---	---	---	
	DO-1	0.15	---	---	---	---	Pedestrian corridor in Northern Community
	DO-2	0.24	---	---	---	---	
	DO-3	0.91	---	---	---	---	Gentle slope with vegetation
	DO-4	0.22	---	---	---	---	Pedestrian corridor in Northern Community
	DO-5	0.63	---	---	---	---	Within Northern Community
	DO-6	0.59	---	---	---	---	Gentle slope with vegetation
	DO-7	0.17	---	---	---	---	Within Civic Core
	DO-8	0.93	---	---	---	---	
	DO-9	0.08	---	---	---	---	Within Southern Community
Subtotal	---	**21.23**	---	---	---	---	---
Other Specified Uses	Service Reservoir	0.30	---	---	---	---	On rock face
	Vertical Transport System	0.09	---	---	---	---	Within Southern Community
	Pumping Stations	0.08	---	---	---	---	Near Quarry Park
Subtotal	---	**0.48**	---	---	---	---	---
Green Belt	GB	37.76	---	---	---	---	Mainly on rock face
Amenity Area	---	3.29	---	---	---	---	---
Road	---	7.14	---	---	---	---	Including a public transport terminus (about 0.6 ha)

* The total GFA and flat numbers are rounded to the nearest hundred and ten, respectively. Individual entries may not add up to the sub-total due to rounding of the former.
** The nos. of storeys are indicative for easy reference only. The ultimate numbers of storeys depend on the actual architectural design. For residential sites, these numbers refer to residential floors only.



NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. ALL LEVELS ARE IN METRES AND REFER TO PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE IN ACCORDANCE WITH HK(1980) GAUSS CO-ORDINATE SYSTEM.
4. DETAILS INCLUDING DIMENSIONS, LEVELS, DESCRIPTIONS, LOCATIONS, ETC. GIVEN FOR EXISTING ROADS, FOOTPATHS, BRIDGE STRUCTURE ARE INDICATIVE ONLY. THE CONTRACTOR SHALL VERIFY THE ACTUAL EXISTING DETAILS ON SITE.

LEGEND:

- SITE BOUNDARY
- UNDERPASS
- SEMI-ENCLOSURE NOISE BARRIER
- LANDSCAPE AREA
- AMENITY AREA
- ARTIFICIAL LAKE
- FUTURE REGIONAL OPEN SPACE
- R2-1 PARCEL NAME FOR FUTURE DEVELOPMENT
- (190.0) ROAD LEVEL
- TRAFFIC LANE
- C/W CARRIAGEWAY
- F/P FOOTPATH
- C/T CYCLE TRACK
- (200.0) SPOT LEVEL
- NEWLY FORMED FILL SLOPE (1:2)
- NEWLY CONSTRUCTED RETAINING WALL
- NEWLY FORMED MAX 70° ROCK CUT SLOPE
- NEWLY FORMED MAX 45° SOIL CUT SLOPE

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PROJECT 項目

DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - INVESTIGATION, DESIGN AND CONSTRUCTION

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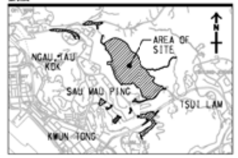
SCALE A1 1:3000

DIMENSION UNIT METRES

KEY PLAN A1 1:60000



PROJECT NO. 60328348

CONTRACT NO. CE 10/2014 (CE)

SHEET TITLE

GENERAL LAYOUT PLAN

SHEET NUMBER

60328348/SK0071

ISO A1 594mm x 841mm

Approved: Checked: Designer: Project Management Initials:

Plot File by: LIXQ2 2016/1/7
PATH: P:\PROJECTS\60328348\Drawing\SKETCH\SK0071.dgn

Appendix B

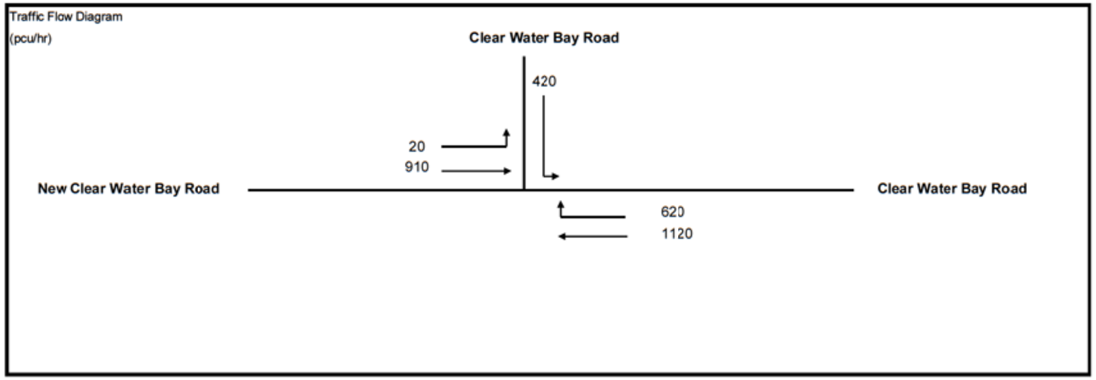
Junction Calculation Sheets for Existing Scenario

JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2014 AM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1

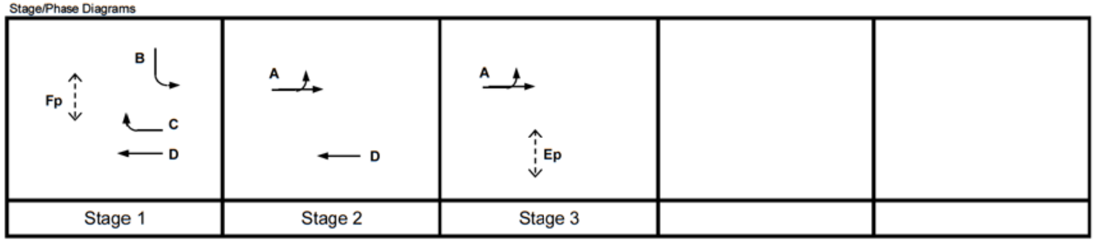


No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.542	
Lost time	L =	19	sec
Total Flow	=	10,535	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	73	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	42	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.758	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	39.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	48	sec
Y_{max} = $1-L/C$	=	0.789	

Critical Case : D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 31%

Stage/Phase Diagrams



I/G = | I/G = 5 | G = 5 | I/G = 10

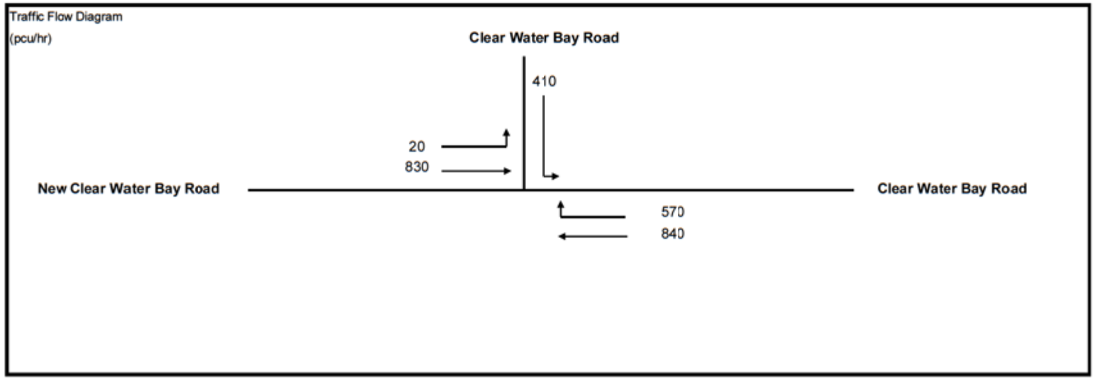
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	2,3	3.650	1	10			1		0		1980	20	428		448	4%		1967	0.228	
	A	2,3	3.650	1				0		0		2120		482		482			2120	0.228	
	B	1	3.500	1	15			1		0	80	1965	420			420	100%		1859	0.226	
	C	1	5.700	1		30	0	0		0		2325			620	620		100%	2214	0.280	
	D	1,2	4.500	1				1		0		2065		1120		1120			2065	0.542	0.542
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												*
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

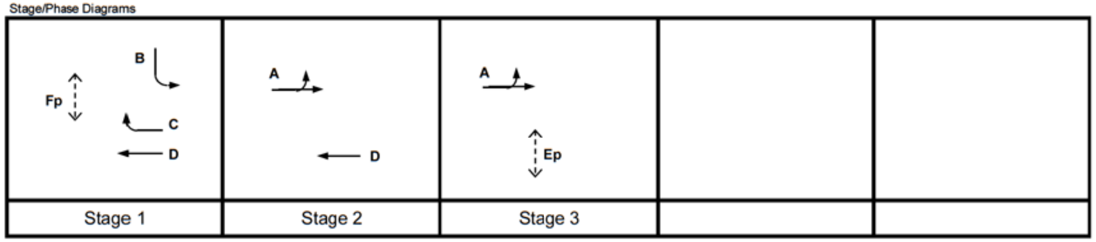
Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2014 PM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.465	
Lost time	L =	11	sec
Total Flow	=	10,535	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		40	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	21	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$		75.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	23	sec
Y_{max}	$= 1-L/C$	=	0.878	



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

Critical Case : C,A

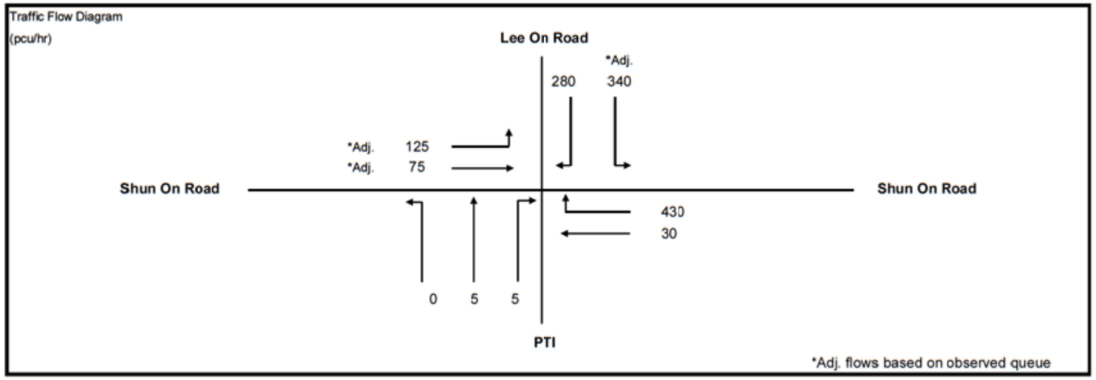
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 70%

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	2,3	3.650	1	10			1		0		1980	20	389		409	5%		1966	0.208	0.208
	A	2,3	3.650	1				0		0		2120		441		441			2120	0.208	
	B	1	3.500	1	15			1		0	80	1965	410			410	100%		1859	0.221	
	C	1	5.700	1		30	0	0		0		2325			570	570		100%	2214	0.257	0.257
	D	1,2	4.500	1				1		0		2065		840		840			2065	0.407	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

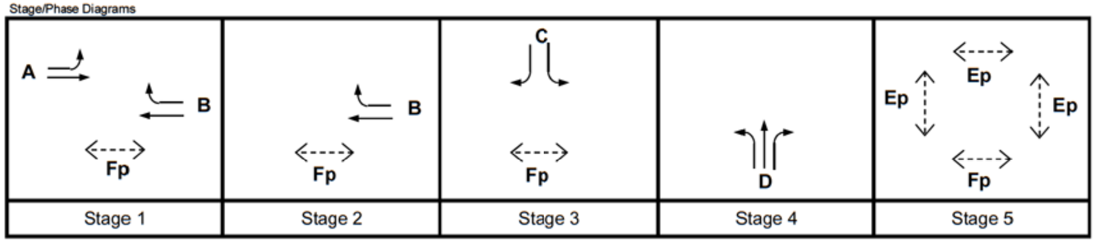
Junction J2 - Lee On Road / Shun On Road / Shun Cheung Road	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14



J2

No. of stages per cycle		N =	5	
Cycle time		C =	120	sec
Sum(y)		Y =	0.432	
Lost time		L =	47	sec
Total Flow		=	15,005	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		133	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	83	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.548	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	26.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	90	sec
Y_{max}	$= 1-L/C$	=	0.608	

Stage/Phase Diagrams



I/G = 7 | I/G = 7 | I/G = 8 | G = 5 | I/G = 12 | G = 10 | I/G =

Critical Case : B,C,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 27%

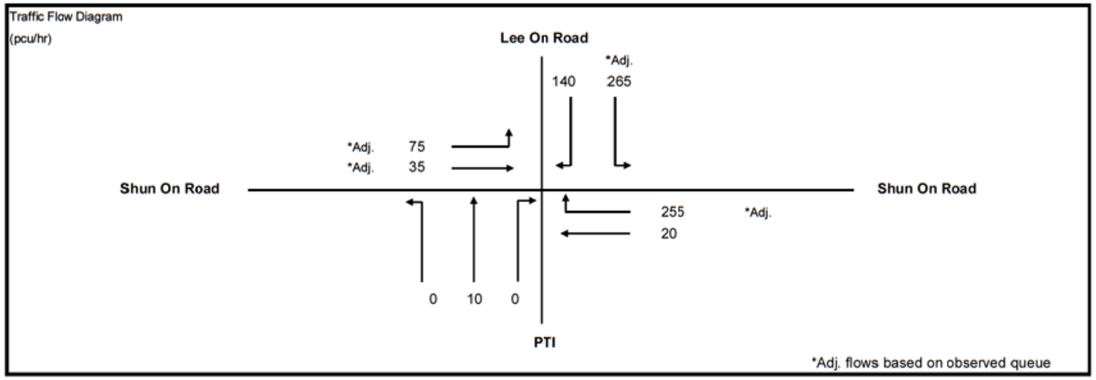
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	15			1		0		1965	125	0		125	100%		1786	0.070	
	A	1	3.500	1				0		0		2105		75		75			2105	0.036	
	B	1,2	3.000	1		10	0	0		0		2055			430	430		100%	1787	0.241	0.241
	B	1,2	3.000	1				1		0		1915		30		30			1915	0.016	
	C	3	3.400	1	15			1		0		1955	340			340	100%		1777	0.191	0.191
	C	3	3.400	1		10	0	0		0		2095			280	280		100%	1822	0.154	
	D	4	13.000	1	10	10	0	1		0		2915	0	5	5	10	0%	50%	2712	0.004	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	10	+	9	=	19	sec												*
	Fp	1,2,3,5	min.	7	+	14	=	21	sec												

JUNCTION CAPACITY CALCULATION

AECOM

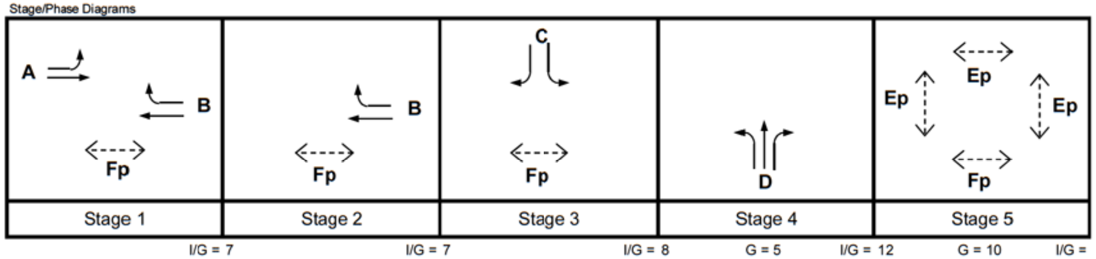
Junction J2 - Lee On Road / Shun On Road / Shun Cheung Road	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J2



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.292	
Lost time	L =	47	sec
Total Flow	=	15,005	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	107	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	66	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.548	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	87.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	70	sec
Y_{max} = $1-L/C$	=	0.608	

Stage/Phase Diagrams



Critical Case : B,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 88%

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	15			1		0		1965	75	0		75	100%		1786	0.042	
	A	1	3.500	1				0		0		2105		35		35			2105	0.017	
	B	1,2	3.000	1		10	0	0		0		2055			255	255		100%	1787	0.143	0.143
	B	1,2	3.000	1				1		0		1915		20		20			1915	0.010	
	C	3	3.400	1	15			1		0		1955	265			265	100%		1777	0.149	0.149
	C	3	3.400	1		10	0	0		0		2095			140	140		100%	1822	0.077	
	D	4	13.000	1	10	10	0	1		0		2915	0	10	0	10	0%	0%	2915	0.003	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	10	+	9	=	19	sec												*
	Fp	1,2,3,5	min.	7	+	14	=	21	sec												

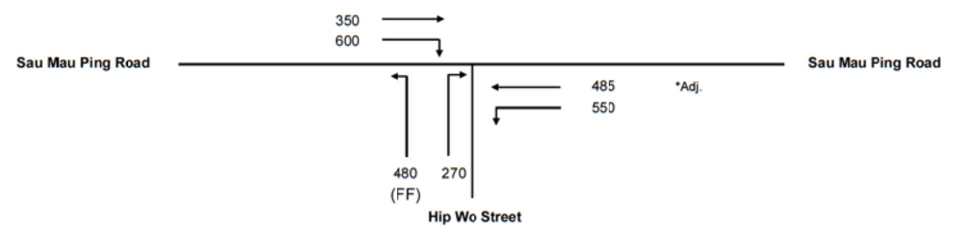
JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Sau Mau Ping Road / Hip Wo Street	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J3

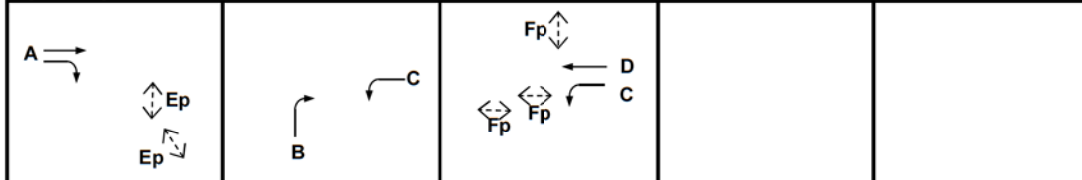
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.569	
Lost time	L =	10	sec
Total Flow	=	14,445	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	46	sec
Min. Cycle Time C_m = L/(1-Y)	=	23	sec
Y_{ult} = 0.9-0.0075×L	=	0.825	
$R.C._{ult}$ = $(Y_{ult}$-Y)/Yx100%	=	45.0	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	27	sec
Y_{max} = 1-L/C	=	0.917	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

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

Critical Case : A,C

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 45%

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				1		0		1965		350		350			1965	0.178	
	A	1	3.500	1		10	0	0		0	210	2105		0	600	600		100%	2013	0.298	0.298
	B	2	3.300	2		15	0	1		0		4030			270	270		100%	3664	0.074	
	C	2,3	4.500	1	90			1		0		2065	550			550	100%		2031	0.271	0.271
	D	3	3.500	2				1		0		4070		485		485			4070	0.119	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	6	+	6	=	12	sec												
	Fp	3	min.	5	+	8	=	13	sec												

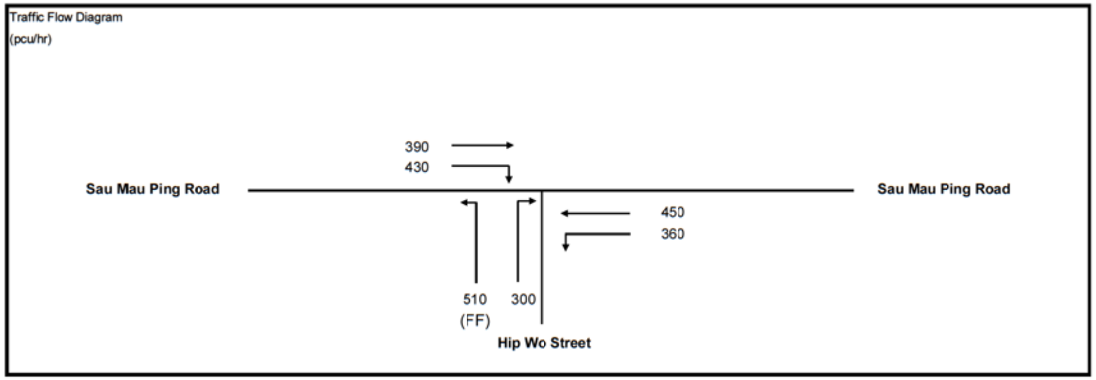
JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Sau Mau Ping Road / Hip Wo Street	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

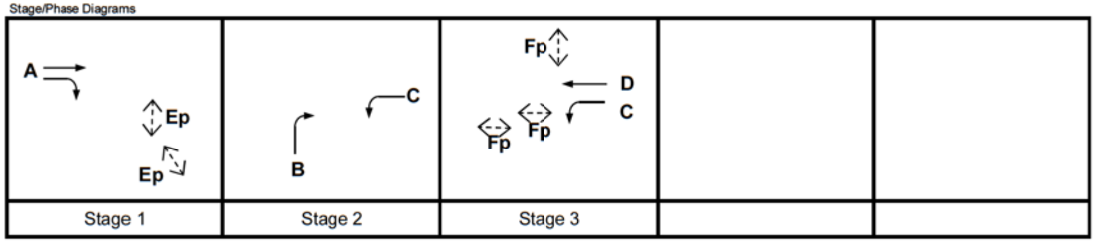
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.406	
Lost time	L =	15	sec
Total Flow	=	14,445	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	46	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	25	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	93.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	27	sec
Y_{max}	$= 1-L/C =$	0.875	

Stage/Phase Diagrams



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

Critical Case : A,B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 94%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.500	1				1		0		1965		390		390			1965	0.198	
	A	1	3.500	1		10	0	0		0	210	2105		0	430	430		100%	2013	0.214	0.214
	B	2	3.300	2		15	0	1		0		4030			300	300		100%	3664	0.082	0.082
	C	2,3	4.500	1	90			1		0		2065	360			360	100%		2031	0.177	
	D	3	3.500	2				1		0		4070		450		450			4070	0.111	0.111
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	6	+	6	=	12	sec												
	Fp	3	min.	5	+	8	=	13	sec												

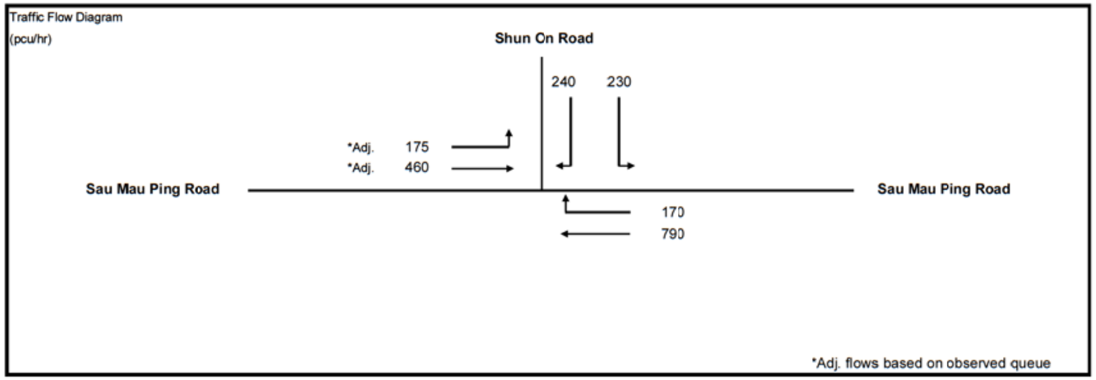
JUNCTION CAPACITY CALCULATION

AECOM

Junction J4 - Sau Mau Ping Rd / Shun On Rd	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J4

Traffic Flow Diagram
(pcu/hr)



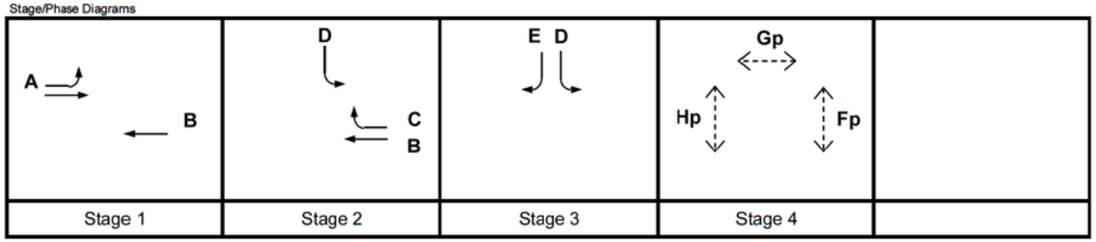
*Adj. flows based on observed queue

No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.382	
Lost time	L =	44	sec
Total Flow	=	14,255	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	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	49.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	76	sec
Y_{max}	$= 1-L/C =$	0.633	

Critical Case : A,C,E,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 49%

Stage/Phase Diagrams



I/G = 6 I/G = 10 I/G = 5 G = 14 I/G = 12

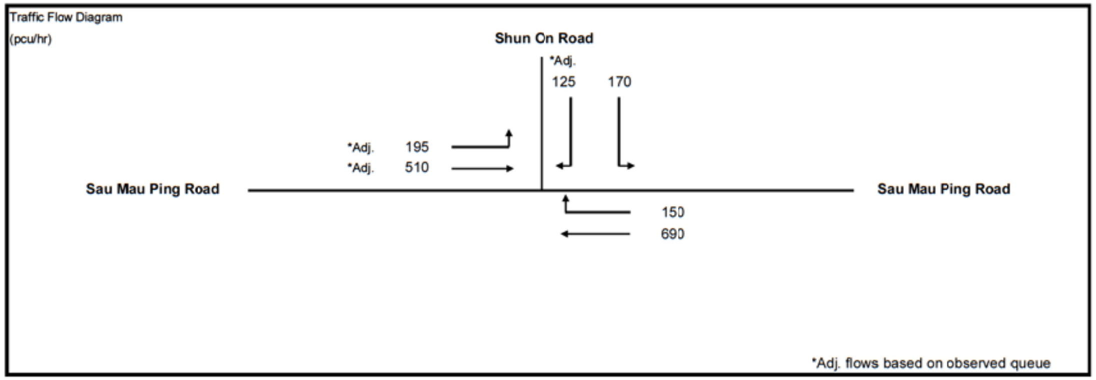
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	10			1		0		1945	175	118		293	60%		1785	0.164	
	A	1	3.300	1				0		0		2085		342		342			2085	0.164	0.164
	B	1,2	3.300	2				1		0		4030		790		790			4030	0.196	
	C	2	3.300	1		10	0	0		0		2085			170	170		100%	1813	0.094	0.094
	D	2,3	3.700	1	10			1		0		1985	230			230	100%		1726	0.133	
	E	3	3.700	1		15	0	0		0		2125			240	240		100%	1932	0.124	0.124
Pedestrian Crossing				GM		FGM															
	Fp	4	min.	10	+	9	=	19	sec												
	Gp	4	min.	14	+	10	=	24	sec												*
	Hp	4	min.	8	+	9	=	17	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J4 - Sau Mau Ping Rd / Shun On Rd	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

Traffic Flow Diagram
(pcu/hr)

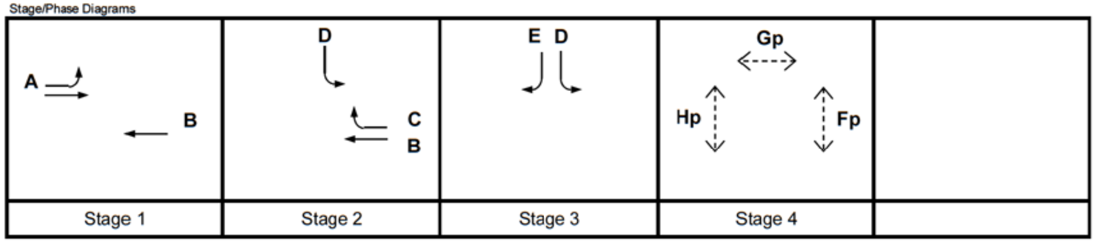


*Adj. flows based on observed queue

J4

No. of stages per cycle	N =	4	
Cycle time	C =	110	sec
Sum(y)	Y =	0.330	
Lost time	L =	44	sec
Total Flow	=	14,255	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	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	72.9	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	69	sec
Y_{max} = $1-L/C$	=	0.600	

Stage/Phase Diagrams



I/G = 6 I/G = 10 I/G = 5 G = 14 I/G = 12

Critical Case : A,C,E,Gp

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 64%

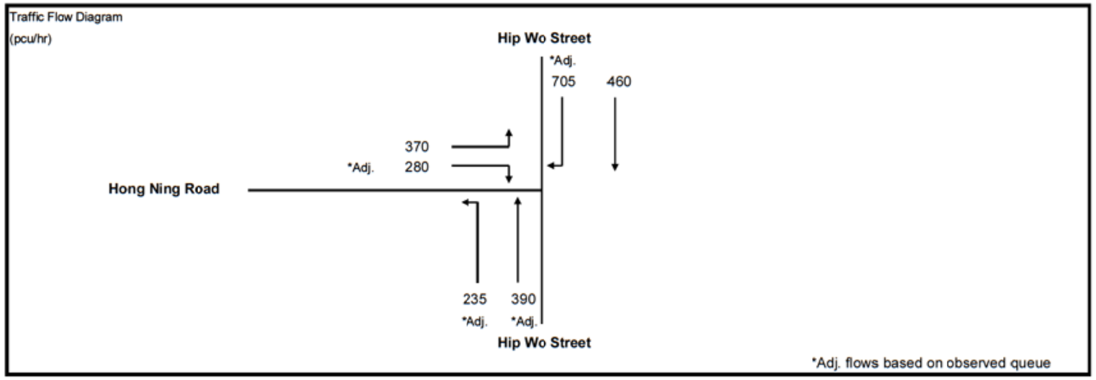
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.300	1	10			1		0		1945	195	130		325	60%		1784	0.182	
	A	1	3.300	1				0		0		2085		380		380			2085	0.182	0.182
	B	1,2	3.300	2				1		0		4030		690		690			4030	0.171	
	C	2	3.300	1		10	0	0		0		2085			150	150		100%	1813	0.083	0.083
	D	2,3	3.700	1	10			1		0		1985	170			170	100%		1726	0.098	
	E	3	3.700	1		15	0	0		0		2125			125	125		100%	1932	0.065	0.065
Pedestrian Crossing				GM		FGM															
	Fp	4	min.	10	+	9	=	19	sec												
	Gp	4	min.	14	+	10	=	24	sec												*
	Hp	4	min.	8	+	9	=	17	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Hip Wo St / Hong Ning Rd	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

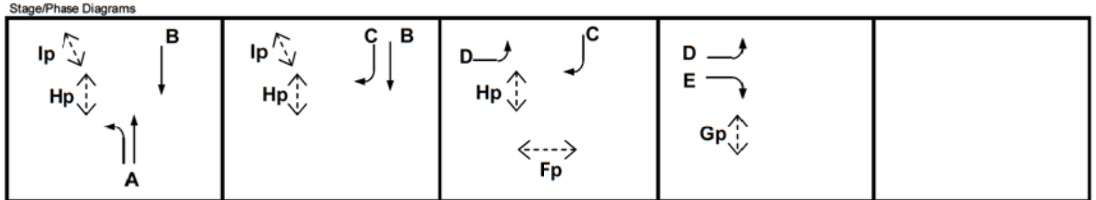
Traffic Flow Diagram
(pcu/hr)



J5

No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.707	
Lost time		L =	20	sec
Total Flow		=	12,090	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	119	sec
Min. Cycle Time C_m	= L/(1-Y)	=	68	sec
Y_{ult}	= 0.9-0.0075×L	=	0.750	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100%	=	6.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	93	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 5	I/G =	I/G = 11	I/G = 7	

Critical Case : A,C,E

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 6%

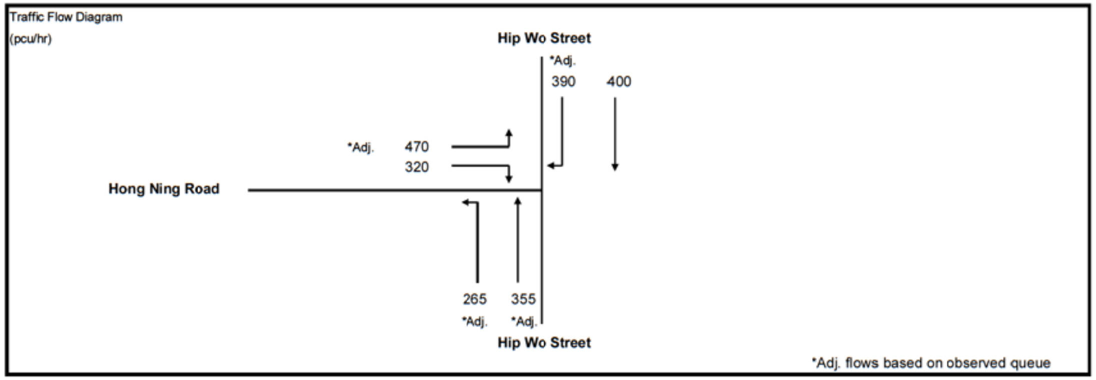
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	235	54		289	81%		1799	0.161	0.161
	A	1	3.300	1				0		0		2085		336		336			2085	0.161	
	B	1,2	3.200	1				1		0		1935		460		460			1935	0.238	
	C	2,3	3.200	1		10	0	0		0		2075			705	705		100%	1804	0.391	0.391
	D	3,4	3.600	1	40			1		0		1975	370			370	100%		1904	0.194	
	E	4	3.200	1		10	0	0		0		2075			280	280		100%	1804	0.155	0.155
Pedestrian Crossing				GM		FGM															
	Fp	3	min.	10	+	9	=	19	sec												
	Gp	4	min.	5	+	8	=	13	sec												
	Hp	1,2,3	min.	5	+	8	=	13	sec												
	Ip	1,2	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

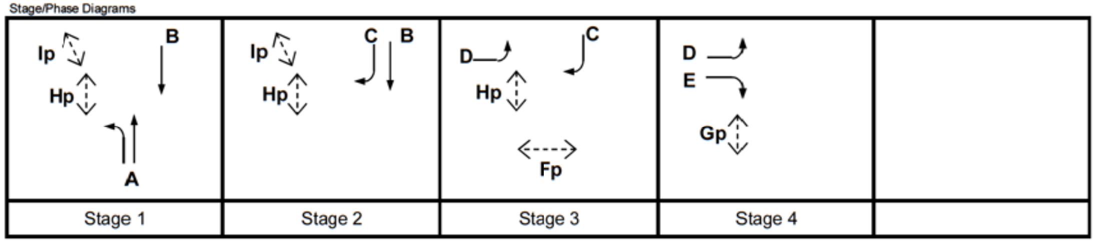
Junction J5 - Hip Wo St / Hong Ning Rd	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J5



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.554	
Lost time		L =	20	sec
Total Flow		=	12,090	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		78	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	45	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	35.4	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	52	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 11 I/G = 7

Critical Case : A,C,E

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

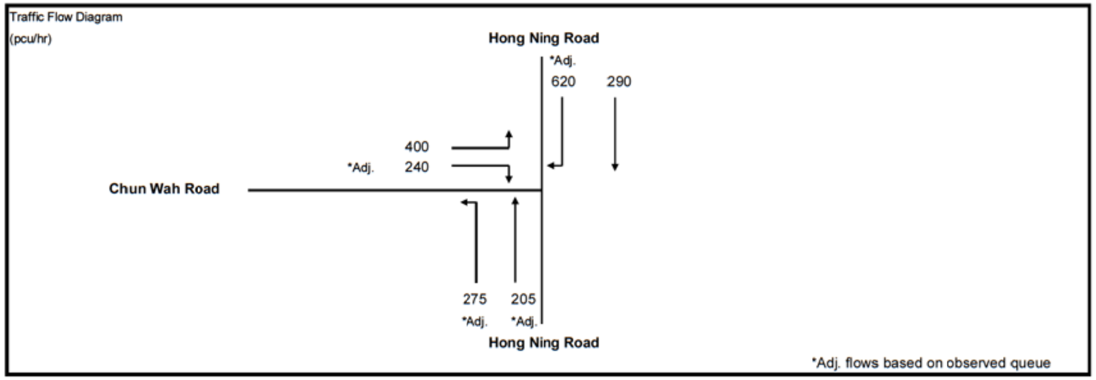
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	15			1		0		1945	265	21		286	93%		1780	0.160	0.160
	A	1	3.300	1				0		0		2085		334		334			2085	0.160	
	B	1,2	3.200	1				1		0		1935		400		400			1935	0.207	
	C	2,3	3.200	1		10	0	0		0		2075			390	390		100%	1804	0.216	0.216
	D	3,4	3.600	1	40			1		0		1975	470			470	100%		1904	0.247	
	E	4	3.200	1		10	0	0		0		2075			320	320		100%	1804	0.177	0.177
Pedestrian Crossing				GM		FGM															
	Fp	3	min.	10	+	9	=	19	sec												
	Gp	4	min.	5	+	8	=	13	sec												
	Hp	1,2,3	min.	5	+	8	=	13	sec												
	Ip	1,2	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

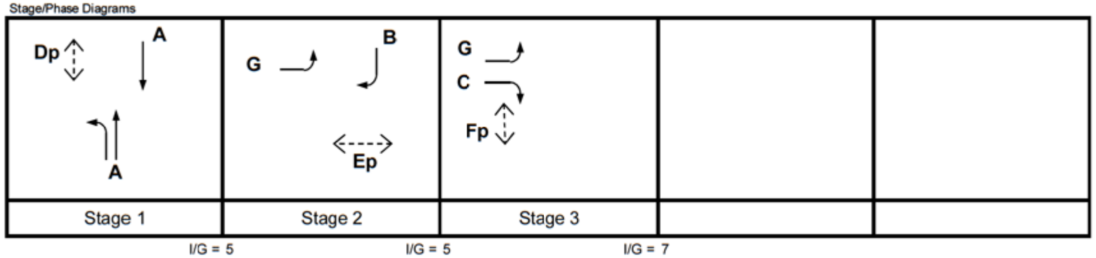
Junction J6 - Hong Ning Rd / Chun Wah Rd	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J6



No. of stages per cycle	N =	3	
Cycle time	C =	118	sec
Sum(y)	Y =	0.632	
Lost time	L =	14	sec
Total Flow	=	12,050	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	71	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	38	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	25.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	47	sec
Y_{max} = $1-L/C$	=	0.881	

Stage/Phase Diagrams



Critical Case : A,B,C

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 25%

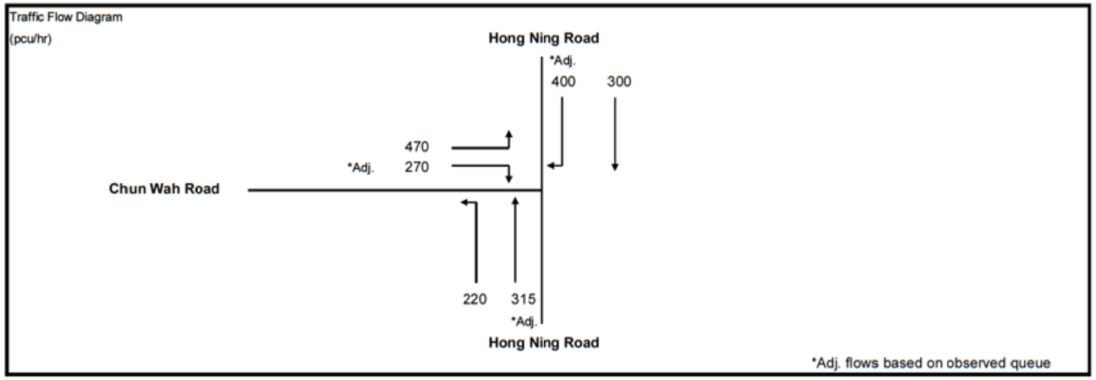
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.200	1	15			1		0		1935	275	0		275	100%		1759	0.156	0.156
	A	1	3.200	1				0		0		2075		205		205			2075	0.099	
	A	1	3.200	1				1		0		1935		290		290			1935	0.150	
	B	2	3.200	1		10	0	0		0		2075			620	620		100%	1804	0.344	0.344
	C	3	3.300	1		10	0	0		0		2085			240	240		100%	1813	0.132	0.132
	G	2,3	3.300	1	10			1		0		1945	400			400	100%		1691	0.237	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	6	+	7	=	13	sec												
	Ep	2	min.	7	+	7	=	14	sec												
	Fp	3	min.	6	+	7	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

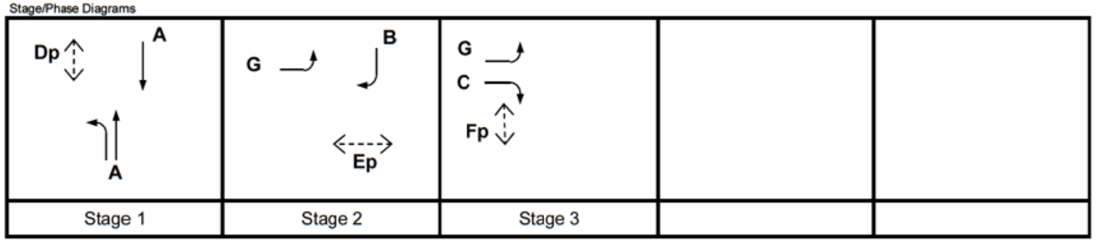
Junction J6 - Hong Ning Rd / Chun Wah Rd	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J6



No. of stages per cycle	N =	3	
Cycle time	C =	108	sec
Sum(y)	Y =	0.526	
Lost time	L =	14	sec
Total Flow	=	12,050	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	55	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	30	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	51.2	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	34	sec
Y_{max} = $1-L/C$	=	0.870	

Stage/Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

Critical Case : A,B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 49%

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	3.200	1	15			1		0		1935	220	27		247	89%		1777	0.139	
	A	1	3.200	1				0		0		2075		288		288			2075	0.139	
	A	1	3.200	1				1		0		1935		300		300			1935	0.155	0.155
	B	2	3.200	1		10	0	0		0		2075			400	400		100%	1804	0.222	0.222
	C	3	3.300	1		10	0	0		0		2085			270	270		100%	1813	0.149	0.149
	G	2,3	3.300	1	10			1		0		1945	470			470	100%		1691	0.278	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	6	+	7	=	13	sec												
	Ep	2	min.	7	+	7	=	14	sec												
	Fp	3	min.	6	+	7	=	13	sec												

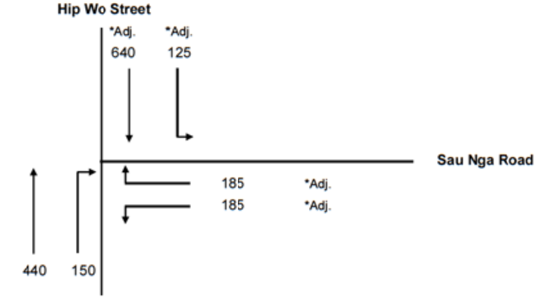
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Hip Wo St / Sau Nga Rd	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J7

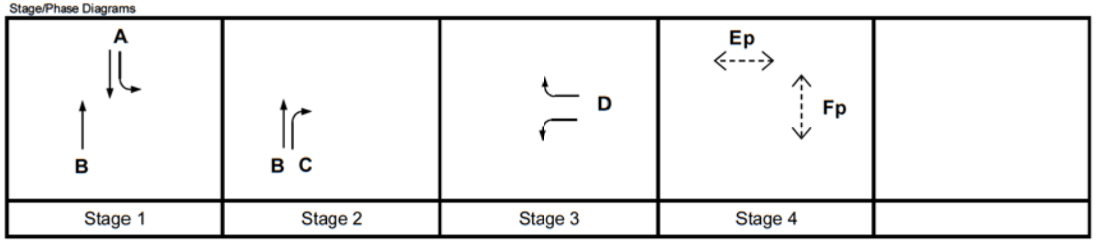
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.487	
Lost time		L =	43	sec
Total Flow		=	10,015	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		136	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	84	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.578	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	18.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	94	sec
Y_{max}	$= 1-L/C$	=	0.642	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 10 G = 13 I/G = 10

Critical Case : A,C,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 18%

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	3.200	1	15			1		0		1935	125	238		363	34%		1871	0.194	0.194
	A	1	3.200	1				0		0		2075		402		402			2075	0.194	
	B	1,2	3.300	1				1		0		1945		440		440			1945	0.226	
	C	2	3.300	1		10	0	0		0		2085			150	150		100%	1813	0.083	0.083
	D	3	3.600	1	15	10	0	1		0		1975	185		185	370	50%	50%	1756	0.211	0.211
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	13	+	7	=	20	sec												*
	Fp	4	min.	12	+	13	=	25	sec												

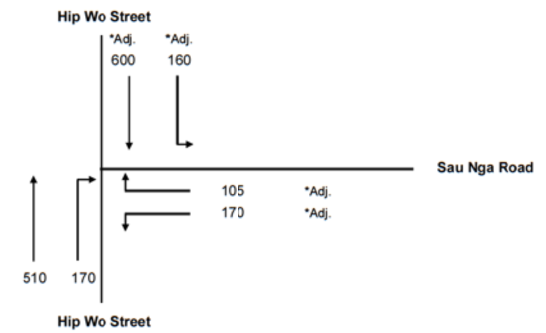
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Hip Wo St / Sau Nga Rd	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J7

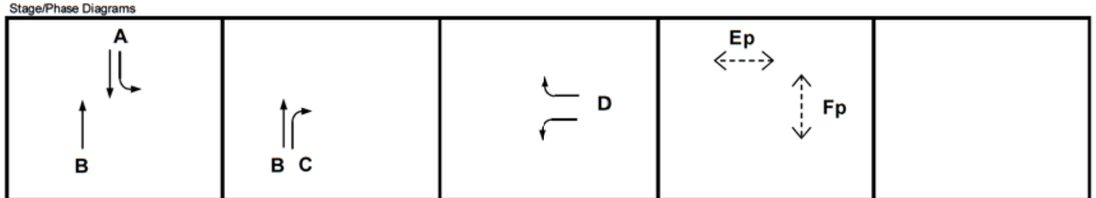
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.443	
Lost time	L =	43	sec
Total Flow	=	10,015	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	125	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	77	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.578	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	30.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	85	sec
Y_{max}	$= 1-L/C =$	0.642	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 10 G = 13 I/G = 10

Critical Case : A,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 30%

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	3.200	1	15			1		0		1935	160	198		358	45%		1852	0.194	
	A	1	3.200	1				0		0		2075		402		402			2075	0.194	0.194
	B	1,2	3.300	1				1		0		1945		510		510			1945	0.262	
	C	2	3.300	1		10	0	0		0		2085			170	170		100%	1813	0.094	0.094
	D	3	3.600	1	15	10	0	1		0		1975	170		105	275	62%	38%	1765	0.156	0.156
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	13	+	7	=	20	sec												*
	Fp	4	min.	12	+	13	=	25	sec												

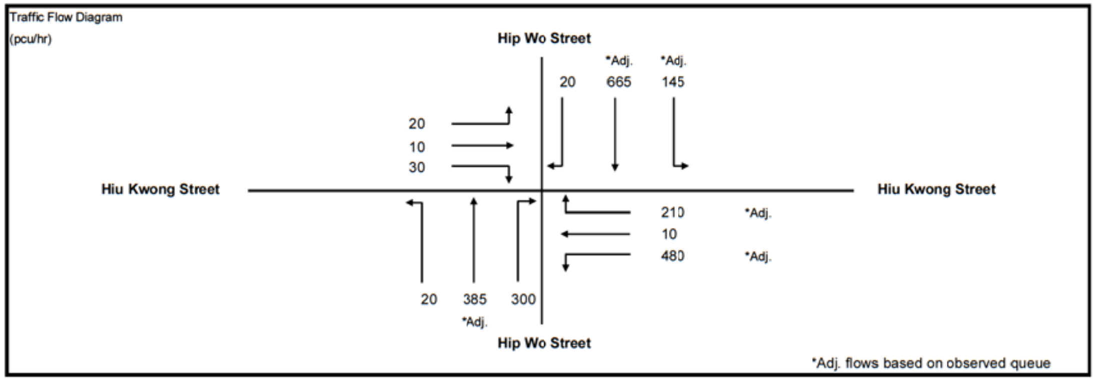
JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Hip Wo St / Hiu Kwong St	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J8

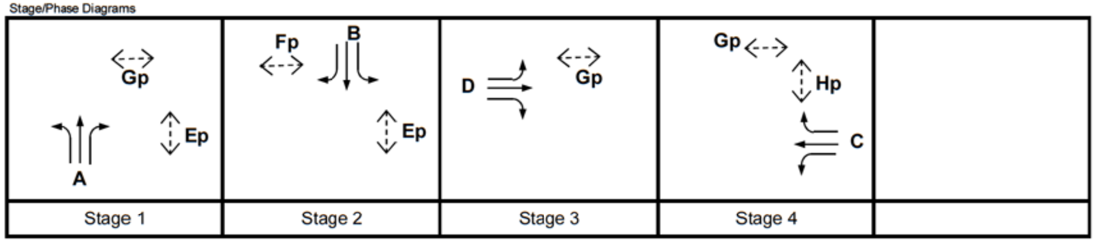
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.612	
Lost time	L =	28	sec
Total Flow	=	14,135	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	121	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	72	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	12.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	87	sec
Y_{max} = $1-L/C$	=	0.767	

Stage/Phase Diagrams



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

Critical Case : A,B,D,C

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 13%

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	10			1		0		1945	20	385		405	5%		1931	0.210	0.210
	A	1	3.300	1		10	0	0		0		2085			300	300		100%	1813	0.165	
	B	2	3.000	1	15			1		0		1915	145	249		394	37%		1847	0.213	0.213
	B	2	3.000	1		10	0	0		0		2055		416	20	436		5%	2041	0.213	
	C	4	3.800	1	15			1		0		1995	342			342	100%		1814	0.189	0.189
	C	4	3.800	1	15	10	0	0		0		2135	138	10	210	358	38%	59%	1895	0.189	
	D	3	3.900	1	10	10	0	1		0		2005	20	10	30	60	33%	50%	1782	0.034	
Pedestrian Crossing				GM		FGM															
	Ep	1,2	min.	5	+	6	=	11	sec												
	Fp	2	min.	5	+	6	=	11	sec												
	Gp	1,3,4	min.	7	+	5	=	12	sec												
	Hp	4	min.	5	+	5	=	10	sec												

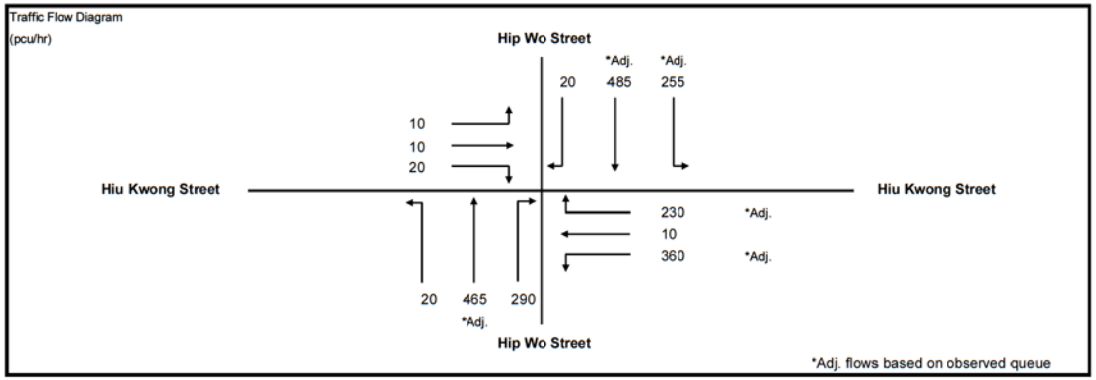
JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Hip Wo St / Hiu Kwong St	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J8

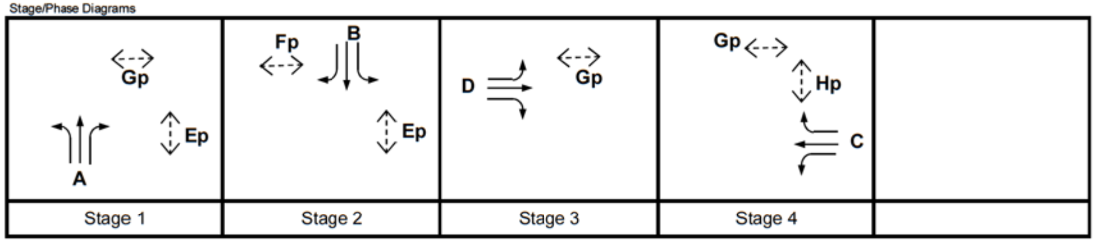
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.612	
Lost time	L =	28	sec
Total Flow	=	14,135	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	121	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	72	sec
Y_{ult}	$= 0.9-0.0075\times L$ =	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$ =	12.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$ =	87	sec
Y_{max}	= 1-L/C =	0.767	

Stage/Phase Diagrams



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

Critical Case : A,B,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 13%

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	10			1		0		1945	20	465		485	4%		1933	0.251	0.251
	A	1	3.300	1		10	0	0		0		2085			290	290		100%	1813	0.160	
	B	2	3.000	1	15			1		0		1915	255	100		355	72%		1787	0.199	0.199
	B	2	3.000	1		10	0	0		0		2055		385	20	405		5%	2040	0.199	
	C	4	3.800	1	15			1		0		1995	294			294	100%		1814	0.162	0.162
	C	4	3.800	1	15	10	0	0		0		2135	66	10	230	306	21%	75%	1882	0.162	
	D	3	3.900	1	10	10	0	1		0		2005	10	10	20	40	25%	50%	1802	0.022	

Pedestrian Crossing

			GM		FGM			
Ep	1,2	min.	5	+	6	=	11	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	1,3,4	min.	7	+	5	=	12	sec
Hp	4	min.	5	+	5	=	10	sec

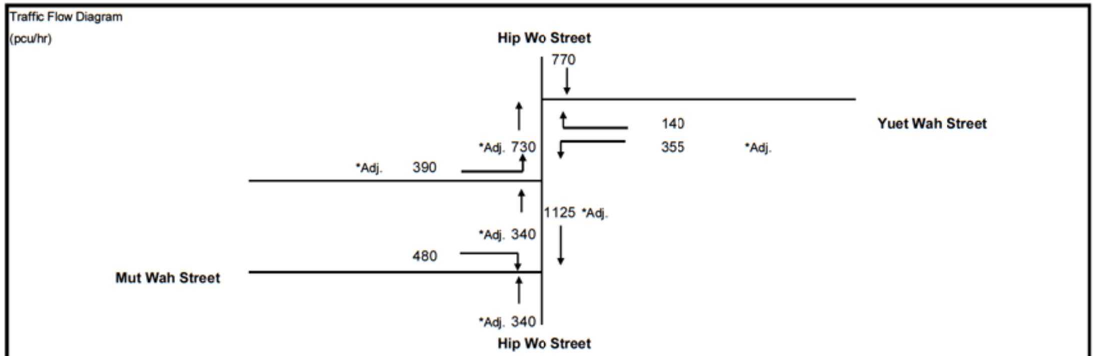
JUNCTION CAPACITY CALCULATION

AECOM

Junction J9 - Hip Wo Street / Mut Wah Street / Yuet Wah Street	2014 AM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

(J9)

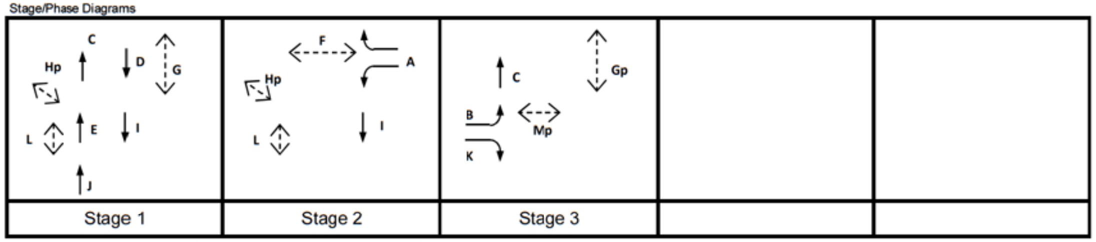
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	3	
Cycle time		C =	118	sec
Sum(y)		Y =	0.584	
Lost time		L =	15	sec
Total Flow		=	30,457	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	66	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	36	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	34.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	43	sec
Y_{max}	$= 1-L/C$	=	0.873	

Stage/Phase Diagrams



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

Critical Case : D,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 34%

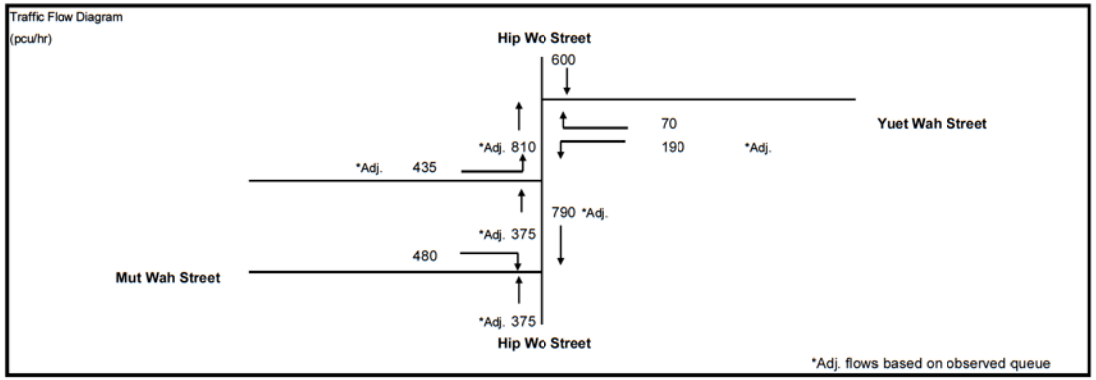
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
↑	E	1	3.500	2				1		0		4070		340		340			4070	0.084	
↓	D	1	3.500	2				1		0		4070		770		770			4070	0.189	0.189
	A	2	3.500	1	15			1		0		1965	355			355	100%		1786	0.199	0.199
	A	2	3.500	1		15	0	1		0		1965			140	140		100%	1786	0.078	
	B	3	3.500	1	25			1		0	142	1965	390			390	100%		1988	0.196	0.196
	K	3	3.500	2		15	0	1		0		4070			480	480		100%	3700	0.130	
↑	C	1,3	3.500	2				1		0		4070		730		730			4070	0.179	
↓	I	1,2	3.500	2				1		0		4070		1125		1125			4070	0.276	
↑	J	1	3.500	2				1		0		4070		340		340			4070	0.084	
Pedestrian Crossing				GM		FGM															
	Fp	2	min.	5	+	7	=	12	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1,2	min.	5	+	10	=	15	sec												
	Lp	1,2	min.	7	+	8	=	15	sec												
	Mp	3	min.	5	+	6	=	11	sec												

JUNCTION CAPACITY CALCULATION

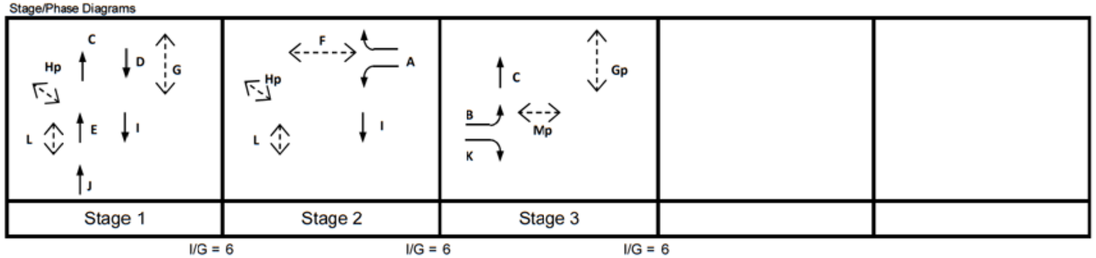
AECOM

Junction J9 - Hip Wo Street / Mut Wah Street / Yuet Wah Street	2014 PM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J9



No. of stages per cycle	N =	3	
Cycle time	C =	108	sec
Sum(y)	Y =	0.471	
Lost time	L =	15	sec
Total Flow	=	30,471	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	52	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	28	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.788	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times 100\%$	=	67.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	31	sec
Y_{max} = $1-L/C$	=	0.861	



Critical Case : D,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 64%

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
↑	E	1	3.500	2				1		0		4070		375		375			4070	0.092	
↓	D	1	3.500	2				1		0		4070		600		600			4070	0.147	0.147
	A	2	3.500	1	15			1		0		1965	190			190	100%		1786	0.106	0.106
	A	2	3.500	1		15	0	1		0		1965			70	70		100%	1786	0.039	
	B	3	3.500	1	25			1		0	156	1965	435			435	100%		2001	0.217	0.217
	K	3	3.500	2		15	0	1		0		4070			480	480		100%	3700	0.130	
↑	C	1,3	3.500	2				1		0		4070		810		810			4070	0.199	
↓	I	1,2	3.500	2				1		0		4070		790		790			4070	0.194	
↑	J	1	3.500	2				1		0		4070		375		375			4070	0.092	
Pedestrian Crossing				GM		FGM															
	Fp	2	min.	5	+	7	=	12	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1,2	min.	5	+	10	=	15	sec												
	Lp	1,2	min.	7	+	8	=	15	sec												
	Mp	3	min.	5	+	6	=	11	sec												

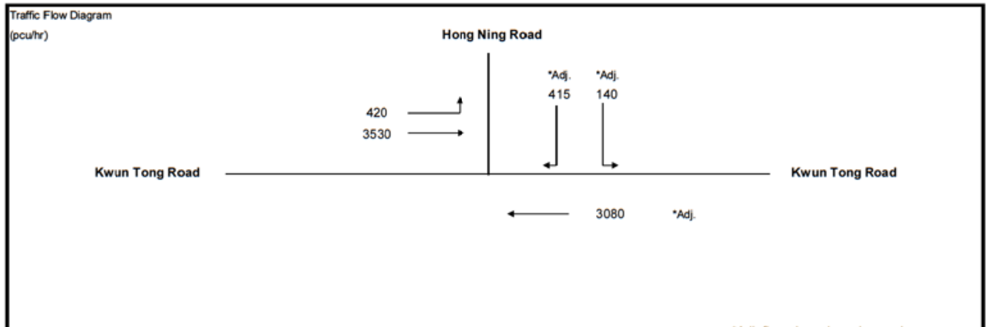
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kwun Tong Road / Hong Ning Road	2014 AM Observed Flow	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

J10

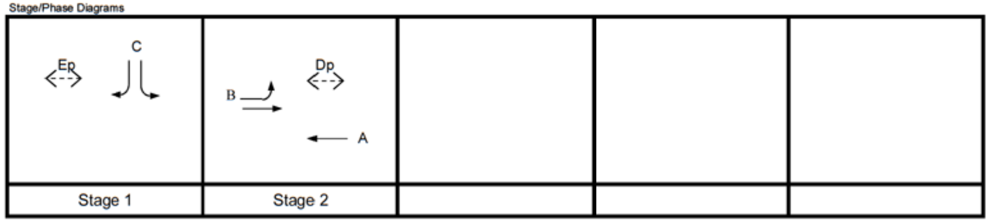
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	2	
Cycle time	C =	118	sec
Sum(y)	Y =	0.594	
Lost time	L =	12	sec
Total Flow	=	22,505	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}	$= 0.9-0.0075\times L =$	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	36.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	35	sec
Y_{max}	$= 1-L/C =$	0.898	

Stage/Phase Diagrams



I/G = 7 I/G = 7

Critical Case : C,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 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
	C	1	3.000	1	15			1		0		1915	140			140	100%		1741	0.080	
	C	1	3.000	1	20	15	0			0		2055	0		212	212	0%	100%	1868	0.114	0.114
	C	1	3.000	1		10	0	0		0		2055			203	203		100%	1787	0.114	
	B	2	3.500	1	20			1		0		1965	420	493		913	46%		1899	0.481	0.481
	B	2	3.500	3				0		0		6315		3037		3037			6315	0.481	
	A	2	3.300	4				1		0		8200		3080		3080			8200	0.376	

Pedestrian Crossing			GM		FGM			
Dp	2	min.	5	+	9	=	14	sec
Ep	1	min.	5	+	7	=	12	sec

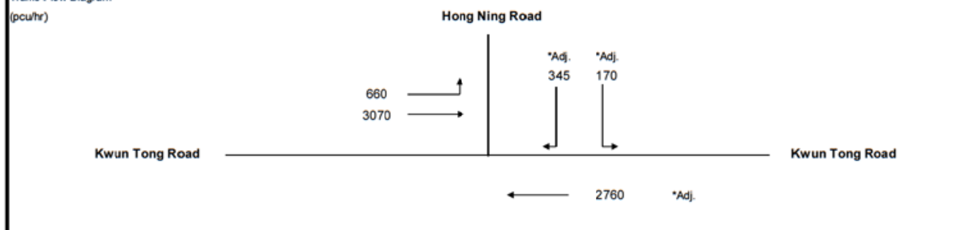
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kwun Tong Road / Hong Ning Road	2014 PM Observed Flow	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

J10

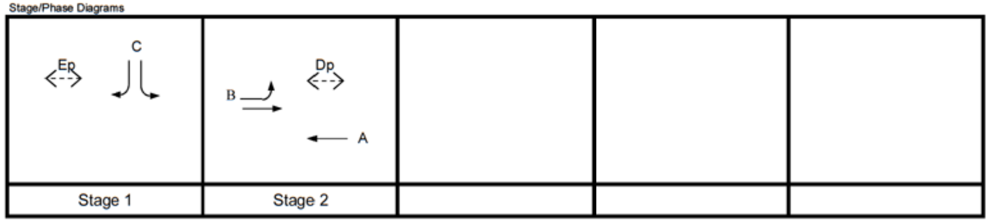
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.552	
Lost time		L =	12	sec
Total Flow		=	22,505	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	51	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	27	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	46.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	31	sec
Y_{max}	$= 1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 7 I/G = 7

Critical Case : C,B

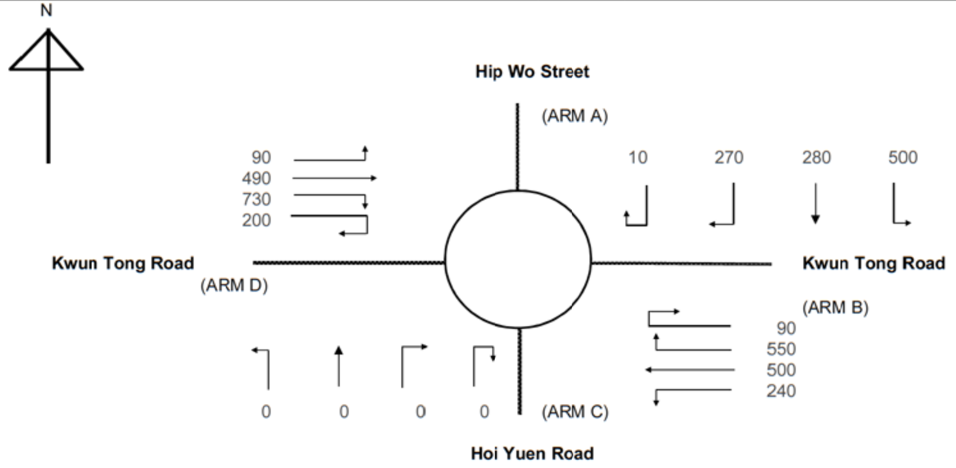
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 45%

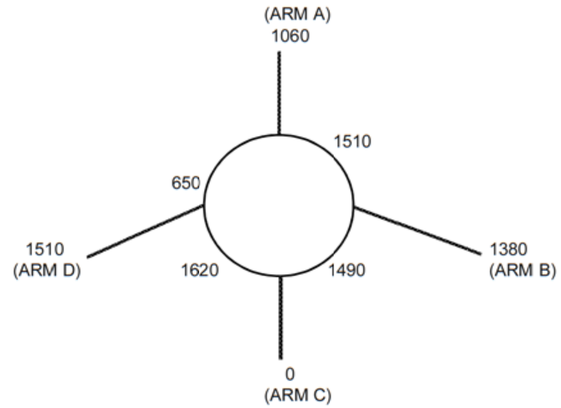
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	C	1	3.000	1	15			1		0		1915	166			166	100%		1741	0.095	
	C	1	3.000	1	20	15	0			0		2055	4		174	178	2%	98%	1869	0.095	
	C	1	3.000	1		10	0	0		0		2055			171	171		100%	1787	0.095	0.095
	B	2	3.500	1	20			1		0		1965	660	187		847	78%		1857	0.456	0.456
	B	2	3.500	3				0		0		6315		2883		2883			6315	0.456	
	A	2	3.300	4				1		0		8200		2760		2760			8200	0.337	

Pedestrian Crossing			GM		FGM			
Dp	2	min.	5	+	9	=	14	sec
Ep	1	min.	5	+	7	=	12	sec

ROUNDABOUT CAPACITY CALCULATION

Junction	J11 Kwung Tong Road / Hip Wo Street	Scenario	2014 AM Observed Flows	Project No.	Prepared By	Checked By	Date
				60328348	LLSI	CBFS	29/Dec/14





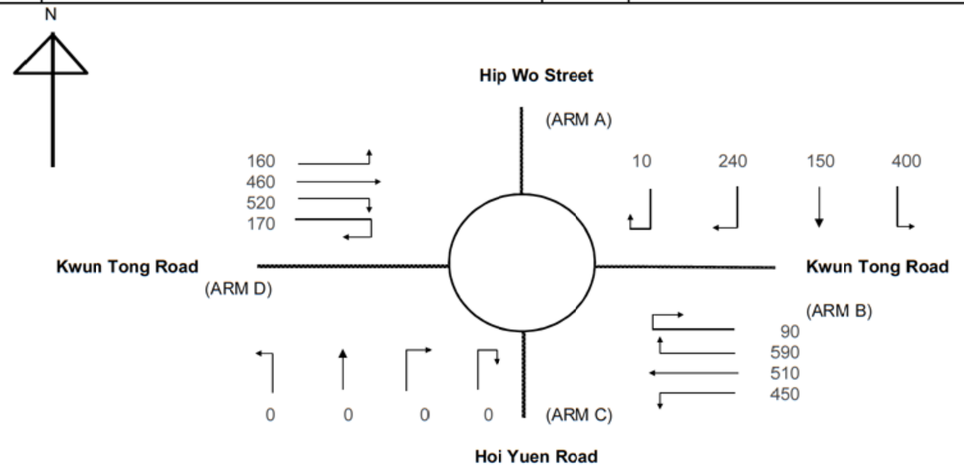
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	7.00	8.00	8.00
E = Entry width (m)	8.00	8.00	9.00	9.00
L = Effective length of flare (m)	10.00	15.00	20.00	20.00
R = Entry radius (m)	100.00	45.00	40.00	40.00
D = Inscribed circle diameter (m)	83.00	86.00	83.00	86.00
A = Entry angle (degree)	30.00	40.00	25.00	25.00
Q = Entry flow (pcu/h)	1060	1380	0	1510
Qc= Circulating flow across entry (pcu/h)	1510	1490	1620	650
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.16	0.11	0.08	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.04	0.99	1.04	1.04
X2= V + ((E-V)/(1+2S))	7.76	7.82	8.86	8.86
M = EXP((D-60)/10)	9.97	13.46	9.97	13.46
F = 303*X2	2351	2371	2685	2685
Td= 1+(0.5/(1+M))	1.05	1.03	1.05	1.03
Fc= 0.21*Td(1+0.2*X2)	0.56	0.56	0.61	0.60
Qe= K(F-Fc*Qc)	1563	1529	1770	2390
DFC = Design flow/Capacity = Q/Qe	0.68	0.90	0.00	0.63

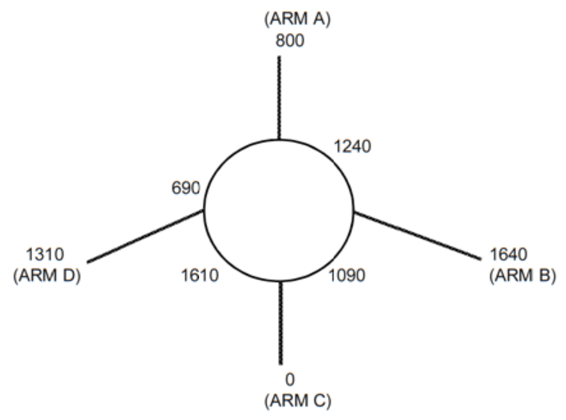
TOTAL ENTRY FLOWS = 3950 PCU

CRITICAL DFC 0.90

ROUNDABOUT CAPACITY CALCULATION

Junction	J11 Kwung Tong Road / Hip Wo Street	Scenario	2014 PM Observed Flows	Project No.	Prepared By	Checked By	Date
				60328348	LLSI	CBFS	29/Dec/14





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	7.00	8.00	8.00
E = Entry width (m)	8.00	8.00	9.00	9.00
L = Effective length of flare (m)	10.00	15.00	20.00	20.00
R = Entry radius (m)	100.00	45.00	40.00	40.00
D = Inscribed circle diameter (m)	83.00	86.00	83.00	86.00
A = Entry angle (degree)	30.00	40.00	25.00	25.00
Q = Entry flow (pcu/h)	800	1640	0	1310
Qc= Circulating flow across entry (pcu/h)	1240	1090	1610	690
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.16	0.11	0.08	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.04	0.99	1.04	1.04
X2= V + ((E-V)/(1+2S))	7.76	7.82	8.86	8.86
M = EXP((D-60)/10)	9.97	13.46	9.97	13.46
F = 303*X2	2351	2371	2685	2685
Td= 1+(0.5/(1+M))	1.05	1.03	1.05	1.03
Fc= 0.21*Td(1+0.2*X2)	0.56	0.56	0.61	0.60
Qe= K(F-Fc*Qc)	1721	1750	1776	2364
DFC = Design flow/Capacity = Q/Qe	0.46	0.94	0.00	0.55

TOTAL ENTRY FLOWS =3750 PCU

CRITICAL DFC 0.94

Filename : D:\Users\wongwtc1\Desktop\Preliminary Junction Assessment to TD\2014\J11

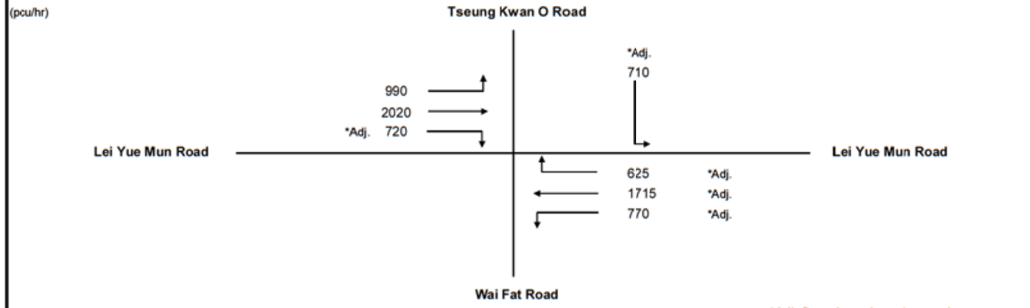
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Lei Yue Mun Road / Tseung Kwan O Road / Wai Fat Road	2014 AM Observed Flows	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

J12

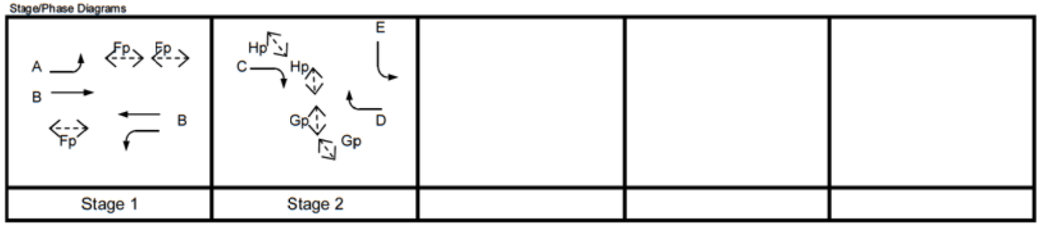
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.609	
Lost time	L =	15	sec
Total Flow	=	33,220	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	70	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	38	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	29.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	46	sec
Y_{max}	$= 1-L/C =$	0.861	

Stage/Phase Diagrams



I/G = 8 I/G = 9

Critical Case : B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 27%

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	2	25			1		0		4030	990			990	100%		3802	0.260	
	B	1	3.500	3				0		0		6315		2020		2020			5305	0.381	0.381
	C	2	3.500	2		12.5	0	0		0		4210			720	720		100%	3158	0.228	0.228
	B	1	3.300	2	30			1		0		4030	770			770	100%		3224	0.239	
	B	1	3.300	3				0		0		6255		1715		1715			5254	0.326	
	D	2	3.750	2		30	0	0		0		4260			625	625		100%	4057	0.154	
	E	2	3.750	2	15			1		0		4120	710			710	100%		3745	0.190	
Pedestrian Crossing				GM		FGM															
	Fp	1	min.	8	+	13	=	21	sec												
	Gp	2	min.	20	+	13	=	33	sec												
	Hp	2	min.	9	+	13	=	22	sec												

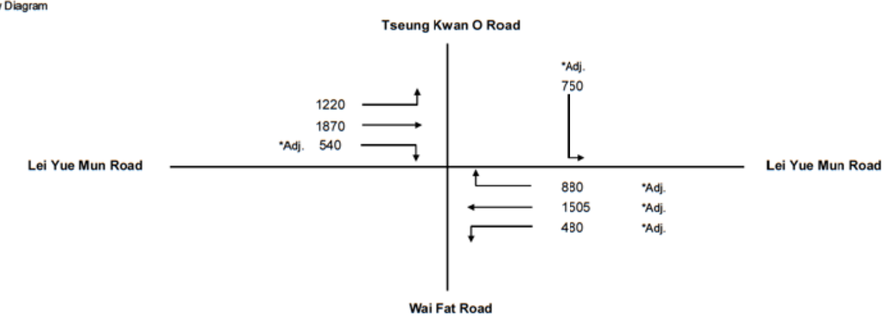
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Lei Yue Mun Road / Tseung Kwan O Road / Wai Fat Road	2014 PM Observed Flows	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

J12

Traffic Flow Diagram
(pcu/hr)



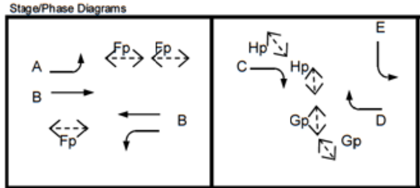
*Adj. flows based on observed queue

No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.569	
Lost time		L =	15	sec
Total Flow		=	33,220	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	64	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	35	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	38.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.861	

Critical Case : B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 36%

Stage/Phase Diagrams



Stage 1	Stage 2			

I/G = 8 I/G = 9

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) STRAIGH T 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	2	25			1		0		4030	1220			1220	100%		3802	0.321	
	B	1	3.500	3				0		0		6315		1870		1870			5305	0.353	0.353
	C	2	3.500	2		12.5	0	0		0		4210			540	540		100%	3158	0.171	
	B	1	3.300	2	30			1		0		4030	480			480	100%		3224	0.149	
	B	1	3.300	3				0		0		6255		1505		1505			5254	0.286	
	D	2	3.750	2		30	0	0		0		4260			880	880		100%	4057	0.217	0.217
	E	2	3.750	2	15			1		0		4120	750			750	100%		3745	0.200	
Pedestrian Crossing				GM		FGM															
	Fp	1	min.	8	+	13	=	21	sec												
	Gp	2	min.	20	+	13	=	33	sec												
	Hp	2	min.	9	+	13	=	22	sec												

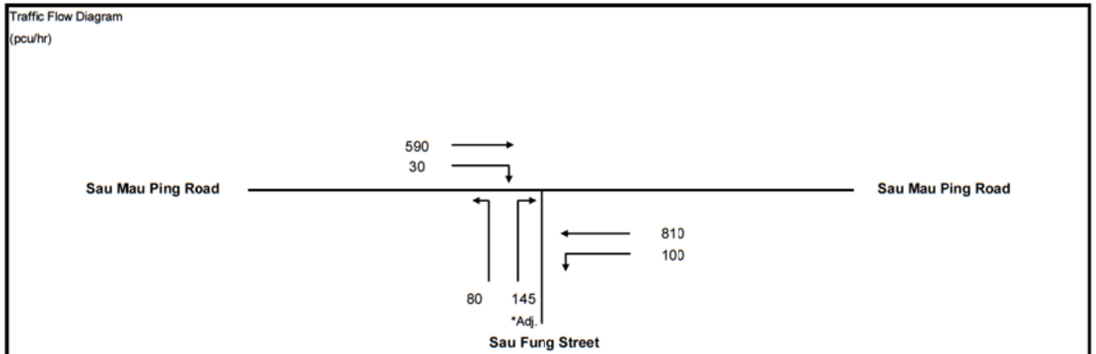
JUNCTION CAPACITY CALCULATION

AECOM

Junction J13 - Sau Mau Ping Road / Sau Fung Street	2014 AM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J13

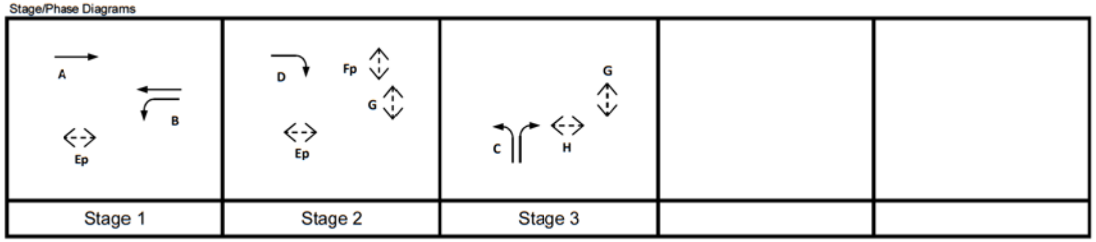
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.399	
Lost time	L =	26	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	73	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	43	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.705	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	76.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	47	sec
Y_{max}	$= 1-L/C =$	0.783	

Stage/Phase Diagrams



I/G = 8 G = 5 I/G = 8 I/G = 7

Critical Case : A,Fp,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 77%

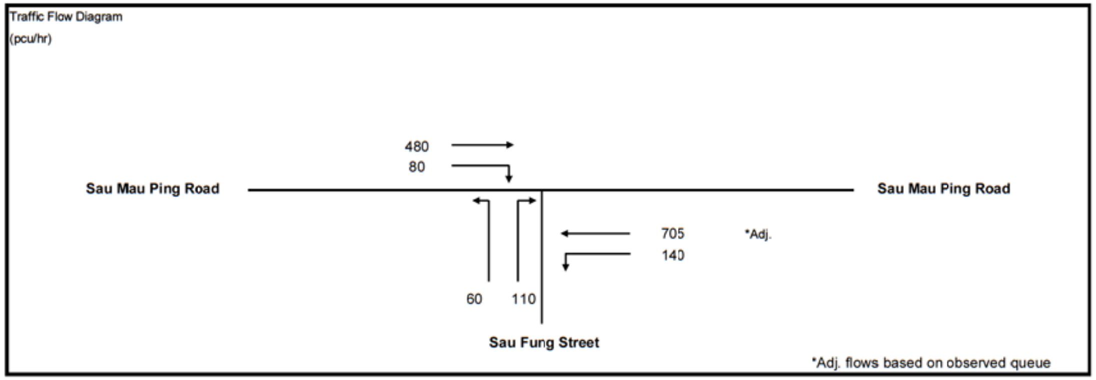
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.000	1				1		0	200	1915		590		590			2115	0.279	0.279
	D	2	3.000	1		25	0	0		0		2055			30	30		100%	1939	0.015	
	B	1	3.500	1	15			1		0		1965	100	334		434	23%		1921	0.226	
	B	1	3.500	1				0		0		2105		476		476			2105	0.226	
	C	3	3.000	1	15	20	0	1		0	120	1915	80		145	225	36%	64%	1877	0.120	0.120
Pedestrian Crossing				GM		FGM															
	Ep	1,2	min.	5	+	7	=	12	sec												
	Fp	2	min.	5	+	6	=	11	sec												*
	Gp	2,3	min.	5	+	8	=	13	sec												
	Hp	3	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

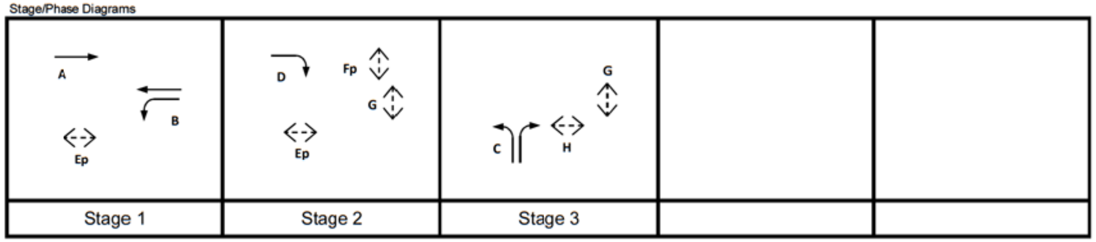
Junction J13 - Sau Mau Ping Road / Sau Fung Street	2014 PM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J13



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.359	
Lost time	L =	15	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	43	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	23	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	119.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	25	sec
Y_{max}	$= 1-L/C =$	0.875	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7

Critical Case : A,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 120%

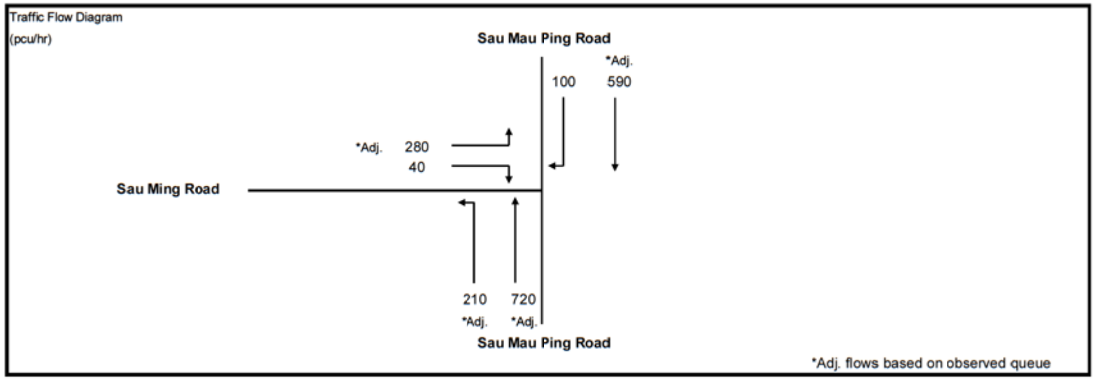
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.000	1				1		0	200	1915		480		480			2115	0.227	0.227
	D	2	3.000	1		25	0	0		0		2055			80	80		100%	1939	0.041	0.041
	B	1	3.500	1	15			1		0		1965	140	261		401	35%		1899	0.211	
	B	1	3.500	1				0		0		2105		444		444			2105	0.211	
	C	3	3.000	1	15	20	0	1		0	120	1915	60		110	170	35%	65%	1878	0.091	0.091

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	7	=	12	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	2,3	min.	5	+	8	=	13	sec
Hp	3	min.	5	+	7	=	12	sec

JUNCTION CAPACITY CALCULATION

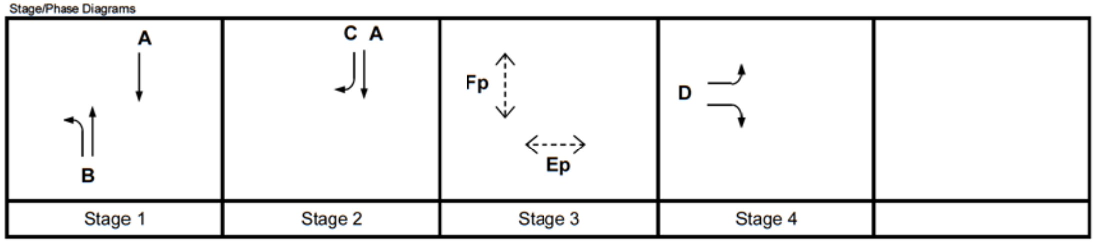
Junction J14 - Sau Mau Ping Rd / Sau Ming Rd	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J14



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.476	
Lost time	L =	39	sec
Total Flow	=	10,055	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	121	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	74	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.608	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	27.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	83	sec
Y_{max}	$= 1-L/C =$	0.675	

Stage/Phase Diagrams



I/G = 5 | I/G = 8 | G = 7 | I/G = 16 | I/G = 6

Critical Case : B,C,Ep,D

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	1,2	3.300	1				1		0		1945		590		590			1945	0.303	
	C	2	3.300	1		15	0	0		0		2085			100	100		100%	1895	0.053	0.053
	B	1	3.300	1	10			1		0		1945	210	223		433	49%		1813	0.239	0.239
	B	1	3.300	1				0		0		2085		497		497			2085	0.239	
	D	4	3.800	1	10	10	0	1		0		1995	280		40	320	88%	13%	1735	0.184	0.184
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	7	+	13	=	20	sec												*
	Fp	3	min.	8	+	10	=	18	sec												

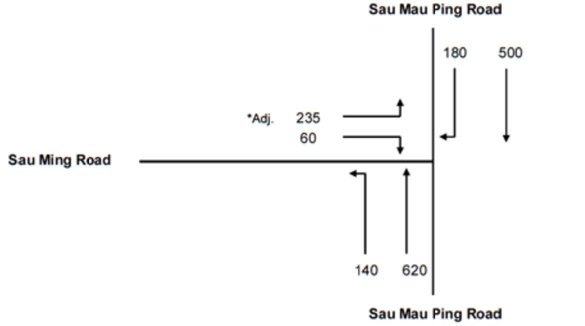
JUNCTION CAPACITY CALCULATION

AECOM

Junction J14 - Sau Mau Ping Rd / Sau Ming Rd	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

(J14)

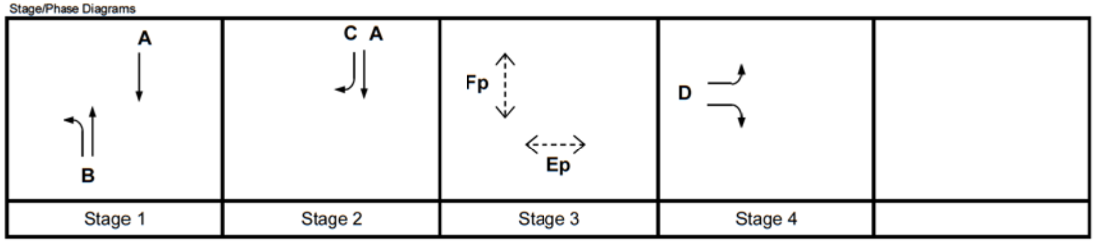
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	4	
Cycle time	C =	110	sec
Sum(y)	Y =	0.459	
Lost time	L =	39	sec
Total Flow	=	10,055	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	117	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	72	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.608	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	32.4	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	80	sec
Y_{max} = $1-L/C$	=	0.645	

Stage/Phase Diagrams



I/G = 5 I/G = 8 G = 7 I/G = 16 I/G = 6

Critical Case : B,C,Ep,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 27%

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	1,2	3.300	1				1		0		1945		500		500			1945	0.257	
	C	2	3.300	1		15	0	0		0		2085			180	180		100%	1895	0.095	0.095
	B	1	3.300	1	10			1		0		1945	140	216		356	39%		1837	0.194	0.194
	B	1	3.300	1				0		0		2085		404		404			2085	0.194	
	D	4	3.800	1	10	10	0	1		0		1995	235		60	295	80%	20%	1735	0.170	0.170
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	7	+	13	=	20	sec												*
	Fp	3	min.	8	+	10	=	18	sec												

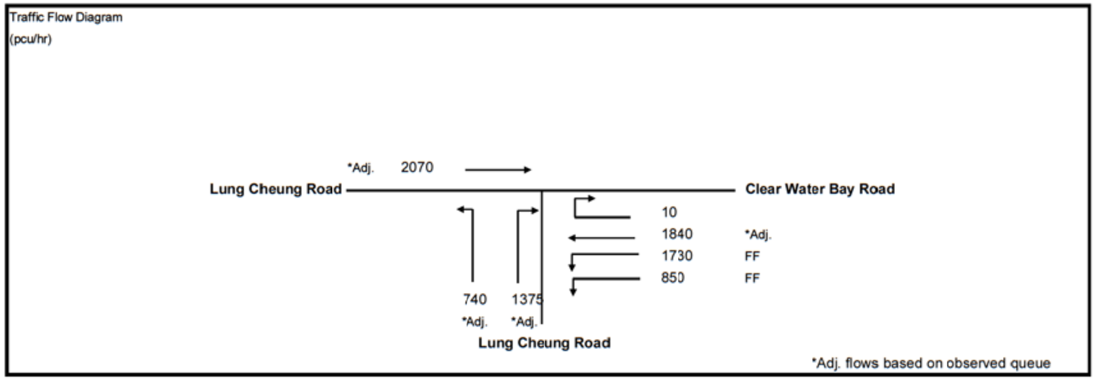
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J15

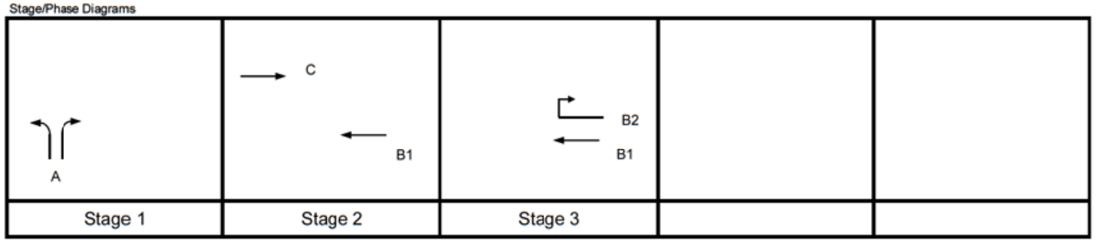
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.703	
Lost time		L =	11	sec
Total Flow		=	20,550	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$		72	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	37	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	16.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	50	sec
Y_{max}	$= 1-L/C$	=	0.921	

Stage/Phase Diagrams



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

Critical Case : A,B1

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 18%

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				1		0		1945		518		518			1945	0.266	
	A	1	3.300	1		30	0			0		2085		222	317	539		59%	2025	0.266	0.266
	A	1	3.300	2		30	0	0		0		4170			1058	1058		100%	3971	0.266	
	B1	2,3	3.500	2				0		0		4210		1840		1840			4210	0.437	0.437
	B2	3	3.500	1		10	0	1		0		1965			10	10		100%	1709	0.006	
	C	2	3.500	3				1		0		6175		2070		2070			6175	0.335	

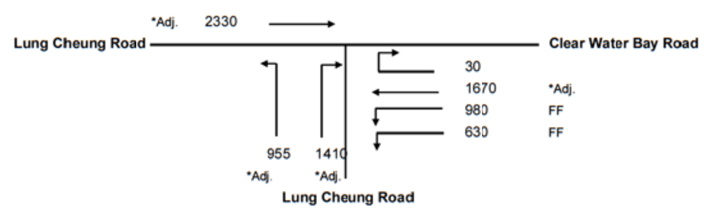
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J15

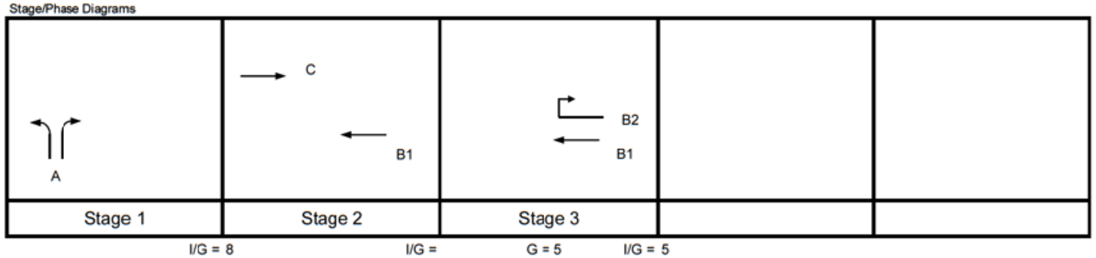
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.674	
Lost time	L =	16	sec
Total Flow	=	20,550	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	89	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	49	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.780	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	15.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	64	sec
Y_{max} = $1-L/C$	=	0.886	

Stage/Phase Diagrams



Critical Case : A,C,B2

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 18%

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				1		0		1945		578		578			1945	0.297	
↑↱	A	1	3.300	1		30	0			0		2085		377	230	608		38%	2046	0.297	
↱	A	1	3.300	2		30	0	0		0		4170			1180	1180		100%	3971	0.297	0.297
←	B1	2,3	3.500	2				0		0		4210		1670		1670			4210	0.397	
↰	B2	3	3.500	1		10	0	1		0		1965			30	30		100%	1709	0.018	
→	C	2	3.500	3				1		0		6175		2330		2330			6175	0.377	0.377

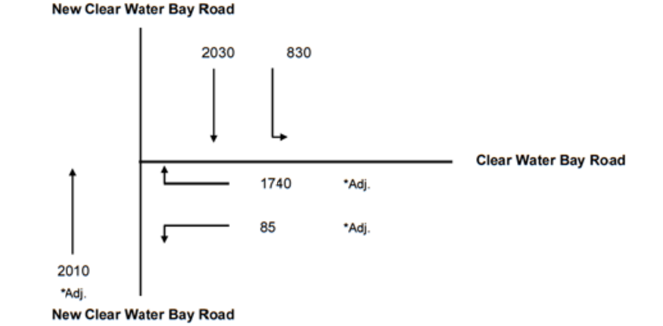
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

J16

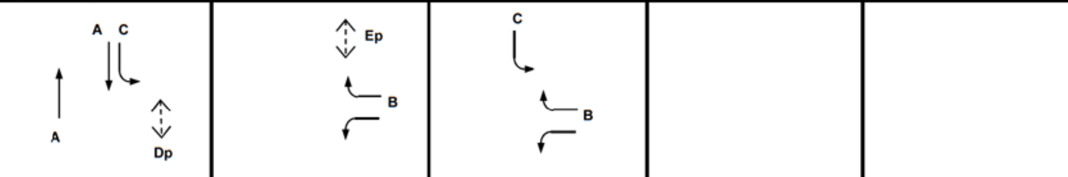
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.663	
Lost time	L =	13	sec
Total Flow	=	20,210	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	73	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	39	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	21.0	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	49	sec
Y_{max}	$= 1-L/C =$	0.907	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G = 8	I/G = 7	I/G =		

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 23%

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	3.400	3				1		0	-250	6145		2010		2010			5945	0.338	0.338
↓	A	1	3.100	3				0		0		6195		2030		2030			6195	0.328	
	C	1,3	3.100	1	20			1		0		1925	830			830	100%		1791	0.464	
	B	2,3	3.400	1	10	20	0	1		0		1955	85		501	586	15%	85%	1800	0.325	0.325
	B	2,3	3.400	2		15	0	0		0		4190			1239	1239		100%	3809	0.325	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	12	=	17	sec												
	Ep	2	min.	5	+	8	=	13	sec												

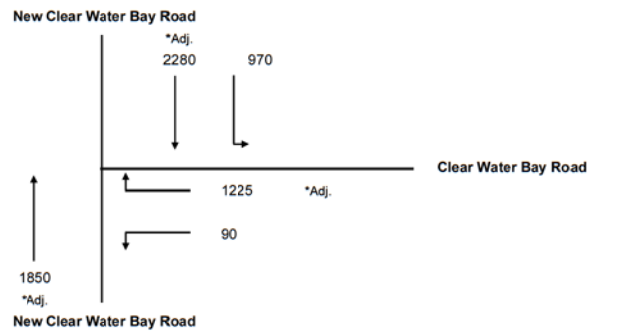
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

J16

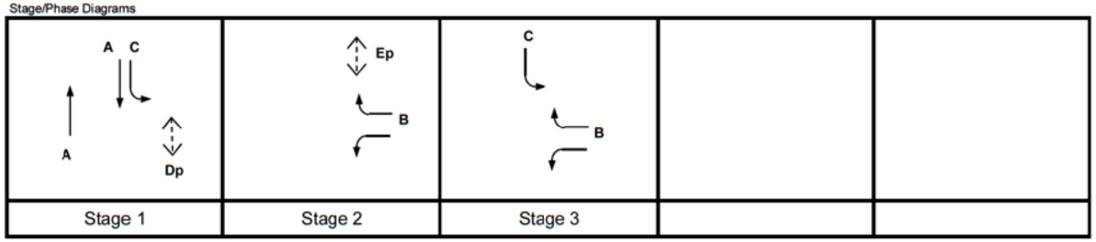
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.603	
Lost time		L =	13	sec
Total Flow		=	20,160	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	62	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	33	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	33.1	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	39	sec
Y_{max}	$= 1-L/C$	=	0.907	

Stage/Phase Diagrams



I/G = 8 I/G = 7 I/G =

Critical Case : A,B

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	3.400	3				1		0	-250	6145		1850		1850			5895	0.314	
	A	1	3.100	3				0		0		6195		2280		2280			6195	0.368	0.368
	C	1,3	3.100	1	20			1		0		1925	970			970	100%		1791	0.542	
	B	2,3	3.400	1	10	20	0	1		0		1955	90		331	421	21%	79%	1792	0.235	0.235
	B	2,3	3.400	2		15	0	0		0		4190			894	894		100%	3809	0.235	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	12	=	17	sec												
	Ep	2	min.	5	+	8	=	13	sec												

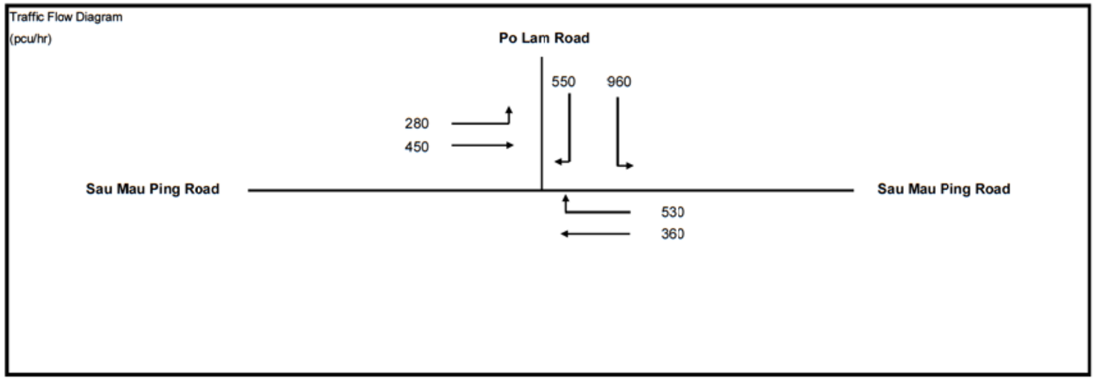
JUNCTION CAPACITY CALCULATION

AECOM

Junction J17 - Sau Mau Ping Road / Po Lam Road	2014 AM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

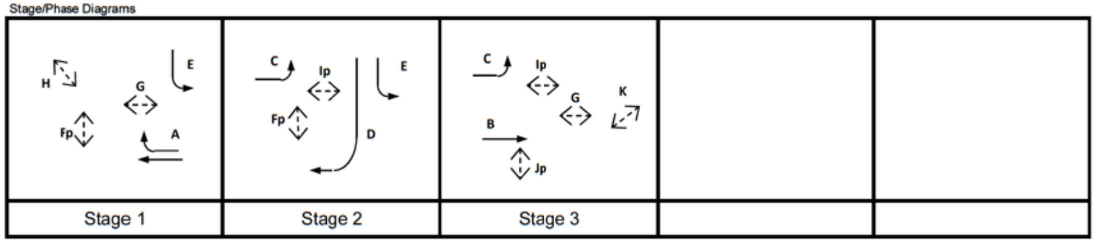
J17

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.516	
Lost time	L =	12	sec
Total Flow	=	18,985	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	48	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	25	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	56.9	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	28	sec
Y_{max} = $1-L/C$	=	0.900	

Stage/Phase Diagrams



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

Critical Case : A,D,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 57%

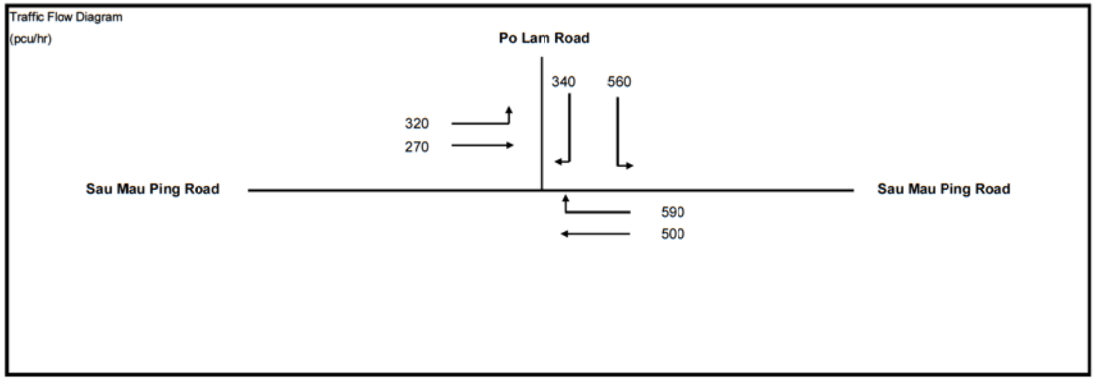
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1945		297		297			1945	0.153	
	A	1	3.500	1		20	0			0		2105		63	241	303		79%	1987	0.153	
	A	1	3.300	1		15	0	0		0		2085			289	289		100%	1895	0.153	0.153
	E	1,2	4.000	2	30			1		0		4170	960			960	100%		3971	0.242	
	D	2	3.500	1		20	0	0		0	200	2105			550	550		100%	2144	0.257	0.257
	C	2,3	4.000	1	15			1		0	150	2015	280			280	100%		1968	0.142	
	B	3	3.500	2				0		0		4210		450		450			4210	0.107	0.107
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	5	+	6	=	11	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1	min.	5	+	7	=	12	sec												
	Ip	2,3	min.	5	+	10	=	15	sec												
	Jp	3	min.	5	+	7	=	12	sec												
	Kp	3	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

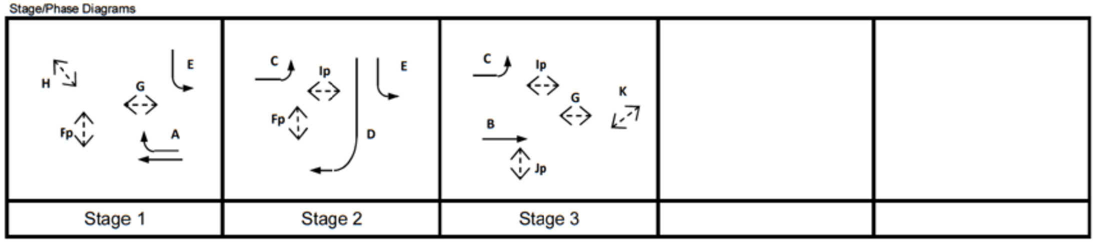
Junction J17 - Sau Mau Ping Road / Po Lam Road	2014 PM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J17



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.345	
Lost time		L =	29	sec
Total Flow		=	18,985	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	74	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	44	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	97.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	47	sec
Y_{max}	$= 1-L/C$	=	0.758	

Stage/Phase Diagrams



I/G = 5 I/G = 12 G = 5 I/G = 9

Critical Case : A,D,Jp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 98%

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				1		0		1945		362		362			1945	0.186	
	A	1	3.500	1		20	0			0		2105		138	237	374		63%	2010	0.186	0.186
	A	1	3.300	1		15	0	0		0		2085			353	353		100%	1895	0.186	
	E	1,2	4.000	2	30			1		0		4170	560			560	100%		3971	0.141	
	D	2	3.500	1		20	0	0		0	200	2105			340	340		100%	2144	0.159	0.159
	C	2,3	4.000	1	15			1		0	150	2015	320			320	100%		1968	0.163	
	B	3	3.500	2				0		0		4210		270		270			4210	0.064	
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	5	+	6	=	11	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1	min.	5	+	7	=	12	sec												
	Ip	2,3	min.	5	+	10	=	15	sec												
	Jp	3	min.	5	+	7	=	12	sec												*
	Kp	3	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

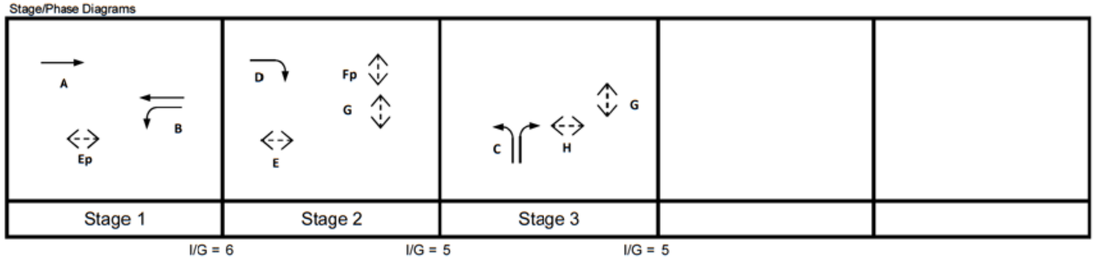
Junction J18 - Po Lam Road / Access Road to Po Tat Estate	2014 AM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J18

Traffic Flow Diagram
(pcu/hr)

No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.426	
Lost time		L =	13	sec
Total Flow		=	18,375	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		43	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	23	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\%$	=	88.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	25	sec
Y_{max}	$= 1-L/C$	=	0.892	

Stage/Phase Diagrams



Critical Case : B,D,C

R.C.(C) $= (0.9\text{x}Y_{max}-Y)/Y\text{x}100\% =$ 88%

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	2				1		0		4070		585		585			4070	0.144	
	D	2	3.500	1		20	0	0		0		2105			255	255		100%	1958	0.130	0.130
	B	1	3.500	1	15			1		0		1965	60	324		384	16%		1935	0.199	0.199
	B	1	3.500	2				0		0		4210		836		836			4210	0.199	
	C	3	3.000	2	15			1		0		3970	350			350	100%		3609	0.097	0.097
	C	3	3.000	1		20	0	0		0		2055			30	30		100%	1912	0.016	

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	13	=	18	sec
Fp	2	min.	5	+	7	=	12	sec
Gp	2,3	min.	5	+	10	=	15	sec
Hp	3	min.	5	+	7	=	12	sec

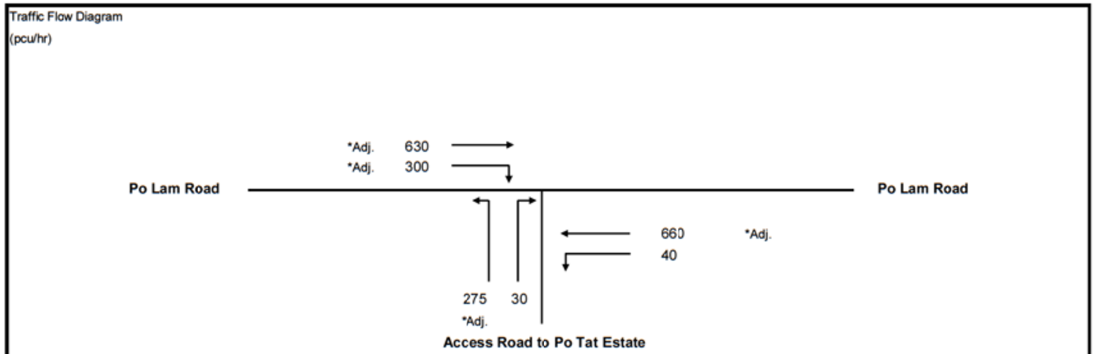
JUNCTION CAPACITY CALCULATION

AECOM

Junction J18 - Po Lam Road / Access Road to Po Tat Estate	2014 PM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J18

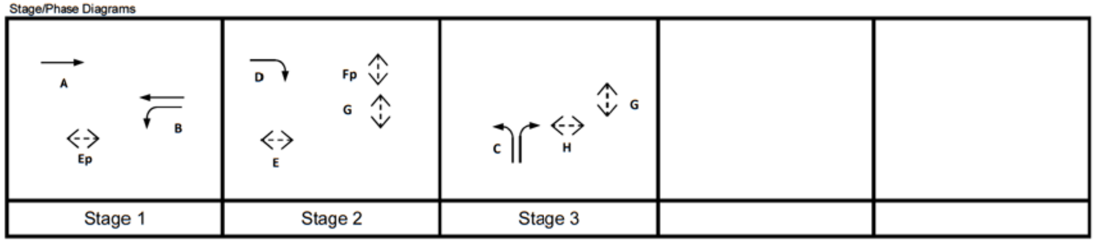
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.384	
Lost time	L =	13	sec
Total Flow	=	18,375	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	40	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	21	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	108.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	23	sec
Y_{max}	$= 1-L/C =$	0.892	

Stage/Phase Diagrams



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

Critical Case : A,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 109%

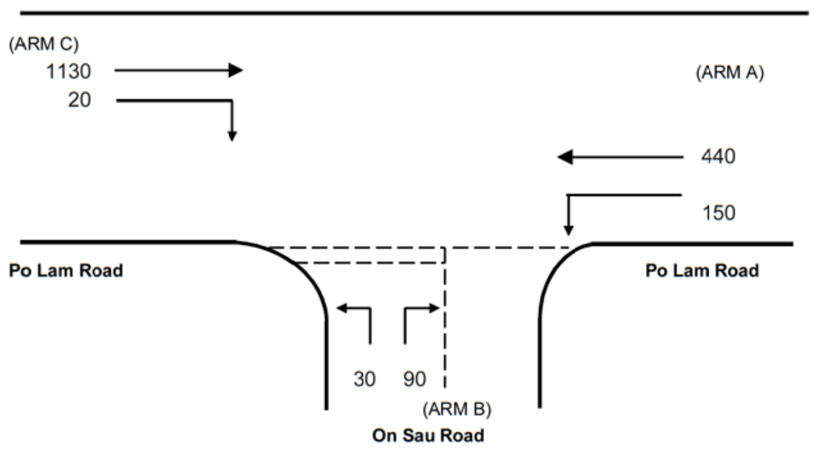
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	2				1		0		4070		630		630			4070	0.155	0.155
	D	2	3.500	1		20	0	0		0		2105			300	300		100%	1958	0.153	0.153
	B	1	3.500	1	15			1		0		1965	40	180		220	18%		1930	0.114	
	B	1	3.500	2				0		0		4210		480		480			4210	0.114	
	C	3	3.000	2	15			1		0		3970	275			275	100%		3609	0.076	0.076
	C	3	3.000	1		20	0	0		0		2055			30	30		100%	1912	0.016	

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	13	=	18	sec
Fp	2	min.	5	+	7	=	12	sec
Gp	2,3	min.	5	+	10	=	15	sec
Hp	3	min.	5	+	7	=	12	sec

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction	J19 Po Lam Road / On Sau Road	Scenario	2014 AM OBSERVED FLOWS	Project No.	Prepared By	Checked By	Date
				60328348	SL	KHL	29/Dec/14



NOTES : (GEOMETRIC INPUT DATA)
W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

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 = 12 (metres)
W cr = 0 (metres)
q a-b = 150 (pcu/hr)
q a-c = 440 (pcu/hr)

MAJOR ROAD (ARM C)
W c-b = 5 (metres)
Vr c-b = 50 (metres)
q c-a = 1130 (pcu/hr)
q c-b = 20 (pcu/hr)

MINOR ROAD (ARM B)
W b-a = 3.65 (metres)
W b-c = 3.65 (metres)
Vl b-a = 50 (metres)
Vr b-a = 80 (metres)
Vr b-c = 80 (metres)
q b-a = 90 (pcu/hr)
q b-c = 30 (pcu/hr)

GEOMETRIC FACTORS :
D = 0.906160
E = 0.964000
F = 1.055905
Y = 0.586000

THE CAPACITY OF MOVEMENT :
Q b-a = 329
Q b-c = 616
Q c-b = 654
Q b-ac = 372

COMPARISION OF DESIGN FLOW TO CAPACITY :
DFC b-a = 0.27
DFC b-c = 0.05
DFC c-b = 0.03
DFC b-ac = 0.32

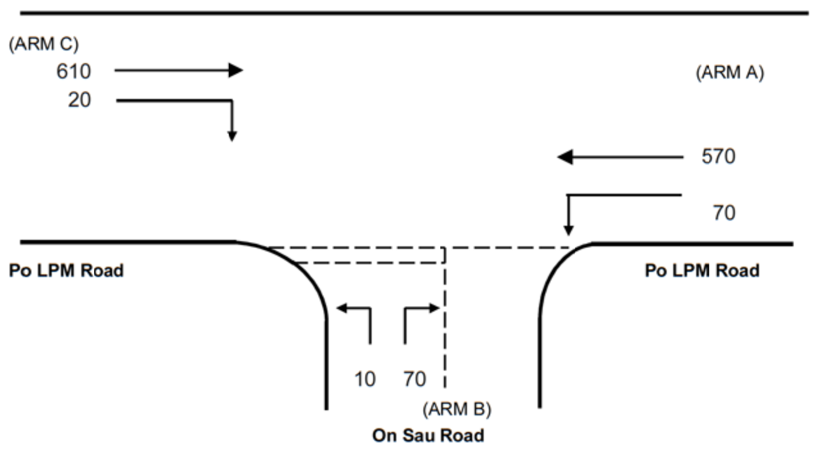
CRITICAL DFC = 0.32

Filename : sktop\Preliminary Junction Assessment to TD\[RC Summary.xl

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction	J19 Po Lam Road / On Sau Road	Scenario	2014 PM OBSERVED FLOWS	Project No.	Prepared By	Checked By	Date
				60328348	SL	KHL	29/Dec/14



NOTES : (GEOMETRIC INPUT DATA)

W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

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 =	12 (metres)	W c-b =	5 (metres)	W b-a = 3.65	(metres)
W cr =	0 (metres)	Vr c-b =	50 (metres)	W b-c = 3.65	(metres)
q a-b =	70 (pcu/hr)	q c-a =	610 (pcu/hr)	Vl b-a = 50	(metres)
q a-c =	570 (pcu/hr)	q c-b =	20 (pcu/hr)	Vr b-a = 80	(metres)
				Vr b-c = 80	(metres)
				q b-a = 70	(pcu/hr)
				q b-c = 10	(pcu/hr)

GEOMETRIC FACTORS :

D = 0.906160
E = 0.964000
F = 1.055905
Y = 0.586000

THE CAPACITY OF MOVEMENT :

Q b-a = 373
Q b-c = 595
Q c-b = 643
Q b-ac = 391

COMPARISION OF DESIGN FLOW TO CAPACITY :

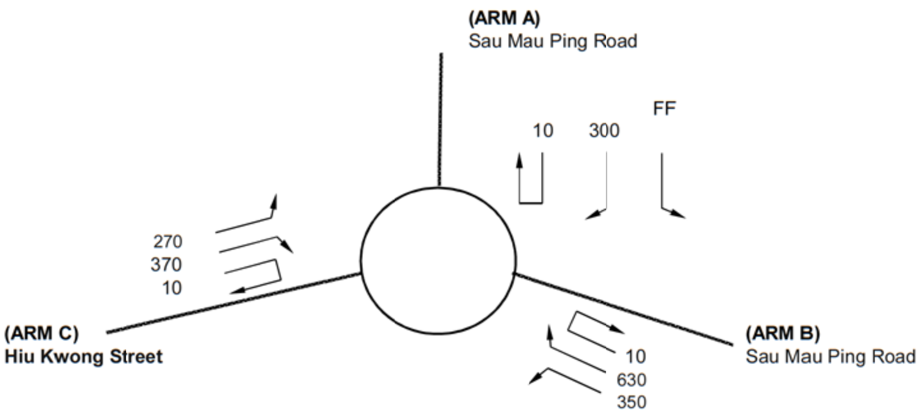
DFC b-a = 0.19
DFC b-c = 0.02
DFC c-b = 0.03
DFC b-ac = 0.20

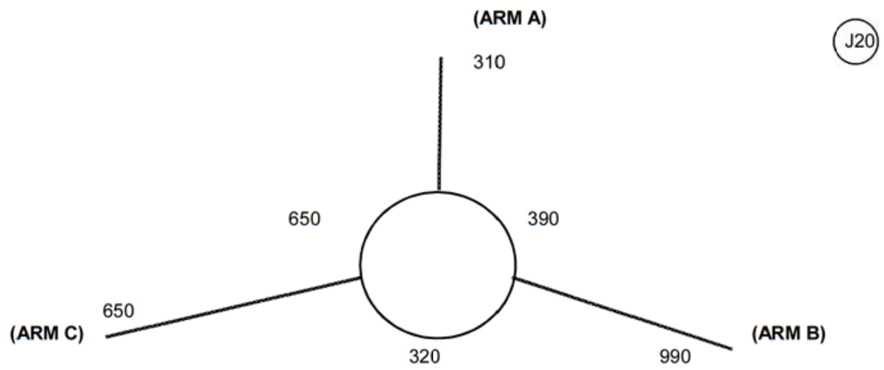
CRITICAL DFC = 0.20

Filename : sktop\Preliminary Junction Assessment to TD\[RC Summary.xl

ROUNDABOUT CAPACITY CALCULATION

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2014 AM Observed Flows	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	310	990	650
Qc= Circulating flow across entry (pcu/h)	390	320	650
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1365	1989	1384
DFC = Design flow/Capacity = Q/Qe	0.23	0.50	0.47

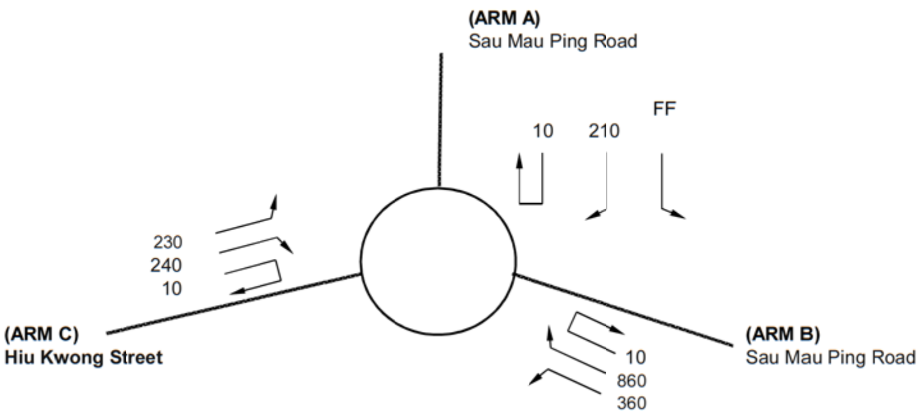
TOTAL ENTRY FLOWS = 1950 PCU

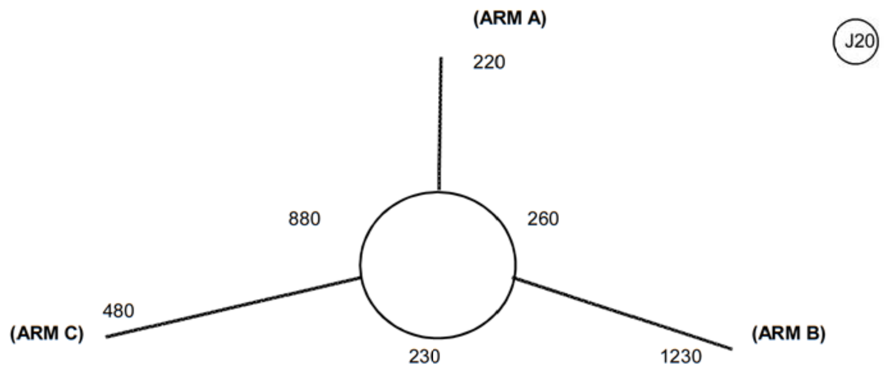
CRITICAL DFC = 0.50

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2014 PM Observed Flows	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	220	1230	480
Qc= Circulating flow across entry (pcu/h)	260	230	880
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1452	2058	1224
DFC = Design flow/Capacity = Q/Qe	0.15	0.60	0.39

TOTAL ENTRY FLOWS = 1930 PCU

CRITICAL DFC = 0.60

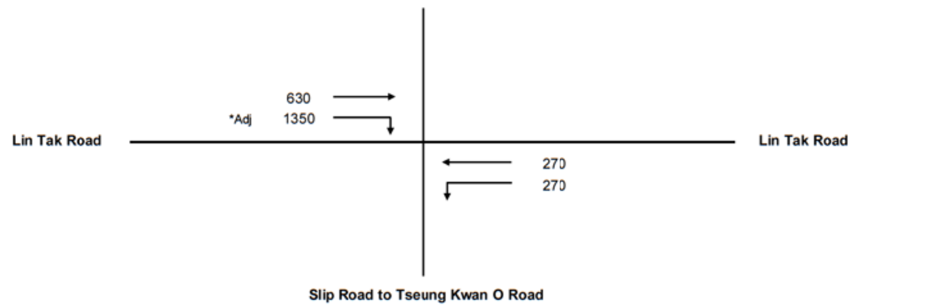
JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2014 AM Observed Flows	DESIGN: KH	CHECK: 0	JOB NO: 60328348	DATE: Dec 14

J21

Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	2	
Cycle time	C =	110	sec
Sum(y)	Y =	0.861	
Lost time	L =	10	sec
Total Flow	=	8,070	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	143	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	72	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	-4.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	228	sec
Y_{max} = $1-L/C$	=	0.909	

Stage/Phase Diagrams

Stage 1	Stage 2			

I/G = 7   I/G = 5

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = -5%

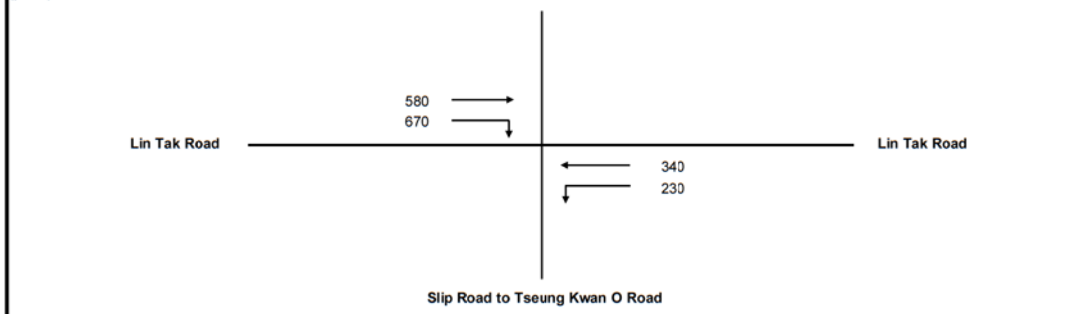
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	1,2	3.500	1				1		0		1965		630		630			1965	0.321	
	B	2	3.500	1		15	0	0		0		2105			1350	1350		100%	1914	0.705	0.705
	A	1	3.300	1				0		0		2085		270		270			2085	0.129	
	A	1	3.000	1	15			1		0		1915	270			270	100%		1741	0.155	0.155

JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2014 PM Observed Flows	DESIGN: KH	CHECK: 0	JOB NO: 60328348	DATE: Dec 14

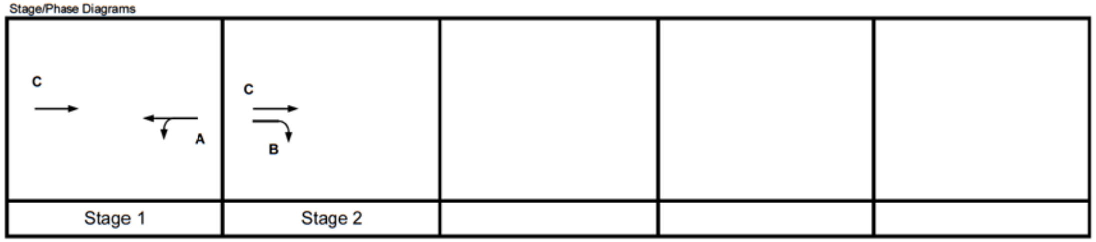
Traffic Flow Diagram
(pcu/hr)



J21

No. of stages per cycle	N =	2	
Cycle time	C =	80	sec
Sum(y)	Y =	0.513	
Lost time	L =	10	sec
Total Flow	=	8,070	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	41	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	21	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	60.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	23	sec
Y_{max} = $1-L/C$	=	0.875	

Stage/Phase Diagrams



I/G = 7 I/G = 5

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 53%

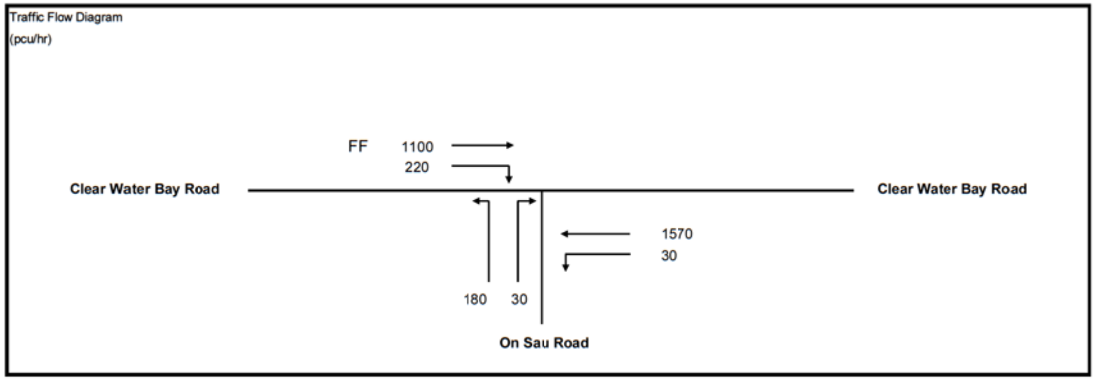
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	1,2	3.500	1				1		0		1965		580		580			1965	0.295	
	B	2	3.500	1		15	0	0		0		2105			670	670		100%	1914	0.350	0.350
	A	1	3.300	1				0		0		2085		340		340			2085	0.163	0.163
	A	1	3.000	1	15			1		0		1915	230			230	100%		1741	0.132	

JUNCTION CAPACITY CALCULATION

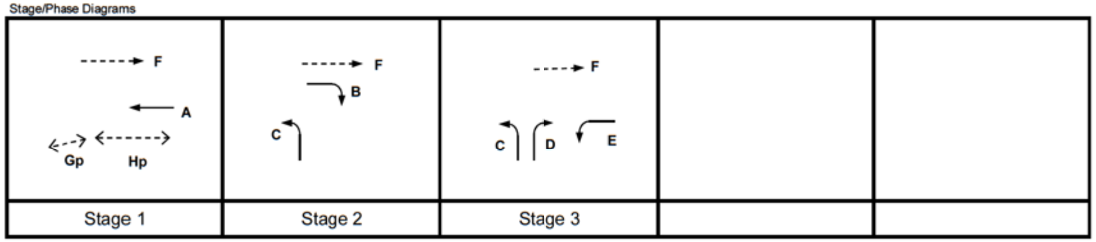
AECOM

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 AM Design Flows (DAR Layout_25K wo EKL)	DESIGN: SL	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

J22



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.471	
Lost time	L =	28	sec
Total Flow	=	14,804	pcu
Optimum Cycle C_o $= (1.5\times L+5)/(1-Y) =$		89	sec
Min. Cycle Time C_m $= L/(1-Y)$	=	53	sec
Y_{ult} $= 0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$ $= (Y_{ult}-Y)/Y\times100\%$	=	46.6	%
Practical Cycle Time C_p $= 0.9\times L/(0.9-Y)$	=	59	sec
Y_{max} $= 1-L/C$	=	0.689	



I/G = 8 I/G = 9 G = 5 I/G = 8

Critical Case : A,B,E

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 32%

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
	D	3	3.650	1		20	0	0		0		2120			30	30		100%	1972	0.015	
	C	2,3	3.500	2	20			1		0		4070	180			180	100%		3786	0.048	
	A	1	3.650	2				0		0		4240		1570		1570			4240	0.370	0.370
	E	3	4.000	1	10			1		0		2015	30			30	100%		1752	0.017	
	B	2	3.375	1		20	0	0		0	267	2092.5			220	220		100%	2195	0.100	0.100

Pedestrian Crossing

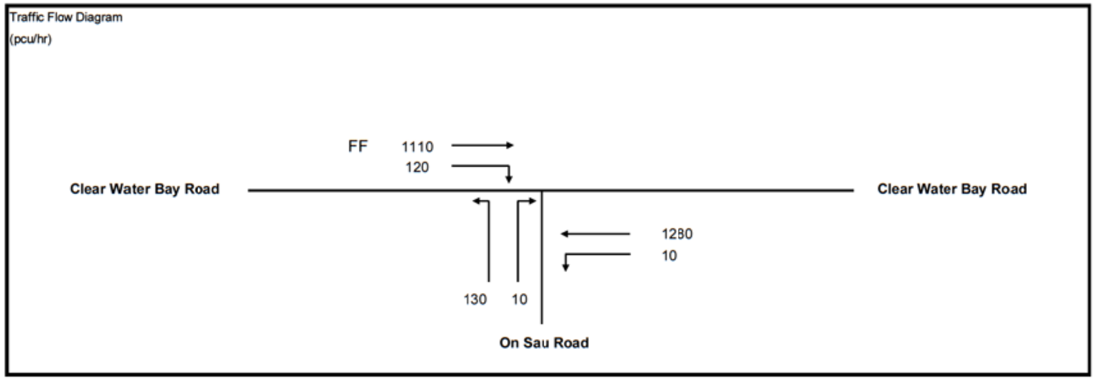
			GM		FGM			
Gp	1	min.	8	+	8	=	16	sec
Hp	1	min.	14	+	12	=	26	sec

JUNCTION CAPACITY CALCULATION

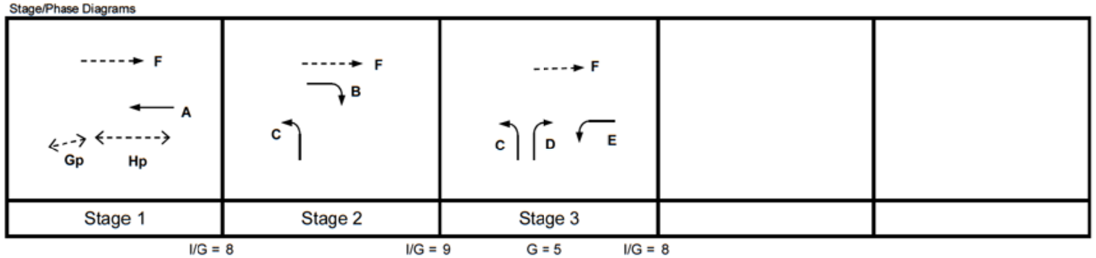
AECOM

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 PM Design Flows (DAR Layout_25K wo EKL)	DESIGN: SL	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

J22



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.357	
Lost time	L =	28	sec
Total Flow	=	14,804	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	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	93.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	46	sec
Y_{max} = $1-L/C$	=	0.689	



Critical Case : A,B,E

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 74%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIEN T (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONA L CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGH T 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
	D	3	3.650	1		20	0	0		0		2120			10	10		100%	1972	0.005	
	C	2,3	3.500	2	20			1		0		4070	130			130	100%		3786	0.034	
	A	1	3.650	2				0		0		4240		1280		1280			4240	0.302	0.302
	E	3	4.000	1	10			1		0		2015	10			10	100%		1752	0.006	
	B	2	3.375	1		20	0	0		0	267	2092.5			120	120		100%	2195	0.055	0.055

Pedestrian Crossing

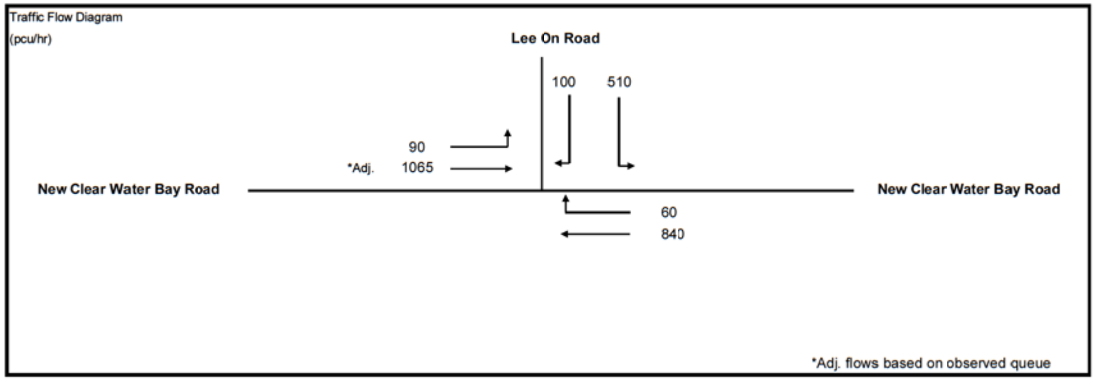
			GM		FGM			
Gp	1	min.	8	+	8	=	16	sec
Hp	1	min.	14	+	12	=	26	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J23 - New Clear Water Bay Road / Lee On Road	2014 AM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

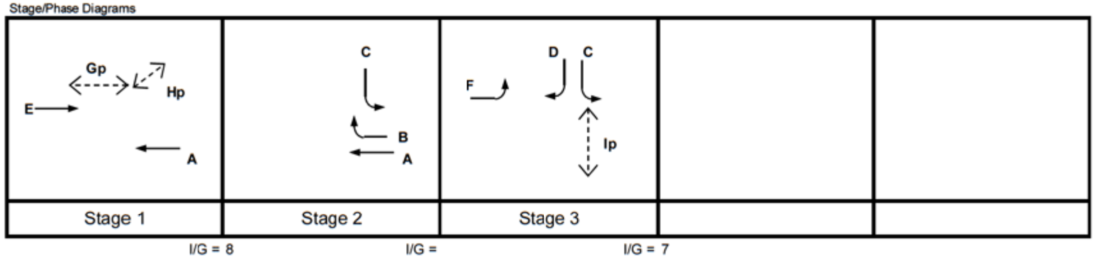
Traffic Flow Diagram
(pcu/hr)



J23

No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.528	
Lost time		L =	13	sec
Total Flow		=	14,255	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	52	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	28	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	52.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	31	sec
Y_{max}	$= 1-L/C$	=	0.907	

Stage/Phase Diagrams



Critical Case : E,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 55%

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
	F	3	3.500	1	10			1		0		1965	90			90	100%		1709	0.053	
	E	1	3.300	2				0		0		4170		1065		1065			4170	0.255	0.255
	A	1,2	3.500	1				1		0		1965		840		840			1965	0.427	
	B	2	3.300	1		15	0	0		0		2085			60	60		100%	1895	0.032	
	C	2,3	3.500	1	30			1		0		1965	510			510	100%		1871	0.273	0.273
	D	3	3.500	1		15	0	0		0		2105			100	100		100%	1914	0.052	

Pedestrian Crossing

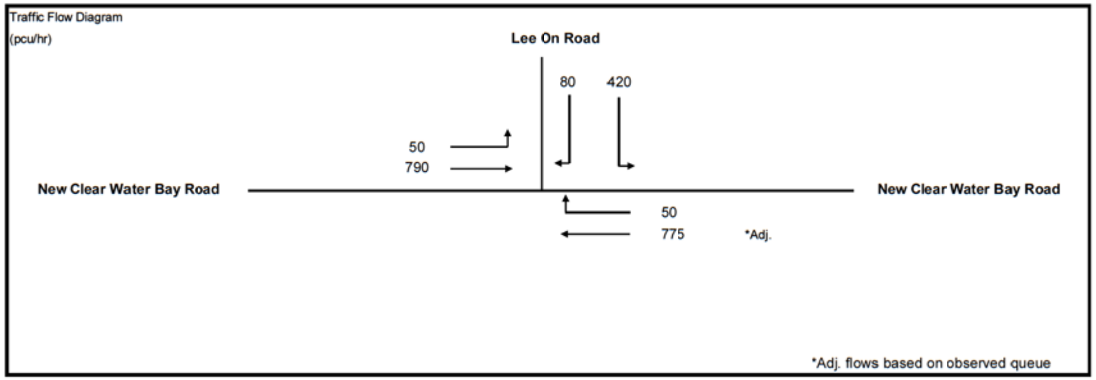
	Stage		GM		FGM			
Gp	1	min.	9	+	7	=	16	sec
Hp	1	min.	10	+	5	=	15	sec
Ip	3	min.	9	+	8	=	17	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J23 - New Clear Water Bay Road / Lee On Road	2014 PM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

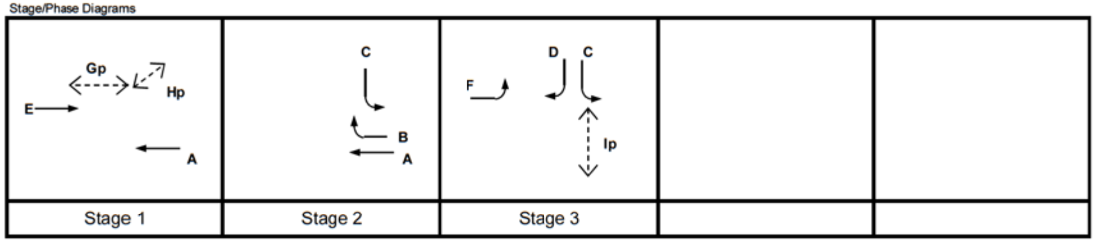
Traffic Flow Diagram
(pcu/hr)



J23

No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.424	
Lost time	L =	16	sec
Total Flow	=	14,255	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	50	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	28	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.780	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	84.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	30	sec
Y_{max} = $1-L/C$	=	0.886	

Stage/Phase Diagrams



I/G = 	I/G = 9 	I/G = 9

Critical Case : A,F

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 88%

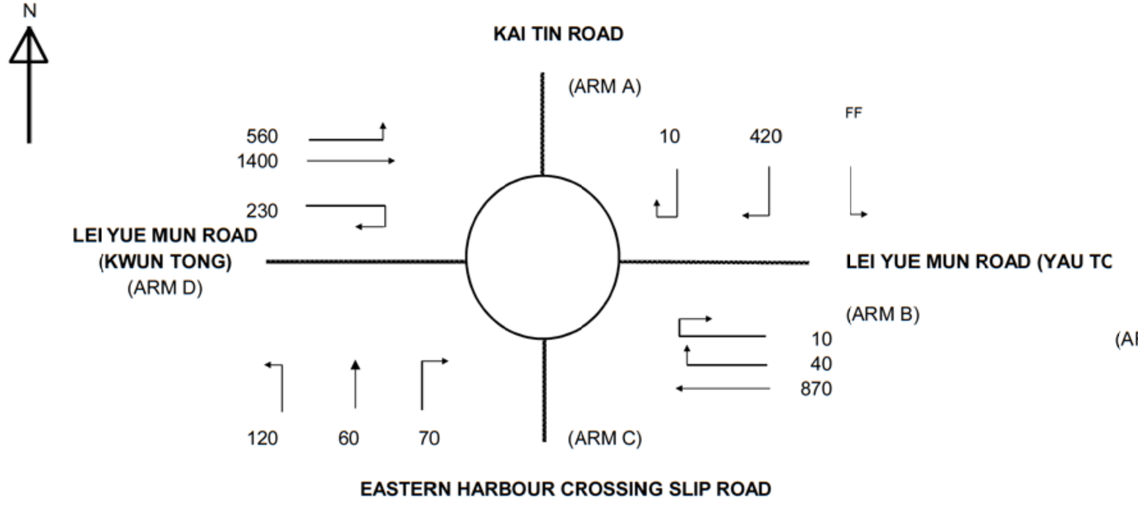
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	F	3	3.500	1	10			1		0		1965	50			50	100%		1709	0.029	0.029
	E	1	3.300	2				0		0		4170		790		790			4170	0.189	
	A	1,2	3.500	1				1		0		1965		775		775			1965	0.394	0.394
	B	2	3.300	1		15	0	0		0		2085			50	50		100%	1895	0.026	
	C	2,3	3.500	1	30			1		0		1965	420			420	100%		1871	0.224	
	D	3	3.500	1		15	0	0		0		2105			80	80		100%	1914	0.042	

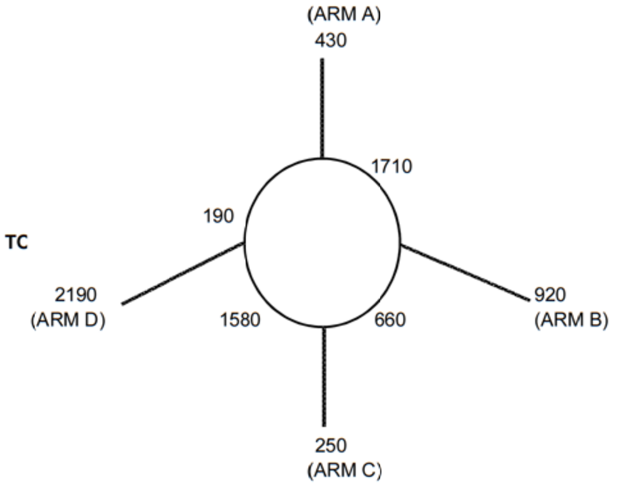
Pedestrian Crossing			GM		FGM			
Gp	1	min.	9	+	7	=	16	sec
Hp	1	min.	10	+	5	=	15	sec
Ip	3	min.	9	+	8	=	17	sec

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J24 Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harb	Scenario	2014 AM Observed Flows	Project No.	Prepared By	Checked By	Date
				60328348	CW	KHL	Dec 2014





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.00	7.00	7.00	7.00
E = Entry width (m)	7.50	10.00	10.00	8.00
L = Effective length of flare (m)	21.00	10.00	11.00	10.00
R = Entry radius (m)	26.00	20.00	60.00	30.00
D = Inscribed circle diameter (m)	81.00	81.00	81.00	81.00
A = Entry angle (degree)	36.00	35.00	30.00	30.00
Q = Entry flow (pcu/h)	430	920	250	2190
Qc= Circulating flow across entry (pcu/h)	1710	660	1580	190
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.11	0.48	0.44	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	0.98	1.03	1.02
X2= V + ((E-V)/(1+2S))	7.22	8.53	8.60	7.76
M = EXP((D-60)/10)	8.17	8.17	8.17	8.17
F = 303*X2	2188	2585	2606	2351
Td= 1+(0.5/(1+M))	1.05	1.05	1.05	1.05
Fc= 0.21*Td(1+0.2*X2)	0.54	0.60	0.60	0.57
Qe= K(F-Fc*Qc)	1250	2151	1708	2280
DFC = Design flow/Capacity = Q/Qe	0.34	0.43	0.15	0.96

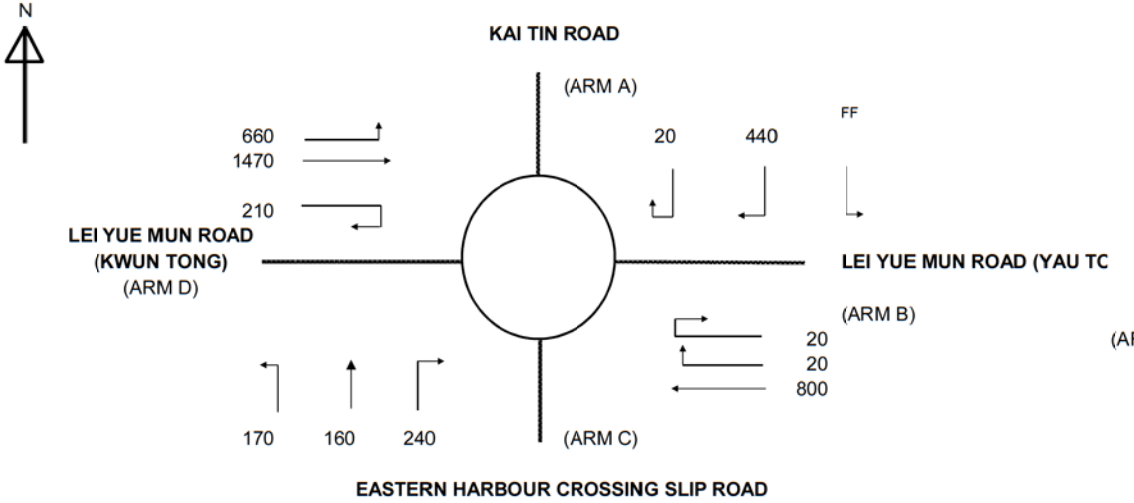
TOTAL ENTRY FLOWS = 3790 PCU

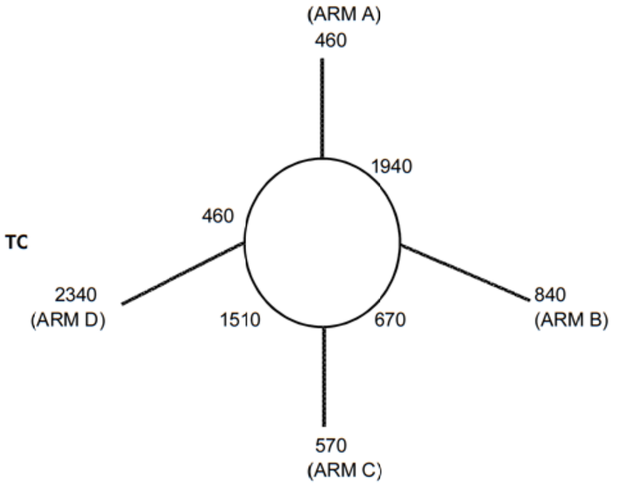
CRITICAL DFC : 0.96

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J24 Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harb	Scenario	2014 PM Observed Flows	Project No.	Prepared By	Checked By	Date
				60328348	CW	KHL	Dec 2014





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.00	7.00	7.00	7.00
E = Entry width (m)	7.50	10.00	10.00	8.00
L = Effective length of flare (m)	21.00	10.00	11.00	10.00
R = Entry radius (m)	26.00	20.00	60.00	30.00
D = Inscribed circle diameter (m)	81.00	81.00	81.00	81.00
A = Entry angle (degree)	36.00	35.00	30.00	30.00
Q = Entry flow (pcu/h)	460	840	570	2340
Qc= Circulating flow across entry (pcu/h)	1940	670	1510	460
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.11	0.48	0.44	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	0.98	1.03	1.02
X2= V + ((E-V)/(1+2S))	7.22	8.53	8.60	7.76
M = EXP((D-60)/10)	8.17	8.17	8.17	8.17
F = 303*X2	2188	2585	2606	2351
Td= 1+(0.5/(1+M))	1.05	1.05	1.05	1.05
Fc= 0.21*Td(1+0.2*X2)	0.54	0.60	0.60	0.57
Qe= K(F-Fc*Qc)	1127	2145	1752	2125
DFC = Design flow/Capacity = Q/Qe	0.41	0.39	0.33	1.10

TOTAL ENTRY FLOWS = 4210 PCU

CRITICAL DFC : 1.10

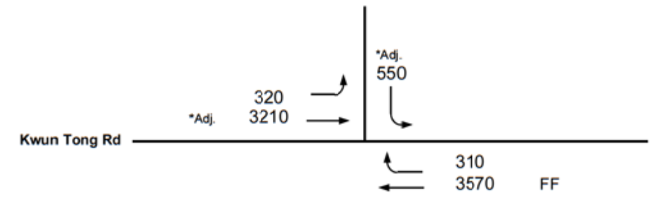
JUNCTION CAPACITY CALCULATION

AECOM

Junction J25 - Kwun Tong Rd / Tsui Ping Rd	2014 AM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J25

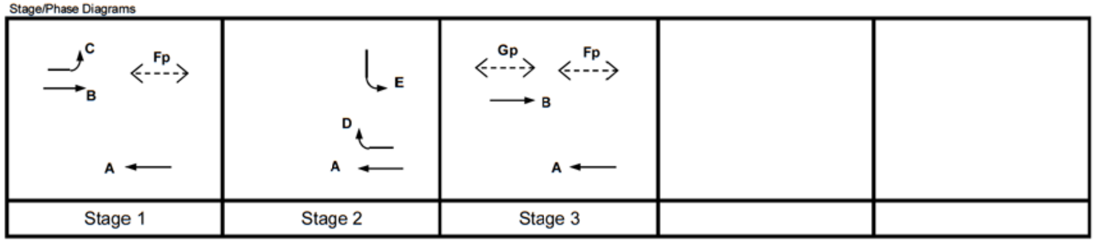
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	3	
Cycle time		C =	108	sec
Sum(y)		Y =	0.672	
Lost time		L =	10	sec
Total Flow		=	14,355	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	61	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	30	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	22.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	39	sec
Y_{max}	$= 1-L/C$	=	0.907	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 22%

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
→	B	1,3	3.300	3				0		0		6255		3210		3210			6255	0.513	0.513
↱	C	1	3.500	1	17.5			1		0		1965	320			320	100%		1810	0.177	
↳	E	2	3.300	2	15			1		0		4030	550			550	100%		3664	0.150	
↰	D	2	3.500	1		20	0	0		0		2105			310	310		100%	1958	0.158	0.158
Pedestrian Crossing				GM		FGM															
	Fp	1,3	min.	8	+	8	=	16	sec												
	Gp	3	min.	6	+	6	=	12	sec												

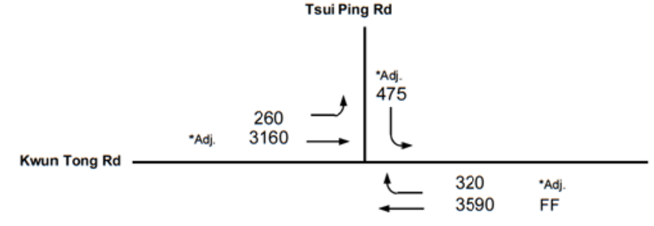
JUNCTION CAPACITY CALCULATION

AECOM

Junction J25 - Kwun Tong Rd / Tsui Ping Rd	2014 PM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J25

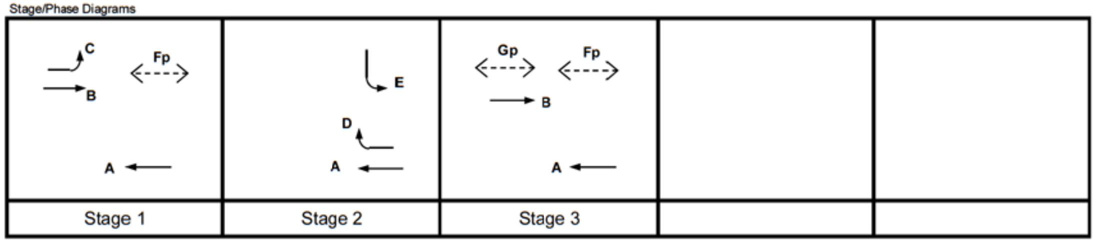
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	108	sec
Sum(y)	Y =	0.669	
Lost time	L =	10	sec
Total Flow	=	14,355	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	60	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	30	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	23.4	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	39	sec
Y_{max}	$= 1-L/C =$	0.907	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : B,D

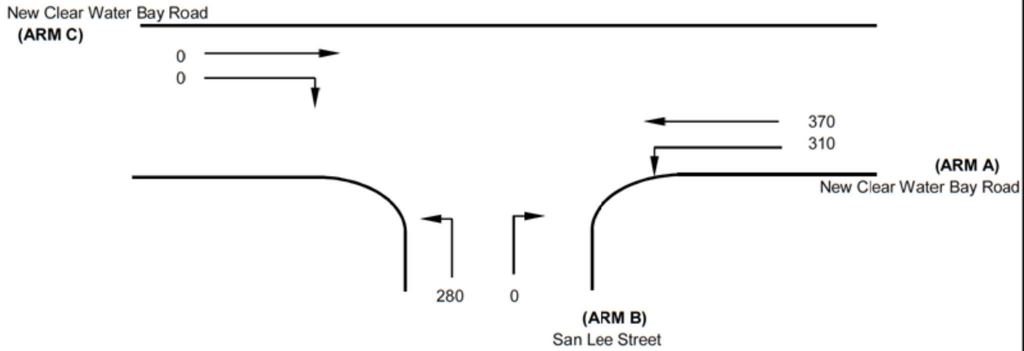
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 22%

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
	B	1,3	3.300	3				0		0		6255		3160		3160			6255	0.505	0.505
	C	1	3.500	1	17.5			1		0		1965	260			260	100%		1810	0.144	
	E	2	3.300	2	15			1		0		4030	475			475	100%		3664	0.130	
	D	2	3.500	1		20	0	0		0		2105			320	320		100%	1958	0.163	0.163
Pedestrian Crossing				GM		FGM															
	Fp	1,3	min.	8	+	8	=	16	sec												
	Gp	3	min.	6	+	6	=	12	sec												

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J26 - New Clear Water Bay Road / San Lee Street	2014 AM Observed Flows	Designed By : GT	Checked By : KHL	Job No. : 60328348	Date : Dec 14



J26

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	=	7.15 (metres)
W cr	=	0 (metres)
q a-b	=	310 (pcu/hr)
q a-c	=	370 (pcu/hr)

MAJOR ROAD (ARM C)

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

MINOR ROAD (ARM B)

W b-a	=	0 (metres)
W b-c	=	6 (metres)
Vl b-a	=	110 (metres)
Vr b-a	=	250 (metres)
Vr b-c	=	0 (metres)
q b-a	=	0 (pcu/hr)
q b-c	=	280 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.716147
E	=	1.089043
F	=	0.585955
Y	=	0.753325

THE CAPACITY OF MOVEMENT :

Q b-a	=	352
Q b-c	=	664
Q c-b	=	327
Q b-ac	=	664

COMPARISION OF DESIGN FLOW TO CAPACITY :

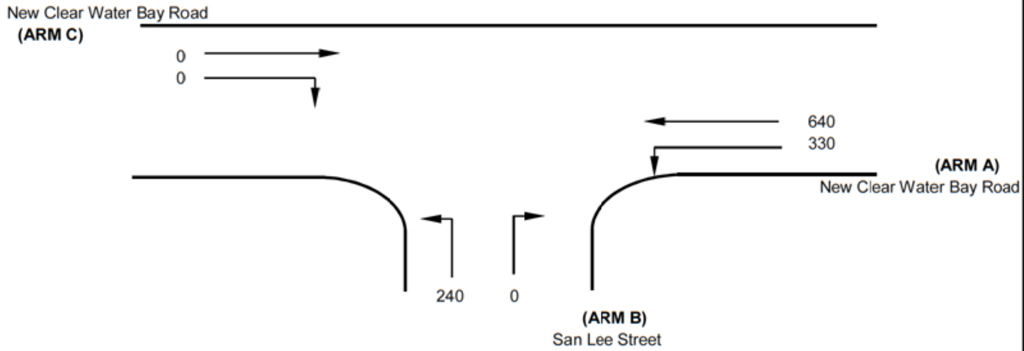
DFC b-a	=	0.00
DFC b-c	=	0.42
DFC c-b	=	0.00
DFC b-ac	=	0.42

CRITICAL DFC = 0.42

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J26 - New Clear Water Bay Road / San Lee Street	2014 PM Observed Flows	Designed By : GT	Checked By : KHL	Job No. : 60328348	Date : Dec 14



J26

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	=	7.15 (metres)	W c-b	=	0 (metres)	W b-a	=	0 (metres)
W cr	=	0 (metres)	Vr c-b	=	0 (metres)	W b-c	=	6 (metres)
q a-b	=	330 (pcu/hr)	q c-a	=	0 (pcu/hr)	Vl b-a	=	110 (metres)
q a-c	=	640 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	250 (metres)
						Vr b-c	=	0 (metres)
						q b-a	=	0 (pcu/hr)
						q b-c	=	240 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.716147
E	=	1.089043
F	=	0.585955
Y	=	0.753325

THE CAPACITY OF MOVEMENT :

Q b-a	=	298
Q b-c	=	581
Q c-b	=	281
Q b-ac	=	581

COMPARISION OF DESIGN FLOW TO CAPACITY :

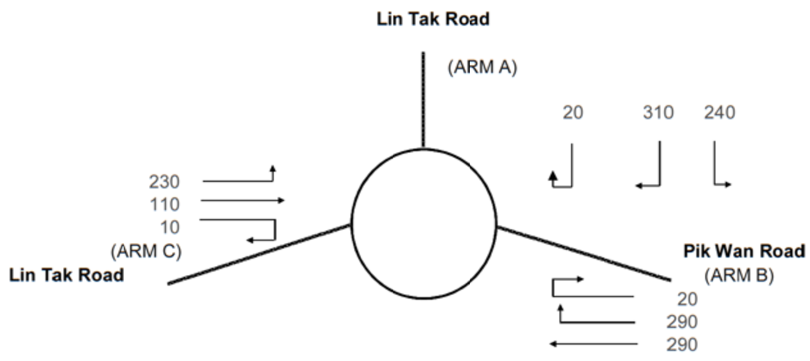
DFC b-a	=	0.00
DFC b-c	=	0.41
DFC c-b	=	0.00
DFC b-ac	=	0.41

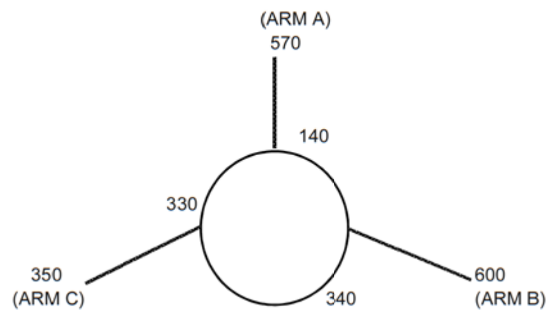
CRITICAL DFC = 0.41

JUNCTION CAPACITY CALCULATION

AECOM

J27 Lin Tak Road / Pik Wan Road | 2014 AM Observed Flows | FILENAME : .XLS





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.30	3.30	3.30
E = Entry width (m)	6.00	6.00	4.00
L = Effective length of flare (m)	1.00	1.00	1.00
R = Entry radius (m)	30.00	100.00	90.00
D = Inscribed circle diameter (m)	25.00	25.00	25.00
A = Entry angle (degree)	30.00	30.00	30.00
Q = Entry flow (pcu/h)	570	600	350
Qc= Circulating flow across entry (pcu/h)	140	340	330
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	4.32	4.32	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02	1.04	1.04
X2= V + ((E-V)/(1+2S))	3.58	3.58	3.52
M = EXP((D-60)/10)	0.03	0.03	0.03
F = 303*X2	1085	1085	1065
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.54	0.54	0.53
Qe= K(F-Fc*Qc)	1026	938	924
DFC = Design flow/Capacity = Q/Qe	0.56	0.64	0.38

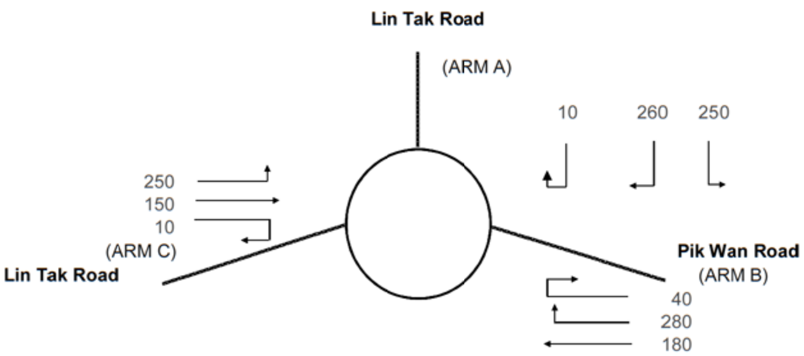
TOTAL ENTRY FLOWS = 1520 PCU

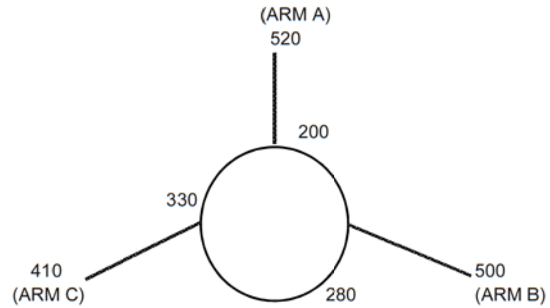
CRITICAL DFC = 0.64

JUNCTION CAPACITY CALCULATION

AECOM

J27 Lin Tak Road / Pik Wan Road | 2014 PM Observed Flows | FILENAME : .XLS





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.30	3.30	3.30
E = Entry width (m)	6.00	6.00	4.00
L = Effective length of flare (m)	1.00	1.00	1.00
R = Entry radius (m)	30.00	100.00	90.00
D = Inscribed circle diameter (m)	25.00	25.00	25.00
A = Entry angle (degree)	30.00	30.00	30.00
Q = Entry flow (pcu/h)	520	500	410
Qc= Circulating flow across entry (pcu/h)	200	280	330
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	4.32	4.32	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02	1.04	1.04
X2= V + ((E-V)/(1+2S))	3.58	3.58	3.52
M = EXP((D-60)/10)	0.03	0.03	0.03
F = 303*X2	1085	1085	1065
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.54	0.54	0.53
Qe= K(F-Fc*Qc)	994	971	924
DFC = Design flow/Capacity = Q/Qe	0.52	0.51	0.44

TOTAL ENTRY FLOWS = 1430 PCU

CRITICAL DFC = 0.52

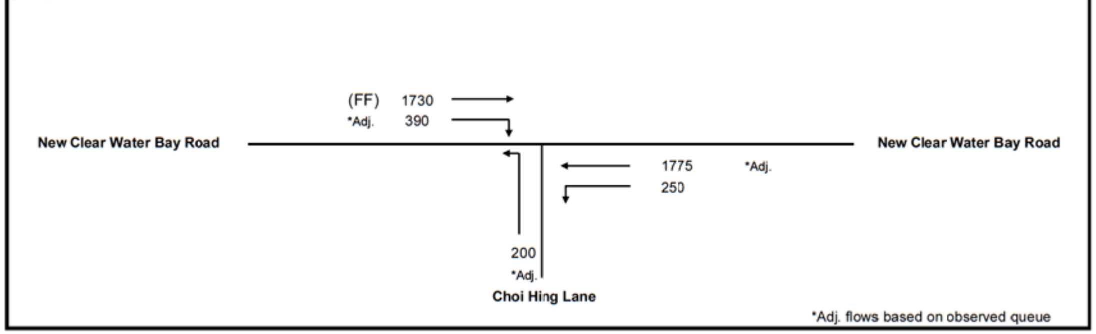
JUNCTION CAPACITY CALCULATION

AECOM

Junction J28 - New Clear Water Bay Rd / Choi Hing Lane	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

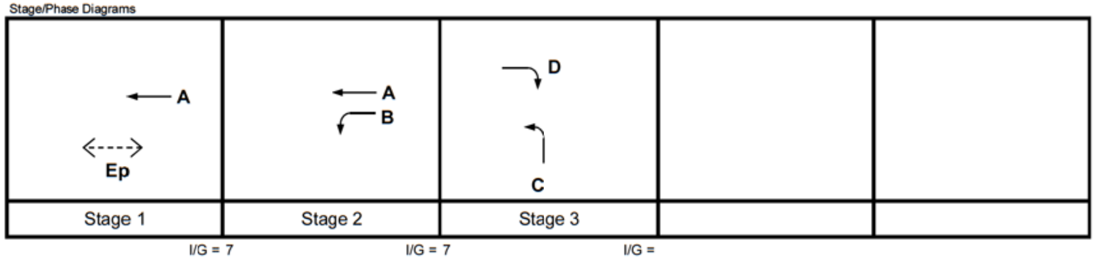
J28

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.625	
Lost time		L =	12	sec
Total Flow		=	10,275	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	61	sec
Min. Cycle Time C_m	= L/(1-Y)	=	32	sec
Y_{ult}	= 0.9-0.0075×L	=	0.810	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100%	=	29.7	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	39	sec
Y_{max}	= 1-L/C	=	0.900	

Stage/Phase Diagrams



Critical Case : A,D

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 30%

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	1,2	3.400	2				0		0		4190		1775		1775			4190	0.424	0.424
↰	B	2	3.400	1	20			1		0		1955	250			250	100%		1819	0.137	
↴	D	3	3.800	1		15	0	0		0		2135			390	390		100%	1941	0.201	0.201
↰	C	3	3.800	1	20			1		0		1995	200			200	100%		1856	0.108	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	9	+	9	=	18	sec												

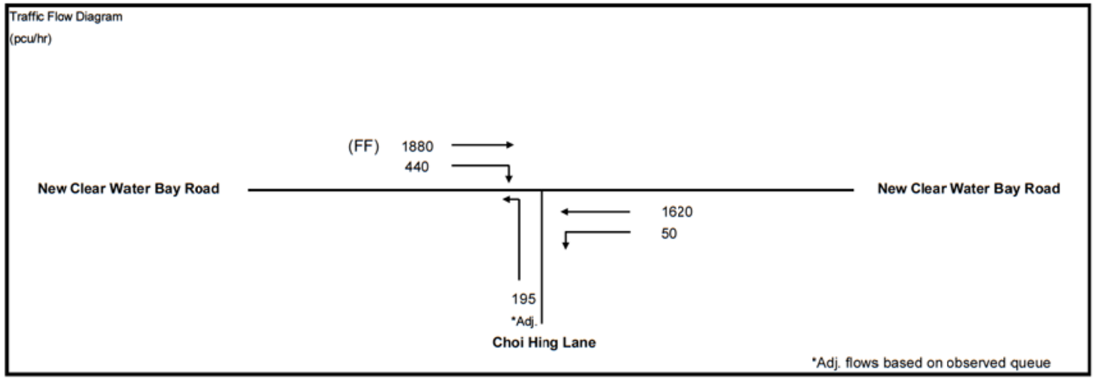
JUNCTION CAPACITY CALCULATION

AECOM

Junction J28 - New Clear Water Bay Rd / Choi Hing Lane	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

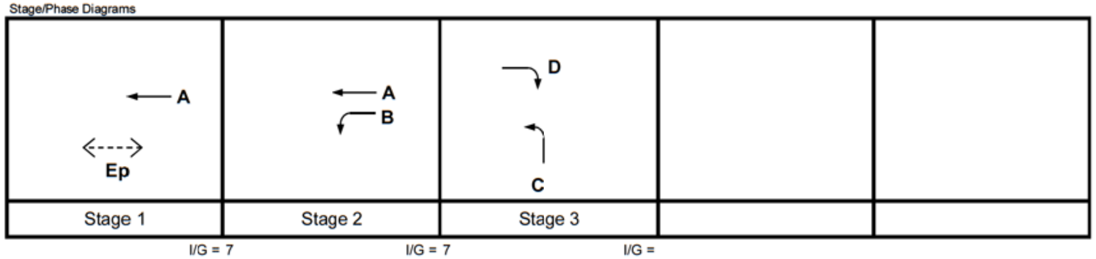
J28

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.613	
Lost time	L =	12	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	59	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	31	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	32.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	38	sec
Y_{max}	$= 1-L/C =$	0.867	

Stage/Phase Diagrams



Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 27%

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	1,2	3.400	2				0		0		4190		1620		1620			4190	0.387	0.387
	B	2	3.400	1	20			1		0		1955	50			50	100%		1819	0.027	
	D	3	3.800	1		15	0	0		0		2135			440	440		100%	1941	0.227	0.227
	C	3	3.800	1	20			1		0		1995	195			195	100%		1856	0.105	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	9	+	9	=	18	sec												

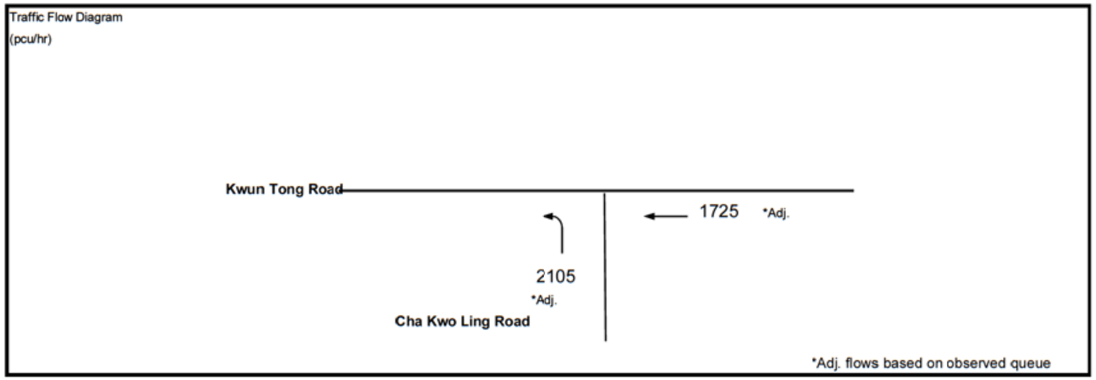
JUNCTION CAPACITY CALCULATION

AECOM

Junction J29 - Kwun Tong Road / Cha Kwo Ling Road	2014 AM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

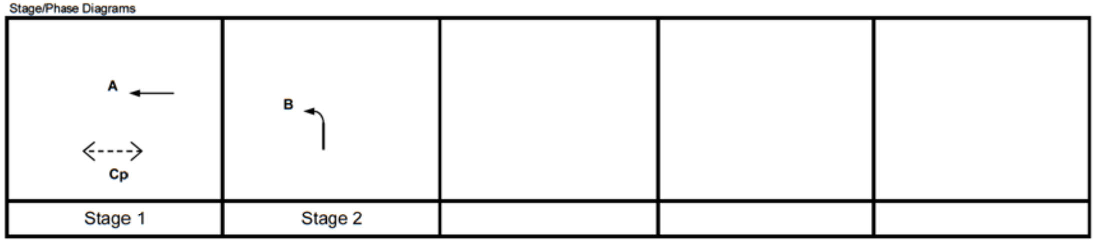
J29

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.664	
Lost time	L =	14	sec
Total Flow	=	14,405	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	77	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	42	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\% =$	19.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	53	sec
Y_{max}	$= 1-L/C =$	0.870	

Stage/Phase Diagrams



I/G = 6 I/G = 10

Critical Case : A,B

R.C.(C) $= (0.9\text{x}Y_{max}\text{-}Y)/Y\text{x}100\% =$ 18%

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			
←	B	1	3.000	4				1		0		8080		1725		1725			6464	0.267	0.267
↰	A	2	4.000	3	20			1		0		6325	2105			2105	100%		5295	0.398	0.398
Pedestrian Crossing				GM		FGM															
	Cp	1	min.	7	+	15	=	22	sec												

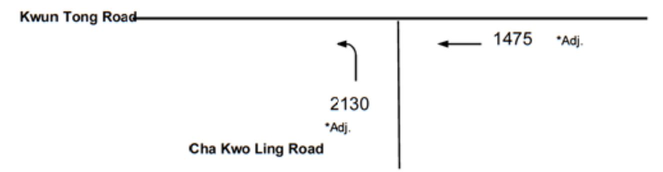
JUNCTION CAPACITY CALCULATION

AECOM

Junction J29 - Kwun Tong Road / Cha Kwo Ling Road	2014 PM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J29

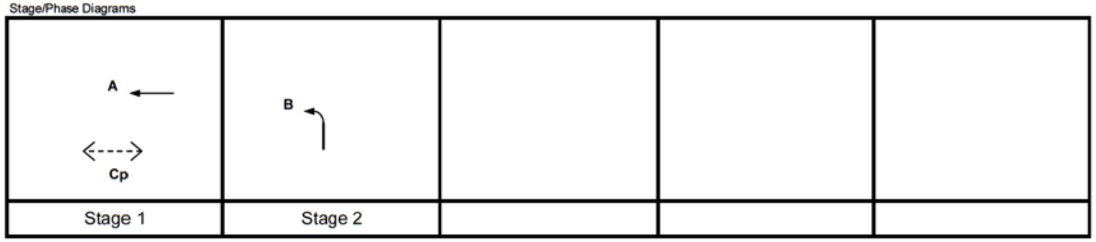
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.630	
Lost time		L =	14	sec
Total Flow		=	14,405	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$		70	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	38	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	26.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	47	sec
Y_{max}	$= 1-L/C$	=	0.870	

Stage/Phase Diagrams



I/G = 6 I/G = 10

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 24%

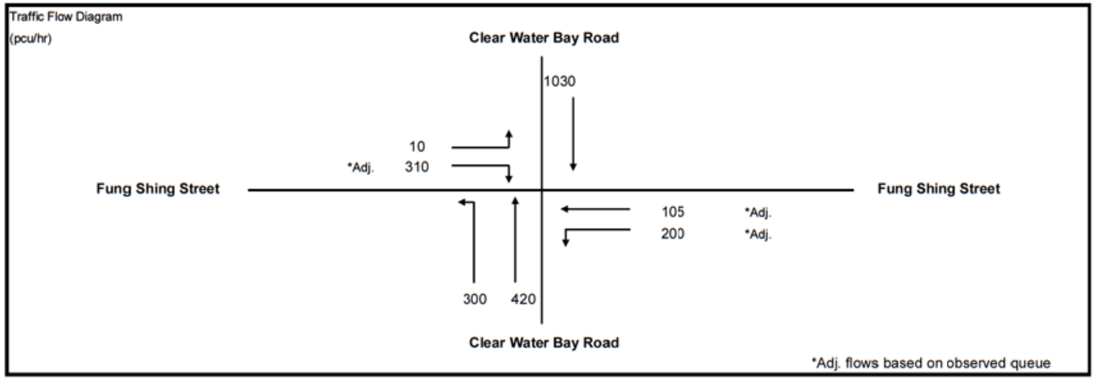
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
←	B	1	3.000	4				1		0		8080		1475		1475			6464	0.228	0.228
↰	A	2	4.000	3	20			1		0		6325	2130			2130	100%		5295	0.402	0.402
Pedestrian Crossing				GM		FGM															
	Cp	1	min.	7	+	15	=	22	sec												

JUNCTION CAPACITY CALCULATION

AECOM

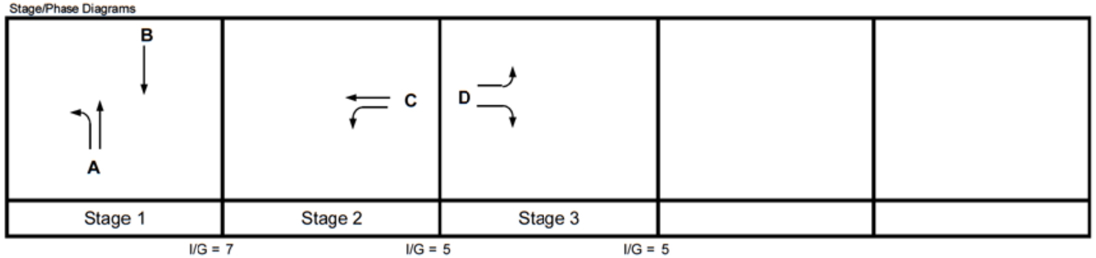
Junction J45 - Clear Water Bay Rd / Fung Shing St	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J45



No. of stages per cycle	N =	3	
Cycle time	C =	135	sec
Sum(y)	Y =	0.697	
Lost time	L =	14	sec
Total Flow	=	10,183	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	86	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	46	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	14.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	62	sec
Y_{max} = $1-L/C$	=	0.896	

Stage/Phase Diagrams



Critical Case : A,C,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 16%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	4.400	1	20			1		0	27	2055	300	420		720	42%		2019	0.357	0.357
	B	1	3.900	2				1		0		4150		1030		1030			4150	0.248	
	C	2	3.500	1	20			1		0		1965	200	105		305	66%		1873	0.163	0.163
	D	3	3.000	1	10	15	0	1		0	71	1915	10		310	320	3%	97%	1803	0.177	0.177

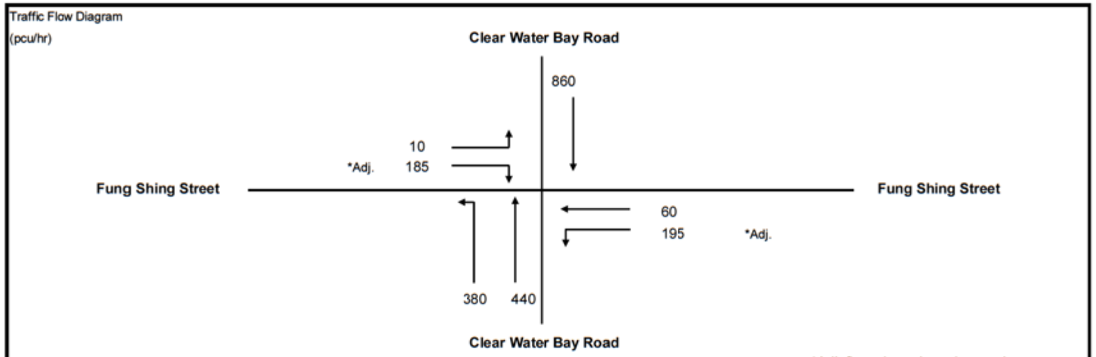
JUNCTION CAPACITY CALCULATION

AECOM

Junction J45 - Clear Water Bay Rd / Fung Shing St	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J45

Traffic Flow Diagram
(pcu/hr)



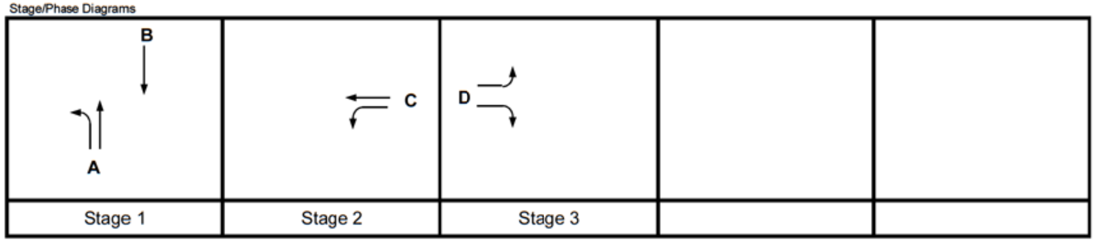
*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.650	
Lost time	L =	14	sec
Total Flow	=	10,211	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	74	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	40	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	22.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	50	sec
Y_{max}	$= 1-L/C =$	0.867	

Critical Case : A,C,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 20%

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 5

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	4.400	1	20			1		0	34	2055	380	440		820	46%		2019	0.406	0.406
	B	1	3.900	2				1		0		4150		860		860			4150	0.207	
	C	2	3.500	1	20			1		0		1965	195	60		255	76%		1858	0.137	0.137
	D	3	3.000	1	10	15	0	1		0	91	1915	10		185	195	5%	95%	1820	0.107	0.107

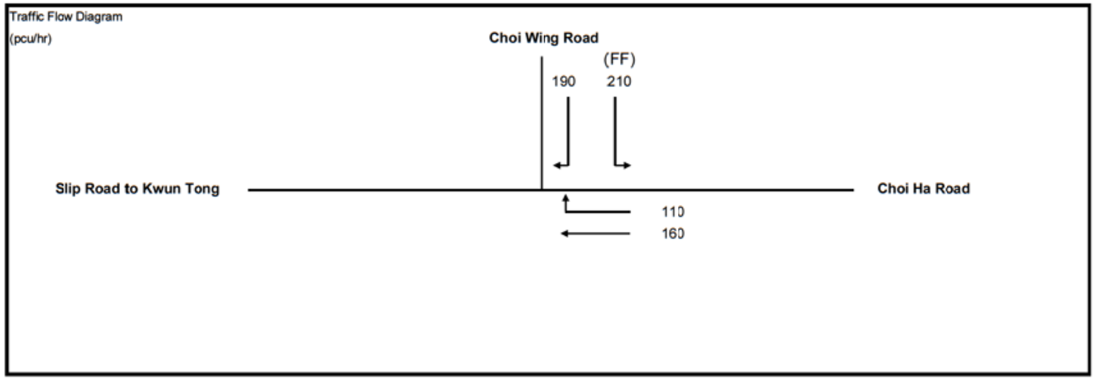
JUNCTION CAPACITY CALCULATION

AECOM

Junction J46 - Choi Ha Road / Slip Road to Kwun Tong	2014 AM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

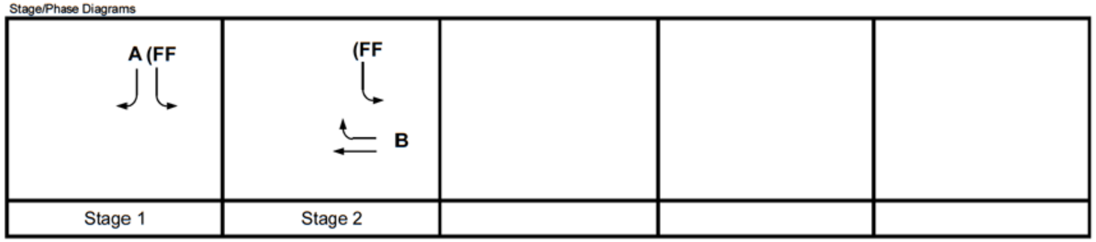
J46

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	90	sec
Sum(y)		Y =	0.178	
Lost time		L =	8	sec
Total Flow		=	6,265	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		21	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	10	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\%$	=	373.0	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	10	sec
Y_{max}	$= 1-L/C$	=	0.911	

Stage/Phase Diagrams



I/G = 5 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9\text{x}Y_{max}-Y)/Y\text{x}100\% =$ 362%

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	4.000	1		15	0	0		0		2155			190	190		100%	1959	0.097	0.097
	B	2	3.700	1				1		0		1985		160		160			1985	0.081	0.081
	B	2	3.700	1		10	0	0		0		2125			110	110		100%	1848	0.060	

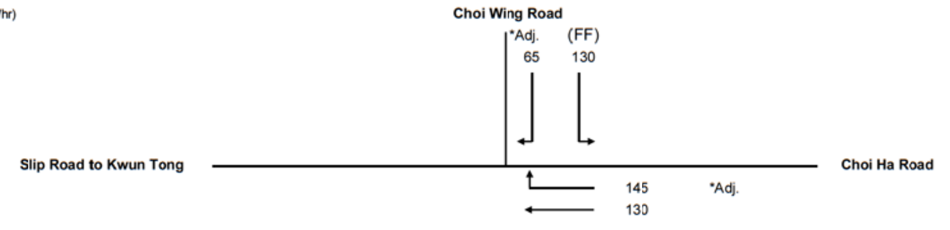
JUNCTION CAPACITY CALCULATION

AECOM

Junction J46 - Choi Ha Road / Slip Road to Kwun Tong	2014 PM Observed Flows	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J46

Traffic Flow Diagram
(pcu/hr)



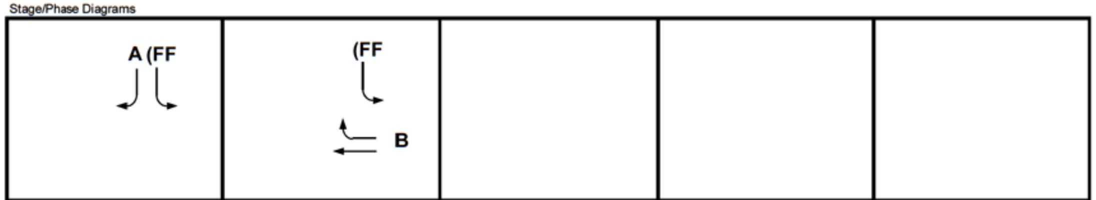
*Adj. flows based on observed queue

No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.112	
Lost time		L =	8	sec
Total Flow		=	6,265	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	19	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	9	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\%$	=	652.4	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	9	sec
Y_{max}	$= 1-L/C$	=	0.926	

Critical Case : A,B

R.C.(C) $= (0.9\text{x}Y_{max}-Y)/Y\text{x}100\%$ = 646%

Stage/Phase Diagrams



Stage 1 — I/G = 5

Stage 2 — I/G = 5

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	4.000	1		15	0	0		0		2155			65	65		100%	1959	0.033	0.033
	B	2	3.700	1				1		0		1985		130		130			1985	0.065	
	B	2	3.700	1		10	0	0		0		2125			145	145		100%	1848	0.078	0.078

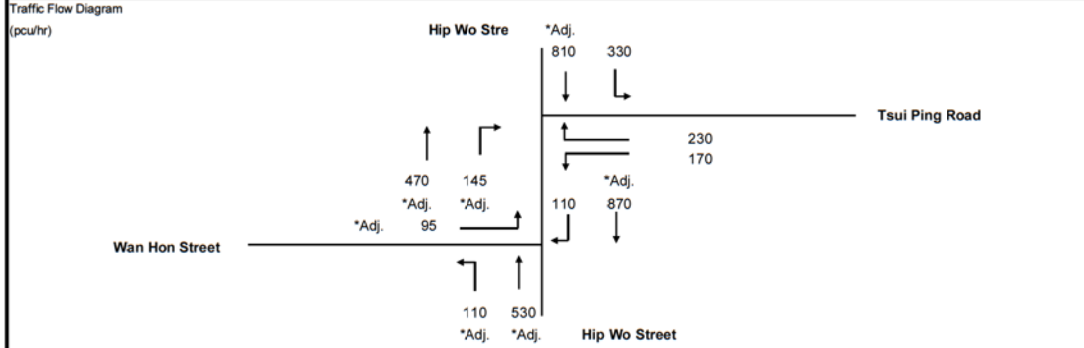
JUNCTION CAPACITY CALCULATION

AECOM

Junction J47 - Hip Wo Street / Tsui Ping Road / Wan Hon Street	2014 AM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J47

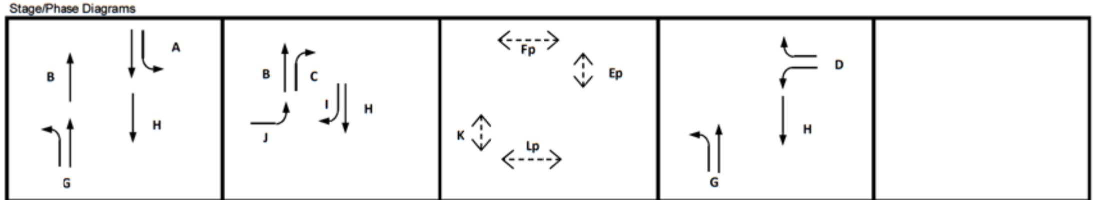
Traffic Flow Diagram
(pcu/hr)



*Adj. flows based on observed queue

No. of stages per cycle		N =	4	
Cycle time		C =	118	sec
Sum(y)		Y =	0.480	
Lost time		L =	38	sec
Total Flow		=	22,165	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	73	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.615	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$		28.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	81	sec
Y_{max}	$= 1-L/C$	=	0.678	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 5 I/G = 10 G = 13 I/G = 8 I/G = 5

Critical Case : A,C,Kp,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 27%

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
	G	1,4	3.000	1	15			1		0		1915	110	193		303	36%		1848	0.164	
	G	1,4	3.000	1				0		0		2055		337		337			2055	0.164	
	I	2	3.500	1		20	0	0		0		2105			110	110		100%	1958	0.056	
	H	1,2,4	3.500	1				1		0		1965		870		870			1965	0.443	
	C	2	3.500	1		25	0	0		0		2105			145	145		100%	1986	0.073	0.073
	B	1,2	3.500	1				1		0		1965		470		470			1965	0.239	
	D	4	3.000	1		20	0	0		0		2055			230	230		100%	1912	0.120	0.120
	D	4	3.000	1	15			1		0		1915	170			170	100%		1741	0.098	
	A	1	3.500	1	20			1		0		1965	330	208		538	61%		1879	0.286	
	A	1	3.500	1				0		0		2105		602		602			2105	0.286	0.286
	J	2	4.000	1	15			1		0		2015	95			95	100%		1832	0.052	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	9	=	19	sec												
	Fp	3	min.	13	+	8	=	21	sec												
	Kp	3	min.	13	+	6	=	19	sec												*
	Lp	3	min.	11	+	9	=	20	sec												

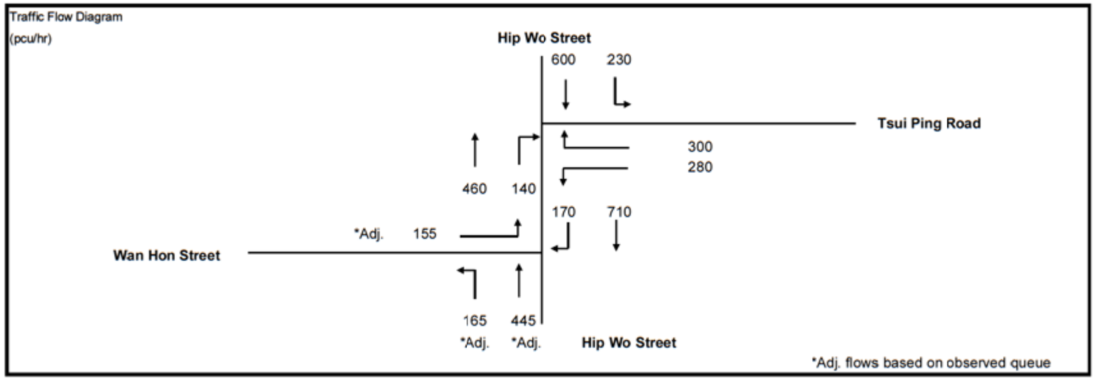
JUNCTION CAPACITY CALCULATION

AECOM

Junction J47 - Hip Wo Street / Tsui Ping Road / Wan Hon Street	2014 PM Observed Flows	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

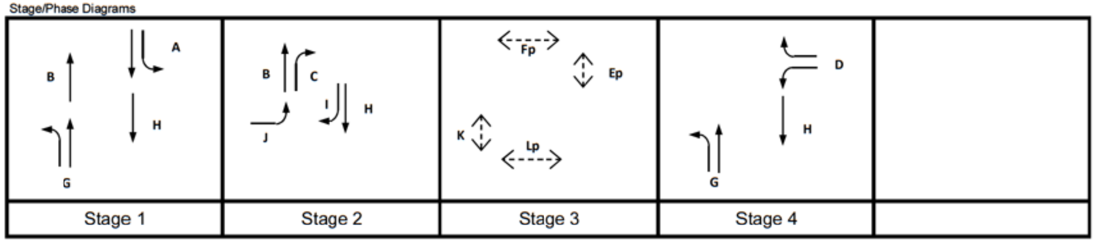
J47

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.456	
Lost time		L =	38	sec
Total Flow		=	22,165	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		114	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	70	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.615	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$		34.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	77	sec
Y_{max}	$= 1-L/C$	=	0.648	

Stage/Phase Diagrams



I/G = 5 I/G = 8 G = 13 I/G = 10 I/G = 5

Critical Case : A,I,Fp,D

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
	G	1,4	3.000	1	15			1		0		1915	165	121		286	58%		1810	0.158	
	G	1,4	3.000	1				0		0		2055		324		324			2055	0.158	
	I	2	3.500	1		20	0	0		0		2105			170	170		100%	1958	0.087	0.087
	H	1,2,4	3.500	1				1		0		1965		710		710			1965	0.361	
	C	2	3.500	1		25	0	0		0		2105			140	140		100%	1986	0.070	
	B	1,2	3.500	1				1		0		1965		460		460			1965	0.234	
	D	4	3.000	1		20	0	0		0		2055			300	300		100%	1912	0.157	
	D	4	3.000	1	15			1		0		1915	280			280	100%		1741	0.161	0.161
	A	1	3.500	1	20			1		0		1965	230	162		392	59%		1882	0.208	0.208
	A	1	3.500	1				0		0		2105		438		438			2105	0.208	
	J	2	4.000	1	15			1		0		2015	155			155	100%		1832	0.085	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	9	=	19	sec												
	Fp	3	min.	13	+	8	=	21	sec												*
	Kp	3	min.	13	+	6	=	19	sec												
	Lp	3	min.	11	+	9	=	20	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J48 - Hoi Yuen Rd / How Ming St / Shing Yip St	2014 AM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

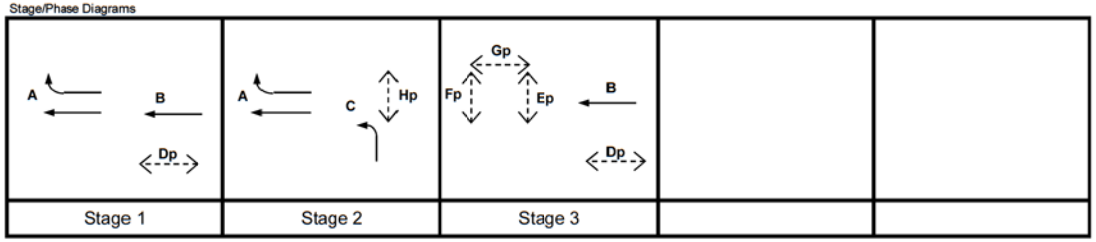
J48

Traffic Flow Diagram
(pcu/hr)

*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.332	
Lost time	L =	29	sec
Total Flow	=	18,675	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	73	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	43	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.683	
R.C.$_{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	105.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	46	sec
Y_{max} = $1-L/C$	=	0.710	

Stage/Phase Diagrams



I/G = I/G = 6 G = 8 I/G = 16

Critical Case : A,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 92%

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
←	B	1,3	4.000	3				1		0		6325		1190		1190			6325	0.188	
←	A	1,2	4.000	1				1		0		2015		505		505			2015	0.251	
↰	A	1,2	4.000	2		25	0	0		0		4310		0	1350	1350		100%	4066	0.332	0.332
↰	C	2	3.000	3	12.5			1		0		6025	655			655	100%		5379	0.122	
Pedestrian Crossing				GM		FGM															
	Dp	1,3	min.	8	+	9	=	17	sec												
	Ep	3	min.	8	+	13	=	21	sec												*
	Fp	3	min.	8	+	11	=	19	sec												
	Gp	3	min.	8	+	8	=	16	sec												
	Hp	2	min.	8	+	10	=	18	sec												

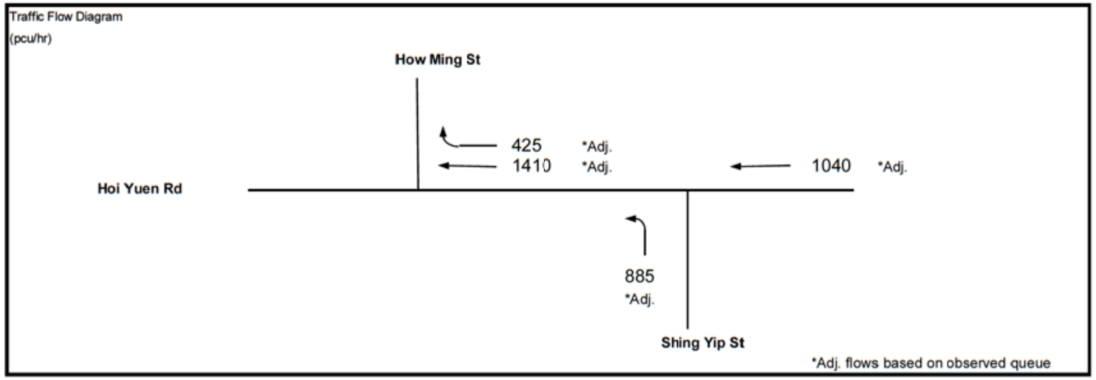
JUNCTION CAPACITY CALCULATION

AECOM

Junction J48 - Hoi Yuen Rd / How Ming St / Shing Yip St	2014 PM Observed Flows	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J48

Traffic Flow Diagram
(pcu/hr)



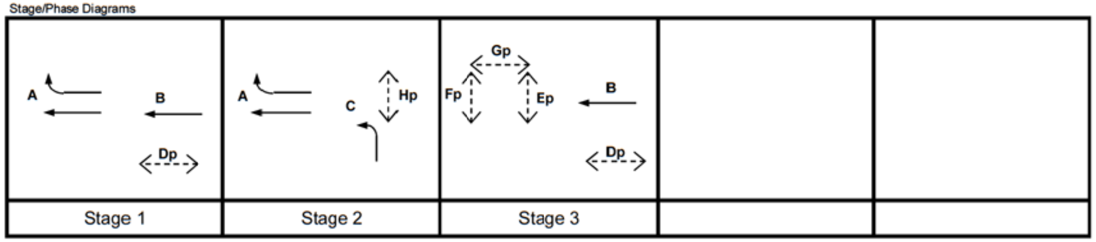
*Adj. flows based on observed queue

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.347	
Lost time	L =	29	sec
Total Flow	=	18,675	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	74	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	44	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.683	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	96.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	47	sec
Y_{max} = $1-L/C$	=	0.678	

Critical Case : A,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 76%

Stage/Phase Diagrams



I/G = I/G = 6 G = 8 I/G = 16

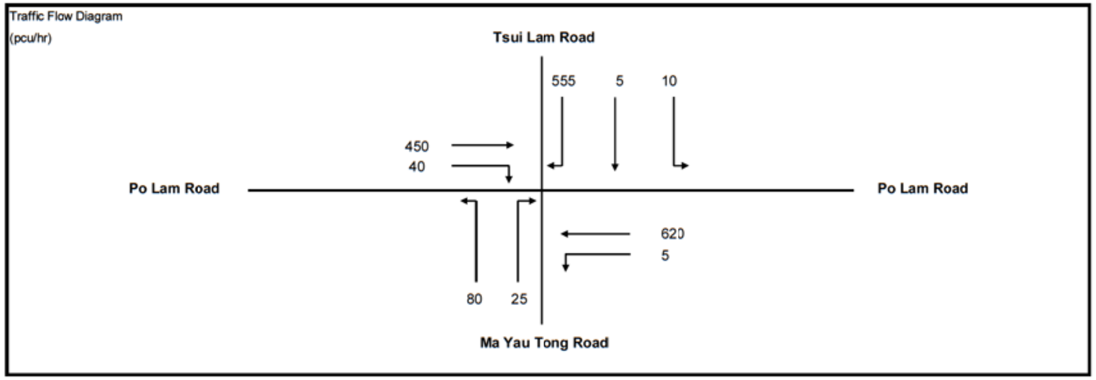
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	1,3	4.000	3				1		0		6325		1040		1040			6325	0.164	
	A	1,2	4.000	1				1		0		2015		425		425			2015	0.211	
	A	1,2	4.000	2		25	0	0		0		4310		0	1410	1410		100%	4066	0.347	0.347
	C	2	3.000	3	12.5			1		0		6025	885			885	100%		5379	0.165	
Pedestrian Crossing				GM		FGM															
	Dp	1,3	min.	8	+	9	=	17	sec												
	Ep	3	min.	8	+	13	=	21	sec												*
	Fp	3	min.	8	+	11	=	19	sec												
	Gp	3	min.	8	+	8	=	16	sec												
	Hp	2	min.	8	+	10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AECOM

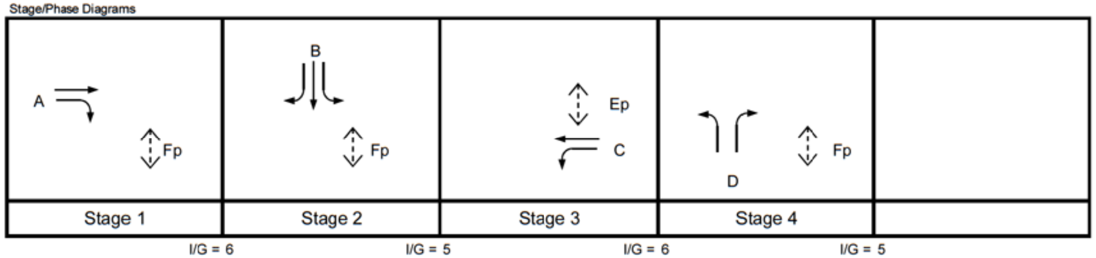
Junction J51 - Po Lam Road / Tsui Lam Road	2014 AM Observed Flow	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 15

J51



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.636	
Lost time	L =	18	sec
Total Flow	=	11,608	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	88	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	49	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.765	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	20.3	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	61	sec
Y_{max} = $1-L/C$	=	0.829	

Stage/Phase Diagrams



Critical Case : A,B,C,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 17%

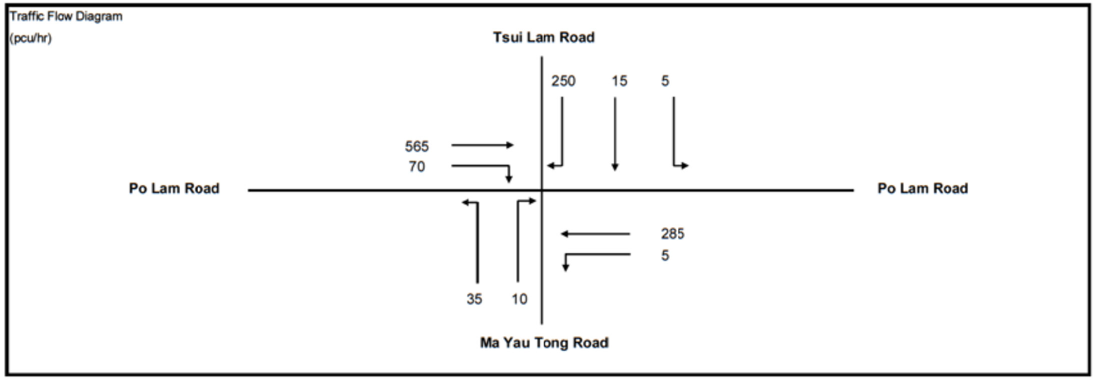
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	4.000	1		24	0	1		0		2015		450	40	490		8%	2005	0.244	0.244
	B	2	4.000	1	12.5	19	0	1		0		2015	10	5	262	277	4%	95%	1867	0.149	
	B	2	4.000	1		16	0	0		0		2155			293	293		100%	1970	0.149	0.149
	C	3	3.500	1	14			1		0	-306	1965	5	299		304	2%		1656	0.184	
	C	3	3.000	1				0		0	-306	2055		321		321			1749	0.184	0.184
	D	4	4.000	1	10	15	0	1		0		2015	80		25	105	76%	24%	1771	0.059	0.059
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	6	=	11	sec												
	Fp	1,2,4	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J51 - Po Lam Road / Tsui Lam Road	2014 PM Observed Flow	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 15

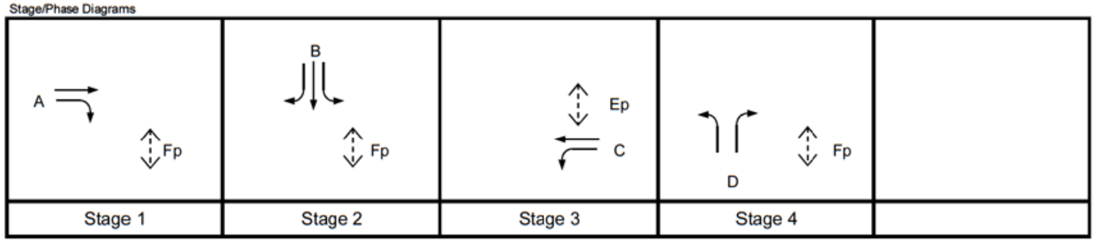
Traffic Flow Diagram
(pcu/hr)



J51

No. of stages per cycle	N =	4	
Cycle time	C =	100	sec
Sum(y)	Y =	0.473	
Lost time	L =	24	sec
Total Flow	=	11,608	pcu
Optimum Cycle C_o = $(1.5 \times L+5)/(1-Y)$	=	78	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	46	sec
Y_{ult} = $0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y \times 100\%$	=	52.3	%
Practical Cycle Time C_p = $0.9 \times L/(0.9-Y)$	=	51	sec
Y_{max} = $1-L/C$	=	0.760	

Stage/Phase Diagrams



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

Critical Case : A,B,C,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 45%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	4.000	1		24	0	1		0		2015		565	70	635		11%	2001	0.317	0.317
	B	2	4.000	1	12.5	19	0	1		0		2015	5	15	112	132	4%	85%	1881	0.070	
	B	2	4.000	1		16	0	0		0		2155			138	138		100%	1970	0.070	0.070
	C	3	3.500	1	14			1		0	-306	1965	5	136		141	4%		1653	0.085	0.085
	C	3	3.000	1				0		0	-306	2055		149		149			1749	0.085	
	D	4	4.000	1	10	15	0	1		0		2015	35		10	45	78%	22%	1769	0.025	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	6	=	11	sec												
	Fp	1,2,4	min.	5	+	8	=	13	sec												

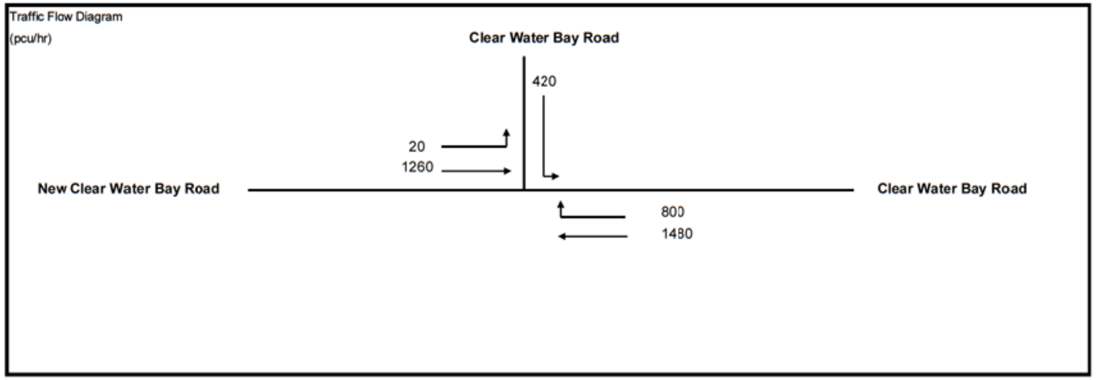
Junction Calculation Sheets for 2026 Reference Scenario (Without ARQ & EKL)

JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 AM Reference Flows (DAR Layout_wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

Traffic Flow Diagram
(pcu/hr)

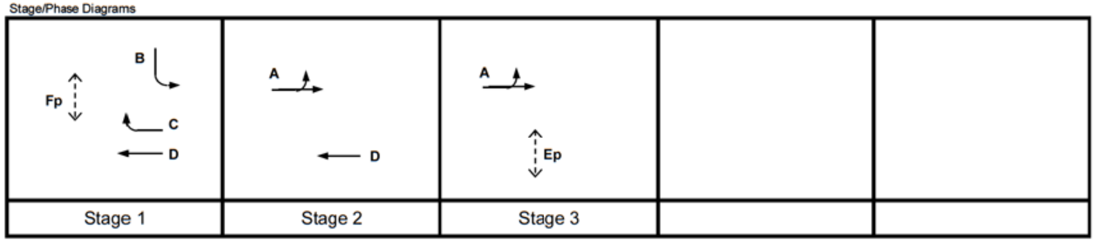


J1

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.717	
Lost time	L =	18	sec
Total Flow	=	10,535	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$ =		113	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	64	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.765	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\%$ =		6.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	88	sec
Y_{max}	= 1-L/C	=	0.800	

Stage/Phase Diagrams



I/G = I/G = 4 G = 5 I/G = 10

Critical Case : D,Ep

R.C.(C) $= (0.9\text{x}Y_{max}\text{-}Y)/Y\text{x}100\%$ = 0%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2,3	3.650	1	10			1		0		1980	20	597		617	3%		1970	0.313	
	A	2,3	3.650	1				0		0		2120		663		663			2120	0.313	
	B	1	3.500	1	15			1		0	80	1965	420			420	100%		1859	0.226	
	C	1	5.700	1		30	0	0		0		2325			800	800		100%	2214	0.361	
	D	1,2	4.500	1				1		0		2065		1480		1480			2065	0.717	0.717
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												*
	Fp	1	min.	5	+	8	=	13	sec												

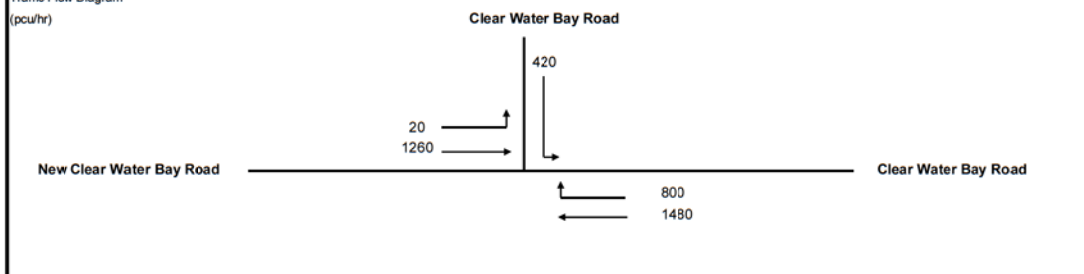
JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 AM Reference Flows (DAR Layout_wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1

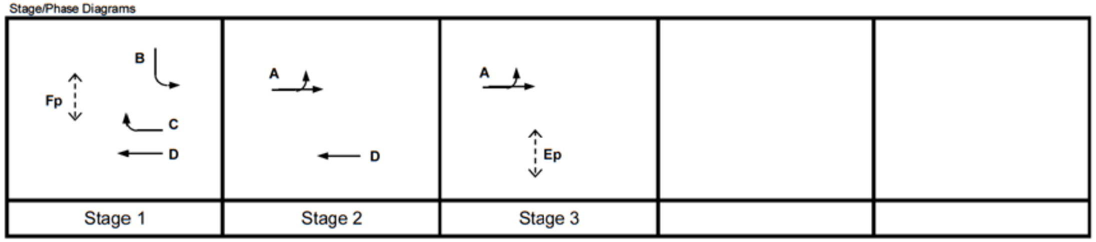
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.674	
Lost time	L =	10	sec
Total Flow	=	10,535	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	61	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	31	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	22.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	40	sec
Y_{max}	$= 1-L/C =$	0.889	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : C,A

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 19%

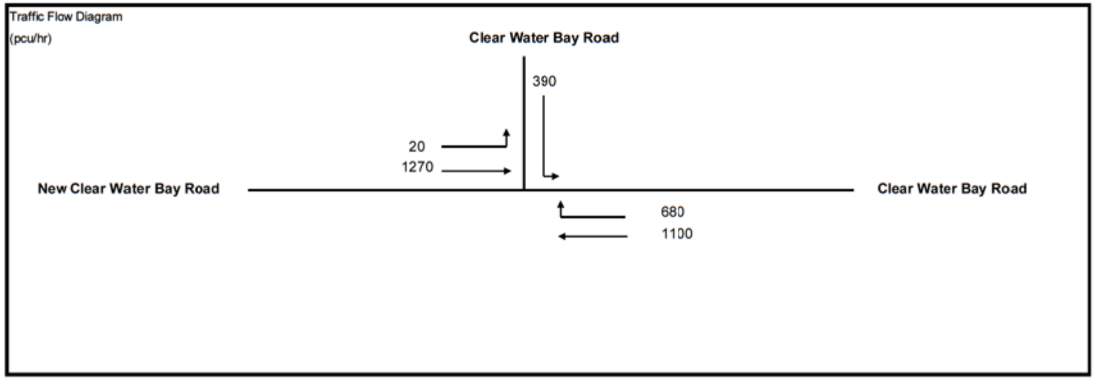
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	2,3	3.650	1	10			1		0		1980	20	597		617	3%		1970	0.313	0.313
	A	2,3	3.650	1				0		0		2120		663		663			2120	0.313	
	B	1	3.500	1	15			1		0	80	1965	420			420	100%		1859	0.226	
	C	1	5.700	1		30	0	0		0		2325			800	800		100%	2214	0.361	0.361
	D	1,2	4.500	1				1		0		2065		1480		1480			2065	0.717	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

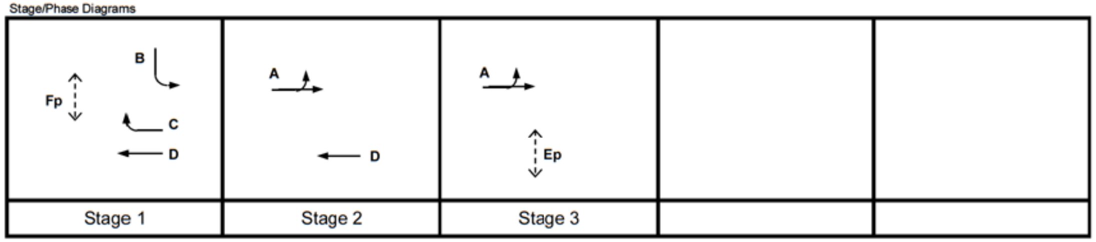
Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 PM Reference Flows (DAR Layout_wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.622	
Lost time		L =	10	sec
Total Flow		=	10,535	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	53	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	26	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	32.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	32	sec
Y_{max}	$= 1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : C,A

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 29%

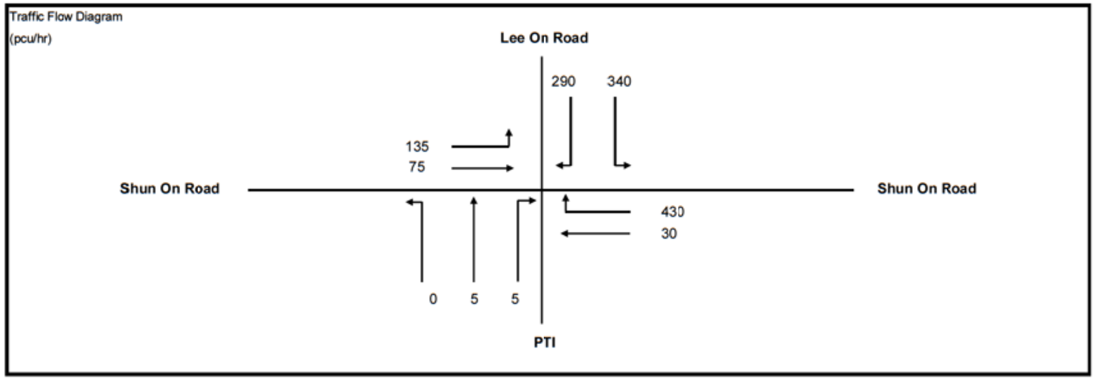
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	2,3	3.650	1	10			1		0		1980	20	601		621	3%		1970	0.315	0.315
	A	2,3	3.650	1				0		0		2120		669		669			2120	0.315	
	B	1	3.500	1	15			1		0	80	1965	390			390	100%		1859	0.210	
	C	1	5.700	1		30	0	0		0		2325			680	680		100%	2214	0.307	0.307
	D	1,2	4.500	1				1		0		2065		1100		1100			2065	0.533	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

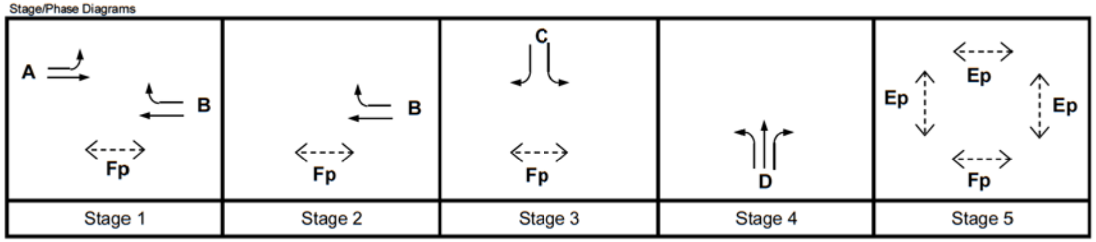
AECOM

Junction J2 - Lee On Road / Shun On Road / Shun Cheung Road	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J2



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.432	
Lost time	L =	47	sec
Total Flow	=	15,005	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	133	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	83	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.548	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	26.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	90	sec
Y_{max} = $1-L/C$	=	0.608	



I/G = 7 | I/G = 7 | I/G = 8 | G = 5 | I/G = 12 | G = 10 | I/G =

Critical Case : B,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 27%

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	15			1		0		1965	135	0		135	100%		1786	0.076	
	A	1	3.500	1				0		0		2105		75		75			2105	0.036	
	B	1,2	3.000	1		10	0	0		0		2055			430	430		100%	1787	0.241	0.241
	B	1,2	3.000	1				1		0		1915		30		30			1915	0.016	
	C	3	3.400	1	15			1		0		1955	340			340	100%		1777	0.191	0.191
	C	3	3.400	1		10	0	0		0		2095			290	290		100%	1822	0.159	
	D	4	13.000	1	10	10	0	1		0		2915	0	5	5	10	0%	50%	2712	0.004	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	10	+	9	=	19	sec												*
	Fp	1,2,3,5	min.	7	+	14	=	21	sec												

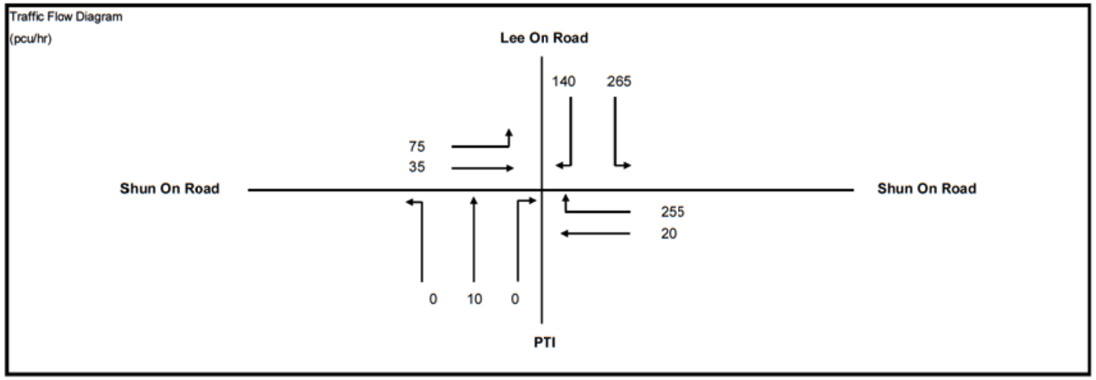
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Lee On Road / Shun On Road / Shun Cheung Road	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

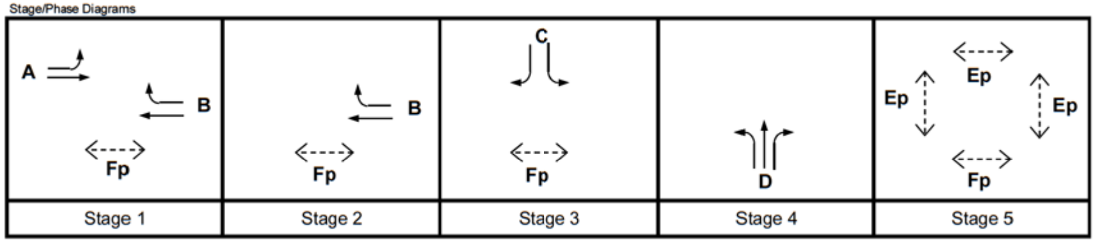
J2

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.292	
Lost time	L =	47	sec
Total Flow	=	15,005	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	107	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	66	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.548	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	87.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	70	sec
Y_{max} = $1-L/C$	=	0.608	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G = 8 G = 5 I/G = 12 G = 10 I/G =

Critical Case : B,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 88%

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	15			1		0		1965	75	0		75	100%		1786	0.042	
	A	1	3.500	1				0		0		2105		35		35			2105	0.017	
	B	1,2	3.000	1		10	0	0		0		2055			255	255		100%	1787	0.143	0.143
	B	1,2	3.000	1				1		0		1915		20		20			1915	0.010	
	C	3	3.400	1	15			1		0		1955	265			265	100%		1777	0.149	0.149
	C	3	3.400	1		10	0	0		0		2095			140	140		100%	1822	0.077	
	D	4	13.000	1	10	10	0	1		0		2915	0	10	0	10	0%	0%	2915	0.003	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	10	+	9	=	19	sec												*
	Fp	1,2,3,5	min.	7	+	14	=	21	sec												

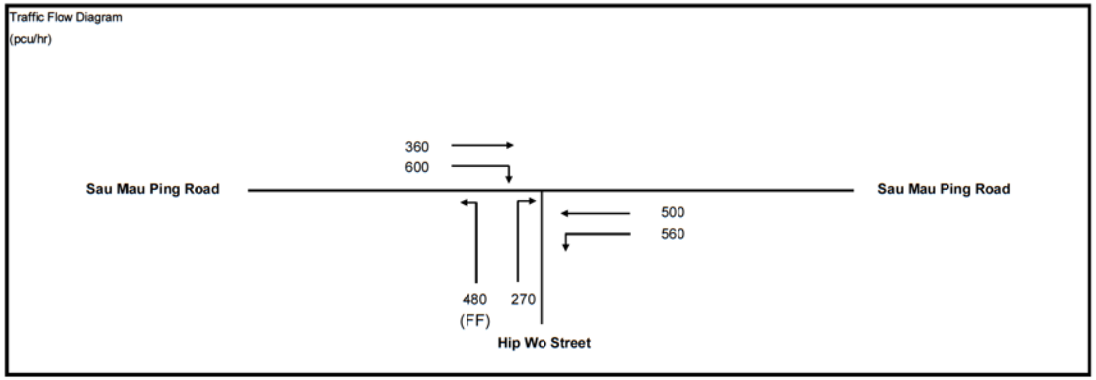
JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Sau Mau Ping Road / Hip Wo Street	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

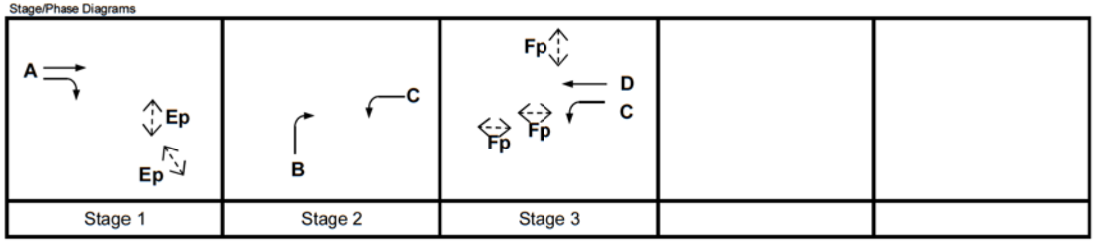
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.574	
Lost time	L =	10	sec
Total Flow	=	14,445	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	47	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	23	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	43.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	28	sec
Y_{max} = $1-L/C$	=	0.917	

Stage/Phase Diagrams



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

Critical Case : A,C

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 44%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.500	1				1		0		1965		360		360			1965	0.183	
	A	1	3.500	1		10	0	0		0	210	2105		0	600	600		100%	2013	0.298	0.298
	B	2	3.300	2		15	0	1		0		4030			270	270		100%	3664	0.074	
	C	2,3	4.500	1	90			1		0		2065	560			560	100%		2031	0.276	0.276
	D	3	3.500	2				1		0		4070		500		500			4070	0.123	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	6	+	6	=	12	sec												
	Fp	3	min.	5	+	8	=	13	sec												

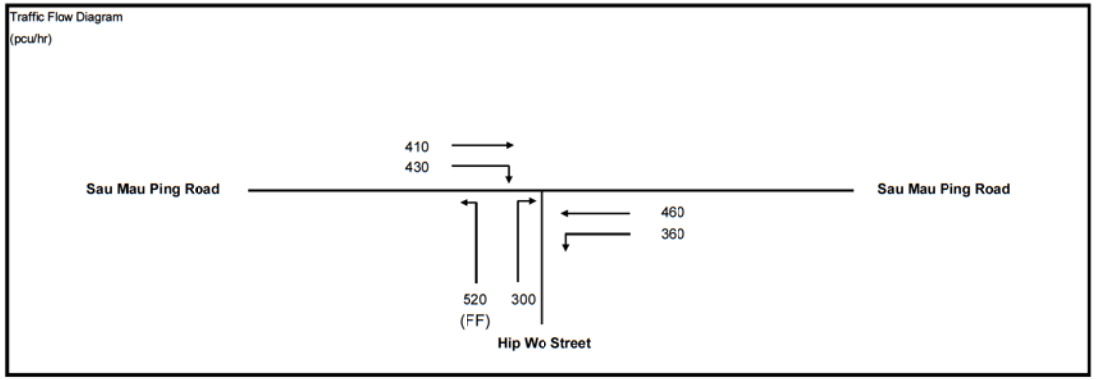
JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Sau Mau Ping Road / Hip Wo Street	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

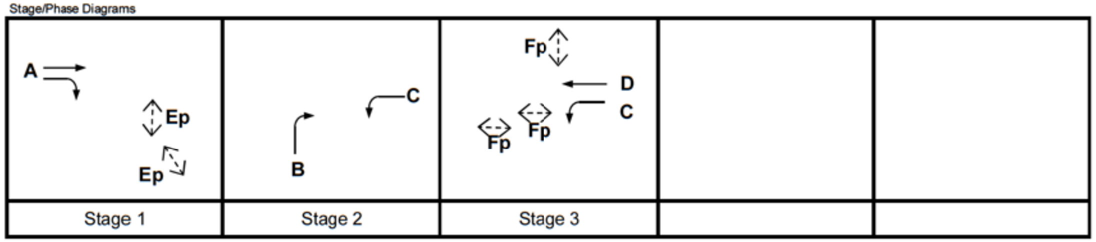
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.409	
Lost time	L =	15	sec
Total Flow	=	14,445	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	46	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	25	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	92.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	27	sec
Y_{max}	$= 1-L/C =$	0.875	

Stage/Phase Diagrams



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

Critical Case : A,B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 93%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.500	1				1		0		1965		410		410			1965	0.209	
	A	1	3.500	1		10	0	0		0	210	2105		0	430	430		100%	2013	0.214	0.214
	B	2	3.300	2		15	0	1		0		4030			300	300		100%	3664	0.082	0.082
	C	2,3	4.500	1	90			1		0		2065	360			360	100%		2031	0.177	
	D	3	3.500	2				1		0		4070		460		460			4070	0.113	0.113
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	6	+	6	=	12	sec												
	Fp	3	min.	5	+	8	=	13	sec												

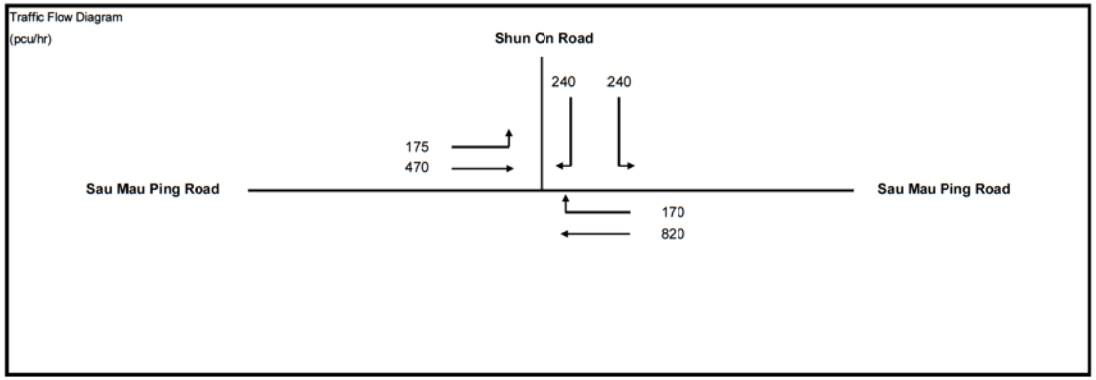
JUNCTION CAPACITY CALCULATION

AECOM

Junction J4 - Sau Mau Ping Rd / Shun On Rd	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

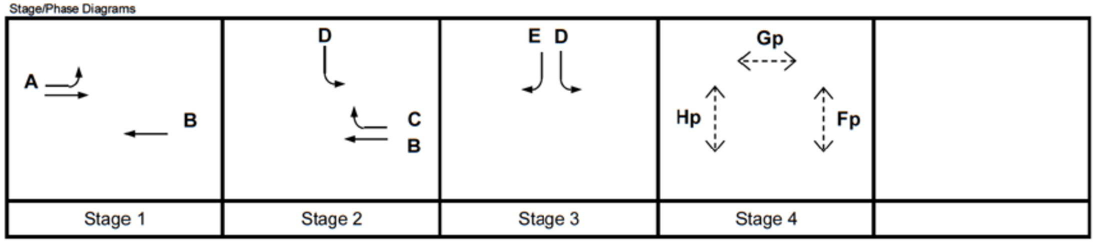
J4

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.385	
Lost time		L =	44	sec
Total Flow		=	14,255	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	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	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 = 6 I/G = 10 I/G = 5 G = 14 I/G = 12

Critical Case : A,C,E,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 48%

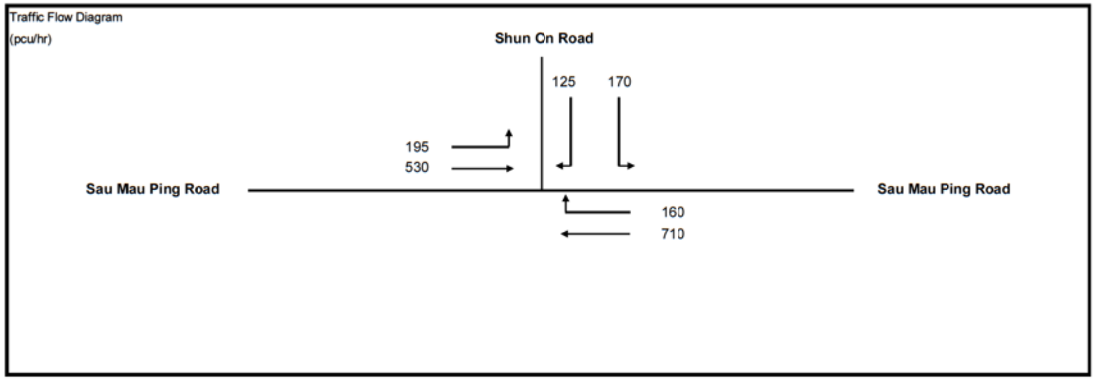
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	3.300	1	10			1		0		1945	175	123		298	59%		1787	0.167	0.167
	A	1	3.300	1				0		0		2085		347		347			2085	0.167	
	B	1,2	3.300	2				1		0		4030		820		820			4030	0.203	
	C	2	3.300	1		10	0	0		0		2085			170	170		100%	1813	0.094	0.094
	D	2,3	3.700	1	10			1		0		1985	240			240	100%		1726	0.139	
	E	3	3.700	1		15	0	0		0		2125			240	240		100%	1932	0.124	0.124
Pedestrian Crossing				GM		FGM															
	Fp	4	min.	10	+	9	=	19	sec												
	Gp	4	min.	14	+	10	=	24	sec												*
	Hp	4	min.	8	+	9	=	17	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J4 - Sau Mau Ping Rd / Shun On Rd	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

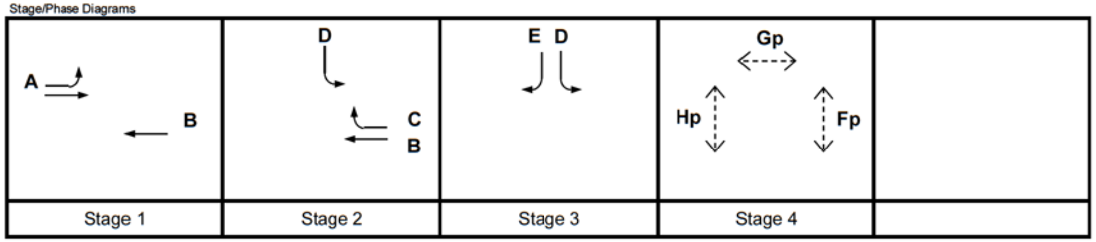
Traffic Flow Diagram
(pcu/hr)



J4

No. of stages per cycle	N =	4	
Cycle time	C =	110	sec
Sum(y)	Y =	0.340	
Lost time	L =	44	sec
Total Flow	=	14,255	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	108	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	67	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	67.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	71	sec
Y_{max}	$= 1-L/C =$	0.600	

Stage/Phase Diagrams



I/G = 6 I/G = 10 I/G = 5 G = 14 I/G = 12

Critical Case : A,C,E,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 59%

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	10			1		0		1945	195	140		335	58%		1789	0.187	0.187
	A	1	3.300	1				0		0		2085		390		390			2085	0.187	
	B	1,2	3.300	2				1		0		4030		710		710			4030	0.176	
	C	2	3.300	1		10	0	0		0		2085			160	160		100%	1813	0.088	0.088
	D	2,3	3.700	1	10			1		0		1985	170			170	100%		1726	0.098	
	E	3	3.700	1		15	0	0		0		2125			125	125		100%	1932	0.065	0.065
Pedestrian Crossing				GM		FGM															
	Fp	4	min.	10	+	9	=	19	sec												
	Gp	4	min.	14	+	10	=	24	sec												*
	Hp	4	min.	8	+	9	=	17	sec												

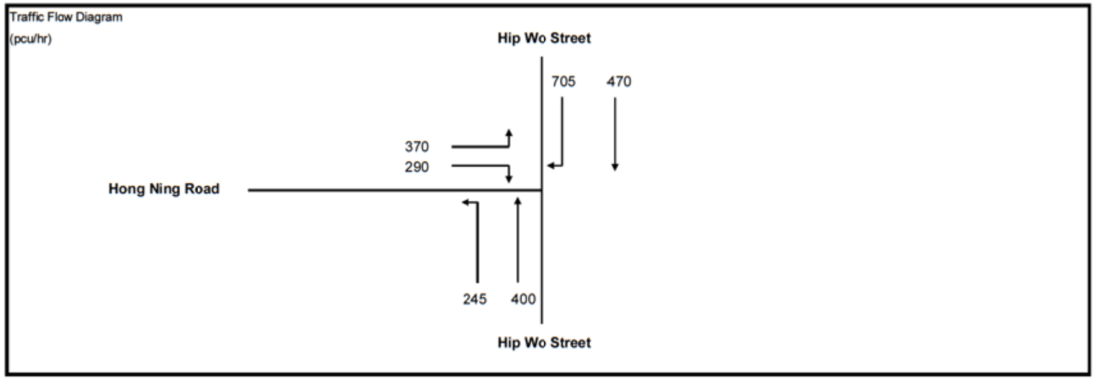
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Hip Wo St / Hong Ning Rd	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

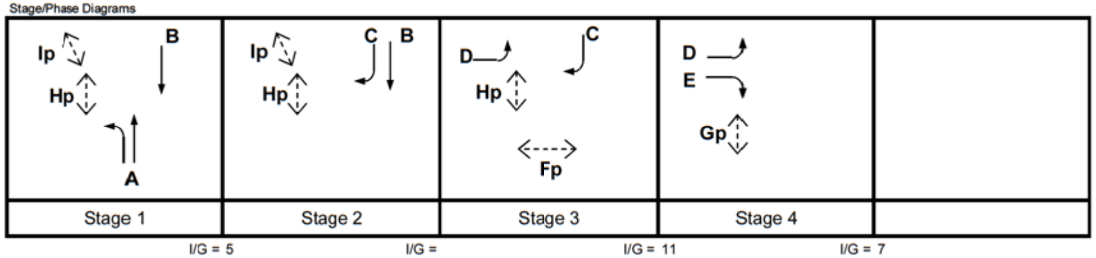
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.718	
Lost time		L =	20	sec
Total Flow		=	12,090	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		124	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	71	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	4.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	99	sec
Y_{max}	$= 1-L/C$	=	0.833	

Stage/Phase Diagrams



Critical Case : A,C,E

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 5%

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	245	54		299	82%		1798	0.166	
	A	1	3.300	1				0		0		2085		346		346			2085	0.166	0.166
	B	1,2	3.200	1				1		0		1935		470		470			1935	0.243	
	C	2,3	3.200	1		10	0	0		0		2075			705	705		100%	1804	0.391	0.391
	D	3,4	3.600	1	40			1		0		1975	370			370	100%		1904	0.194	
	E	4	3.200	1		10	0	0		0		2075			290	290		100%	1804	0.161	0.161
Pedestrian Crossing				GM		FGM															
	Fp	3	min.	10	+	9	=	19	sec												
	Gp	4	min.	5	+	8	=	13	sec												
	Hp	1,2,3	min.	5	+	8	=	13	sec												
	Ip	1,2	min.	5	+	7	=	12	sec												

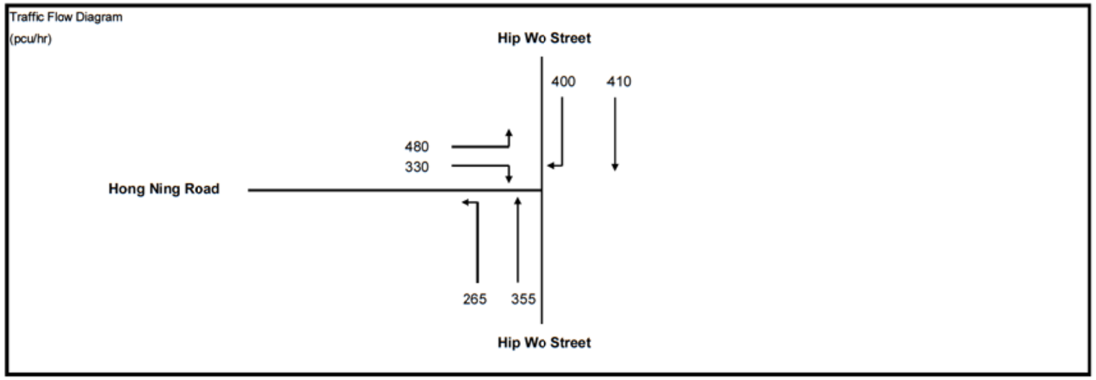
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Hip Wo St / Hong Ning Rd	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

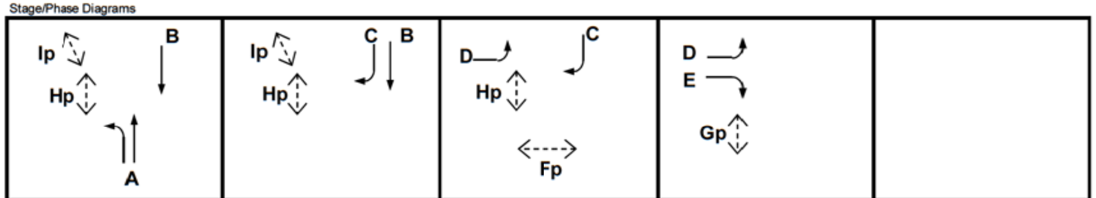
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.565	
Lost time		L =	20	sec
Total Flow		=	12,090	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	80	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	46	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	32.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	54	sec
Y_{max}	$= 1-L/C$	=	0.833	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 5	I/G =	I/G = 11	I/G = 7	

Critical Case : A,C,E

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 33%

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	265	21		286	93%		1780	0.160	0.160
	A	1	3.300	1				0		0		2085		334		334			2085	0.160	
	B	1,2	3.200	1				1		0		1935		410		410			1935	0.212	
	C	2,3	3.200	1		10	0	0		0		2075			400	400		100%	1804	0.222	0.222
	D	3,4	3.600	1	40			1		0		1975	480			480	100%		1904	0.252	
	E	4	3.200	1		10	0	0		0		2075			330	330		100%	1804	0.183	0.183

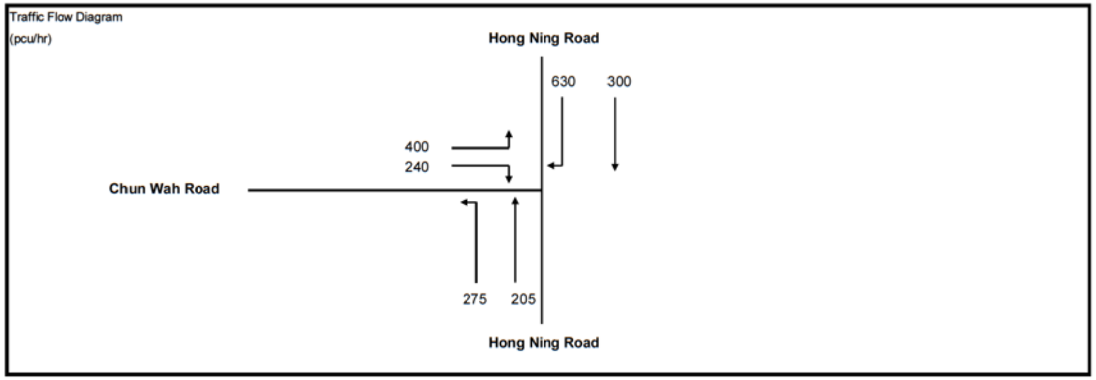
Pedestrian Crossing			GM		FGM			
Fp	3	min.	10	+	9	=	19	sec
Gp	4	min.	5	+	8	=	13	sec
Hp	1,2,3	min.	5	+	8	=	13	sec
Ip	1,2	min.	5	+	7	=	12	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Hong Ning Rd / Chun Wah Rd	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

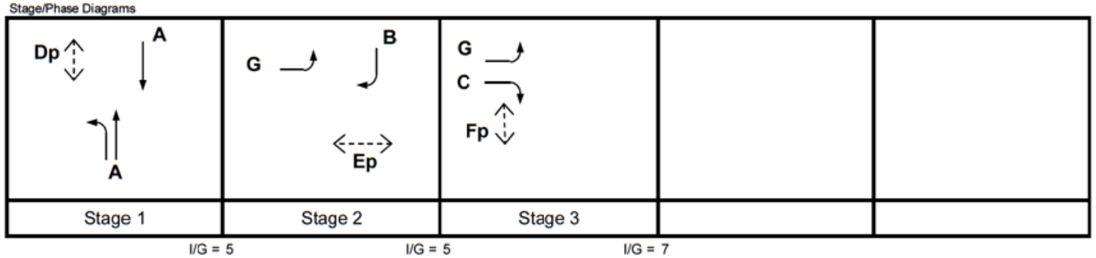
Traffic Flow Diagram
(pcu/hr)



J6

No. of stages per cycle	N =	3	
Cycle time	C =	118	sec
Sum(y)	Y =	0.638	
Lost time	L =	14	sec
Total Flow	=	12,050	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =	72	sec
Min. Cycle Time C_m	= L/(1-Y) =	39	sec
Y_{ult}	= 0.9-0.0075×L =	0.795	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100% =	24.6	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y) =	48	sec
Y_{max}	= 1-L/C =	0.881	

Stage/Phase Diagrams



Critical Case : A,B,C

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	3.200	1	15			1		0		1935	275	0		275	100%		1759	0.156	0.156
	A	1	3.200	1				0		0		2075		205		205			2075	0.099	
	A	1	3.200	1				1		0		1935		300		300			1935	0.155	
	B	2	3.200	1		10	0	0		0		2075			630	630		100%	1804	0.349	0.349
	C	3	3.300	1		10	0	0		0		2085			240	240		100%	1813	0.132	0.132
	G	2,3	3.300	1	10			1		0		1945	400			400	100%		1691	0.237	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	6	+	7	=	13	sec												
	Ep	2	min.	7	+	7	=	14	sec												
	Fp	3	min.	6	+	7	=	13	sec												

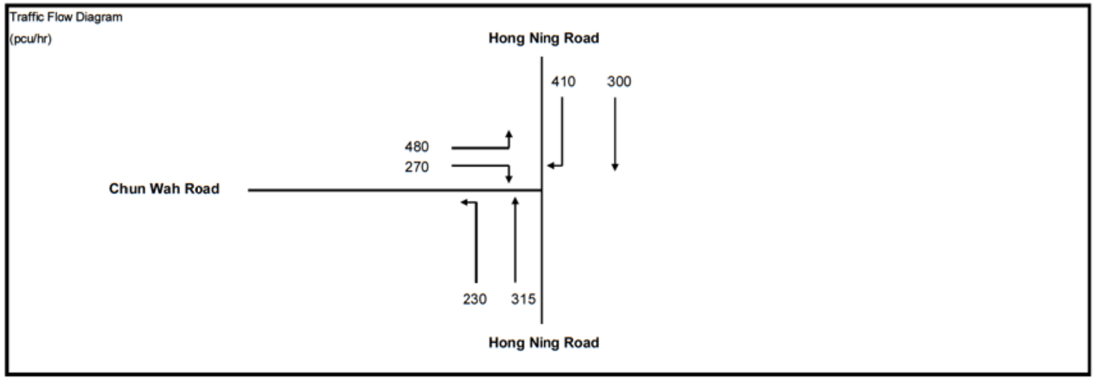
JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Hong Ning Rd / Chun Wah Rd	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

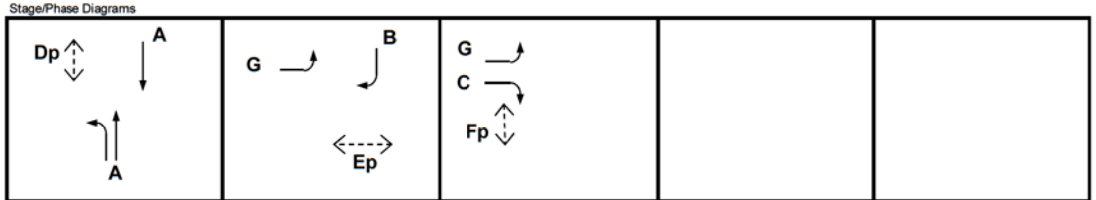
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3
Cycle time		C =	108 sec
Sum(y)		Y =	0.531
Lost time		L =	14 sec
Total Flow		=	12,050 pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	55 sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	30 sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.795
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	49.7 %
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	34 sec
Y_{max}	$= 1-L/C$	=	0.870

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G = 5	I/G = 5	I/G = 7		

Critical Case : A,B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 47%

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	3.200	1	15			1		0		1935	230	21		251	92%		1773	0.142	
	A	1	3.200	1				0		0		2075		294		294			2075	0.142	
	A	1	3.200	1				1		0		1935		300		300			1935	0.155	0.155
	B	2	3.200	1		10	0	0		0		2075			410	410		100%	1804	0.227	0.227
	C	3	3.300	1		10	0	0		0		2085			270	270		100%	1813	0.149	0.149
	G	2,3	3.300	1	10			1		0		1945	480			480	100%		1691	0.284	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	6	+	7	=	13	sec												
	Ep	2	min.	7	+	7	=	14	sec												
	Fp	3	min.	6	+	7	=	13	sec												

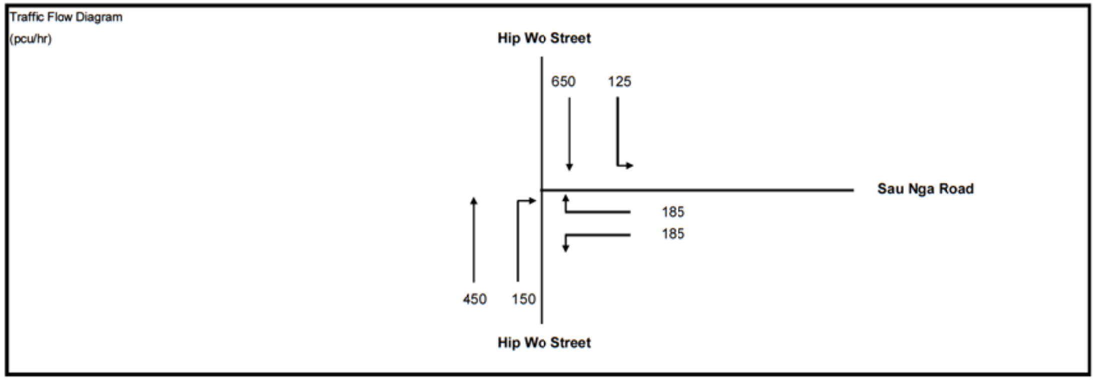
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Hip Wo St / Sau Nga Rd	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

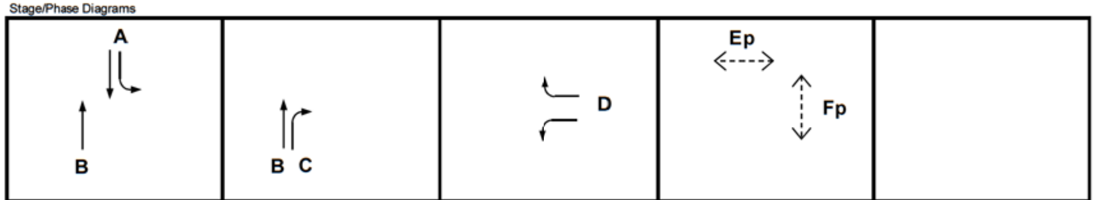
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.490	
Lost time		L =	43	sec
Total Flow		=	10,015	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	136	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	84	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.578	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\%$	=	17.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	94	sec
Y_{max}	$= 1-L/C$	=	0.642	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 10 G = 13 I/G = 10

Critical Case : A,C,D,Ep

R.C.(C) = $(0.9\text{x}Y_{max}\text{-}Y)/Y\text{x}100\%$ = 18%

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	3.200	1	15			1		0		1935	125	243		368	34%		1871	0.196	0.196
	A	1	3.200	1				0		0		2075		407		407			2075	0.196	
	B	1,2	3.300	1				1		0		1945		450		450			1945	0.231	
	C	2	3.300	1		10	0	0		0		2085			150	150		100%	1813	0.083	0.083
	D	3	3.600	1	15	10	0	1		0		1975	185		185	370	50%	50%	1756	0.211	0.211
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	13	+	7	=	20	sec												*
	Fp	4	min.	12	+	13	=	25	sec												

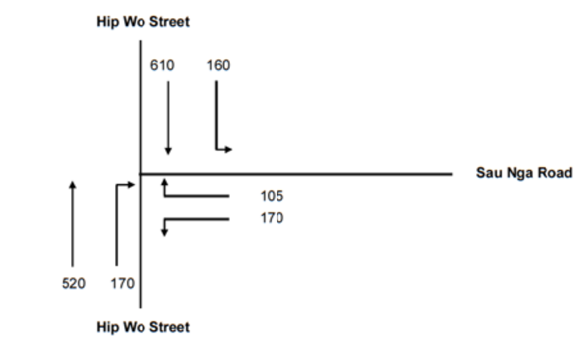
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Hip Wo St / Sau Nga Rd	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

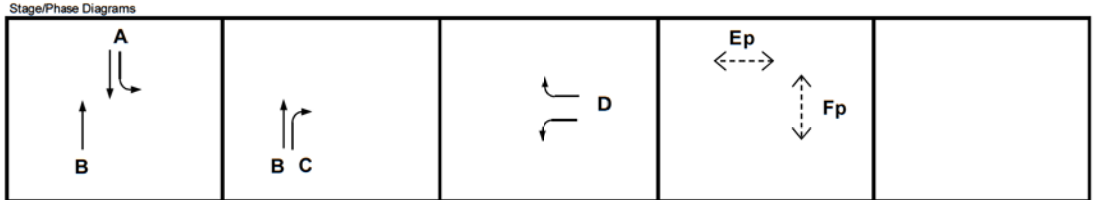
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.446	
Lost time	L =	43	sec
Total Flow	=	10,015	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	125	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	78	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.578	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	29.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	85	sec
Y_{max}	$= 1-L/C =$	0.642	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 10 G = 13 I/G = 10

Critical Case : A,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 30%

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	3.200	1	15			1		0		1935	160	203		363	44%		1853	0.196	0.196
	A	1	3.200	1				0		0		2075		407		407			2075	0.196	
	B	1,2	3.300	1				1		0		1945		520		520			1945	0.267	
	C	2	3.300	1		10	0	0		0		2085			170	170		100%	1813	0.094	0.094
	D	3	3.600	1	15	10	0	1		0		1975	170		105	275	62%	38%	1765	0.156	0.156
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	13	+	7	=	20	sec												*
	Fp	4	min.	12	+	13	=	25	sec												

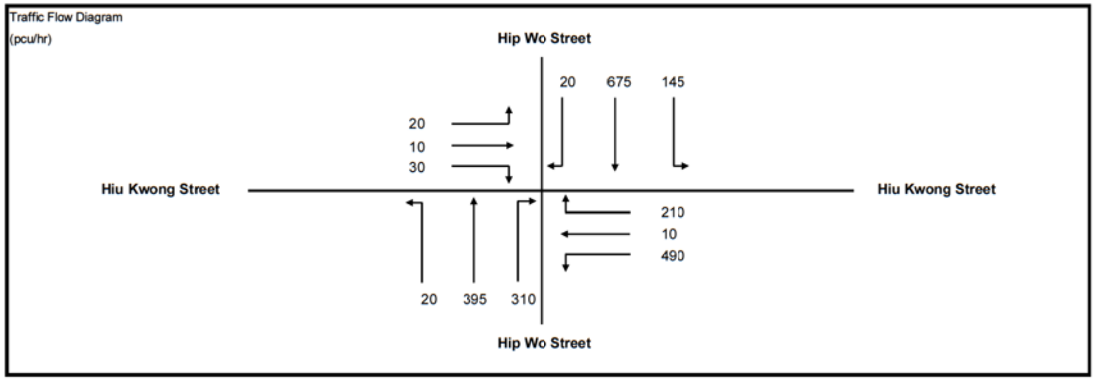
JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Hip Wo St / Hiu Kwong St	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

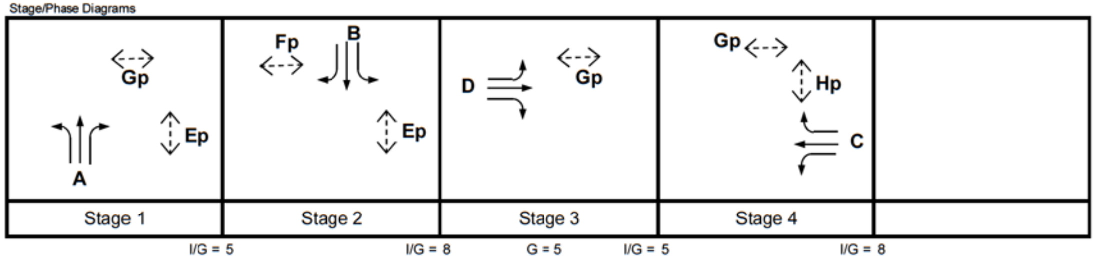
J8

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.622	
Lost time	L =	28	sec
Total Flow	=	14,135	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	124	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	74	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	10.9	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	91	sec
Y_{max} = $1-L/C$	=	0.767	

Stage/Phase Diagrams



Critical Case : A,B,D,C

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 11%

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	10			1		0		1945	20	395		415	5%		1931	0.215	0.215
	A	1	3.300	1		10	0	0		0		2085			310	310		100%	1813	0.171	
	B	2	3.000	1	15			1		0		1915	145	254		399	36%		1848	0.216	
	B	2	3.000	1		10	0	0		0		2055		421	20	441		5%	2041	0.216	0.216
	C	4	3.800	1	15			1		0		1995	347			347	100%		1814	0.191	0.191
	C	4	3.800	1	15	10	0	0		0		2135	143	10	210	363	39%	58%	1896	0.191	
	D	3	3.900	1	10	10	0	1		0		2005	20	10	30	60	33%	50%	1782	0.034	

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	6	=	11	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	1,3,4	min.	7	+	5	=	12	sec
Hp	4	min.	5	+	5	=	10	sec

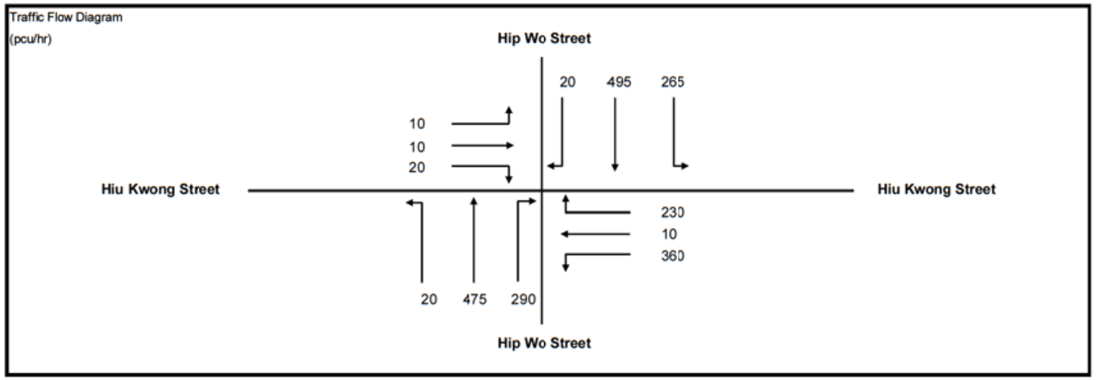
JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Hip Wo St / Hiu Kwong St	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

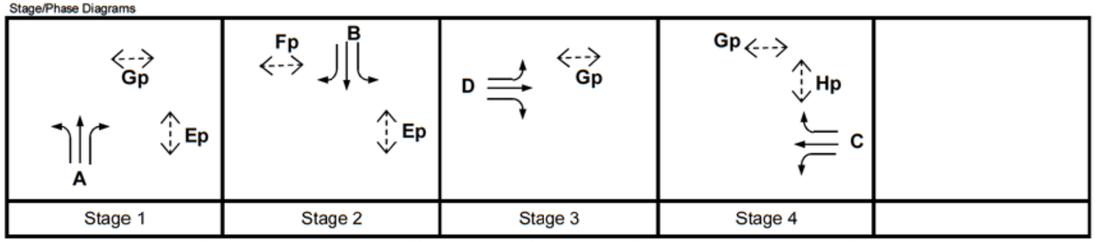
J8

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.622	
Lost time	L =	28	sec
Total Flow	=	14,135	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	124	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	74	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	10.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	91	sec
Y_{max}	$= 1-L/C =$	0.767	

Stage/Phase Diagrams



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

Critical Case : A,B,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 11%

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	10			1		0		1945	20	475		495	4%		1933	0.256	0.256
	A	1	3.300	1		10	0	0		0		2085			290	290		100%	1813	0.160	
	B	2	3.000	1	15			1		0		1915	265	99		364	73%		1785	0.204	0.204
	B	2	3.000	1		10	0	0		0		2055		396	20	416		5%	2040	0.204	
	C	4	3.800	1	15			1		0		1995	294			294	100%		1814	0.162	0.162
	C	4	3.800	1	15	10	0	0		0		2135	66	10	230	306	21%	75%	1882	0.162	
	D	3	3.900	1	10	10	0	1		0		2005	10	10	20	40	25%	50%	1802	0.022	

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	6	=	11	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	1,3,4	min.	7	+	5	=	12	sec
Hp	4	min.	5	+	5	=	10	sec

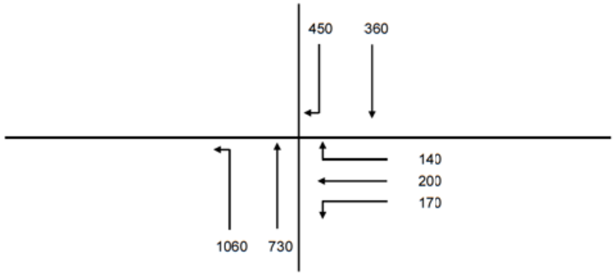
JUNCTION CAPACITY CALCULATION

AECOM

Junction J9 - Hip Wo Street / Mut Wah Street / Yuet Wah Street	2026 AM Reference Flows (wo ARQ&EKL_MWS Reverse Traffic)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

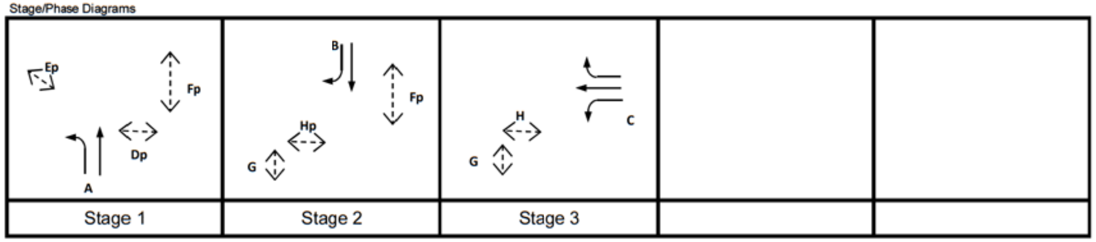
J9

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	118	sec
Sum(y)	Y =	0.563	
Lost time	L =	22	sec
Total Flow	=	16,411	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	87	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	50	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	30.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	59	sec
Y_{max}	$= 1-L/C =$	0.814	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 12

Critical Case : A,B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 30%

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
	B	2	3.500	1		20	0	1		0		1965		360	46	406		11%	1948	0.208	0.208
	B	2	3.000	1		25	0	0		0		2055			404	404		100%	1939	0.208	
	C	3	3.700	1	15			1		0	51	1985	170	78		248	69%		1905	0.130	0.130
	C	3	3.700	1		15	0	0		0		2125		122	140	262		53%	2017	0.130	
	A	1	3.300	2	28			1		0		4030	858			858	100%		3825	0.224	0.224
	A	1	3.300	1	30					0	31	2085	202	262		464	44%		2070	0.224	
	A	1	3.300	1				0		0		2085		468		468			2085	0.224	

Pedestrian Crossing			GM		FGM			
Dp	1	min.	5	+	6	=	11	sec
Ep	1	min.	5	+	10	=	15	sec
Fp	1,2	min.	7	+	10	=	17	sec
Gp	2,3	min.	8	+	15	=	23	sec
Hp	2,3	min.	5	+	6	=	11	sec

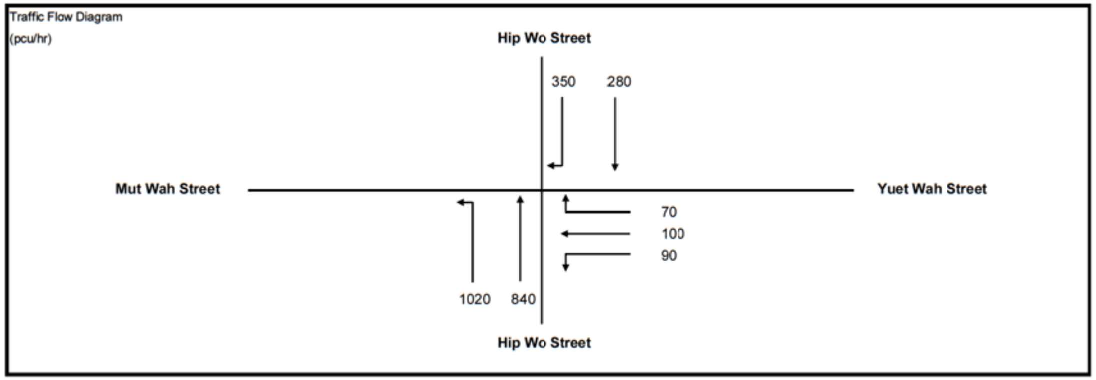
JUNCTION CAPACITY CALCULATION

AECOM

Junction J9 - Hip Wo Street / Mut Wah Street / Yuet Wah Street	2026 PM Reference Flows (wo ARQ&EKL_MWS Reverse Traffic)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

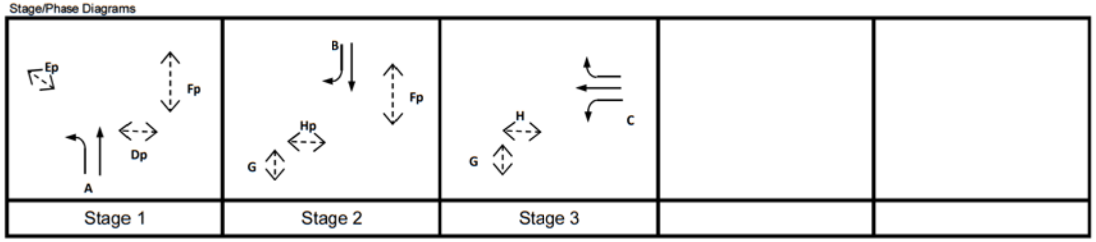
J9

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	108	sec
Sum(y)		Y =	0.461	
Lost time		L =	22	sec
Total Flow		=	16,419	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	70	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	41	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	59.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	45	sec
Y_{max}	$= 1-L/C$	=	0.796	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 12

Critical Case : A,B,C

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
	B	2	3.500	1		20	0	1		0		1965		280	36	316		11%	1948	0.162	0.162
	B	2	3.000	1		25	0	0		0		2055			314	314		100%	1939	0.162	
	C	3	3.700	1	15			1		0	56	1985	90	36		126	71%		1905	0.066	
	C	3	3.700	1		15	0	0		0		2125		64	70	134		52%	2019	0.066	0.066
	A	1	3.300	2	28			1		0		4030	889			889	100%		3825	0.232	
	A	1	3.300	1	30					0	33	2085	131	355		486	27%		2090	0.232	0.232
	A	1	3.300	1				0		0		2085		485		485			2085	0.232	

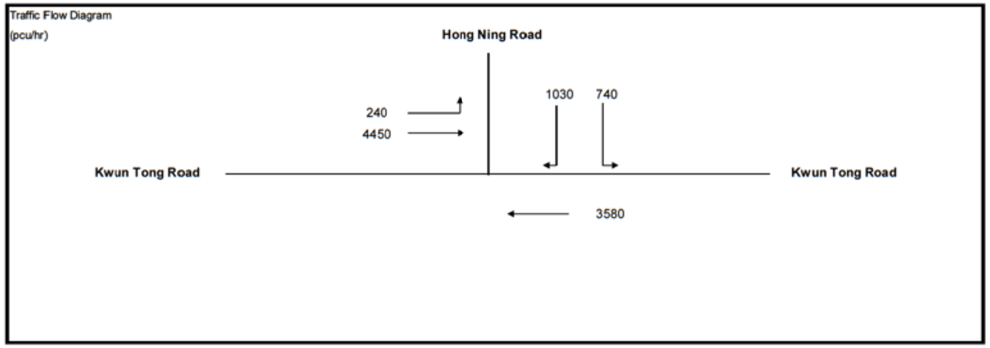
Pedestrian Crossing			GM		FGM			
Dp	1	min.	5	+	6	=	11	sec
Ep	1	min.	5	+	10	=	15	sec
Fp	1,2	min.	7	+	10	=	17	sec
Gp	2,3	min.	8	+	15	=	23	sec
Hp	2,3	min.	5	+	6	=	11	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kwun Tong Road / Hong Ning Road	2026 AM Reference Flows (wo ARQ&EKL_MWS Reverse Traffic)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

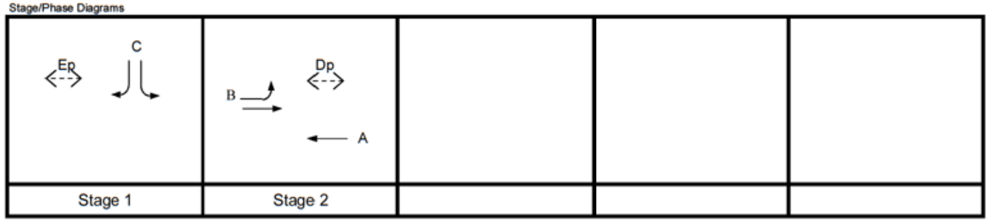
Traffic Flow Diagram
(pcu/hr)



J10

No. of stages per cycle	N =	2	
Cycle time	C =	118	sec
Sum(y)	Y =	0.749	
Lost time	L =	12	sec
Total Flow	=	26,717	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	48	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\text{x}100\%$	=	8.2	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	71	sec
Y_{max} = $1-L/C$	=	0.898	

Stage/Phase Diagrams



I/G = 7
I/G = 7

Critical Case : C,B

R.C.(C) = $(0.9\text{x}Y_{max}-Y)/Y\text{x}100\%$ = 8%

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	3.000	2	15			1		0		3970	678			678	100%		3609	0.188	
	C	1	3.000	1	18	28	0			0		2055	62		302	364	17%	83%	1941	0.188	0.188
	C	1	3.000	2		25	0	0		0		4110			728	728		100%	3877	0.188	
	B	2	3.500	1	30			1		0	102	1965	240	907		1147	21%		2045	0.561	0.561
	B	2	3.500	3				0		0		6315		3543		3543			6315	0.561	
	A	2	3.300	4				1		0		8200		3580		3580			8200	0.437	

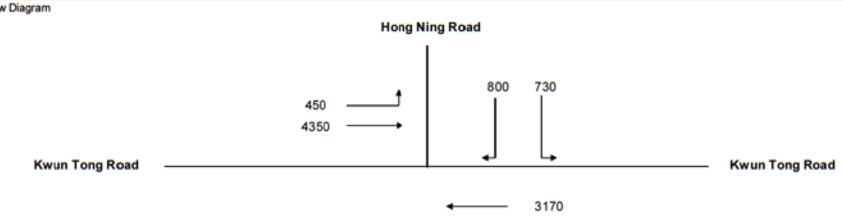
Pedestrian Crossing			GM		FGM			
Dp	2	min.	7	+	13	=	20	sec
Ep	1	min.	5	+	7	=	12	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kwun Tong Road / Hong Ning Road	2026 PM Reference Flows (wo ARQ&EKL_MWS Reverse Traffic)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

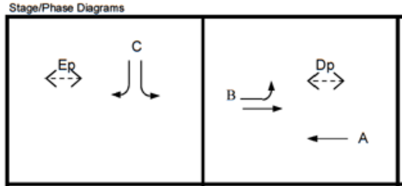
Traffic Flow Diagram
(pcu/hr)



J10

No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.737	
Lost time		L =	12	sec
Total Flow		=	26,726	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		88	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	46	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	9.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	66	sec
Y_{max}	$= 1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 7 I/G = 7

Critical Case : C,B

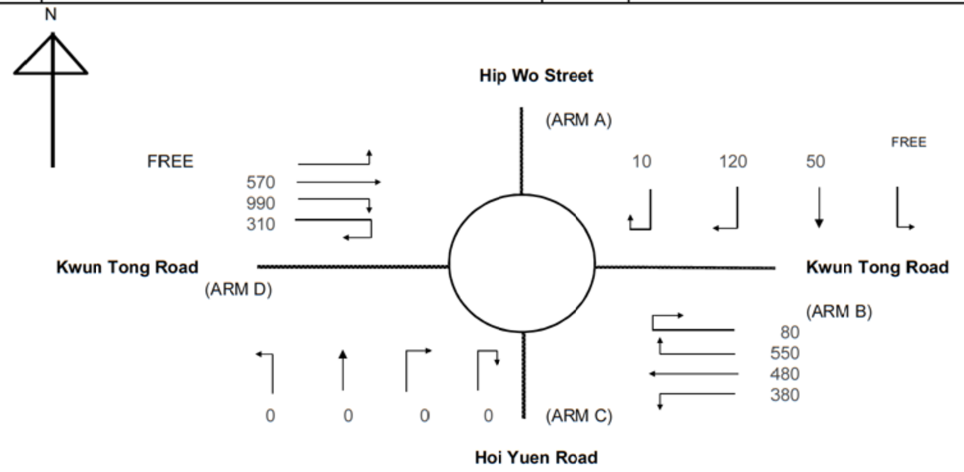
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 9%

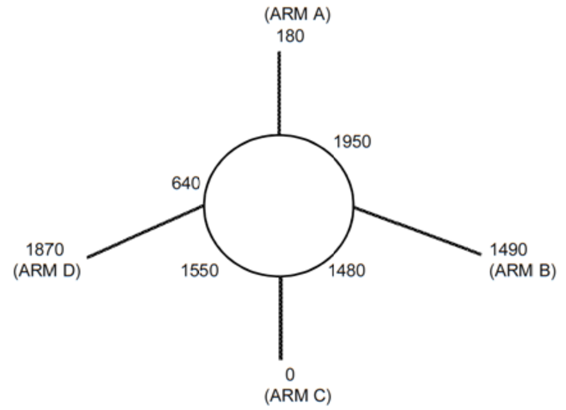
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	1	3.000	2	15			1		0		3970	587			587	100%		3609	0.163	0.163
	C	1	3.000	1	18	28	0			0		2055	143		170	313	46%	54%	1926	0.163	
	C	1	3.000	2		25	0	0		0		4110			630	630		100%	3877	0.163	
	B	2	3.500	1	30			1		0	111	1965	450	721		1171	38%		2037	0.575	0.575
	B	2	3.500	3				0		0		6315		3629		3629			6315	0.575	
	A	2	3.300	4				1		0		8200		3170		3170			8200	0.387	
Pedestrian Crossing				GM		FGM															
	Dp	2	min.	7	+	13	=	20	sec												
	Ep	1	min.	5	+	7	=	12	sec												

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J11 Kwung Tong Road / Hip Wo Street	Scenario	2026 AM Reference Flows (wo ARQ&EKL_MWS Reverse Traffic)	Project No.	Prepared By	Checked By	Date
				60328348	LLSI	CBFS	20/May/15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	7.00	8.00	8.00
E = Entry width (m)	8.00	8.00	9.00	9.00
L = Effective length of flare (m)	10.00	15.00	20.00	20.00
R = Entry radius (m)	100.00	45.00	40.00	40.00
D = Inscribed circle diameter (m)	83.00	86.00	83.00	86.00
A = Entry angle (degree)	30.00	40.00	25.00	25.00
Q = Entry flow (pcu/h)	180	1490	0	1870
Qc= Circulating flow across entry (pcu/h)	1950	1480	1550	640
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.16	0.11	0.08	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.04	0.99	1.04	1.04
X2= V + ((E-V)/(1+2S))	7.76	7.82	8.86	8.86
M = EXP((D-60)/10)	9.97	13.46	9.97	13.46
F = 303*X2	2351	2371	2685	2685
Td= 1+(0.5/(1+M))	1.05	1.03	1.05	1.03
Fc= 0.21*Td(1+0.2*X2)	0.56	0.56	0.61	0.60
Qe= K(F-Fc*Qc)	1307	1534	1814	2396
DFC = Design flow/Capacity = Q/Qe	0.14	0.97	0.00	0.78

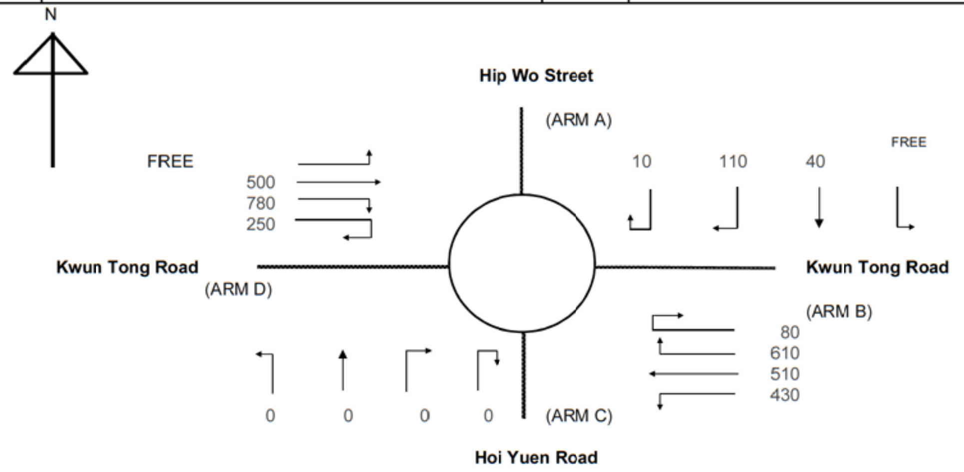
TOTAL ENTRY FLOWS = 3540 PCU

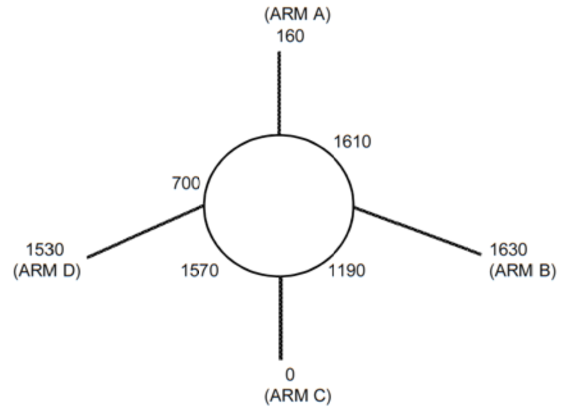
CRITICAL DFC 0.97

Filename : D:\Users\wongwtc1\Desktop\Anderson Rd Quarry Site\TIA\Preliminary Junction

ROUNDABOUT CAPACITY CALCULATION

Junction	J11 Kwung Tong Road / Hip Wo Street	Scenario	2026 PM Reference Flows (wo ARQ&EKL_MWS Reverse Traffic)	Project No.	Prepared By	Checked By	Date
				60328348	LLSI	CBFS	20/May/15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	7.00	8.00	8.00
E = Entry width (m)	8.00	8.00	9.00	9.00
L = Effective length of flare (m)	10.00	15.00	20.00	20.00
R = Entry radius (m)	100.00	45.00	40.00	40.00
D = Inscribed circle diameter (m)	83.00	86.00	83.00	86.00
A = Entry angle (degree)	30.00	40.00	25.00	25.00
Q = Entry flow (pcu/h)	160	1630	0	1530
Qc= Circulating flow across entry (pcu/h)	1610	1190	1570	700
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.16	0.11	0.08	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.04	0.99	1.04	1.04
X2= V + ((E-V)/(1+2S))	7.76	7.82	8.86	8.86
M = EXP((D-60)/10)	9.97	13.46	9.97	13.46
F = 303*X2	2351	2371	2685	2685
Td= 1+(0.5/(1+M))	1.05	1.03	1.05	1.03
Fc= 0.21*Td(1+0.2*X2)	0.56	0.56	0.61	0.60
Qe= K(F-Fc*Qc)	1505	1695	1802	2358
DFC = Design flow/Capacity = Q/Qe	0.11	0.96	0.00	0.65

TOTAL ENTRY FLOWS =3320 PCU

CRITICAL DFC 0.96

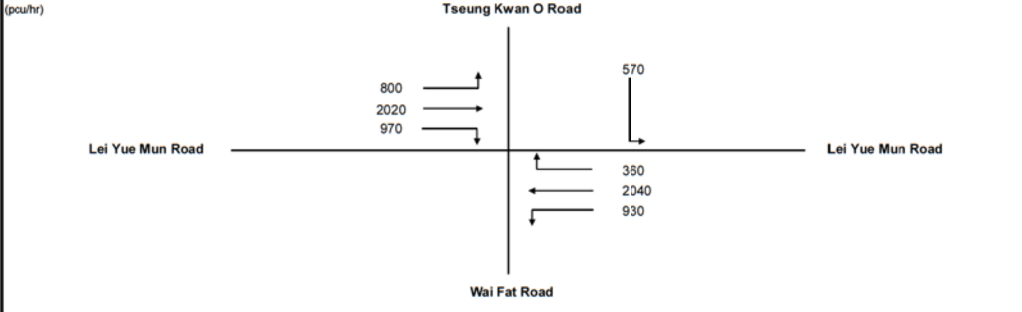
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Lei Yue Mun Road / Tseung Kwan O Road / Wai Fat Road	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

J12

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.695	
Lost time	L =	15	sec
Total Flow	=	33,220	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	90	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	49	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.788	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times 100\%$	=	13.2	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	66	sec
Y_{max} = $1-L/C$	=	0.861	

Critical Case : B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 11%

Stage/Phase Diagrams

Stage 1	Stage 2			

I/G = 8 I/G = 9

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	2	25			1		0		4030	800			800	100%		3802	0.210	
	B	1	3.500	3				0		0		6315		2020		2020			5305	0.381	
	C	2	3.500	2		12.5	0	0		0		4210			970	970		100%	3158	0.307	0.307
	B	1	3.300	2	30			1		0		4030	930			930	100%		3224	0.288	
	B	1	3.300	3				0		0		6255		2040		2040			5254	0.388	0.388
	D	2	3.750	2		30	0	0		0		4260			360	360		100%	4057	0.089	
	E	2	3.750	2	15			1		0		4120	570			570	100%		3745	0.152	
Pedestrian Crossing				GM		FGM															
	Fp	1	min.	8	+	13	=	21	sec												
	Gp	2	min.	20	+	13	=	33	sec												
	Hp	2	min.	9	+	13	=	22	sec												

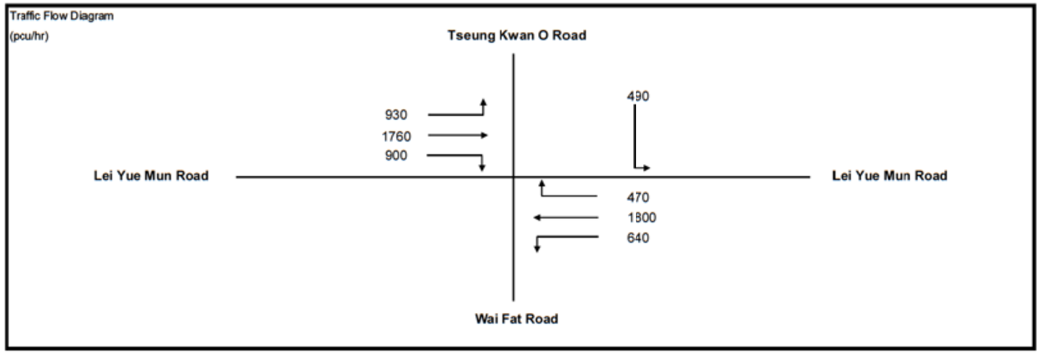
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Lei Yue Mun Road / Tseung Kwan O Road / Wai Fat Road	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

J12

Traffic Flow Diagram
(pcu/hr)

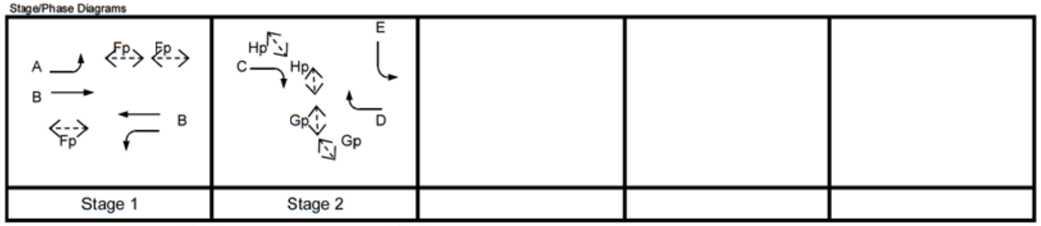


No. of stages per cycle		N =	2
Cycle time		C =	108 sec
Sum(y)		Y =	0.628
Lost time		L =	15 sec
Total Flow		=	33,220 pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	74 sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	40 sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.788
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	25.5 %
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	50 sec
Y_{max}	$= 1-L/C$	=	0.861

Critical Case : B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 23%

Stage/Phase Diagrams



I/G = 8

I/G = 9

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	2	25			1		0		4030	930			930	100%		3802	0.245	
	B	1	3.500	3				0		0		6315		1760		1760			5305	0.332	
	C	2	3.500	2		12.5	0	0		0		4210			900	900		100%	3158	0.285	0.285
	B	1	3.300	2	30			1		0		4030	640			640	100%		3224	0.199	
	B	1	3.300	3				0		0		6255		1800		1800			5254	0.343	0.343
	D	2	3.750	2		30	0	0		0		4260			470	470		100%	4057	0.116	
	E	2	3.750	2	15			1		0		4120	490			490	100%		3745	0.131	
Pedestrian Crossing				GM		FGM															
	Fp	1	min.	8	+	13	=	21	sec												
	Gp	2	min.	20	+	13	=	33	sec												
	Hp	2	min.	9	+	13	=	22	sec												

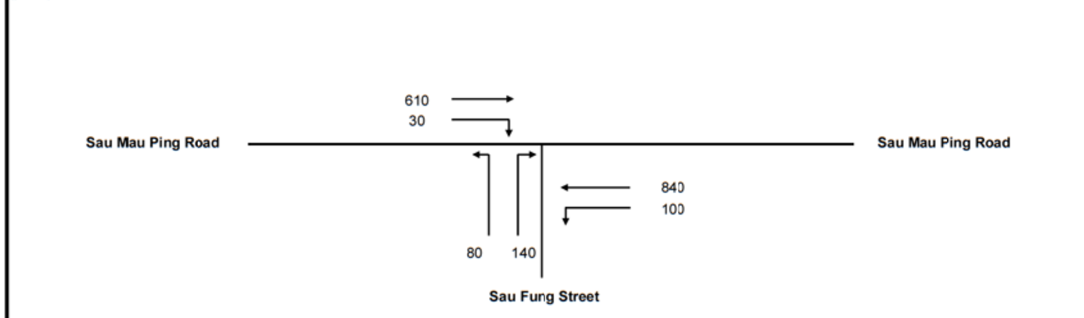
JUNCTION CAPACITY CALCULATION

AECOM

Junction J13 - Sau Mau Ping Road / Sau Fung Street	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

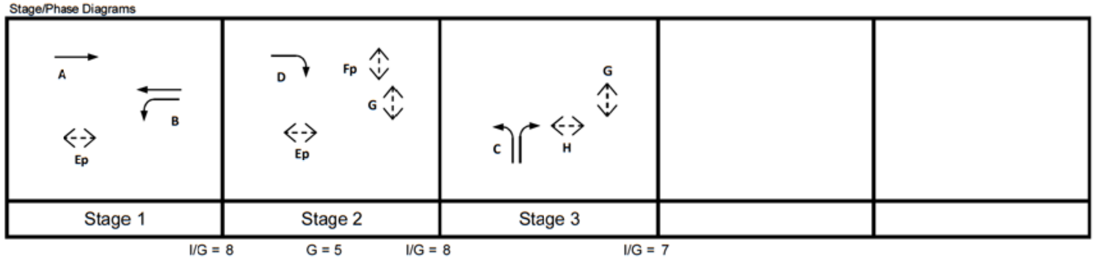
J13

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.406	
Lost time	L =	26	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	74	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	44	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.705	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\% =$	73.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	47	sec
Y_{max}	$= 1-L/C =$	0.783	

Stage/Phase Diagrams



Critical Case : A,Fp,C

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

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	3.000	1				1		0	200	1915		610		610			2115	0.288	0.288
	D	2	3.000	1		25	0	0		0		2055			30	30		100%	1939	0.015	
	B	1	3.500	1	15			1		0		1965	100	349		449	22%		1922	0.233	
	B	1	3.500	1				0		0		2105		491		491			2105	0.233	
	C	3	3.000	1	15	20	0	1		0	120	1915	80		140	220	36%	64%	1877	0.117	0.117
Pedestrian Crossing				GM		FGM															
	Ep	1,2	min.	5	+	7	=	12	sec												
	Fp	2	min.	5	+	6	=	11	sec												*
	Gp	2,3	min.	5	+	8	=	13	sec												
	Hp	3	min.	5	+	7	=	12	sec												

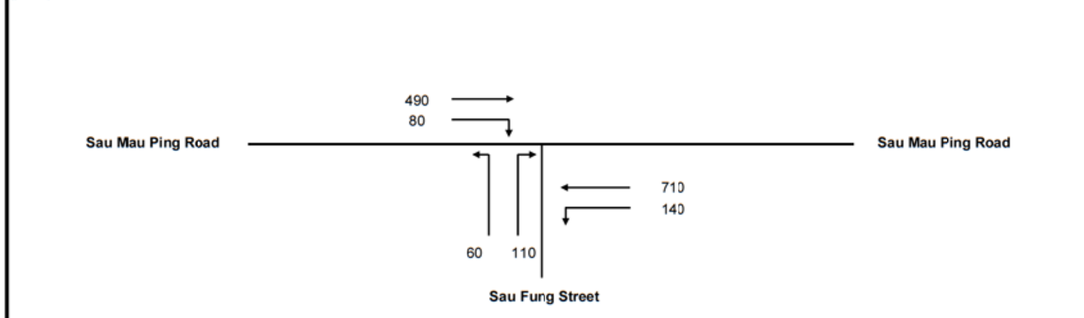
JUNCTION CAPACITY CALCULATION

AECOM

Junction J13 - Sau Mau Ping Road / Sau Fung Street	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

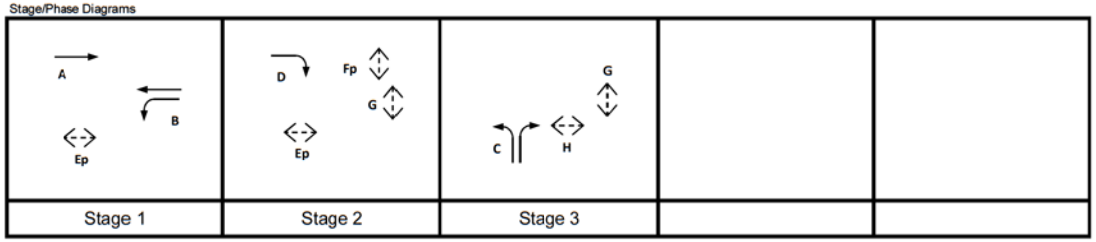
J13

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.363	
Lost time	L =	15	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	43	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	24	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.788	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	116.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	25	sec
Y_{max} = $1-L/C$	=	0.875	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7

Critical Case : A,D,C

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 117%

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	3.000	1				1		0	200	1915		490		490			2115	0.232	0.232
	D	2	3.000	1		25	0	0		0		2055			80	80		100%	1939	0.041	0.041
	B	1	3.500	1	15			1		0		1965	140	263		403	35%		1899	0.212	
	B	1	3.500	1				0		0		2105		447		447			2105	0.212	
	C	3	3.000	1	15	20	0	1		0	120	1915	60		110	170	35%	65%	1878	0.091	0.091

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	7	=	12	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	2,3	min.	5	+	8	=	13	sec
Hp	3	min.	5	+	7	=	12	sec

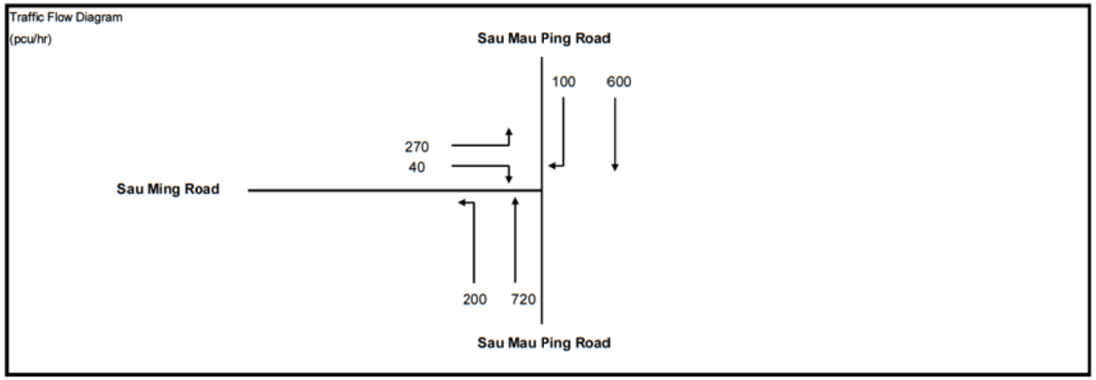
JUNCTION CAPACITY CALCULATION

AECOM

Junction J14 - Sau Mau Ping Rd / Sau Ming Rd	2026 AM Reference Flows (wo ARQ&EKL)_DAR Imp.	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

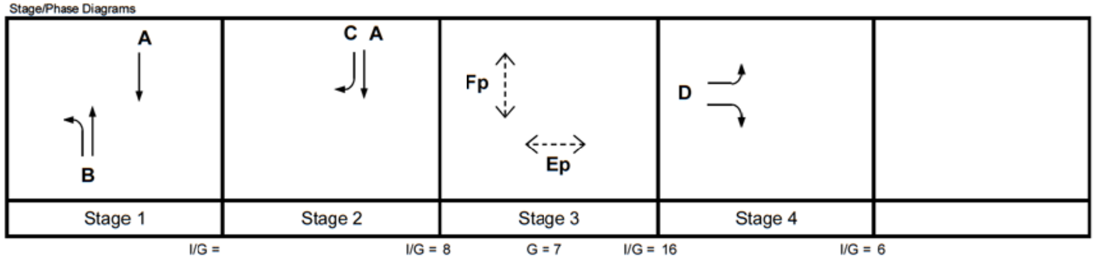
J14

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.395	
Lost time	L =	35	sec
Total Flow	=	12,130	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	95	sec
Min. Cycle Time C_m = L/(1-Y)	=	58	sec
Y_{ult} = 0.9-0.0075×L	=	0.638	
$R.C._{ult}$ = (Y_{ult}-Y)/Yx100%	=	61.6	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	62	sec
Y_{max} = 1-L/C	=	0.708	

Stage/Phase Diagrams



Critical Case : A,Ep,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 62%

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	1,2	3.300	1				1		0		1945		600		600			1945	0.308	0.308
	C	2	3.300	1		15	0	0		0		2085			100	100		100%	1895	0.053	
	B	1	3.300	1	10			1		0		1945	200	228		428	47%		1818	0.236	
	B	1	3.300	1				0		0		2085		492		492			2085	0.236	
	D	4	3.500	1	10			1		0		1965	147			147	100%		1709	0.086	0.086
	D	4	3.500	1	15	10	0	0		0		2105	123		40	163	75%	25%	1893	0.086	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	7	+	13	=	20	sec												*
	Fp	3	min.	8	+	10	=	18	sec												

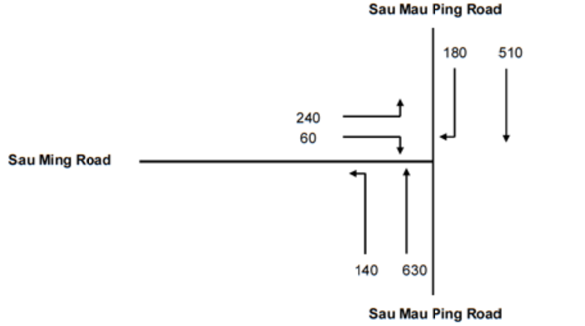
JUNCTION CAPACITY CALCULATION

AECOM

Junction J14 - Sau Mau Ping Rd / Sau Ming Rd	2026 PM Reference Flows (wo ARQ&EKL)_DAR Imp.	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J14

Traffic Flow Diagram
(pcu/hr)

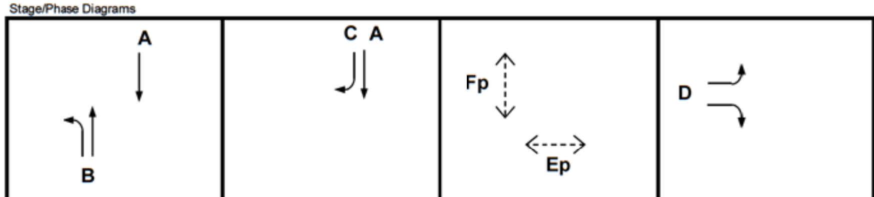


No. of stages per cycle	N =	4	
Cycle time	C =	110	sec
Sum(y)	Y =	0.375	
Lost time	L =	39	sec
Total Flow	=	12,130	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	102	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	62	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.608	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	62.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	67	sec
Y_{max} = $1-L/C$	=	0.645	

Critical Case : B,C,Ep,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 55%

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 5 I/G = 8 G = 7 I/G = 16 I/G = 6

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	1,2	3.300	1				1		0		1945		510		510			1945	0.262	
	C	2	3.300	1		15	0	0		0		2085			180	180		100%	1895	0.095	0.095
	B	1	3.300	1	10			1		0		1945	140	221		361	39%		1838	0.196	
	B	1	3.300	1				0		0		2085		409		409			2085	0.196	0.196
	D	4	3.500	1	10			1		0		1965	143			143	100%		1709	0.084	0.084
	D	4	3.500	1	15	10	0	0		0		2105	97		60	157	62%	38%	1881	0.084	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	7	+	13	=	20	sec												*
	Fp	3	min.	8	+	10	=	18	sec												

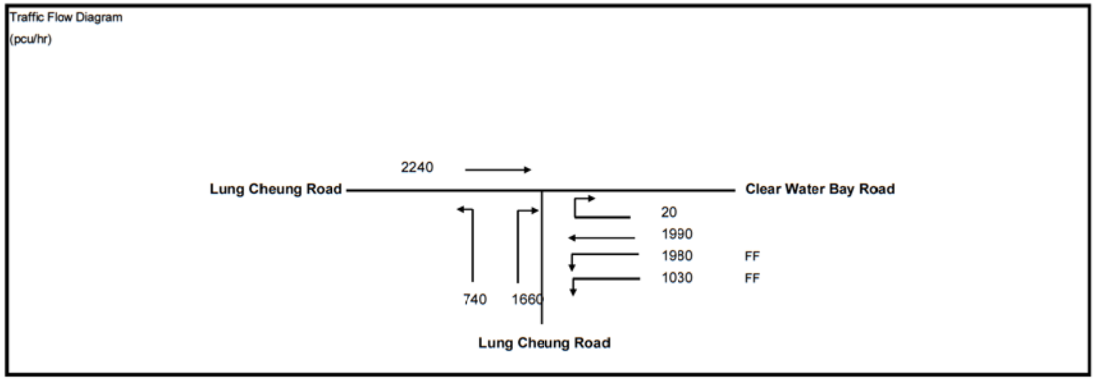
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

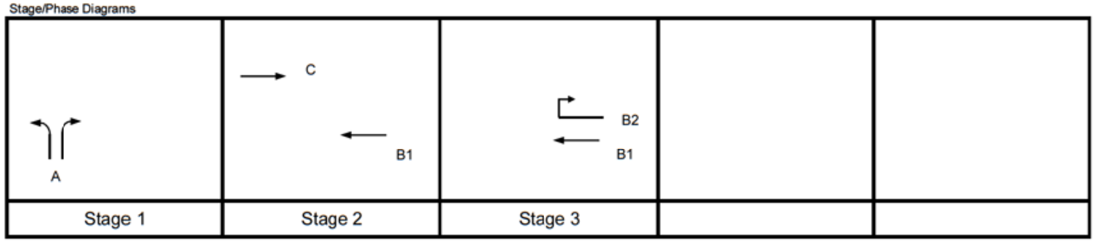
J15

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.775	
Lost time	L =	11	sec
Total Flow	=	20,550	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	96	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	49	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.818	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	5.4	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	80	sec
Y_{max} = $1-L/C$	=	0.921	

Stage/Phase Diagrams



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

Critical Case : A,B1

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	3.300	1				1		0		1945		589		589			1945	0.303	0.303
	A	1	3.300	1		30	0			0		2085		151	457	608		75%	2009	0.303	
	A	1	3.300	2		30	0	0		0		4170			1203	1203		100%	3971	0.303	
	B1	2,3	3.500	2				0		0		4210		1990		1990			4210	0.473	0.473
	B2	3	3.500	1		10	0	1		0		1965			20	20		100%	1709	0.012	
	C	2	3.500	3				1		0		6175		2240		2240			6175	0.363	

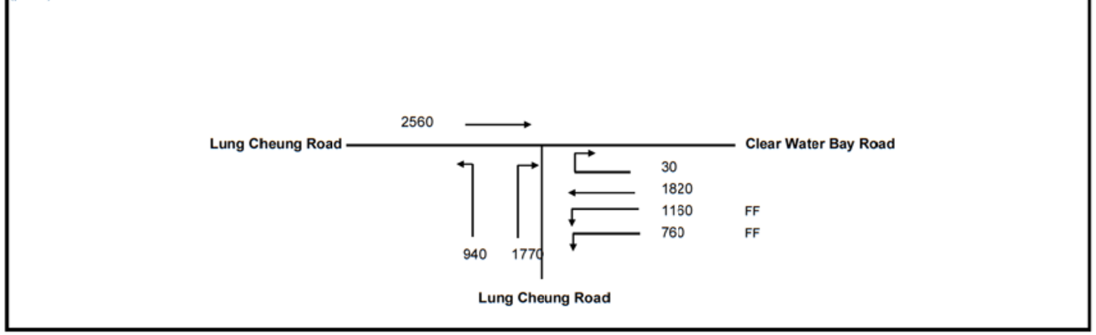
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

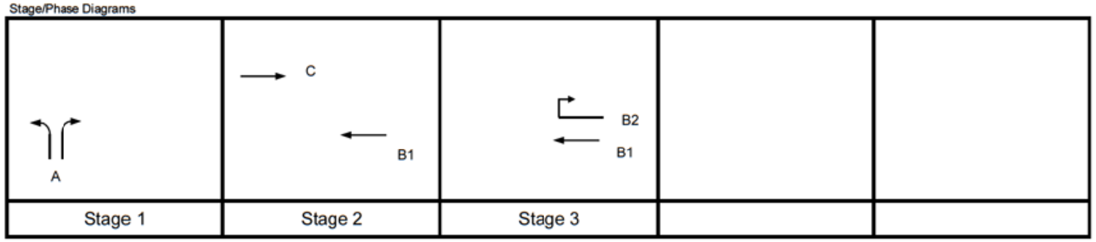
J15

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.756	
Lost time	L =	16	sec
Total Flow	=	20,550	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	66	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.780	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	3.2	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	100	sec
Y_{max} = $1-L/C$	=	0.886	

Stage/Phase Diagrams



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

Critical Case : A,C,B2

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 5%

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				1		0		1945		664		664			1945	0.341	0.341
	A	1	3.300	1		30	0			0		2085		276	415	691		60%	2024	0.341	
	A	1	3.300	2		30	0	0		0		4170			1355	1355		100%	3971	0.341	
	B1	2,3	3.500	2				0		0		4210		1820		1820			4210	0.432	
	B2	3	3.500	1		10	0	1		0		1965			30	30		100%	1709	0.018	
	C	2	3.500	3				1		0		6175		2560		2560			6175	0.415	0.415

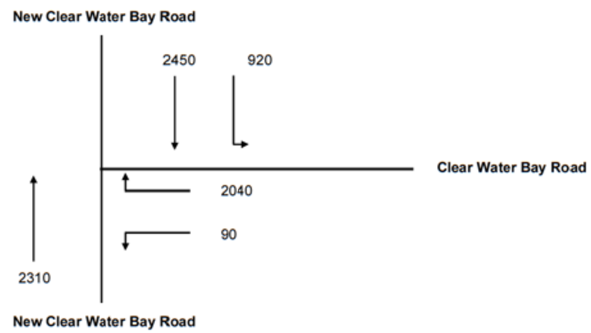
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

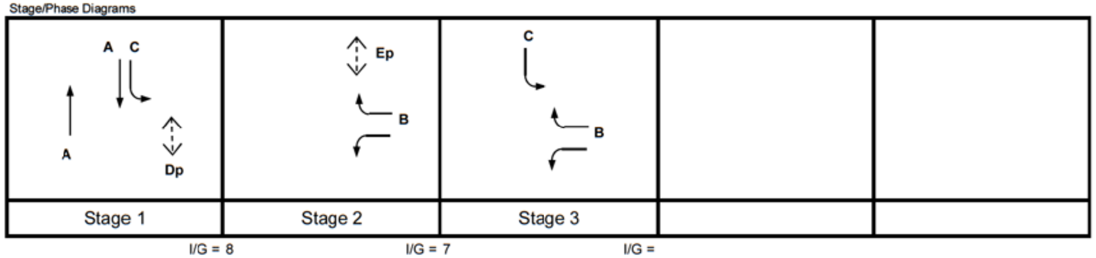
J16

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.775	
Lost time		L =	13	sec
Total Flow		=	20,160	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	109	sec
Min. Cycle Time C_m	= L/(1-Y)	=	58	sec
Y_{ult}	= 0.9-0.0075×L	=	0.803	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100%	=	3.5	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	94	sec
Y_{max}	= 1-L/C	=	0.907	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 5%

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	3.400	3				1		0	-250	6145		2310		2310			5895	0.392	
↓	A	1	3.100	3				0		0		6195		2450		2450			6195	0.395	0.395
↳	C	1,3	3.100	1	20			1		0		1925	920			920	100%		1791	0.514	
	B	2,3	3.400	1	10	20	0	1		0		1955	90		594	684	13%	87%	1802	0.380	0.380
	B	2,3	3.400	2		15	0	0		0		4190			1446	1446		100%	3809	0.380	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	12	=	17	sec												
	Ep	2	min.	5	+	8	=	13	sec												

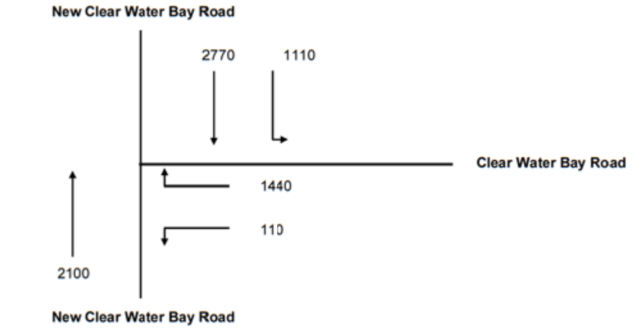
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

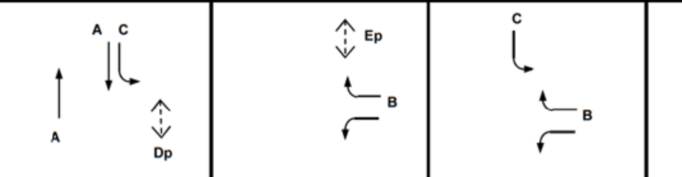
J16

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.724	
Lost time		L =	13	sec
Total Flow		=	20,160	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		89	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	47	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	10.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	66	sec
Y_{max}	$= 1-L/C$	=	0.907	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G = 8	I/G = 7	I/G =		

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 13%

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	3.400	3				1		0	-250	6145		2100		2100			5895	0.356	
↓	A	1	3.100	3				0		0		6195		2770		2770			6195	0.447	0.447
↳	C	1,3	3.100	1	20			1		0		1925	1110			1110	100%		1791	0.620	
	B	2,3	3.400	1	10	20	0	1		0		1955	110		386	496	22%	78%	1791	0.277	0.277
	B	2,3	3.400	2		15	0	0		0		4190			1054	1054		100%	3809	0.277	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	12	=	17	sec												
	Ep	2	min.	5	+	8	=	13	sec												

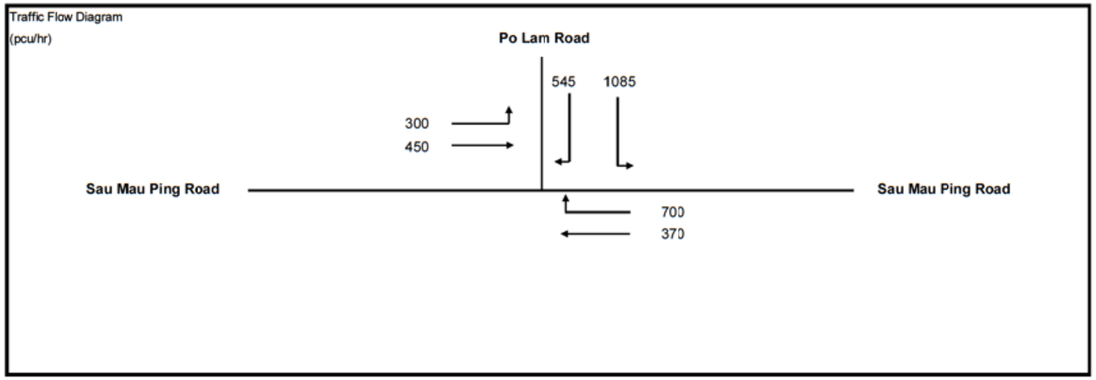
JUNCTION CAPACITY CALCULATION

AECOM

Junction J17 - Sau Mau Ping Road / Po Lam Road	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

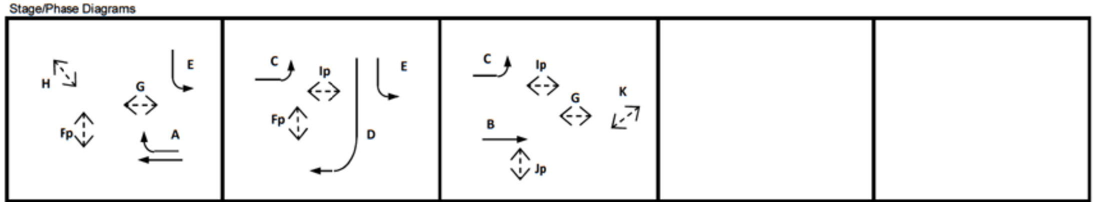
J17

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.545	
Lost time	L =	12	sec
Total Flow	=	18,985	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	51	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	26	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times 100\%$	=	48.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	30	sec
Y_{max} = $1-L/C$	=	0.900	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

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

Critical Case : A,D,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 48%

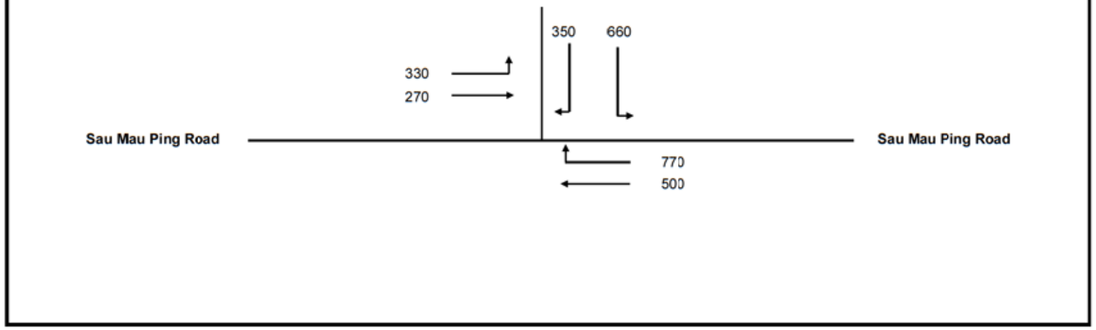
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.300	1				1		0		1945		359		359			1945	0.184	0.184
	A	1	3.500	1		20	0			0		2105		11	350	362		97%	1962	0.184	
	A	1	3.300	1		15	0	0		0		2085			350	350		100%	1895	0.184	
	E	1,2	4.000	2	30			1		0		4170	1085			1085	100%		3971	0.273	
	D	2	3.500	1		20	0	0		0	200	2105			545	545		100%	2144	0.254	0.254
	C	2,3	4.000	1	15			1		0	150	2015	300			300	100%		1968	0.152	
	B	3	3.500	2				0		0		4210		450		450			4210	0.107	0.107
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	5	+	6	=	11	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1	min.	5	+	7	=	12	sec												
	Ip	2,3	min.	5	+	10	=	15	sec												
	Jp	3	min.	5	+	7	=	12	sec												
	Kp	3	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J17 - Sau Mau Ping Road / Po Lam Road	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

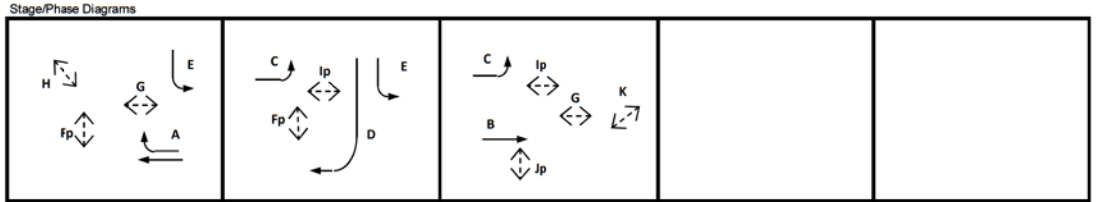
Traffic Flow Diagram
(pcu/hr)



J17

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.381	
Lost time	L =	29	sec
Total Flow	=	18,985	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	78	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	47	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	79.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	50	sec
Y_{max}	$= 1-L/C =$	0.758	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

I/G = 5 I/G = 12 G = 5 I/G = 9

Critical Case : A,D,Jp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 79%

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				1		0		1945		424		424			1945	0.218	0.218
	A	1	3.500	1		20	0			0		2105		76	357	432		82%	1982	0.218	
	A	1	3.300	1		15	0	0		0		2085			413	413		100%	1895	0.218	
	E	1,2	4.000	2	30			1		0		4170	660			660	100%		3971	0.166	
	D	2	3.500	1		20	0	0		0	200	2105			350	350		100%	2144	0.163	0.163
	C	2,3	4.000	1	15			1		0	150	2015	330			330	100%		1968	0.168	
	B	3	3.500	2				0		0		4210		270		270			4210	0.064	
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	5	+	6	=	11	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1	min.	5	+	7	=	12	sec												
	Ip	2,3	min.	5	+	10	=	15	sec												
	Jp	3	min.	5	+	7	=	12	sec												*
	Kp	3	min.	5	+	7	=	12	sec												

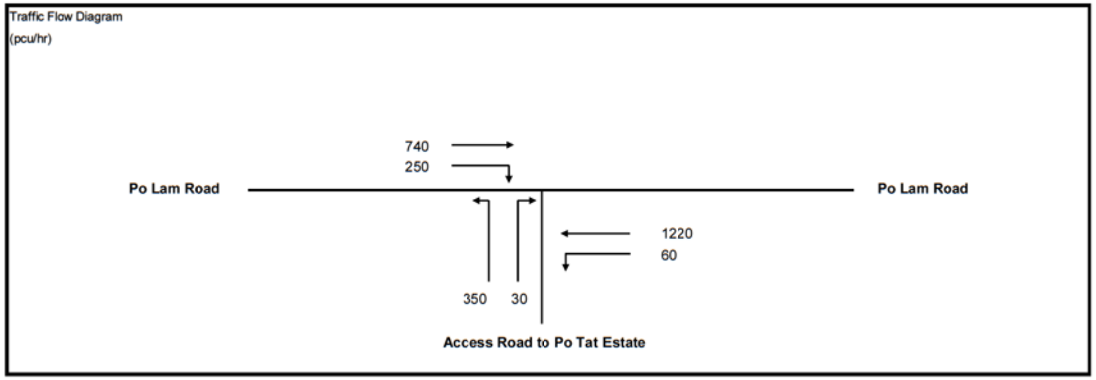
JUNCTION CAPACITY CALCULATION

AECOM

Junction J18 - Po Lam Road / Access Road to Po Tat Estate	2026 AM Reference Flows (wo ARQ&EKL)_Ref. Case	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

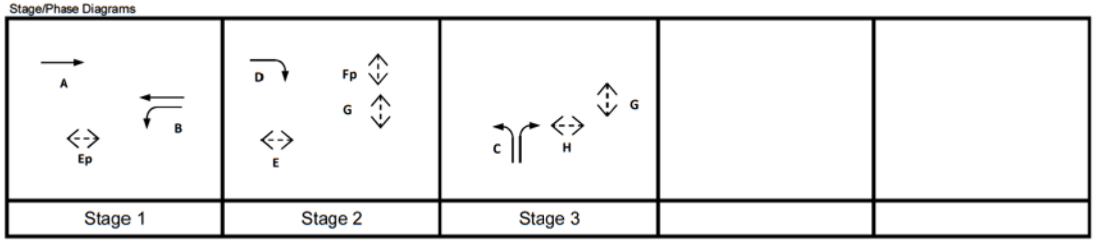
J18

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.433	
Lost time	L =	13	sec
Total Flow	=	18,375	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	43	sec
Min. Cycle Time C_m = L/(1-Y)	=	23	sec
Y_{ult} = 0.9-0.0075×L	=	0.803	
$R.C._{ult}$ = $(Y_{ult}$-Y)/Yx100%	=	85.4	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	25	sec
Y_{max} = 1-L/C	=	0.892	

Stage/Phase Diagrams



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

Critical Case : B,D,C

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 85%

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	2				1		0		4070		740		740			4070	0.182	
	D	2	3.500	1		20	0	0		0		2105			250	250		100%	1958	0.128	0.128
	B	1	3.500	1	15			1		0		1965	60	343		403	15%		1936	0.208	0.208
	B	1	3.500	2				0		0		4210		877		877			4210	0.208	
	C	3	3.000	2	15			1		0		3970	350			350	100%		3609	0.097	0.097
	C	3	3.000	1		20	0	0		0		2055			30	30		100%	1912	0.016	

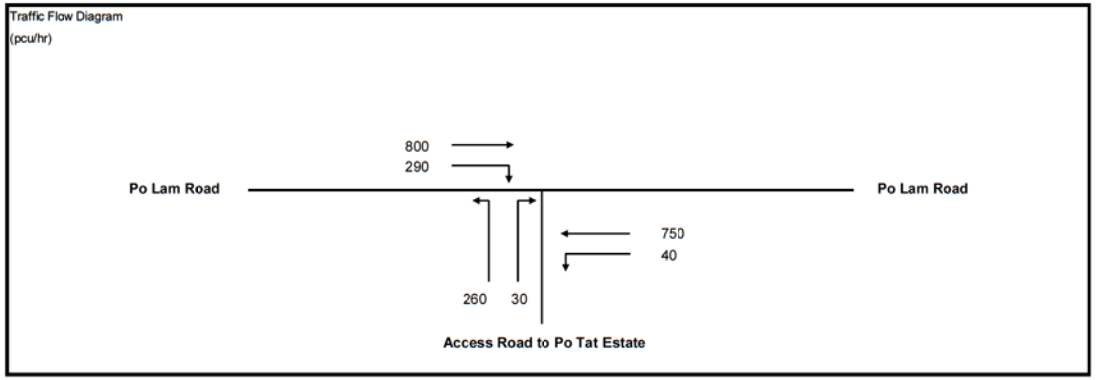
Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	13	=	18	sec
Fp	2	min.	5	+	7	=	12	sec
Gp	2,3	min.	5	+	10	=	15	sec
Hp	3	min.	5	+	7	=	12	sec

JUNCTION CAPACITY CALCULATION

AECOM

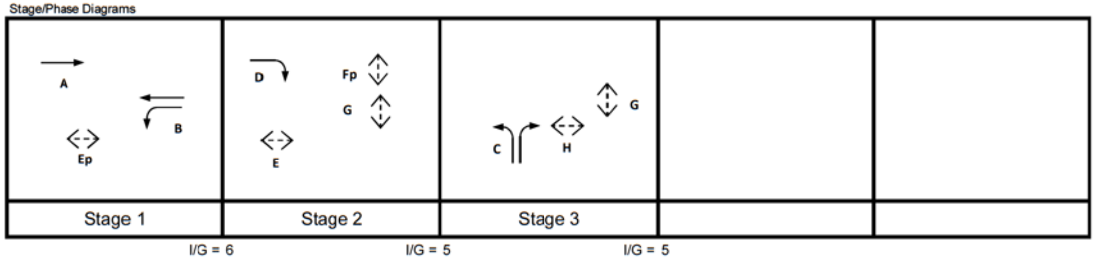
Junction J18 - Po Lam Road / Access Road to Po Tat Estate	2026 PM Reference Flows (wo ARQ&EKL)_Ref. Case	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J18



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.417	
Lost time		L =	13	sec
Total Flow		=	18,375	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	42	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	22	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	92.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	24	sec
Y_{max}	$= 1-L/C$	=	0.892	

Stage/Phase Diagrams



Critical Case : A,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 93%

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	2				1		0		4070		800		800			4070	0.197	0.197
	D	2	3.500	1		20	0	0		0		2105			290	290		100%	1958	0.148	0.148
	B	1	3.500	1	15			1		0		1965	40	209		249	16%		1934	0.129	
	B	1	3.500	2				0		0		4210		541		541			4210	0.129	
	C	3	3.000	2	15			1		0		3970	260			260	100%		3609	0.072	0.072
	C	3	3.000	1		20	0	0		0		2055			30	30		100%	1912	0.016	

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	13	=	18	sec
Fp	2	min.	5	+	7	=	12	sec
Gp	2,3	min.	5	+	10	=	15	sec
Hp	3	min.	5	+	7	=	12	sec

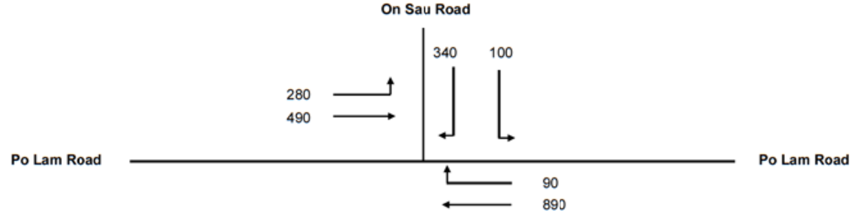
JUNCTION CAPACITY CALCULATION

AECOM

Junction J19 - Po Lam Road / On Sau Road	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

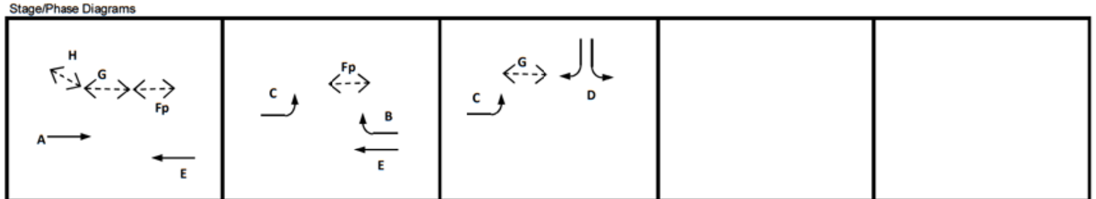
J19

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.300	
Lost time	L =	12	sec
Total Flow	=	18,925	pcu
Optimum Cycle C_o = $(1.5 \times L+5)/(1-Y)$	=	33	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	17	sec
Y_{ult} = $0.9-0.0075 \times L$	=	0.810	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y \times 100\%$	=	169.9	%
Practical Cycle Time C_p = $0.9 \times L/(0.9-Y)$	=	18	sec
Y_{max} = $1-L/C$	=	0.867	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G =	I/G = 5	I/G = 9		

Critical Case : E,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 160%

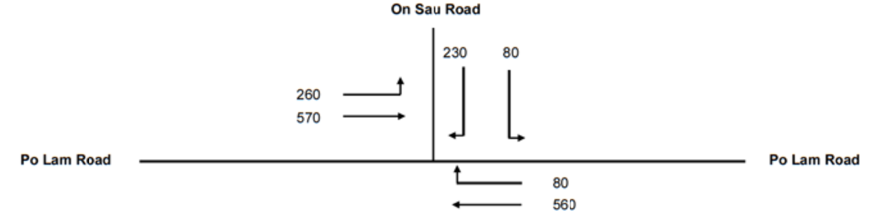
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	C	2,3	3.700	1	20			1		0		1985	280			280	100%		1847	0.152	
	A	1	3.650	2				0		0		4240		490		490			4240	0.116	
	B	2	4.000	1		20	0	0		0		2155			90	90		100%	2005	0.045	
	E	1,2	3.650	2				1		0		4100		890		890			4100	0.217	0.217
	D	3	4.300	1	15			1		0		2045	100			100	100%		1859	0.054	
	D	3	4.450	2		20	0	0		0		4400			340	340		100%	4093	0.083	0.083
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	7	+	14	=	21	sec												
	Gp	1,3	min.	5	+	5	=	10	sec												
	Hp	1	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J19 - Po Lam Road / On Sau Road	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

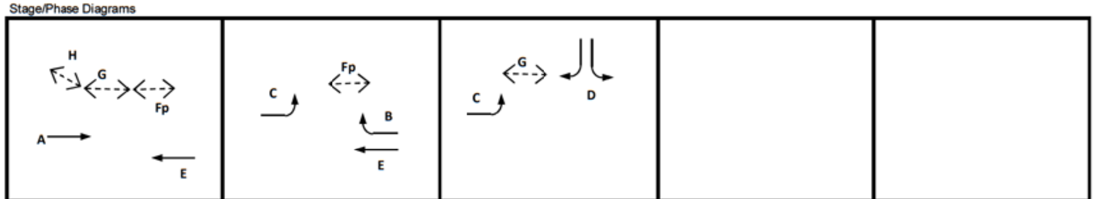
Traffic Flow Diagram
(pcu/hr)



J19

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.275	
Lost time	L =	8	sec
Total Flow	=	18,925	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	23	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	11	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.840	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	205.2	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	12	sec
Y_{max} = $1-L/C$	=	0.911	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

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

Critical Case : A,C

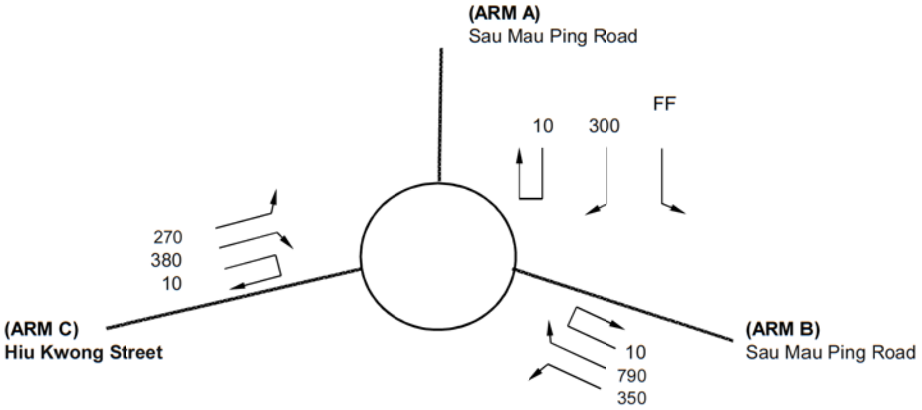
R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 198%

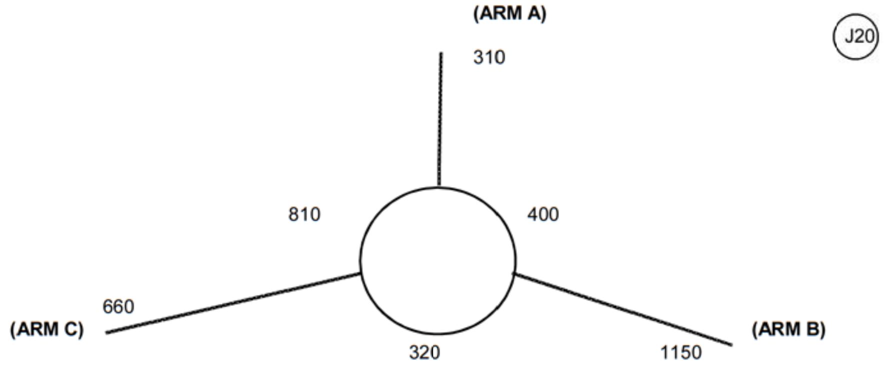
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	C	2,3	3.700	1	20			1		0		1985	260			260	100%		1847	0.141	0.141
	A	1	3.650	2				0		0		4240		570		570			4240	0.134	0.134
	B	2	4.000	1		20	0	0		0		2155			80	80		100%	2005	0.040	
	E	1,2	3.650	2				1		0		4100		560		560			4100	0.137	
	D	3	4.300	1	15			1		0		2045	80			80	100%		1859	0.043	
	D	3	4.450	2		20	0	0		0		4400			230	230		100%	4093	0.056	
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	7	+	14	=	21	sec												
	Gp	1,3	min.	5	+	5	=	10	sec												
	Hp	1	min.	5	+	7	=	12	sec												

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2026 AM Reference Flows (wo ARQ&EKL)	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





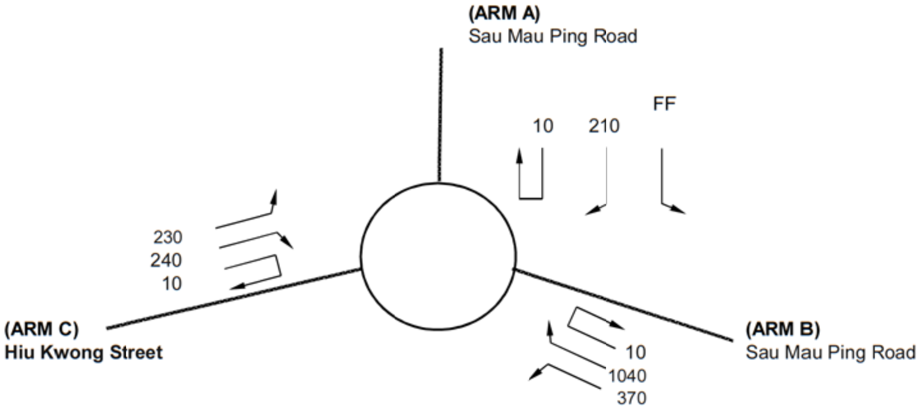
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	310	1150	660
Qc= Circulating flow across entry (pcu/h)	400	320	810
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1358	1989	1272
DFC = Design flow/Capacity = Q/Qe	0.23	0.58	0.52

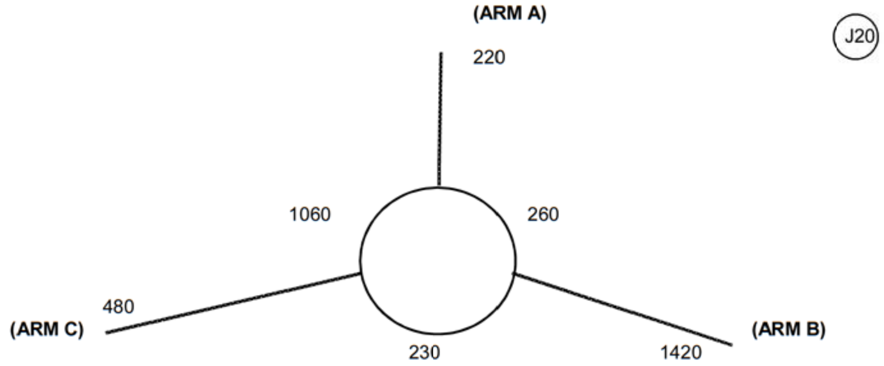
TOTAL ENTRY FLOWS = 2120 PCU

CRITICAL DFC = 0.58

ROUNDABOUT CAPACITY CALCULATION

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2026 PM Reference Flows (wo ARQ&EKL)	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	220	1420	480
Qc= Circulating flow across entry (pcu/h)	260	230	1060
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1452	2058	1098
DFC = Design flow/Capacity = Q/Qe	0.15	0.69	0.44

TOTAL ENTRY FLOWS = 2120 PCU

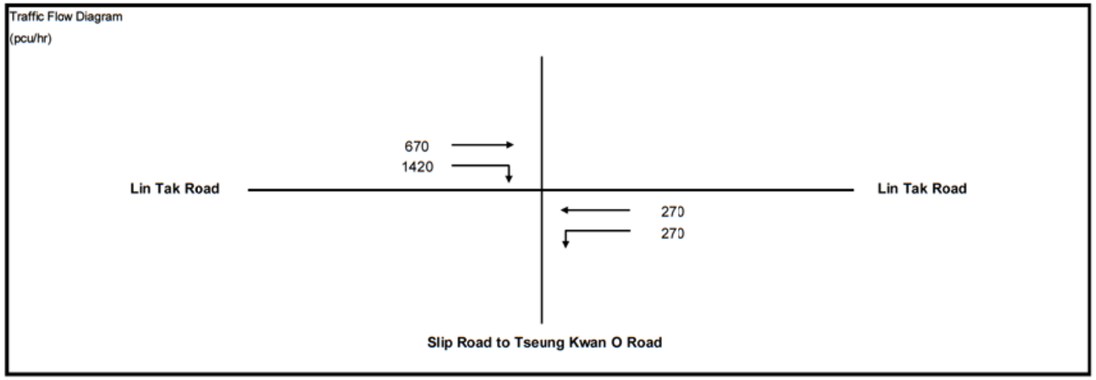
CRITICAL DFC = 0.69

JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

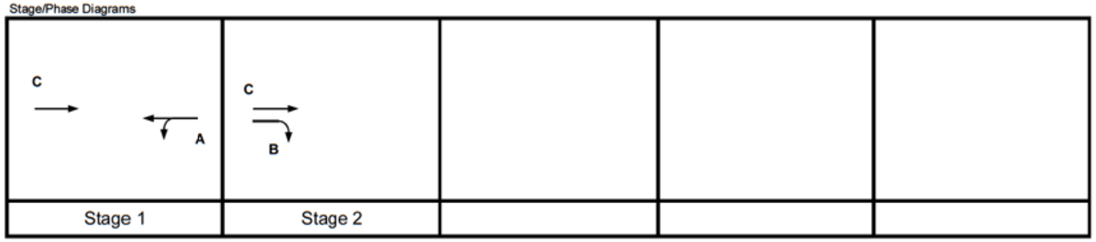
Traffic Flow Diagram
(pcu/hr)



J21

No. of stages per cycle	N =	2	
Cycle time	C =	110	sec
Sum(y)	Y =	0.897	
Lost time	L =	10	sec
Total Flow	=	8,070	pcu
Optimum Cycle C_o $= (1.5\times L+5)/(1-Y)$	=	194	sec
Min. Cycle Time C_m $= L/(1-Y)$	=	97	sec
Y_{ult} $= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ $= (Y_{ult}-Y)/Y\times100\%$	=	-8.0	%
Practical Cycle Time C_p $= 0.9\times L/(0.9-Y)$	=	3140	sec
Y_{max} $= 1-L/C$	=	0.909	

Stage/Phase Diagrams



I/G = 7 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = -9%

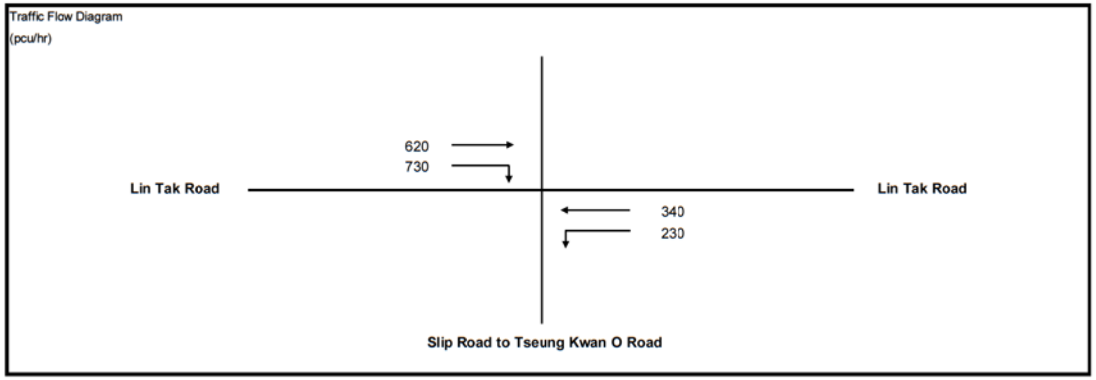
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	1,2	3.500	1				1		0		1965		670		670			1965	0.341	
	B	2	3.500	1		15	0	0		0		2105			1420	1420		100%	1914	0.742	0.742
	A	1	3.300	1				0		0		2085		270		270			2085	0.129	
	A	1	3.000	1	15			1		0		1915	270			270	100%		1741	0.155	0.155

JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

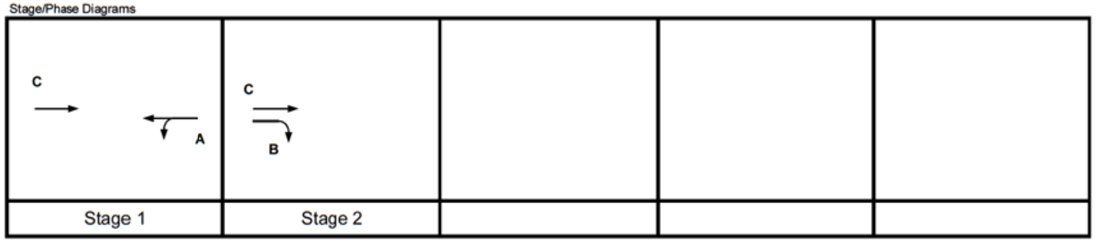
Traffic Flow Diagram
(pcu/hr)



J21

No. of stages per cycle	N =	2	
Cycle time	C =	80	sec
Sum(y)	Y =	0.545	
Lost time	L =	10	sec
Total Flow	=	8,070	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	44	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	22	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	51.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	25	sec
Y_{max} = $1-L/C$	=	0.875	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 45%

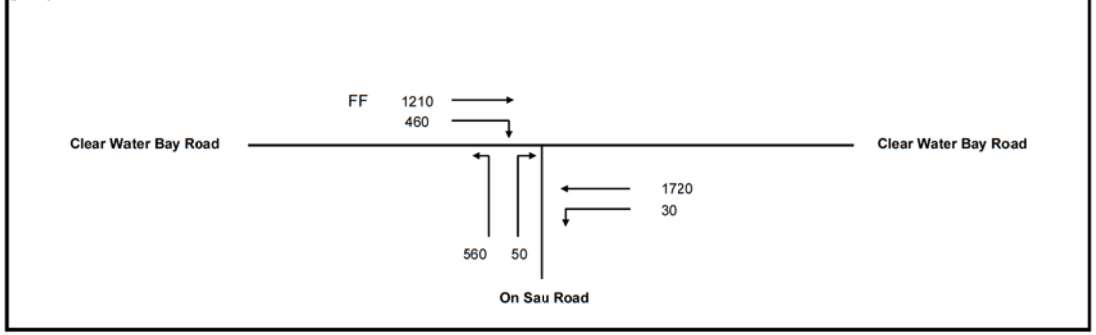
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	C	1,2	3.500	1				1		0		1965		620		620			1965	0.316	
	B	2	3.500	1		15	0	0		0		2105			730	730		100%	1914	0.381	0.381
	A	1	3.300	1				0		0		2085		340		340			2085	0.163	0.163
	A	1	3.000	1	15			1		0		1915	230			230	100%		1741	0.132	

JUNCTION CAPACITY CALCULATION

AECOM

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 AM Reference Flows (DAR Layout_wo ARQ&EKL)	DESIGN: SL	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

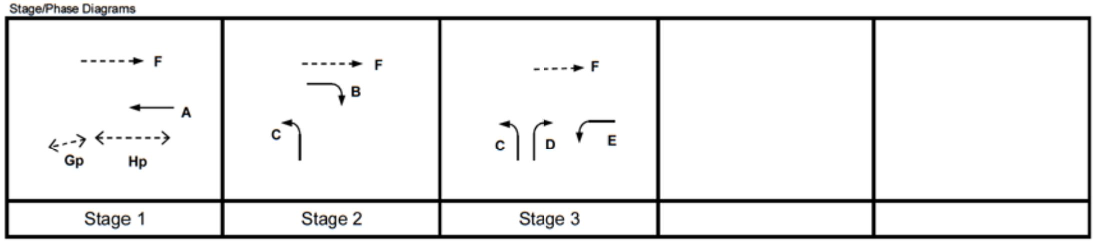
Traffic Flow Diagram
(pcu/hr)



J22

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.615	
Lost time	L =	28	sec
Total Flow	=	14,804	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	122	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	73	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	12.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	89	sec
Y_{max}	$= 1-L/C =$	0.689	

Stage/Phase Diagrams



I/G = 8 I/G = 9 G = 5 I/G = 8

Critical Case : A,B,E

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 1%

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
	D	3	3.650	1		20	0	0		0		2120			50	50		100%	1972	0.025	
	C	2,3	3.500	2	20			1		0		4070	560			560	100%		3786	0.148	
	A	1	3.650	2				0		0		4240		1720		1720			4240	0.406	0.406
	E	3	4.000	1	10			1		0		2015	30			30	100%		1752	0.017	
	B	2	3.375	1		20	0	0		0	267	2092.5			460	460		100%	2195	0.210	0.210

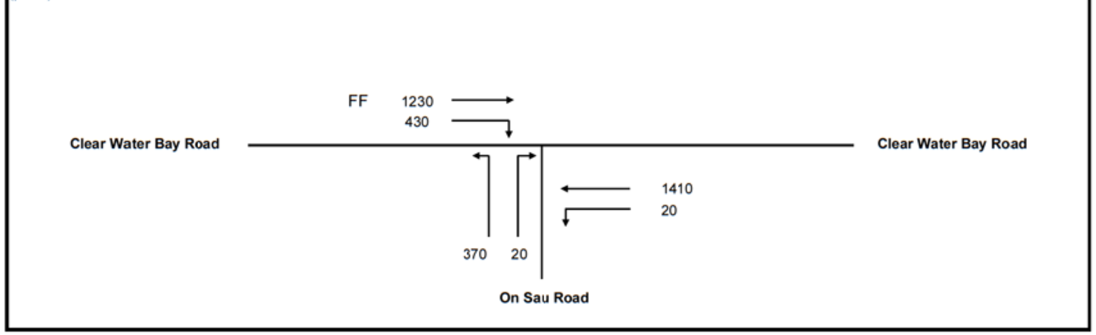
Pedestrian Crossing			GM		FGM			
Gp	1	min.	8	+	8	=	16	sec
Hp	1	min.	14	+	12	=	26	sec

JUNCTION CAPACITY CALCULATION

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 PM Reference Flows (DAR Layout_wo ARQ&EKL)	DESIGN: SL	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

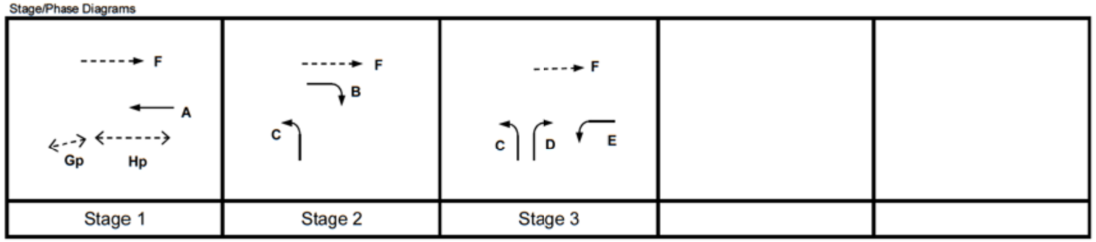
J22

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.528	
Lost time		L =	28	sec
Total Flow		=	14,804	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		100	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	59	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	30.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	68	sec
Y_{max}	$= 1-L/C$	=	0.689	

Stage/Phase Diagrams



I/G = 8 I/G = 9 G = 5 I/G = 8

Critical Case : A,B,E

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 17%

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
	D	3	3.650	1		20	0	0		0		2120			20	20		100%	1972	0.010	
	C	2,3	3.500	2	20			1		0		4070	370			370	100%		3786	0.098	
	A	1	3.650	2				0		0		4240		1410		1410			4240	0.333	0.333
	E	3	4.000	1	10			1		0		2015	20			20	100%		1752	0.011	
	B	2	3.375	1		20	0	0		0	267	2092.5			430	430		100%	2195	0.196	0.196

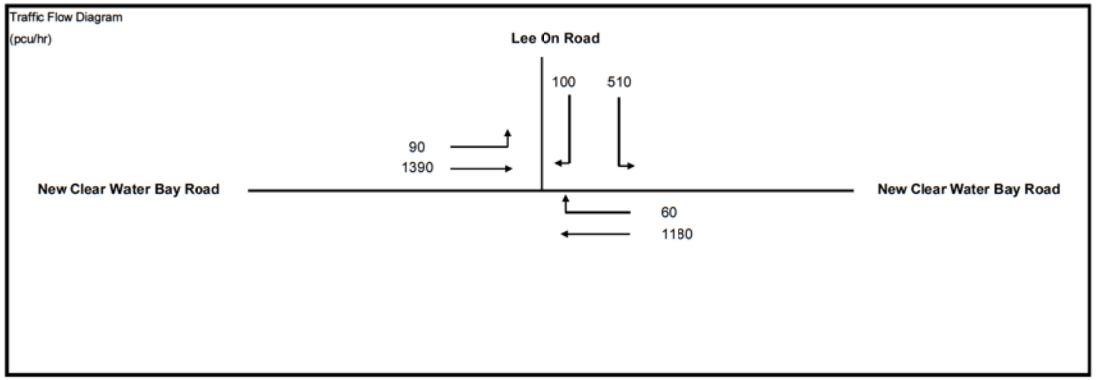
Pedestrian Crossing			GM		FGM			
Gp	1	min.	8	+	8	=	16	sec
Hp	1	min.	14	+	12	=	26	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J23 - New Clear Water Bay Road / Lee On Road	2026 AM Reference Flows (DAR Imp._wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

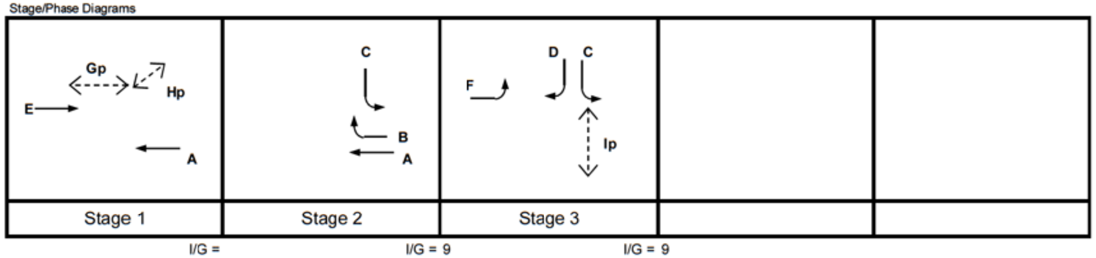
Traffic Flow Diagram
(pcu/hr)



J23

No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.653	
Lost time	L =	16	sec
Total Flow	=	14,426	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	84	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	46	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.780	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times 100\%$	=	19.4	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	58	sec
Y_{max} = $1-L/C$	=	0.886	

Stage/Phase Diagrams



Critical Case : A,F

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 22%

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
	F	3	3.500	1	10			1		0		1965	90			90	100%		1709	0.053	0.053
	E	1	3.300	2				0		0		4170		1390		1390			4170	0.333	
	A	1,2	3.500	1				1		0		1965		1180		1180			1965	0.601	0.601
	B	2	3.300	1		15	0	0		0		2085			60	60		100%	1895	0.032	
	C	2,3	3.500	1	30			1		0	171	1965	510			510	100%		2035	0.251	
	D	3	3.500	1		15	0	0		0		2105			100	100		100%	1914	0.052	

Pedestrian Crossing

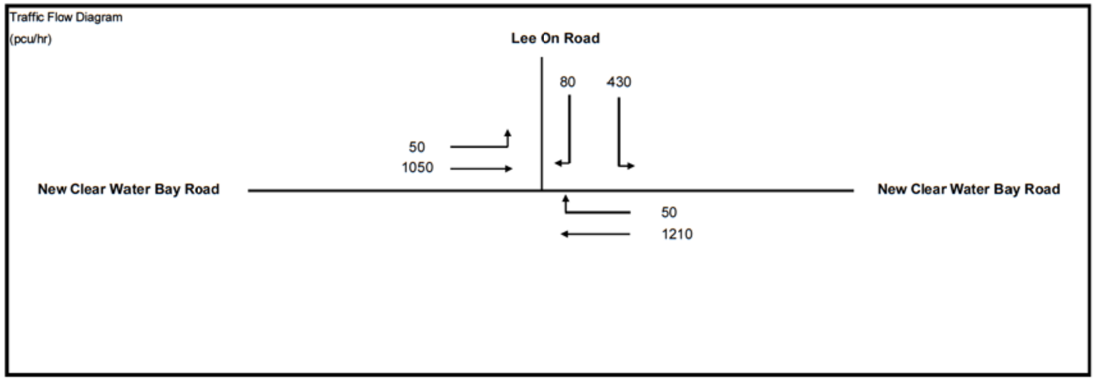
			GM		FGM			
Gp	1	min.	9	+	7	=	16	sec
Hp	1	min.	10	+	5	=	15	sec
Ip	3	min.	9	+	8	=	17	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J23 - New Clear Water Bay Road / Lee On Road	2026 PM Reference Flows (DAR Imp._wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

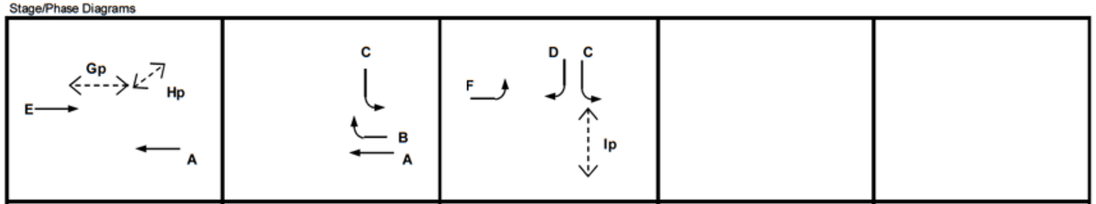
Traffic Flow Diagram
(pcu/hr)



J23

No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.616	
Lost time	L =	24	sec
Total Flow	=	14,426	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	107	sec
Min. Cycle Time C_m = L/(1-Y)	=	62	sec
Y_{ult} = 0.9-0.0075×L	=	0.720	
R.C.$_{ult}$ = $(Y_{ult}$-Y)/Yx100%	=	16.9	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	76	sec
Y_{max} = 1-L/C	=	0.829	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G =	I/G = 5	G = 9	I/G = 11	

Critical Case : A,Ip

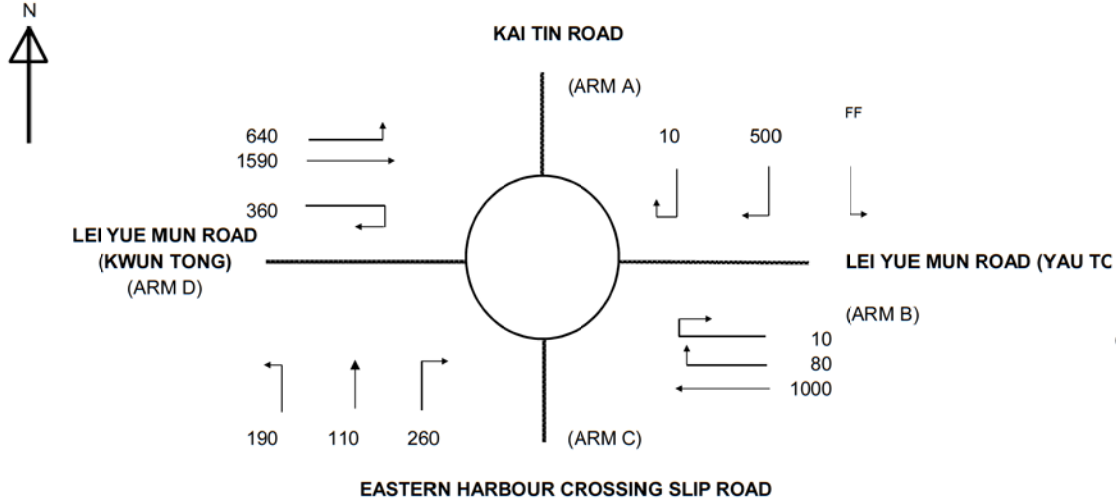
R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 21%

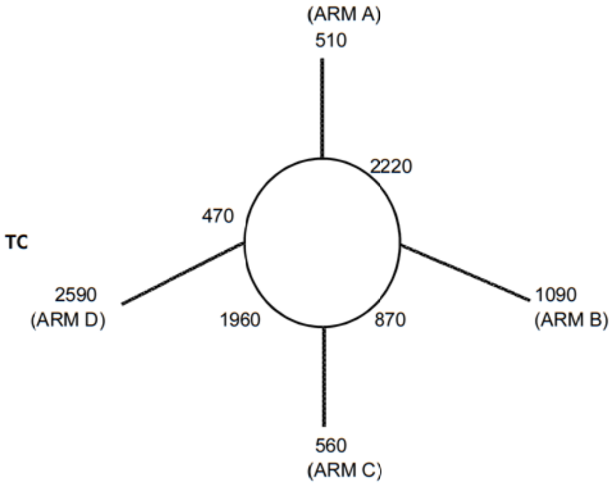
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	F	3	3.500	1	10			1		0		1965	50			50	100%		1709	0.029	
	E	1	3.300	2				0		0		4170		1050		1050			4170	0.252	
	A	1,2	3.500	1				1		0		1965		1210		1210			1965	0.616	0.616
	B	2	3.300	1		15	0	0		0		2085			50	50		100%	1895	0.026	
	C	2,3	3.500	1	30			1		0	171	1965	430			430	100%		2035	0.211	
	D	3	3.500	1		15	0	0		0		2105			80	80		100%	1914	0.042	

Pedestrian Crossing			GM		FGM				
Gp	1	min.	9	+	7	=	16	sec	
Hp	1	min.	10	+	5	=	15	sec	
Ip	3	min.	9	+	8	=	17	sec	*

ROUNDABOUT CAPACITY CALCULATION

Junction	J24 Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harb	Scenario	2026 AM Reference Flows (wo ARQ&EKL)	Project No.	Prepared By	Checked By	Date
				60328348	CW	KHL	Dec 2014





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.00	7.00	7.00	7.00
E = Entry width (m)	7.50	10.00	10.00	8.00
L = Effective length of flare (m)	21.00	10.00	11.00	10.00
R = Entry radius (m)	26.00	20.00	60.00	30.00
D = Inscribed circle diameter (m)	81.00	81.00	81.00	81.00
A = Entry angle (degree)	36.00	35.00	30.00	30.00
Q = Entry flow (pcu/h)	510	1090	560	2590
Qc= Circulating flow across entry (pcu/h)	2220	870	1960	470
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.11	0.48	0.44	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	0.98	1.03	1.02
X2= V + ((E-V)/(1+2S))	7.22	8.53	8.60	7.76
M = EXP((D-60)/10)	8.17	8.17	8.17	8.17
F = 303*X2	2188	2585	2606	2351
Td= 1+(0.5/(1+M))	1.05	1.05	1.05	1.05
Fc= 0.21*Td(1+0.2*X2)	0.54	0.60	0.60	0.57
Qe= K(F-Fc*Qc)	977	2028	1472	2119
DFC = Design flow/Capacity = Q/Qe	0.52	0.54	0.38	1.22

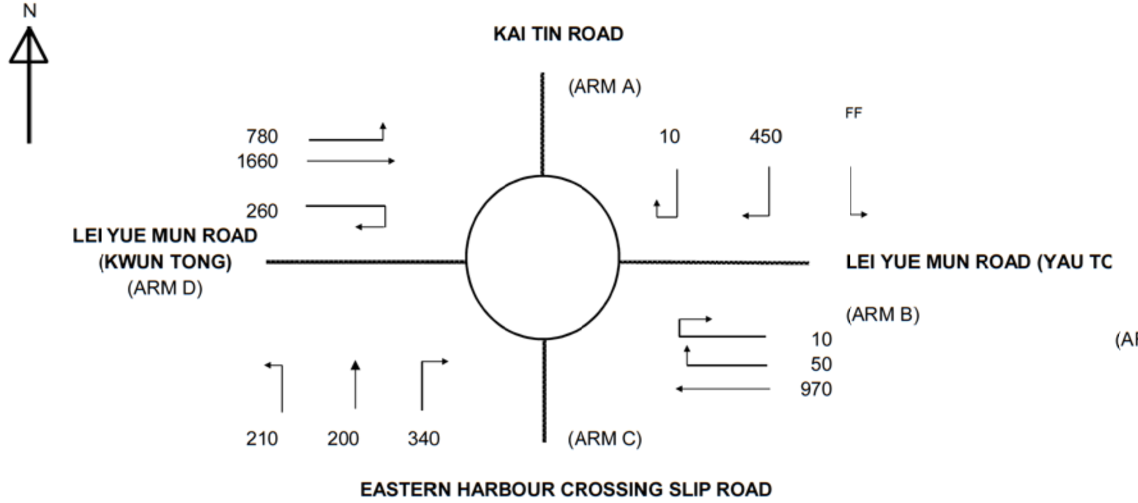
TOTAL ENTRY FLOWS = 4750 PCU

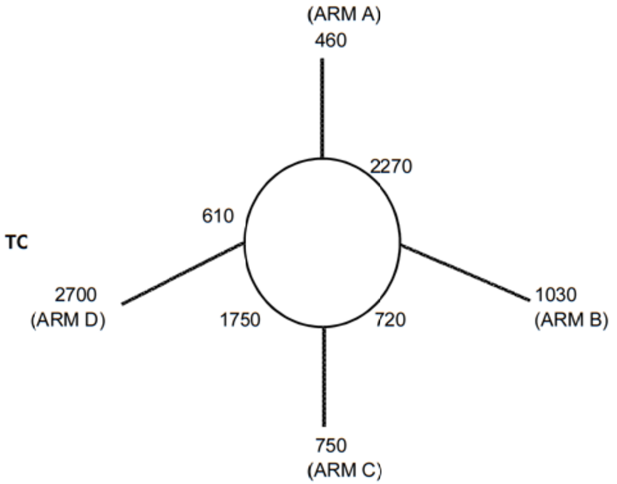
CRITICAL DFC : 1.22

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J24 Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harb	Scenario	2026 PM Reference Flows (wo ARQ&EKL)	Project No.	Prepared By	Checked By	Date
				60328348	CW	KHL	Dec 2014





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.00	7.00	7.00	7.00
E = Entry width (m)	7.50	10.00	10.00	8.00
L = Effective length of flare (m)	21.00	10.00	11.00	10.00
R = Entry radius (m)	26.00	20.00	60.00	30.00
D = Inscribed circle diameter (m)	81.00	81.00	81.00	81.00
A = Entry angle (degree)	36.00	35.00	30.00	30.00
Q = Entry flow (pcu/h)	460	1030	750	2700
Qc= Circulating flow across entry (pcu/h)	2270	720	1750	610
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.11	0.48	0.44	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	0.98	1.03	1.02
X2= V + ((E-V)/(1+2S))	7.22	8.53	8.60	7.76
M = EXP((D-60)/10)	8.17	8.17	8.17	8.17
F = 303*X2	2188	2585	2606	2351
Td= 1+(0.5/(1+M))	1.05	1.05	1.05	1.05
Fc= 0.21*Td(1+0.2*X2)	0.54	0.60	0.60	0.57
Qe= K(F-Fc*Qc)	950	2116	1603	2039
DFC = Design flow/Capacity = Q/Qe	0.48	0.49	0.47	1.32

TOTAL ENTRY FLOWS = 4940 PCU

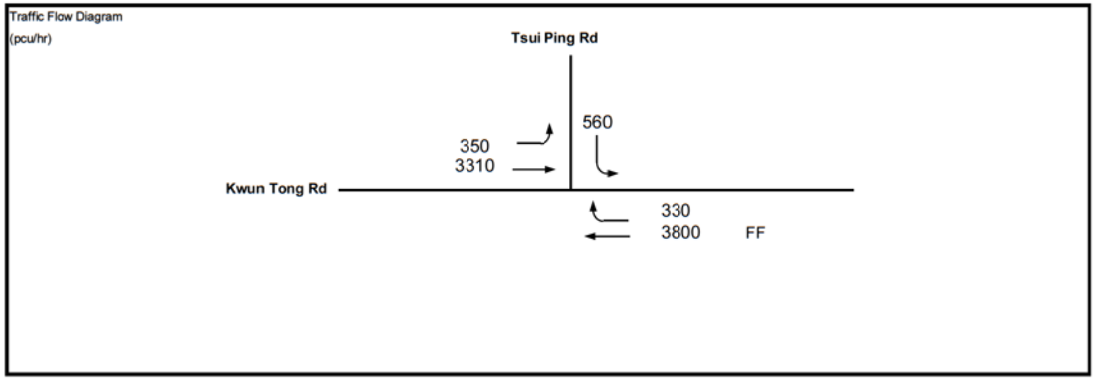
CRITICAL DFC : 1.32

JUNCTION CAPACITY CALCULATION

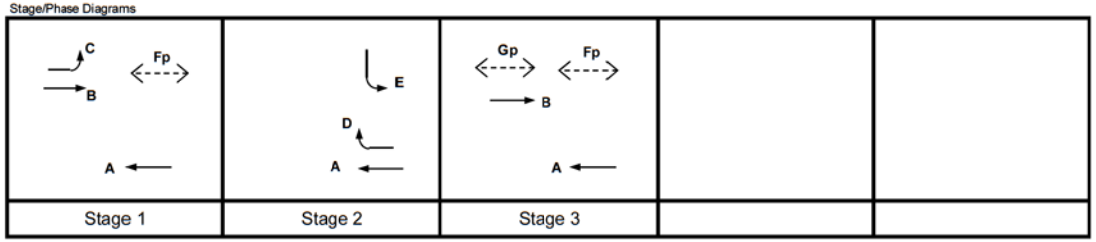
AECOM

Junction J25 - Kwun Tong Rd / Tsui Ping Rd	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J25



No. of stages per cycle		N =	3	
Cycle time		C =	108	sec
Sum(y)		Y =	0.698	
Lost time		L =	10	sec
Total Flow		=	14,355	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		66	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	33	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	18.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	44	sec
Y_{max}	$= 1-L/C$	=	0.907	



I/G = 5 I/G = I/G = 7

Critical Case : B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 17%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
→	B	1,3	3.300	3				0		0		6255		3310		3310			6255	0.529	0.529
↰	C	1	3.500	1	17.5			1		0		1965	350			350	100%		1810	0.193	
↳	E	2	3.300	2	15			1		0		4030	560			560	100%		3664	0.153	
↰	D	2	3.500	1		20	0	0		0		2105			330	330		100%	1958	0.169	0.169

Pedestrian Crossing			GM		FGM			
Fp	1,3	min.	8	+	8	=	16	sec
Gp	3	min.	6	+	6	=	12	sec

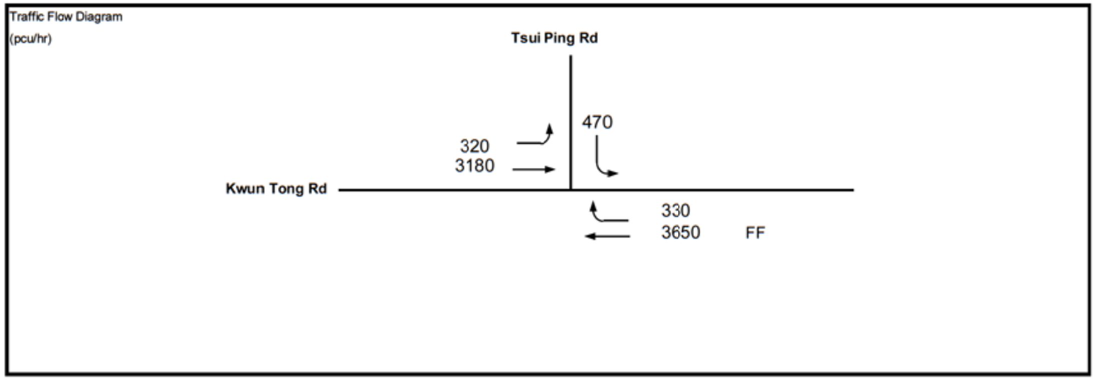
JUNCTION CAPACITY CALCULATION

AECOM

Junction J25 - Kwun Tong Rd / Tsui Ping Rd	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

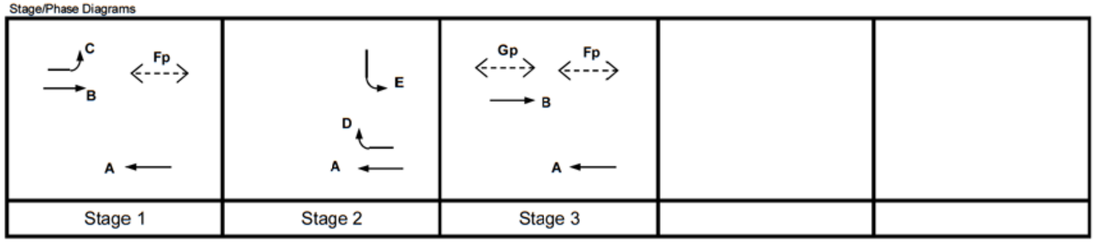
J25

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	108	sec
Sum(y)	Y =	0.677	
Lost time	L =	10	sec
Total Flow	=	14,355	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	62	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	31	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	21.9	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	40	sec
Y_{max} = $1-L/C$	=	0.907	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : B,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 21%

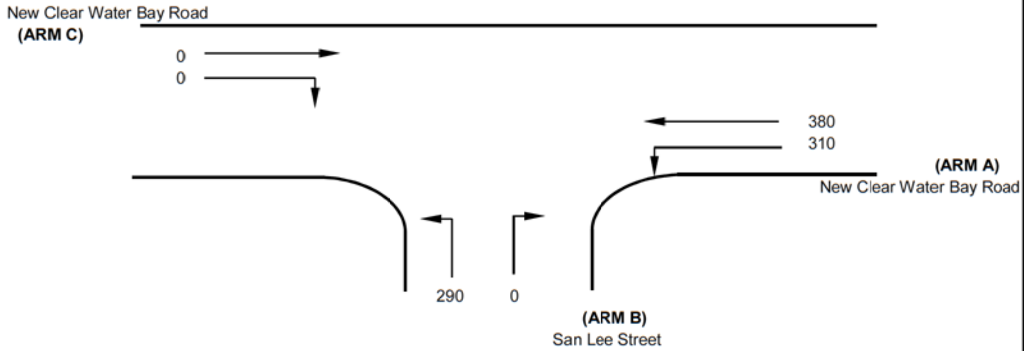
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	1,3	3.300	3				0		0		6255		3180		3180			6255	0.508	0.508
	C	1	3.500	1	17.5			1		0		1965	320			320	100%		1810	0.177	
	E	2	3.300	2	15			1		0		4030	470			470	100%		3664	0.128	
	D	2	3.500	1		20	0	0		0		2105			330	330		100%	1958	0.169	0.169

Pedestrian Crossing			GM		FGM			
Fp	1,3	min.	8	+	8	=	16	sec
Gp	3	min.	6	+	6	=	12	sec

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J26 - New Clear Water Bay Road / San Lee Street	2026 AM Reference Flows (wo ARQ&EKL)	Designed By : GT	Checked By : KHL	Job No. : 60328348	Date : Dec 14



J26

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	=	7.15 (metres)	W c-b	=	0 (metres)	W b-a	=	0 (metres)
W cr	=	0 (metres)	Vr c-b	=	0 (metres)	W b-c	=	6 (metres)
q a-b	=	310 (pcu/hr)	q c-a	=	0 (pcu/hr)	Vl b-a	=	110 (metres)
q a-c	=	380 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	250 (metres)
						Vr b-c	=	0 (metres)
						q b-a	=	0 (pcu/hr)
						q b-c	=	290 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.716147
E	=	1.089043
F	=	0.585955
Y	=	0.753325

THE CAPACITY OF MOVEMENT :

Q b-a	=	350
Q b-c	=	661
Q c-b	=	326
Q b-ac	=	661

COMPARISION OF DESIGN FLOW TO CAPACITY :

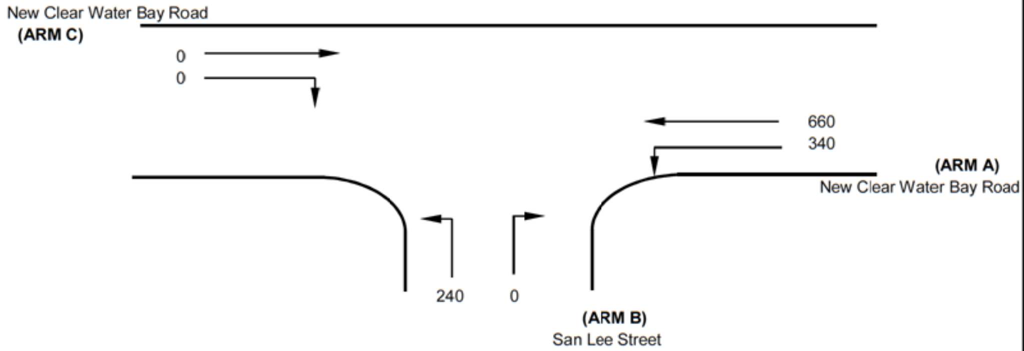
DFC b-a	=	0.00
DFC b-c	=	0.44
DFC c-b	=	0.00
DFC b-ac	=	0.44

CRITICAL DFC = 0.44

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J26 - New Clear Water Bay Road / San Lee Street	2026 PM Reference Flows (wo ARQ&EKL)	Designed By : GT	Checked By : KHL	Job No. : 60328348	Date : Dec 14



J26

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	=	7.15 (metres)	W c-b	=	0 (metres)	W b-a	=	0 (metres)
W cr	=	0 (metres)	Vr c-b	=	0 (metres)	W b-c	=	6 (metres)
q a-b	=	340 (pcu/hr)	q c-a	=	0 (pcu/hr)	Vl b-a	=	110 (metres)
q a-c	=	660 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	250 (metres)
						Vr b-c	=	0 (metres)
						q b-a	=	0 (pcu/hr)
						q b-c	=	240 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.716147
E	=	1.089043
F	=	0.585955
Y	=	0.753325

THE CAPACITY OF MOVEMENT :

Q b-a	=	293
Q b-c	=	574
Q c-b	=	276
Q b-ac	=	574

COMPARISION OF DESIGN FLOW TO CAPACITY :

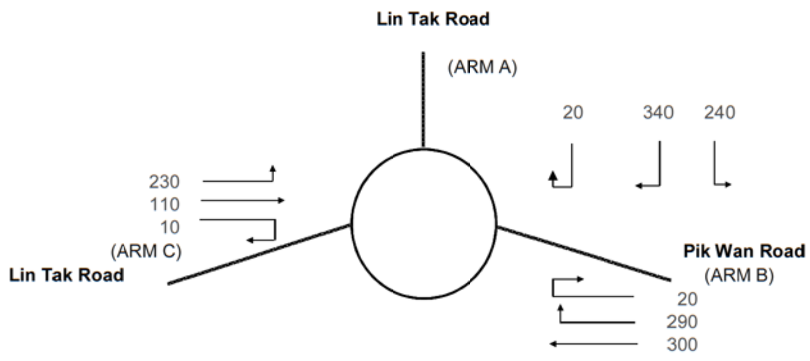
DFC b-a	=	0.00
DFC b-c	=	0.42
DFC c-b	=	0.00
DFC b-ac	=	0.42

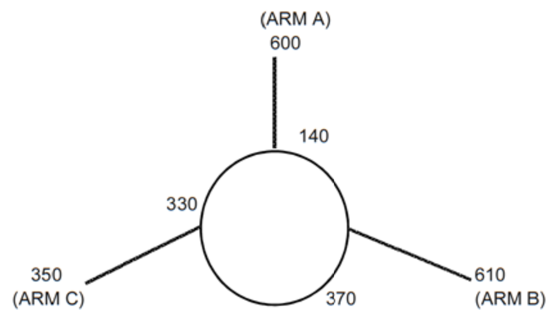
CRITICAL DFC = 0.42

JUNCTION CAPACITY CALCULATION

AECOM

J27 Lin Tak Road / Pik Wan Road | 2026 AM Reference Flows (wo ARQ&EKL) | FILENAME : .XLS





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.30	3.30	3.30
E = Entry width (m)	6.00	6.00	4.00
L = Effective length of flare (m)	1.00	1.00	1.00
R = Entry radius (m)	30.00	100.00	90.00
D = Inscribed circle diameter (m)	25.00	25.00	25.00
A = Entry angle (degree)	30.00	30.00	30.00
Q = Entry flow (pcu/h)	600	610	350
Qc= Circulating flow across entry (pcu/h)	140	370	330
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	4.32	4.32	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02	1.04	1.04
X2= V + ((E-V)/(1+2S))	3.58	3.58	3.52
M = EXP((D-60)/10)	0.03	0.03	0.03
F = 303*X2	1085	1085	1065
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.54	0.54	0.53
Qe= K(F-Fc*Qc)	1026	921	924
DFC = Design flow/Capacity = Q/Qe	0.58	0.66	0.38

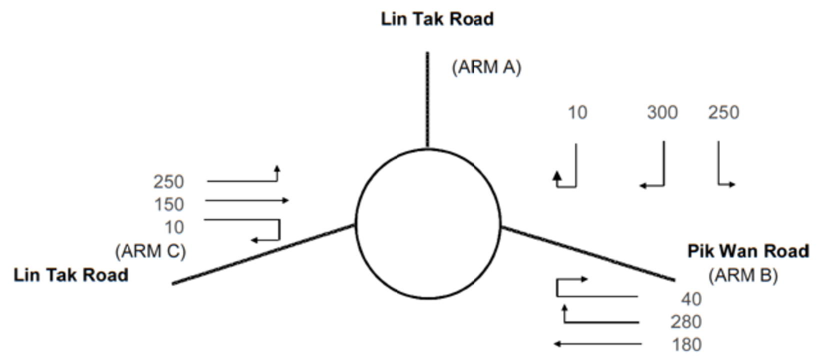
TOTAL ENTRY FLOWS = 1560 PCU

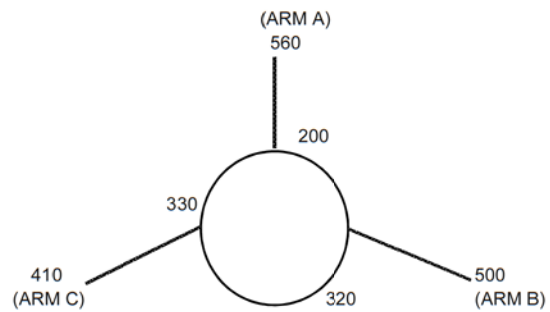
CRITICAL DFC = 0.66

JUNCTION CAPACITY CALCULATION

AECOM

J27 Lin Tak Road / Pik Wan Road	2026 PM Reference Flows (wo ARQ&EKL)	FILENAME : .XLS





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.30	3.30	3.30
E = Entry width (m)	6.00	6.00	4.00
L = Effective length of flare (m)	1.00	1.00	1.00
R = Entry radius (m)	30.00	100.00	90.00
D = Inscribed circle diameter (m)	25.00	25.00	25.00
A = Entry angle (degree)	30.00	30.00	30.00
Q = Entry flow (pcu/h)	560	500	410
Qc= Circulating flow across entry (pcu/h)	200	320	330
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	4.32	4.32	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02	1.04	1.04
X2= V + ((E-V)/(1+2S))	3.58	3.58	3.52
M = EXP((D-60)/10)	0.03	0.03	0.03
F = 303*X2	1085	1085	1065
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.54	0.54	0.53
Qe= K(F-Fc*Qc)	994	949	924
DFC = Design flow/Capacity = Q/Qe	0.56	0.53	0.44

TOTAL ENTRY FLOWS = 1470 PCU

CRITICAL DFC = 0.56

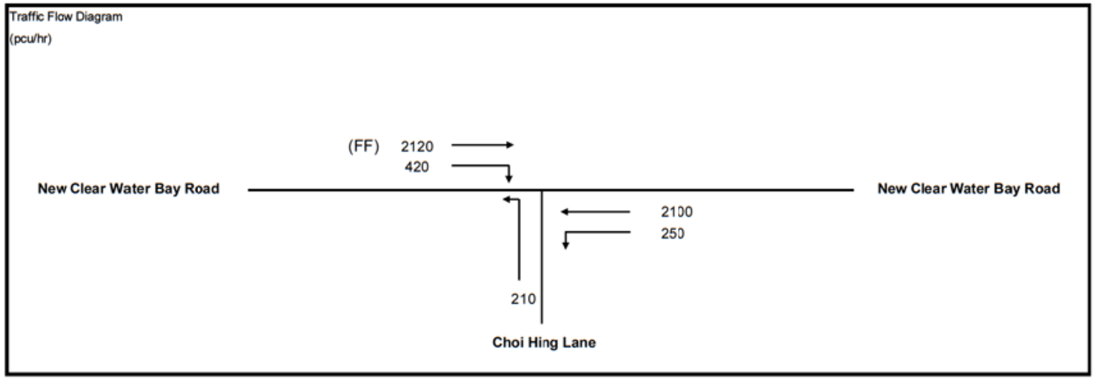
JUNCTION CAPACITY CALCULATION

AECOM

Junction J28 - New Clear Water Bay Rd / Choi Hing Lane	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

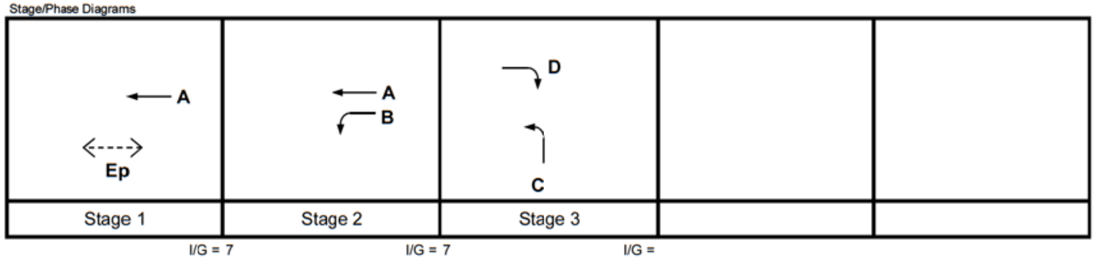
J28

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.718	
Lost time	L =	12	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	81	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	42	sec
Y_{ult}	$= 0.9-0.0075\times L$ =	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$ =	12.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$ =	59	sec
Y_{max}	= 1-L/C =	0.900	

Stage/Phase Diagrams



Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 13%

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	1,2	3.400	2				0		0		4190		2100		2100			4190	0.501	0.501
	B	2	3.400	1	20			1		0		1955	250			250	100%		1819	0.137	
	D	3	3.800	1		15	0	0		0		2135			420	420		100%	1941	0.216	0.216
	C	3	3.800	1	20			1		0		1995	210			210	100%		1856	0.113	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	9	+	9	=	18	sec												

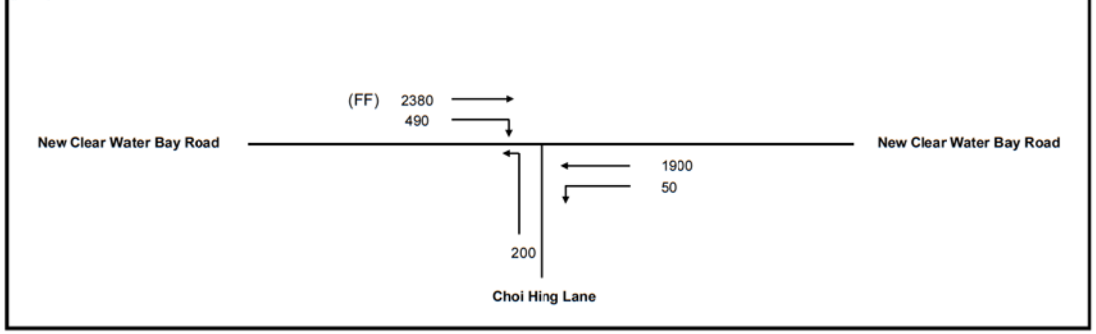
JUNCTION CAPACITY CALCULATION

AECOM

Junction J28 - New Clear Water Bay Rd / Choi Hing Lane	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

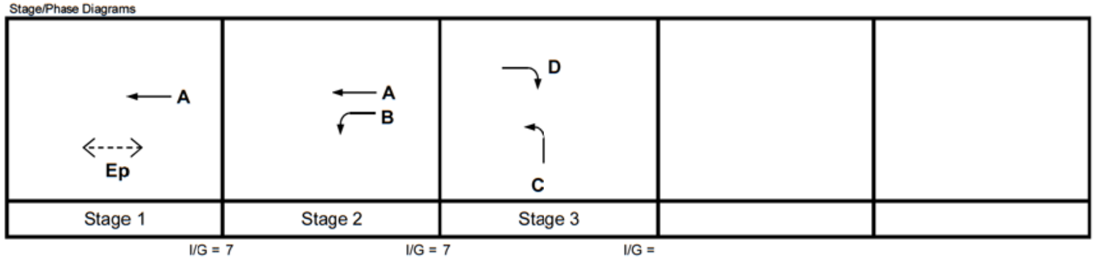
J28

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.706	
Lost time	L =	12	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =	78	sec
Min. Cycle Time C_m	= L/(1-Y) =	41	sec
Y_{ult}	= 0.9-0.0075×L =	0.810	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100% =	14.7	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y) =	56	sec
Y_{max}	= 1-L/C =	0.867	

Stage/Phase Diagrams



Critical Case : A,D

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 10%

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	1,2	3.400	2				0		0		4190		1900		1900			4190	0.453	0.453
↰	B	2	3.400	1	20			1		0		1955	50			50	100%		1819	0.027	
↱	D	3	3.800	1		15	0	0		0		2135			490	490		100%	1941	0.252	0.252
↰	C	3	3.800	1	20			1		0		1995	200			200	100%		1856	0.108	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	9	+	9	=	18	sec												

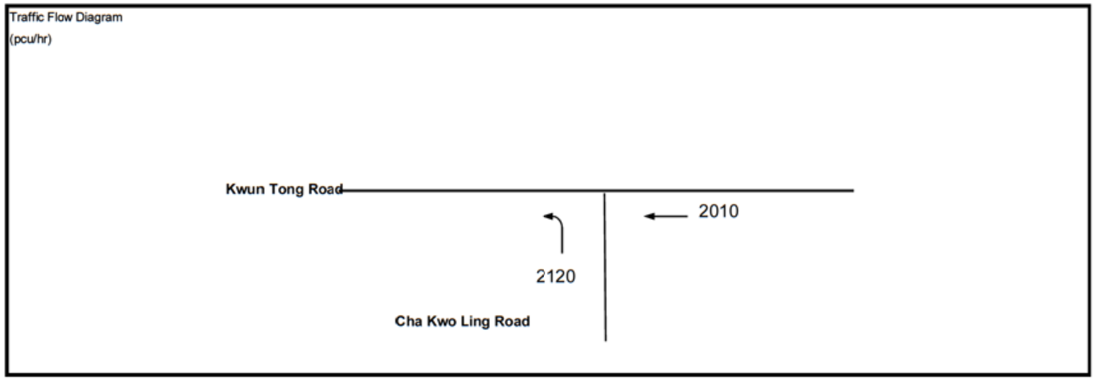
JUNCTION CAPACITY CALCULATION

AECOM

Junction J29 - Kwun Tong Road / Cha Kwo Ling Road	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

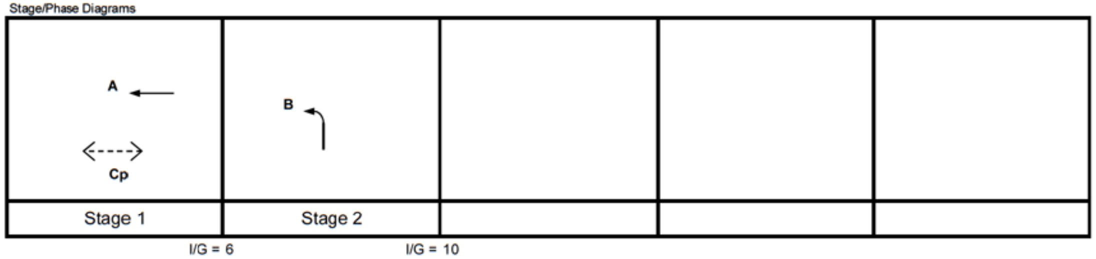
J29

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.711	
Lost time	L =	14	sec
Total Flow	=	14,405	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	90	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	48	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	11.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	67	sec
Y_{max}	$= 1-L/C =$	0.870	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 10%

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
←	B	1	3.000	4				1		0		8080		2010		2010			6464	0.311	0.311
↰	A	2	4.000	3	20			1		0		6325	2120			2120	100%		5295	0.400	0.400
Pedestrian Crossing				GM		FGM															
	Cp	1	min.	7	+	15	=	22	sec												

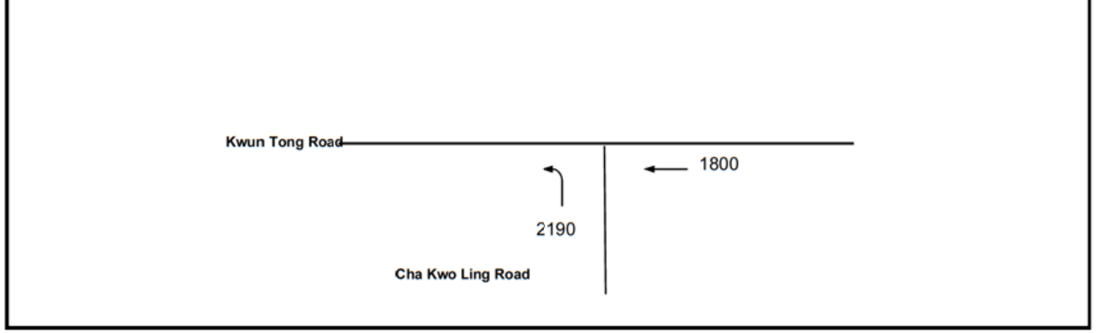
JUNCTION CAPACITY CALCULATION

AECOM

Junction J29 - Kwun Tong Road / Cha Kwo Ling Road	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J29

Traffic Flow Diagram
(pcu/hr)

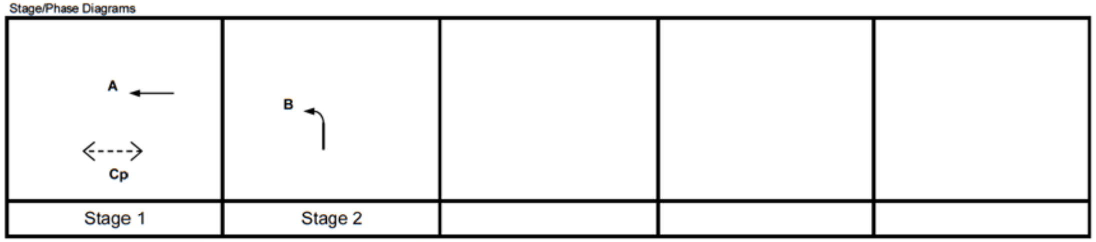


No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.692	
Lost time	L =	14	sec
Total Flow	=	14,405	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	84	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	45	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	14.9	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	61	sec
Y_{max} = $1-L/C$	=	0.870	

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 13%

Stage/Phase Diagrams



I/G = 6 I/G = 10

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
←	B	1	3.000	4				1		0		8080		1800		1800			6464	0.278	0.278
↰	A	2	4.000	3	20			1		0		6325	2190			2190	100%		5295	0.414	0.414
Pedestrian Crossing				GM		FGM															
	Cp	1	min.	7	+	15	=	22	sec												

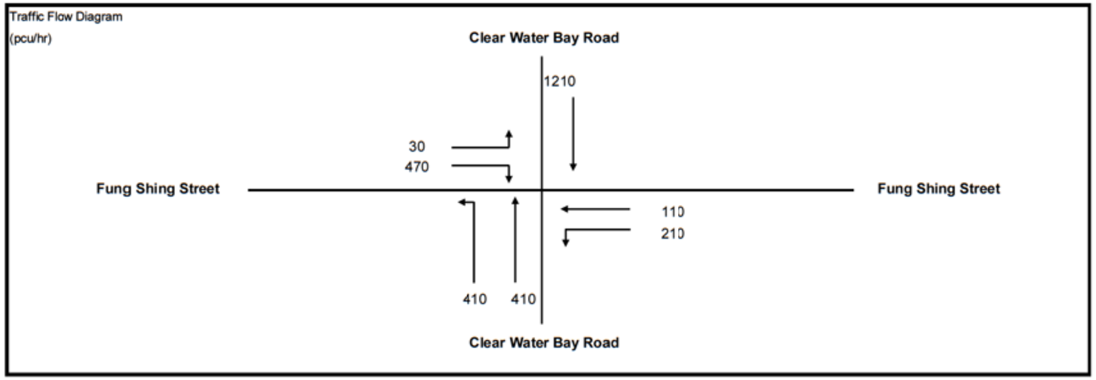
JUNCTION CAPACITY CALCULATION

AECOM

Junction J45 - Clear Water Bay Rd / Fung Shing St	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

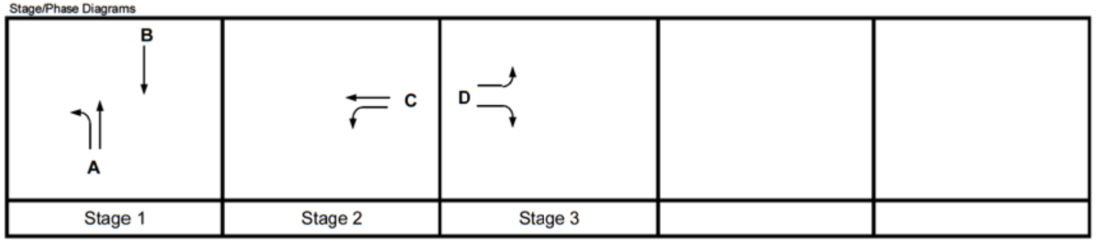
J45

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	135	sec
Sum(y)	Y =	0.770	
Lost time	L =	14	sec
Total Flow	=	12,288	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	113	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	61	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	3.3	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	97	sec
Y_{max} = $1-L/C$	=	0.896	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 5

Critical Case : A,C,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 5%

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	4.400	1	20			1		0	27	2055	410	410		820	50%		2006	0.409	0.409
	B	1	3.900	2				1		0		4150		1210		1210			4150	0.292	
	C	2	3.500	1	15			1		0		1965	149			149	100%		1786	0.083	
	C	2	3.500	1	20			0		0		2105	61	110		171	36%		2050	0.083	0.083
	D	3	3.000	1	10	15	0	1		0	71	1915	30		470	500	6%	94%	1801	0.278	0.278

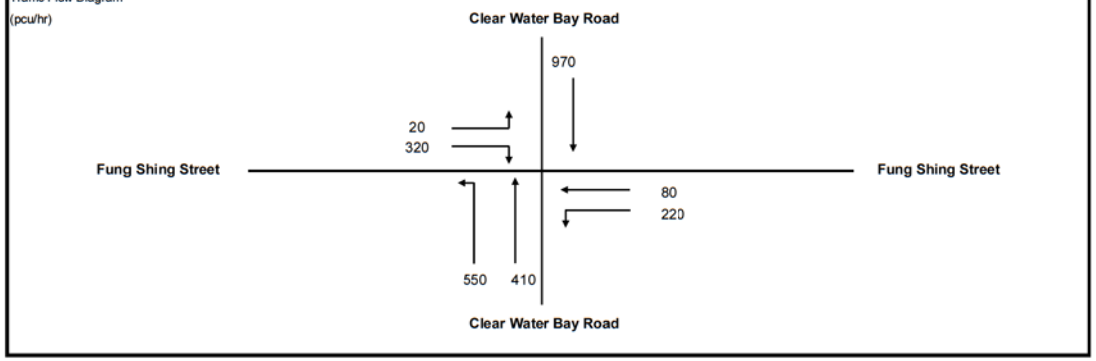
JUNCTION CAPACITY CALCULATION

AECOM

Junction J45 - Clear Water Bay Rd / Fung Shing St	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

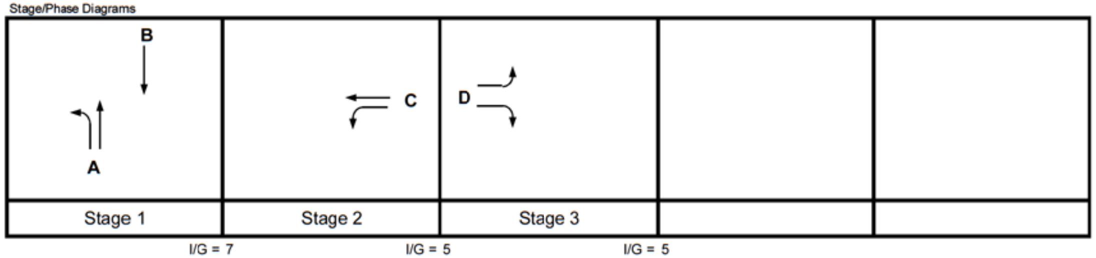
J45

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.745	
Lost time	L =	14	sec
Total Flow	=	12,316	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	102	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	55	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	6.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	81	sec
Y_{max} = $1-L/C$	=	0.867	

Stage/Phase Diagrams



Critical Case : A,C,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 5%

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	4.400	1	20			1		0	34	2055	550	410		960	57%		2003	0.479	0.479
	B	1	3.900	2				1		0		4150		970		970			4150	0.234	
	C	2	3.500	1	15			1		0		1965	140			140	100%		1786	0.079	0.079
	C	2	3.500	1	20			0		0		2105	80	80		160	50%		2029	0.079	
	D	3	3.000	1	10	15	0	1		0	91	1915	20		320	340	6%	94%	1819	0.187	0.187

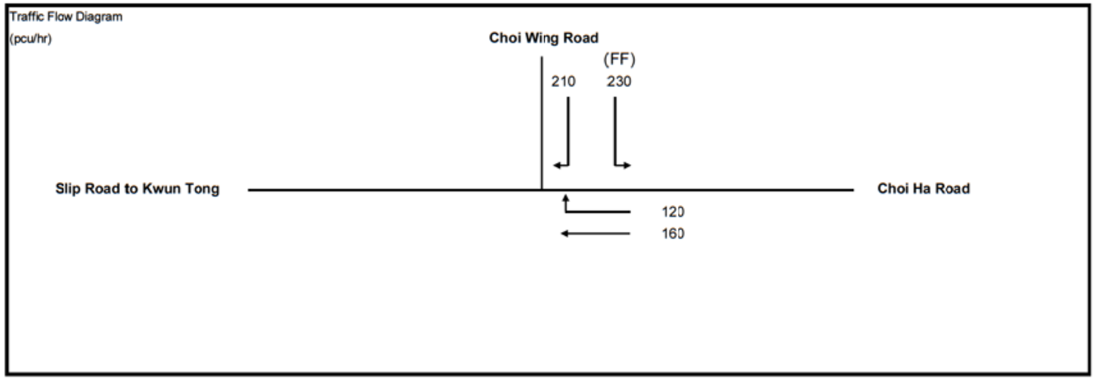
JUNCTION CAPACITY CALCULATION

AECOM

Junction J46 - Choi Ha Road / Slip Road to Kwun Tong	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

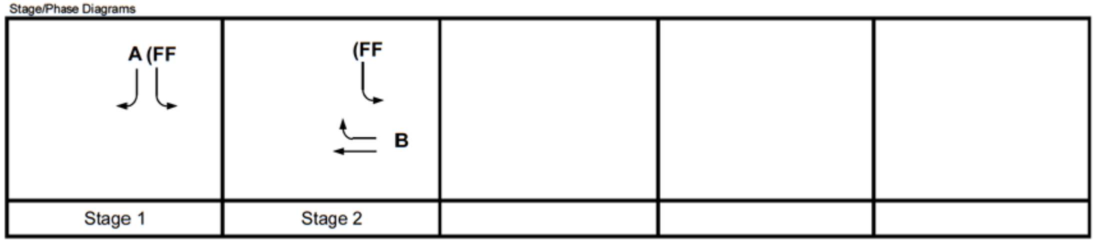
J46

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	90	sec
Sum(y)		Y =	0.188	
Lost time		L =	8	sec
Total Flow		=	6,265	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	21	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	10	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	347.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	10	sec
Y_{max}	$= 1-L/C$	=	0.911	

Stage/Phase Diagrams



I/G = 5 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 337%

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	4.000	1		15	0	0		0		2155			210	210		100%	1959	0.107	0.107
	B	2	3.700	1				1		0		1985		160		160			1985	0.081	0.081
	B	2	3.700	1		10	0	0		0		2125			120	120		100%	1848	0.065	

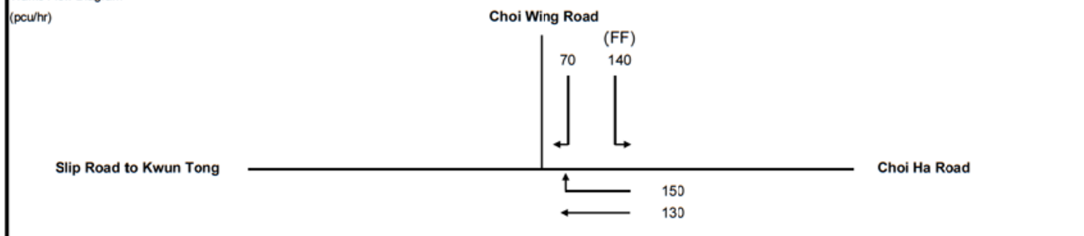
JUNCTION CAPACITY CALCULATION

AECOM

Junction J46 - Choi Ha Road / Slip Road to Kwun Tong	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

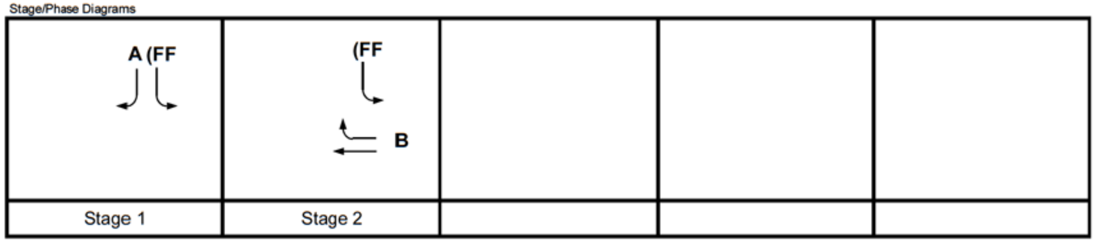
J46

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.117	
Lost time		L =	8	sec
Total Flow		=	6,265	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	19	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	9	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y x100\%$	=	618.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	9	sec
Y_{max}	$= 1-L/C$	=	0.926	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 613%

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	4.000	1		15	0	0		0		2155			70	70		100%	1959	0.036	0.036
	B	2	3.700	1				1		0		1985		130		130			1985	0.065	
	B	2	3.700	1		10	0	0		0		2125			150	150		100%	1848	0.081	0.081

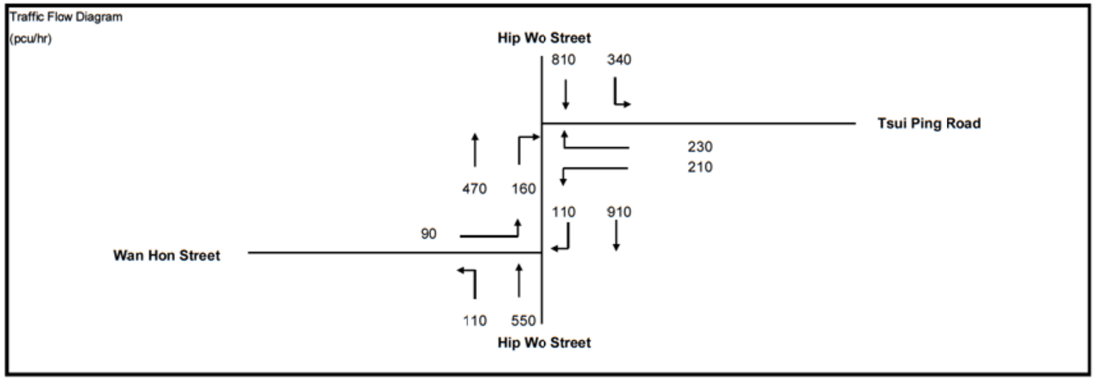
JUNCTION CAPACITY CALCULATION

AECOM

Junction J47 - Hip Wo Street / Tsui Ping Road / Wan Hon Street	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

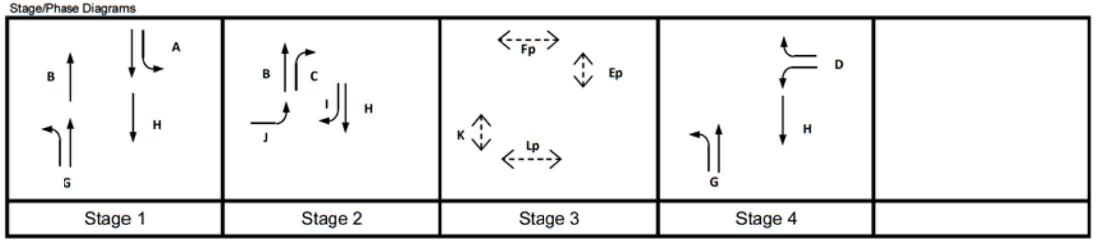
J47

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4
Cycle time		C =	118 sec
Sum(y)		Y =	0.490
Lost time		L =	38 sec
Total Flow		=	22,165 pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	122 sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	75 sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.615
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	25.5 %
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	83 sec
Y_{max}	$= 1-L/C$	=	0.678

Stage/Phase Diagrams



I/G = 5 I/G = 10 G = 13 I/G = 8 I/G = 5

Critical Case : A,C,Kp,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 25%

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
	G	1,4	3.000	1	15			1		0		1915	110	203		313	35%		1850	0.169	
	G	1,4	3.000	1				0		0		2055		347		347			2055	0.169	
	I	2	3.500	1		20	0	0		0		2105			110	110		100%	1958	0.056	
	H	1,2,4	3.500	1				1		0		1965		910		910			1965	0.463	
	C	2	3.500	1		25	0	0		0		2105			160	160		100%	1986	0.081	0.081
	B	1,2	3.500	1				1		0		1965		470		470			1965	0.239	
	D	4	3.000	1		20	0	0		0		2055			230	230		100%	1912	0.120	
	D	4	3.000	1	15			1		0		1915	210			210	100%		1741	0.121	0.121
	A	1	3.500	1	20			1		0		1965	340	202		542	63%		1877	0.289	0.289
	A	1	3.500	1				0		0		2105		608		608			2105	0.289	
	J	2	4.000	1	15			1		0		2015	90			90	100%		1832	0.049	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	9	=	19	sec												
	Fp	3	min.	13	+	8	=	21	sec												
	Kp	3	min.	13	+	6	=	19	sec												*
	Lp	3	min.	11	+	9	=	20	sec												

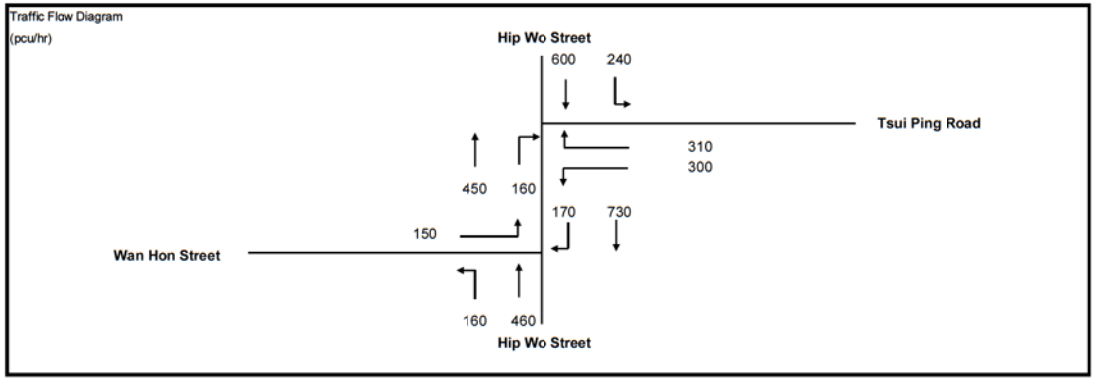
JUNCTION CAPACITY CALCULATION

AECOM

Junction J47 - Hip Wo Street / Tsui Ping Road / Wan Hon Street	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

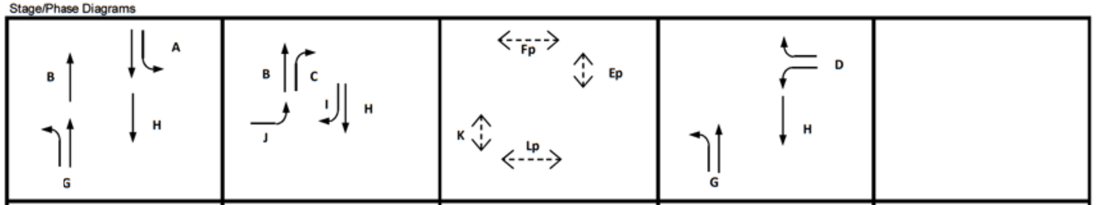
J47

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.470	
Lost time		L =	38	sec
Total Flow		=	22,165	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		117	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	72	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.615	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$		30.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	80	sec
Y_{max}	$= 1-L/C$	=	0.648	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 5 I/G = 8 G = 13 I/G = 10 I/G = 5

Critical Case : A,I,Fp,D

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
	G	1,4	3.000	1	15			1		0		1915	160	131		291	55%		1815	0.160	
	G	1,4	3.000	1				0		0		2055		329		329			2055	0.160	
	I	2	3.500	1		20	0	0		0		2105			170	170		100%	1958	0.087	0.087
	H	1,2,4	3.500	1				1		0		1965		730		730			1965	0.372	
	C	2	3.500	1		25	0	0		0		2105			160	160		100%	1986	0.081	
	B	1,2	3.500	1				1		0		1965		450		450			1965	0.229	
	D	4	3.000	1		20	0	0		0		2055			310	310		100%	1912	0.162	
	D	4	3.000	1	15			1		0		1915	300			300	100%		1741	0.172	0.172
	A	1	3.500	1	20			1		0		1965	240	156		396	61%		1880	0.211	0.211
	A	1	3.500	1				0		0		2105		444		444			2105	0.211	
	J	2	4.000	1	15			1		0		2015	150			150	100%		1832	0.082	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	9	=	19	sec												
	Fp	3	min.	13	+	8	=	21	sec												*
	Kp	3	min.	13	+	6	=	19	sec												
	Lp	3	min.	11	+	9	=	20	sec												

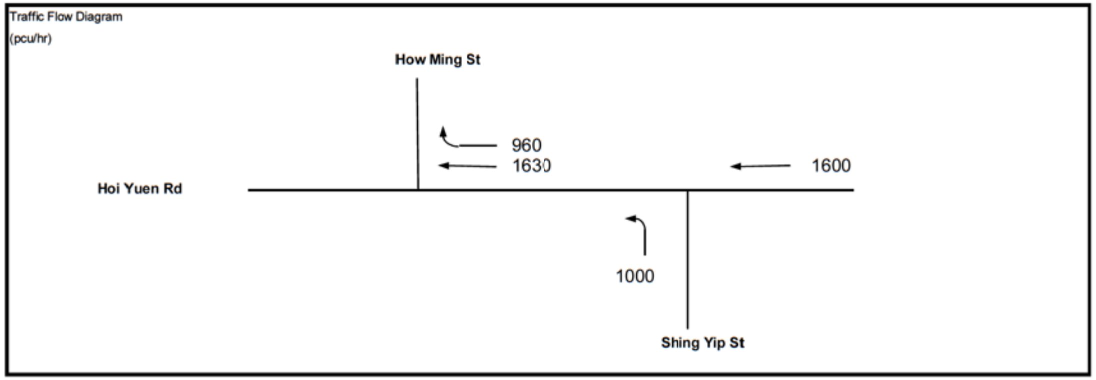
JUNCTION CAPACITY CALCULATION

AECOM

Junction J48 - Hoi Yuen Rd / How Ming St / Shing Yip St	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J48

Traffic Flow Diagram
(pcu/hr)

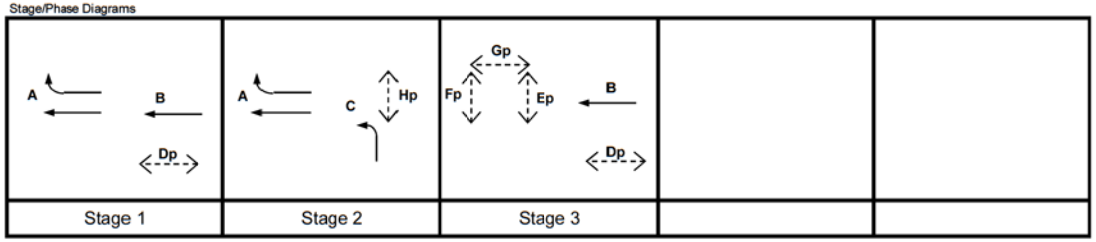


No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.425	
Lost time	L =	29	sec
Total Flow	=	18,675	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	84	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	50	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	60.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	55	sec
Y_{max}	$= 1-L/C =$	0.710	

Critical Case : A,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 50%

Stage/Phase Diagrams



I/G = | I/G = 6 | G = 8 | I/G = 16

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
	B	1,3	4.000	3				1		0		6325		1600		1600			6325	0.253	
	A	1,2	4.000	1				1		0		2015		856		856			2015	0.425	0.425
	A	1,2	4.000	2		25	0	0		0		4310		104	1630	1734		94%	4080	0.425	
	C	2	3.000	3	12.5			1		0		6025	1000			1000	100%		5379	0.186	
Pedestrian Crossing				GM		FGM															
	Dp	1,3	min.	8	+	9	=	17	sec												
	Ep	3	min.	8	+	13	=	21	sec												*
	Fp	3	min.	8	+	11	=	19	sec												
	Gp	3	min.	8	+	8	=	16	sec												
	Hp	2	min.	8	+	10	=	18	sec												

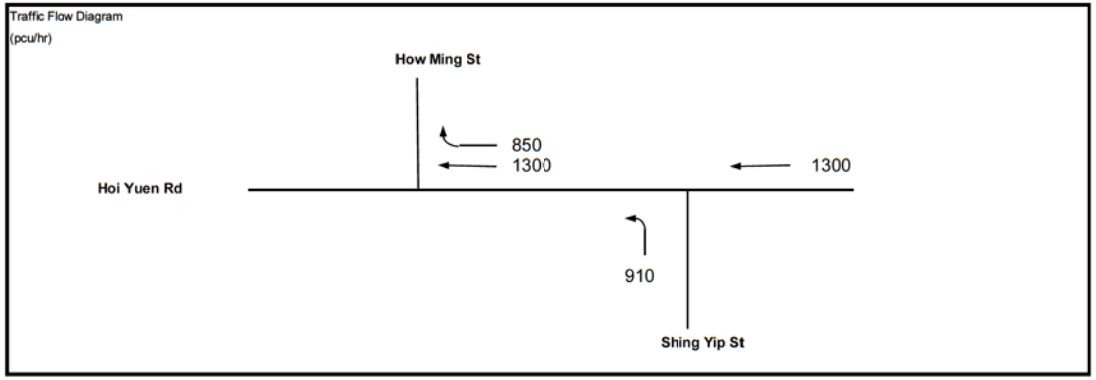
JUNCTION CAPACITY CALCULATION

AECOM

Junction J48 - Hoi Yuen Rd / How Ming St / Shing Yip St	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

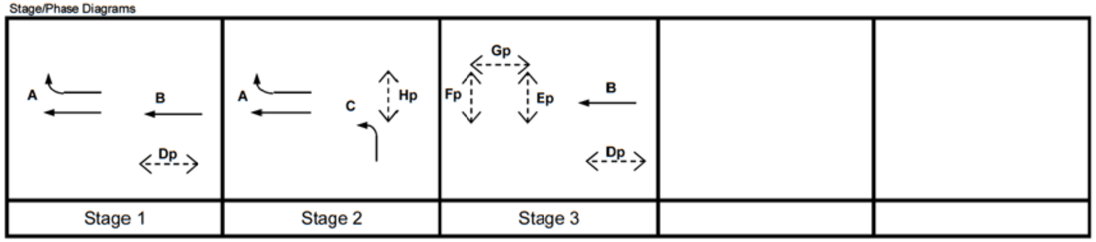
J48

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.352	
Lost time	L =	29	sec
Total Flow	=	18,675	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	75	sec
Min. Cycle Time C_m = L/(1-Y)	=	45	sec
Y_{ult} = 0.9-0.0075×L	=	0.683	
$R.C._{ult}$ = $(Y_{ult}$-Y)/Yx100%	=	93.8	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	48	sec
Y_{max} = 1-L/C	=	0.678	

Stage/Phase Diagrams



I/G = I/G = 6 G = 8 I/G = 16

Critical Case : A,Ep

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 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
	B	1,3	4.000	3				1		0		6325		1300		1300			6325	0.206	
	A	1,2	4.000	1				1		0		2015		710		710			2015	0.352	0.352
	A	1,2	4.000	2		25	0	0		0		4310		140	1300	1440		90%	4089	0.352	
	C	2	3.000	3	12.5			1		0		6025	910			910	100%		5379	0.169	
Pedestrian Crossing				GM		FGM															
	Dp	1,3	min.	8	+	9	=	17	sec												
	Ep	3	min.	8	+	13	=	21	sec												*
	Fp	3	min.	8	+	11	=	19	sec												
	Gp	3	min.	8	+	8	=	16	sec												
	Hp	2	min.	8	+	10	=	18	sec												

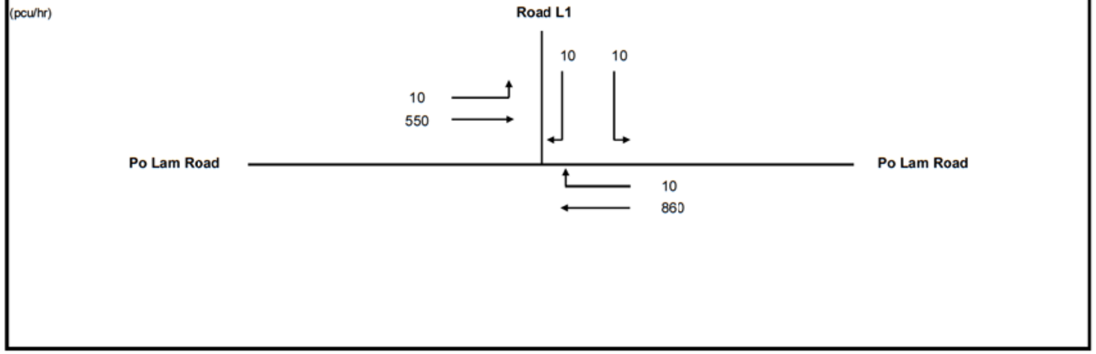
JUNCTION CAPACITY CALCULATION

AECOM

Junction J49 - Po Lam Road / Road L1	2026 AM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Dec 14

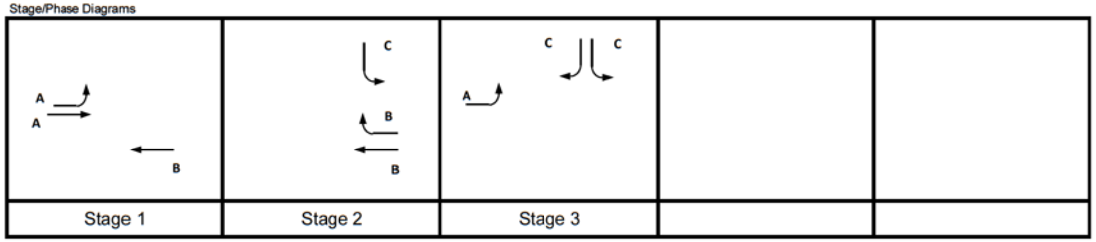
J49

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.434	
Lost time		L =	14	sec
Total Flow		=	12,370	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =		46	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	25	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	83.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	27	sec
Y_{max}	$= 1-L/C$	=	0.883	

Stage/Phase Diagrams



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

Critical Case : B1,C2

R.C.(C) = $(0.9 \times Y_{max}-Y)/Y \times 100\%$ = 83%

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			
	A2	1,3	3.650	1	20			1		0		1980	10			10	100%		1842	0.005	
	A1	1	3.650	1				0		0		2120		550		550			2120	0.259	
	B2	2	3.650	1		25	0	0		0		2120			10	10		100%	2000	0.005	
	B1	1,2	3.650	1				1		0		1980		860		860			1980	0.434	0.434
	C1	2,3	4.000	1	15			1		0		2015	10			10	100%		1832	0.005	
	C2	3	4.000	1		18	0	0		0		2155			10	10		100%	1989	0.005	

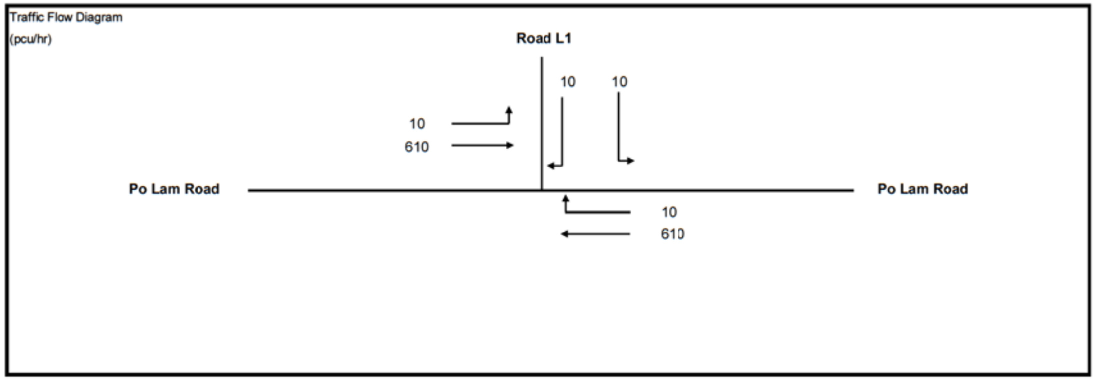
JUNCTION CAPACITY CALCULATION

AECOM

Junction J49 - Po Lam Road / Road L1	2026 PM Reference Flows (wo ARQ&EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Dec 14

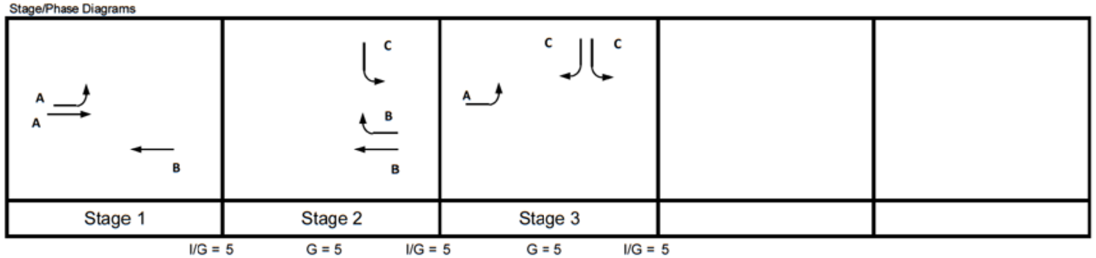
J49

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.288	
Lost time	L =	24	sec
Total Flow	=	12,370	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	58	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	34	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	150.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	35	sec
Y_{max}	$= 1-L/C =$	0.800	

Stage/Phase Diagrams



Critical Case : A1,B2,C2

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 150%

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
	A2	1,3	3.650	1	20			1		0		1980	10			10	100%		1842	0.005	
	A1	1	3.650	1				0		0		2120		610		610			2120	0.288	0.288
	B2	2	3.650	1		25	0	0		0		2120			10	10		100%	2000	0.005	
	B1	1,2	3.650	1				1		0		1980		610		610			1980	0.308	
	C1	2,3	4.000	1	15			1		0		2015	10			10	100%		1832	0.005	
	C2	3	4.000	1		18	0	0		0		2155			10	10		100%	1989	0.005	

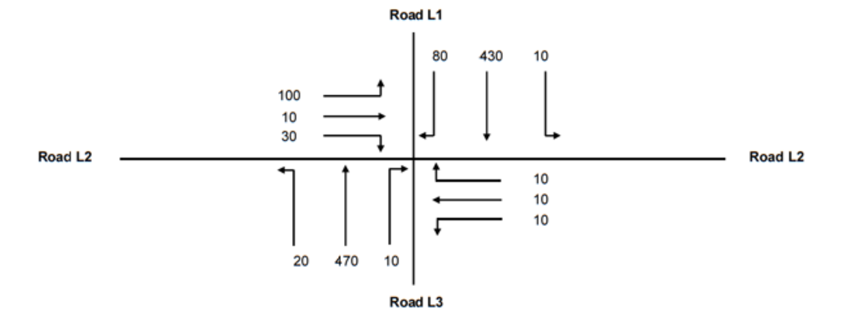
JUNCTION CAPACITY CALCULATION

AECOM

Junction J50 - Road L1 / Road L2 / Road L3	2026 AM Design Flows (25K wo ARQ&EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

J50

Traffic Flow Diagram
(pcu/hr)

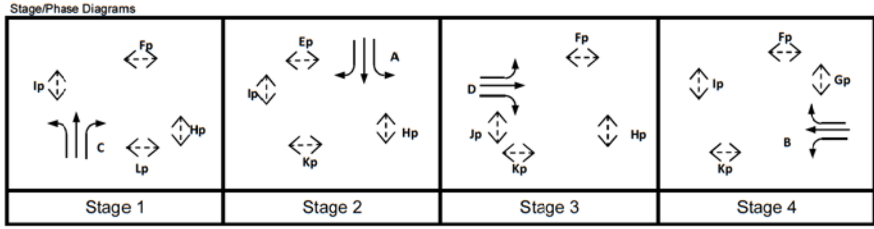


No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.327	
Lost time	L =	29	sec
Total Flow	=	12,395	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	72	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	43	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.683	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	108.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	46	sec
Y_{max} = $1-L/C$	=	0.758	

Critical Case : C,A,D,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 108%

Stage/Phase Diagrams



I/G = 5 | I/G = 5 | I/G = 10 | G = 5 | I/G = 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	2	3.650	1	12			1		0		1980	10	245		255	4%		1970	0.130	0.130
	A	2	3.650	1		12	0	0		0		2120		185	80	265		30%	2043	0.130	
	B	4	3.650	1	15	18	0	1		0	125	1980	10	10	10	30	33%	33%	1984	0.015	
	C	1	3.650	1	12			1		0		1980	20	221		241	8%		1960	0.123	0.123
	C	1	3.650	1		8	0	0		0		2120		249	10	259		4%	2105	0.123	
	D	3	3.650	1	12	12	0	1		0	110	1980	100	10	30	140	71%	21%	1873	0.075	0.075

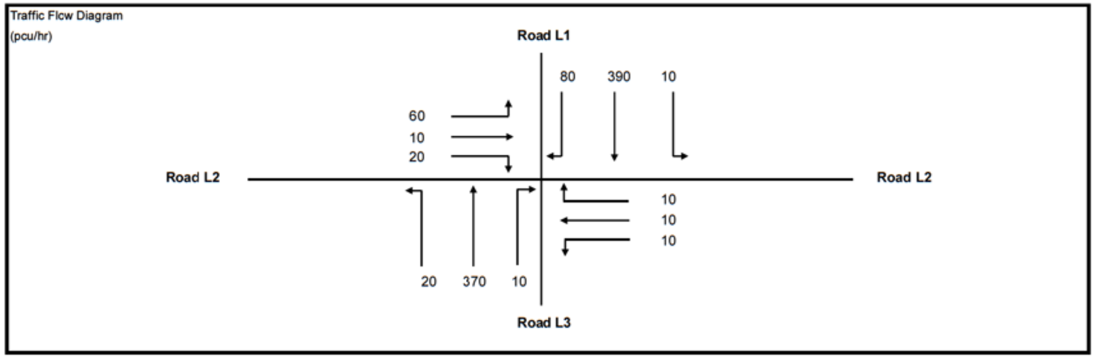
Pedestrian Crossing			GM		FGM				
Ep	2	min.	5	+	8	=	13	sec	
Fp	1,3,4	min.	5	+	7	=	12	sec	
Gp	4	min.	5	+	5	=	10	sec	*
Hp	1,2,3	min.	5	+	7	=	12	sec	
Ip	1,2,4	min.	5	+	7	=	12	sec	
Jp	3	min.	5	+	7	=	12	sec	
Kp	2,3,4	min.	5	+	6	=	11	sec	
Lp	1	min.	5	+	7	=	12	sec	

JUNCTION CAPACITY CALCULATION

AECOM

Junction J50 - Road L1 / Road L2 / Road L3	2026 PM Design Flows (25K wo ARQ&EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

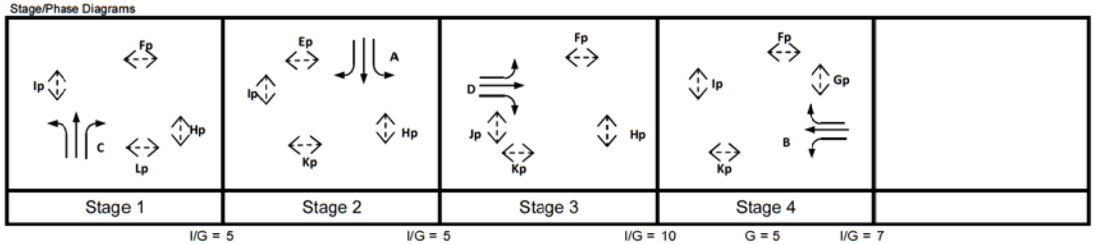
J50



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.266	
Lost time		L =	29	sec
Total Flow		=	12,395	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}	$= 0.9-0.0075 \times L$	=	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	156.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.758	

Critical Case : C,A,D,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 156%



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	2	3.650	1	12			1		0		1980	10	226		236	4%		1970	0.120	0.120
	A	2	3.650	1		12	0	0		0		2120		164	80	244		33%	2037	0.120	
	B	4	3.650	1	15	18	0	1		0	125	1980	10	10	10	30	33%	33%	1984	0.015	
	C	1	3.650	1	12			1		0		1980	20	173		193	10%		1955	0.099	0.099
	C	1	3.650	1		8	0	0		0		2120		197	10	207		5%	2101	0.099	
	D	3	3.650	1	12	12	0	1		0	110	1980	60	10	20	90	67%	22%	1881	0.048	0.048

Pedestrian Crossing

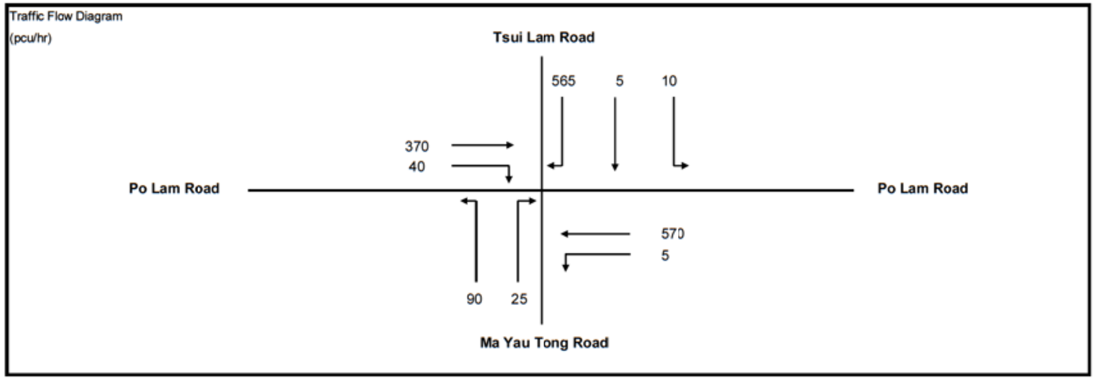
Phase	Stage		GM		FGM				CRITICAL y
Ep	2	min.	5	+	8	=	13	sec	
Fp	1,3,4	min.	5	+	7	=	12	sec	
Gp	4	min.	5	+	5	=	10	sec	*
Hp	1,2,3	min.	5	+	7	=	12	sec	
Ip	1,2,4	min.	5	+	7	=	12	sec	
Jp	3	min.	5	+	7	=	12	sec	
Kp	2,3,4	min.	5	+	6	=	11	sec	
Lp	1	min.	5	+	7	=	12	sec	

JUNCTION CAPACITY CALCULATION

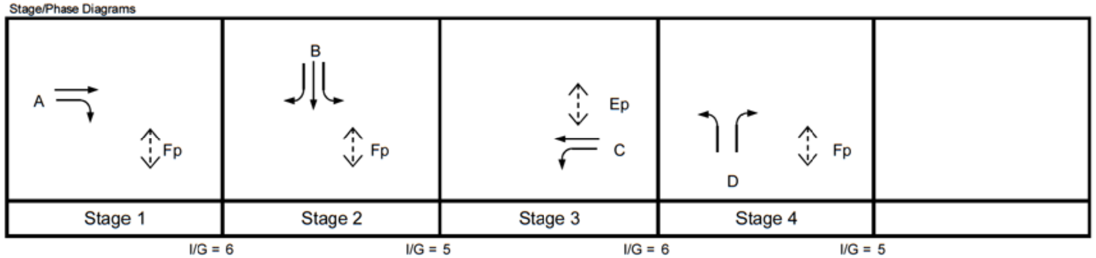
AECOM

Junction J51 - Po Lam Road / Tsui Lam Road	2026 AM Reference Flows (25K wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 15

J51



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.590	
Lost time	L =	18	sec
Total Flow	=	11,608	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	78	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	44	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.765	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	29.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	52	sec
Y_{max} = $1-L/C$	=	0.829	



Critical Case : A,B,C,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 26%

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	4.000	1		24	0	1		0		2015		370	40	410		10%	2003	0.205	0.205
	B	2	4.000	1	12.5	19	0	1		0		2015	10	5	267	282	4%	95%	1867	0.151	
	B	2	4.000	1		16	0	0		0		2155			298	298		100%	1970	0.151	0.151
	C	3	3.500	1	14			1		0	-306	1965	5	275		280	2%		1656	0.169	
	C	3	3.000	1				0		0	-306	2055		295		295			1749	0.169	0.169
	D	4	4.000	1	10	15	0	1		0		2015	90		25	115	78%	22%	1769	0.065	0.065
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	6	=	11	sec												
	Fp	1,2,4	min.	5	+	8	=	13	sec												

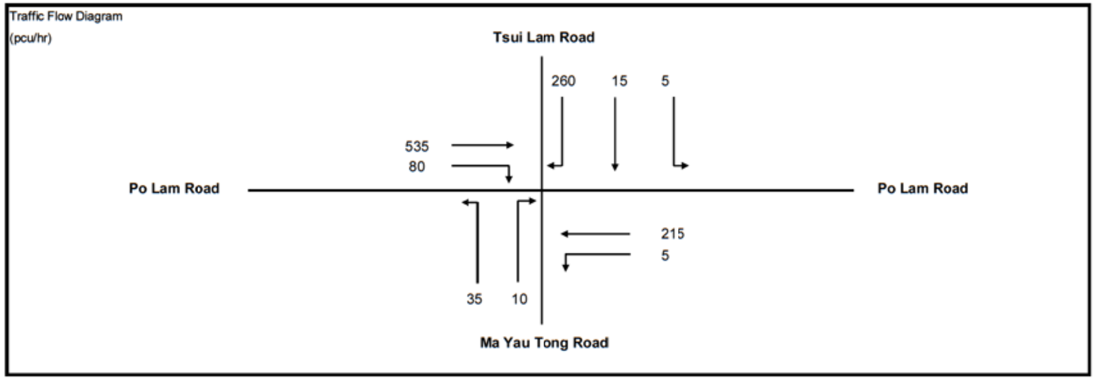
JUNCTION CAPACITY CALCULATION

AECOM

Junction J51 - Po Lam Road / Tsui Lam Road	2026 PM Reference Flows (25K wo ARQ&EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 15

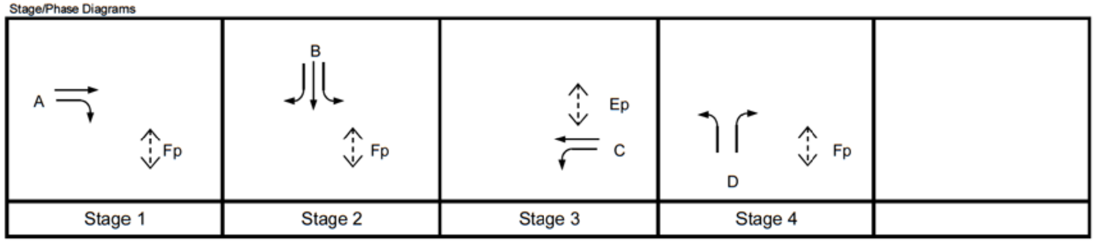
J51

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	100	sec
Sum(y)	Y =	0.380	
Lost time	L =	37	sec
Total Flow	=	11,608	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	98	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	60	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.623	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	63.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	64	sec
Y_{max} = $1-L/C$	=	0.630	

Stage/Phase Diagrams



I/G = 6 I/G = 9 G = 5 I/G = 9 G = 5 I/G = 5

Critical Case : A,B,Ep,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 49%

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	4.000	1		24	0	1		0		2015		535	80	615		13%	1999	0.308	0.308
	B	2	4.000	1	12.5	19	0	1		0		2015	5	15	117	137	4%	85%	1880	0.073	
	B	2	4.000	1		16	0	0		0		2155			143	143		100%	1970	0.073	0.073
	C	3	3.500	1	14			1		0	-306	1965	5	102		107	5%		1651	0.065	
	C	3	3.000	1				0		0	-306	2055		113		113			1749	0.065	
	D	4	4.000	1	10	15	0	1		0		2015	35		10	45	78%	22%	1769	0.025	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	6	=	11	sec												*
	Fp	1,2,4	min.	5	+	8	=	13	sec												

Junction Calculation Sheets for
2026 Design Scenario
(With 25,000 ARQ Population and Without EKL)

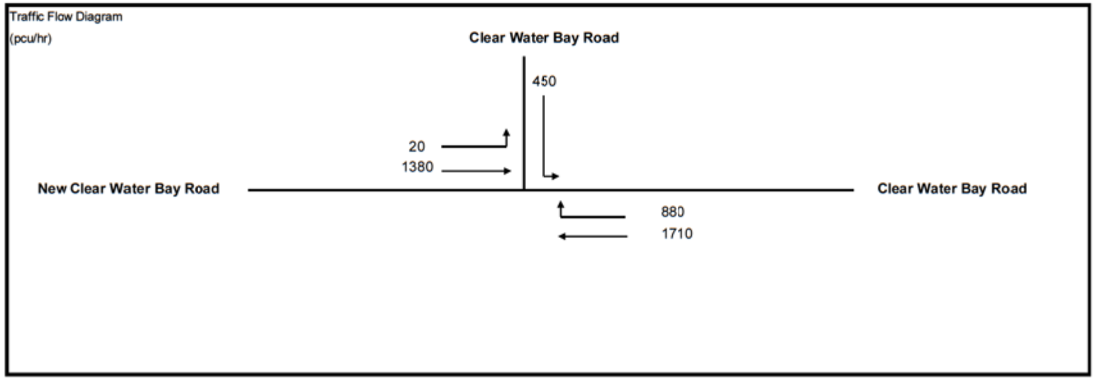
JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 AM Design Flows (DAR Layout_25KwoEKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1

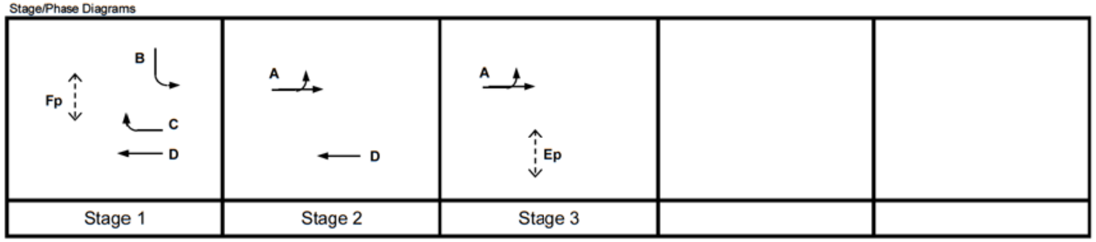
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.828	
Lost time	L =	18	sec
Total Flow	=	10,535	pcu

Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		186	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	105	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.765	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	-7.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	225	sec
Y_{max}	= 1-L/C	=	0.800	

Stage/Phase Diagrams



I/G =   I/G = 4   G = 5   I/G = 10

Critical Case : D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ -13%

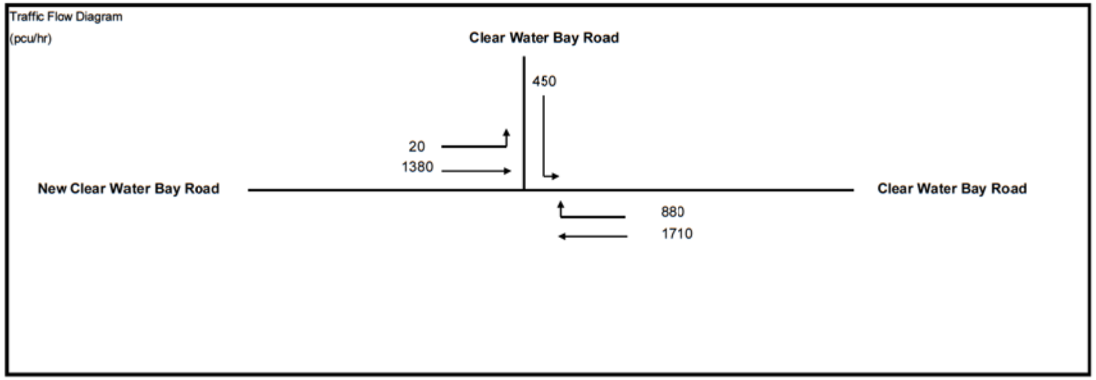
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2,3	3.650	1	10			1		0		1980	20	655		675	3%		1971	0.342	
	A	2,3	3.650	1				0		0		2120		725		725			2120	0.342	
	B	1	3.500	1	15			1		0	80	1965	450			450	100%		1859	0.242	
	C	1	5.700	1		30	0	0		0		2325			880	880		100%	2214	0.397	
	D	1,2	4.500	1				1		0		2065		1710		1710			2065	0.828	0.828
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												*
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

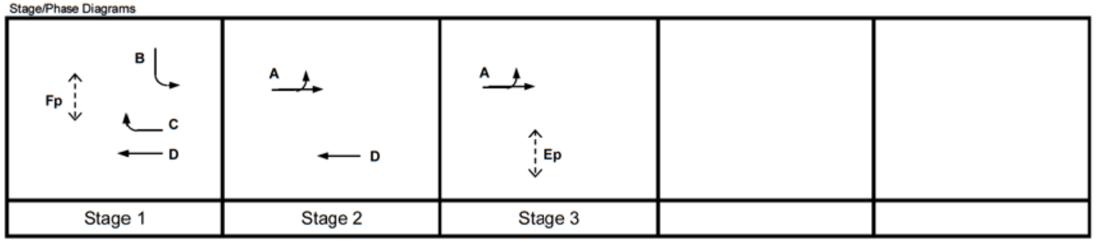
AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 AM Design Flows (DAR Layout_25KwoEKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.740	
Lost time		L =	10	sec
Total Flow		=	10,535	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$		77	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	38	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$ =		11.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	56	sec
Y_{max}	$= 1-L/C$	=	0.889	



I/G = 5 I/G = I/G = 7

Critical Case : C,A

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 8%

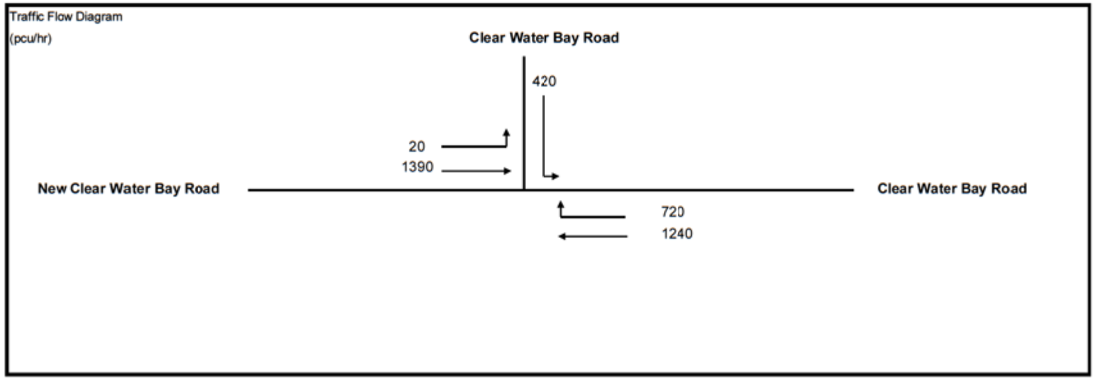
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	2,3	3.650	1	10			1		0		1980	20	655		675	3%		1971	0.342	
	A	2,3	3.650	1				0		0		2120		725		725			2120	0.342	0.342
	B	1	3.500	1	15			1		0	80	1965	450			450	100%		1859	0.242	
	C	1	5.700	1		30	0	0		0		2325			880	880		100%	2214	0.397	0.397
	D	1,2	4.500	1				1		0		2065		1710		1710			2065	0.828	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

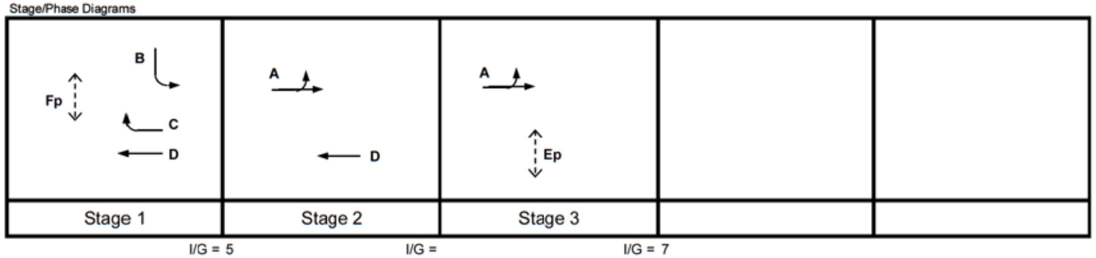
Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 PM Design Flows (DAR Layout_25KwoEKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.670	
Lost time	L =	10	sec
Total Flow	=	10,535	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	61	sec
Min. Cycle Time C_m = L/(1-Y)	=	30	sec
Y_{ult} = 0.9-0.0075×L	=	0.825	
$R.C._{ult}$ = (Y_{ult}-Y)/Yx100%	=	23.2	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	39	sec
Y_{max} = 1-L/C	=	0.889	

Stage/Phase Diagrams



Critical Case : C,A

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 19%

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	2,3	3.650	1	10			1		0		1980	20	659		679	3%		1971	0.345	0.345
	A	2,3	3.650	1				0		0		2120		731		731			2120	0.345	
	B	1	3.500	1	15			1		0	80	1965	420			420	100%		1859	0.226	
	C	1	5.700	1		30	0	0		0		2325			720	720		100%	2214	0.325	0.325
	D	1,2	4.500	1				1		0		2065		1240		1240			2065	0.600	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

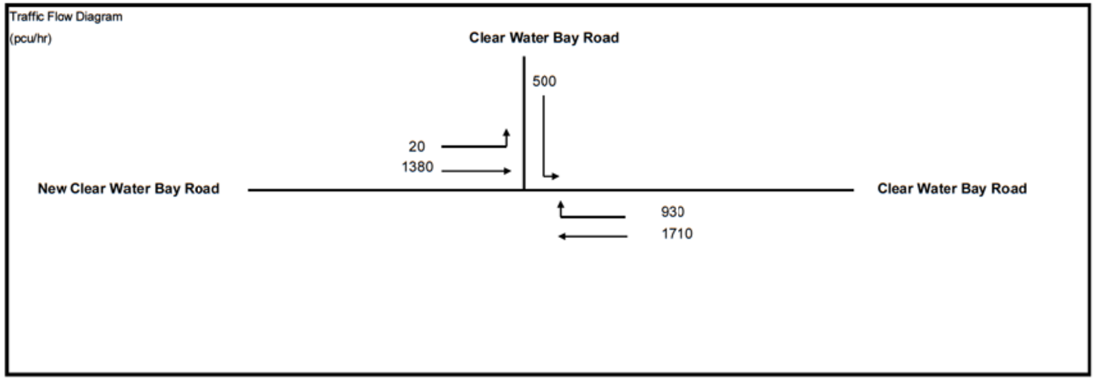
JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 AM Design Flows (Alternative Scheme A_25KwoEKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

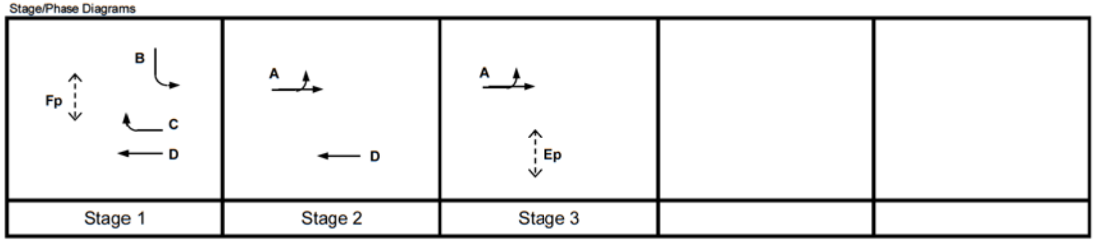
J1

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.785	
Lost time	L =	10	sec
Total Flow	=	10,969	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	93	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	47	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	5.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	78	sec
Y_{max} = $1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : C,A

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 2%

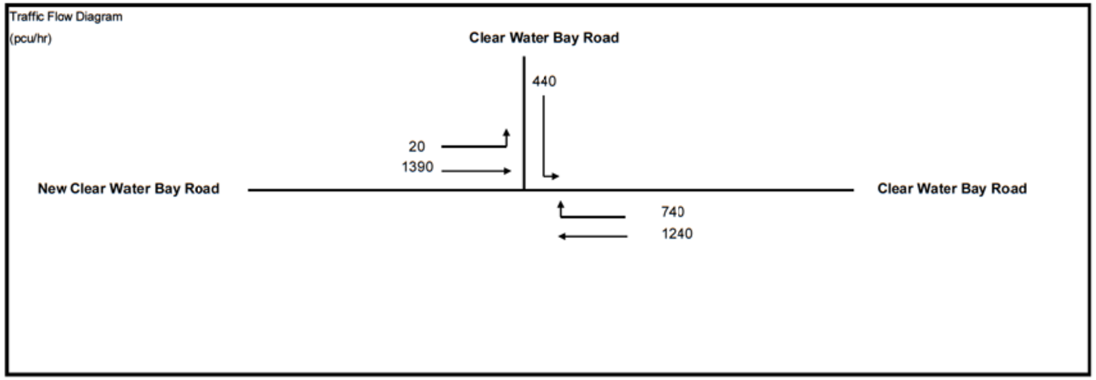
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	2,3	3.650	1	10			1		0		1980	20	655		675	3%		1971	0.342	
	A	2,3	3.650	1				0		0		2120		725		725			2120	0.342	0.342
	B	1	3.500	1	15			1		0	80	1965	500			500	100%		1859	0.269	
	C	1	4.500	1		30	0	0		0		2205			930	930		100%	2100	0.443	0.443
	D	1,2	3.375	1				1		0	667	1952.5		1710		1710			2619	0.653	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2026 PM Design Flows (Alternative Scheme A_25KwoEKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

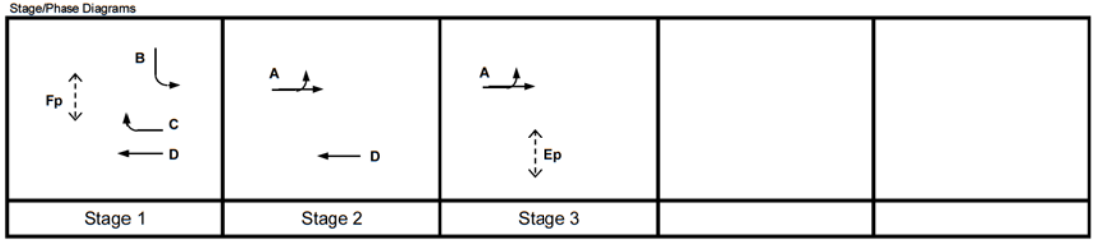
Traffic Flow Diagram
(pcu/hr)



J1

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.708	
Lost time	L =	10	sec
Total Flow	=	10,952	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	68	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	34	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	16.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	47	sec
Y_{max} = $1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : C,A

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 13%

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	2,3	3.500	1	10			1		0		1965	20	659		679	3%		1956	0.347	0.347
	A	2,3	3.500	1				0		0		2105		731		731			2105	0.347	
	B	1	3.500	1	15			1		0	80	1965	440			440	100%		1859	0.237	
	C	1	4.000	1		30	0	0		0		2155			740	740		100%	2052	0.361	0.361
	D	1,2	4.000	1				1		0	667	2015		1240		1240			2682	0.462	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

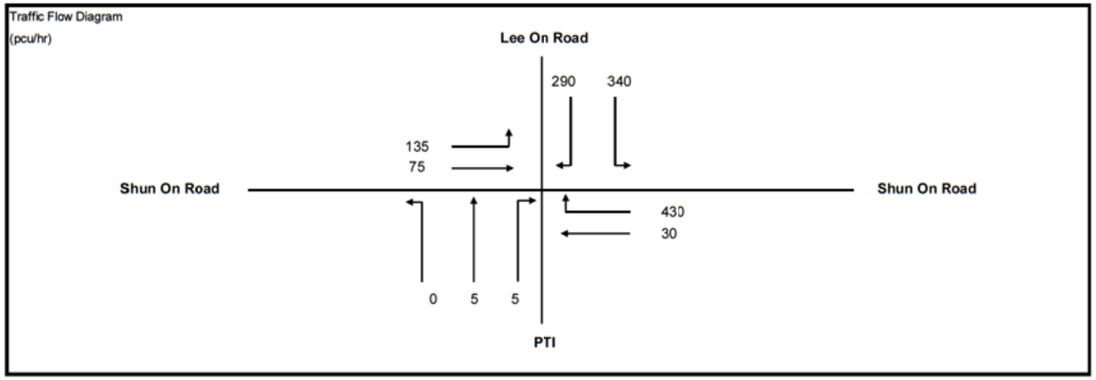
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Lee On Road / Shun On Road / Shun Cheung Road	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

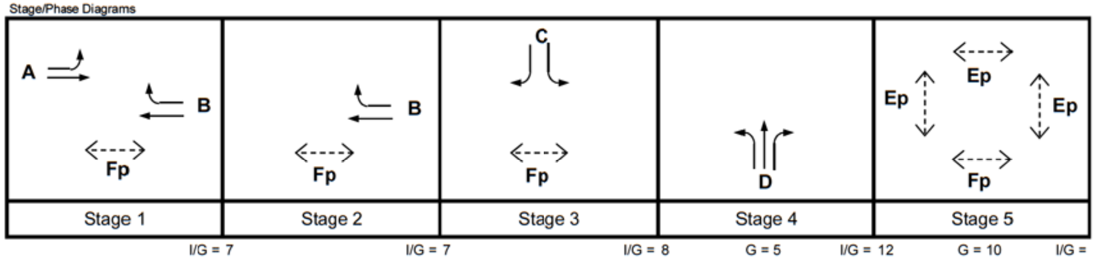
J2

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.432	
Lost time	L =	47	sec
Total Flow	=	15,005	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	133	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	83	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.548	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	26.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	90	sec
Y_{max} = $1-L/C$	=	0.608	

Stage/Phase Diagrams



Critical Case : B,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 27%

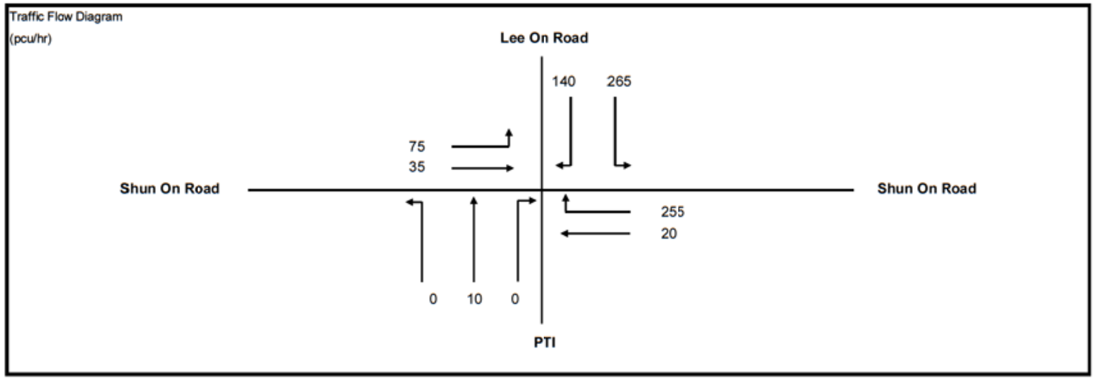
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	15			1		0		1965	135	0		135	100%		1786	0.076	
	A	1	3.500	1				0		0		2105		75		75			2105	0.036	
	B	1,2	3.000	1		10	0	0		0		2055			430	430		100%	1787	0.241	0.241
	B	1,2	3.000	1				1		0		1915		30		30			1915	0.016	
	C	3	3.400	1	15			1		0		1955	340			340	100%		1777	0.191	0.191
	C	3	3.400	1		10	0	0		0		2095			290	290		100%	1822	0.159	
	D	4	13.000	1	10	10	0	1		0		2915	0	5	5	10	0%	50%	2712	0.004	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	10	+	9	=	19	sec												*
	Fp	1,2,3,5	min.	7	+	14	=	21	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Lee On Road / Shun On Road / Shun Cheung Road	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

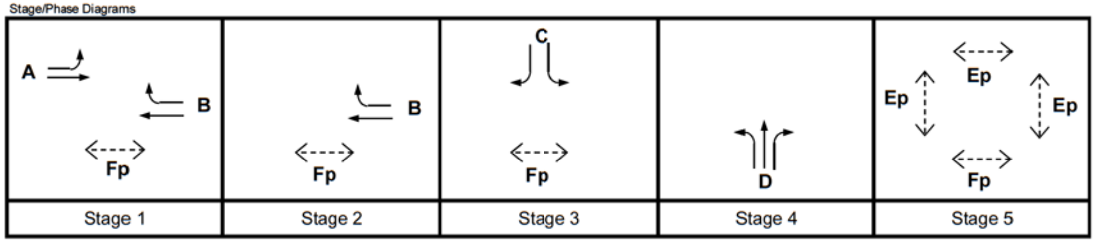
Traffic Flow Diagram
(pcu/hr)



J2

No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.292	
Lost time	L =	47	sec
Total Flow	=	15,005	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	107	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	66	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.548	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	87.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	70	sec
Y_{max} = $1-L/C$	=	0.608	

Stage/Phase Diagrams



I/G = 7 | I/G = 7 | I/G = 8 | G = 5 | I/G = 12 | G = 10 | I/G =

Critical Case : B,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 88%

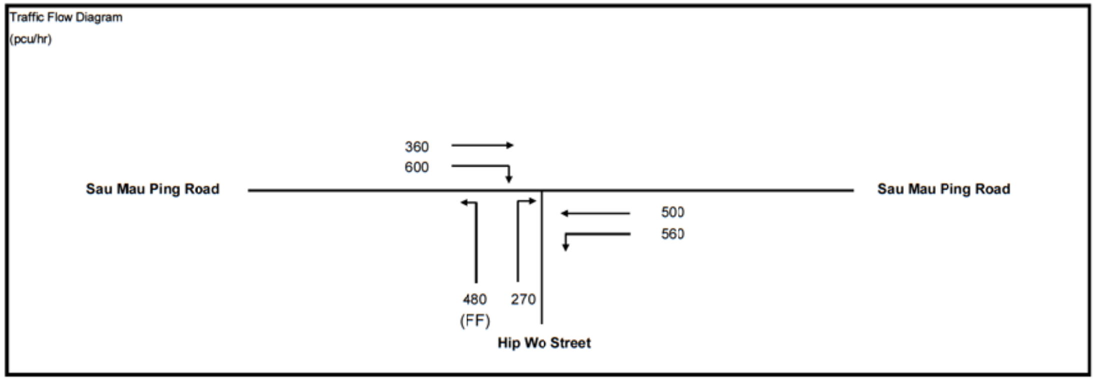
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	15			1		0		1965	75	0		75	100%		1786	0.042	
	A	1	3.500	1				0		0		2105		35		35			2105	0.017	
	B	1,2	3.000	1		10	0	0		0		2055			255	255		100%	1787	0.143	0.143
	B	1,2	3.000	1				1		0		1915		20		20			1915	0.010	
	C	3	3.400	1	15			1		0		1955	265			265	100%		1777	0.149	0.149
	C	3	3.400	1		10	0	0		0		2095			140	140		100%	1822	0.077	
	D	4	13.000	1	10	10	0	1		0		2915	0	10	0	10	0%	0%	2915	0.003	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	10	+	9	=	19	sec												*
	Fp	1,2,3,5	min.	7	+	14	=	21	sec												

JUNCTION CAPACITY CALCULATION

AECOM

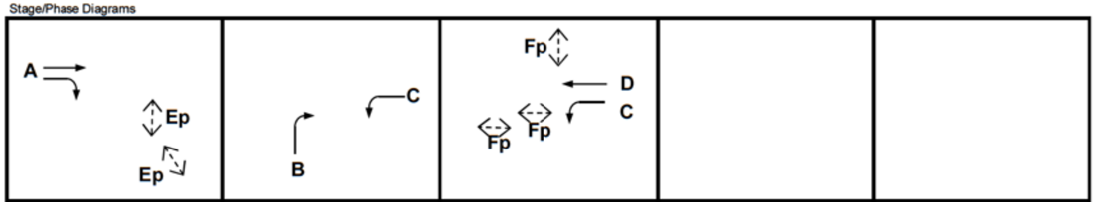
Junction J3 - Sau Mau Ping Road / Hip Wo Street	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J3



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.574	
Lost time	L =	10	sec
Total Flow	=	14,445	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	47	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	23	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	43.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	28	sec
Y_{max}	$= 1-L/C =$	0.917	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

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

Critical Case : A,C

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 44%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.500	1				1		0		1965		360		360			1965	0.183	
	A	1	3.500	1		10	0	0		0	210	2105		0	600	600		100%	2013	0.298	0.298
	B	2	3.300	2		15	0	1		0		4030			270	270		100%	3664	0.074	
	C	2,3	4.500	1	90			1		0		2065	560			560	100%		2031	0.276	0.276
	D	3	3.500	2				1		0		4070		500		500			4070	0.123	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	6	+	6	=	12	sec												
	Fp	3	min.	5	+	8	=	13	sec												

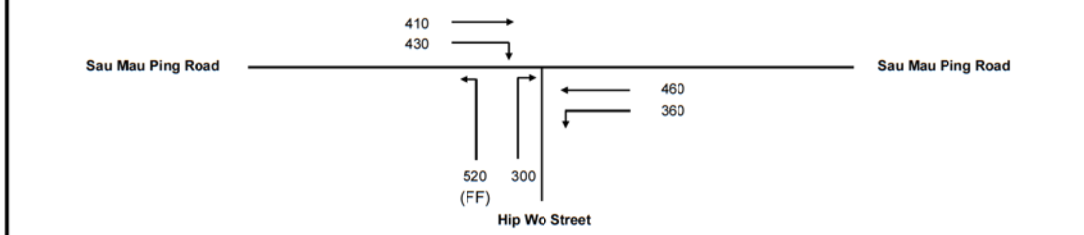
JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Sau Mau Ping Road / Hip Wo Street	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

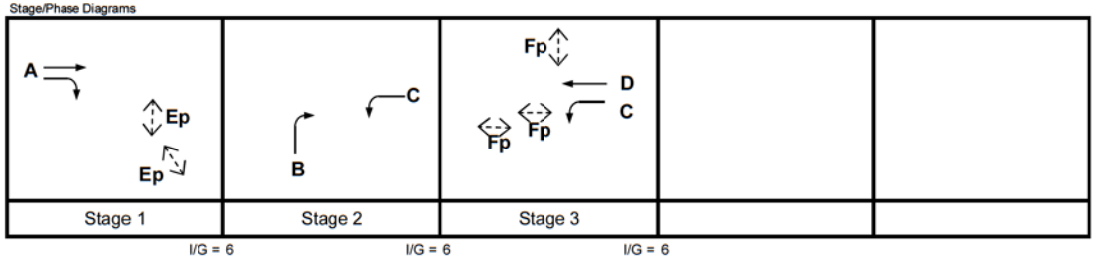
J3

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.409	
Lost time	L =	15	sec
Total Flow	=	14,445	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	46	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	25	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	92.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	27	sec
Y_{max}	$= 1-L/C =$	0.875	

Stage/Phase Diagrams



Critical Case : A,B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 93%

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				1		0		1965		410		410			1965	0.209	
	A	1	3.500	1		10	0	0		0	210	2105		0	430	430		100%	2013	0.214	0.214
	B	2	3.300	2		15	0	1		0		4030			300	300		100%	3664	0.082	0.082
	C	2,3	4.500	1	90			1		0		2065	360			360	100%		2031	0.177	
	D	3	3.500	2				1		0		4070		460		460			4070	0.113	0.113
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	6	+	6	=	12	sec												
	Fp	3	min.	5	+	8	=	13	sec												

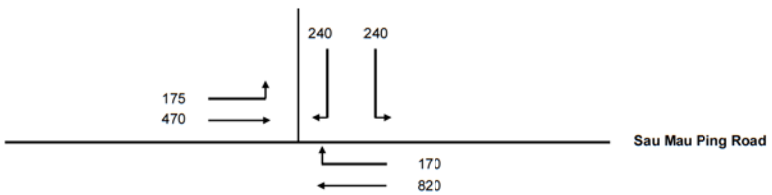
JUNCTION CAPACITY CALCULATION

AECOM

Junction J4 - Sau Mau Ping Rd / Shun On Rd	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

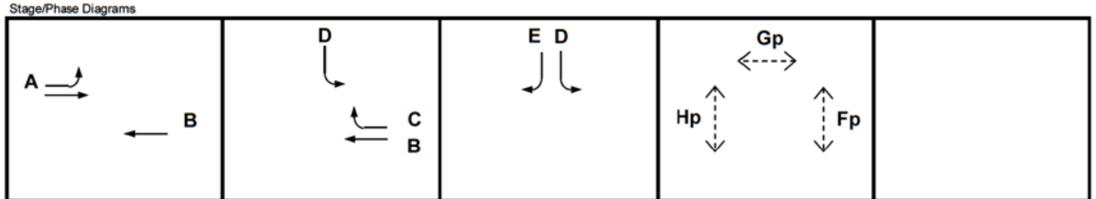
J4

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.385	
Lost time	L =	44	sec
Total Flow	=	14,255	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



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 6 I/G = 10 I/G = 5 G = 14 I/G = 12

Critical Case : A,C,E,Gp

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 48%

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	10			1		0		1945	175	123		298	59%		1787	0.167	0.167
	A	1	3.300	1				0		0		2085		347		347			2085	0.167	
	B	1,2	3.300	2				1		0		4030		820		820			4030	0.203	
	C	2	3.300	1		10	0	0		0		2085			170	170		100%	1813	0.094	0.094
	D	2,3	3.700	1	10			1		0		1985	240			240	100%		1726	0.139	
	E	3	3.700	1		15	0	0		0		2125			240	240		100%	1932	0.124	0.124
Pedestrian Crossing				GM		FGM															
	Fp	4	min.	10	+	9	=	19	sec												
	Gp	4	min.	14	+	10	=	24	sec												*
	Hp	4	min.	8	+	9	=	17	sec												

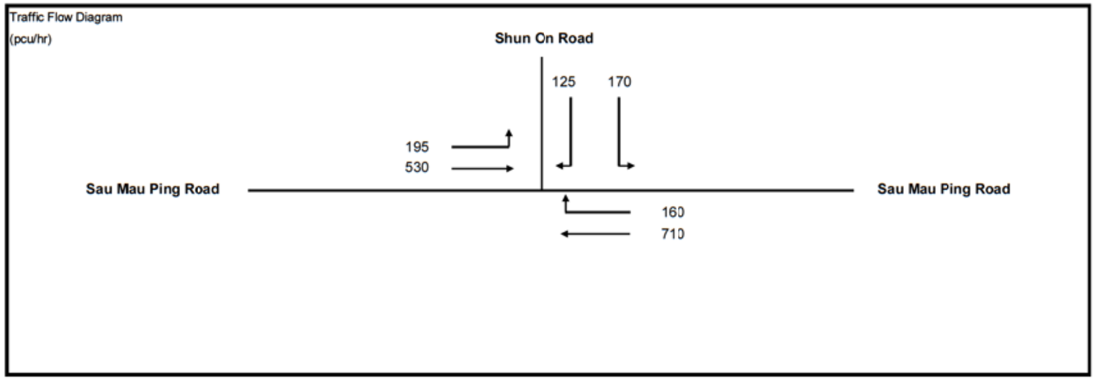
JUNCTION CAPACITY CALCULATION

AECOM

Junction J4 - Sau Mau Ping Rd / Shun On Rd	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

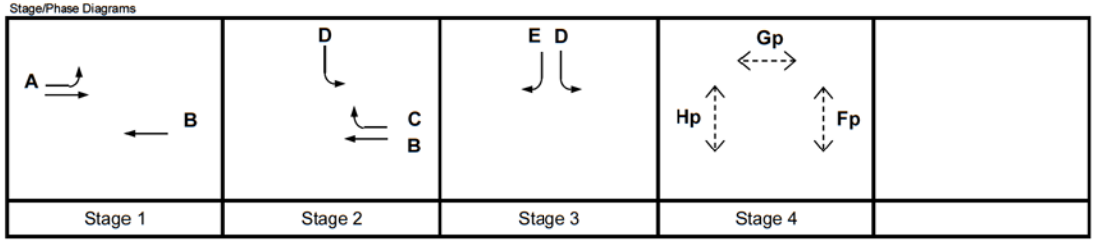
J4

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	110	sec
Sum(y)		Y =	0.340	
Lost time		L =	44	sec
Total Flow		=	14,255	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =		108	sec
Min. Cycle Time C_m	= L/(1-Y)	=	67	sec
Y_{ult}	= 0.9-0.0075×L	=	0.570	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	67.6	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	71	sec
Y_{max}	= 1-L/C	=	0.600	

Stage/Phase Diagrams



I/G = 6 I/G = 10 I/G = 5 G = 14 I/G = 12

Critical Case : A,C,E,Gp

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 59%

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	10			1		0		1945	195	140		335	58%		1789	0.187	0.187
	A	1	3.300	1				0		0		2085		390		390			2085	0.187	
	B	1,2	3.300	2				1		0		4030		710		710			4030	0.176	
	C	2	3.300	1		10	0	0		0		2085			160	160		100%	1813	0.088	0.088
	D	2,3	3.700	1	10			1		0		1985	170			170	100%		1726	0.098	
	E	3	3.700	1		15	0	0		0		2125			125	125		100%	1932	0.065	0.065
Pedestrian Crossing				GM		FGM															
	Fp	4	min.	10	+	9	=	19	sec												
	Gp	4	min.	14	+	10	=	24	sec												*
	Hp	4	min.	8	+	9	=	17	sec												

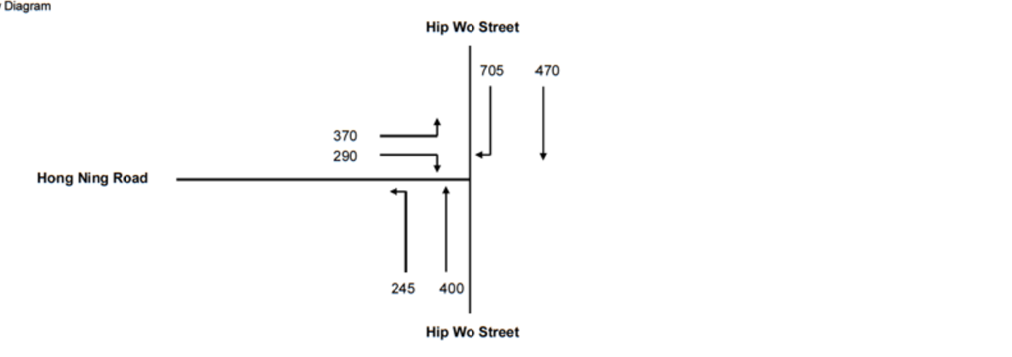
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Hip Wo St / Hong Ning Rd	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

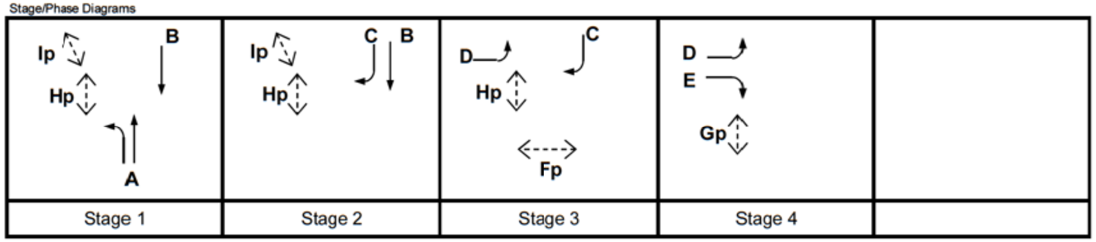
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.718	
Lost time	L =	20	sec
Total Flow	=	12,090	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	124	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	71	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	4.5	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	99	sec
Y_{max}	$= 1-L/C =$	0.833	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 11 I/G = 7

Critical Case : A,C,E

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 5%

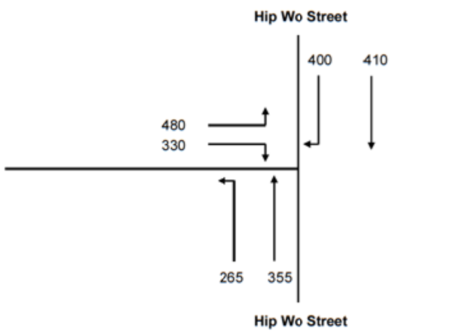
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	245	54		299	82%		1798	0.166	
	A	1	3.300	1				0		0		2085		346		346			2085	0.166	0.166
	B	1,2	3.200	1				1		0		1935		470		470			1935	0.243	
	C	2,3	3.200	1		10	0	0		0		2075			705	705		100%	1804	0.391	0.391
	D	3,4	3.600	1	40			1		0		1975	370			370	100%		1904	0.194	
	E	4	3.200	1		10	0	0		0		2075			290	290		100%	1804	0.161	0.161
Pedestrian Crossing				GM		FGM															
	Fp	3	min.	10	+	9	=	19	sec												
	Gp	4	min.	5	+	8	=	13	sec												
	Hp	1,2,3	min.	5	+	8	=	13	sec												
	Ip	1,2	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

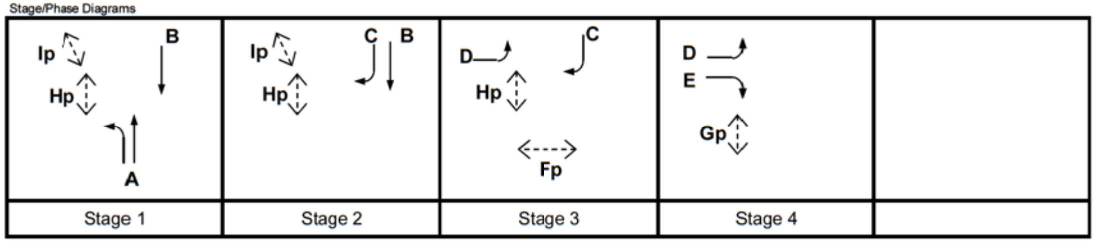
AECOM

Junction J5 - Hip Wo St / Hong Ning Rd	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J5



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.565	
Lost time		L =	20	sec
Total Flow		=	12,090	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	80	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	46	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	32.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	54	sec
Y_{max}	$= 1-L/C$	=	0.833	



Critical Case : A,C,E

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 33%

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	265	21		286	93%		1780	0.160	0.160
	A	1	3.300	1				0		0		2085		334		334			2085	0.160	
	B	1,2	3.200	1				1		0		1935		410		410			1935	0.212	
	C	2,3	3.200	1		10	0	0		0		2075			400	400		100%	1804	0.222	0.222
	D	3,4	3.600	1	40			1		0		1975	480			480	100%		1904	0.252	
	E	4	3.200	1		10	0	0		0		2075			330	330		100%	1804	0.183	0.183

Pedestrian Crossing				GM		FGM			
	Fp	3	min.	10	+	9	=	19	sec
	Gp	4	min.	5	+	8	=	13	sec
	Hp	1,2,3	min.	5	+	8	=	13	sec
	Ip	1,2	min.	5	+	7	=	12	sec

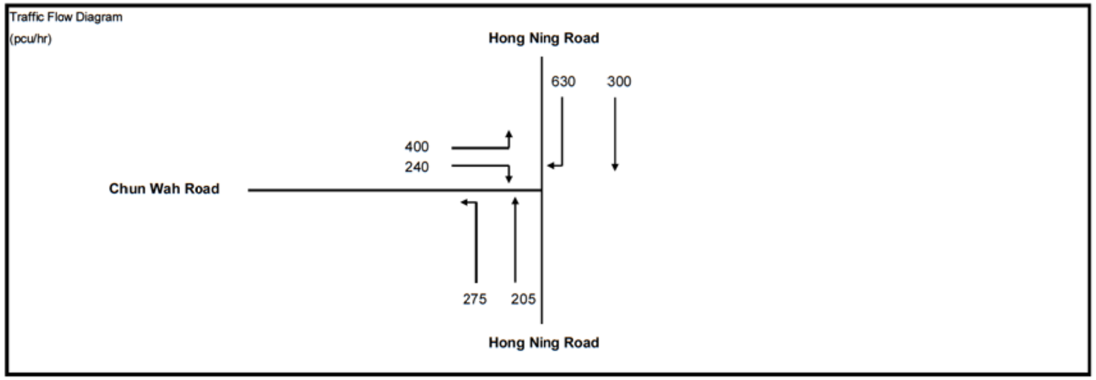
JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Hong Ning Rd / Chun Wah Rd	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

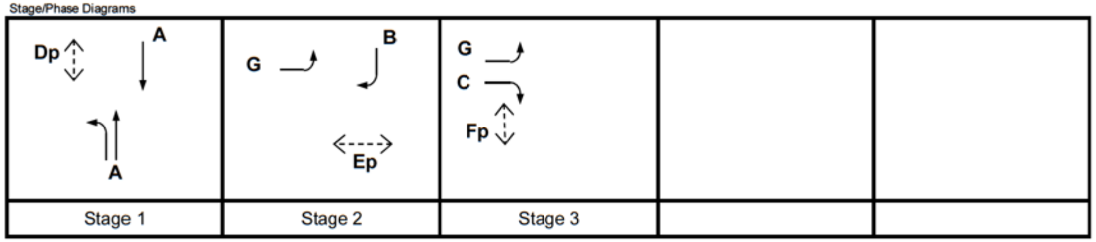
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	118	sec
Sum(y)		Y =	0.638	
Lost time		L =	14	sec
Total Flow		=	12,050	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	72	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	39	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	24.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	48	sec
Y_{max}	$= 1-L/C$	=	0.881	

Stage/Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

Critical Case : A,B,C

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	3.200	1	15			1		0		1935	275	0		275	100%		1759	0.156	0.156
	A	1	3.200	1				0		0		2075		205		205			2075	0.099	
	A	1	3.200	1				1		0		1935		300		300			1935	0.155	
	B	2	3.200	1		10	0	0		0		2075			630	630		100%	1804	0.349	0.349
	C	3	3.300	1		10	0	0		0		2085			240	240		100%	1813	0.132	0.132
	G	2,3	3.300	1	10			1		0		1945	400			400	100%		1691	0.237	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	6	+	7	=	13	sec												
	Ep	2	min.	7	+	7	=	14	sec												
	Fp	3	min.	6	+	7	=	13	sec												

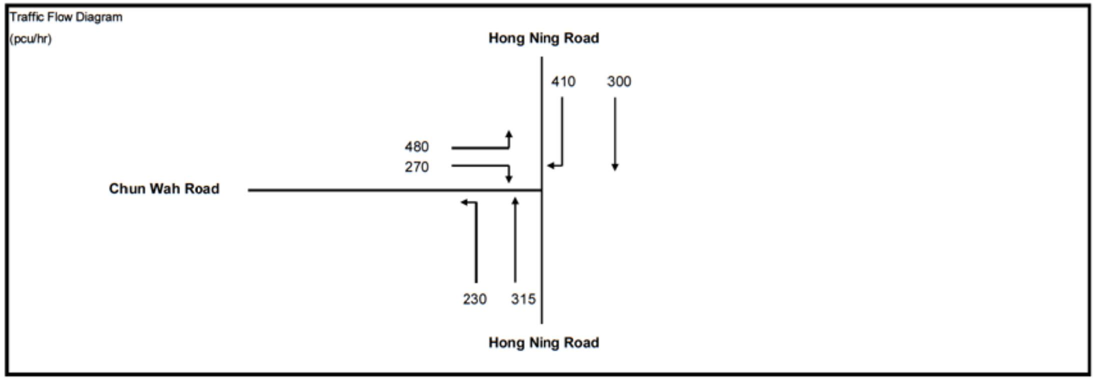
JUNCTION CAPACITY CALCULATION

AECOM

Junction J6 - Hong Ning Rd / Chun Wah Rd	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

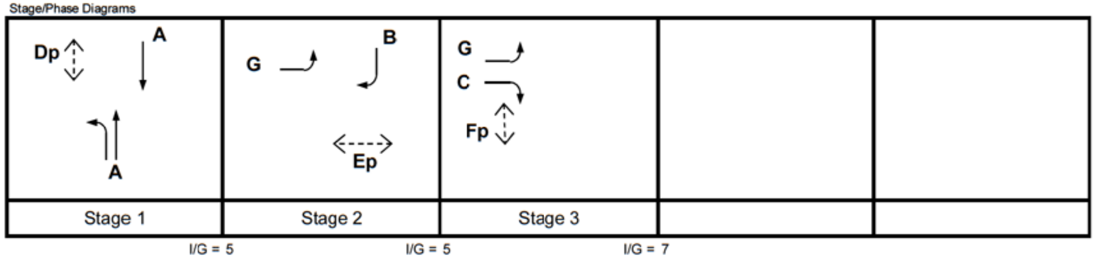
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	108	sec
Sum(y)		Y =	0.531	
Lost time		L =	14	sec
Total Flow		=	12,050	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		55	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	30	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	49.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	34	sec
Y_{max}	$= 1-L/C$	=	0.870	

Stage/Phase Diagrams



Critical Case : A,B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 47%

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	3.200	1	15			1		0		1935	230	21		251	92%		1773	0.142	
	A	1	3.200	1				0		0		2075		294		294			2075	0.142	
	A	1	3.200	1				1		0		1935		300		300			1935	0.155	0.155
	B	2	3.200	1		10	0	0		0		2075			410	410		100%	1804	0.227	0.227
	C	3	3.300	1		10	0	0		0		2085			270	270		100%	1813	0.149	0.149
	G	2,3	3.300	1	10			1		0		1945	480			480	100%		1691	0.284	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	6	+	7	=	13	sec												
	Ep	2	min.	7	+	7	=	14	sec												
	Fp	3	min.	6	+	7	=	13	sec												

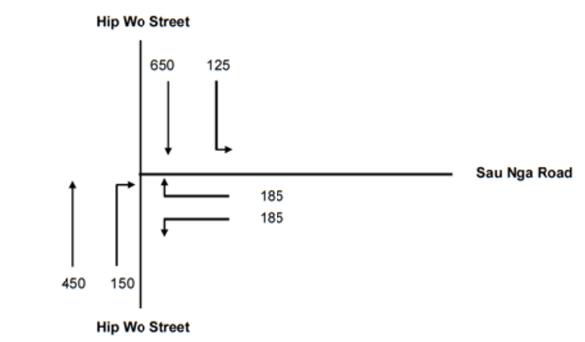
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Hip Wo St / Sau Nga Rd	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

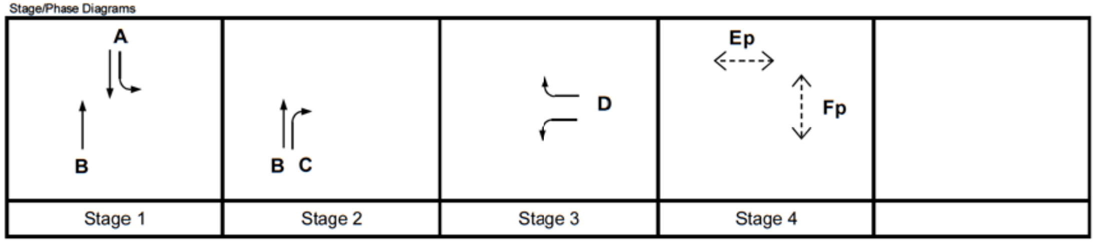
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.490	
Lost time	L =	43	sec
Total Flow	=	10,015	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	136	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	84	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.578	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	17.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	94	sec
Y_{max}	$= 1-L/C =$	0.642	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 10 G = 13 I/G = 10

Critical Case : A,C,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 18%

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	3.200	1	15			1		0		1935	125	243		368	34%		1871	0.196	0.196
	A	1	3.200	1				0		0		2075		407		407			2075	0.196	
	B	1,2	3.300	1				1		0		1945		450		450			1945	0.231	
	C	2	3.300	1		10	0	0		0		2085			150	150		100%	1813	0.083	0.083
	D	3	3.600	1	15	10	0	1		0		1975	185		185	370	50%	50%	1756	0.211	0.211
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	13	+	7	=	20	sec												*
	Fp	4	min.	12	+	13	=	25	sec												

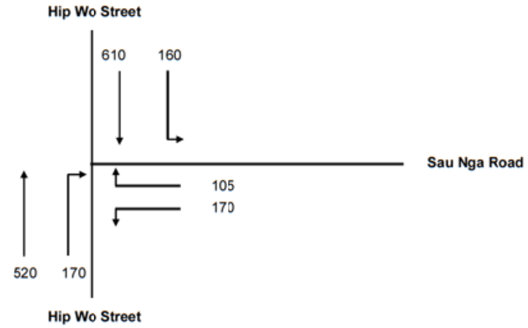
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Hip Wo St / Sau Nga Rd	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

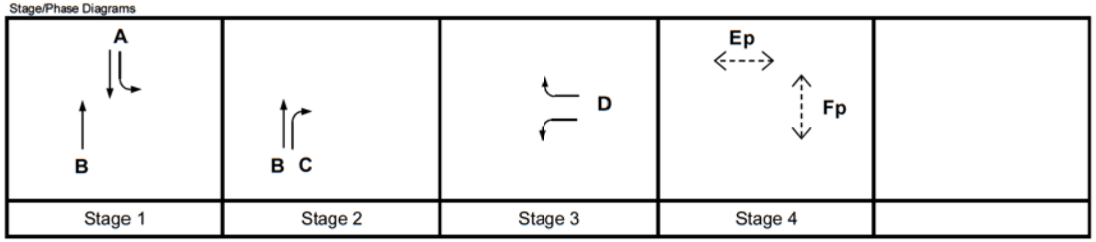
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.446	
Lost time	L =	43	sec
Total Flow	=	10,015	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	125	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	78	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.578	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	29.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	85	sec
Y_{max}	$= 1-L/C =$	0.642	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 10 G = 13 I/G = 10

Critical Case : A,C,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 30%

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	3.200	1	15			1		0		1935	160	203		363	44%		1853	0.196	0.196
	A	1	3.200	1				0		0		2075		407		407			2075	0.196	
	B	1,2	3.300	1				1		0		1945		520		520			1945	0.267	
	C	2	3.300	1		10	0	0		0		2085			170	170		100%	1813	0.094	0.094
	D	3	3.600	1	15	10	0	1		0		1975	170		105	275	62%	38%	1765	0.156	0.156
Pedestrian Crossing				GM		FGM															
	Ep	4	min.	13	+	7	=	20	sec												*
	Fp	4	min.	12	+	13	=	25	sec												

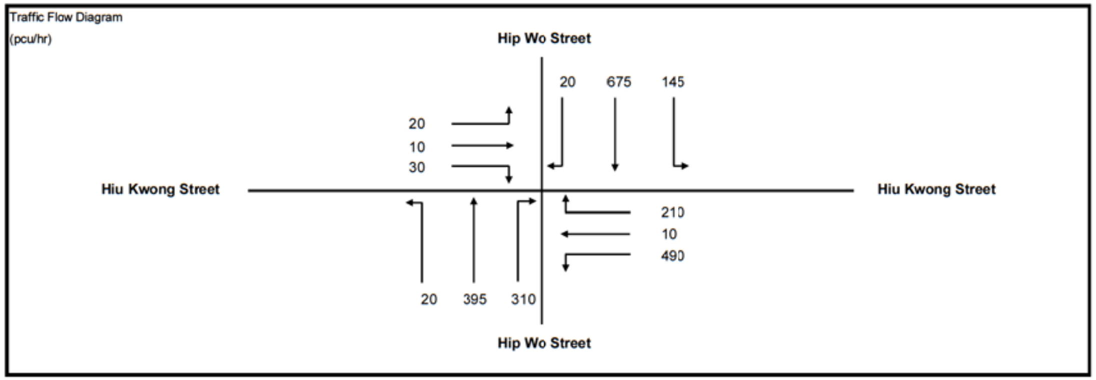
JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Hip Wo St / Hiu Kwong St	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

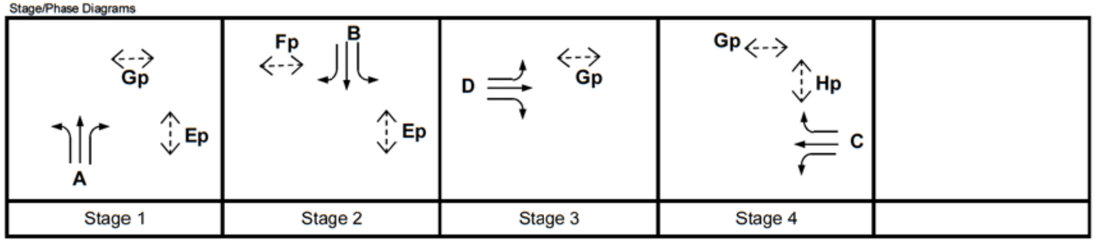
J8

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.622	
Lost time	L =	28	sec
Total Flow	=	14,135	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	124	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	74	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	10.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	91	sec
Y_{max}	$= 1-L/C =$	0.767	

Stage/Phase Diagrams



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

Critical Case : A,B,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 11%

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	10			1		0		1945	20	395		415	5%		1931	0.215	0.215
	A	1	3.300	1		10	0	0		0		2085			310	310		100%	1813	0.171	
	B	2	3.000	1	15			1		0		1915	145	254		399	36%		1848	0.216	
	B	2	3.000	1		10	0	0		0		2055		421	20	441		5%	2041	0.216	0.216
	C	4	3.800	1	15			1		0		1995	347			347	100%		1814	0.191	0.191
	C	4	3.800	1	15	10	0	0		0		2135	143	10	210	363	39%	58%	1896	0.191	
	D	3	3.900	1	10	10	0	1		0		2005	20	10	30	60	33%	50%	1782	0.034	

Pedestrian Crossing

			GM		FGM			
Ep	1,2	min.	5	+	6	=	11	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	1,3,4	min.	7	+	5	=	12	sec
Hp	4	min.	5	+	5	=	10	sec

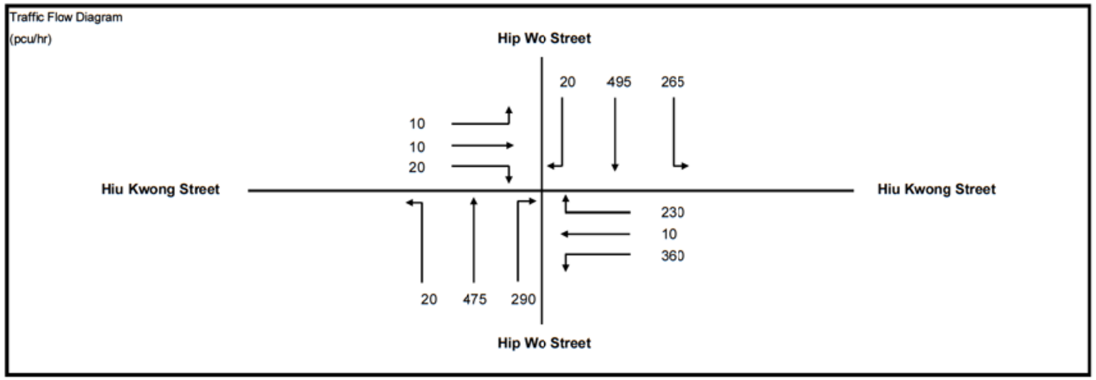
JUNCTION CAPACITY CALCULATION

AECOM

Junction J8 - Hip Wo St / Hiu Kwong St	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

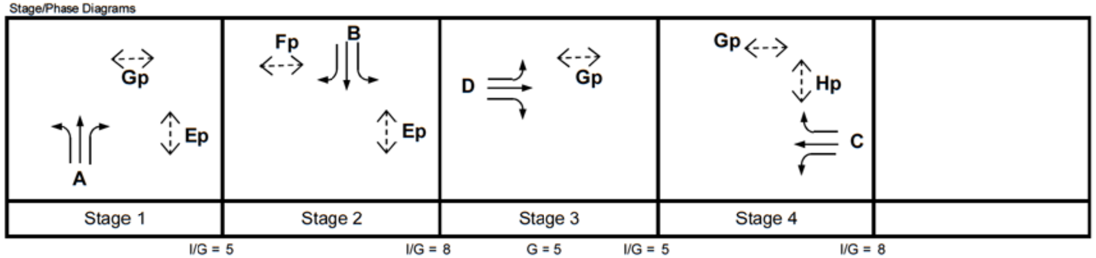
J8

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.622	
Lost time		L =	28	sec
Total Flow		=	14,135	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		124	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	74	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	10.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	91	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Critical Case : A,B,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 11%

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	10			1		0		1945	20	475		495	4%		1933	0.256	0.256
	A	1	3.300	1		10	0	0		0		2085			290	290		100%	1813	0.160	
	B	2	3.000	1	15			1		0		1915	265	99		364	73%		1785	0.204	0.204
	B	2	3.000	1		10	0	0		0		2055		396	20	416		5%	2040	0.204	
	C	4	3.800	1	15			1		0		1995	294			294	100%		1814	0.162	0.162
	C	4	3.800	1	15	10	0	0		0		2135	66	10	230	306	21%	75%	1882	0.162	
	D	3	3.900	1	10	10	0	1		0		2005	10	10	20	40	25%	50%	1802	0.022	

Pedestrian Crossing

			GM		FGM			
Ep	1,2	min.	5	+	6	=	11	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	1,3,4	min.	7	+	5	=	12	sec
Hp	4	min.	5	+	5	=	10	sec

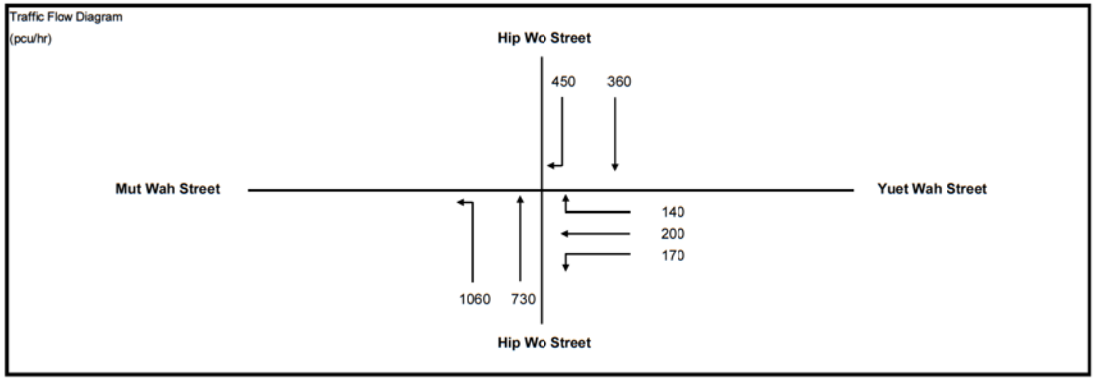
JUNCTION CAPACITY CALCULATION

AECOM

Junction J9 - Hip Wo Street / Mut Wah Street / Yuet Wah Street	2026 AM Design Flows (25K wo EKL_MWS Reverse Traffic)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

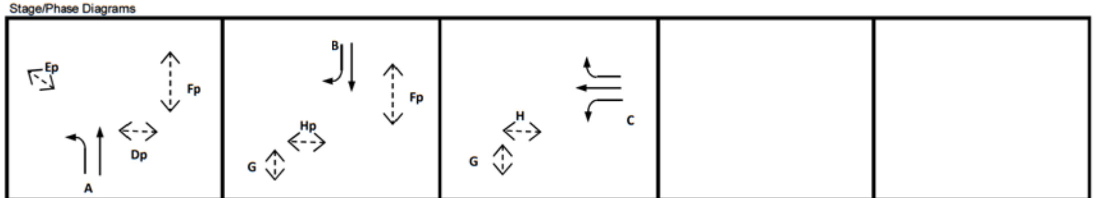
J9

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	118	sec
Sum(y)		Y =	0.563	
Lost time		L =	22	sec
Total Flow		=	16,411	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		87	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	50	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	30.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	59	sec
Y_{max}	$= 1-L/C$	=	0.814	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G = 7	I/G = 6	I/G = 12		

Critical Case : A,B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 30%

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
	B	2	3.500	1		20	0	1		0		1965		360	46	406		11%	1948	0.208	0.208
	B	2	3.000	1		25	0	0		0		2055			404	404		100%	1939	0.208	
	C	3	3.700	1	15			1		0	51	1985	170	78		248	69%		1905	0.130	0.130
	C	3	3.700	1		15	0	0		0		2125		122	140	262		53%	2017	0.130	
	A	1	3.300	2	28			1		0		4030	858			858	100%		3825	0.224	0.224
	A	1	3.300	1	30					0	31	2085	202	262		464	44%		2070	0.224	
	A	1	3.300	1				0		0		2085		468		468			2085	0.224	

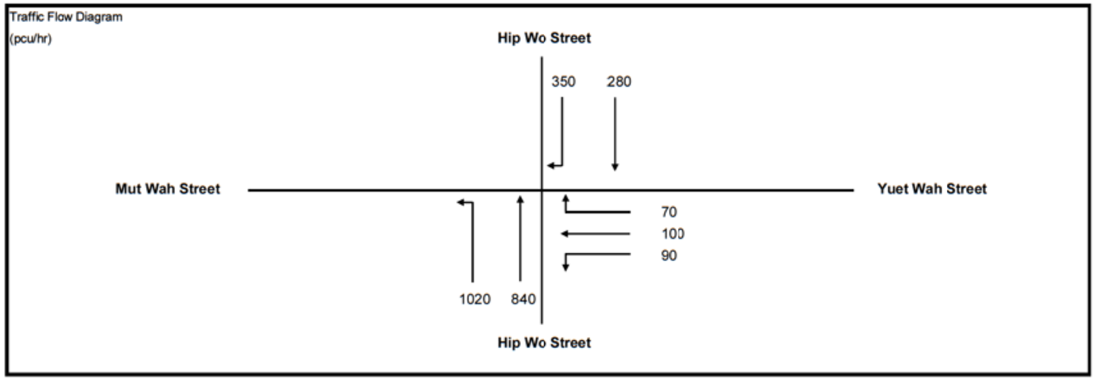
Pedestrian Crossing			GM		FGM			
Dp	1	min.	5	+	6	=	11	sec
Ep	1	min.	5	+	10	=	15	sec
Fp	1,2	min.	7	+	10	=	17	sec
Gp	2,3	min.	8	+	15	=	23	sec
Hp	2,3	min.	5	+	6	=	11	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J9 - Hip Wo Street / Mut Wah Street / Yuet Wah Street	2026 PM Design Flows (25K wo EKL_MWS Reverse Traffic)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

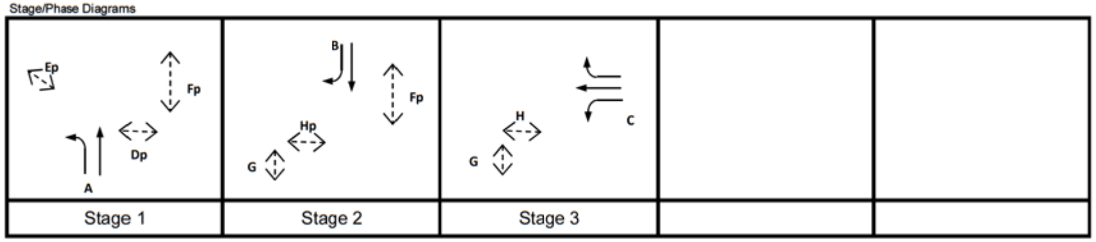
Traffic Flow Diagram
(pcu/hr)



J9

No. of stages per cycle	N =	3	
Cycle time	C =	108	sec
Sum(y)	Y =	0.461	
Lost time	L =	22	sec
Total Flow	=	16,419	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	70	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	41	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.735	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	59.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	45	sec
Y_{max} = $1-L/C$	=	0.796	

Stage/Phase Diagrams



I/G = 7 I/G = 6 I/G = 12

Critical Case : A,B,C

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
	B	2	3.500	1		20	0	1		0		1965		280	36	316		11%	1948	0.162	0.162
	B	2	3.000	1		25	0	0		0		2055			314	314		100%	1939	0.162	
	C	3	3.700	1	15			1		0	56	1985	90	36		126	71%		1905	0.066	
	C	3	3.700	1		15	0	0		0		2125		64	70	134		52%	2019	0.066	0.066
	A	1	3.300	2	28			1		0		4030	889			889	100%		3825	0.232	
	A	1	3.300	1	30					0	33	2085	131	355		486	27%		2090	0.232	0.232
	A	1	3.300	1				0		0		2085		485		485			2085	0.232	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	6	=	11	sec												
	Ep	1	min.	5	+	10	=	15	sec												
	Fp	1,2	min.	7	+	10	=	17	sec												
	Gp	2,3	min.	8	+	15	=	23	sec												
	Hp	2,3	min.	5	+	6	=	11	sec												

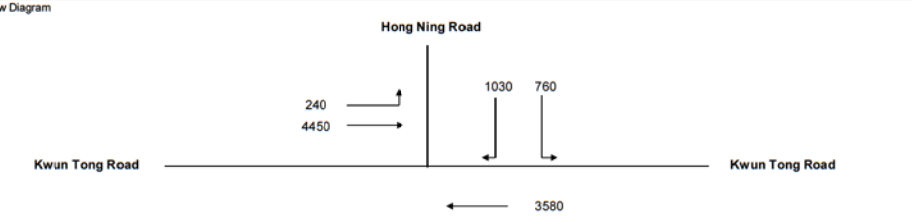
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kwun Tong Road / Hong Ning Road	2026 AM Design Flows (25K wo EKL_with MWS Reverse Traffic)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

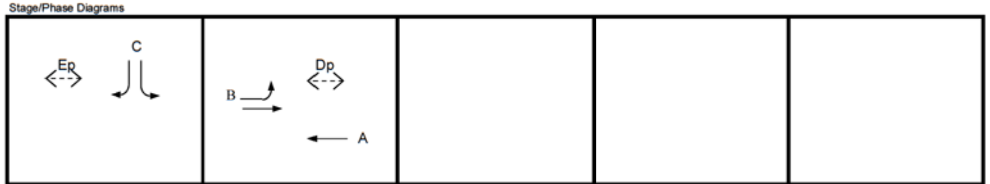
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	118	sec
Sum(y)	Y =	0.751	
Lost time	L =	12	sec
Total Flow	=	26,717	pcu
Optimum Cycle C_o $= (1.5\times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m $= L/(1-Y)$	=	48	sec
Y_{ult} $= 0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$ $= (Y_{ult}-Y)/Y\times 100\%$	=	7.9	%
Practical Cycle Time C_p $= 0.9\times L/(0.9-Y)$	=	72	sec
Y_{max} $= 1-L/C$	=	0.898	

Stage/Phase Diagrams



I/G = 7 I/G = 7

Critical Case : C,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 8%

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	3.000	2	15			1		0		3970	685			685	100%		3609	0.190	
	C	1	3.000	1	18	28	0			0		2055	75		294	368	20%	80%	1939	0.190	0.190
	C	1	3.000	2		25	0	0		0		4110			736	736		100%	3877	0.190	
	B	2	3.500	1	30			1		0	102	1965	240	907		1147	21%		2045	0.561	0.561
	B	2	3.500	3				0		0		6315		3543		3543			6315	0.561	
	A	2	3.300	4				1		0		8200		3580		3580			8200	0.437	
Pedestrian Crossing				GM		FGM															
	Dp	2	min.	7	+	13	=	20	sec												
	Ep	1	min.	5	+	7	=	12	sec												

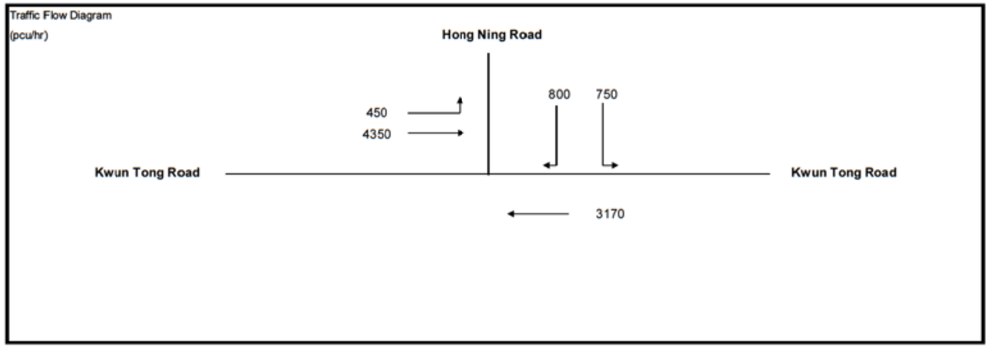
JUNCTION CAPACITY CALCULATION

AECOM

Junction J10 - Kwun Tong Road / Hong Ning Road	2026 PM Design Flows (25K wo EKL_with MWS Reverse Traffic)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

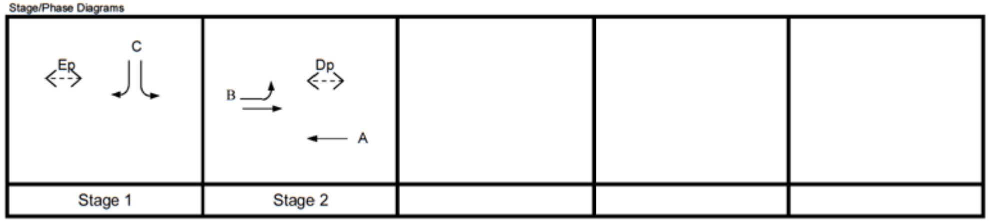
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.739	
Lost time	L =	12	sec
Total Flow	=	26,726	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	88	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	46	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	9.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	67	sec
Y_{max} = $1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 7 I/G = 7

Critical Case : C,B

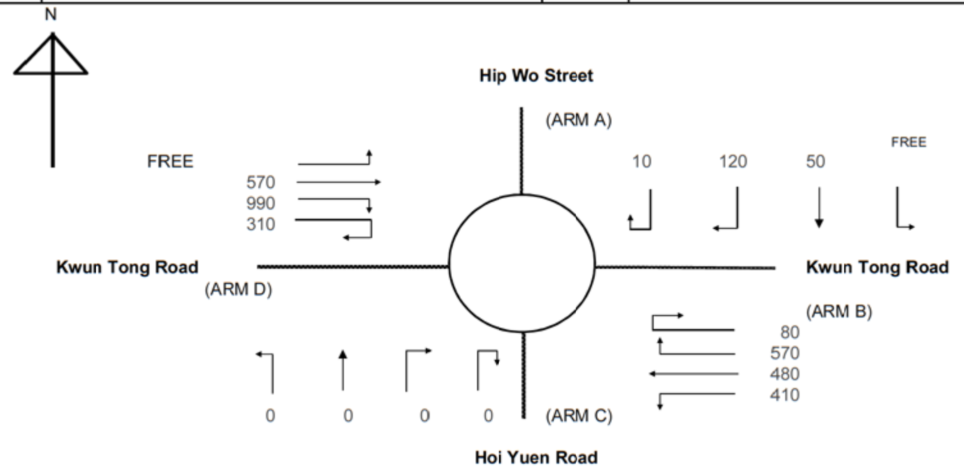
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 8%

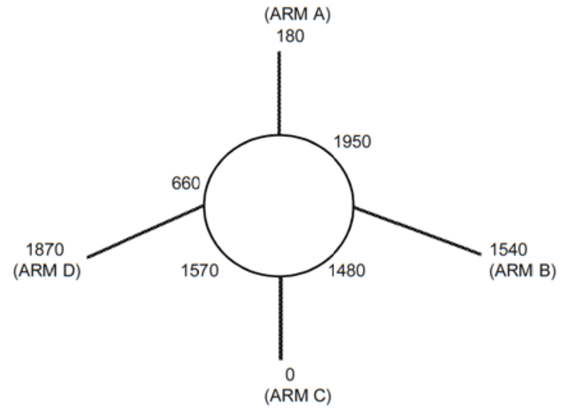
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	1	3.000	2	15			1		0		3970	594			594	100%		3609	0.165	
	C	1	3.000	1	18	28	0			0		2055	156		161	317	49%	51%	1924	0.165	0.165
	C	1	3.000	2		25	0	0		0		4110			639	639		100%	3877	0.165	
	B	2	3.500	1	30			1		0	111	1965	450	721		1171	38%		2037	0.575	0.575
	B	2	3.500	3				0		0		6315		3629		3629			6315	0.575	
	A	2	3.300	4				1		0		8200		3170		3170			8200	0.387	
Pedestrian Crossing				GM		FGM															
	Dp	2	min.	7	+	13	=	20	sec												
	Ep	1	min.	5	+	7	=	12	sec												

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J11 Kwung Tong Road / Hip Wo Street	Scenario	2026 AM Design Flows (25K wo EKL_with MWS Reverse Traffic)	Project No.	Prepared By	Checked By	Date
				60328348	LLSI	CBFS	20/May/15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	7.00	8.00	8.00
E = Entry width (m)	8.00	8.00	9.00	9.00
L = Effective length of flare (m)	10.00	15.00	20.00	20.00
R = Entry radius (m)	100.00	45.00	40.00	40.00
D = Inscribed circle diameter (m)	83.00	86.00	83.00	86.00
A = Entry angle (degree)	30.00	40.00	25.00	25.00
Q = Entry flow (pcu/h)	180	1540	0	1870
Qc= Circulating flow across entry (pcu/h)	1950	1480	1570	660
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.16	0.11	0.08	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.04	0.99	1.04	1.04
X2= V + ((E-V)/(1+2S))	7.76	7.82	8.86	8.86
M = EXP((D-60)/10)	9.97	13.46	9.97	13.46
F = 303*X2	2351	2371	2685	2685
Td= 1+(0.5/(1+M))	1.05	1.03	1.05	1.03
Fc= 0.21*Td(1+0.2*X2)	0.56	0.56	0.61	0.60
Qe= K(F-Fc*Qc)	1307	1534	1802	2383
DFC = Design flow/Capacity = Q/Qe	0.14	1.00	0.00	0.78

TOTAL ENTRY FLOWS = 3590 PCU

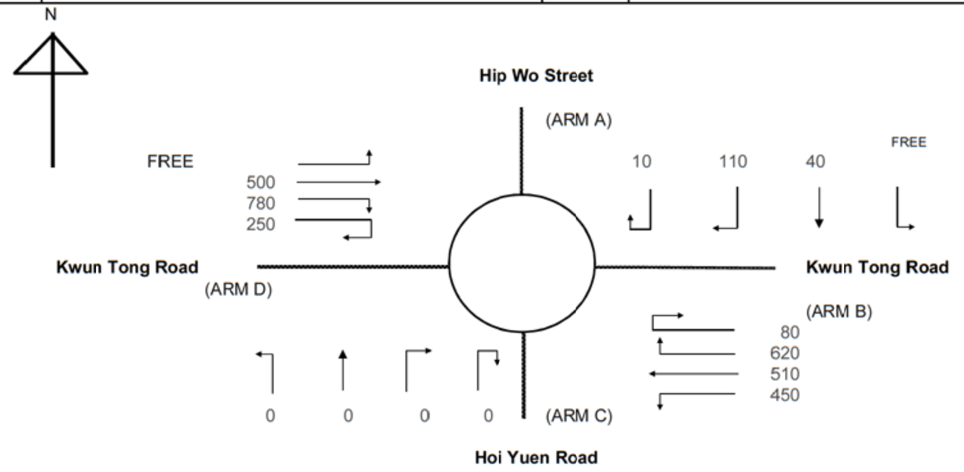
CRITICAL DFC 1.00

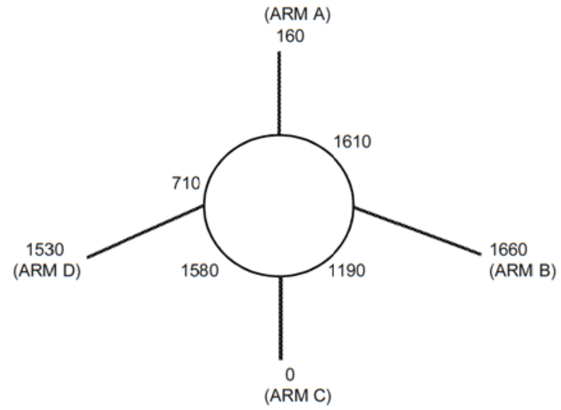
Filename : D:\Users\wongwtc1\Desktop\Anderson Rd Quarry Site\TIA\Preliminary Junction

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J11 Kwung Tong Road / Hip Wo Street	Scenario	2026 PM Design Flows (25K wo EKL_with MWS Reverse Traffic)	Project No.	Prepared By	Checked By	Date
				60328348	LLSI	CBFS	20/May/15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	7.00	8.00	8.00
E = Entry width (m)	8.00	8.00	9.00	9.00
L = Effective length of flare (m)	10.00	15.00	20.00	20.00
R = Entry radius (m)	100.00	45.00	40.00	40.00
D = Inscribed circle diameter (m)	83.00	86.00	83.00	86.00
A = Entry angle (degree)	30.00	40.00	25.00	25.00
Q = Entry flow (pcu/h)	160	1660	0	1530
Qc= Circulating flow across entry (pcu/h)	1610	1190	1580	710
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.16	0.11	0.08	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.04	0.99	1.04	1.04
X2= V + ((E-V)/(1+2S))	7.76	7.82	8.86	8.86
M = EXP((D-60)/10)	9.97	13.46	9.97	13.46
F = 303*X2	2351	2371	2685	2685
Td= 1+(0.5/(1+M))	1.05	1.03	1.05	1.03
Fc= 0.21*Td(1+0.2*X2)	0.56	0.56	0.61	0.60
Qe= K(F-Fc*Qc)	1505	1695	1795	2352
DFC = Design flow/Capacity = Q/Qe	0.11	0.98	0.00	0.65

TOTAL ENTRY FLOWS = 3350 PCU

CRITICAL DFC 0.98

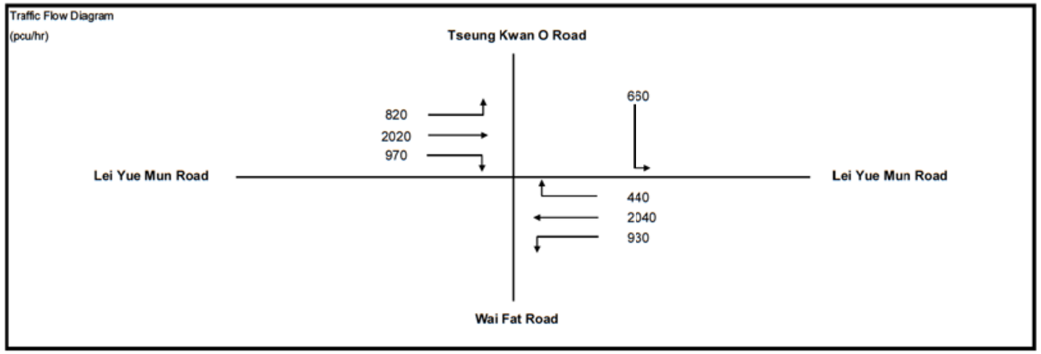
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Lei Yue Mun Road / Tseung Kwan O Road / Wai Fat Road	2026 AM Design Flows (25K wo EKL)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

J12

Traffic Flow Diagram
(pcu/hr)

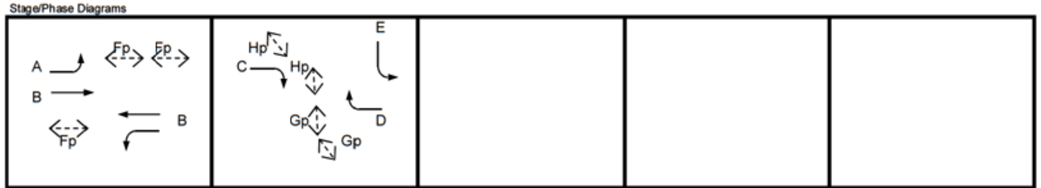


No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.695	
Lost time	L =	15	sec
Total Flow	=	33,220	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	90	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	49	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	13.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	66	sec
Y_{max}	$= 1-L/C =$	0.861	

Critical Case : B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 11%

Stage/Phase Diagrams



Stage 1	Stage 2			
I/G = 8	I/G = 9			

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	2	25			1		0		4030	820			820	100%		3802	0.216	
	B	1	3.500	3				0		0		6315		2020		2020			5305	0.381	
	C	2	3.500	2		12.5	0	0		0		4210			970	970		100%	3158	0.307	0.307
	B	1	3.300	2	30			1		0		4030	930			930	100%		3224	0.288	
	B	1	3.300	3				0		0		6255		2040		2040			5254	0.388	0.388
	D	2	3.750	2		30	0	0		0		4260			440	440		100%	4057	0.108	
	E	2	3.750	2	15			1		0		4120	660			660	100%		3745	0.176	

Pedestrian Crossing			GM		FGM			
Fp	1	min.	8	+	13	=	21	sec
Gp	2	min.	20	+	13	=	33	sec
Hp	2	min.	9	+	13	=	22	sec

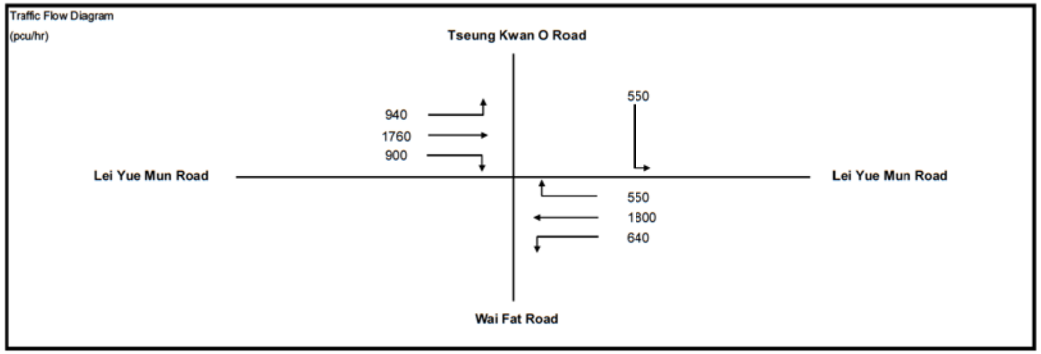
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Lei Yue Mun Road / Tseung Kwan O Road / Wai Fat Road	2026 PM Design Flows (25K wo EKL)	DESIGN: LLSI	CHECK: CBFS	JOB NO: 60328348	DATE: Dec 14

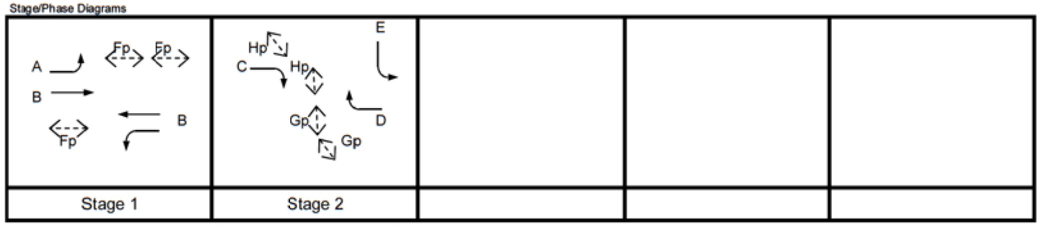
J12

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.628	
Lost time		L =	15	sec
Total Flow		=	33,220	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	74	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	40	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	25.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	50	sec
Y_{max}	$= 1-L/C$	=	0.861	

Stage/Phase Diagrams



I/G = 8 I/G = 9

Critical Case : B,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 23%

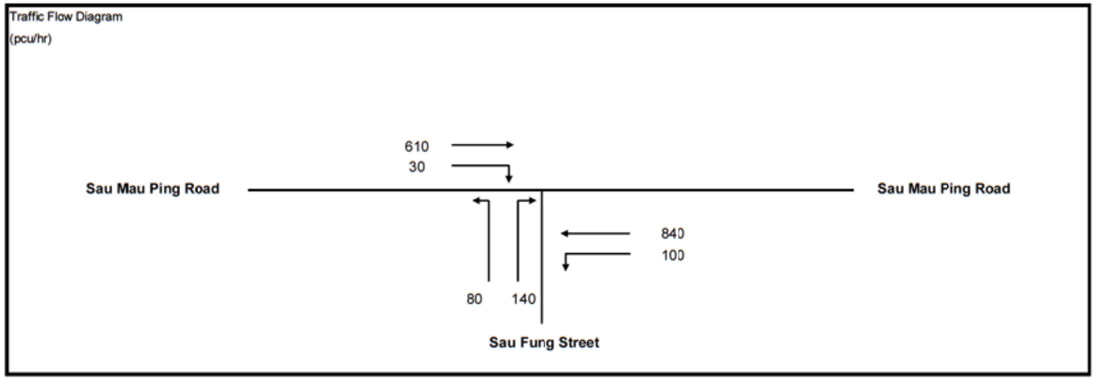
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.300	2	25			1		0		4030	940			940	100%		3802	0.247	
	B	1	3.500	3				0		0		6315		1760		1760			5305	0.332	
	C	2	3.500	2		12.5	0	0		0		4210			900	900		100%	3158	0.285	0.285
	B	1	3.300	2	30			1		0		4030	640			640	100%		3224	0.199	
	B	1	3.300	3				0		0		6255		1800		1800			5254	0.343	0.343
	D	2	3.750	2		30	0	0		0		4260			550	550		100%	4057	0.136	
	E	2	3.750	2	15			1		0		4120	550			550	100%		3745	0.147	
Pedestrian Crossing				GM		FGM															
	Fp	1	min.	8	+	13	=	21	sec												
	Gp	2	min.	20	+	13	=	33	sec												
	Hp	2	min.	9	+	13	=	22	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J13 - Sau Mau Ping Road / Sau Fung Street	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

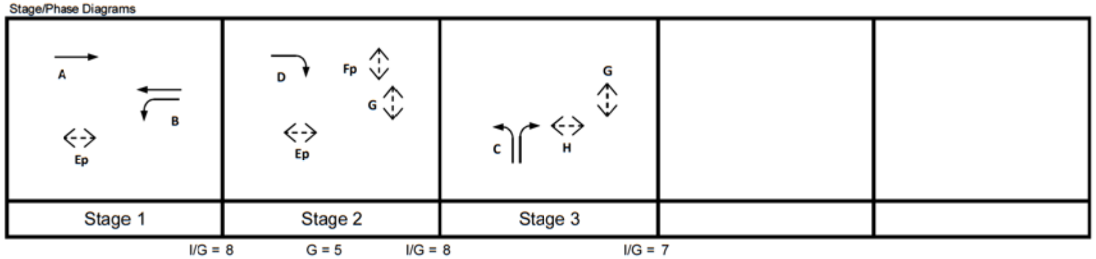
Traffic Flow Diagram
(pcu/hr)



J13

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.406	
Lost time	L =	26	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	74	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	44	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.705	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	73.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	47	sec
Y_{max}	$= 1-L/C =$	0.783	

Stage/Phase Diagrams



Critical Case : A,Fp,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 74%

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	3.000	1				1		0	200	1915		610		610			2115	0.288	0.288
	D	2	3.000	1		25	0	0		0		2055			30	30		100%	1939	0.015	
	B	1	3.500	1	15			1		0		1965	100	349		449	22%		1922	0.233	
	B	1	3.500	1				0		0		2105		491		491			2105	0.233	
	C	3	3.000	1	15	20	0	1		0	120	1915	80		140	220	36%	64%	1877	0.117	0.117

Pedestrian Crossing			GM		FGM				
Ep	1,2	min.	5	+	7	=	12	sec	
Fp	2	min.	5	+	6	=	11	sec	*
Gp	2,3	min.	5	+	8	=	13	sec	
Hp	3	min.	5	+	7	=	12	sec	

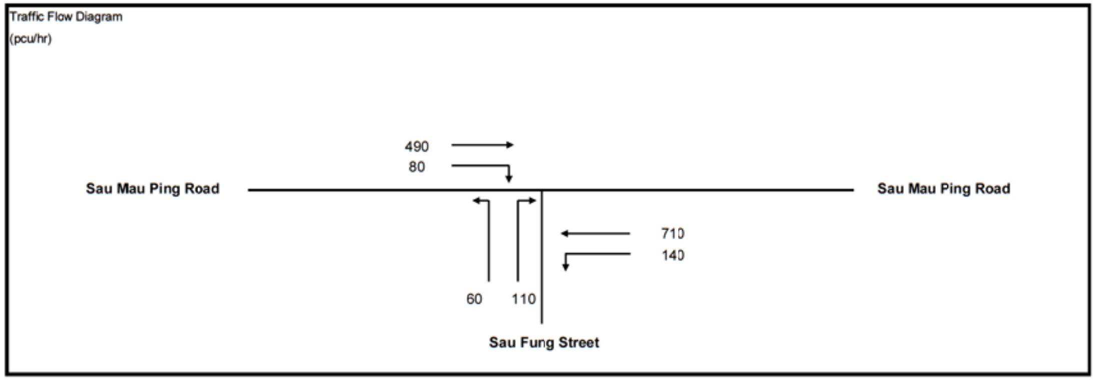
JUNCTION CAPACITY CALCULATION

AECOM

Junction J13 - Sau Mau Ping Road / Sau Fung Street	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

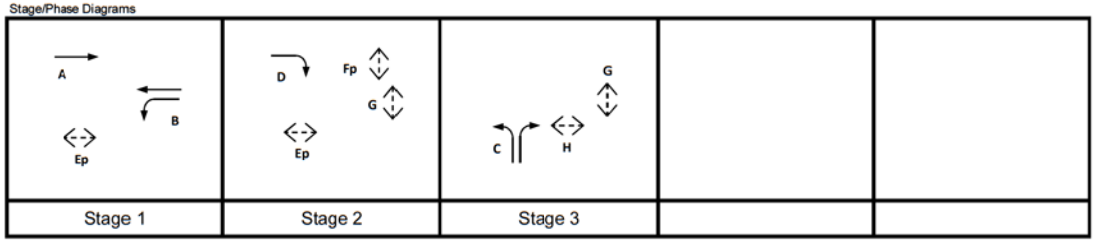
J13

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.363	
Lost time		L =	15	sec
Total Flow		=	10,275	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		43	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	24	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.788	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	116.7	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	25	sec
Y_{max}	$= 1-L/C$	=	0.875	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7

Critical Case : A,D,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 117%

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	3.000	1				1		0	200	1915		490		490			2115	0.232	0.232
	D	2	3.000	1		25	0	0		0		2055			80	80		100%	1939	0.041	0.041
	B	1	3.500	1	15			1		0		1965	140	263		403	35%		1899	0.212	
	B	1	3.500	1				0		0		2105		447		447			2105	0.212	
	C	3	3.000	1	15	20	0	1		0	120	1915	60		110	170	35%	65%	1878	0.091	0.091

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	7	=	12	sec
Fp	2	min.	5	+	6	=	11	sec
Gp	2,3	min.	5	+	8	=	13	sec
Hp	3	min.	5	+	7	=	12	sec

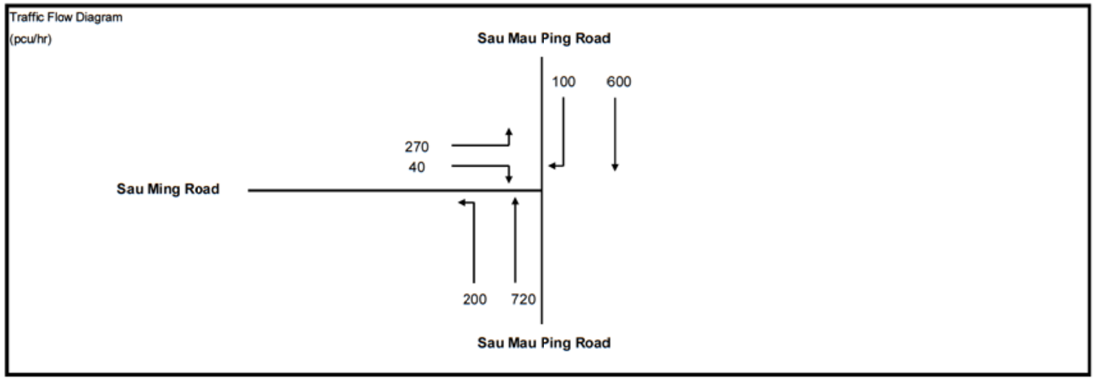
JUNCTION CAPACITY CALCULATION

AECOM

Junction J14 - Sau Mau Ping Rd / Sau Ming Rd	2026 AM Design Flows (25K wo EKL)_DAR Imp.	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

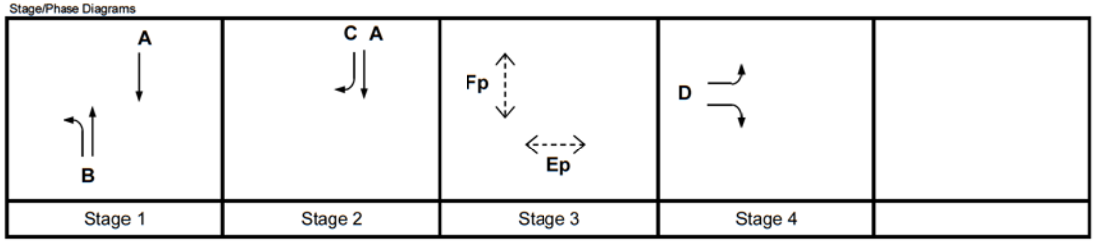
J14

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.395	
Lost time		L =	35	sec
Total Flow		=	12,130	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	95	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	58	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.638	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	61.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	62	sec
Y_{max}	$= 1-L/C$	=	0.708	

Stage/Phase Diagrams



I/G = I/G = 8 G = 7 I/G = 16 I/G = 6

Critical Case : A,Ep,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 62%

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	1,2	3.300	1				1		0		1945		600		600			1945	0.308	0.308
	C	2	3.300	1		15	0	0		0		2085			100	100		100%	1895	0.053	
	B	1	3.300	1	10			1		0		1945	200	228		428	47%		1818	0.236	
	B	1	3.300	1				0		0		2085		492		492			2085	0.236	
	D	4	3.500	1	10			1		0		1965	147			147	100%		1709	0.086	0.086
	D	4	3.500	1	15	10	0	0		0		2105	123		40	163	75%	25%	1893	0.086	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	7	+	13	=	20	sec												*
	Fp	3	min.	8	+	10	=	18	sec												

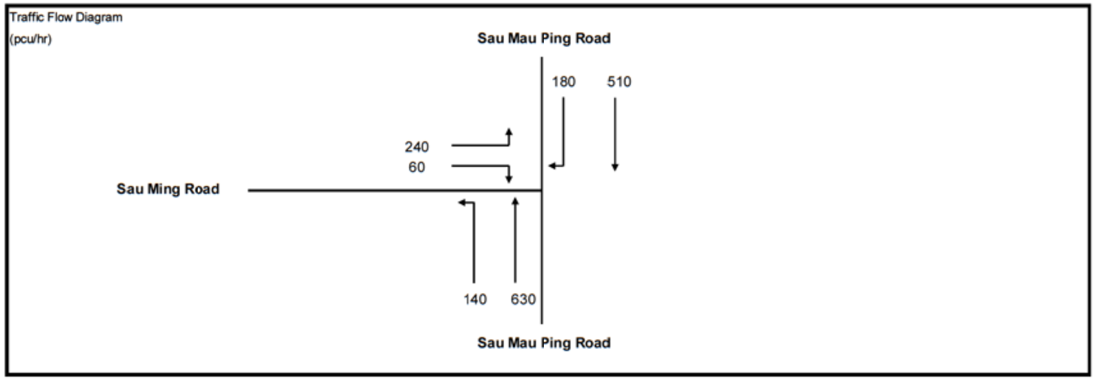
JUNCTION CAPACITY CALCULATION

AECOM

Junction J14 - Sau Mau Ping Rd / Sau Ming Rd	2026 PM Design Flows (25K wo EKL)_DAR Imp.	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

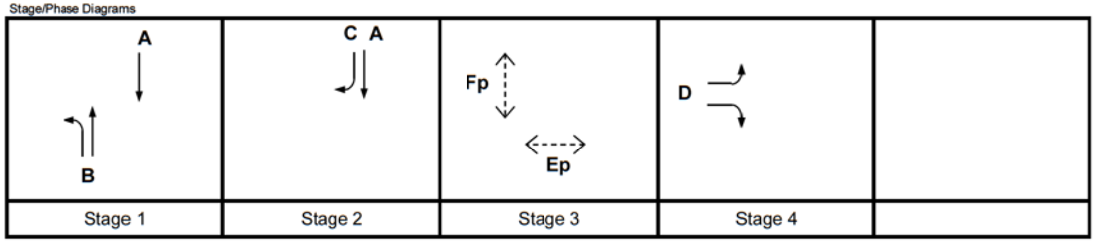
J14

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	110	sec
Sum(y)	Y =	0.375	
Lost time	L =	39	sec
Total Flow	=	12,130	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	102	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	62	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.608	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	62.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	67	sec
Y_{max} = $1-L/C$	=	0.645	

Stage/Phase Diagrams



I/G = 5 I/G = 8 G = 7 I/G = 16 I/G = 6

Critical Case : B,C,Ep,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 55%

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	1,2	3.300	1				1		0		1945		510		510			1945	0.262	
	C	2	3.300	1		15	0	0		0		2085			180	180		100%	1895	0.095	0.095
	B	1	3.300	1	10			1		0		1945	140	221		361	39%		1838	0.196	
	B	1	3.300	1				0		0		2085		409		409			2085	0.196	0.196
	D	4	3.500	1	10			1		0		1965	143			143	100%		1709	0.084	0.084
	D	4	3.500	1	15	10	0	0		0		2105	97		60	157	62%	38%	1881	0.084	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	7	+	13	=	20	sec												*
	Fp	3	min.	8	+	10	=	18	sec												

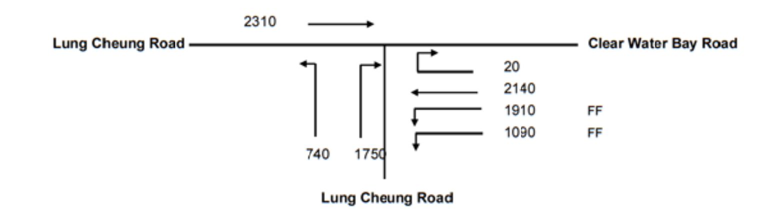
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 15

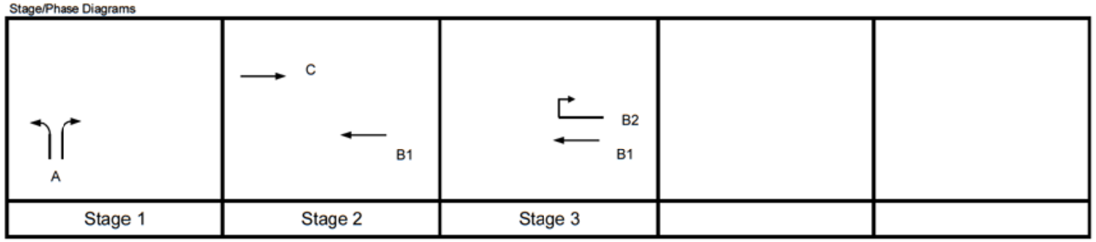
J15

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3
Cycle time		C =	140 sec
Sum(y)		Y =	0.823
Lost time		L =	11 sec
Total Flow		=	20,550 pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	121 sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	62 sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.818
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	-0.6 %
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	128 sec
Y_{max}	$= 1-L/C$	=	0.921

Stage/Phase Diagrams



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

Critical Case : A,B1

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 1%

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				1		0		1945		611		611			1945	0.314	
	A	1	3.300	1		30	0			0		2085		129	502	630		80%	2005	0.314	0.314
	A	1	3.300	2		30	0	0		0		4170			1248	1248		100%	3971	0.314	
	B1	2,3	3.500	2				0		0		4210		2140		2140			4210	0.508	0.508
	B2	3	3.500	1		10	0	1		0		1965			20	20		100%	1709	0.012	
	C	2	3.500	3				1		0		6175		2310		2310			6175	0.374	

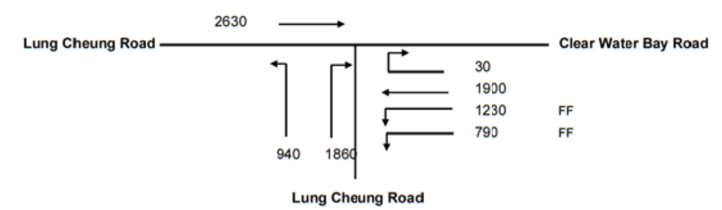
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

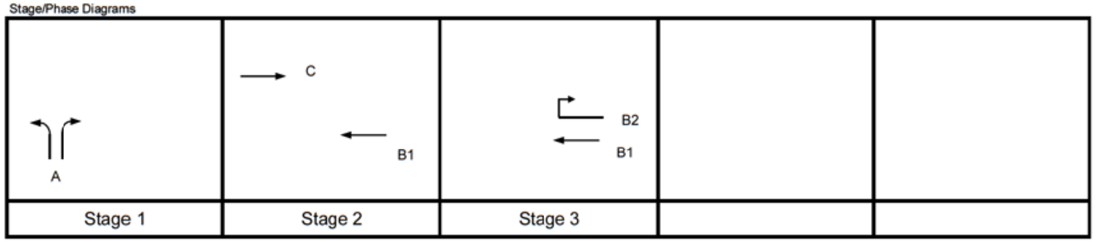
J15

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.779	
Lost time		L =	16	sec
Total Flow		=	20,550	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		131	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	72	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.780	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\text{x}100\%$	=	0.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	119	sec
Y_{max}	$= 1-L/C$	=	0.886	

Stage/Phase Diagrams



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

Critical Case : A,C,B2

R.C.(C) $= (0.9\text{x}Y_{max}\text{-}Y)/Y\text{x}100\%$ = 2%

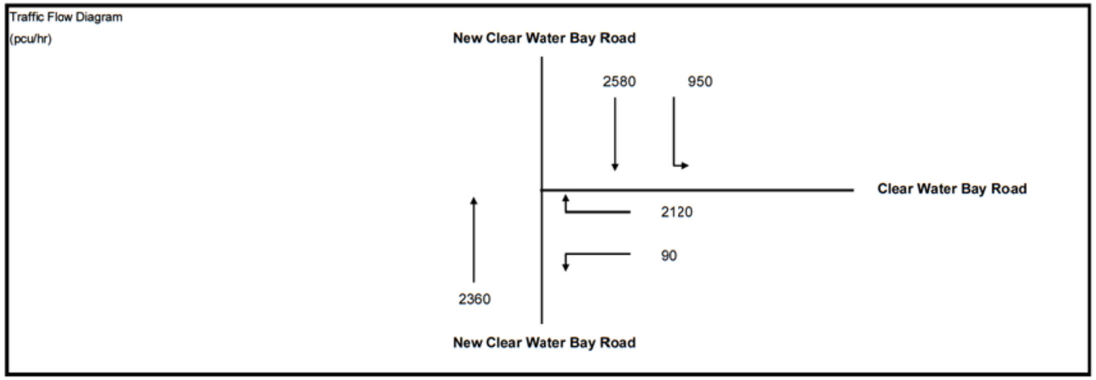
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1945		686		686			1945	0.353	
	A	1	3.300	1		30	0			0		2085		254	459	713		64%	2020	0.353	0.353
	A	1	3.300	2		30	0	0		0		4170			1401	1401		100%	3971	0.353	
	B1	2,3	3.500	2				0		0		4210		1900		1900			4210	0.451	
	B2	3	3.500	1		10	0	1		0		1965			30	30		100%	1709	0.018	
	C	2	3.500	3				1		0		6175		2630		2630			6175	0.426	0.426

JUNCTION CAPACITY CALCULATION

AECOM

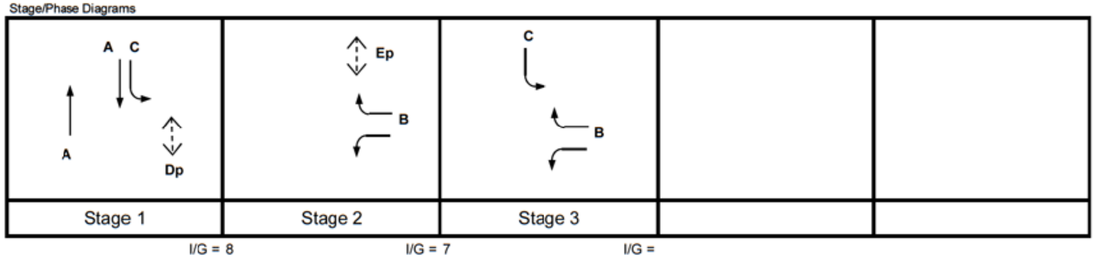
Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

J16



No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.810	
Lost time	L =	13	sec
Total Flow	=	20,160	pcu
Optimum Cycle C_o	= $(1.5\times L+5)/(1-Y)$ =	129	sec
Min. Cycle Time C_m	= $L/(1-Y)$ =	69	sec
Y_{ult}	= $0.9-0.0075\times L$ =	0.803	
$R.C._{ult}$	= $(Y_{ult}-Y)/Y\times100\%$ =	-1.0	%
Practical Cycle Time C_p	= $0.9\times L/(0.9-Y)$ =	130	sec
Y_{max}	= $1-L/C$ =	0.907	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 1%

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	3.400	3				1		0	-250	6145		2360		2360			5895	0.400	
↓	A	1	3.100	3				0		0		6195		2580		2580			6195	0.416	0.416
↳	C	1,3	3.100	1	20			1		0		1925	950			950	100%		1791	0.531	
	B	2,3	3.400	1	10	20	0	1		0		1955	90		620	710	13%	87%	1803	0.394	0.394
	B	2,3	3.400	2		15	0	0		0		4190			1500	1500		100%	3809	0.394	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	12	=	17	sec												
	Ep	2	min.	5	+	8	=	13	sec												

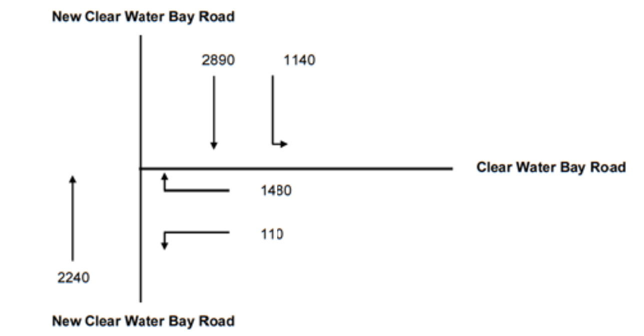
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

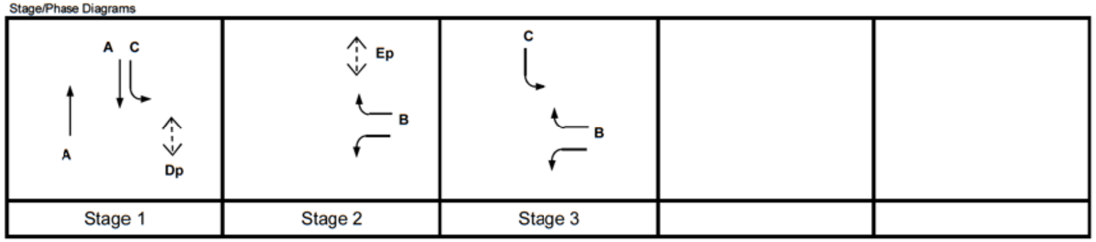
J16

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.750	
Lost time		L =	13	sec
Total Flow		=	20,160	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	98	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	52	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	6.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.907	

Stage/Phase Diagrams



I/G = 8 I/G = 7 I/G =

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 9%

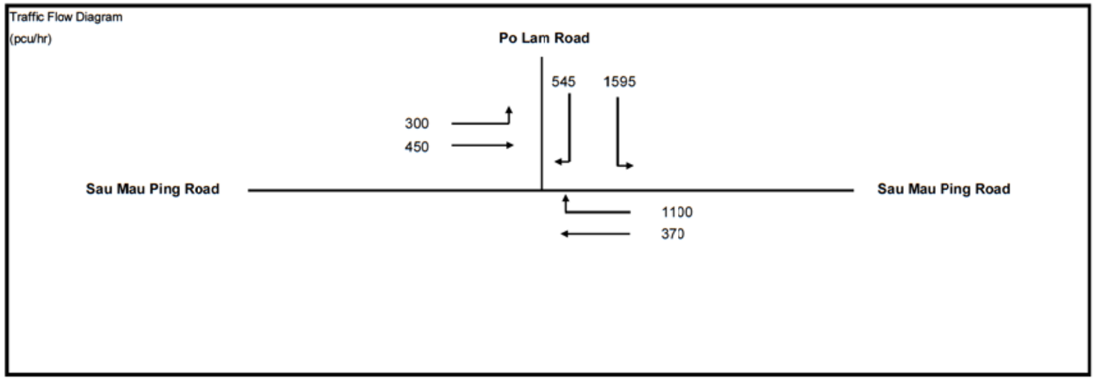
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
↑	A	1	3.400	3				1		0	-250	6145		2240		2240			5895	0.380	
↓	A	1	3.100	3				0		0		6195		2890		2890			6195	0.467	0.467
	C	1,3	3.100	1	20			1		0		1925	1140			1140	100%		1791	0.637	
	B	2,3	3.400	1	10	20	0	1		0		1955	110		399	509	22%	78%	1792	0.284	0.284
	B	2,3	3.400	2		15	0	0		0		4190			1081	1081		100%	3809	0.284	
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	12	=	17	sec												
	Ep	2	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J17 - Sau Mau Ping Road / Po Lam Road	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

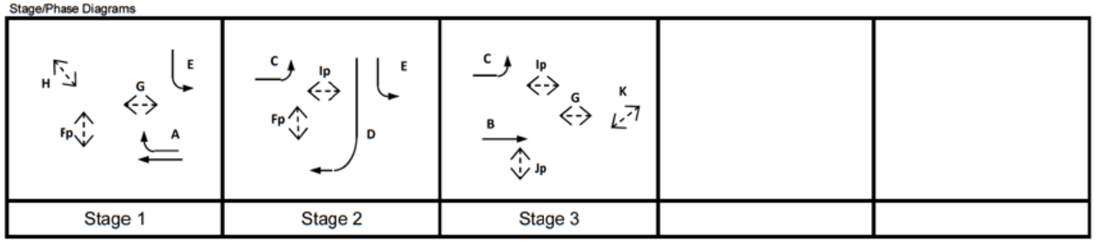
Traffic Flow Diagram
(pcu/hr)



J17

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.647	
Lost time	L =	12	sec
Total Flow	=	18,985	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	65	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	34	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	25.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	43	sec
Y_{max}	$= 1-L/C =$	0.900	

Stage/Phase Diagrams



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

Critical Case : A,D,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 25%

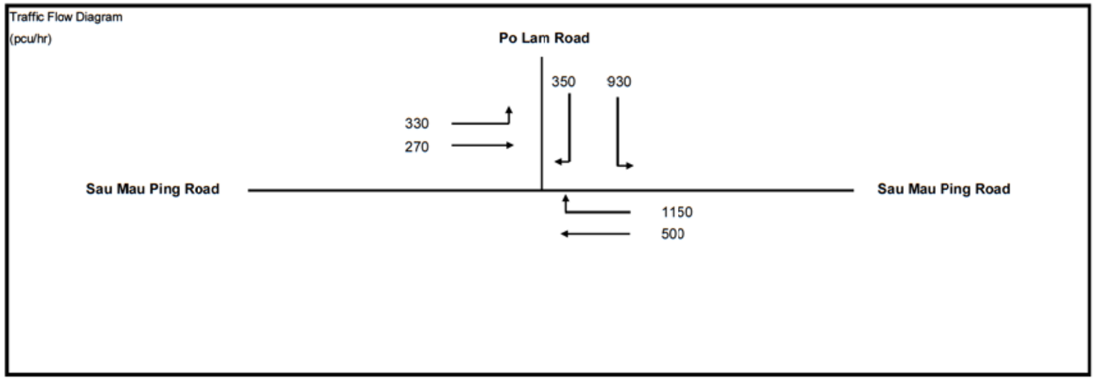
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1945		370		370			1945	0.190	
	A	1	3.500	1		20	0			0		2105		0	559	559		100%	1958	0.265	0.285
	A	1	3.300	1		15	0	0		0		2085			541	541		100%	1895	0.285	
	E	1,2	4.000	2	30			1		0		4170	1595			1595	100%		3971	0.402	
	D	2	3.500	1		20	0	0		0	200	2105			545	545		100%	2144	0.254	0.254
	C	2,3	4.000	1	15			1		0	150	2015	300			300	100%		1968	0.152	
	B	3	3.500	2				0		0		4210		450		450			4210	0.107	0.107
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	5	+	6	=	11	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1	min.	5	+	7	=	12	sec												
	Ip	2,3	min.	5	+	10	=	15	sec												
	Jp	3	min.	5	+	7	=	12	sec												
	Kp	3	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

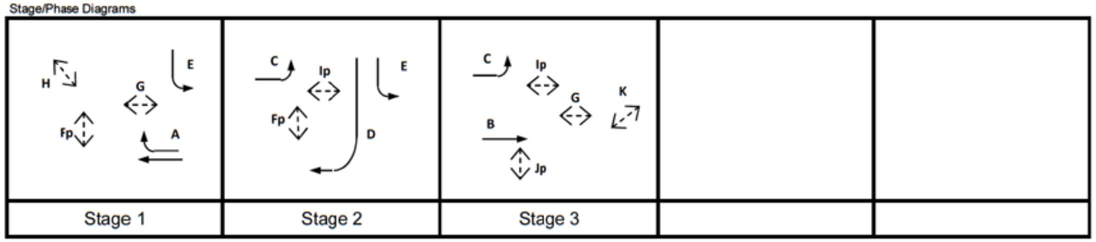
Junction J17 - Sau Mau Ping Road / Po Lam Road	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J17



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.462	
Lost time	L =	29	sec
Total Flow	=	18,985	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	90	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	54	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.683	
$R.C._{ult}$ = $(Y_{ult}-Y)/Yx100\%$	=	47.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	60	sec
Y_{max} = 1-L/C	=	0.758	

Stage/Phase Diagrams



I/G = 5 I/G = 12 G = 5 I/G = 9

Critical Case : A,D,Jp

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 48%

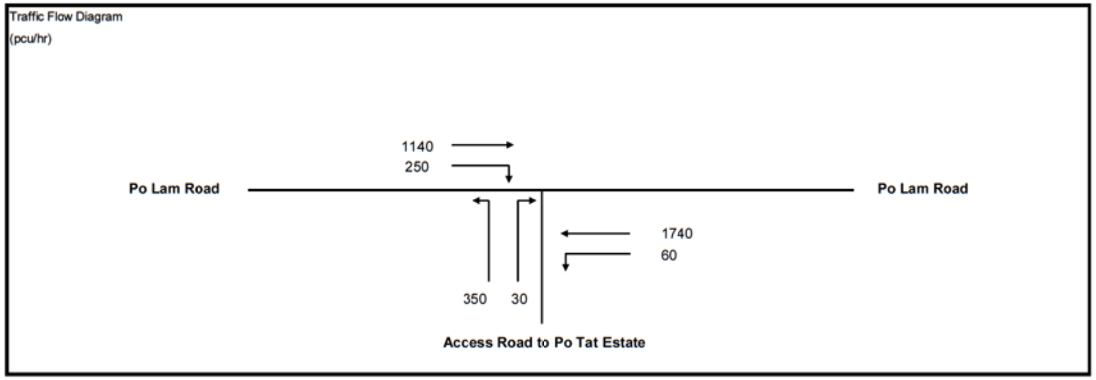
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.300	1				1		0		1945		500		500			1945	0.257	
	A	1	3.500	1		20	0			0		2105		0	584	584		100%	1958	0.298	0.298
	A	1	3.300	1		15	0	0		0		2085			566	566		100%	1895	0.298	
	E	1,2	4.000	2	30			1		0		4170	930			930	100%		3971	0.234	
	D	2	3.500	1		20	0	0		0	200	2105			350	350		100%	2144	0.163	0.163
	C	2,3	4.000	1	15			1		0	150	2015	330			330	100%		1968	0.168	
	B	3	3.500	2				0		0		4210		270		270			4210	0.064	
Pedestrian Crossing				GM		FGM															
	Fp	1,2	min.	5	+	6	=	11	sec												
	Gp	1,3	min.	5	+	6	=	11	sec												
	Hp	1	min.	5	+	7	=	12	sec												
	Ip	2,3	min.	5	+	10	=	15	sec												
	Jp	3	min.	5	+	7	=	12	sec												*
	Kp	3	min.	5	+	7	=	12	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J18 - Po Lam Road / Access Road to Po Tat Estate	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

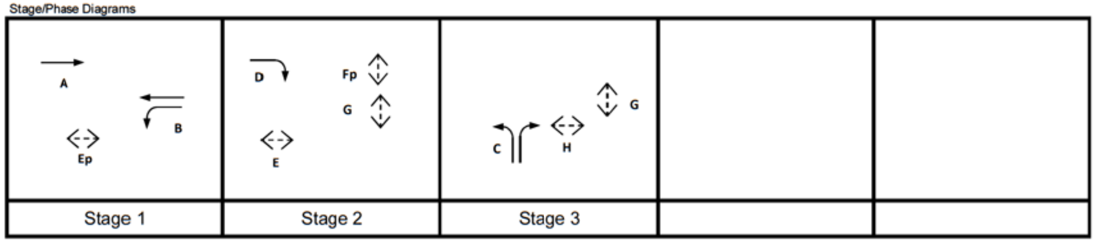
Traffic Flow Diagram
(pcu/hr)



J18

No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.517	
Lost time		L =	13	sec
Total Flow		=	18,375	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =		51	sec
Min. Cycle Time C_m	= L/(1-Y)	=	27	sec
Y_{ult}	= 0.9-0.0075×L	=	0.803	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100%	=	55.2	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	31	sec
Y_{max}	= 1-L/C	=	0.892	

Stage/Phase Diagrams



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

Critical Case : B,D,C

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 55%

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	2				1		0		4070		1140		1140			4070	0.280	
	D	2	3.500	1		20	0	0		0		2105			250	250		100%	1958	0.128	0.128
	B	1	3.500	1	15			1		0		1965	60	509		569	11%		1944	0.292	0.292
	B	1	3.500	2				0		0		4210		1231		1231			4210	0.292	
	C	3	3.000	2	15			1		0		3970	350			350	100%		3609	0.097	0.097
	C	3	3.000	1		20	0	0		0		2055			30	30		100%	1912	0.016	

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	13	=	18	sec
Fp	2	min.	5	+	7	=	12	sec
Gp	2,3	min.	5	+	10	=	15	sec
Hp	3	min.	5	+	7	=	12	sec

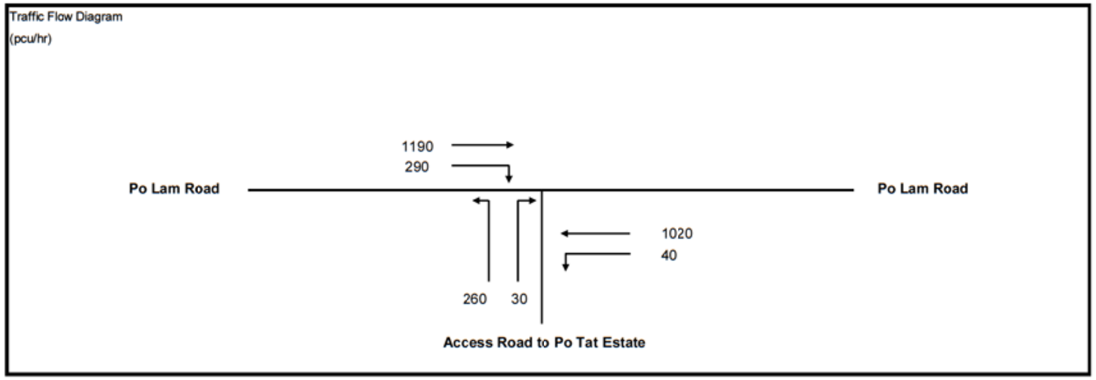
JUNCTION CAPACITY CALCULATION

AECOM

Junction J18 - Po Lam Road / Access Road to Po Tat Estate	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

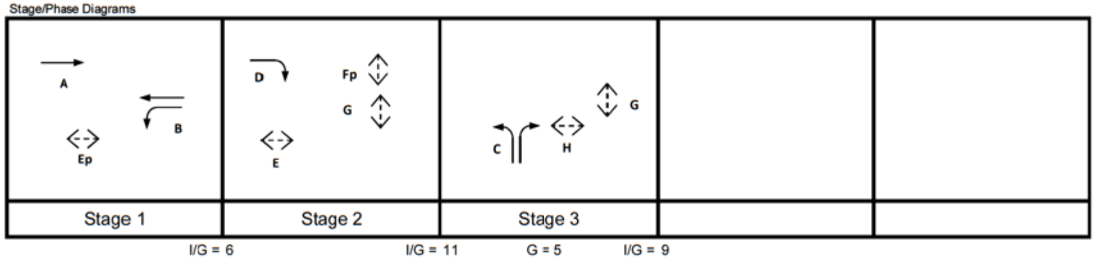
J18

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.440	
Lost time		L =	29	sec
Total Flow		=	18,375	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	87	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	52	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	54.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	57	sec
Y_{max}	$= 1-L/C$	=	0.758	

Stage/Phase Diagrams



Critical Case : A,D,Hp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 55%

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	2				1		0		4070		1190		1190			4070	0.292	0.292
	D	2	3.500	1		20	0	0		0		2105			290	290		100%	1958	0.148	0.148
	B	1	3.500	1	15			1		0		1965	40	295		335	12%		1942	0.172	
	B	1	3.500	2				0		0		4210		725		725			4210	0.172	
	C	3	3.000	2	15			1		0		3970	260			260	100%		3609	0.072	
	C	3	3.000	1		20	0	0		0		2055			30	30		100%	1912	0.016	

Pedestrian Crossing			GM		FGM			
Ep	1,2	min.	5	+	13	=	18	sec
Fp	2	min.	5	+	7	=	12	sec
Gp	2,3	min.	5	+	10	=	15	sec
Hp	3	min.	5	+	7	=	12	sec *

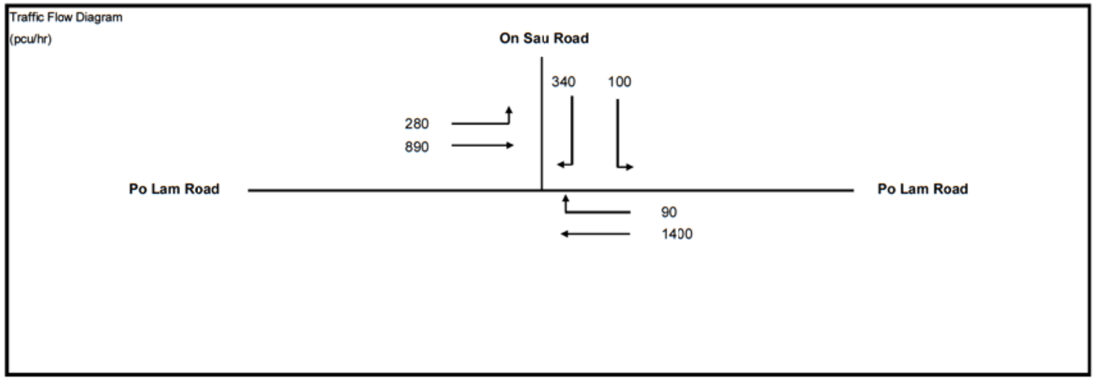
JUNCTION CAPACITY CALCULATION

AECOM

Junction J19 - Po Lam Road / On Sau Road	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

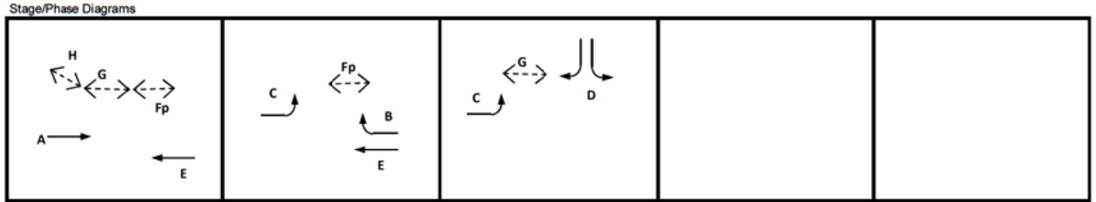
J19

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.425	
Lost time	L =	12	sec
Total Flow	=	18,925	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	40	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	21	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	90.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	23	sec
Y_{max} = $1-L/C$	=	0.867	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G =	I/G = 5	I/G = 9		

Critical Case : E,D

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
	C	2,3	3.700	1	20			1		0		1985	280			280	100%		1847	0.152	
	A	1	3.650	2				0		0		4240		890		890			4240	0.210	
	B	2	4.000	1		20	0	0		0		2155			90	90		100%	2005	0.045	
	E	1,2	3.650	2				1		0		4100		1400		1400			4100	0.341	0.341
	D	3	4.300	1	15			1		0		2045	100			100	100%		1859	0.054	
	D	3	4.450	2		20	0	0		0		4400			340	340		100%	4093	0.083	0.083

Pedestrian Crossing

			GM		FGM			
Fp	1,2	min.	7	+	14	=	21	sec
Gp	1,3	min.	5	+	5	=	10	sec
Hp	1	min.	5	+	7	=	12	sec

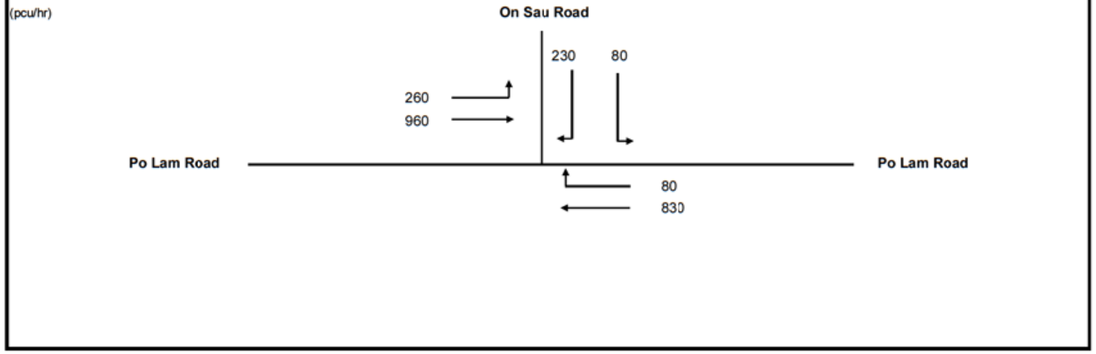
JUNCTION CAPACITY CALCULATION

AECOM

Junction J19 - Po Lam Road / On Sau Road	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

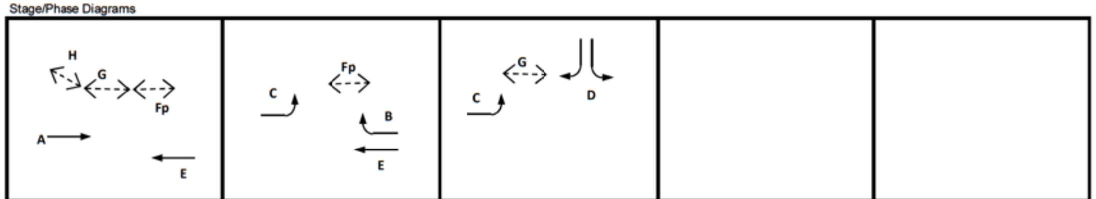
J19

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.367	
Lost time		L =	8	sec
Total Flow		=	18,925	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$		27	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	13	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	128.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	14	sec
Y_{max}	$= 1-L/C$	=	0.911	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

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

Critical Case : A,C

R.C.(C) $= (0.9 \times Y_{max} - Y)/Y \times 100\% =$ 123%

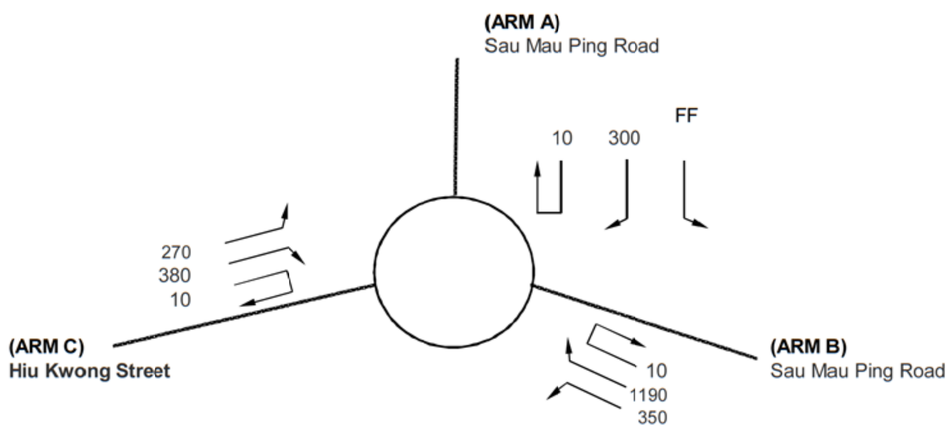
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	C	2,3	3.700	1	20			1		0		1985	260			260	100%		1847	0.141	0.141
	A	1	3.650	2				0		0		4240		960		960			4240	0.226	0.226
	B	2	4.000	1		20	0	0		0		2155			80	80		100%	2005	0.040	
	E	1,2	3.650	2				1		0		4100		830		830			4100	0.202	
	D	3	4.300	1	15			1		0		2045	80			80	100%		1859	0.043	
	D	3	4.450	2		20	0	0		0		4400			230	230		100%	4093	0.056	

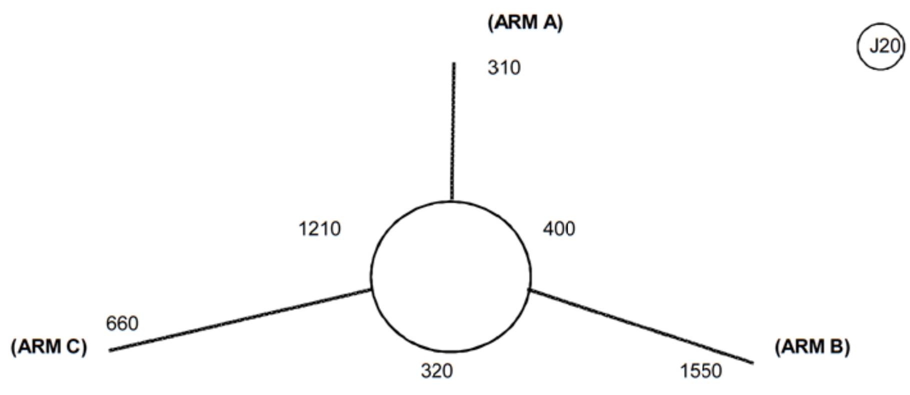
Pedestrian Crossing			GM		FGM			
Fp	1,2	min.	7	+	14	=	21	sec
Gp	1,3	min.	5	+	5	=	10	sec
Hp	1	min.	5	+	7	=	12	sec

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2026 AM Design Flows (25K wo EKL)	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





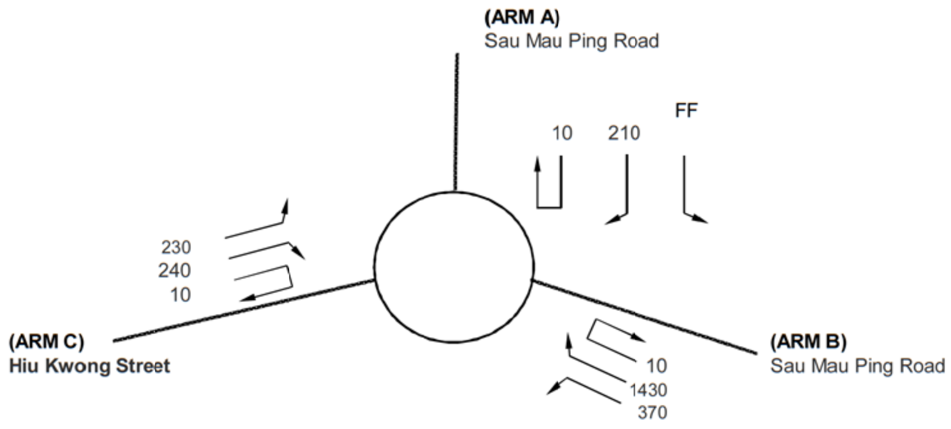
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	310	1550	660
Qc= Circulating flow across entry (pcu/h)	400	320	1210
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1358	1989	994
DFC = Design flow/Capacity = Q/Qe	0.23	0.78	0.66

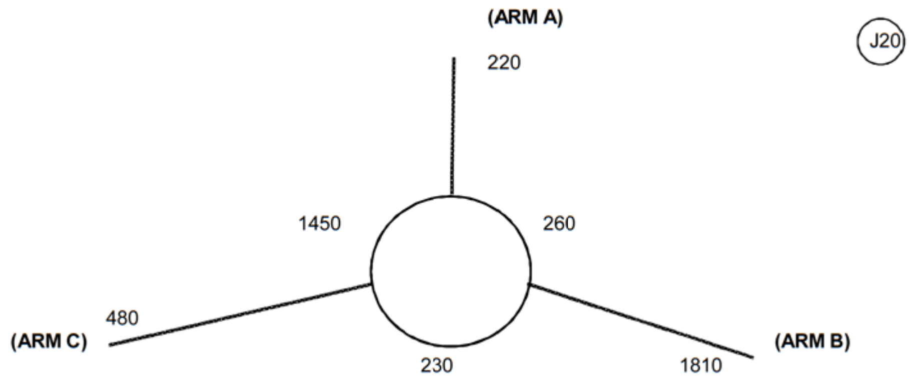
TOTAL ENTRY FLOWS = 2520 PCU

CRITICAL DFC = 0.78

ROUNDABOUT CAPACITY CALCULATION AECOM

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2026 PM Design Flows (25K wo EKL)	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	220	1810	480
Qc= Circulating flow across entry (pcu/h)	260	230	1450
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1452	2058	827
DFC = Design flow/Capacity = Q/Qe	0.15	0.88	0.58

TOTAL ENTRY FLOWS = 2510 PCU

CRITICAL DFC = 0.88

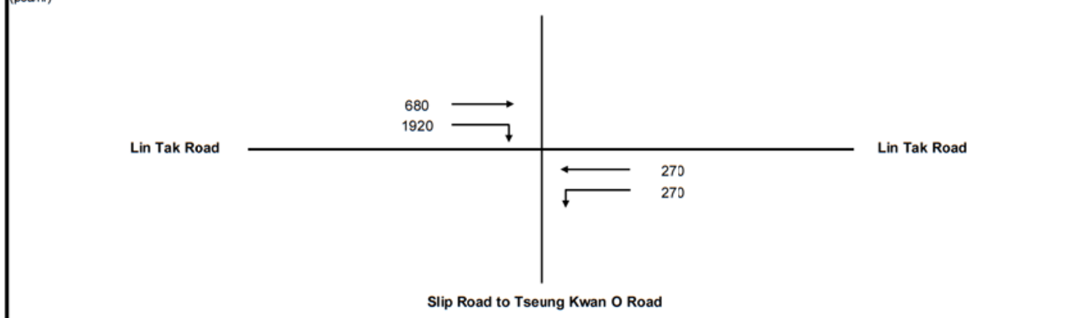
JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2026 AM Design Flows (Ref_25K wo EKL)	DESIGN: KH	CHECK: 0	JOB NO: 60328348	DATE: Dec 14

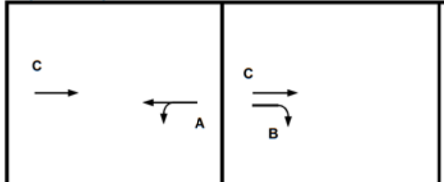
(J21)

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	110	sec
Sum(y)		Y =	1.158	
Lost time		L =	10	sec
Total Flow		=	8,070	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		-126	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	-63	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	-28.8	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	-35	sec
Y_{max}	$= 1-L/C$	=	0.909	

Stage/Phase Diagrams



I/G = 7 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ -29%

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			
	C	1,2	3.500	1				1		0		1965		680		680			1965	0.346	
	B	2	3.500	1		15	0	0		0		2105			1920	1920		100%	1914	1.003	1.003
	A	1	3.300	1				0		0		2085		270		270			2085	0.129	
	A	1	3.000	1	15			1		0		1915	270			270	100%		1741	0.155	0.155

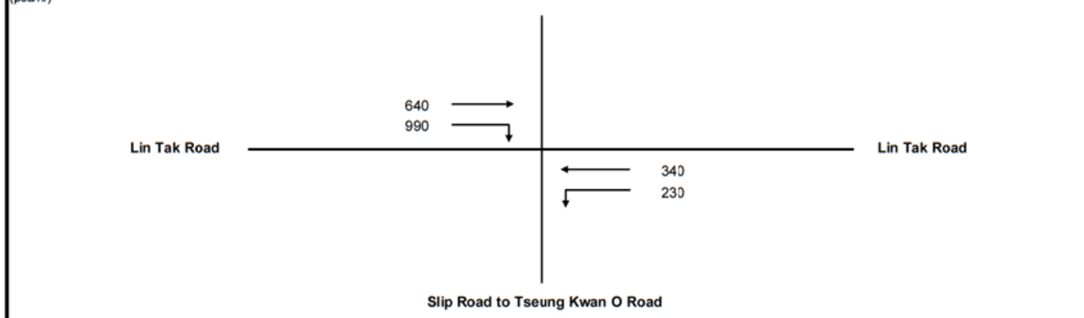
JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2026 PM Design Flows (Ref_25K wo EKL)	DESIGN: KH	CHECK: 0	JOB NO: 60328348	DATE: Dec 14

J21

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	80	sec
Sum(y)		Y =	0.680	
Lost time		L =	10	sec
Total Flow		=	8,070	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$		63	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	31	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	21.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.875	

Stage/Phase Diagrams

I/G = 7 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 16%

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	1,2	3.500	1				1		0		1965		640		640			1965	0.326	
	B	2	3.500	1		15	0	0		0		2105			990	990		100%	1914	0.517	0.517
	A	1	3.300	1				0		0		2085		340		340			2085	0.163	0.163
	A	1	3.000	1	15			1		0		1915	230			230	100%		1741	0.132	

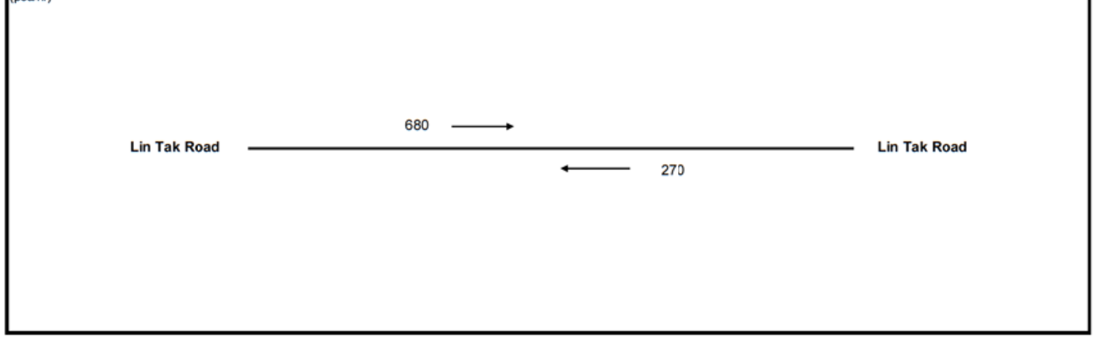
JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2026 AM Design Flows (Conforming Scheme_25K wo EKL)	DESIGN: KH	CHECK: 0	JOB NO: 60328348	DATE: Dec 14

J21

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	110	sec
Sum(y)		Y =	0.337	
Lost time		L =	20	sec
Total Flow		=	4,030	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$		53	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	30	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y x100\%$	=	122.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	32	sec
Y_{max}	$= 1-L/C$	=	0.818	

Stage/Phase Diagrams

Stage 1	Stage 2			

I/G = 3 G = 10 I/G = 8

Critical Case : A,Bp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 118%

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	4.000	1				1		0		2015		680		680			2015	0.337	0.337
←	A	1	4.000	1				1		0		2015		270		270			2015	0.134	
Pedestrian Crossing				GM		FGM															
	Bp	2	min.	10	+	5	=	15	sec												*

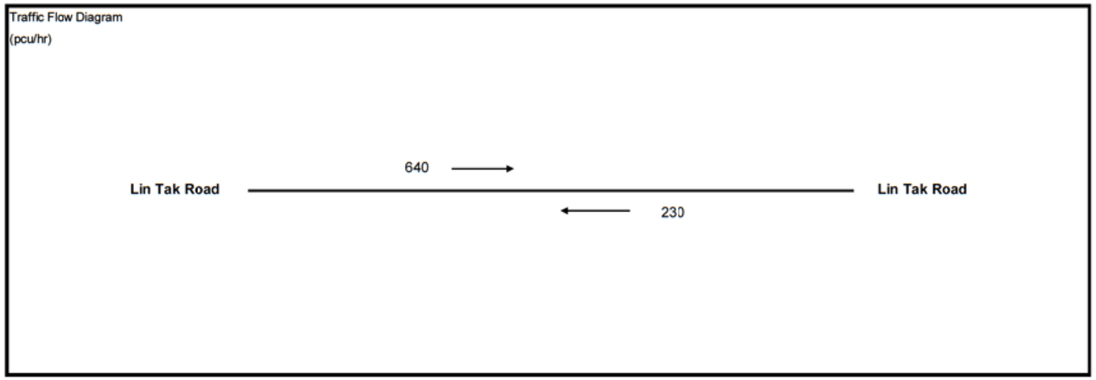
JUNCTION CAPACITY CALCULATION

AECOM

Junction J21 - Lin Tak Rd / Slip Road to TKO Rd	2026 PM Design Flows (Conforming Scheme_25K wo EKL)	DESIGN: KH	CHECK: 0	JOB NO: 60328348	DATE: Dec 14

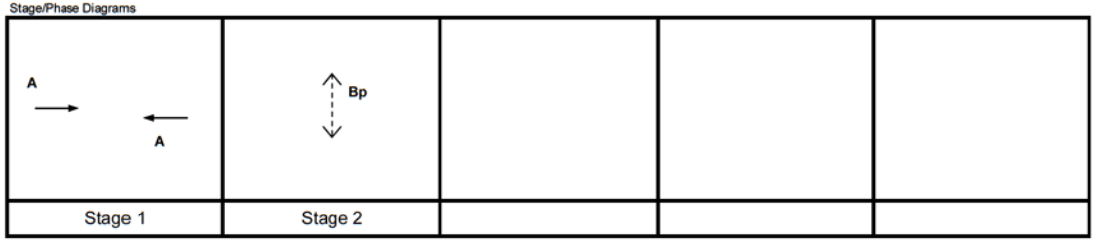
J21

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	80	sec
Sum(y)		Y =	0.318	
Lost time		L =	20	sec
Total Flow		=	4,030	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	51	sec
Min. Cycle Time C_m	= L/(1-Y)	=	29	sec
Y_{ult}	= 0.9-0.0075×L	=	0.750	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	136.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	31	sec
Y_{max}	= 1-L/C	=	0.750	

Stage/Phase Diagrams



I/G = 3 G = 10 I/G = 8

Critical Case : A,Bp

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 113%

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	4.000	1				1		0		2015		640		640			2015	0.318	0.318
←	A	1	4.000	1				1		0		2015		230		230			2015	0.114	
Pedestrian Crossing				GM		FGM															
	Bp	2	min.	10	+	5	=	15	sec												*

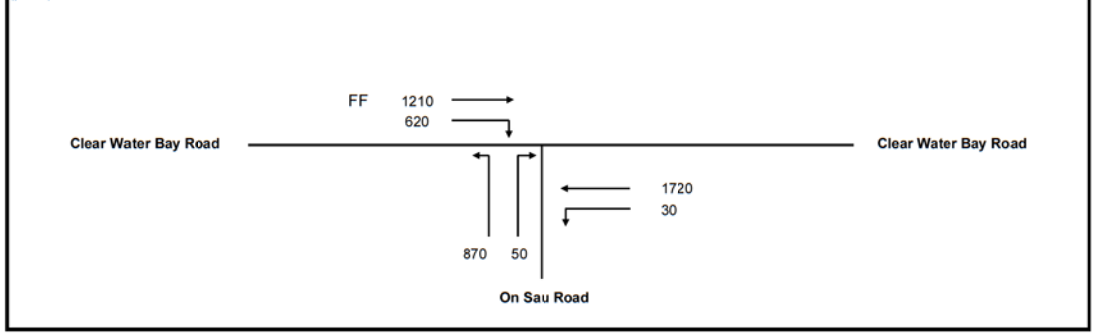
JUNCTION CAPACITY CALCULATION

AECOM

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 AM Design Flows (DAR Layout_25K wo EKL)	DESIGN: SL	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

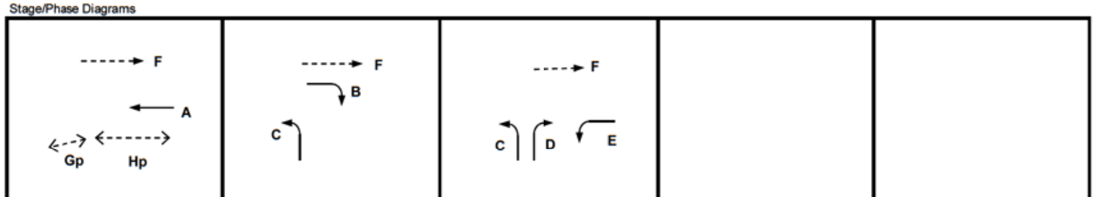
J22

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.688	
Lost time		L =	28	sec
Total Flow		=	14,804	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		151	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	90	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	0.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	119	sec
Y_{max}	$= 1-L/C$	=	0.689	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

I/G = 8 I/G = 9 G = 5 I/G = 8

Critical Case : A,B,E

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = -10%

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
	D	3	3.650	1		20	0	0		0		2120			50	50		100%	1972	0.025	
	C	2,3	3.500	2	20			1		0		4070	870			870	100%		3786	0.230	
	A	1	3.650	2				0		0		4240		1720		1720			4240	0.406	0.406
	E	3	4.000	1	10			1		0		2015	30			30	100%		1752	0.017	
	B	2	3.375	1		20	0	0		0	267	2092.5			620	620		100%	2195	0.283	0.283

Pedestrian Crossing			GM		FGM			
Gp	1	min.	8	+	8	=	16	sec
Hp	1	min.	14	+	12	=	26	sec

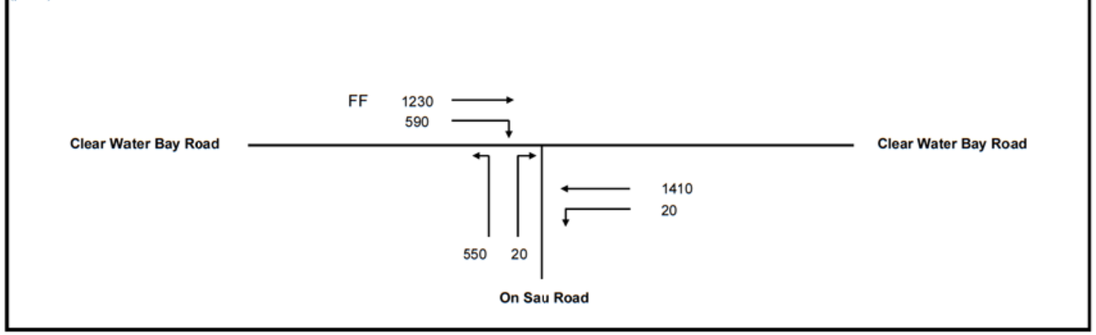
JUNCTION CAPACITY CALCULATION

AECOM

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 PM Design Flows (DAR Layout_25K wo EKL)	DESIGN: SL	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

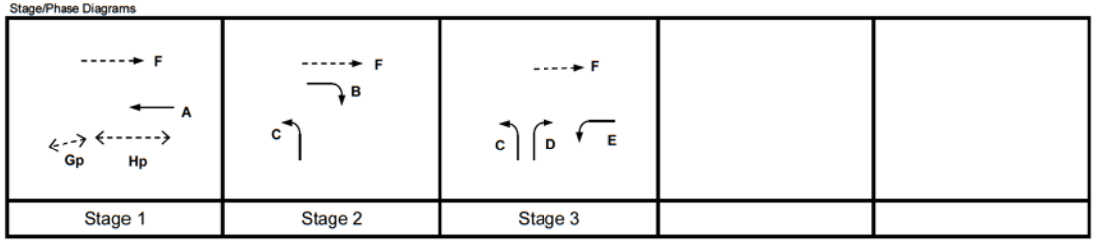
J22

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.601	
Lost time	L =	28	sec
Total Flow	=	14,804	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	118	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	70	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	14.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	84	sec
Y_{max}	$= 1-L/C =$	0.689	

Stage/Phase Diagrams



I/G = 8 I/G = 9 G = 5 I/G = 8

Critical Case : A,B,E

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 3%

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			
	D	3	3.650	1		20	0	0		0		2120			20	20		100%	1972	0.010	
	C	2,3	3.500	2	20			1		0		4070	550			550	100%		3786	0.145	
	A	1	3.650	2				0		0		4240		1410		1410			4240	0.333	0.333
	E	3	4.000	1	10			1		0		2015	20			20	100%		1752	0.011	
	B	2	3.375	1		20	0	0		0	267	2092.5			590	590		100%	2195	0.269	0.269

Pedestrian Crossing				GM		FGM			
	Gp	1	min.	8	+	8	=	16	sec
	Hp	1	min.	14	+	12	=	26	sec

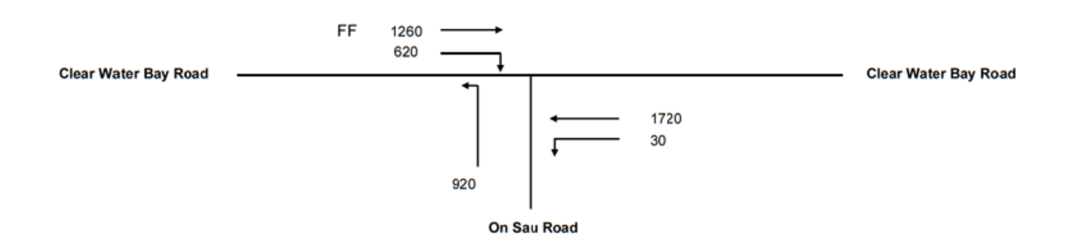
JUNCTION CAPACITY CALCULATION

AECOM

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 AM Design Flows (Alternative Scheme A_25K wo EKL)	DESIGN: CW	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

J22

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	90	sec
Sum(y)		Y =	0.703	
Lost time		L =	9	sec
Total Flow		=	10,625	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	62	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	30	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	18.4	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.900	

Stage/Phase Diagrams

Stage 1	Stage 2			

I/G = 6   I/G = 5

Critical Case : A,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 15%

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
	B	1	3.500	2	15			1		0		4070	920			920	100%		3700	0.249	
	A	1	4.000	1		25	0	0		0		2155			620	620		100%	2033	0.305	0.305
	C	2	3.650	1	15			1		0	300	1980	30	875		905	3%		2272	0.398	
	C	2	3.650	1				0		0		2120		845		845			2120	0.398	0.398

Pedestrian Crossing			GM		FGM			
Dp	1	min.	5	+	6	=	11	sec
Ep	2	min.	5	+	8	=	13	sec
Fp	2	min.	5	+	5	=	10	sec

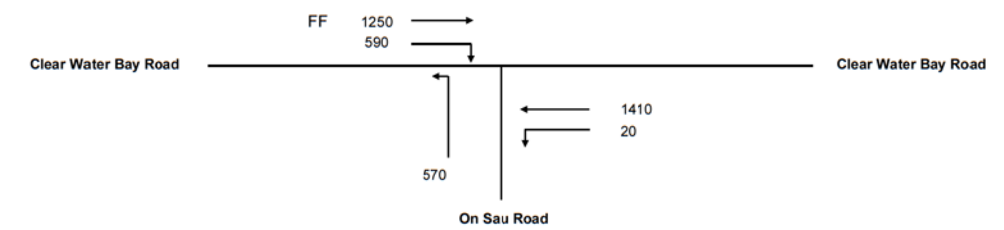
JUNCTION CAPACITY CALCULATION

AECOM

Junction J22 - Clear Water Bay Rd / On Sau Rd	2026 PM Design Flows (Alternative Scheme A_25K wo EKL)	DESIGN: CW	CHECK: KH	JOB NO: 60328348	DATE: Dec 14

J22

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	90	sec
Sum(y)	Y =	0.616	
Lost time	L =	9	sec
Total Flow	=	10,625	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	48	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	23	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.833	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	35.2	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	28	sec
Y_{max} = $1-L/C$	=	0.900	

Stage/Phase Diagrams

Stage 1	Stage 2			

I/G = 6 I/G = 5

Critical Case : A,C

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 32%

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
	B	1	3.500	2	15			1		0		4070	570			570	100%		3700	0.154	
	A	1	4.000	1		25	0	0		0		2155			590	590		100%	2033	0.290	0.290
	C	2	3.650	1	15			1		0	300	1980	20	720		740	3%		2274	0.325	
	C	2	3.650	1				0		0		2120		690		690			2120	0.325	0.325

Pedestrian Crossing			GM		FGM			
Dp	1	min.	5	+	6	=	11	sec
Ep	2	min.	5	+	8	=	13	sec
Fp	2	min.	5	+	5	=	10	sec

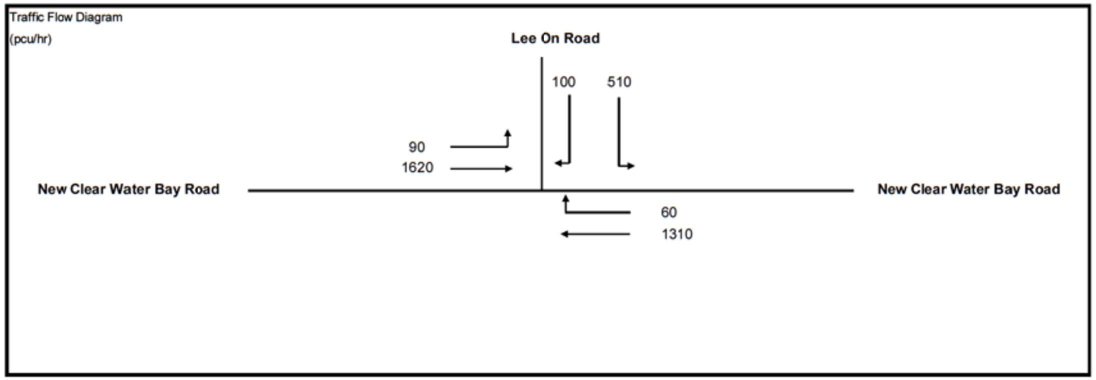
JUNCTION CAPACITY CALCULATION

AECOM

Junction J23 - New Clear Water Bay Road / Lee On Road	2026 AM Design Flows (25K wo EKL)_DAR Imp.	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

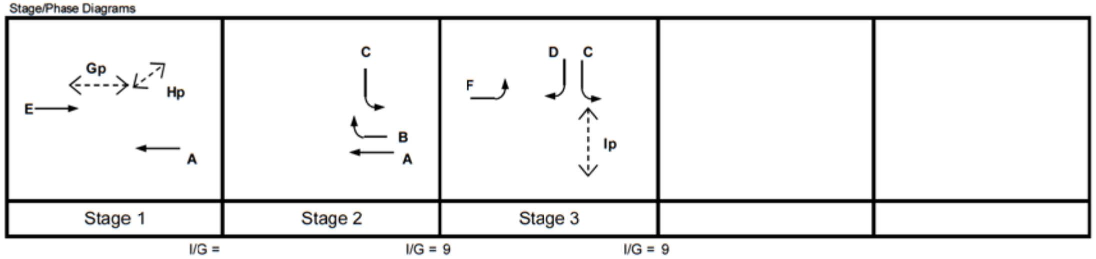
J23

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.719	
Lost time		L =	16	sec
Total Flow		=	14,426	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =		103	sec
Min. Cycle Time C_m	= L/(1-Y)	=	57	sec
Y_{ult}	= 0.9-0.0075×L	=	0.780	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100%	=	8.4	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	80	sec
Y_{max}	= 1-L/C	=	0.886	

Stage/Phase Diagrams



Critical Case : A,F

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 11%

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
	F	3	3.500	1	10			1		0		1965	90			90	100%		1709	0.053	0.053
	E	1	3.300	2				0		0		4170		1620		1620			4170	0.388	
	A	1,2	3.500	1				1		0		1965		1310		1310			1965	0.667	0.667
	B	2	3.300	1		15	0	0		0		2085			60	60		100%	1895	0.032	
	C	2,3	3.500	1	30			1		0	171	1965	510			510	100%		2035	0.251	
	D	3	3.500	1		15	0	0		0		2105			100	100		100%	1914	0.052	

Pedestrian Crossing

			GM		FGM			
Gp	1	min.	9	+	7	=	16	sec
Hp	1	min.	10	+	5	=	15	sec
Ip	3	min.	9	+	8	=	17	sec

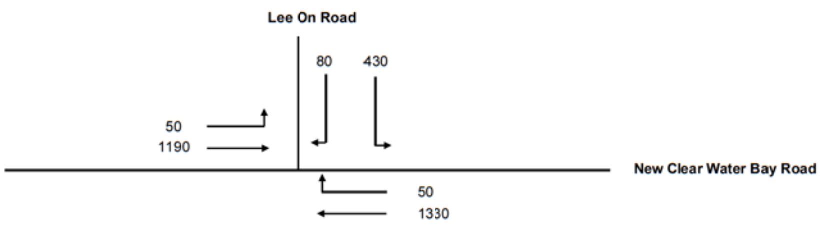
JUNCTION CAPACITY CALCULATION

AECOM

Junction J23 - New Clear Water Bay Road / Lee On Road	2026 PM Design Flows (25K wo EKL)_DAR Imp.	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

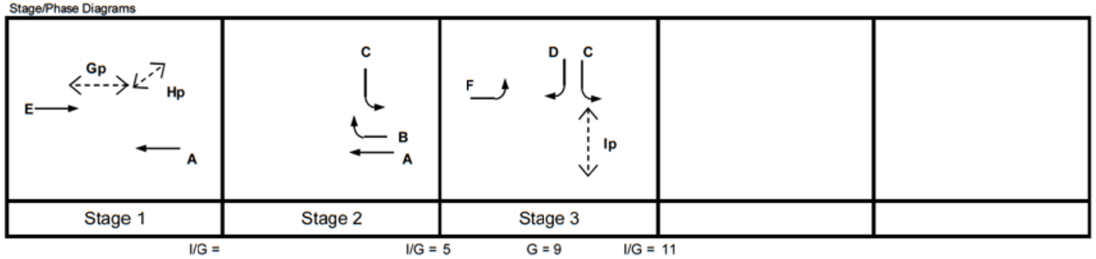
J23

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.677	
Lost time	L =	24	sec
Total Flow	=	14,426	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	127	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	74	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.720	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	6.4	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	97	sec
Y_{max} = $1-L/C$	=	0.829	

Stage/Phase Diagrams



Critical Case : A,Ip

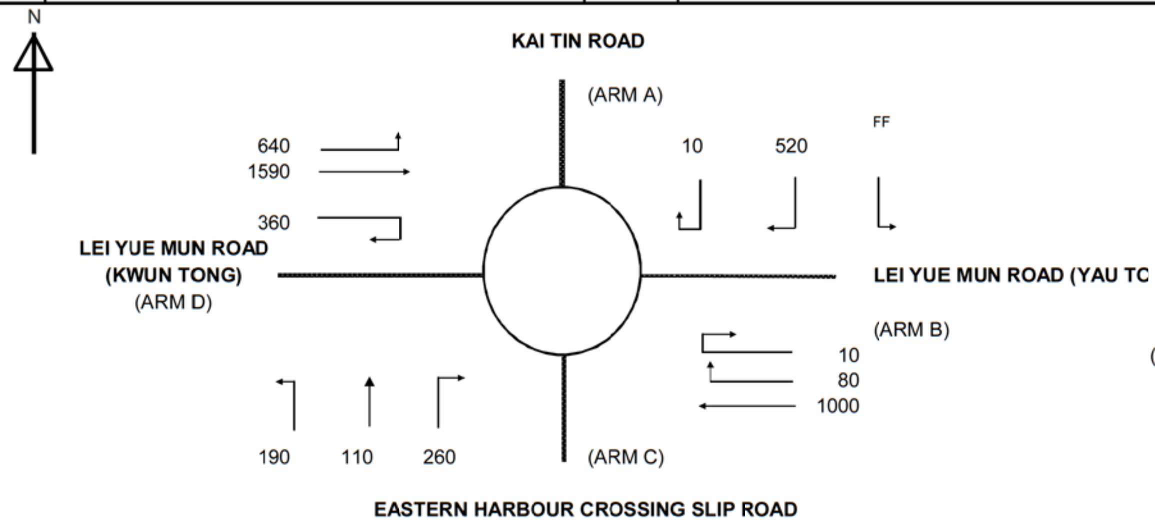
R.C.(C) = $(0.9\times Y_{max}-Y)/Y\times100\%$ = 10%

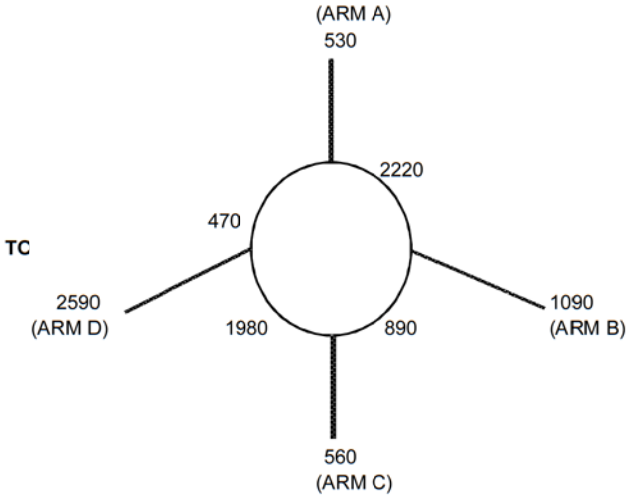
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	F	3	3.500	1	10			1		0		1965	50			50	100%		1709	0.029	
	E	1	3.300	2				0		0		4170		1190		1190			4170	0.285	
	A	1,2	3.500	1				1		0		1965		1330		1330			1965	0.677	0.677
	B	2	3.300	1		15	0	0		0		2085			50	50		100%	1895	0.026	
	C	2,3	3.500	1	30			1		0	171	1965	430			430	100%		2035	0.211	
	D	3	3.500	1		15	0	0		0		2105			80	80		100%	1914	0.042	

Pedestrian Crossing			GM		FGM			
Gp	1	min.	9	+	7	=	16	sec
Hp	1	min.	10	+	5	=	15	sec
Ip	3	min.	9	+	8	=	17	sec	*

ROUNDABOUT CAPACITY CALCULATION

Junction	J24 Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harb	Scenario	2026 AM Design Flows (25K wo EKL)	Project No.	Prepared By	Checked By	Date
				60328348	CW	KHL	Dec 2014





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.00	7.00	7.00	7.00
E = Entry width (m)	7.50	10.00	10.00	8.00
L = Effective length of flare (m)	21.00	10.00	11.00	10.00
R = Entry radius (m)	26.00	20.00	60.00	30.00
D = Inscribed circle diameter (m)	81.00	81.00	81.00	81.00
A = Entry angle (degree)	36.00	35.00	30.00	30.00
Q = Entry flow (pcu/h)	530	1090	560	2590
Qc= Circulating flow across entry (pcu/h)	2220	890	1980	470
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.11	0.48	0.44	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	0.98	1.03	1.02
X2= V + ((E-V)/(1+2S))	7.22	8.53	8.60	7.76
M = EXP((D-60)/10)	8.17	8.17	8.17	8.17
F = 303*X2	2188	2585	2606	2351
Td= 1+(0.5/(1+M))	1.05	1.05	1.05	1.05
Fc= 0.21*Td(1+0.2*X2)	0.54	0.60	0.60	0.57
Qe= K(F-Fc*Qc)	977	2016	1460	2119
DFC = Design flow/Capacity = Q/Qe	0.54	0.54	0.38	1.22

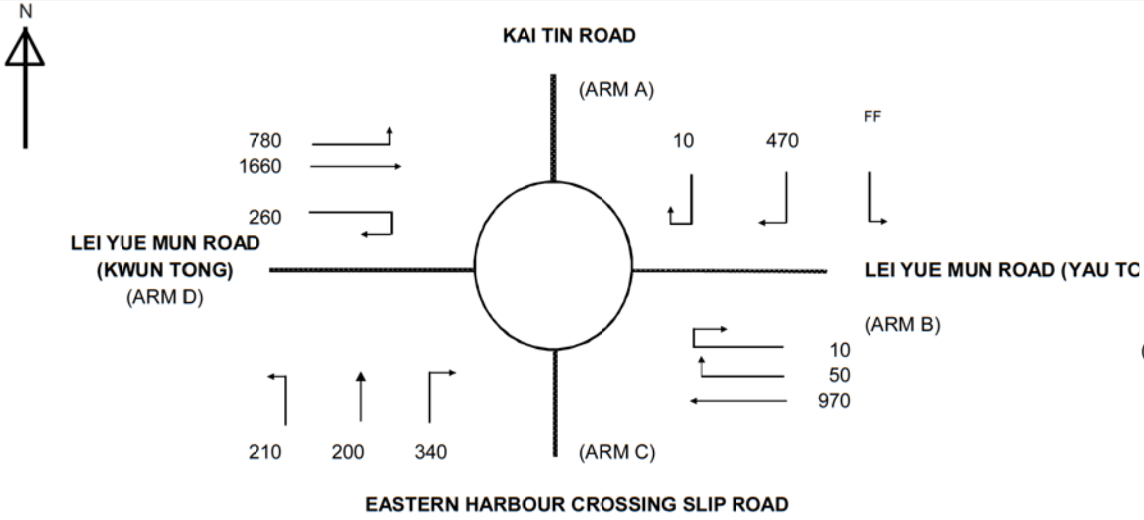
TOTAL ENTRY FLOWS = 4770 PCU

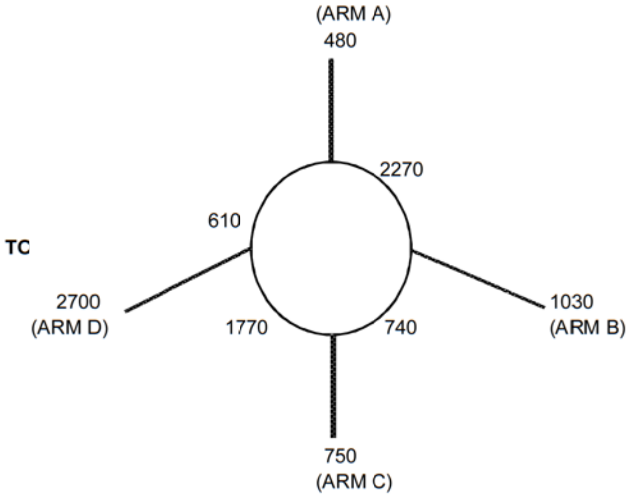
CRITICAL DFC : 1.22

D:\Users\wongwtc1\Desktop\Preliminary Junction Assessment to TD\2026 25K wo EKL (Design)\[J24 Lei Yue Mun Road_Kai Tin Road_Slip Road from EHC yr2026 25K wo EKL_Des.xlsx]2026AM25KwoEKL(Des)

ROUNDABOUT CAPACITY CALCULATION

Junction	J24 Lei Yue Mun Road / Kai Tin Road / Slip Road from Eastern Harb	Scenario	2026 PM Design Flows (25K wo EKL)	Project No.	Prepared By	Checked By	Date
				60328348	CW	KHL	Dec 2014





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.00	7.00	7.00	7.00
E = Entry width (m)	7.50	10.00	10.00	8.00
L = Effective length of flare (m)	21.00	10.00	11.00	10.00
R = Entry radius (m)	26.00	20.00	60.00	30.00
D = Inscribed circle diameter (m)	81.00	81.00	81.00	81.00
A = Entry angle (degree)	36.00	35.00	30.00	30.00
Q = Entry flow (pcu/h)	480	1030	750	2700
Qc= Circulating flow across entry (pcu/h)	2270	740	1770	610
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.11	0.48	0.44	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	0.98	1.03	1.02
X2= V + ((E-V)/(1+2S))	7.22	8.53	8.60	7.76
M = EXP((D-60)/10)	8.17	8.17	8.17	8.17
F = 303*X2	2188	2585	2606	2351
Td= 1+(0.5/(1+M))	1.05	1.05	1.05	1.05
Fc= 0.21*Td(1+0.2*X2)	0.54	0.60	0.60	0.57
Qe= K(F-Fc*Qc)	950	2104	1590	2039
DFC = Design flow/Capacity = Q/Qe	0.51	0.49	0.47	1.32

TOTAL ENTRY FLOWS = 4960 PCU

CRITICAL DFC : 1.32

D:\Users\wongwtc1\Desktop\Preliminary Junction Assessment to TD\2026 25K wo EKL (Design)\[J24 Lei Yue Mun Road_Kai Tin Road_Slip Road from EHC yr2026 25K wo EKL_Des.xlsx]2026PM25KwoEKL(Des)

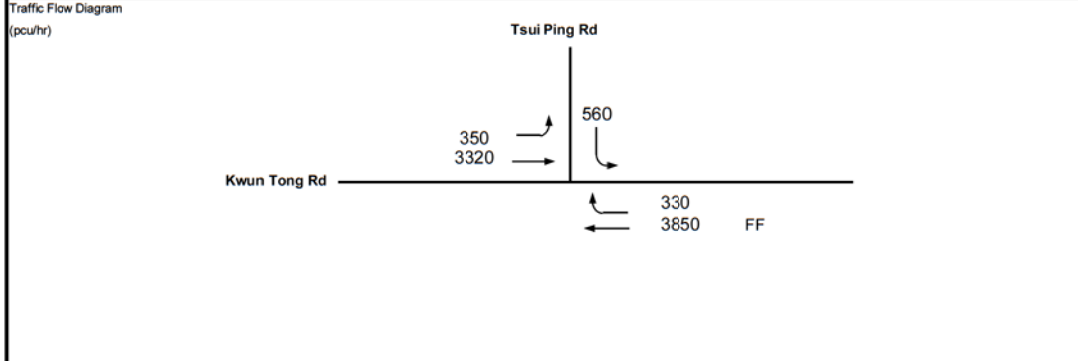
JUNCTION CAPACITY CALCULATION

AECOM

Junction J25 - Kwun Tong Rd / Tsui Ping Rd	2026 AM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

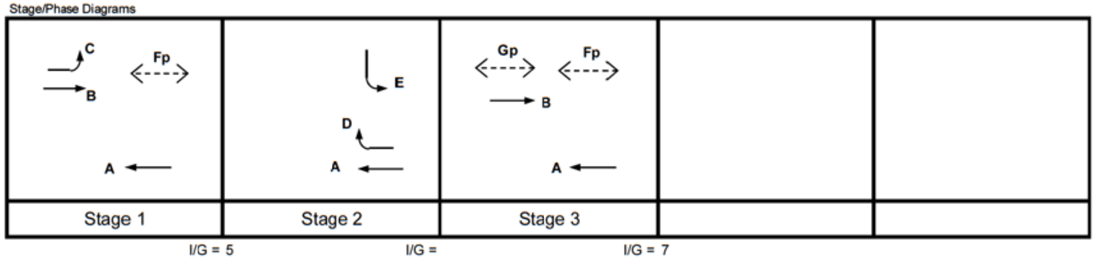
J25

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	108	sec
Sum(y)		Y =	0.699	
Lost time		L =	10	sec
Total Flow		=	14,355	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		67	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	33	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\%$	=	18.0	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	45	sec
Y_{max}	$= 1-L/C$	=	0.907	

Stage/Phase Diagrams



Critical Case : B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 17%

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
	B	1,3	3.300	3				0		0		6255		3320		3320			6255	0.531	0.531
	C	1	3.500	1	17.5			1		0		1965	350			350	100%		1810	0.193	
	E	2	3.300	2	15			1		0		4030	560			560	100%		3664	0.153	
	D	2	3.500	1		20	0	0		0		2105			330	330		100%	1958	0.169	0.169

Pedestrian Crossing			GM		FGM			
Fp	1,3	min.	8	+	8	=	16	sec
Gp	3	min.	6	+	6	=	12	sec

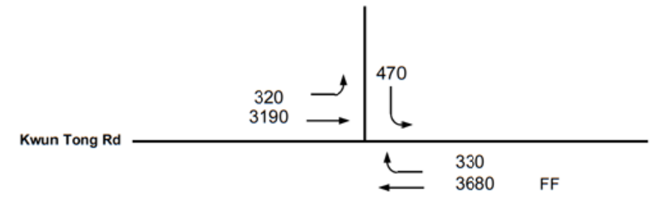
JUNCTION CAPACITY CALCULATION

AECOM

Junction J25 - Kwun Tong Rd / Tsui Ping Rd	2026 PM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

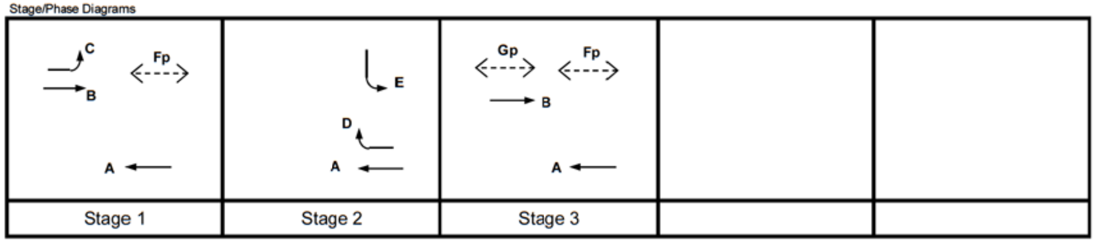
J25

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	108	sec
Sum(y)		Y =	0.679	
Lost time		L =	10	sec
Total Flow		=	14,355	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	62	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	31	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	21.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.907	

Stage/Phase Diagrams



I/G = 5   I/G =   I/G = 7

Critical Case : B,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 20%

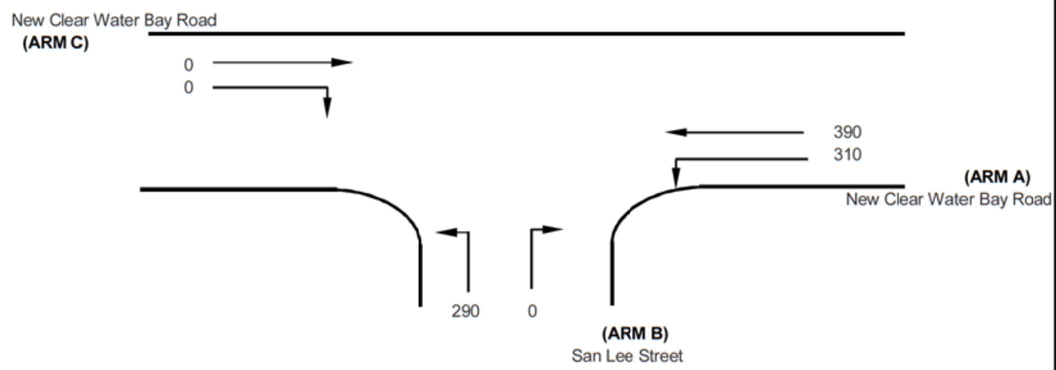
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	1,3	3.300	3				0		0		6255		3190		3190			6255	0.510	0.510
	C	1	3.500	1	17.5			1		0		1965	320			320	100%		1810	0.177	
	E	2	3.300	2	15			1		0		4030	470			470	100%		3664	0.128	
	D	2	3.500	1		20	0	0		0		2105			330	330		100%	1958	0.169	0.169

Pedestrian Crossing			GM		FGM			
Fp	1,3	min.	8	+	8	=	16	sec
Gp	3	min.	6	+	6	=	12	sec

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J26 - New Clear Water Bay Road / San Lee Street	2026 AM Design Flows (25K wo EKL)	Designed By : GT	Checked By : KHL	Job No. : 60328348	Date : Dec 14



J26

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	=	7.15 (metres)	W c-b	=	0 (metres)	W b-a	=	0 (metres)
W cr	=	0 (metres)	Vr c-b	=	0 (metres)	W b-c	=	6 (metres)
q a-b	=	310 (pcu/hr)	q c-a	=	0 (pcu/hr)	Vl b-a	=	110 (metres)
q a-c	=	390 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	250 (metres)
						Vr b-c	=	0 (metres)
						q b-a	=	0 (pcu/hr)
						q b-c	=	290 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.716147
E	=	1.089043
F	=	0.585955
Y	=	0.753325

THE CAPACITY OF MOVEMENT :

Q b-a	=	348
Q b-c	=	658
Q c-b	=	324
Q b-ac	=	658

CRITICAL DFC = 0.44

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.00
DFC b-c	=	0.44
DFC c-b	=	0.00
DFC b-ac	=	0.44

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J26 - New Clear Water Bay Road / San Lee Street	2026 PM Design Flows (25K wo EKL)	Designed By : GT	Checked By : KHL	Job No. : 60328348	Date : Dec 14

J26

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	=	7.15 (metres)	W c-b	=	0 (metres)	W b-a	=	0 (metres)
W cr	=	0 (metres)	Vr c-b	=	0 (metres)	W b-c	=	6 (metres)
q a-b	=	340 (pcu/hr)	q c-a	=	0 (pcu/hr)	Vl b-a	=	110 (metres)
q a-c	=	660 (pcu/hr)	q c-b	=	0 (pcu/hr)	Vr b-a	=	250 (metres)
						Vr b-c	=	0 (metres)
						q b-a	=	0 (pcu/hr)
						q b-c	=	240 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.716147
E	=	1.089043
F	=	0.585955
Y	=	0.753325

THE CAPACITY OF MOVEMENT :

Q b-a	=	293
Q b-c	=	574
Q c-b	=	276
Q b-ac	=	574

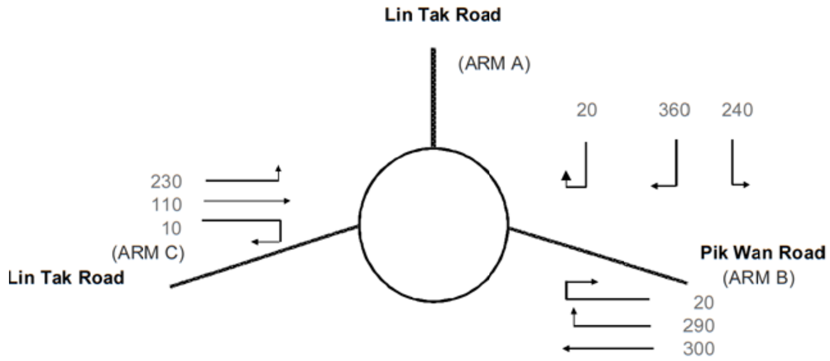
COMPARISION OF DESIGN FLOW TO CAPACITY :

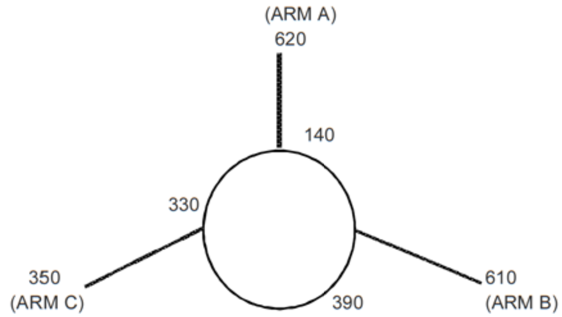
DFC b-a	=	0.00
DFC b-c	=	0.42
DFC c-b	=	0.00
DFC b-ac	=	0.42

CRITICAL DFC = 0.42

JUNCTION CAPACITY CALCULATION

J27 Lin Tak Road / Pik Wan Road | 2026 AM Design Flows (25K wo EKL) | FILENAME : .XLS





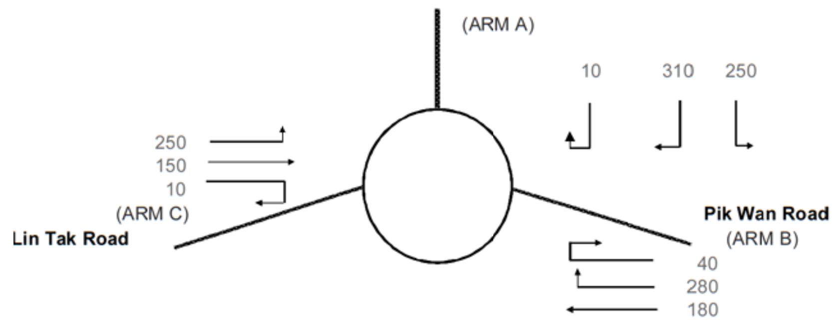
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.30	3.30	3.30
E = Entry width (m)	6.00	6.00	4.00
L = Effective length of flare (m)	1.00	1.00	1.00
R = Entry radius (m)	30.00	100.00	90.00
D = Inscribed circle diameter (m)	25.00	25.00	25.00
A = Entry angle (degree)	30.00	30.00	30.00
Q = Entry flow (pcu/h)	620	610	350
Qc= Circulating flow across entry (pcu/h)	140	390	330
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	4.32	4.32	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02	1.04	1.04
X2= V + ((E-V)/(1+2S))	3.58	3.58	3.52
M = EXP((D-60)/10)	0.03	0.03	0.03
F = 303*X2	1085	1085	1065
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.54	0.54	0.53
Qe= K(F-Fc*Qc)	1026	910	924
DFC = Design flow/Capacity = Q/Qe	0.60	0.67	0.38

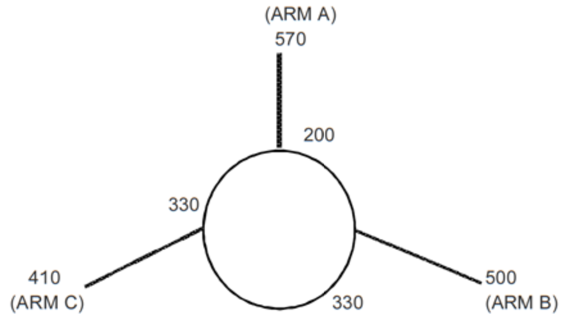
TOTAL ENTRY FLOWS = 1580 PCU

CRITICAL DFC = 0.67

JUNCTION CAPACITY CALCULATION

J27 Lin Tak Road / Pik Wan Road | 2026 PM Design Flows (25K wo EKL) | FILENAME : .XLS





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.30	3.30	3.30
E = Entry width (m)	6.00	6.00	4.00
L = Effective length of flare (m)	1.00	1.00	1.00
R = Entry radius (m)	30.00	100.00	90.00
D = Inscribed circle diameter (m)	25.00	25.00	25.00
A = Entry angle (degree)	30.00	30.00	30.00
Q = Entry flow (pcu/h)	570	500	410
Qc= Circulating flow across entry (pcu/h)	200	330	330
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	4.32	4.32	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02	1.04	1.04
X2= V + ((E-V)/(1+2S))	3.58	3.58	3.52
M = EXP((D-60)/10)	0.03	0.03	0.03
F = 303*X2	1085	1085	1065
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.54	0.54	0.53
Qe= K(F-Fc*Qc)	994	944	924
DFC = Design flow/Capacity = Q/Qe	0.57	0.53	0.44

TOTAL ENTRY FLOWS = 1480 PCU

CRITICAL DFC = 0.57

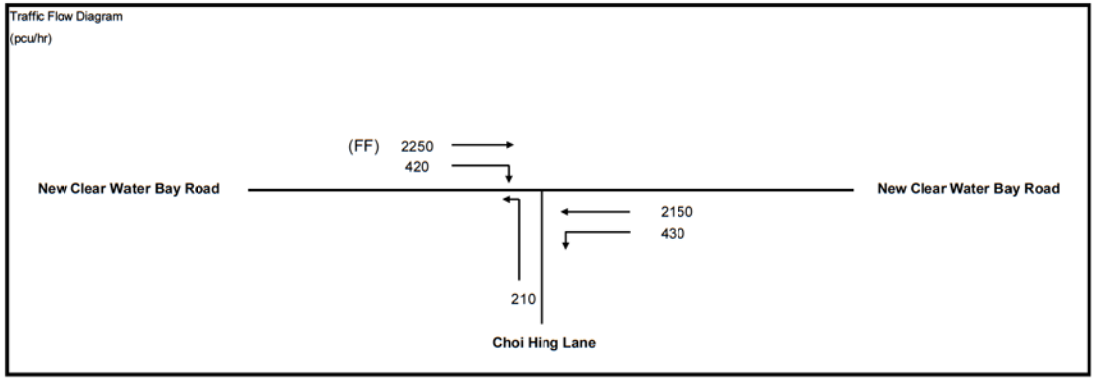
JUNCTION CAPACITY CALCULATION

AECOM

Junction J28 - New Clear Water Bay Rd / Choi Hing Lane	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 15

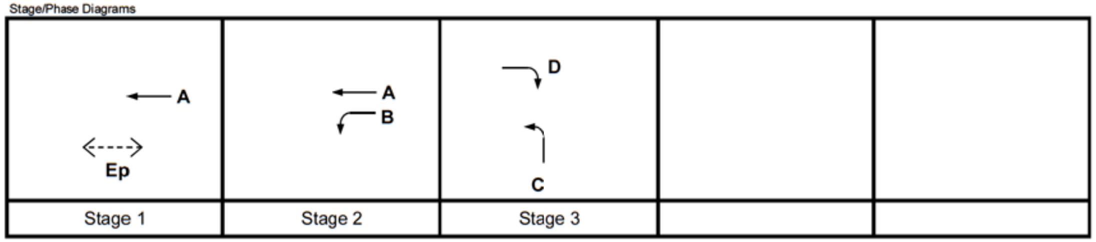
J28

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.730	
Lost time	L =	12	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	85	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	44	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.810	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times 100\%$	=	11.0	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	63	sec
Y_{max} = $1-L/C$	=	0.900	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G =

Critical Case : A,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 11%

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	1,2	3.400	2				0		0		4190		2150		2150			4190	0.513	0.513
↰	B	2	3.400	1	20			1		0		1955	430			430	100%		1819	0.236	
↴	D	3	3.800	1		15	0	0		0		2135			420	420		100%	1941	0.216	0.216
↰	C	3	3.800	1	20			1		0		1995	210			210	100%		1856	0.113	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	9	+	9	=	18	sec												

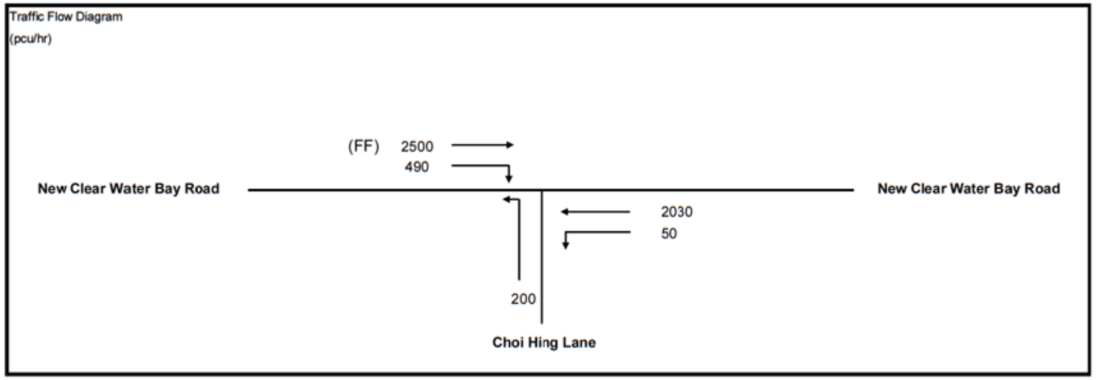
JUNCTION CAPACITY CALCULATION

AECOM

Junction J28 - New Clear Water Bay Rd / Choi Hing Lane	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

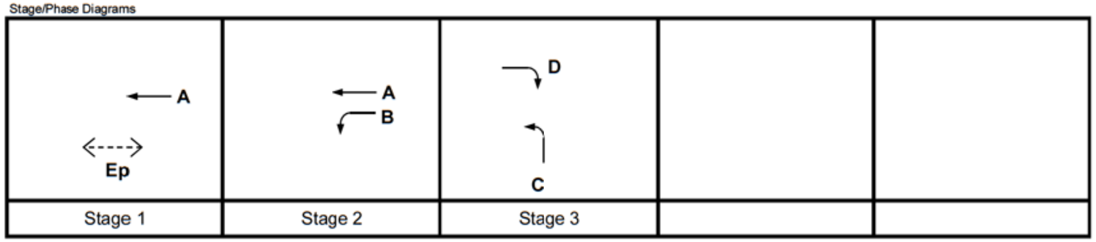
J28

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.737	
Lost time	L =	12	sec
Total Flow	=	10,275	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	87	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	46	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$	9.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	66	sec
Y_{max}	$= 1-L/C =$	0.867	

Stage/Phase Diagrams



I/G = 7 I/G = 7 I/G =

Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 6%

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	1,2	3.400	2				0		0		4190		2030		2030			4190	0.484	0.484
	B	2	3.400	1	20			1		0		1955	50			50	100%		1819	0.027	
	D	3	3.800	1		15	0	0		0		2135			490	490		100%	1941	0.252	0.252
	C	3	3.800	1	20			1		0		1995	200			200	100%		1856	0.108	
Pedestrian Crossing				GM		FGM															
	Ep	1	min.	9	+	9	=	18	sec												

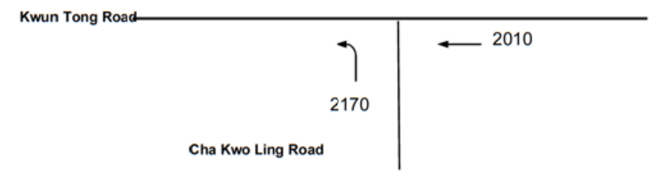
JUNCTION CAPACITY CALCULATION

AECOM

Junction J29 - Kwun Tong Road / Cha Kwo Ling Road	2026 AM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J29

Traffic Flow Diagram
(pcu/hr)

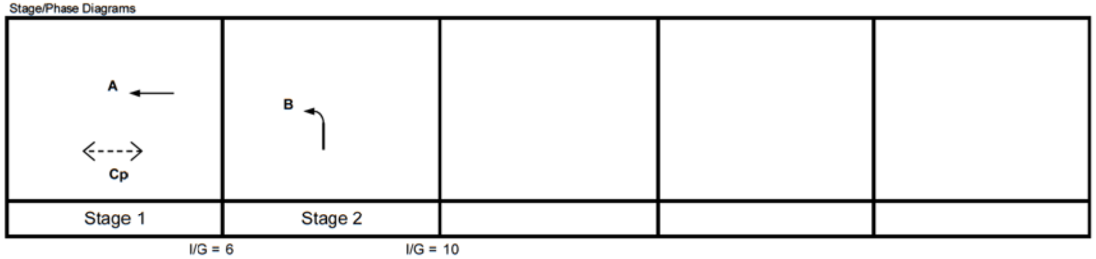


No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.721	
Lost time	L =	14	sec
Total Flow	=	14,405	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$	93	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	50	sec
Y_{ult}	$= 0.9-0.0075\times L =$	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times 100\% =$	10.3	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y) =$	70	sec
Y_{max}	$= 1-L/C =$	0.870	

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 9%

Stage/Phase Diagrams



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
←	B	1	3.000	4				1		0		8080		2010		2010			6464	0.311	0.311
↰	A	2	4.000	3	20			1		0		6325	2170			2170	100%		5295	0.410	0.410
Pedestrian Crossing				GM		FGM															
	Cp	1	min.	7	+	15	=	22	sec												

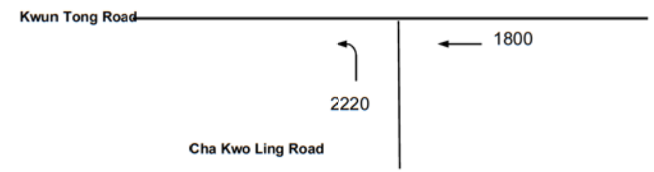
JUNCTION CAPACITY CALCULATION

AECOM

Junction J29 - Kwun Tong Road / Cha Kwo Ling Road	2026 PM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

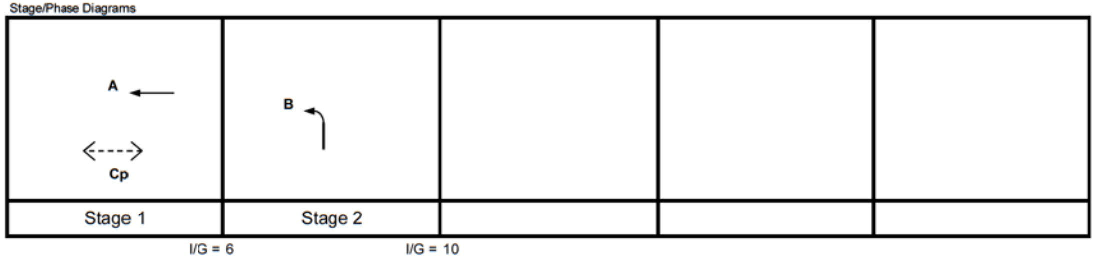
J29

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	108	sec
Sum(y)		Y =	0.698	
Lost time		L =	14	sec
Total Flow		=	14,405	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	86	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	46	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y x100\%$	=	13.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	62	sec
Y_{max}	= 1-L/C	=	0.870	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 12%

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			
←	B	1	3.000	4				1		0		8080		1800		1800			6464	0.278	0.278
↰	A	2	4.000	3	20			1		0		6325	2220			2220	100%		5295	0.419	0.419
Pedestrian Crossing				GM		FGM															
	Cp	1	min.	7	+	15	=	22	sec												

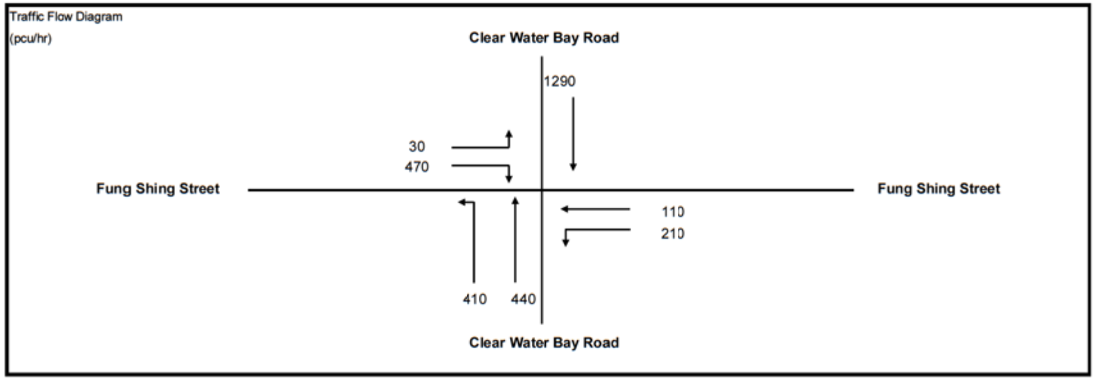
JUNCTION CAPACITY CALCULATION

AECOM

Junction J45 - Clear Water Bay Rd / Fung Shing St	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

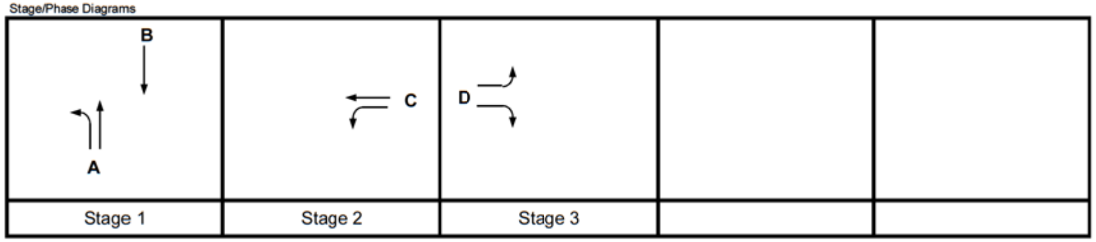
J45

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	135	sec
Sum(y)	Y =	0.784	
Lost time	L =	14	sec
Total Flow	=	12,288	pcu
Optimum Cycle C_o = $(1.5 \times L+5)/(1-Y)$	=	120	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	65	sec
Y_{ult} = $0.9-0.0075 \times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y \times 100\%$	=	1.4	%
Practical Cycle Time C_p = $0.9 \times L/(0.9-Y)$	=	109	sec
Y_{max} = $1-L/C$	=	0.896	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 5

Critical Case : A,C,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 3%

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	4.400	1	20			1		0	27	2055	410	440		850	48%		2009	0.423	0.423
	B	1	3.900	2				1		0		4150		1290		1290			4150	0.311	
	C	2	3.500	1	15			1		0		1965	149			149	100%		1786	0.083	
	C	2	3.500	1	20			0		0		2105	61	110		171	36%		2050	0.083	0.083
	D	3	3.000	1	10	15	0	1		0	71	1915	30		470	500	6%	94%	1801	0.278	0.278

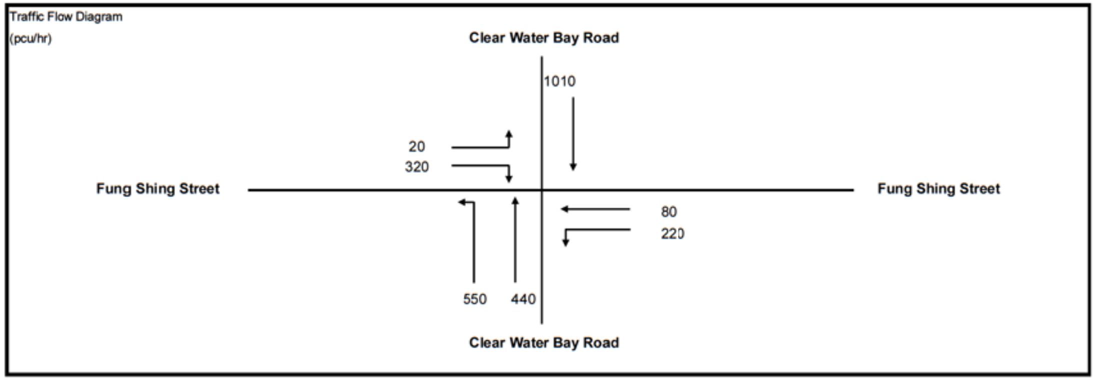
JUNCTION CAPACITY CALCULATION

AECOM

Junction J45 - Clear Water Bay Rd / Fung Shing St	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

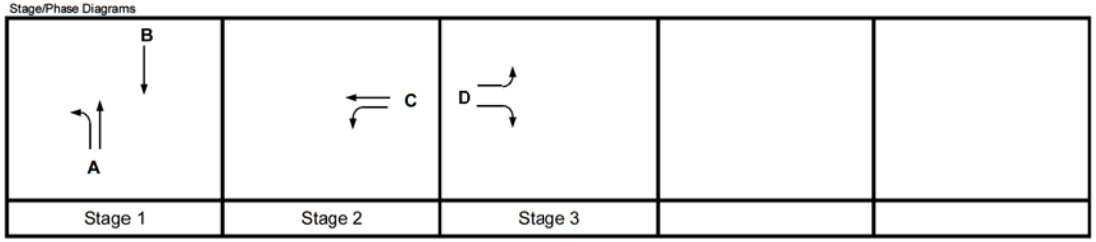
J45

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.759	
Lost time	L =	14	sec
Total Flow	=	12,316	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	108	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	58	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	4.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	89	sec
Y_{max} = $1-L/C$	=	0.867	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 5

Critical Case : A,C,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 3%

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	4.400	1	20			1		0	34	2055	550	440		990	56%		2006	0.494	0.494
	B	1	3.900	2				1		0		4150		1010		1010			4150	0.243	
	C	2	3.500	1	15			1		0		1965	140			140	100%		1786	0.079	0.079
	C	2	3.500	1	20			0		0		2105	80	80		160	50%		2029	0.079	
	D	3	3.000	1	10	15	0	1		0	91	1915	20		320	340	6%	94%	1819	0.187	0.187

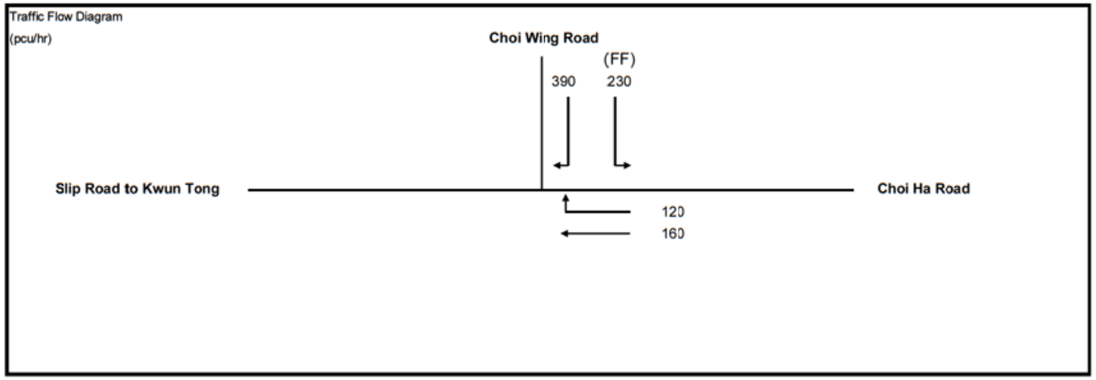
JUNCTION CAPACITY CALCULATION

AECOM

Junction J46 - Choi Ha Road / Slip Road to Kwun Tong	2026 AM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 15

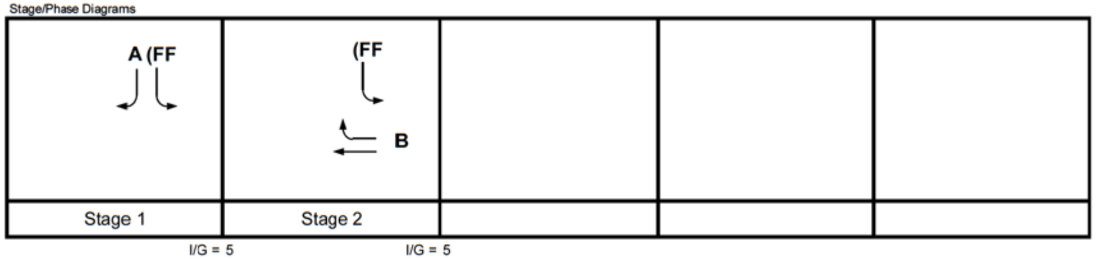
J46

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	90	sec
Sum(y)	Y =	0.280	
Lost time	L =	8	sec
Total Flow	=	6,265	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	24	sec
Min. Cycle Time C_m = L/(1-Y)	=	11	sec
Y_{ult} = 0.9-0.0075×L	=	0.840	
$R.C._{ult}$ = $(Y_{ult}$-Y)/Yx100%	=	200.3	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	12	sec
Y_{max} = 1-L/C	=	0.911	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) = $(0.9xY_{max}$-Y)/Yx100% = 193%

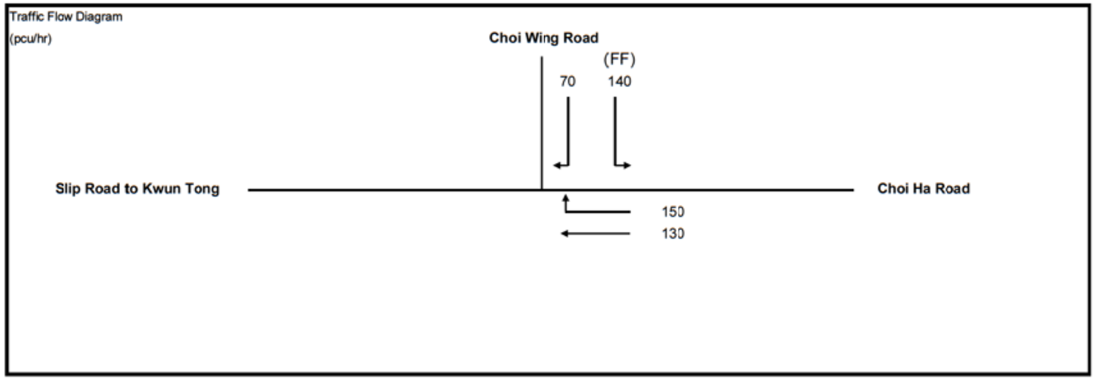
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	4.000	1		15	0	0		0		2155			390	390		100%	1959	0.199	0.199
	B	2	3.700	1				1		0		1985		160		160			1985	0.081	0.081
	B	2	3.700	1		10	0	0		0		2125			120	120		100%	1848	0.065	

JUNCTION CAPACITY CALCULATION

AECOM

Junction J46 - Choi Ha Road / Slip Road to Kwun Tong	2026 PM Design Flows (25K wo EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

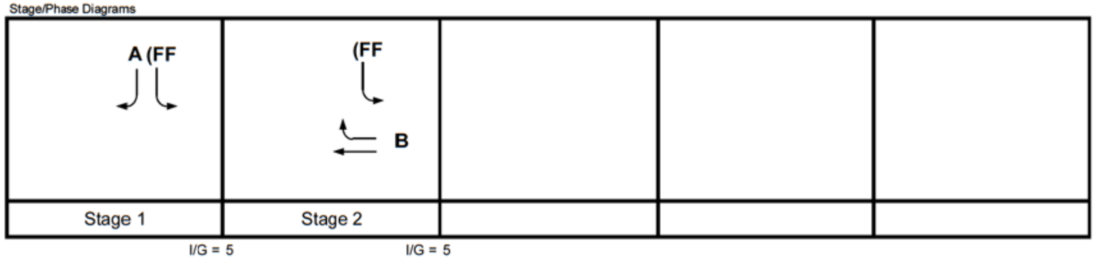
Traffic Flow Diagram
(pcu/hr)



J46

No. of stages per cycle	N =	2	
Cycle time	C =	108	sec
Sum(y)	Y =	0.117	
Lost time	L =	8	sec
Total Flow	=	6,265	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	19	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	9	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.840	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	618.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	9	sec
Y_{max} = $1-L/C$	=	0.926	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 613%

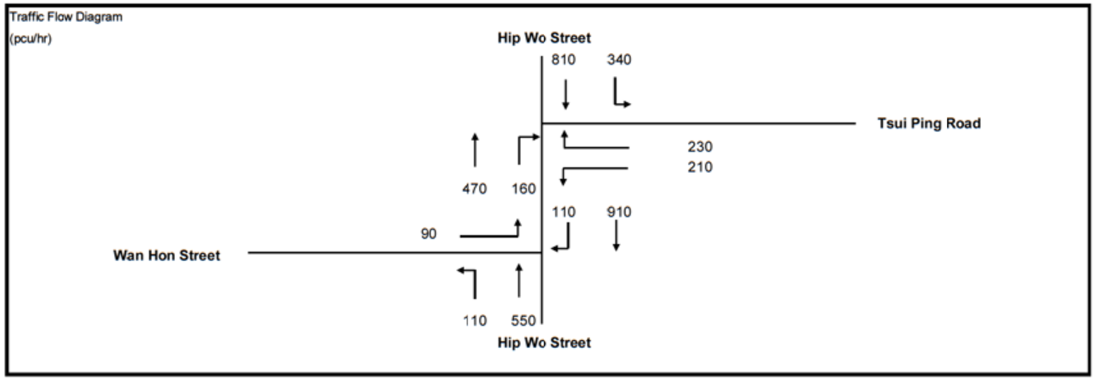
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	4.000	1		15	0	0		0		2155			70	70		100%	1959	0.036	0.036
	B	2	3.700	1				1		0		1985		130		130			1985	0.065	
	B	2	3.700	1		10	0	0		0		2125			150	150		100%	1848	0.081	0.081

JUNCTION CAPACITY CALCULATION

AECOM

Junction J47 - Hip Wo Street / Tsui Ping Road / Wan Hon Street	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

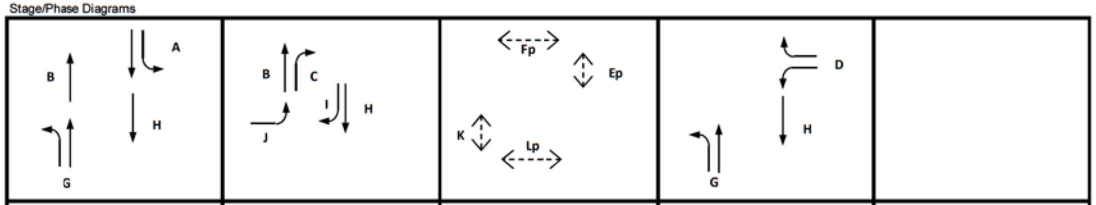
Traffic Flow Diagram
(pcu/hr)



J47

No. of stages per cycle	N =	4	
Cycle time	C =	118	sec
Sum(y)	Y =	0.490	
Lost time	L =	38	sec
Total Flow	=	22,165	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	122	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	75	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.615	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	25.5	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	83	sec
Y_{max} = $1-L/C$	=	0.678	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 5 I/G = 10 G = 13 I/G = 8 I/G = 5

Critical Case : A,C,Kp,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 25%

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			
	G	1,4	3.000	1	15			1		0		1915	110	203		313	35%		1850	0.169	
	G	1,4	3.000	1				0		0		2055		347		347			2055	0.169	
	I	2	3.500	1		20	0	0		0		2105			110	110		100%	1958	0.056	
	H	1,2,4	3.500	1				1		0		1965		910		910			1965	0.463	
	C	2	3.500	1		25	0	0		0		2105			160	160		100%	1986	0.081	0.081
	B	1,2	3.500	1				1		0		1965		470		470			1965	0.239	
	D	4	3.000	1		20	0	0		0		2055			230	230		100%	1912	0.120	
	D	4	3.000	1	15			1		0		1915	210			210	100%		1741	0.121	0.121
	A	1	3.500	1	20			1		0		1965	340	202		542	63%		1877	0.289	0.289
	A	1	3.500	1				0		0		2105		608		608			2105	0.289	
	J	2	4.000	1	15			1		0		2015	90			90	100%		1832	0.049	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	9	=	19	sec												
	Fp	3	min.	13	+	8	=	21	sec												
	Kp	3	min.	13	+	6	=	19	sec												*
	Lp	3	min.	11	+	9	=	20	sec												

JUNCTION CAPACITY CALCULATION

AECOM

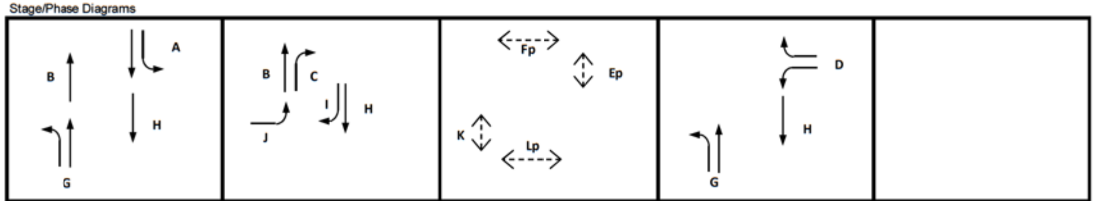
Junction J47 - Hip Wo Street / Tsui Ping Road / Wan Hon Street	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

Traffic Flow Diagram
(pcu/hr)

J47

No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.470	
Lost time	L =	38	sec
Total Flow	=	22,165	pcu
Optimum Cycle C_o $= (1.5\times L+5)/(1-Y)$	=	117	sec
Min. Cycle Time C_m $= L/(1-Y)$	=	72	sec
Y_{ult} $= 0.9-0.0075\times L$	=	0.615	
$R.C._{ult}$ $= (Y_{ult}-Y)/Y\times100\%$	=	30.9	%
Practical Cycle Time C_p $= 0.9\times L/(0.9-Y)$	=	80	sec
Y_{max} $= 1-L/C$	=	0.648	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 5 I/G = 8 G = 13 I/G = 10 I/G = 5

Critical Case : A,I,Fp,D

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
	G	1,4	3.000	1	15			1		0		1915	160	131		291	55%		1815	0.160	
	G	1,4	3.000	1				0		0		2055		329		329			2055	0.160	
	I	2	3.500	1		20	0	0		0		2105			170	170		100%	1958	0.087	0.087
	H	1,2,4	3.500	1				1		0		1965		730		730			1965	0.372	
	C	2	3.500	1		25	0	0		0		2105			160	160		100%	1986	0.081	
	B	1,2	3.500	1				1		0		1965		450		450			1965	0.229	
	D	4	3.000	1		20	0	0		0		2055			310	310		100%	1912	0.162	
	D	4	3.000	1	15			1		0		1915	300			300	100%		1741	0.172	0.172
	A	1	3.500	1	20			1		0		1965	240	156		396	61%		1880	0.211	0.211
	A	1	3.500	1				0		0		2105		444		444			2105	0.211	
	J	2	4.000	1	15			1		0		2015	150			150	100%		1832	0.082	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	10	+	9	=	19	sec												
	Fp	3	min.	13	+	8	=	21	sec												*
	Kp	3	min.	13	+	6	=	19	sec												
	Lp	3	min.	11	+	9	=	20	sec												

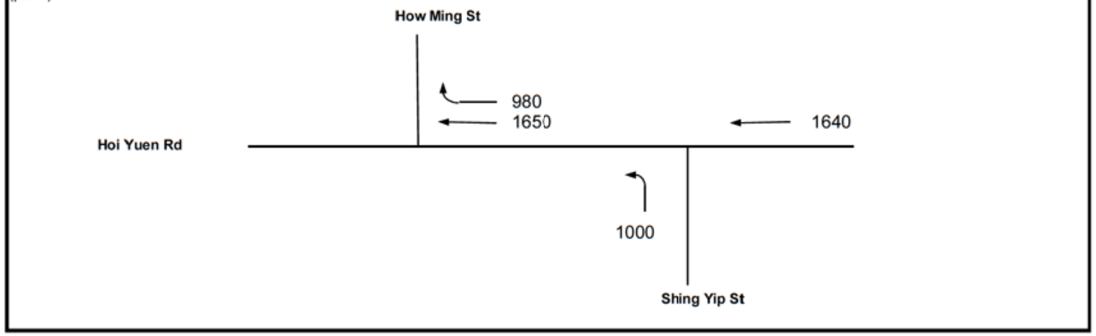
JUNCTION CAPACITY CALCULATION

AECOM

Junction J48 - Hoi Yuen Rd / How Ming St / Shing Yip St	2026 AM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

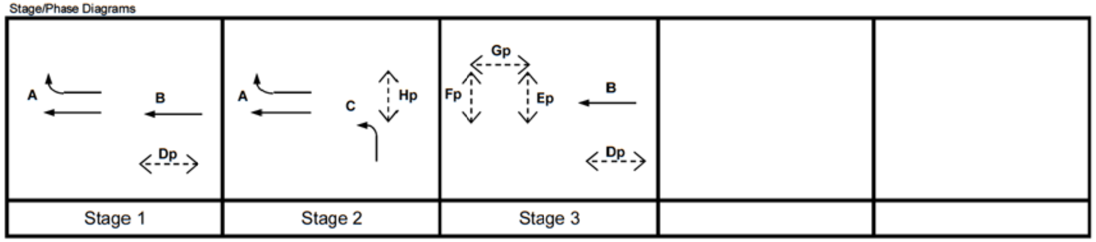
J48

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	100	sec
Sum(y)		Y =	0.431	
Lost time		L =	29	sec
Total Flow		=	18,675	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	85	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	51	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	58.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	56	sec
Y_{max}	$= 1-L/C$	=	0.710	

Stage/Phase Diagrams



I/G = I/G = 6 G = 8 I/G = 16

Critical Case : A,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 48%

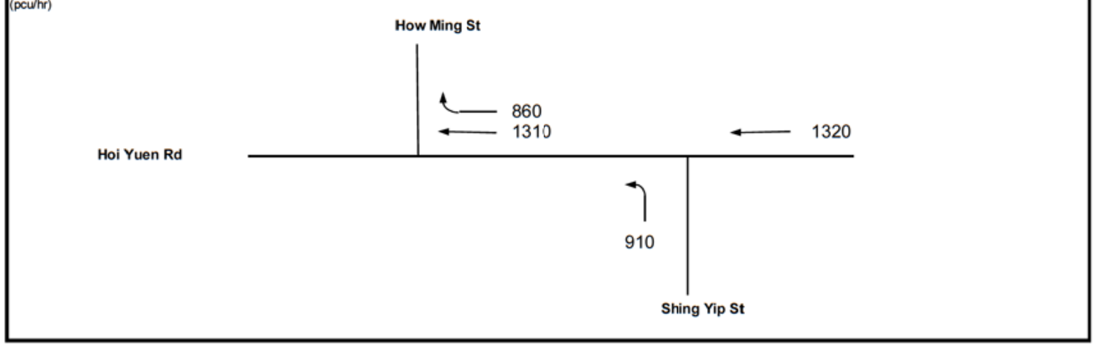
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	1,3	4.000	3				1		0		6325		1640		1640			6325	0.259	
	A	1,2	4.000	1				1		0		2015		869		869			2015	0.431	
	A	1,2	4.000	2		25	0	0		0		4310		111	1650	1761		94%	4081	0.431	0.431
	C	2	3.000	3	12.5			1		0		6025	1000			1000	100%		5379	0.186	
Pedestrian Crossing				GM		FGM															
	Dp	1,3	min.	8	+	9	=	17	sec												
	Ep	3	min.	8	+	13	=	21	sec												*
	Fp	3	min.	8	+	11	=	19	sec												
	Gp	3	min.	8	+	8	=	16	sec												
	Hp	2	min.	8	+	10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J48 - Hoi Yuen Rd / How Ming St / Shing Yip St	2026 PM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

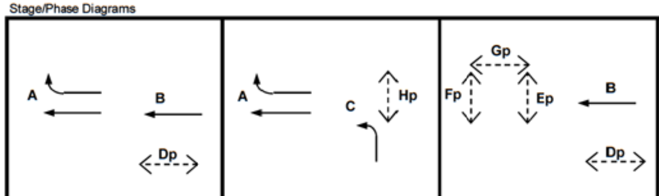
Traffic Flow Diagram
(pcu/hr)



J48

No. of stages per cycle	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.356	
Lost time	L =	29	sec
Total Flow	=	18,675	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	75	sec
Min. Cycle Time C_m	$= L/(1-Y) =$	45	sec
Y_{ult}	$= 0.9-0.0075 \times L =$	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\% =$	92.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y) =$	48	sec
Y_{max}	$= 1-L/C =$	0.678	

Stage/Phase Diagrams



I/G = I/G = 6 G = 8 I/G = 16

Critical Case : A,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 72%

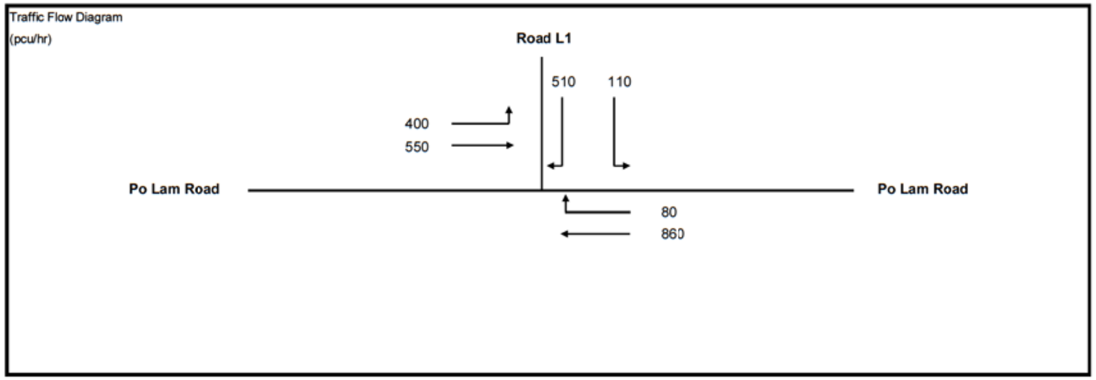
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
←	B	1,3	4.000	3				1		0		6325		1320		1320			6325	0.209	
←	A	1,2	4.000	1				1		0		2015		716		716			2015	0.356	0.356
↰	A	1,2	4.000	2		25	0	0		0		4310		144	1310	1454		90%	4089	0.356	
↰	C	2	3.000	3	12.5			1		0		6025	910			910	100%		5379	0.169	
Pedestrian Crossing				GM		FGM															
	Dp	1,3	min.	8	+	9	=	17	sec												
	Ep	3	min.	8	+	13	=	21	sec												*
	Fp	3	min.	8	+	11	=	19	sec												
	Gp	3	min.	8	+	8	=	16	sec												
	Hp	2	min.	8	+	10	=	18	sec												

JUNCTION CAPACITY CALCULATION

AECOM

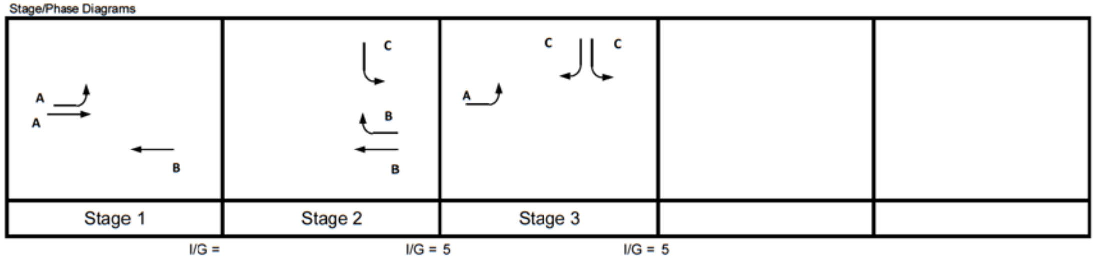
Junction J49 - Po Lam Road / Road L1	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Dec 14

J49



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.691	
Lost time		L =	8	sec
Total Flow		=	12,370	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		55	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	26	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	21.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	34	sec
Y_{max}	$= 1-L/C$	=	0.933	

Stage/Phase Diagrams



Critical Case : B1,C2

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 22%

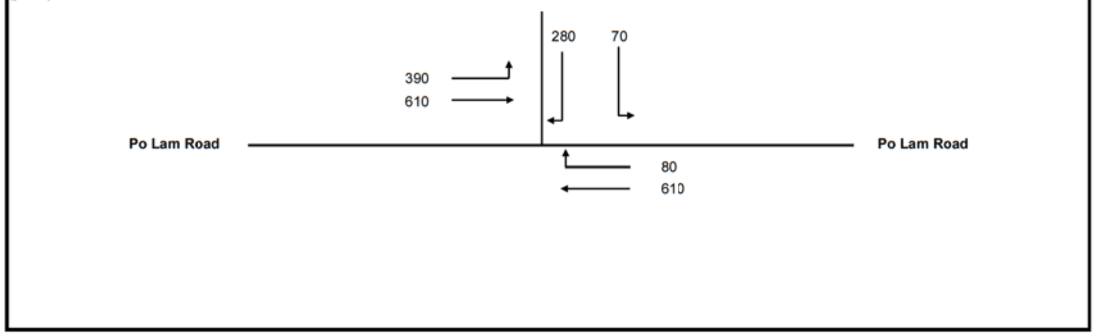
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A2	1,3	3.650	1	20			1		0		1980	400			400	100%		1842	0.217	
	A1	1	3.650	1				0		0		2120		550		550			2120	0.259	
	B2	2	3.650	1		25	0	0		0		2120			80	80		100%	2000	0.040	
	B1	1,2	3.650	1				1		0		1980		860		860			1980	0.434	0.434
	C1	2,3	4.000	1	15			1		0		2015	110			110	100%		1832	0.060	
	C2	3	4.000	1		18	0	0		0		2155			510	510		100%	1989	0.256	0.256

JUNCTION CAPACITY CALCULATION

AECOM

Junction J49 - Po Lam Road / Road L1	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Dec 14

Traffic Flow Diagram
(pcu/hr)

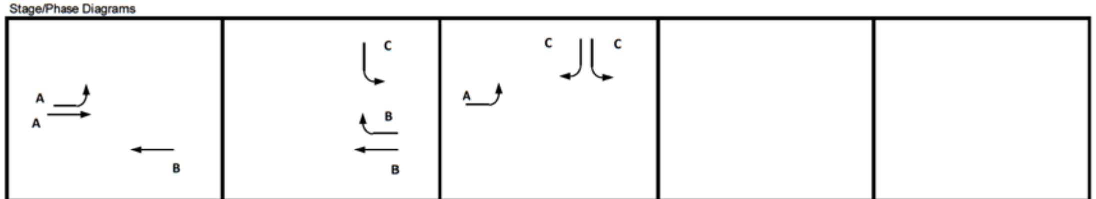


J49

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.468	
Lost time	L =	12	sec
Total Flow	=	12,370	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$	43	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	23	sec
Y_{ult}	$= 0.9-0.0075 \times L$ =	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$ =	72.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$ =	25	sec
Y_{max}	= 1-L/C =	0.900	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

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

Critical Case : A1,B2,C2

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 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
	A2	1,3	3.650	1	20			1		0		1980	390			390	100%		1842	0.212	
	A1	1	3.650	1				0		0		2120		610		610			2120	0.288	0.288
	B2	2	3.650	1		25	0	0		0		2120			80	80		100%	2000	0.040	0.040
	B1	1,2	3.650	1				1		0		1980		610		610			1980	0.308	
	C1	2,3	4.000	1	15			1		0		2015	70			70	100%		1832	0.038	
	C2	3	4.000	1		18	0	0		0		2155			280	280		100%	1989	0.141	0.141

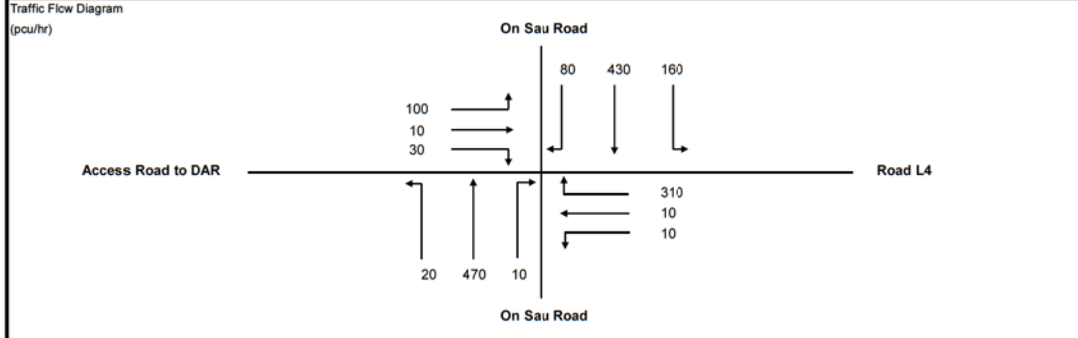
JUNCTION CAPACITY CALCULATION

AECOM

Junction J50 - Access Road to DAR / On Sau Road / Road L4	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

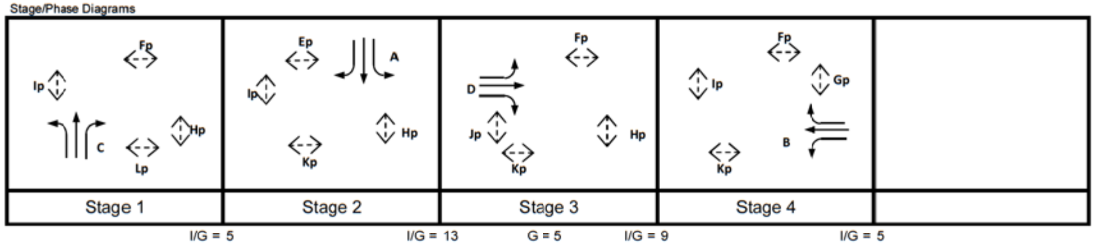
J50

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.463	
Lost time		L =	34	sec
Total Flow		=	12,395	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	104	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	63	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.645	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	39.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	70	sec
Y_{max}	$= 1-L/C$	=	0.717	

Stage/Phase Diagrams



Critical Case : C,A,Jp,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 39%

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	2	3.650	1	12			1		0		1980	160	158		318	50%		1863	0.171	0.171
	A	2	3.650	1		12	0	0		0		2120		272	80	352		23%	2061	0.171	
	B	4	3.650	1	15	18	0	1		0	125	1980	10	10	310	330	3%	94%	1947	0.170	0.170
	C	1	3.650	1	12			1		0		1980	20	221		241	8%		1960	0.123	0.123
	C	1	3.650	1		8	0	0		0		2120		249	10	259		4%	2105	0.123	
	D	3	3.650	1	12	12	0	1		0	110	1980	100	10	30	140	71%	21%	1873	0.075	

Pedestrian Crossing			GM		FGM			
Ep	2	min.	5	+	8	=	13	sec
Fp	1,3,4	min.	5	+	7	=	12	sec
Gp	4	min.	5	+	5	=	10	sec
Hp	1,2,3	min.	5	+	7	=	12	sec
Ip	1,2,4	min.	5	+	7	=	12	sec
Jp	3	min.	5	+	7	=	12	sec
Kp	2,3,4	min.	5	+	6	=	11	sec
Lp	1	min.	5	+	7	=	12	sec

*

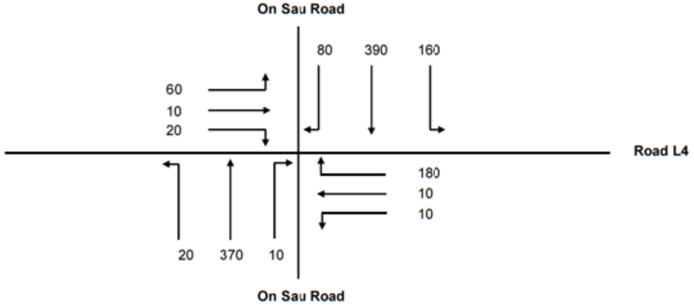
JUNCTION CAPACITY CALCULATION

AECOM

Junction J50 - Access Road to DAR / On Sau Road / Road L4	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

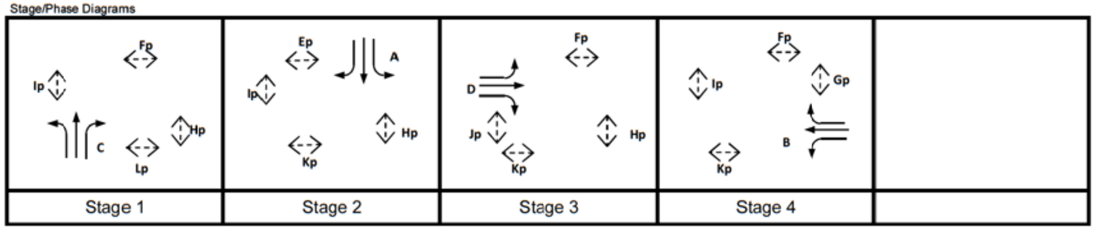
J50

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.362	
Lost time	L =	34	sec
Total Flow	=	12,395	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	88	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	53	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.645	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	78.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	57	sec
Y_{max} = $1-L/C$	=	0.717	

Stage/Phase Diagrams



I/G = 5 I/G = 13 G = 5 I/G = 9 I/G = 5

Critical Case : C,A,Jp,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 78%

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	2	3.650	1	12			1		0		1980	160	139		299	54%		1856	0.161	0.161
	A	2	3.650	1		12	0	0		0		2120		251	80	331		24%	2058	0.161	
	B	4	3.650	1	15	18	0	1		0	125	1980	10	10	180	200	5%	90%	1949	0.103	0.103
	C	1	3.650	1	12			1		0		1980	20	173		193	10%		1955	0.099	0.099
	C	1	3.650	1		8	0	0		0		2120		197	10	207		5%	2101	0.099	
	D	3	3.650	1	12	12	0	1		0	110	1980	60	10	20	90	67%	22%	1881	0.048	

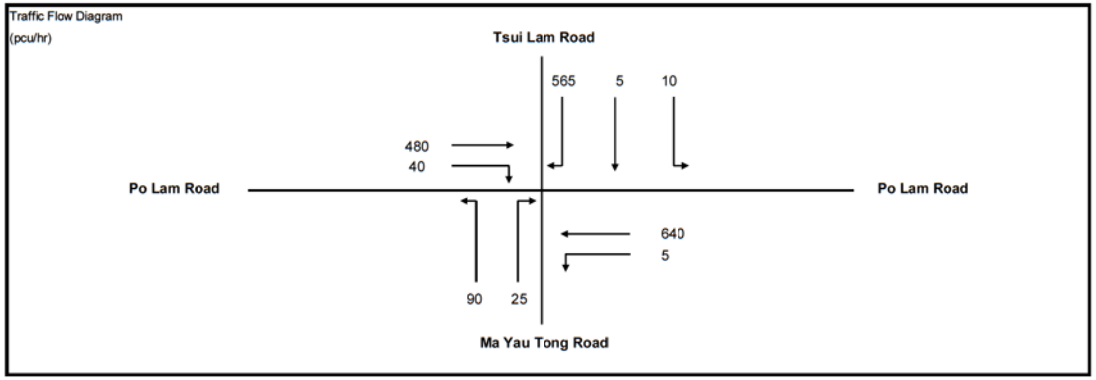
Pedestrian Crossing	Stage		GM		FGM				
Ep	2	min.	5	+	8	=	13	sec	
Fp	1,3,4	min.	5	+	7	=	12	sec	
Gp	4	min.	5	+	5	=	10	sec	
Hp	1,2,3	min.	5	+	7	=	12	sec	
Ip	1,2,4	min.	5	+	7	=	12	sec	
Jp	3	min.	5	+	7	=	12	sec	*
Kp	2,3,4	min.	5	+	6	=	11	sec	
Lp	1	min.	5	+	7	=	12	sec	

JUNCTION CAPACITY CALCULATION

AECOM

Junction J51 - Po Lam Road / Tsui Lam Road	2026 AM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 15

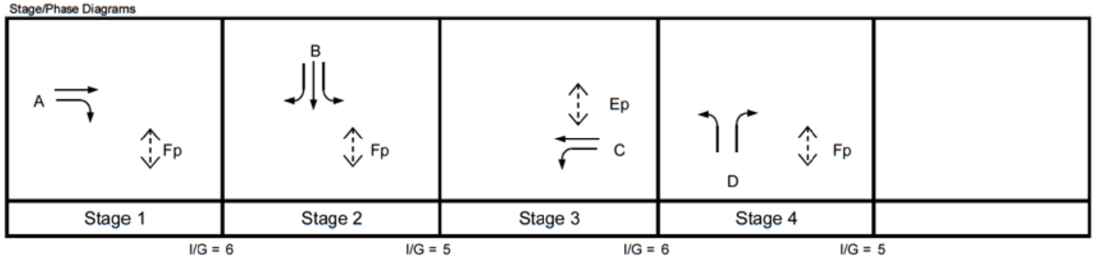
J51



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.665	
Lost time	L =	18	sec
Total Flow	=	11,608	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	95	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	54	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.765	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	15.1	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	69	sec
Y_{max} = $1-L/C$	=	0.829	

Critical Case : A,B,C,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 12%



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	4.000	1		24	0	1		0		2015		480	40	520		8%	2005	0.259	0.259
	B	2	4.000	1	12.5	19	0	1		0		2015	10	5	267	282	4%	95%	1867	0.151	
	B	2	4.000	1		16	0	0		0		2155			298	298		100%	1970	0.151	0.151
	C	3	3.500	1	14			1		0	-306	1965	5	309		314	2%		1656	0.189	0.189
	C	3	3.000	1				0		0	-306	2055		331		331			1749	0.189	
	D	4	4.000	1	10	15	0	1		0		2015	90		25	115	78%	22%	1769	0.065	0.065

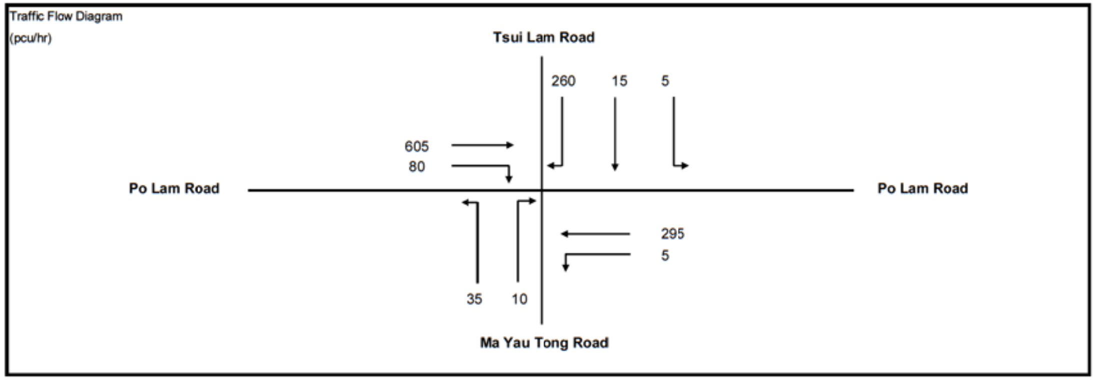
Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	6	=	11	sec
Fp	1,2,4	min.	5	+	8	=	13	sec

JUNCTION CAPACITY CALCULATION

AECOM

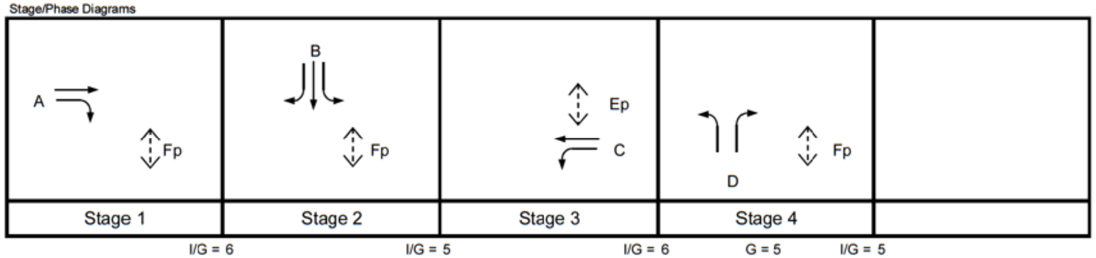
Junction J51 - Po Lam Road / Tsui Lam Road	2026 PM Design Flows (25K wo EKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 15

J51



No. of stages per cycle	N =	4	
Cycle time	C =	100	sec
Sum(y)	Y =	0.503	
Lost time	L =	24	sec
Total Flow	=	11,608	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	83	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	48	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.720	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	43.0	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	54	sec
Y_{max} = $1-L/C$	=	0.760	

Stage/Phase Diagrams



Critical Case : A,B,C,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 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	4.000	1		24	0	1		0		2015		605	80	685		12%	2000	0.342	0.342
	B	2	4.000	1	12.5	19	0	1		0		2015	5	15	117	137	4%	85%	1880	0.073	
	B	2	4.000	1		16	0	0		0		2155			143	143		100%	1970	0.073	0.073
	C	3	3.500	1	14			1		0	-306	1965	5	141		146	3%		1653	0.088	0.088
	C	3	3.000	1				0		0	-306	2055		154		154			1749	0.088	
	D	4	4.000	1	10	15	0	1		0		2015	35		10	45	78%	22%	1769	0.025	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	6	=	11	sec
Fp	1,2,4	min.	5	+	8	=	13	sec

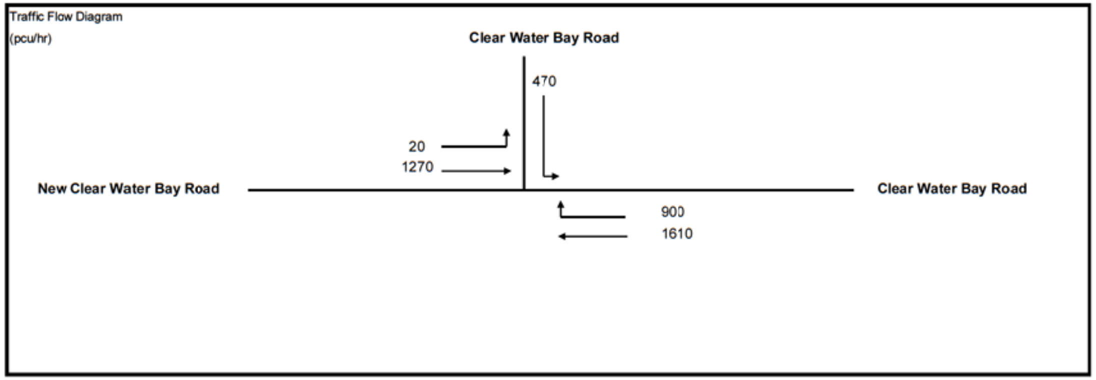
Junction Calculation Sheets for
2031 Design Scenario
(With 25,000 ARQ Population and EKL)

JUNCTION CAPACITY CALCULATION

AECOM

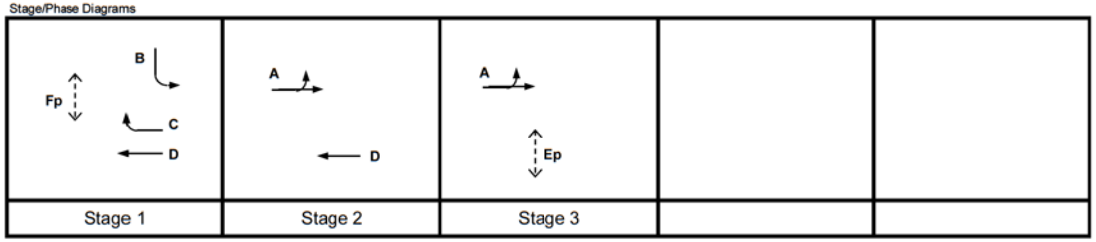
Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2031 AM Design Flows (Alternative Scheme A_25KwEKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J1



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.744	
Lost time		L =	10	sec
Total Flow		=	10,969	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	78	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	39	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	10.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	58	sec
Y_{max}	$= 1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : C,A

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 8%

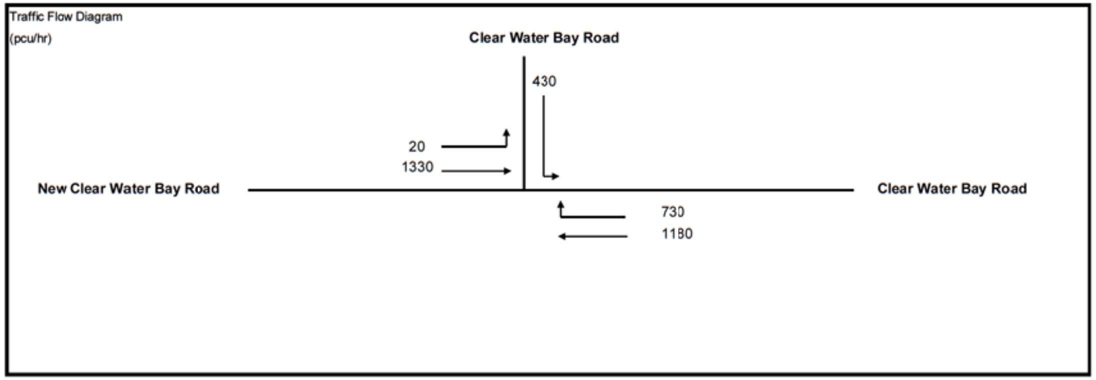
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	2,3	3.650	1	10			1		0		1980	20	601		621	3%		1970	0.315	0.315
	A	2,3	3.650	1				0		0		2120		669		669			2120	0.315	
	B	1	3.500	1	15			1		0	80	1965	470			470	100%		1859	0.253	
	C	1	4.500	1		30	0	0		0		2205			900	900		100%	2100	0.429	0.429
	D	1,2	3.375	1				1		0	667	1952.5		1610		1610			2619	0.615	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction J1 - New Clear Water Bay Rd / Clear Water Bay Rd	2031 PM Design Flows (Alternative Scheme A_25KwEKL)	DESIGN: CW	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

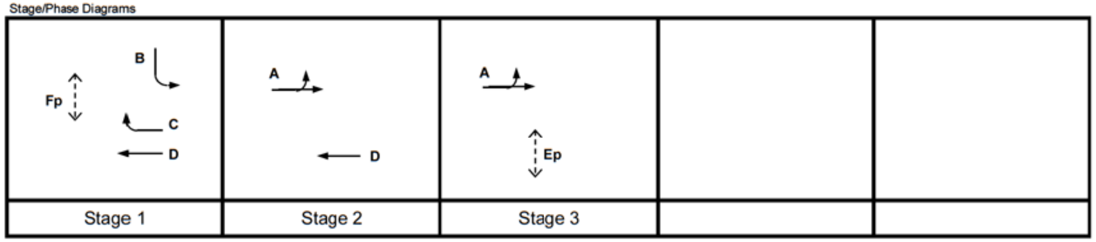
Traffic Flow Diagram
(pcu/hr)



J1

No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.688	
Lost time		L =	10	sec
Total Flow		=	10,952	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		64	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	32	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\% =$		19.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	42	sec
Y_{max}	$= 1-L/C$	=	0.889	

Stage/Phase Diagrams



I/G = 5 I/G = I/G = 7

Critical Case : C,A

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 16%

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	2,3	3.500	1	10			1		0		1965	20	630		650	3%		1956	0.332	
	A	2,3	3.500	1				0		0		2105		700		700			2105	0.332	0.332
	B	1	3.500	1	15			1		0	80	1965	430			430	100%		1859	0.231	
	C	1	4.000	1		30	0	0		0		2155			730	730		100%	2052	0.356	0.356
	D	1,2	4.000	1				1		0	667	2015		1180		1180			2682	0.440	
Pedestrian Crossing				GM		FGM															
	Ep	3	min.	5	+	7	=	12	sec												
	Fp	1	min.	5	+	8	=	13	sec												

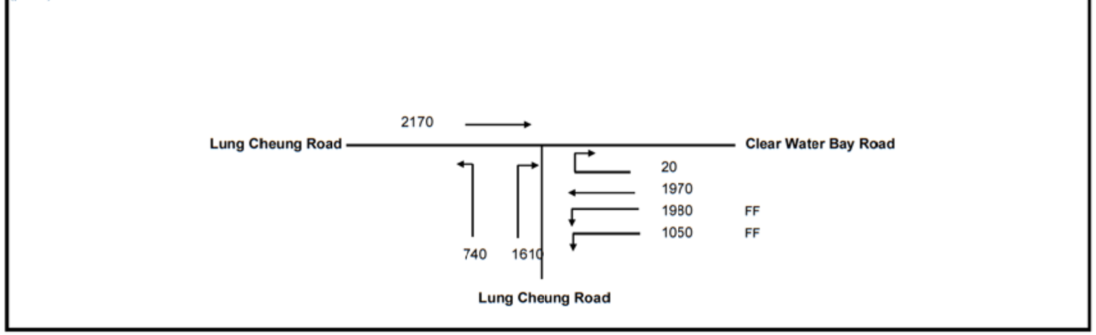
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2031 AM Design Flows (25K w EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

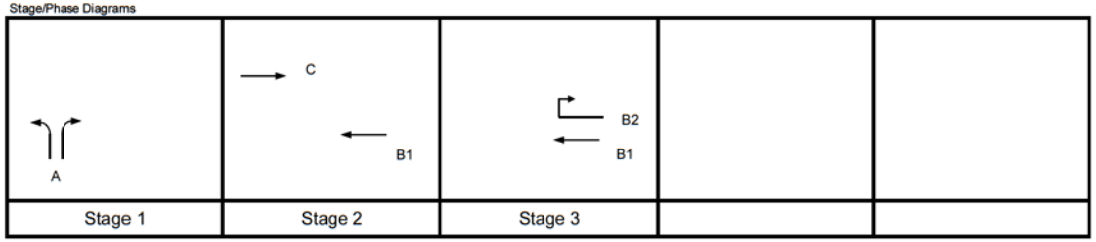
J15

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.764	
Lost time	L =	11	sec
Total Flow	=	20,550	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	91	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	47	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.818	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	7.0	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	73	sec
Y_{max} = $1-L/C$	=	0.921	

Stage/Phase Diagrams



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

Critical Case : A,B1

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 8%

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				1		0		1945		577		577			1945	0.296	0.296
	A	1	3.300	1		30	0			0		2085		163	433	596		73%	2012	0.296	
	A	1	3.300	2		30	0	0		0		4170			1177	1177		100%	3971	0.296	
	B1	2,3	3.500	2				0		0		4210		1970		1970			4210	0.468	0.468
	B2	3	3.500	1		10	0	1		0		1965			20	20		100%	1709	0.012	
	C	2	3.500	3				1		0		6175		2170		2170			6175	0.351	

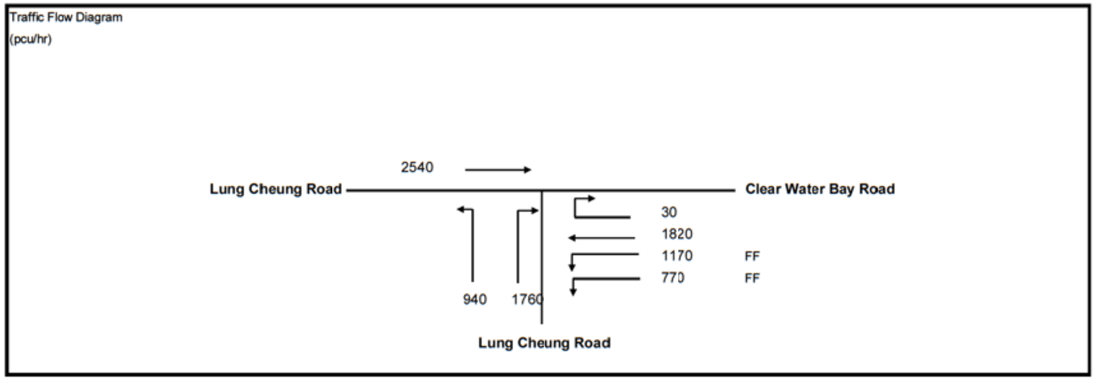
JUNCTION CAPACITY CALCULATION

AECOM

Junction J15 - Lung Cheung Road / Clear Water Bay Road	2031 PM Design Flows (25K w EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

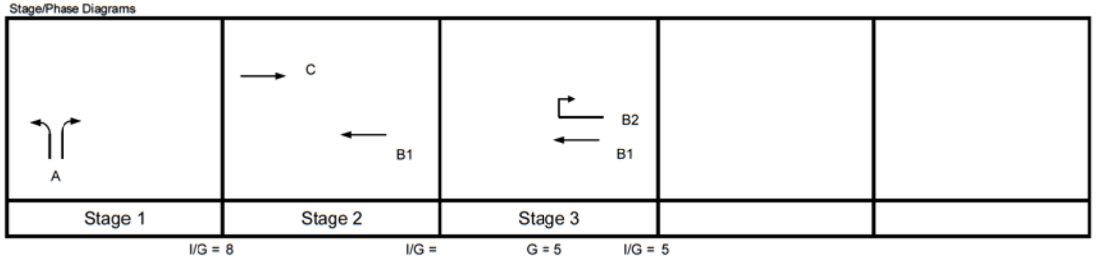
J15

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.751	
Lost time	L =	16	sec
Total Flow	=	20,550	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	117	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	64	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.780	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	3.8	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	97	sec
Y_{max} = $1-L/C$	=	0.886	

Stage/Phase Diagrams



Critical Case : A,C,B2

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 6%

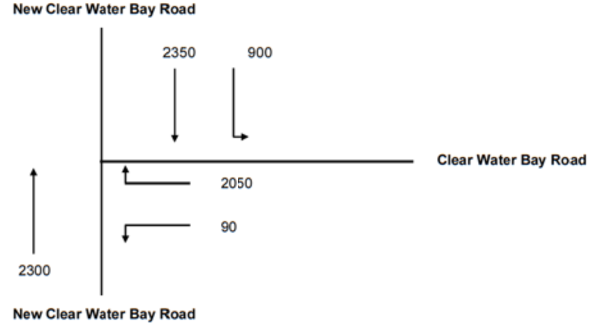
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
	A	1	3.300	1				1		0		1945		661		661			1945	0.340	
	A	1	3.300	1		30	0			0		2085		279	410	688		60%	2025	0.340	0.340
	A	1	3.300	2		30	0	0		0		4170			1350	1350		100%	3971	0.340	
	B1	2,3	3.500	2				0		0		4210		1820		1820			4210	0.432	
	B2	3	3.500	1		10	0	1		0		1965			30	30		100%	1709	0.018	
	C	2	3.500	3				1		0		6175		2540		2540			6175	0.411	0.411

JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2031 AM Design Flows (25K w EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

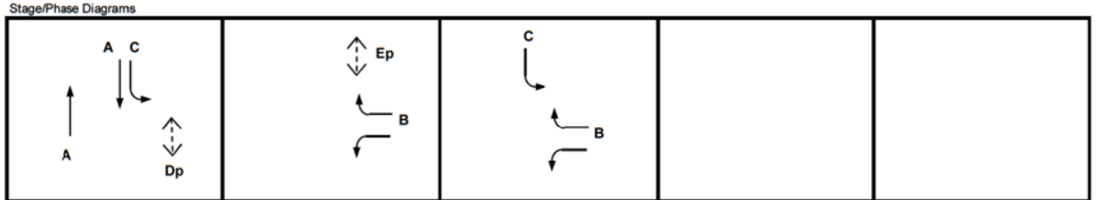
Traffic Flow Diagram
(pcu/hr)



J16

No. of stages per cycle	N =	3	
Cycle time	C =	140	sec
Sum(y)	Y =	0.772	
Lost time	L =	13	sec
Total Flow	=	20,160	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	107	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	57	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	4.0	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	91	sec
Y_{max} = $1-L/C$	=	0.907	

Stage/Phase Diagrams



I/G = 8 I/G = 7 I/G =

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 6%

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	3.400	3				1		0	-250	6145		2300		2300			5895	0.390	0.390
	A	1	3.100	3				0		0		6195		2350		2350			6195	0.379	
	C	1,3	3.100	1	20			1		0		1925	900			900	100%		1791	0.503	
	B	2,3	3.400	1	10	20	0	1		0		1955	90		597	687	13%	87%	1802	0.381	
	B	2,3	3.400	2		15	0	0		0		4190			1453	1453		100%	3809	0.381	0.381

Pedestrian Crossing			GM		FGM			
Dp	1	min.	5	+	12	=	17	sec
Ep	2	min.	5	+	8	=	13	sec

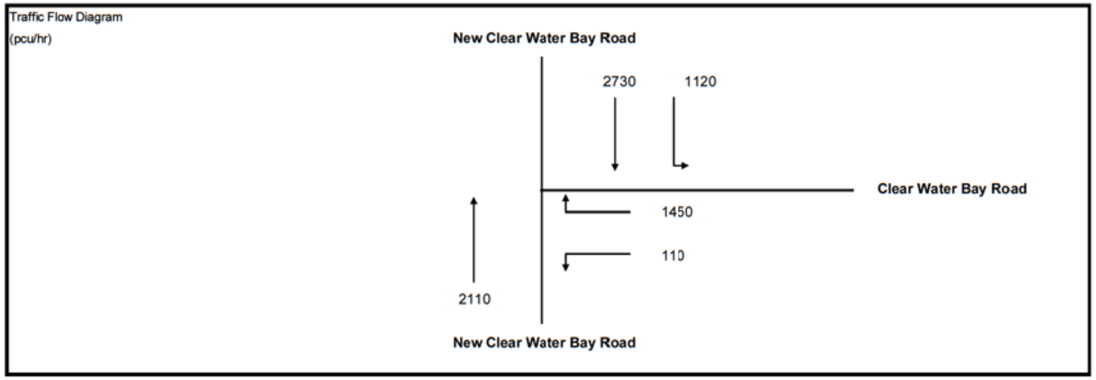
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - New Clear Water Bay Rd / Clear Water Bay Rd (Lower)	2031 PM Design Flows (25K w EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Jan 16

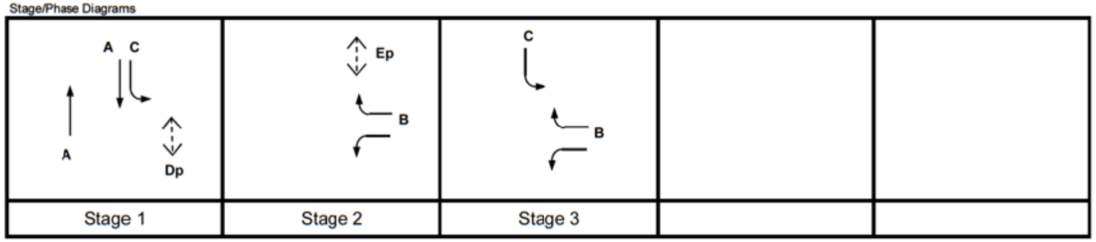
J16

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	140	sec
Sum(y)		Y =	0.719	
Lost time		L =	13	sec
Total Flow		=	20,160	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		87	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	46	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	11.6	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	65	sec
Y_{max}	= 1-L/C	=	0.907	

Stage/Phase Diagrams



I/G = 8 I/G = 7 I/G =

Critical Case : A,B

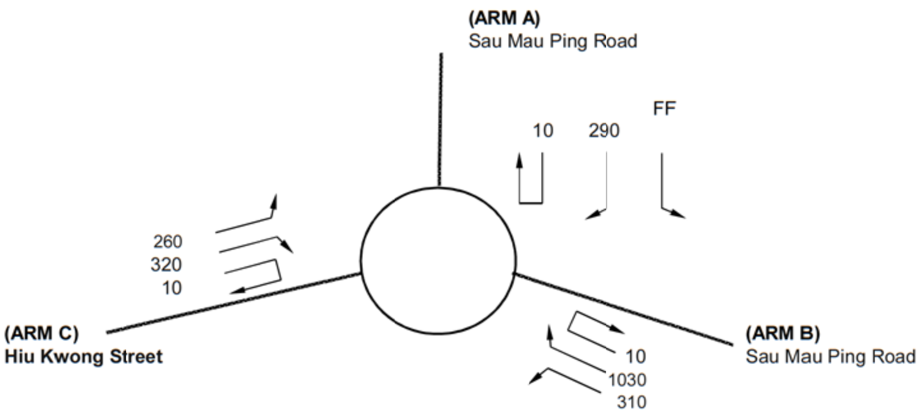
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 14%

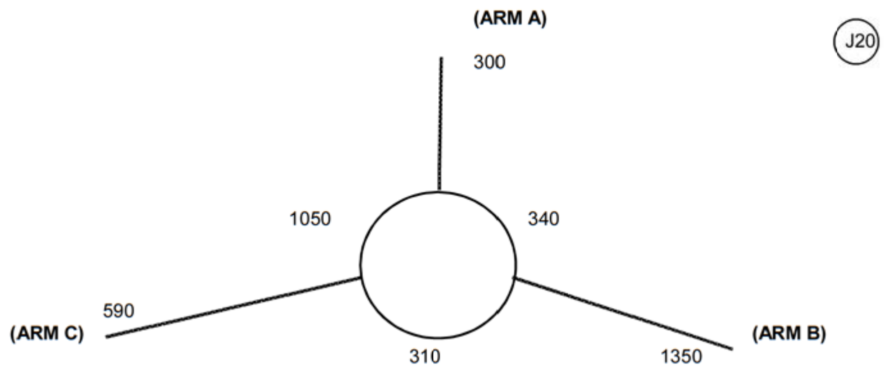
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.400	3				1		0	-250	6145		2110		2110			5895	0.358	
↓	A	1	3.100	3				0		0		6195		2730		2730			6195	0.441	0.441
	C	1,3	3.100	1	20			1		0		1925	1120			1120	100%		1791	0.625	
	B	2,3	3.400	1	10	20	0	1		0		1955	110		389	499	22%	78%	1791	0.279	
	B	2,3	3.400	2		15	0	0		0		4190			1061	1061		100%	3809	0.279	0.279
Pedestrian Crossing				GM		FGM															
	Dp	1	min.	5	+	12	=	17	sec												
	Ep	2	min.	5	+	8	=	13	sec												

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2031 AM Design Flows (25K w EKL)	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	300	1350	590
Qc= Circulating flow across entry (pcu/h)	340	310	1050
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1398	1997	1105
DFC = Design flow/Capacity = Q/Qe	0.21	0.68	0.53

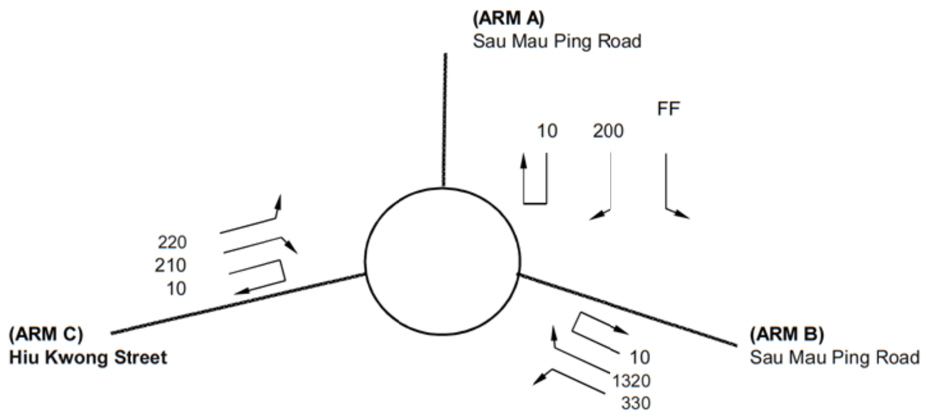
TOTAL ENTRY FLOWS = 2240 PCU

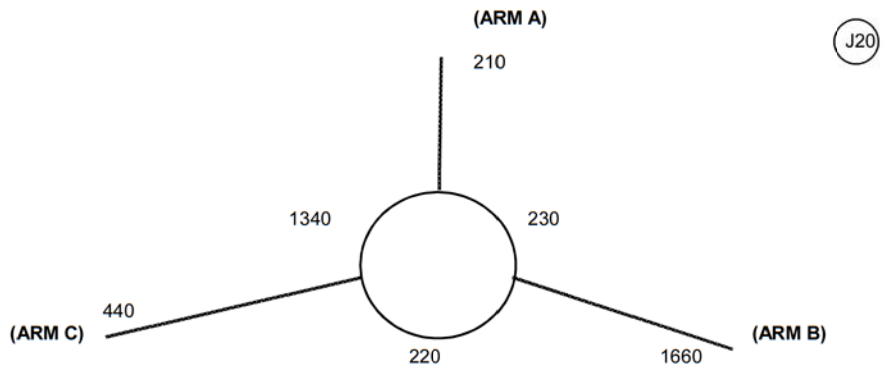
CRITICAL DFC = 0.68

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction J20 - Hiu Kwong Street / Sau Mau Ping Road	2031 PM Design Flows (25K w EKL)	Designed By : SL	Checked By : KHL	Job No. : 60328348	Date : Dec 14





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	5.00	7.00	6.00
E = Entry width (m)	5.00	9.50	6.00
L = Effective length of flare (m)	2.00	2.00	1.00
R = Entry radius (m)	100.00	15.00	25.00
D = Inscribed circle diameter (m)	20.00	20.00	20.00
A = Entry angle (degree)	20.00	30.00	30.00
Q = Entry flow (pcu/h)	210	1660	440
Qc= Circulating flow across entry (pcu/h)	230	220	1340
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.00	2.00	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	0.98	1.01
X2= V + ((E-V)/(1+2S))	5.00	7.50	6.00
M = EXP((D-60)/10)	0.02	0.02	0.02
F = 303*X2	1515	2273	1818
Td= 1+(0.5/(1+M))	1.49	1.49	1.49
Fc= 0.21*Td(1+0.2*X2)	0.63	0.78	0.69
Qe= K(F-Fc*Qc)	1472	2066	904
DFC = Design flow/Capacity = Q/Qe	0.14	0.80	0.49

TOTAL ENTRY FLOWS = 2310 PCU

CRITICAL DFC = 0.80

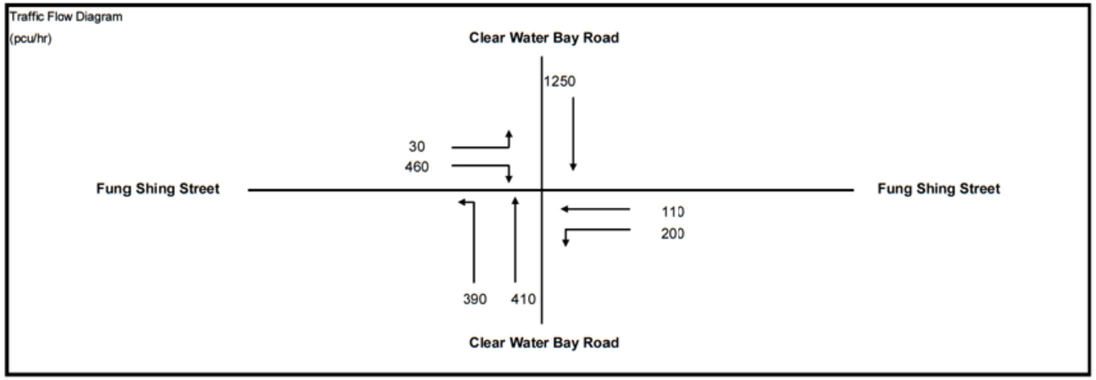
JUNCTION CAPACITY CALCULATION

AECOM

Junction J45 - Clear Water Bay Rd / Fung Shing St	2031 AM Design Flows (25K w EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

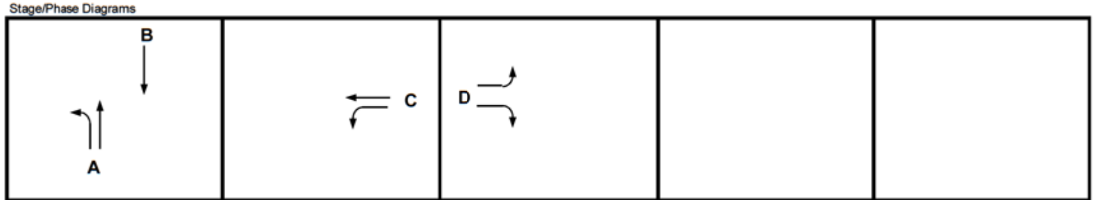
J45

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	135	sec
Sum(y)		Y =	0.751	
Lost time		L =	14	sec
Total Flow		=	12,288	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y) =$		105	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	56	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.795	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$ =		5.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	85	sec
Y_{max}	$= 1-L/C$	=	0.896	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		

I/G = 7 I/G = 5 I/G = 5

Critical Case : A,C,D

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\%$ = 7%

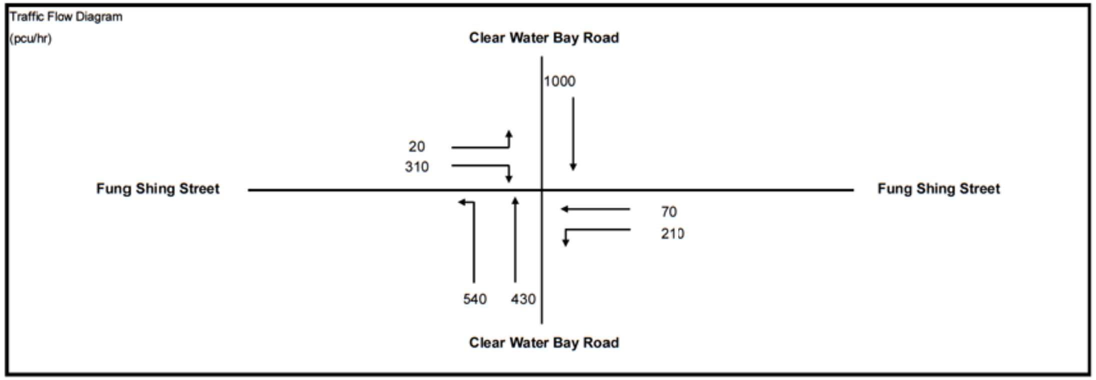
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIEN T (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONA L CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGH T AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	A	1	4.400	1	20			1		0	27	2055	390	410		800	49%		2008	0.398	0.398
	B	1	3.900	2				1		0		4150		1250		1250			4150	0.301	
	C	2	3.500	1	15			1		0		1965	144			144	100%		1786	0.081	0.081
	C	2	3.500	1	20			0		0		2105	56	110		166	34%		2053	0.081	
	D	3	3.000	1	10	15	0	1		0	71	1915	30		460	490	6%	94%	1801	0.272	0.272

JUNCTION CAPACITY CALCULATION

AECOM

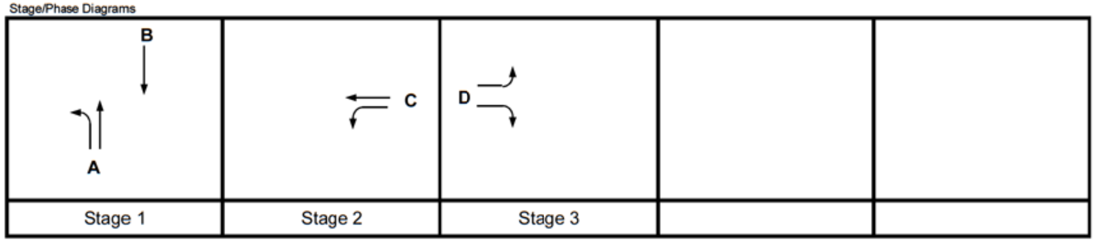
Junction J45 - Clear Water Bay Rd / Fung Shing St	2031 PM Design Flows (25K w EKL)	DESIGN: GT	CHECK: KHL	JOB NO: 60328348	DATE: Dec 14

J45



No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.739	
Lost time	L =	14	sec
Total Flow	=	12,316	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	99	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	54	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.795	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	7.6	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	78	sec
Y_{max} = $1-L/C$	=	0.867	

Stage/Phase Diagrams

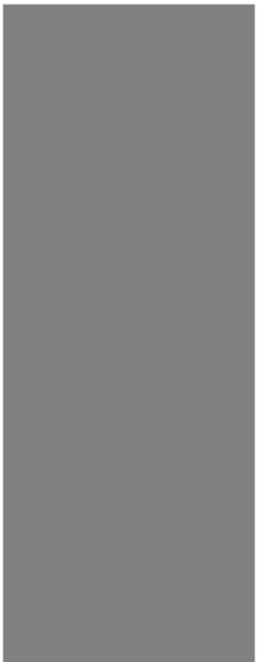


I/G = 7 I/G = 5 I/G = 5

Critical Case : A,C,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 6%

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	4.400	1	20			1		0	34	2055	540	430		970	56%		2006	0.484	0.484
	B	1	3.900	2				1		0		4150		1000		1000			4150	0.241	
	C	2	3.500	1	15			1		0		1965	131			131	100%		1786	0.073	0.073
	C	2	3.500	1	20			0		0		2105	79	70		149	53%		2025	0.073	
	D	3	3.000	1	10	15	0	1		0	91	1915	20		310	330	6%	94%	1819	0.181	0.181



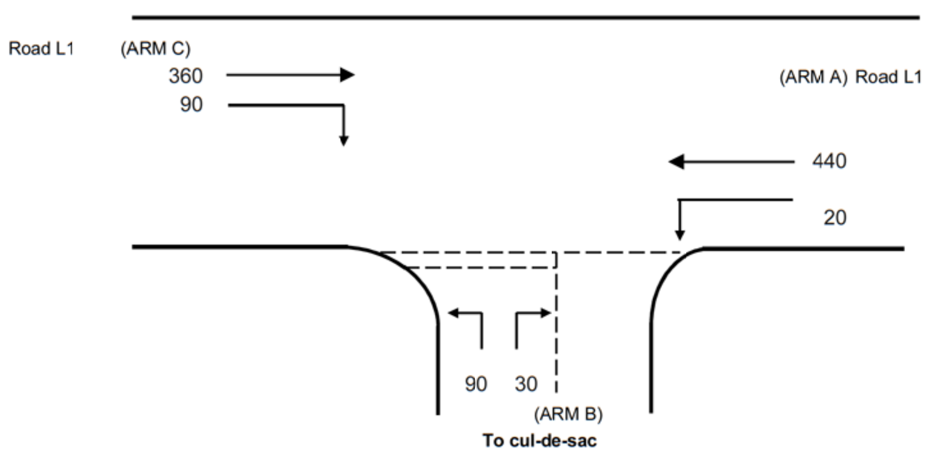
Junction Calculation Sheets for
2026 Design Scenario
(With 25,000 ARQ Population & Without EKL)

Within ARQ Development

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction	JA - Road L1 / Access Road to cul-de-sac	Scenario	2026 AM Design Flows (25K wo EKL)	Project No.	Prepared By	Checked By	Date
				60328348	SL	CW	11/Feb/15



NOTES : (GEOMETRIC INPUT DATA)
W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

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 =	13.6	(metres)
W cr =	0	(metres)
q a-b =	20	(pcu/hr)
q a-c =	440	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b =	3.2	(metres)
Vr c-b =	125	(metres)
q c-a =	360	(pcu/hr)
q c-b =	90	(pcu/hr)

MINOR ROAD (ARM B)

W b-a =	5	(metres)
W b-c =	5	(metres)
Vl b-a =	240	(metres)
Vr b-a =	160	(metres)
Vr b-c =	160	(metres)
q b-a =	30	(pcu/hr)
q b-c =	90	(pcu/hr)

GEOMETRIC FACTORS :

D =	1.230512
E =	1.167468
F =	0.962010
Y =	0.530800

THE CAPACITY OF MOVEMENT :

Q b-a =	581
Q b-c =	769
Q c-b =	631
Q b-ac =	711

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a =	0.05
DFC b-c =	0.12
DFC c-b =	0.14
DFC b-ac =	0.17

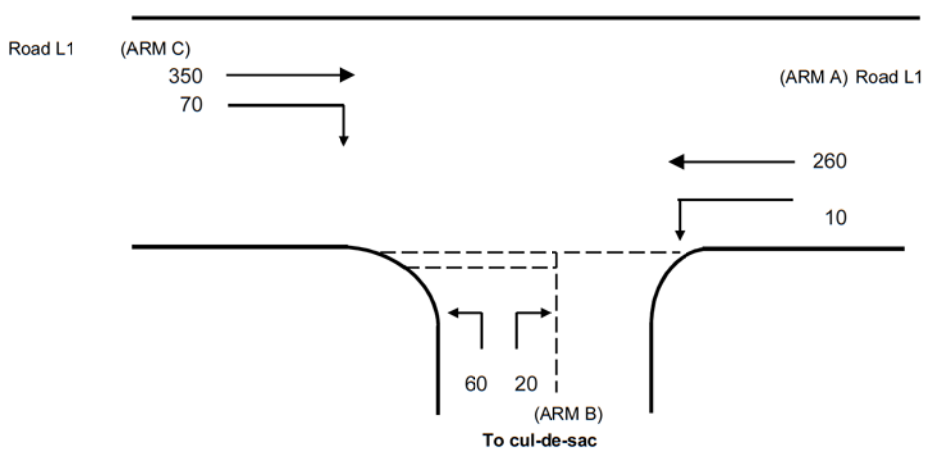
CRITICAL DFC = 0.17

Filename : nary Junction Assessment to TD\Calculations\2026 25K wo EI

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction	JA - Road L1 / Access Road to cul-de-sac	Scenario	2026 PM Design Flows (25K wo EKL)	Project No.	Prepared By	Checked By	Date
				60328348	SL	CW	11/Feb/15



NOTES : (GEOMETRIC INPUT DATA)
W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

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 =	13.6	(metres)
W cr =	0	(metres)
q a-b =	10	(pcu/hr)
q a-c =	260	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b =	3.2	(metres)
Vr c-b =	125	(metres)
q c-a =	350	(pcu/hr)
q c-b =	70	(pcu/hr)

MINOR ROAD (ARM B)

W b-a =	5	(metres)
W b-c =	5	(metres)
Vl b-a =	240	(metres)
Vr b-a =	160	(metres)
Vr b-c =	160	(metres)
q b-a =	20	(pcu/hr)
q b-c =	60	(pcu/hr)

GEOMETRIC FACTORS :

D =	1.230512
E =	1.167468
F =	0.962010
Y =	0.530800

THE CAPACITY OF MOVEMENT :

Q b-a =	633
Q b-c =	810
Q c-b =	667
Q b-ac =	757

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a =	0.03
DFC b-c =	0.07
DFC c-b =	0.11
DFC b-ac =	0.11

CRITICAL DFC = 0.11

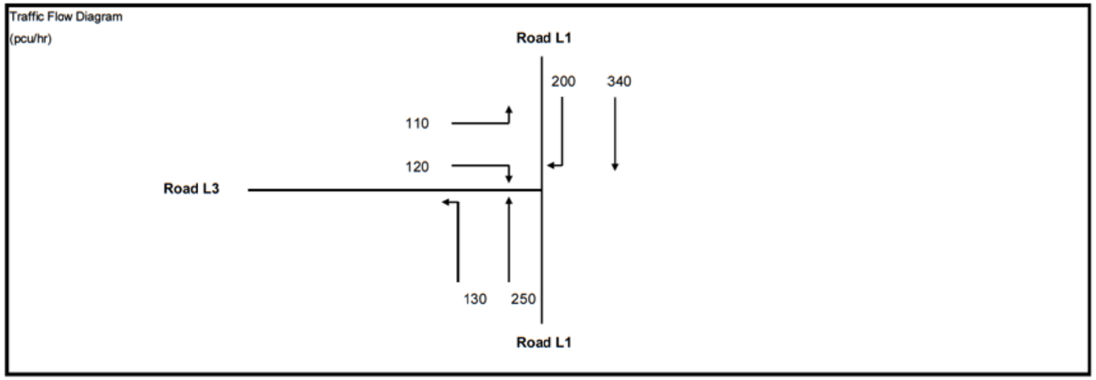
JUNCTION CAPACITY CALCULATION

AECOM

Junction JB - Road L1 / Road L3	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

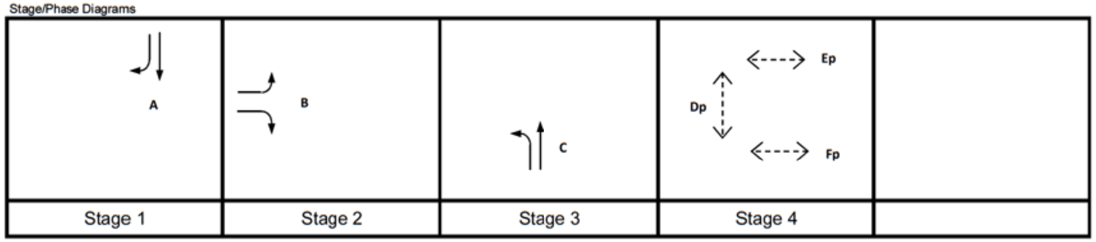
JB

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	90	sec
Sum(y)	Y =	0.297	
Lost time	L =	35	sec
Total Flow	=	12,110	pcu
Optimum Cycle C_o = $(1.5\times L+5)/(1-Y)$	=	82	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	50	sec
Y_{ult} = $0.9-0.0075\times L$	=	0.638	
$R.C._{ult}$ = $(Y_{ult}-Y)/Y\times100\%$	=	114.7	%
Practical Cycle Time C_p = $0.9\times L/(0.9-Y)$	=	52	sec
Y_{max} = $1-L/C$	=	0.611	

Stage/Phase Diagrams



I/G = 5 I/G = 5 I/G = 4 G = 12 I/G = 12

Critical Case : A,B,C,Fp

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 85%

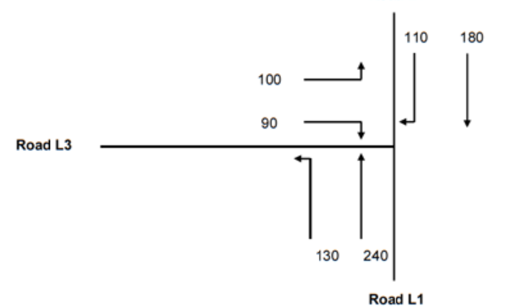
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	2	3.300	1	15			1		0		1945	110			110	100%		1768	0.062	0.062
	B	2	3.300	1		20	0	0		0		2085			120	120		100%	1940	0.062	
	A	1	3.300	1				1		0		1945		268		268			1945	0.138	0.138
	A	1	3.300	1		20	0	0		0		2085		72	200	272		73%	1976	0.138	
	C	3	3.300	1	15			1		0		1945	130	46		176	74%		1811	0.097	
	C	3	3.500	1				0		0		2105		204		204			2105	0.097	0.097
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	8	=	18	sec												
	Ep	4	min.	9	+	7	=	16	sec												
	Fp	4	min.	12	+	10	=	22	sec												*

JUNCTION CAPACITY CALCULATION

AECOM

Junction JB - Road L1 / Road L3	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

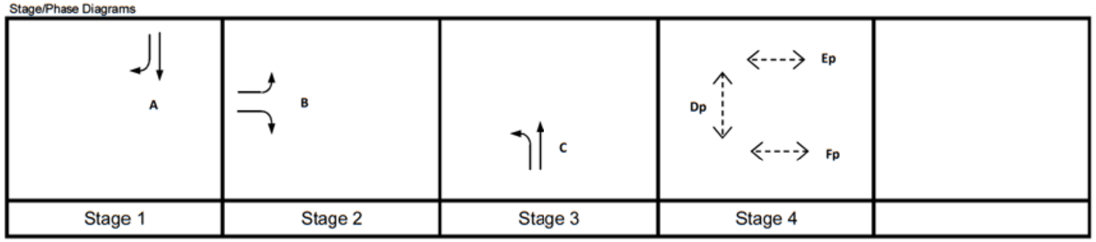
Traffic Flow Diagram
(pcu/hr)



JB

No. of stages per cycle		N =	4	
Cycle time		C =	90	sec
Sum(y)		Y =	0.225	
Lost time		L =	35	sec
Total Flow		=	12,110	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	74	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	45	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.638	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	183.2	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	47	sec
Y_{max}	$= 1-L/C$	=	0.611	

Stage/Phase Diagrams



I/G = 5 I/G = 5 I/G = 4 G = 12 I/G = 12

Critical Case : A,B,C,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 144%

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			
	B	2	3.300	1	15			1		0		1945	100			100	100%		1768	0.057	0.057
	B	2	3.300	1		20	0	0		0		2085			90	90		100%	1940	0.046	
	A	1	3.300	1				1		0		1945		144		144			1945	0.074	0.074
	A	1	3.300	1		20	0	0		0		2085		36	110	146		75%	1974	0.074	
	C	3	3.300	1	15			1		0		1945	130	41		171	76%		1808	0.095	
	C	3	3.500	1				0		0		2105		199		199			2105	0.095	0.095
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	8	=	18	sec												
	Ep	4	min.	9	+	7	=	16	sec												
	Fp	4	min.	12	+	10	=	22	sec												*

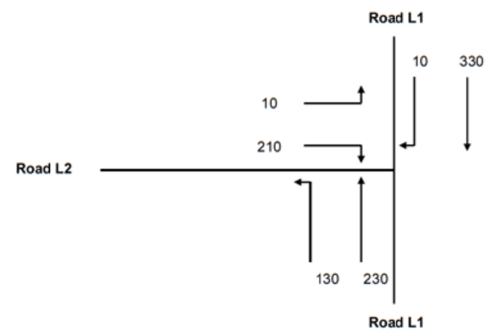
JUNCTION CAPACITY CALCULATION

AECOM

Junction JC - Road L1 / Road L2	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

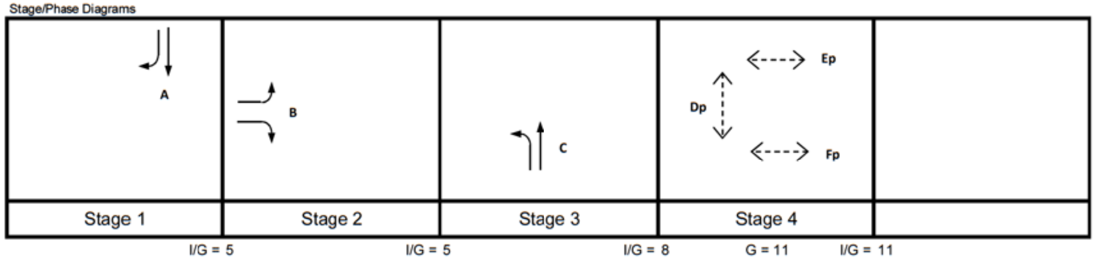
JC

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	90	sec
Sum(y)		Y =	0.285	
Lost time		L =	37	sec
Total Flow		=	12,090	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	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	118.1	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	54	sec
Y_{max}	$= 1-L/C$	=	0.589	

Stage/Phase Diagrams



Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 86%

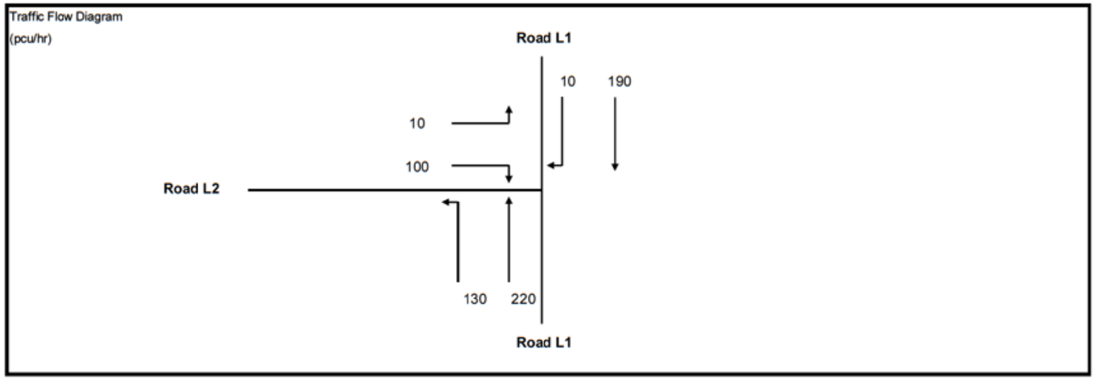
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	2	3.300	1	15			1		0		1945	10			10	100%		1768	0.006	
	B	2	3.300	1		20	0	0		0		2085			210	210		100%	1940	0.108	0.108
	A	1	3.300	1				1		0		1945		165		165			1945	0.085	0.085
	A	1	3.300	1		15	0	0		0		2085		165	10	175		6%	2073	0.085	
	C	3	3.300	1	15			1		0		1945	130	37		167	78%		1805	0.093	
	C	3	3.300	1				0		0		2085		193		193			2085	0.093	0.093
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	11	+	9	=	20	sec												*
	Ep	4	min.	10	+	8	=	18	sec												
	Fp	4	min.	10	+	8	=	18	sec												

JUNCTION CAPACITY CALCULATION

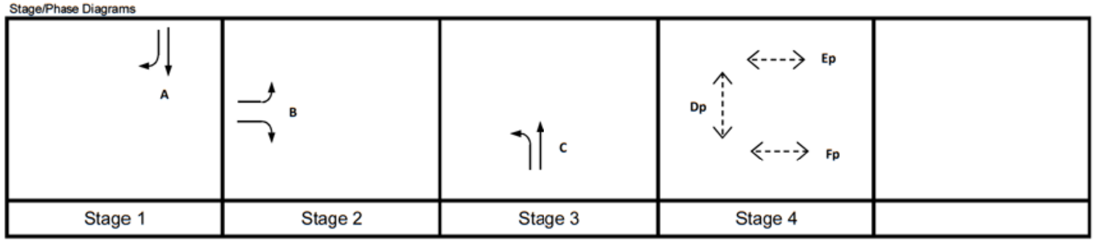
AECOM

Junction JC - Road L1 / Road L2	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: Jan 15

JC



No. of stages per cycle		N =	4	
Cycle time		C =	90	sec
Sum(y)		Y =	0.192	
Lost time		L =	37	sec
Total Flow		=	12,090	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y)$	=	75	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	46	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.623	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	225.0	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	47	sec
Y_{max}	$= 1-L/C$	=	0.589	



I/G = 5 I/G = 5 I/G = 8 G = 11 I/G = 11

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 177%

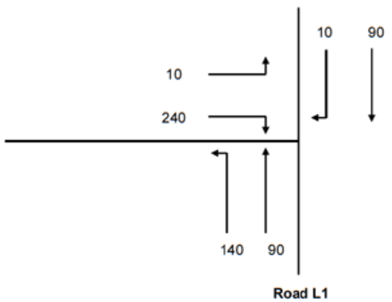
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	2	3.300	1	15			1		0		1945	10			10	100%		1768	0.006	
	B	2	3.300	1		20	0	0		0		2085			100	100		100%	1940	0.052	0.052
	A	1	3.300	1				1		0		1945		97		97			1945	0.050	0.050
	A	1	3.300	1		15	0	0		0		2085		93	10	103		10%	2065	0.050	
	C	3	3.300	1	15			1		0		1945	130	32		162	80%		1801	0.090	0.090
	C	3	3.300	1				0		0		2085		188		188			2085	0.090	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	11	+	9	=	20	sec												*
	Ep	4	min.	10	+	8	=	18	sec												
	Fp	4	min.	10	+	8	=	18	sec												

JUNCTION CAPACITY CALCULATION

AECOM

Junction JD - Road L1 / Road L2	2026 AM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: May 15

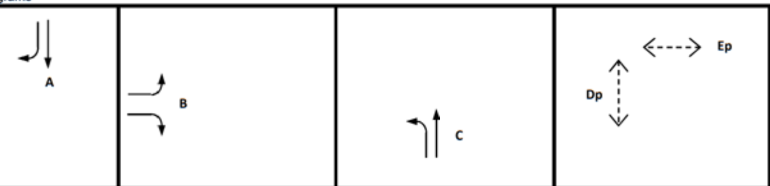
Traffic Flow Diagram
(pcu/hr)



JD

No. of stages per cycle		N =	4	
Cycle time		C =	90	sec
Sum(y)		Y =	0.247	
Lost time		L =	41	sec
Total Flow		=	12,130	pcu
Optimum Cycle C_o	$= (1.5\times L+5)/(1-Y) =$		88	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	54	sec
Y_{ult}	$= 0.9-0.0075\times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y\times100\%$	=	139.9	%
Practical Cycle Time C_p	$= 0.9\times L/(0.9-Y)$	=	57	sec
Y_{max}	$= 1-L/C$	=	0.544	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	

I/G = 5 I/G = 5 I/G = 7 G = 14 I/G = 13

Critical Case : A,B,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 98%

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			
	B	2	3.300	1	15			1		0		1945	10			10	100%		1768	0.006	
	B	2	3.300	1		25	0	0		0		2085			240	240		100%	1967	0.122	0.122
	A	1	3.500	1				1		0		1965		90		90			1965	0.046	0.046
	A	1	3.500	1		20	0	0		0		2105			10	10		100%	1958	0.005	
	C	3	3.300	1	15			1		0		1945	140			140	100%		1768	0.079	0.079
	C	3	3.300	1				0		0		2085		90		90			2085	0.043	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	14	+	11	=	25	sec												*
	Ep	4	min.	9	+	7	=	16	sec												

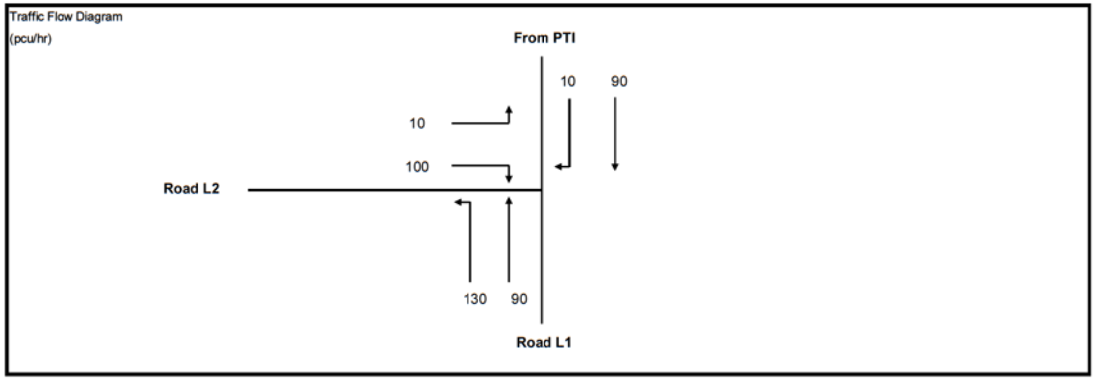
JUNCTION CAPACITY CALCULATION

AECOM

Junction JD - Road L1 / Road L2	2026 PM Design Flows (25K wo EKL)	DESIGN: SL	CHECK: CW	JOB NO: 60328348	DATE: May 15

JD

Traffic Flow Diagram
(pcu/hr)

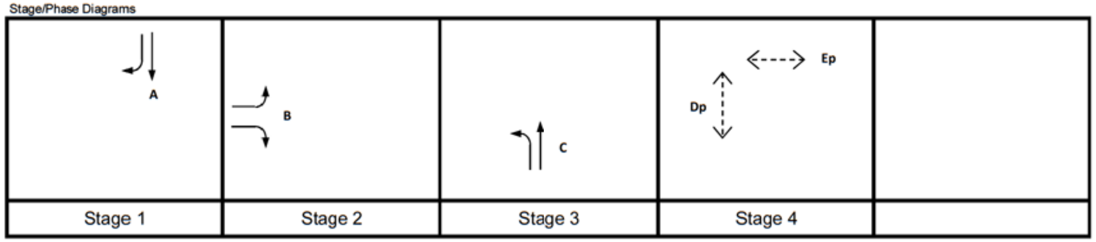


No. of stages per cycle		N =	4	
Cycle time		C =	90	sec
Sum(y)		Y =	0.170	
Lost time		L =	41	sec
Total Flow		=	12,130	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =		80	sec
Min. Cycle Time C_m	= L/(1-Y)	=	49	sec
Y_{ult}	= 0.9-0.0075×L	=	0.593	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	248.2	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	51	sec
Y_{max}	= 1-L/C	=	0.544	

Critical Case : A,B,C,Dp

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 188%

Stage/Phase Diagrams



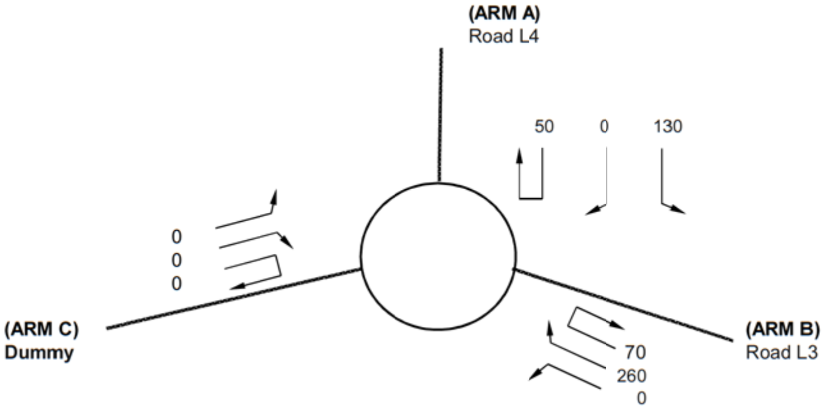
I/G = 5 I/G = 5 I/G = 7 G = 14 I/G = 13

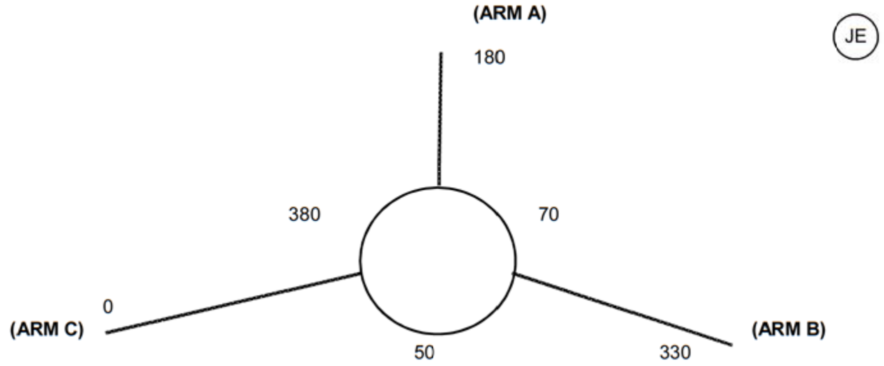
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y
	B	2	3.300	1	15			1		0		1945	10			10	100%		1768	0.006	
	B	2	3.300	1		25	0	0		0		2085			100	100		100%	1967	0.051	0.051
	A	1	3.500	1				1		0		1965		90		90			1965	0.046	0.046
	A	1	3.500	1		20	0	0		0		2105			10	10		100%	1958	0.005	
	C	3	3.300	1	15			1		0		1945	130			130	100%		1768	0.074	0.074
	C	3	3.300	1				0		0		2085		90		90			2085	0.043	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	14	+	11	=	25	sec												*
	Ep	4	min.	9	+	7	=	16	sec												

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction JE - Road L3 / Road L4	2026 AM Design Flows (25K wo EKL)	Designed By : SL	Checked By : CW	Job No. : 60328348	Date : 16/10/2014





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.70	3.60	1.00
E = Entry width (m)	8.00	6.00	1.00
L = Effective length of flare (m)	10.00	10.00	1.00
R = Entry radius (m)	45.00	80.00	1.00
D = Inscribed circle diameter (m)	40.00	40.00	1.00
A = Entry angle (degree)	50.00	65.00	1.00
Q = Entry flow (pcu/h)	180	330	0
Qc= Circulating flow across entry (pcu/h)	70	50	380
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.21	0.38	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.96	0.92	0.17
X2= V + ((E-V)/(1+2S))	7.62	4.96	1.00
M = EXP((D-60)/10)	0.14	0.14	0.00
F = 303*X2	2308	1502	303
Td= 1+(0.5/(1+M))	1.44	1.44	1.50
Fc= 0.21*Td(1+0.2*X2)	0.76	0.60	0.38
Qe= K(F-Fc*Qc)	2160	1347	27
DFC = Design flow/Capacity = Q/Qe	0.08	0.24	0.00

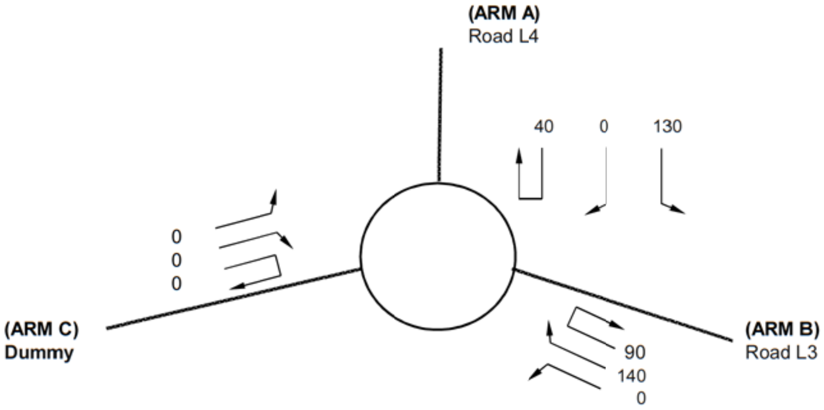
TOTAL ENTRY FLOWS = 510 PCU

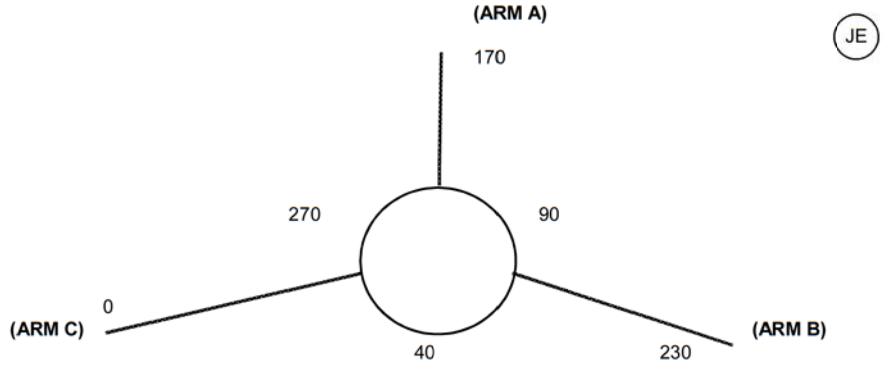
CRITICAL DFC = 0.24

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction JE - Road L3 / Road L4	2026 PM Design Flows (25K wo EKL)	Designed By : SL	Checked By : CW	Job No. : 60328348	Date : 16/10/2014





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.70	3.60	1.00
E = Entry width (m)	8.00	6.00	1.00
L = Effective length of flare (m)	10.00	10.00	1.00
R = Entry radius (m)	45.00	80.00	1.00
D = Inscribed circle diameter (m)	40.00	40.00	1.00
A = Entry angle (degree)	50.00	65.00	1.00
Q = Entry flow (pcu/h)	170	230	0
Qc= Circulating flow across entry (pcu/h)	90	40	270
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.21	0.38	0.00
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.96	0.92	0.17
X2= V + ((E-V)/(1+2S))	7.62	4.96	1.00
M = EXP((D-60)/10)	0.14	0.14	0.00
F = 303*X2	2308	1502	303
Td= 1+(0.5/(1+M))	1.44	1.44	1.50
Fc= 0.21*Td(1+0.2*X2)	0.76	0.60	0.38
Qe= K(F-Fc*Qc)	2145	1353	34
DFC = Design flow/Capacity = Q/Qe	0.08	0.17	0.00

TOTAL ENTRY FLOWS = 400 PCU

CRITICAL DFC = 0.17

Appendix C

Screenlines and Junctions for Local Area Traffic Model Validation

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
SCREENLINE K-K									
* Kai Tak Tunnel	EB	2100	2380	1.13	6	2360	2780	1.18	8
* Eastern Road	SB	780	770	0.99	0	340	400	1.18	3
* Kwun Tong Bypass	SB	3770	3530	0.94	4	3010	2790	0.93	4
* Kwun Tong Road	SB	8010	8000	1.00	0	7500	7730	1.03	3
* Clear Water Bay Road	EB	2860	2840	0.99	0	3210	3020	0.94	3
Eastbound Total		**17520**	**17520**	**1.00**	**0**	**16420**	**16720**	**1.02**	**2**
* Kai Tak Tunnel	WB	2710	3010	1.11	6	2000	2180	1.09	4
* Eastern Road	NB	390	430	1.10	2	470	410	0.87	3
* Kwun Tong Bypass	NB	2490	2580	1.04	2	2440	2510	1.03	1
* Kwun Tong Road	NB	7490	8040	1.07	6	8470	8460	1.00	0
* Clear Water Bay Road	WB	3590	3540	0.99	1	3000	3050	1.02	1
Westbound Total		**16670**	**17600**	**1.06**	**7**	**16380**	**16610**	**1.01**	**2**
SCREENLINE K1									
* Hoi Bun Road	NB	240	250	1.04	1	360	370	1.03	1
* Wai Yip Street	NB	1110	1180	1.06	2	1550	1570	1.01	1
* Kwun Tong Road Flyover	NB	2220	2230	1.00	0	820	920	1.12	3
* Kwun Tong Road	NB	3450	3510	1.02	1	3680	3880	1.05	3
* Ngau Tau Kok Road	NB	590	570	0.97	1	560	580	1.04	1
* Chun Wah Road	WB	620	660	1.06	2	710	650	0.92	2
* Shun Lee Tsuen Road	NB	720	730	1.01	0	790	760	0.96	1
* Lee On Road	NB	550	580	1.05	1	320	330	1.03	1
Northbound Total		**9500**	**9710**	**1.02**	**2**	**8790**	**9060**	**1.03**	**3**
* Hoi Bun Road	SB	260	260	1.00	0	510	500	0.98	0
* Wai Yip Street	SB	2200	2200	1.00	0	1710	1720	1.01	0
* Kwun Tong Road Flyover	SB	1790	1890	1.06	2	2450	2210	0.90	5
* Kwun Tong Road	SB	3470	3460	1.00	0	3080	3110	1.01	1
* Ngau Tau Kok Road	SB	960	1060	1.10	3	740	810	1.09	3
* Chun Wah Road	EB	1000	950	0.95	2	630	680	1.08	2
* Shun Lee Tsuen Road	SB	620	700	1.13	3	750	760	1.01	0
* Lee On Road	SB	610	600	0.98	0	400	410	1.03	0
Southbound Total		**10910**	**11120**	**1.02**	**2**	**10270**	**10200**	**0.99**	**1**
SCREENLINE K2									
* Kwun Tong Bypass	NB	5480	5450	0.99	0	4610	4830	1.05	3
* Wai Yip Street	NB	1470	1570	1.07	3	1260	1350	1.07	2
* Shing Yip Street	NB	410	380	0.93	2	260	270	1.04	1
* Kwun Tong Road	NB	1380	1450	1.05	2	1640	1620	0.99	0
* Kwun Tong Road Underpass	NB	2190	2080	0.95	2	1950	2010	1.03	1
* Tsui Ping Road	NB	500	510	1.02	0	560	620	1.11	2
Northbound Total		**11430**	**11440**	**1.00**	**0**	**10280**	**10700**	**1.04**	**4**

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
* Kwun Tong Bypass	SB	5330	5340	1.00	0	5210	4830	0.93	5
* Wai Yip Street	SB	1070	1090	1.02	1	860	870	1.01	0
* Shing Yip Street	SB	680	680	1.00	0	1060	960	0.91	3
* Kwun Tong Road	SB	1080	1210	1.12	4	950	930	0.98	1
* Kwun Tong Road Underpass	SB	2410	2280	0.95	3	2410	2450	1.02	1
* Tsui Ping Road	SB	540	530	0.98	0	450	450	1.00	0
Southbound Total		**11110**	**11130**	**1.00**	**0**	**10940**	**10490**	**0.96**	**4**
SCREENLINE K3									
* Pik Wan Road	SB	330	320	0.97	1	220	220	1.00	0
* Lei Yue Mun Road	SEB	910	920	1.01	0	1580	1530	0.97	1
* Cha Kwo Ling Road	EB	600	560	0.93	2	490	440	0.90	2
Southeastbound Total		**1840**	**1800**	**0.98**	**1**	**2290**	**2190**	**0.96**	**2**
* Pik Wan Road	NB	270	260	0.96	1	340	290	0.85	3
* Lei Yue Mun Road	NWB	1300	1320	1.02	1	1000	1040	1.04	1
* Cha Kwo Ling Road	WB	820	840	1.02	1	810	840	1.04	1
Northwestbound Total		**2390**	**2420**	**1.01**	**1**	**2150**	**2170**	**1.01**	**0**
SCREENLINE K4									
* Eastern Harbour Crossing	EB	2870	2960	1.03	2	3560	3480	0.98	1
Northbound Total		**2870**	**2960**	**1.03**	**2**	**3560**	**3480**	**0.98**	**1**
* Eastern Harbour Crossing	WB	3710	3660	0.99	1	2800	2670	0.95	2
Southbound Total		**3710**	**3660**	**0.99**	**1**	**2800**	**2670**	**0.95**	**2**
SCREENLINE K5									
* Kai Tin Road	EB	670	590	0.88	3	860	850	0.99	0
* Tseung Kwan O Road	EB	4220	4170	0.99	1	5090	5030	0.99	1
* Hip Wo Street	EB	690	700	1.01	0	760	780	1.03	1
* Hong Ning Road	EB	640	570	0.89	3	780	750	0.96	1
* New Clear Water Bay Road	EB	1440	1520	1.06	2	1630	1570	0.96	2
* Clear Water Bay Road	EB	510	500	0.98	0	470	450	0.96	1
Eastbound Total		**8170**	**8050**	**0.99**	**1**	**9590**	**9430**	**0.98**	**2**
* Kai Tin Road	WB	710	750	1.06	1	610	630	1.03	1
* Tseung Kwan O Road	WB	5840	5880	1.01	1	4130	3960	0.96	3
* Hip Wo Street	WB	1130	1120	0.99	0	830	890	1.07	2
* Hong Ning Road	WB	920	810	0.88	4	640	670	1.05	1
* New Clear Water Bay Road	WB	1970	2080	1.06	2	1670	1730	1.04	1
* Clear Water Bay Road	WB	750	710	0.95	1	640	540	0.84	4
Westbound Total		**11320**	**11350**	**1.00**	**0**	**8520**	**8420**	**0.99**	**1**

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
SCREENLINE K6									
* Clear Water Bay Road	EB	1130	1130	1.00	0	1120	1120	1.00	0
* Tseung Kwan O Tunnel	EB	3070	2890	0.94	3	3820	3740	0.98	1
* Po Lam Road	EB	470	510	1.09	2	500	470	0.94	1
Eastbound Total		**4670**	**4530**	**0.97**	**2**	**5440**	**5330**	**0.98**	**1**
* Clear Water Bay Road	WB	1600	1490	0.93	3	1290	1260	0.98	1
* Tseung Kwan O Tunnel	WB	3870	3790	0.98	1	3060	2850	0.93	4
* Po Lam Road	WB	560	550	0.98	0	300	320	1.07	1
Westbound Total		**6030**	**5830**	**0.97**	**3**	**4650**	**4430**	**0.95**	**3**
*** J1 - New Clear Water Bay Road/ Clear Water Bay Road**									
* New Clear Water Bay Road	EB	930	960	1.03	1	850	860	1.01	0
* New Clear Water Bay Road	WB	1740	1670	0.96	2	1410	1360	0.96	1
* Clear Water Bay Road	SB	420	410	0.98	0	410	400	0.98	0
ENTRY ARM - TOTAL		**3090**	**3040**	**0.98**	**1**	**2670**	**2620**	**0.98**	**1**
* New Clear Water Bay Road	WB	1120	1090	0.97	1	840	760	0.90	3
* New Clear Water Bay Road	EB	1330	1350	1.02	1	1240	1240	1.00	0
* Clear Water Bay Road	NB	640	600	0.94	2	590	620	1.05	1
EXIT ARM - TOTAL		**3090**	**3040**	**0.98**	**1**	**2670**	**2620**	**0.98**	**1**
*** J2 - Lee On Road/ Shun On Road**									
* Shun On Road	EB	190	200	1.05	1	100	110	1.10	1
* Bus Terminus Access Road	NB	10	10	1.00	0	10	10	1.00	0
* Shun On Road	WB	460	480	1.04	1	270	270	1.00	0
* Lee On Road	SB	610	600	0.98	0	400	410	1.03	0
ENTRY ARM - TOTAL		**1270**	**1290**	**1.02**	**1**	**780**	**800**	**1.03**	**1**
* Shun On Road	WB	310	280	0.90	2	160	160	1.00	0
* Shun On Road	EB	400	420	1.05	1	290	300	1.03	1
* Lee On Road	NB	560	590	1.05	1	330	340	1.03	1
EXIT ARM - TOTAL		**1270**	**1290**	**1.02**	**1**	**780**	**800**	**1.03**	**1**
*** J3 - Sau Mau Ping Road/ Hip Wo Street**									
* Shun Lee Tsuen Road	SB	950	850	0.89	3	820	890	1.09	2
* Hip Wo Street	NB	750	790	1.05	1	810	780	0.96	1
* Sau Mau Ping Road	WB	1020	1020	1.00	0	810	840	1.04	1
ENTRY ARM - TOTAL		**2720**	**2660**	**0.98**	**1**	**2440**	**2510**	**1.03**	**1**
* Shun Lee Tsuen Road	NB	950	880	0.93	2	960	960	1.00	0
* Hip Wo Street	SB	1150	1140	0.99	0	790	830	1.05	1
* Sau Mau Ping Road	EB	620	640	1.03	1	690	720	1.04	1
EXIT ARM - TOTAL		**2720**	**2660**	**0.98**	**1**	**2440**	**2510**	**1.03**	**1**

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
*** J4 - Sau Mau Ping Road/ Shun On Road**									
* Sau Mau Ping Road	EB	620	610	0.98	0	690	740	1.07	2
* Sau Mau Ping Road	WB	960	1010	1.05	2	840	870	1.04	1
* Shun On Road	SB	470	440	0.94	1	290	280	0.97	1
ENTRY ARM - TOTAL		**2050**	**2060**	**1.00**	**0**	**1820**	**1890**	**1.04**	**2**
* Sau Mau Ping Road	WB	1030	1030	1.00	0	810	840	1.04	1
* Sau Mau Ping Road	EB	680	660	0.97	1	670	690	1.03	1
* Shun On Road	NB	340	370	1.09	2	340	360	1.06	1
EXIT ARM - TOTAL		**2050**	**2060**	**1.00**	**0**	**1820**	**1890**	**1.04**	**2**
*** J5 - Hip Wo Street/ Hong Ning Road**									
* Hong Ning Road	EB	640	570	0.89	3	780	750	0.96	1
* Hip Wo Street	NB	610	640	1.05	1	610	640	1.05	1
* Hip Wo Street	SB	1150	1110	0.97	1	780	860	1.10	3
ENTRY ARM - TOTAL		**2400**	**2320**	**0.97**	**2**	**2170**	**2250**	**1.04**	**2**
* Hong Ning Road	WB	920	810	0.88	4	640	670	1.05	1
* Hip Wo Street	SB	730	750	1.03	1	720	770	1.07	2
* Hip Wo Street	NB	750	760	1.01	0	810	810	1.00	0
EXIT ARM - TOTAL		**2400**	**2320**	**0.97**	**2**	**2170**	**2250**	**1.04**	**2**
*** J6 - Hong Ning Road/ Chun Wah Road**									
* Chun Wah Road	EB	630	560	0.89	3	730	680	0.93	2
* Hong Ning Road	NB	470	470	1.00	0	530	500	0.94	1
* Hong Ning Road	SB	900	950	1.06	2	690	630	0.91	2
ENTRY ARM - TOTAL		**2000**	**1980**	**0.99**	**0**	**1950**	**1810**	**0.93**	**3**
* Chun Wah Road	WB	880	950	1.08	2	610	540	0.89	3
* Hong Ning Road	SB	520	460	0.88	3	560	500	0.89	3
* Hong Ning Road	NB	600	570	0.95	1	780	770	0.99	0
EXIT ARM - TOTAL		**2000**	**1980**	**0.99**	**0**	**1950**	**1810**	**0.93**	**3**
*** J7 - Hip Wo Street/ Sau Nga Road**									
* Hip Wo Street	NB	590	590	1.00	0	680	700	1.03	1
* Sau Nga Road	WB	360	330	0.92	2	260	270	1.04	1
* Hip Wo Street	SB	740	750	1.01	0	720	770	1.07	2
ENTRY ARM - TOTAL		**1690**	**1670**	**0.99**	**0**	**1660**	**1740**	**1.05**	**2**
* Hip Wo Street	SB	800	780	0.98	1	730	770	1.05	1
* Sau Nga Road	EB	270	260	0.96	1	320	310	0.97	1
* Hip Wo Street	NB	620	630	1.02	0	610	660	1.08	2
EXIT ARM - TOTAL		**1690**	**1670**	**0.99**	**0**	**1660**	**1740**	**1.05**	**2**
*** J8 - Hip Wo Street/ Hiu Kwong Street**									
* Hiu Kwong Street	EB	60	60	1.00	0	40	40	1.00	0
* Hip Wo Street	NB	690	700	1.01	0	760	780	1.03	1

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
* Hiu Kwong Street	WB	670	670	1.00	0	580	590	1.02	0
* Hip Wo Street	SB	800	780	0.98	1	720	780	1.08	2
ENTRY ARM - TOTAL		**2220**	**2210**	**1.00**	**0**	**2100**	**2190**	**1.04**	**2**
* Hiu Kwong Street	WB	50	50	1.00	0	50	50	1.00	0
* Hip Wo Street	SB	1130	1120	0.99	0	830	890	1.07	2
* Hiu Kwong Street	EB	450	450	1.00	0	540	550	1.02	0
* Hip Wo Street	NB	590	590	1.00	0	680	700	1.03	1
EXIT ARM - TOTAL		**2220**	**2210**	**1.00**	**0**	**2100**	**2190**	**1.04**	**2**
*** J9 - Hip Wo Street/ Mut Wah Street/ Yuet Wah Street**									
* Mut Wah Street	EB	860	820	0.95	1	910	940	1.03	1
* Hip Wo Street	NB	320	310	0.97	1	360	360	1.00	0
* Yuet Wah Street	WB	490	440	0.90	2	250	220	0.88	2
* Hip Wo Street	SB	770	690	0.90	3	600	620	1.03	1
ENTRY ARM - TOTAL		**2440**	**2260**	**0.93**	**4**	**2120**	**2140**	**1.01**	**0**
* Hip Wo Street	SB	1600	1430	0.89	4	1260	1300	1.03	1
* Hip Wo Street	NB	840	830	0.99	0	860	840	0.98	1
EXIT ARM - TOTAL		**2440**	**2260**	**0.93**	**4**	**2120**	**2140**	**1.01**	**0**
*** J10 - Kwun Tong Road/ Hong Ning Road**									
* Kwun Tong Road	EB	3950	3810	0.96	2	3730	3540	0.95	3
* Kwun Tong Road	WB	3020	2990	0.99	1	2710	2740	1.01	1
* Hong Ning Road	SB	510	490	0.96	1	470	500	1.06	1
ENTRY ARM - TOTAL		**7480**	**7290**	**0.97**	**2**	**6910**	**6780**	**0.98**	**2**
* Kwun Tong Road	WB	3410	3360	0.99	1	3030	3070	1.01	1
* Kwun Tong Road	EB	3650	3510	0.96	2	3220	3120	0.97	2
* Hong Ning Road	NB	420	420	1.00	0	660	590	0.89	3
EXIT ARM - TOTAL		**7480**	**7290**	**0.97**	**2**	**6910**	**6780**	**0.98**	**2**
*** J11 - Kwun Tong Road/ Hip Wo Street**									
* Kwun Tong Road	EB	1510	1620	1.07	3	1310	1160	0.89	4
* Kwun Tong Road	WB	1380	1450	1.05	2	1640	1620	0.99	0
* Hip Wo Street	SB	1060	1040	0.98	1	800	780	0.98	1
ENTRY ARM - TOTAL		**3950**	**4110**	**1.04**	**3**	**3750**	**3560**	**0.95**	**3**
* Kwun Tong Road	WB	970	930	0.96	1	920	800	0.87	4
* Hoi Yuen Road Road	SB	1250	1280	1.02	1	1120	990	0.88	4
* Kwun Tong Road	EB	1080	1210	1.12	4	950	930	0.98	1
* Hip Wo Street	NB	650	690	1.06	2	760	840	1.11	3
EXIT ARM - TOTAL		**3950**	**4110**	**1.04**	**3**	**3750**	**3560**	**0.95**	**3**
*** J12 - Lei Yue Mun Road/ Tseung Kwan O Road**									
* Lei Yue Mun Road	EB	3700	3600	0.97	2	3620	3670	1.01	1
* Lei Yue Mun Road	WB	2990	3140	1.05	3	2710	2910	1.07	4
* Tseung Kwan O Road	SB	680	610	0.90	3	720	790	1.10	3

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
ENTRY ARM - TOTAL		**7370**	**7350**	**1.00**	**0**	**7050**	**7370**	**1.05**	**4**
* Lei Yue Mun Road	WB	1650	1800	1.09	4	1410	1510	1.07	3
* Wai Fat Road	SB	1430	1300	0.91	4	980	1110	1.13	4
* Lei Yue Mun Road	EB	2700	2470	0.91	5	2590	2680	1.03	2
* Tseung Kwan O Road	NB	1590	1780	1.12	5	2070	2070	1.00	0
EXIT ARM - TOTAL		**7370**	**7350**	**1.00**	**0**	**7050**	**7370**	**1.05**	**4**
*** J13 - Sau Mau Ping Road/ Sau Fung Street**									
* Sau Mau Ping Road	EB	620	560	0.90	2	560	590	1.05	1
* Sau Fung Street	NB	220	200	0.91	1	170	180	1.06	1
* Sau Mau Ping Road	WB	910	960	1.05	2	830	830	1.00	0
ENTRY ARM - TOTAL		**1750**	**1720**	**0.98**	**1**	**1560**	**1600**	**1.03**	**1**
* Sau Mau Ping Road	WB	890	940	1.06	2	750	730	0.97	1
* Sau Fung Street	SB	130	120	0.92	1	220	230	1.05	1
* Sau Mau Ping Road	EB	730	660	0.90	3	590	640	1.08	2
EXIT ARM - TOTAL		**1750**	**1720**	**0.98**	**1**	**1560**	**1600**	**1.03**	**1**
*** J14 - Sau Mau Ping Road/ Sau Ming Road**									
* Sau Mau Ping Road	EB	680	620	0.91	2	680	730	1.07	2
* Sau Ming Road	NB	310	340	1.10	2	290	320	1.10	2
* Sau Mau Ping Road	WB	890	910	1.02	1	760	740	0.97	1
ENTRY ARM - TOTAL		**1880**	**1870**	**0.99**	**0**	**1730**	**1790**	**1.03**	**1**
* Sau Mau Ping Road	WB	960	1020	1.06	2	850	870	1.02	1
* Sau Ming Road	SB	300	280	0.93	1	320	330	1.03	1
* Sau Mau Ping Road	EB	620	570	0.92	2	560	590	1.05	1
EXIT ARM - TOTAL		**1880**	**1870**	**0.99**	**0**	**1730**	**1790**	**1.03**	**1**
*** J15 - Clear Water Bay Road / Lung Cheung Road**									
* Lung Cheung Road	NB	2060	2220	1.08	3	2280	2100	0.92	4
* Lung Cheung Road	SB	2030	2190	1.08	3	2290	2290	1.00	0
* Clear Water Bay Road	WB	4280	4030	0.94	4	3240	3150	0.97	2
ENTRY ARM - TOTAL		**8370**	**8440**	**1.01**	**1**	**7810**	**7540**	**0.97**	**3**
* Lung Cheung Road	SB	2580	2380	0.92	4	1610	1520	0.94	2
* Lung Cheung Road	NB	2410	2400	1.00	0	2520	2380	0.94	3
* Clear Water Bay Road	EB	3380	3660	1.08	5	3680	3640	0.99	1
EXIT ARM - TOTAL		**8370**	**8440**	**1.01**	**1**	**7810**	**7540**	**0.97**	**3**
*** J16 - Clear Water Bay Road/ New Clear Water Bay Road**									
* Clear Water Bay Road	SB	2860	2840	0.99	0	3210	3020	0.94	3
* New Clear Water Bay Road	NB	1910	2060	1.08	3	1810	1880	1.04	2
* Clear Water Bay Road	WB	1760	1560	0.89	5	1280	1260	0.98	1
ENTRY ARM - TOTAL		**6530**	**6460**	**0.99**	**1**	**6300**	**6160**	**0.98**	**2**
* Clear Water Bay Road	NB	3590	3540	0.99	1	3000	3050	1.02	1
* New Clear Water Bay Road	SB	2110	2170	1.03	1	2330	2290	0.98	1

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
* Clear Water Bay Road	EB	830	750	0.90	3	970	820	0.85	5
EXIT ARM - TOTAL		**6530**	**6460**	**0.99**	**1**	**6300**	**6160**	**0.98**	**2**
*** J17 - Po Lam Road/ Sau Mau Ping Road**									
* Sau Mau Ping Road	SB	730	660	0.90	3	590	640	1.08	2
* Po Lam Road	WB	1510	1500	0.99	0	900	890	0.99	0
* Sau Mau Ping Road	NB	890	930	1.04	1	1090	1000	0.92	3
ENTRY ARM - TOTAL		**3130**	**3090**	**0.99**	**1**	**2580**	**2530**	**0.98**	**1**
* Sau Mau Ping Road	NB	910	970	1.07	2	840	850	1.01	0
* Po Lam Road	EB	810	790	0.98	1	910	840	0.92	2
* Sau Mau Ping Road	SB	1410	1330	0.94	2	830	840	1.01	0
EXIT ARM - TOTAL		**3130**	**3090**	**0.99**	**1**	**2580**	**2530**	**0.98**	**1**
*** J18 - Po Lam Road/ Access Road to Po Tat Estate**									
* Po Lam Road	EB	820	770	0.94	2	900	850	0.94	2
* Access Road to Po Tat Estate	NB	380	410	1.08	2	290	310	1.07	1
* Po Lam Road	WB	1220	1180	0.97	1	680	660	0.97	1
ENTRY ARM - TOTAL		**2420**	**2360**	**0.98**	**1**	**1870**	**1820**	**0.97**	**1**
* Po Lam Road	WB	1510	1510	1.00	0	900	910	1.01	0
* Access Road to Po Tat Estate	SB	310	280	0.90	2	330	350	1.06	1
* Po Lam Road	EB	600	570	0.95	1	640	560	0.88	3
EXIT ARM - TOTAL		**2420**	**2360**	**0.98**	**1**	**1870**	**1820**	**0.97**	**1**
*** J19 - Po Lam Road/ On Sau Road**									
* Po Lam Road	EB	590	580	0.98	0	640	570	0.89	3
* Po Lam Road	WB	1150	1130	0.98	1	630	610	0.97	1
* On Sau Road	SB	120	120	1.00	0	80	80	1.00	0
ENTRY ARM - TOTAL		**1860**	**1830**	**0.98**	**1**	**1350**	**1260**	**0.93**	**2**
* Po Lam Road	WB	1220	1200	0.98	1	680	660	0.97	1
* Po Lam Road	EB	470	440	0.94	1	580	500	0.86	3
* On Sau Road	NB	170	190	1.12	1	90	100	1.11	1
EXIT ARM - TOTAL		**1860**	**1830**	**0.98**	**1**	**1350**	**1260**	**0.93**	**2**
*** J20 - Hiu Kwong Street/ Sau Mau Ping Road**									
* Hiu Kwong Street	EB	650	720	1.11	3	480	460	0.96	1
* Sau Mau Ping Road	WB	990	1060	1.07	2	1230	1200	0.98	1
* Sau Mau Ping Road	SB	1430	1330	0.93	3	840	840	1.00	0
ENTRY ARM - TOTAL		**3070**	**3110**	**1.01**	**1**	**2550**	**2500**	**0.98**	**1**
* Hiu Kwong Street	WB	660	720	1.09	2	580	640	1.10	2
* Sau Mau Ping Road	EB	1500	1430	0.95	2	870	860	0.99	0
* Sau Mau Ping Road	NB	910	960	1.05	2	1100	1000	0.91	3
EXIT ARM - TOTAL		**3070**	**3110**	**1.01**	**1**	**2550**	**2500**	**0.98**	**1**

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
*** J21 - Lin Tak Road / Slip Road to Tseung Kwan O Road**									
* Lin Tak Road	SB	1930	1890	0.98	1	1250	1280	1.02	1
* Lin Tak Road	NB	540	610	1.13	3	570	560	0.98	0
ENTRY ARM - TOTAL		**2470**	**2500**	**1.01**	**1**	**1820**	**1840**	**1.01**	**0**
* Lin Tak Road	NB	270	310	1.15	2	340	350	1.03	1
* Slip Road to Tseung Kwan O Road	WB	1570	1630	1.04	2	900	850	0.94	2
* Lin Tak Road	SB	630	560	0.89	3	580	640	1.10	2
EXIT ARM - TOTAL		**2470**	**2500**	**1.01**	**1**	**1820**	**1840**	**1.01**	**0**
*** J22 - Clear Water Bay Road/ Anderson Road**									
* Clear Water Bay Road	EB	1320	1320	1.00	0	1230	1230	1.00	0
* Anderson Road	NB	210	220	1.05	1	140	130	0.93	1
* Clear Water Bay Road	WB	1600	1490	0.93	3	1290	1260	0.98	1
ENTRY ARM - TOTAL		**3130**	**3030**	**0.97**	**2**	**2660**	**2620**	**0.98**	**1**
* Clear Water Bay Road	WB	1750	1650	0.94	2	1410	1370	0.97	1
* Anderson Road	SB	250	250	1.00	0	130	130	1.00	0
* Clear Water Bay Road	EB	1130	1130	1.00	0	1120	1120	1.00	0
EXIT ARM - TOTAL		**3130**	**3030**	**0.97**	**2**	**2660**	**2620**	**0.98**	**1**
*** J23 - New Clear Water Bay Road / Lee On Road**									
* New Clear Water Bay Road	EB	1130	1070	0.95	2	840	760	0.90	3
* New Clear Water Bay Road	WB	900	900	1.00	0	820	800	0.98	1
* Lee On Road	SB	610	590	0.97	1	500	540	1.08	2
ENTRY ARM - TOTAL		**2640**	**2560**	**0.97**	**2**	**2160**	**2100**	**0.97**	**1**
* New Clear Water Bay Road	WB	940	960	1.02	1	850	830	0.98	1
* New Clear Water Bay Road	EB	1550	1450	0.94	3	1210	1170	0.97	1
* Lee On Road	NB	150	150	1.00	0	100	100	1.00	0
EXIT ARM - TOTAL		**2640**	**2560**	**0.97**	**2**	**2160**	**2100**	**0.97**	**1**
*** J24 - Lei Yue Mun Road/ Kai Tin Road**									
* Lei Yue Mun Road	EB	2190	2000	0.91	4	2340	2200	0.94	3
* Slip Road from Easetern Harbour Crossing	NB	250	240	0.96	1	570	630	1.11	2
* Lei Yue Mun Road	WB	920	980	1.07	2	840	730	0.87	4
* Kai Tin Road	SB	710	750	1.06	1	610	630	1.03	1
ENTRY ARM - TOTAL		**4070**	**3970**	**0.98**	**2**	**4360**	**4190**	**0.96**	**3**
* Lei Yue Mun Road	WB	1640	1720	1.05	2	1620	1540	0.95	2
* Lei Yue Mun Road	EB	1760	1660	0.94	2	1880	1800	0.96	2
* Kai Tin Road	NB	670	590	0.88	3	860	850	0.99	0
EXIT ARM - TOTAL		**4070**	**3970**	**0.98**	**2**	**4360**	**4190**	**0.96**	**3**
*** J25 - Kwun Tong Road / Tsui Ping Road**									
* Kwun Tong Road	EB	3490	3490	1.00	0	3360	3380	1.01	0

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
* Kwun Tong Road	WB	3880	3850	0.99	0	3900	3940	1.01	1
* Tsui Ping Road	SB	530	590	1.11	3	460	520	1.13	3
ENTRY ARM - TOTAL		**7900**	**7930**	**1.00**	**0**	**7720**	**7840**	**1.02**	**1**
* Kwun Tong Road	WB	3570	3530	0.99	1	3590	3630	1.01	1
* Kwun Tong Road	EB	3700	3790	1.02	1	3560	3650	1.03	1
* Tsui Ping Road	NB	630	610	0.97	1	570	560	0.98	0
EXIT ARM - TOTAL		**7900**	**7930**	**1.00**	**0**	**7720**	**7840**	**1.02**	**1**
*** J26 - New Clear Water Bay Road/ San Lee Street**									
* New Clear Water Bay Road	EB	680	780	1.15	4	970	1000	1.03	1
* San Lee Street	SB	280	270	0.96	1	240	220	0.92	1
ENTRY ARM - TOTAL		**960**	**1050**	**1.09**	**3**	**1210**	**1220**	**1.01**	**0**
* Shun Ching Street	EB	650	710	1.09	2	880	910	1.03	1
* San Lee Street	NB	310	340	1.10	2	330	310	0.94	1
EXIT ARM - TOTAL		**960**	**1050**	**1.09**	**3**	**1210**	**1220**	**1.01**	**0**
*** J27 - Lin Tak Road / Pik Wan Road**									
* Lin Tak Road	EB	350	330	0.94	1	410	400	0.98	0
* Pik Wan Road	NB	600	600	1.00	0	500	530	1.06	1
* Lin Tak Road	WB	570	560	0.98	0	520	490	0.94	1
ENTRY ARM - TOTAL		**1520**	**1490**	**0.98**	**1**	**1430**	**1420**	**0.99**	**0**
* Lin Tak Road	WB	610	590	0.97	1	450	450	1.00	0
* Pik Wan Road	SB	370	380	1.03	1	440	420	0.95	1
* Lin Tak Road	EB	540	520	0.96	1	540	550	1.02	0
EXIT ARM - TOTAL		**1520**	**1490**	**0.98**	**1**	**1430**	**1420**	**0.99**	**0**
*** J28 - New Clear Water Bay Road/ Choi Hing Lane**									
* New Clear Water Bay Road	EB	2110	2160	1.02	1	2320	2230	0.96	2
* Choi Hing Lane	NB	190	210	1.11	1	190	170	0.89	1
* New Clear Water Bay Road	WB	1970	2080	1.06	2	1670	1730	1.04	1
ENTRY ARM - TOTAL		**4270**	**4450**	**1.04**	**3**	**4180**	**4130**	**0.99**	**1**
* New Clear Water Bay Road	WB	1910	2060	1.08	3	1810	1860	1.03	1
* Choi Hing Lane	SB	630	600	0.95	1	490	470	0.96	1
* New Clear Water Bay Road	EB	1730	1790	1.03	1	1880	1800	0.96	2
EXIT ARM - TOTAL		**4270**	**4450**	**1.04**	**3**	**4180**	**4130**	**0.99**	**1**
*** J29 - Kwun Tong Road/ Cha Kwo Ling Road**									
* Kwun Tong Road	WB	1650	1800	1.09	4	1410	1510	1.07	3
* Cha Kwo Ling Road	NB	2230	2050	0.92	4	2490	2430	0.98	1
ENTRY ARM - TOTAL		**3880**	**3850**	**0.99**	**0**	**3900**	**3940**	**1.01**	**1**
* Kwun Tong Road	WB	3880	3850	0.99	0	3900	3940	1.01	1
EXIT ARM - TOTAL		**3880**	**3850**	**0.99**	**0**	**3900**	**3940**	**1.01**	**1**

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
*** J30 - Cha Kwo Ling Road/ Shin Yip Street**									
* Wai Fat Road	EB	280	250	0.89	2	300	180	0.60	8
* Cha Kwo Ling Road	NB	450	450	1.00	0	340	280	0.82	3
* Wai Fat Road	WB	1490	1400	0.94	2	1230	1230	1.00	0
* Shing Yip Street	EB	680	680	1.00	0	1060	960	0.91	3
ENTRY ARM - TOTAL		**2900**	**2780**	**0.96**	**2**	**2930**	**2650**	**0.90**	**5**
* Wai Fat Road	WB	960	920	0.96	1	1190	1050	0.88	4
* Cha Kwo Ling Road	SB	330	330	1.00	0	280	330	1.18	3
* Cha Kwo Ling Road	NB	1200	1150	0.96	1	1200	990	0.83	6
* Shing Yip Street	WB	410	380	0.93	2	260	270	1.04	1
EXIT ARM - TOTAL		**2900**	**2780**	**0.96**	**2**	**2930**	**2650**	**0.90**	**5**
*** J31 - Wai Yip Street/ Cha Kwo Ling Road**									
* Wai Yip Street	SB	1030	1020	0.99	0	760	740	0.97	1
* Cha Kwo Ling Road	NB	1040	1080	1.04	1	890	910	1.02	1
* Cha Kwo Ling Road	SB	580	580	1.00	0	360	380	1.06	1
ENTRY ARM - TOTAL		**2650**	**2680**	**1.01**	**1**	**2010**	**2030**	**1.01**	**0**
* Wai Yip Street	NB	1400	1460	1.04	2	1070	1090	1.02	1
* Cha Kwo Ling Road	SB	660	650	0.98	0	530	560	1.06	1
* Cha Kwo Ling Road	NB	590	580	0.98	0	420	370	0.88	3
EXIT ARM - TOTAL		**2650**	**2680**	**1.01**	**1**	**2010**	**2030**	**1.01**	**0**
*** J32 - Wai Yip Street/ Wai Fat Road**									
* Wai Fat Road	NEB	1310	1180	0.90	4	680	590	0.87	4
* Wai Yip Street	NWB	1470	1570	1.07	3	1260	1350	1.07	2
* Wai Fat Road	SWB	1310	1220	0.93	3	1550	1230	0.79	9
* Wai Yip Street	SEB	1020	1130	1.11	3	1340	1460	1.09	3
ENTRY ARM - TOTAL		**5110**	**5100**	**1.00**	**0**	**4830**	**4630**	**0.96**	**3**
* Wai Fat Road	SWB	1290	1180	0.91	3	1610	1290	0.80	8
* Wai Yip Street	SEB	1070	1090	1.02	1	860	870	1.01	0
* Wai Fat Road	NEB	1110	1040	0.94	2	1320	1320	1.00	0
* Wai Yip Street	NWB	1640	1800	1.10	4	1050	1150	1.10	3
EXIT ARM - TOTAL		**5110**	**5100**	**1.00**	**0**	**4830**	**4630**	**0.96**	**3**
*** J33 - Hoi Yuen Road/ Wai Yip Street**									
* Public Tranposrt Interchange Access	NEB	190	190	1.00	0	240	240	1.00	0
* Wai Yip Street	NWB	1330	1380	1.04	1	1070	1090	1.02	1
* Hoi Yuen Road	SWB	1090	1090	1.00	0	1620	1630	1.01	0
* Wai Yip Street	SEB	830	860	1.04	1	950	1040	1.09	3
ENTRY ARM - TOTAL		**3440**	**3520**	**1.02**	**1**	**3880**	**4000**	**1.03**	**2**
* Public Tranposrt Interchange Access	SWB	360	350	0.97	1	270	270	1.00	0
* Wai Yip Street	SEB	1490	1520	1.02	1	1930	2050	1.06	3
* Wai Yip Street	NWB	1600	1650	1.03	1	1660	1670	1.01	0

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
EXIT ARM - TOTAL		**3440**	**3520**	**1.02**	**1**	**3880**	**4000**	**1.03**	**2**
*** J34 - Wai Yip Street/ Lai Yip Street**									
* Wai Yip Street	SEB	1940	1970	1.02	1	1500	1550	1.03	1
* Lai Yip Street	NEB	320	330	1.03	1	400	390	0.98	1
* Wai Yip Street	NWB	790	870	1.10	3	990	1050	1.06	2
* Lai Yip Street	SWB	990	990	1.00	0	770	800	1.04	1
ENTRY ARM - TOTAL		**4040**	**4160**	**1.03**	**2**	**3660**	**3790**	**1.04**	**2**
* Wai Yip Street	NWB	840	970	1.15	4	1040	1060	1.02	1
* Lai Yip Street	SWB	770	810	1.05	1	600	650	1.08	2
* Wai Yip Street	SEB	1950	1980	1.02	1	1460	1530	1.05	2
* Lai Yip Street	NEB	470	410	0.87	3	560	540	0.96	1
EXIT ARM - TOTAL		**4040**	**4160**	**1.03**	**2**	**3660**	**3790**	**1.04**	**2**
*** J35 - Hoi Bun Road/ Kai Hing Road**									
* Hoi Bun Road	SEB	350	360	1.03	1	660	650	0.98	0
* Hoi Bun Road	NWB	240	250	1.04	1	360	370	1.03	1
ENTRY ARM - TOTAL		**590**	**600**	**1.02**	**0**	**1020**	**1020**	**1.00**	**0**
* Hoi Bun Road	NWB	80	80	1.00	0	210	210	1.00	0
* Kai Hing Road	SWB	250	250	1.00	0	300	300	1.00	0
* Hoi Bun Road	SEB	260	260	1.00	0	510	500	0.98	0
EXIT ARM - TOTAL		**590**	**600**	**1.02**	**0**	**1020**	**1020**	**1.00**	**0**
*** J36 - Cheung Yip Street/ Hoi Bun Road**									
* Hoi Bun Road	EB	660	670	1.02	0	430	410	0.95	1
* Cheung Yip Street	NB	480	460	0.96	1	620	640	1.03	1
* Hoi Bun Road	WB	130	130	1.00	0	190	180	0.95	1
* Cheung Yip Street	SB	30	30	1.00	0	40	40	1.00	0
ENTRY ARM - TOTAL		**1310**	**1290**	**0.98**	**1**	**1290**	**1270**	**0.98**	**1**
* Hoi Bun Road	WB	290	280	0.97	1	360	350	0.97	1
* Cheung Yip Street	SB	220	220	1.00	0	140	140	1.00	0
* Hoi Bun Road	EB	590	580	0.98	0	690	680	0.99	0
* Cheung Yip Street	NB	210	210	1.00	0	100	100	1.00	0
EXIT ARM - TOTAL		**1310**	**1290**	**0.98**	**1**	**1290**	**1270**	**0.98**	**1**
*** J37 - Kai Cheung Road/ Wang Chiu Road**									
* Kai Cheung Road	EB	890	950	1.07	2	1060	1090	1.03	1
* Wang Chiu Road	NB	430	390	0.91	2	500	480	0.96	1
* Kai Cheung Road	WB	3170	3160	1.00	0	2710	2640	0.97	1
* Wang Chiu Road	SB	780	810	1.04	1	660	670	1.02	0
ENTRY ARM - TOTAL		**5270**	**5310**	**1.01**	**1**	**4930**	**4880**	**0.99**	**1**
* Kai Cheung Road	WB	1430	1430	1.00	0	1260	1220	0.97	1
* Wang Chiu Road	SB	1690	1680	0.99	0	1240	1220	0.98	1
* Kai Cheung Road	EB	1640	1720	1.05	2	1900	1910	1.01	0

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
* Wang Chiu Road	NB	510	480	0.94	1	530	520	0.98	0
EXIT ARM - TOTAL		**5270**	**5310**	**1.01**	**1**	**4930**	**4880**	**0.99**	**1**
*** J38 - Kai Cheung Road/ Wang Kwong Road**									
* Kai Cheung Road	EB	780	800	1.03	1	960	1000	1.04	1
* Wang Kwong Road	NB	490	450	0.92	2	660	650	0.98	0
* Kai Cheung Road	WB	1430	1430	1.00	0	1260	1220	0.97	1
* Wang Kwong Road	SB	1070	1160	1.08	3	640	670	1.05	1
ENTRY ARM - TOTAL		**3770**	**3840**	**1.02**	**1**	**3520**	**3540**	**1.01**	**0**
* Kai Cheung Road	WB	1390	1400	1.01	0	1460	1440	0.99	1
* Wang Kwong Road	SB	900	900	1.00	0	570	570	1.00	0
* Kai Cheung Road	EB	890	950	1.07	2	1060	1090	1.03	1
* Wang Kwong Road	NB	590	590	1.00	0	430	440	1.02	0
EXIT ARM - TOTAL		**3770**	**3840**	**1.02**	**1**	**3520**	**3540**	**1.01**	**0**
*** J45 - Clear Water Bay Road/ Fung Shing Street**									
* Clear Water Bay Road	EB	720	670	0.93	2	820	860	1.05	1
* Fung Shing Street	NB	290	270	0.93	1	250	230	0.92	1
* Clear Water Bay Road	WB	1030	1010	0.98	1	860	810	0.94	2
* Fung Shing Street	SB	310	270	0.87	2	190	200	1.05	1
ENTRY ARM - TOTAL		**2350**	**2220**	**0.94**	**3**	**2120**	**2100**	**0.99**	**0**
* Clear Water Bay Road	WB	1520	1450	0.95	2	1230	1170	0.95	2
* Clear Water Bay Road	EB	430	380	0.88	2	450	460	1.02	0
* Fung Shing Street	NB	400	390	0.98	1	440	470	1.07	1
EXIT ARM - TOTAL		**2350**	**2220**	**0.94**	**3**	**2120**	**2100**	**0.99**	**0**
*** J46 - Choi Ha Road/ Slip Road to Kwun Tong Road**									
* Choi Ha Road	WB	270	270	1.00	0	270	300	1.11	2
* Choi Ha Road	SB	400	400	1.00	0	190	170	0.89	1
ENTRY ARM - TOTAL		**670**	**670**	**1.00**	**0**	**460**	**470**	**1.02**	**0**
* Slip Road to Kwun Tong Road	WB	350	360	1.03	1	190	200	1.05	1
* Choi Ha Road	EB	210	190	0.90	1	130	120	0.92	1
* Choi Ha Road	NB	110	120	1.09	1	140	150	1.07	1
EXIT ARM - TOTAL		**670**	**670**	**1.00**	**0**	**460**	**470**	**1.02**	**0**
*** J47 - Hip Wo Street/ Wan Hon Street/ Tsui Ping Road**									
* Wan Hon Street	EB	90	80	0.89	1	150	160	1.07	1
* Hip Wo Street	NB	620	620	1.00	0	600	610	1.02	0
* Tsui Ping Road	WB	400	440	1.10	2	580	610	1.05	1
* Hip Wo Street	SB	1130	1170	1.04	1	830	870	1.05	1
ENTRY ARM - TOTAL		**2240**	**2310**	**1.03**	**1**	**2160**	**2250**	**1.04**	**2**
* Wan Hon Street	WB	220	240	1.09	1	330	350	1.06	1
* Hip Wo Street	SB	860	890	1.03	1	710	710	1.00	0
* Tsui Ping Road	EB	470	460	0.98	0	370	410	1.11	2

		AM				PM			
		OBS	MOD	MOD / OBS	GEH	OBS	MOD	MOD / OBS	GEH
* Hip Wo Street	NB	690	720	1.04	1	750	780	1.04	1
EXIT ARM - TOTAL		**2240**	**2310**	**1.03**	**1**	**2160**	**2250**	**1.04**	**2**
*** J48 - Hoi Yuen Road/ Shing Yip Street/ How Ming Street**									
* Hoi Yuen Road	SWB	1210	1170	0.97	1	1010	920	0.91	3
* Shing Yip Street	NWB	640	600	0.94	2	770	750	0.97	1
ENTRY ARM - TOTAL		**1850**	**1770**	**0.96**	**2**	**1780**	**1670**	**0.94**	**3**
* How Ming Street	NWB	510	440	0.86	3	480	460	0.96	1
* Hoi Yuen Road	SWB	1340	1330	0.99	0	1300	1210	0.93	3
EXIT ARM - TOTAL		**1850**	**1770**	**0.96**	**2**	**1780**	**1670**	**0.94**	**3**

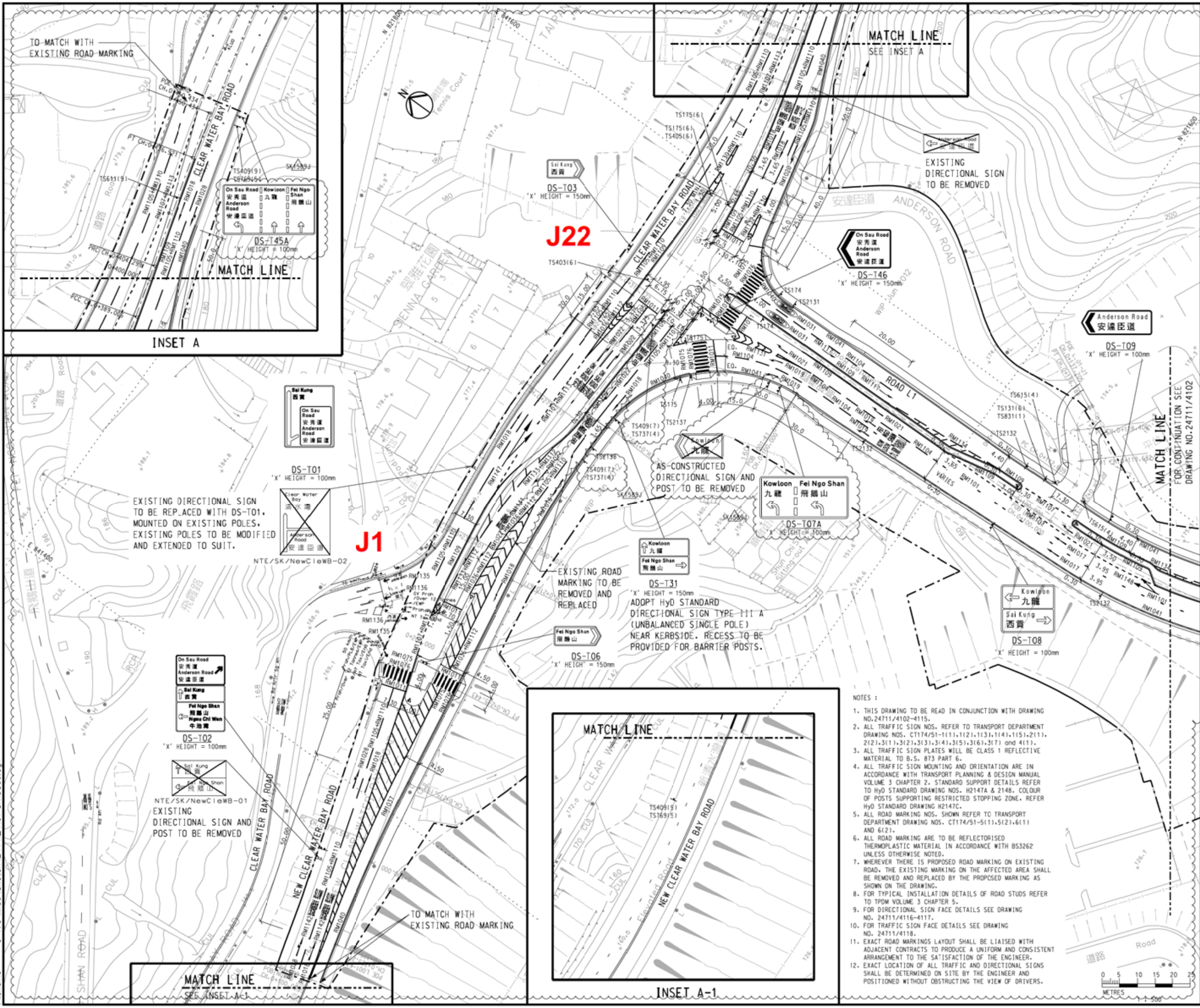
Screenline and Key Link Flows Validation Summary

Validation Criteria	Target Values	Percentage of Screenline Link Flows within the Criteria	
		AM Peak	PM Peak
		Total (PV + GV + PT)	Total (PV + GV + PT)
Percentage Difference between Observed and Modelled Flows			
% of links within ±10%	85%	86%	88%
% of links within ±20%	100%	100%	100%
GEH Statistics			
% of links with GEH 6 or less	70%	98%	98%
% of links with GEH 7 or less	80%	100%	98%
% of links with GEH 10 or less	100%	100%	100%

Key Junction Flows Validation Summary

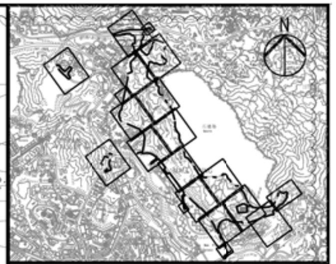
Validation Criteria	Target Values	Percentage of Key Junction In/Out Flows	
		AM Peak	PM Peak
		Total (PV + GV + PT)	Total (PV + GV + PT)
% within GEH 6	70%	100%	98%
% within GEH 7	80%	100%	99%
% within GEH 10	100%	100%	100%

Appendix D



NOTES :

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO.24711/4102-4115.
2. ALL TRAFFIC SIGN NOS. REFER TO TRANSPORT DEPARTMENT DRAWING NOS. CT174/51-1(1),1(2),1(3),1(4),1(5),2(1), 2(2),3(1),3(2),3(3),3(4),3(5),3(6),3(7) and 4(1).
3. ALL TRAFFIC SIGN PLATES WILL BE CLASS 1 REFLECTIVE MATERIAL TO B.S. 873 PART 6.
4. ALL TRAFFIC SIGN MOUNTING AND ORIENTATION ARE IN ACCORDANCE WITH TRANSPORT PLANNING & DESIGN MANUAL VOLUME 3 CHAPTER 2. STANDARD SUPPORT DETAILS REFER TO HyD STANDARD DRAWING NOS. H2147A & 2148. COLOUR OF POSTS SUPPORTING RESTRICTED STOPPING ZONE. REFER HyD STANDARD DRAWING H2147C.
5. ALL ROAD MARKING NOS. SHOWN REFER TO TRANSPORT DEPARTMENT DRAWING NOS. CT174/51-5(1),5(2),6(1) AND 6(2).
6. ALL ROAD MARKING ARE TO BE REFLECTORISED THERMOPLASTIC MATERIAL IN ACCORDANCE WITH BS3262 UNLESS OTHERWISE NOTED.
7. WHEREVER THERE IS PROPOSED ROAD MARKING ON EXISTING ROAD. THE EXISTING MARKING ON THE AFFECTED AREA SHALL BE REMOVED AND REPLACED BY THE PROPOSED MARKING AS SHOWN ON THE DRAWING.
8. FOR TYPICAL INSTALLATION DETAILS OF ROAD STUDS REFER TO TPDM VOLUME 3 CHAPTER 5.
9. FOR DIRECTIONAL SIGN FACE DETAILS SEE DRAWING NO. 24711/4116-4117.
10. FOR TRAFFIC SIGN FACE DETAILS SEE DRAWING NO. 24711/4118.
11. EXACT ROAD MARKINGS LAYOUT SHALL BE LIAISED WITH ADJACENT CONTRACTS TO PRODUCE A UNIFORM AND CONSISTENT ARRANGEMENT TO THE SATISFACTION OF THE ENGINEER.
12. EXACT LOCATION OF ALL TRAFFIC AND DIRECTIONAL SIGNS SHALL BE DETERMINED ON SITE BY THE ENGINEER AND POSITIONED WITHOUT OBSTRUCTING THE VIEW OF DRIVERS.



KEY PLAN

LEGEND :

TS175(4)	TRAFFIC SIGN NO. AND SIZE CODE (SEE NOTE 2)
DS-T01	ROAD SIDE DIRECTIONAL SIGN AND SIGN NO.
△	PLAIN BOLLARD TS518
▲	BOLLARD WITH KEEP LEFT SIGN
▲	BOLLARD WITH KEEP RIGHT SIGN

CONTRACT NO. & TITLE	CONTRACT NO. CV/2007/03 DEVELOPMENT AT ANDERSON ROAD – SITE FORMATION AND ASSOCIATED INFRASTRUCTURE WORKS
SKETCH TITLE	TRAFFIC SIGNS, DIRECTIONAL SIGNS AND ROAD MARKINGS (SHEET 1 OF 13)
DRAWN	MHL
PREPARED	AY/HT
REF. DRG. NO.	24711/4101
CHECKED	KOL
SCALE	1:1000@A3
DATE	19/09/2014
SKETCH NO.	CV/2007/03/SK/1589
REV.	J
CONSULTANT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited

SK/1589J

Printed by : 19/9/2014
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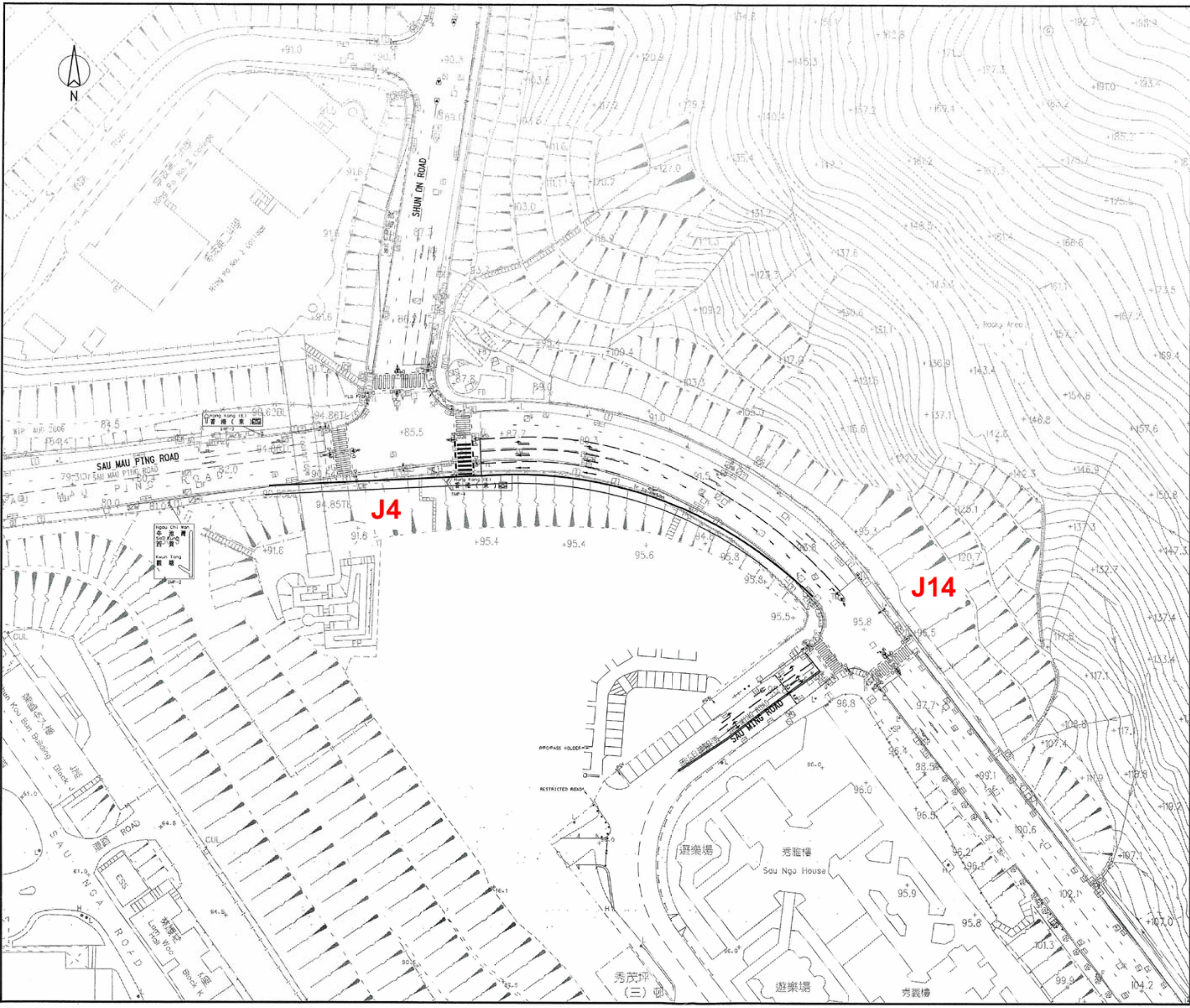


Rev	Description	By	Date
A	REVIEW REPORT	WCEL	11/06

Consultant
ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited

Project title
Agreement No. CE 55/2005 (CE) Development at Anderson Road - Design and Construction

Drawing title
PROPOSED JUNCTION IMPROVEMENT AT SAU MAU PING ROAD/ SHUN ON ROAD AND SAU MAN PING ROAD/ SAU MING ROAD

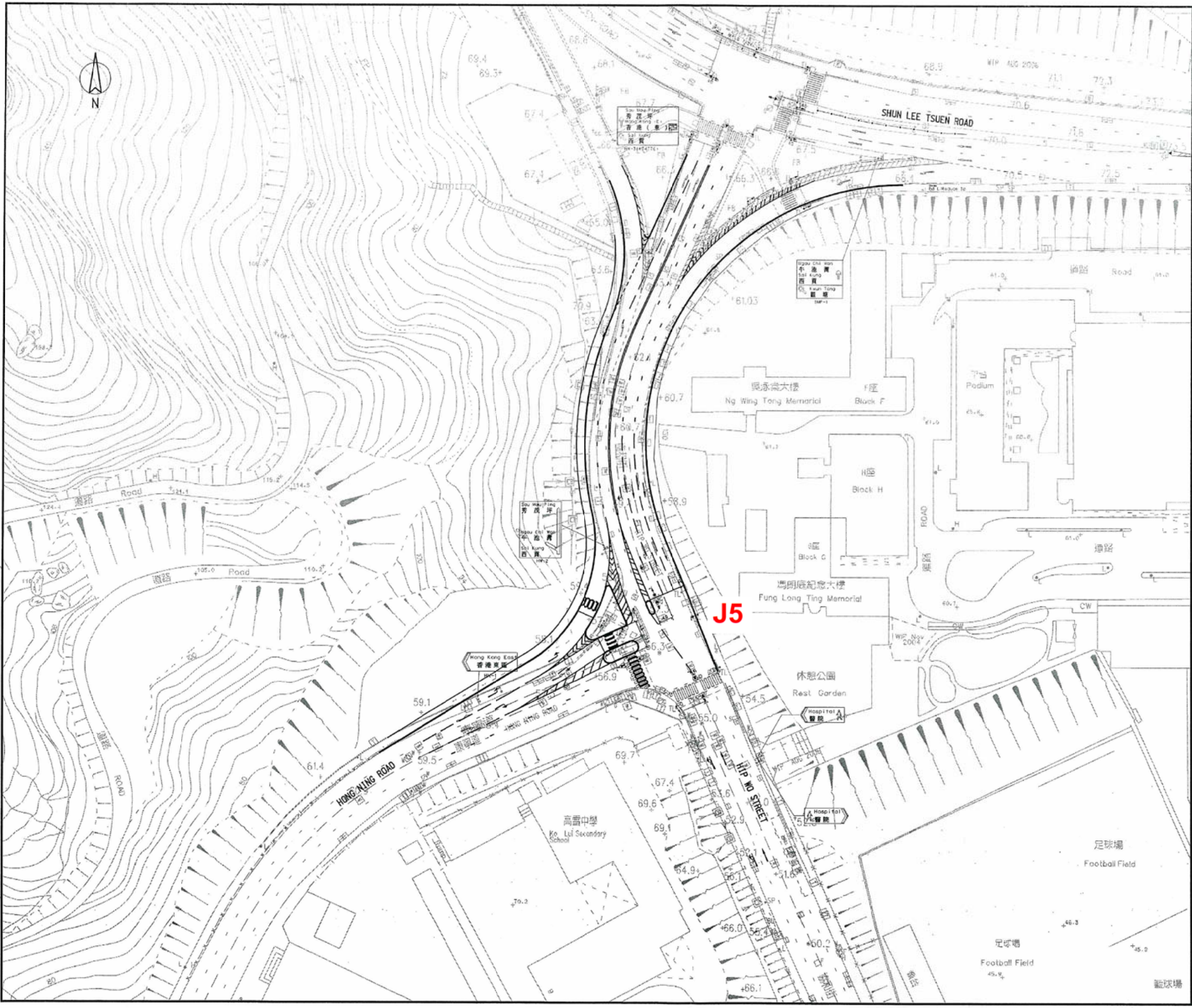
Drawing no.	Rev.
24711/TR/012	A

Drawn	Date	Checked	Approved
CLL	11/06	PP	YWY

Scale	Status
1:1000 ON A3	PRELIMINARY

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 2007/2/13
Filename : M:\Drawing\24000\24711 (DEVELOPMENT AT ANDERSON RD)\2006-1106\24711-TR-012.dgn



Rev	Description	By	Date
B	TD'S COMMENTS INCORPORATED	WCEL	11/06
A	REVIEW REPORT	WCEL	11/06

Consultant
ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited

Project title
Agreement No. CE 55/2005 (CE) Development at Anderson Road - Design and Construction

Drawing title
PROPOSED JUNCTION IMPROVEMENT AT HIP WO STREET/ HONG NING ROAD

Drawing no. 24711/TR/013 Rev. B

Drawn CLL Date 11/06 Checked PP Approved YWY

Scale 1:1000 ON A3 Status PRELIMINARY

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 2007/2/13
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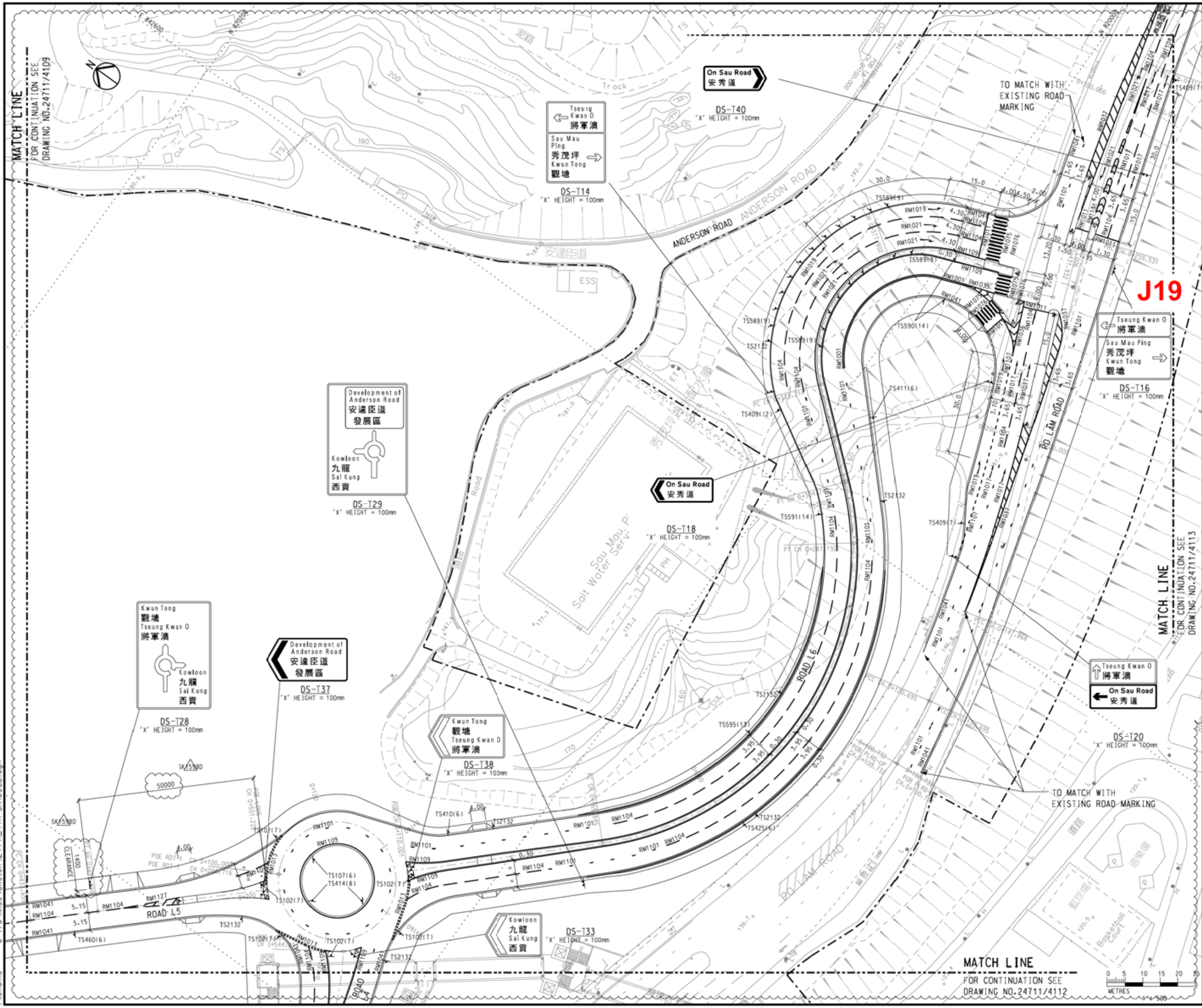

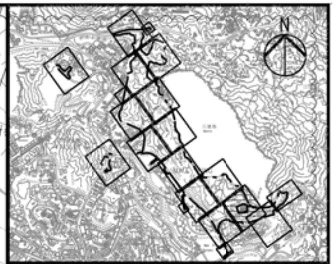

KEY PLAN

NOTES:

1. FOR GENERAL NOTES AND LEGEND REFER TO DRAWING NO. 24711/4101.

CONTRACT NO. & TITLE	CONTRACT NO. CV/2007/03 DEVELOPMENT AT ANDERSON ROAD – SITE FORMATION AND ASSOCIATED INFRASTRUCTURE WORKS
SKETCH TITLE	TRAFFIC SIGNS, DIRECTIONAL SIGNS AND ROAD MARKINGS (SHEET 11 OF 13)
DRAWN	MHL
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REV.	D
CONSULTANT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited

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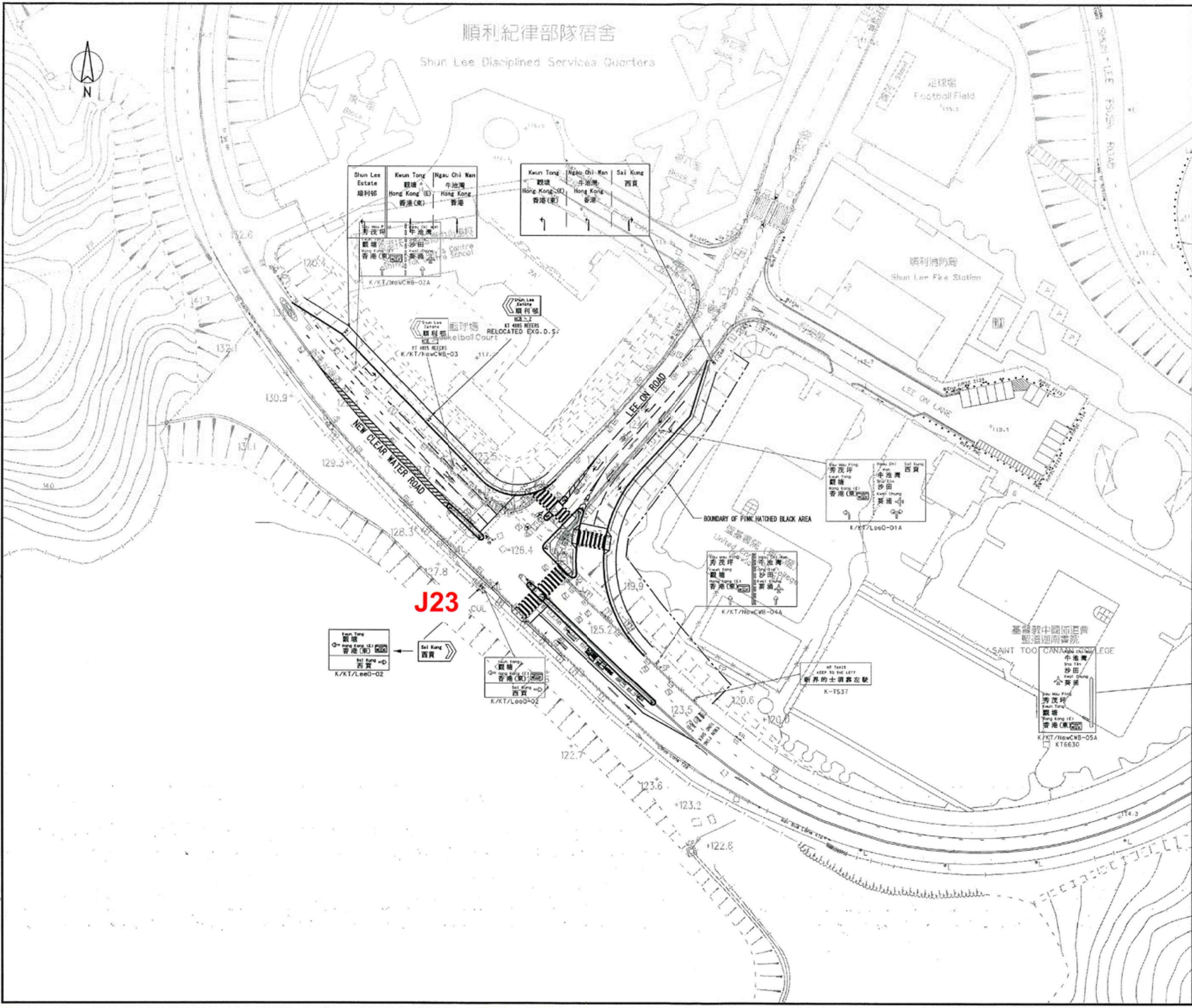

A	REVIEW REPORT	WCEL	11/06
Rev	Description	By	Date

Consultant
ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited

Project title
Agreement No. CE 55/2005 (CE)
Development at Anderson Road -
Design and Construction

Drawing title
PROPOSED
JUNCTION IMPROVEMENT
AT CLEAR WATER BAY ROAD/
LEE ON ROAD

Drawing no.			Rev.
24711/TR/011			A
Drawn CLL	Date 11/06	Checked PP	Approved YWY
Scale 1:1000 ON A3		Status PRELIMINARY	

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 2007/2/13
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Appendix E

觀塘區議會屬下
交通及運輸委員會文件第 8 / 2015 號
(第二十次會議：29.01.2015)

安達臣道公共房屋發展計劃
公共運輸服務的建議安排

目的

1. 本署於 2014 年 11 月 21 日、12 月 15 日及 2015 年 1 月 9 日與觀塘區議會交通及運輸委員會各委員會面，就安達臣道公共房屋發展計劃〔「安達臣道發展區」〕的公共運輸服務規劃作詳細的討論。經綜合各委員的意見後，本署已修訂了有關的建議公共運輸服務安排。本文件旨在向各委員介紹安達臣道發展區公共運輸服務的最新建議安排，並諮詢委員就有關建議安排的意見。

背景

2. 安達臣道發展區分為安達臣道南邨和安達臣道北邨，安達臣道南邨的人口約為 23,300 人， 預計入伙時間介乎 2015 年第四季至 2016 年第三季；安達臣道北邨的人口約為 25,000 人，預計入伙時間介乎 2017 年第一至三季。

建議

3. 由於安達臣道發展區遠離現有鐵路網絡，該區入伙時，運輸署將會以「專營巴士服務為主、專線小巴服務為輔」的概念，規劃該區的公共運輸服務。建議分為區內及區外服務，建議路線見下表，有關的建議服務詳情列於附件一至八，供各委員參閱。

A. 建議區內專線小巴及巴士服務

建議路線	起點 - 終點[1]	預計投入服務[2]
新專線小巴路線 A	安達臣道發展區－牛頭角佐敦谷北道(循環線)	2015 年第四季

[1]由安達臣發展區開出的路線最終以安達臣北邨為終點站。 然而,在安達臣北邨入伙前，有關服務會按情況先將總站暫時設於安達臣南邨，於安達臣北邨入伙後,會按乘客需求調整服務
[2]巴士/專線小巴路線投入服務的時間表將視乎安達臣道公共房屋的入伙時間表

建議路線	起點 - 終點[1]	預計投入服務[2]
新專線小巴路線 B	安達臣道發展區－九龍灣常怡道 (循環線)	2015 年第四季
新巴士路線 1	安達臣道發展區－ 藍田鐵路站 (循環線)	2015 年第四季[3]

B. 建議區外巴士服務

建議路線	起點 - 終點 [1]	預計投入服務 [2]
(i) 港島東		
新巴士路線 2	安達臣道發展區－筲箕灣 (繁忙時段服務)	2016 年第一季[4]
(ii) 新界東		
新巴士路線 3	秀茂坪(中)－大圍港鐵站 （經安達臣道發展區）	2016 年第三季[5]
(iii) 九龍市區		
新巴士路線 4	油塘－長沙灣（甘泉街） （經安達臣道發展區）	2016 年第一季 [4]
重組九巴第 13D 路線	寶達 - 維港灣	2016 年第一季 [4]
重組九巴第 13X 路線	寶達 - 尖沙咀東	2016 年第一季 [4]

建議實施時間表

4. 為配合安達臣道發展區入伙時間表，本署建議分階段開辦區內及區外服務，區內線預計投入服務時間表為 2015 年第四季，以配合安達臣道發展區的南部的入伙時間表。至於區外服務的新專營巴士路線，本署建議分階段投入服務以應付新增的乘客需求。各路線的預計投入服務的時間表見上表。

5. 本署在綜合各方意見後，將會落實有關建議方案，並於本年第一季開始進行專營巴士及公共小巴營辦商遴選工作 （包括籌組遴選工作小組、制定遴選準則／要求細則

[3]視乎安達臣道公共房屋地盤 E 1 的入伙時間
[4]視乎安達臣道公共房屋地盤 E 1 及 E2A 的全面入伙時間
[5]視乎安達臣道公共房屋地盤 D 的入伙時間

及相關文件、招標、揀選營辦商等)。

<u>徵詢意見</u>

6. 請各委員就上述建議的公共運輸服務提供意見。

運輸署

二零一五年一月

路線 A
建議的公共小型巴士(專線)服務
安達臣道發展區 - 牛頭角佐敦谷北道 (循環線)

建議的內容

- 因應安達臣道發展區住宅入伙， 建議新增連接安達臣道發展區與牛頭角的公共小型巴士(專線)服務。 建議服務詳情如下：

終點站	安達臣道發展區 - 牛頭角佐敦谷北道(循環線)
行車路線	(L2 路專線小巴總站、安秀路)[1]、L5 路、L4 路、迴旋處、L6 路、寶琳路、秀茂坪道、協和街、秀雅道、基督教聯合醫院、秀雅道、協和街、康寧道、振華道、彩霞道、佐敦谷北道、牛頭角道、振華道、康寧道、協和街、秀雅道、基督教聯合醫院、秀雅道、協和街、秀茂坪道、寶琳路、L6 路、迴旋處、L5 路 (安秀路及 L2 路專線小巴總站) [1]。
建議基本班次	每 10 分鐘一班 (每日上午 6 時 30 分至下午 11 時 30 分)
車程距離	約 12 公里（來回程）
行車時間	約 34 分鐘（來回程）
建議車輛數目	載客量不超過 16 人的公共小型巴士 6 部

建議的好處

- 為安達臣道發展區居民提供前往附近社區的專線小巴服務， 方便乘客使用該專線小巴服務前往醫院、社區設施及街市。

路線圖

請參閱附圖一

建議實施日期

二零一五年第四季

[1] 由安達臣發展區開出的路線最終以安達臣北邨（L2 路專線小巴站）為終點站。 然而,在安達臣北邨入伙前，有關服務會按情況先將總站暫時設於安達臣南邨(L5 路專線小巴站)，於安達臣北邨入伙後，會按乘客需求調整服務。

路線 B
建議的公共小型巴士(專線)服務
安達臣道發展區 -九龍灣常怡道 (循環線)

建議的內容

- 因應安達臣道發展區住宅入伙， 建議新增連接安達臣道發展區與九龍灣的公共小型巴士(專線)服務。 建議服務詳情如下：

終點站	安達臣道發展區 - 九龍灣常怡道(循環線)
行車路線	經(L2路、安秀路)[1] L5路、L4路、迴旋處、L6路、寶琳路、秀茂坪道、秀明道、曉光街、秀茂坪道、將軍澳道、觀塘繞道、啓福道、啓祥道、宏光道、常悅道、常怡道、宏照道、常悅道、宏光道、啓祥道、啓福道、觀塘繞道、將軍澳道、秀茂坪道、曉光街、秀明道、秀茂坪道、寶琳路、 L6路、迴旋處、 L5路 (安秀路及L2路)[1] 。
建議基本班次	每15分鐘一班 (每日上午6時30分至下午10時)
車程距離	約22.8公里（來回程）
行車時間	約46分鐘（來回程）
建議車輛數目	載客量不超過16人的公共小型巴士5部

建議的好處

- 為安達臣道發展區居民提供前往附近商貿區的專線小巴服務。

路線圖

請參閱附圖二

建議實施日期

二零一五年第四季

[1] 由安達臣發展區開出的路線最終以安達臣北邨（L2路專線小巴站）為終點站。 然而，在安達臣北邨入伙前，有關服務會按情況先將總站暫時設於安達臣南邨(L5路專線小巴站)，於安達臣北邨入伙後,會按乘客需求在安達臣南邨開設繁忙時段特別服務。

建議新增巴士路線 1
(安達臣道發展區 -藍田鐵路站(循環線))

建議的內容

- 因應安達臣道發展區住宅入伙，建議新增連接安達臣道發展區與港鐵藍田站的巴士服務。建議服務詳情如下：

終點站	安達臣道發展區 – 藍田鐵路站(循環線)
行車路線	安達臣道巴士總站、安秀道、寶琳路、秀茂坪道、將軍澳道、鯉魚門道、迴旋處、鯉魚門道、將軍澳道、秀茂坪道、寶琳路、安秀道及安達臣道巴士總站
建議基本班次	每 10 分鐘一班
車程距離	約 7.5 公里 (來回程)
行車時間	30 分鐘 (來回程)
車輛數目	4 部空調雙層巴士

建議的好處

- 為安達臣道發展區居民提供接駁港鐵的巴士服務，方便乘客使用該巴士服務接駁港鐵前往港九及新界各區

路線圖

請參閱附圖三

建議實施日期

二零一五年第四季
(視乎安達臣道公共房屋地盤 E 1 的入伙時間)

建議新增巴士路線 2
繁忙時段服務(安達臣道發展區－筲箕灣)

建議的內容

- 隨著安達臣道發展區住宅入伙，建議於早晚繁忙時段新增巴士服務來往港島東。建議服務詳情如下：

終點站	安達臣道發展區 – 筲箕灣
行車路線	往筲箕灣方向：安達臣道巴士總站、 安秀道、寶琳路、秀茂坪道、秀明道、曉光街、秀茂坪道、 連德道、碧雲道、高超道、鯉魚門道、東區海底隧道、東區走廊、民康街、英皇道、筲箕灣道、南安街及筲箕灣巴士總站 往安達臣方向：筲箕灣巴士總站、南安街、筲箕灣道、英皇道、健康西街、七姊妹道、電照街、渣華道、民康街、東區走廊、東區海底隧道、鯉魚門道、高超道、碧雲道、連德道、秀茂坪道、寶琳路、安秀道及安達臣道巴士總站
繁忙時段班次	早上繁忙時段：兩班 (往筲箕灣) 下午繁忙時段：兩班 (往安達臣) (視乎乘客需求，逐步加強服務至早晚繁忙時段各四班)
行車距離	約 15.9 公里
行車時間	約 60 分鐘
車輛數目	4 部空調雙層巴士

建議的好處

- 上述路線可配合安達臣發展區居民前往港島上班的交通需求，乘客可於繁忙時段使用該路線直接來往北角、太古城一帶的商業中心及港島東其他地區。

路線圖

請參閱附圖四

建議實施日期

二零一六年第一季
(視乎安達臣道公共房屋地盤 E 1 及 E2A 的全面入伙時間)

建議新增巴士路線 3
(秀茂坪(中)－大圍 (經安達臣道發展區))

建議的內容

- 因應安達臣道發展區住宅入伙，建議新增巴士服務由油塘經安達臣道發展區，往來沙田及大圍。建議服務詳情如下：

終點站	秀茂坪(中)－大圍鐵路站 (經安達臣道發展區)
行車路線	往大圍方向： 秀茂坪中巴士總站、秀明道、曉光街、秀茂坪道、寶琳路、安秀道、新清水灣道、清水灣道、龍翔道、大老山隧道、沙田圍路、沙田鄉事會路、源禾路、担杆莆街、沙田正街、白鶴汀街、大埔公路(大圍段)、美田路、車公廟路、及大圍站公共運輸交滙處 往秀茂坪方向： 大圍站公共運輸交滙處、美田路、大埔公路(大圍段)、沙田正街、橫壆街、源禾路、沙田鄉事會路、沙田圍路、大老山隧道、龍翔道、清水灣道、新清水灣道、安秀道、寶琳路、秀茂坪道、曉光街、秀明道、秀茂坪中巴士總站
繁忙時段班次	每 15 分鐘一班
行車距離	約 18.5 公里
行車時間	75 分鐘
車輛數目	10 部空調雙層巴士

建議的好處

- 為安達臣道發展區居民提供一條直接往大圍及沙田市中心一帶的巴士服務，亦方便居民接駁東鐵前往新界東其他地區。

路線圖

請參閱附圖五

建議實施日期

二零一六年第三季
(視乎安達臣道公共房屋地盤 D 的入伙時間)

建議新增巴士路線 4
(油塘－長沙灣(甘泉街)(經安達臣道發展區))

建議的內容

- 因應安達臣道發展區住宅入伙，建議新增巴士服務由油塘經安達臣道發展區，往來長沙灣及荔枝角。建議服務詳情如下：

終點站	油塘－長沙灣(甘泉街)(經安達臣道發展區)
行車路線	往美孚：高超道、碧雲道、連德道、秀茂坪道、寶琳路、安秀道、新清水灣道、龍翔道、南昌街、元州街、欽州街、長沙灣道、通州西街、瓊林街及甘泉街。 往油塘：甘泉街、通州西街、長沙灣道、興華街、荔枝角道、南昌街、龍翔道、新清水灣道、安秀道、寶琳路、秀茂坪道、連德道、碧雲道及高超道。
建議基本班次	每 20 分鐘一班
行車距離	約 21 公里
行車時間	約 85 分鐘
車輛數目	9 部空調雙層巴士

建議的好處

- 為安達臣道發展區居民提供巴士服務路線前往長沙灣、荔枝角一帶工商業區，藍田及油塘一帶的居民亦能受惠。

- 居民亦可使用有關路線由安達臣道發展區前往港鐵油塘站轉乘港鐵。

路線圖

請參閱附圖六

建議實施日期

二零一六年第一季
(視乎安達臣道公共房屋地盤 E 1 及 E2A 的全面入伙)

九巴路線建議 – 第 13D / 213D 號線

現時服務詳情

路線	13D
終點站	寶達 - 維港灣
繁忙時間班次	15 分鐘
單程收費	$6.8
服務時間	寶達開: 上午 5 時 15 分 – 下午 11 時 40 分 維港灣開:上午 6 時 15 分 – 凌晨 12 時 40 分
車輛數目	9 輛雙層巴士

建議的內容

- 配合安達臣道發展區的落成，建議新增資源開辦第13D 號線特別班次，由中秀茂坪開出，經安秀道 (安達臣道發展區)、新清水灣道，特快直達旺角，編號為第213D 號線。

- 建議服務詳情如下：

路線	13D	213D
終點站	寶達 - 維港灣	中秀茂坪 – 旺角(循環線)
繁忙時間班次	15 分鐘	20 分鐘
單程收費	維持不變	$7.8 分段收費： $6.1 (由清水灣道至中秀茂坪 (往秀茂坪方向))
服務時間	維持不變	中秀茂坪開: 上午 6 時 30 分– 下午 9 時 30 分 (暫定)
車輛數目	15 輛雙層巴士	

- 建議 213D 號線行車路線：

  中秀茂坪開：

  秀明道，曉光街，秀茂坪道，寶琳路，安秀道，新清水灣道，清水灣道，太子道東，太子道西，彌敦道，旺角道，洗衣街，亞皆老街，太子道西，太子道東，清水灣道，新清水灣道，安秀道，寶琳路，秀茂坪道，曉光街，秀明道

建議的好處

- 服務安達臣道發展區特快直達九龍市區。
- 秀茂坪及寶達有更快捷的路線直達旺角，較現時 13D 線節省約 15 分鐘。

路線圖

請參閱附圖七

建議實施日期

二零一六年第一季

(視乎安達臣道公共房屋地盤 E 1 及 E2A 的全面入伙時間)

九巴路線建議 – 第 13X / 213X 號線

現時服務詳情

路線	13X
終點站	寶達 - 尖沙咀東
繁忙時間班次	10 分鐘
單程收費	$7.5
服務時間	寶達開：上午 5 時 45 分 – 下午 11 時 30 分 尖沙咀東開：上午 6 時 40 分– 凌晨 12 時
車輛數目	12 輛雙層巴士

建議的內容

- 因應安達臣道發展區的落成，建議新增資源開辦第13X號線特別班次，由安達臣道發展區(安秀道)開出，經秀茂坪道、協和街，特快直達尖沙咀，編號為第213X號線。
- 13X號的班次亦會視乎乘客需求相應調整。
- 建議服務詳情如下：

路線	13X	213X
終點站	寶達 - 尖沙咀東	安達臣道發展區 - 尖沙咀 (循環線)
繁忙時間班次	10 - 12 分鐘	20 分鐘
單程收費	維持不變	$8.5 分段收費： $7.5 (由秀茂坪道至尖沙咀 (往尖沙咀方向)) $5.8 (由啟祥道至安達臣道 (往安達臣道方向))
服務時間	維持不變	安達臣道開: 上午 6 時 30 分–下午 9 時 30 分 (暫定)
車輛數目	19 輛雙層巴士	

- 建議 213X號線 行車路線：

  安達臣道開：
  安秀道，寶琳路，秀茂坪道，協和街，康寧道，振華道，牛頭角巴士總站，佐敦谷北道，牛頭角道，天橋，啟祥道，啟德隧道，東九龍高架路，漆咸道北，漆咸道南，梳士巴利道，彌敦道，加士居道，漆咸道南，漆咸道北，東九龍高架路，啟德隧道，啟祥道，天橋，牛頭角道，振華道，康寧道，協和街，秀茂坪道，寶琳路，安秀道

建議的好處

- 提供服務由安達臣道新發展區直達尖沙咀區。
- 整體由東九龍半山來往尖沙咀的服務得以加強，兩線可以互相協調班次，繁忙時間每小時的班次會比現時第13X 線增加約2至3班車。
- 加強寶達、秀茂坪、樂華等一帶來往尖沙咀的服務，在服務增強後，秀茂坪道、振華道一帶將有第13X及213X號線服務，兩線繁忙時段平均班次將提升至約7-8分鐘。秀明道及曉光街一帶亦可因此解決第13X 線上車困難的問題。
- 寶達、秀茂坪、牛頭角一帶會有更快捷來往尖沙咀的服務。

路線圖

請參閱附圖八

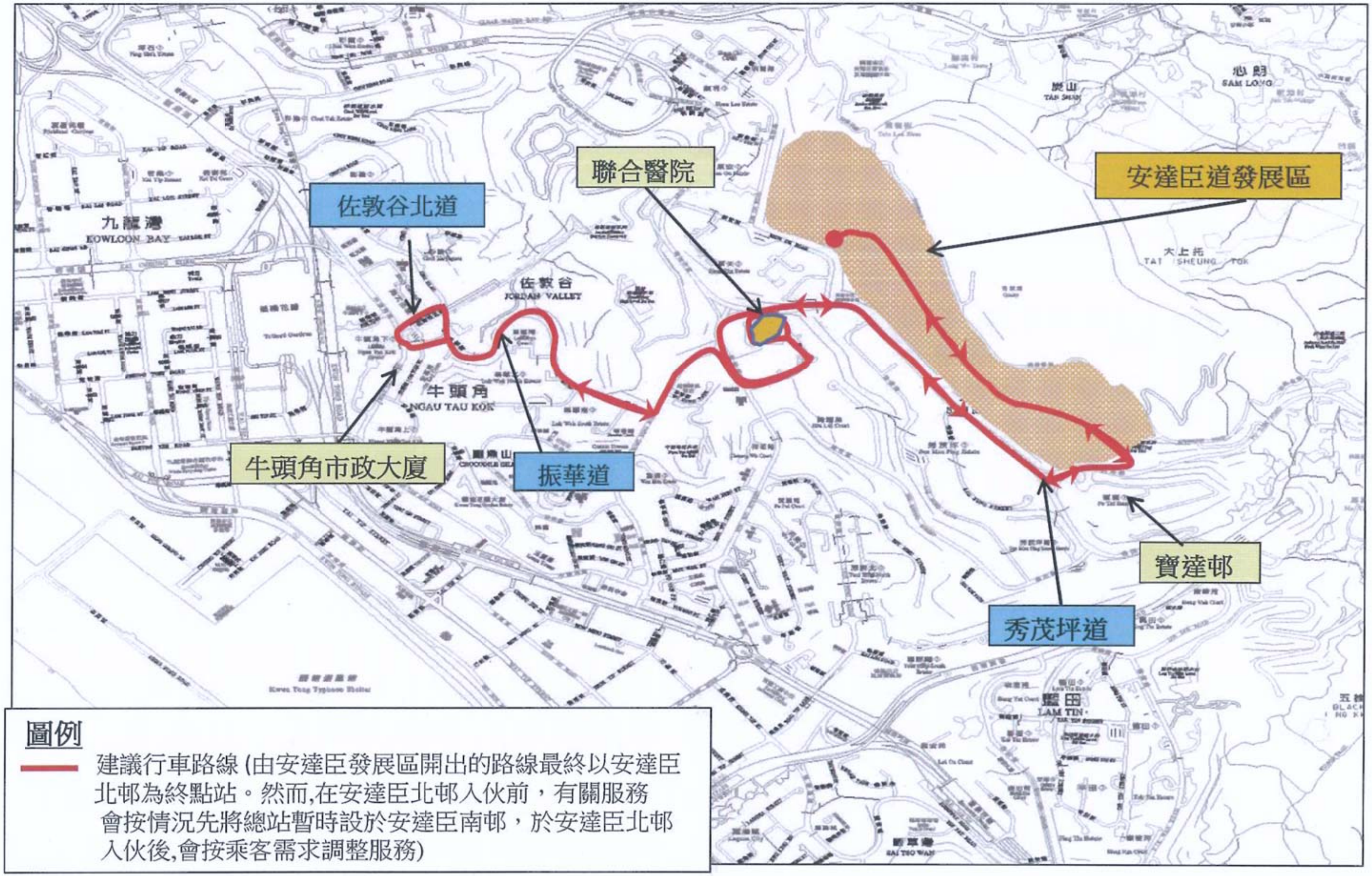
建議實施日期

二零一六年第一季

(視乎安達臣道公共房屋地盤 E 1 及 E2A 的全面入伙時間)

附圖一

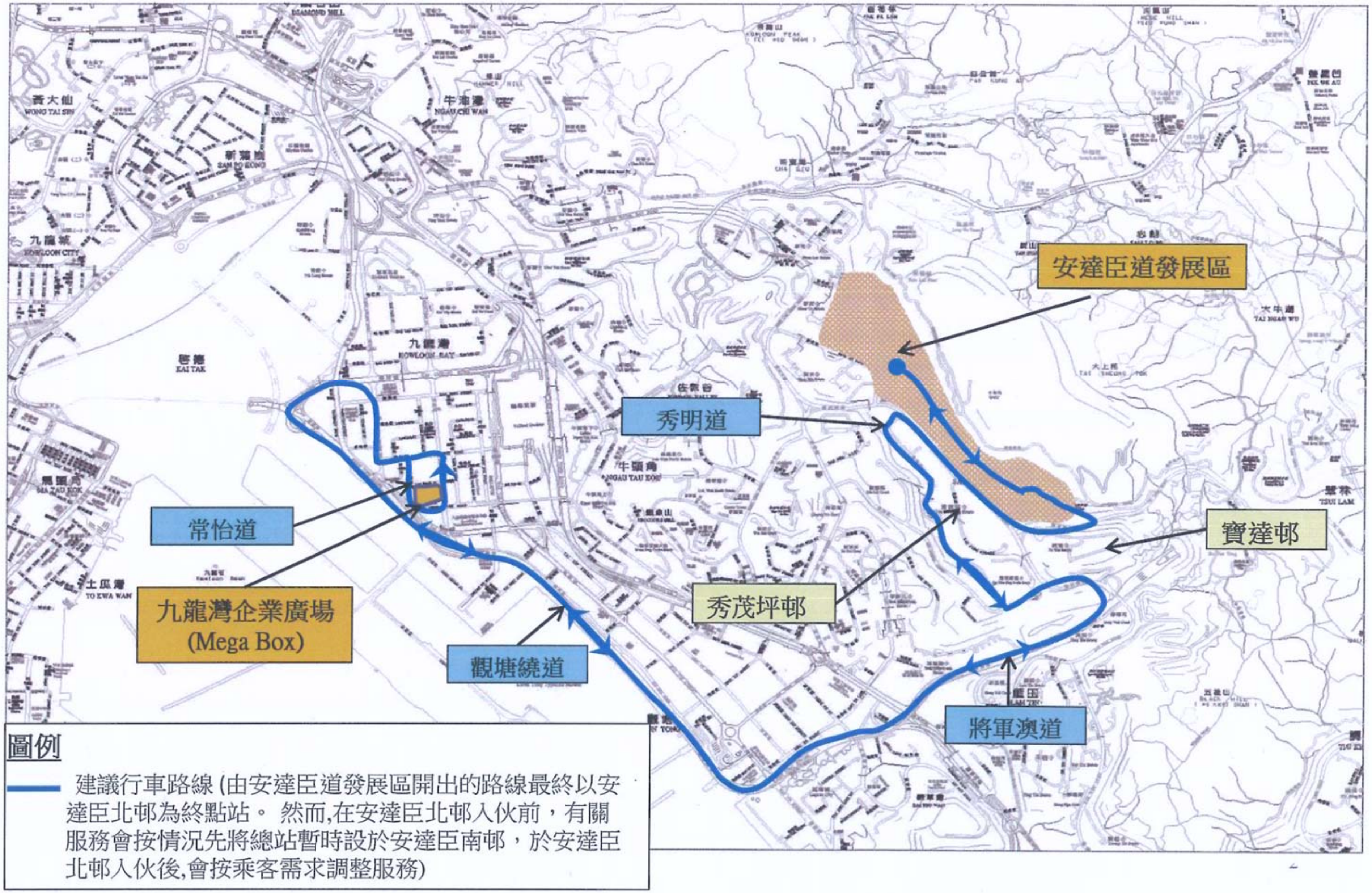
建議新專線小巴路線 A (安達臣道發展區 – 牛頭角佐敦谷北道) (循環線)



圖例

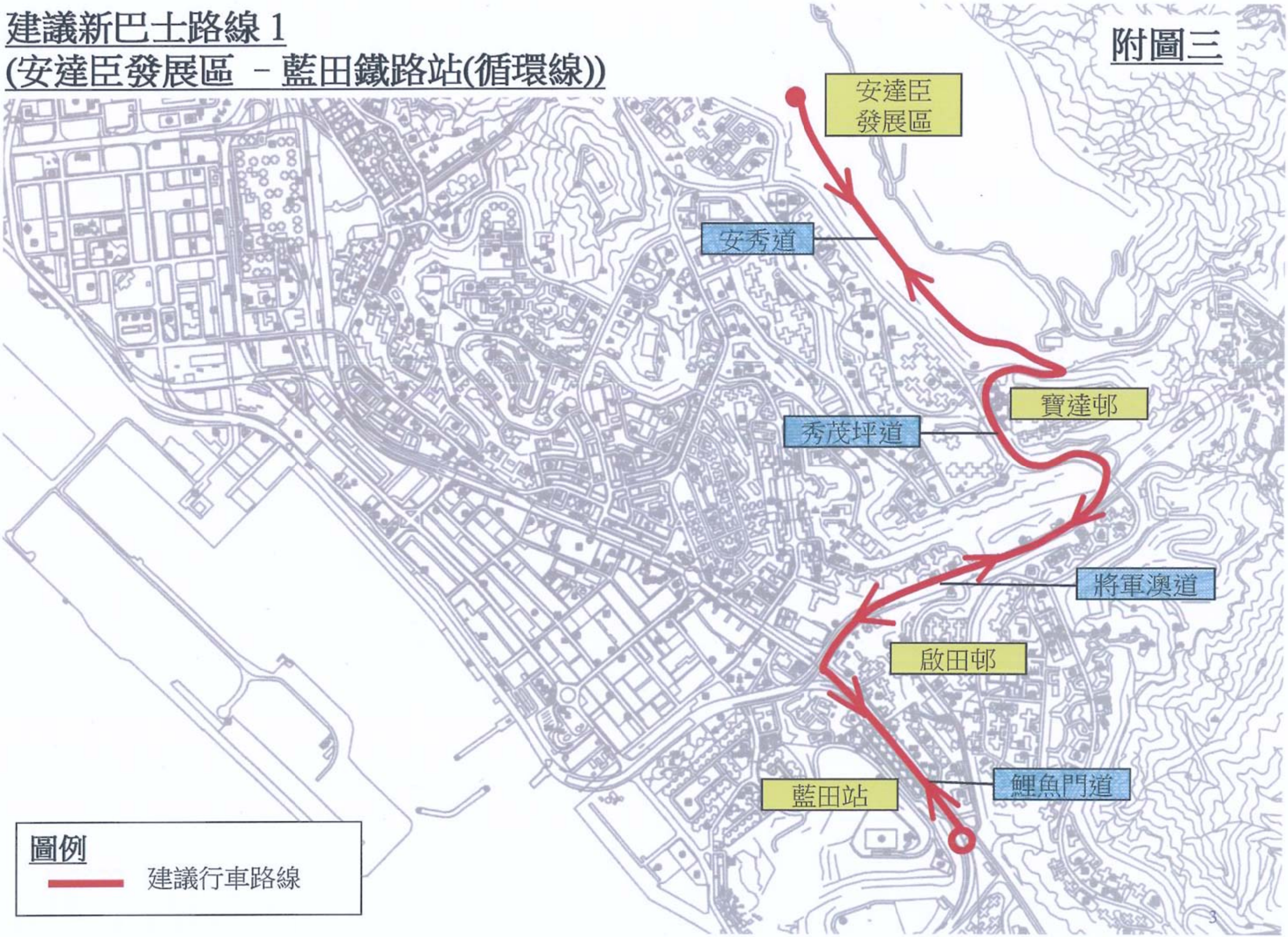
建議行車路線 (由安達臣發展區開出的路線最終以安達臣北邨為終點站。然而,在安達臣北邨入伙前，有關服務會按情況先將總站暫時設於安達臣南邨，於安達臣北邨入伙後,會按乘客需求調整服務)

建議新專線小巴路線 B (安達臣道發展區 - 九龍灣常怡道) (循環線)　附圖二



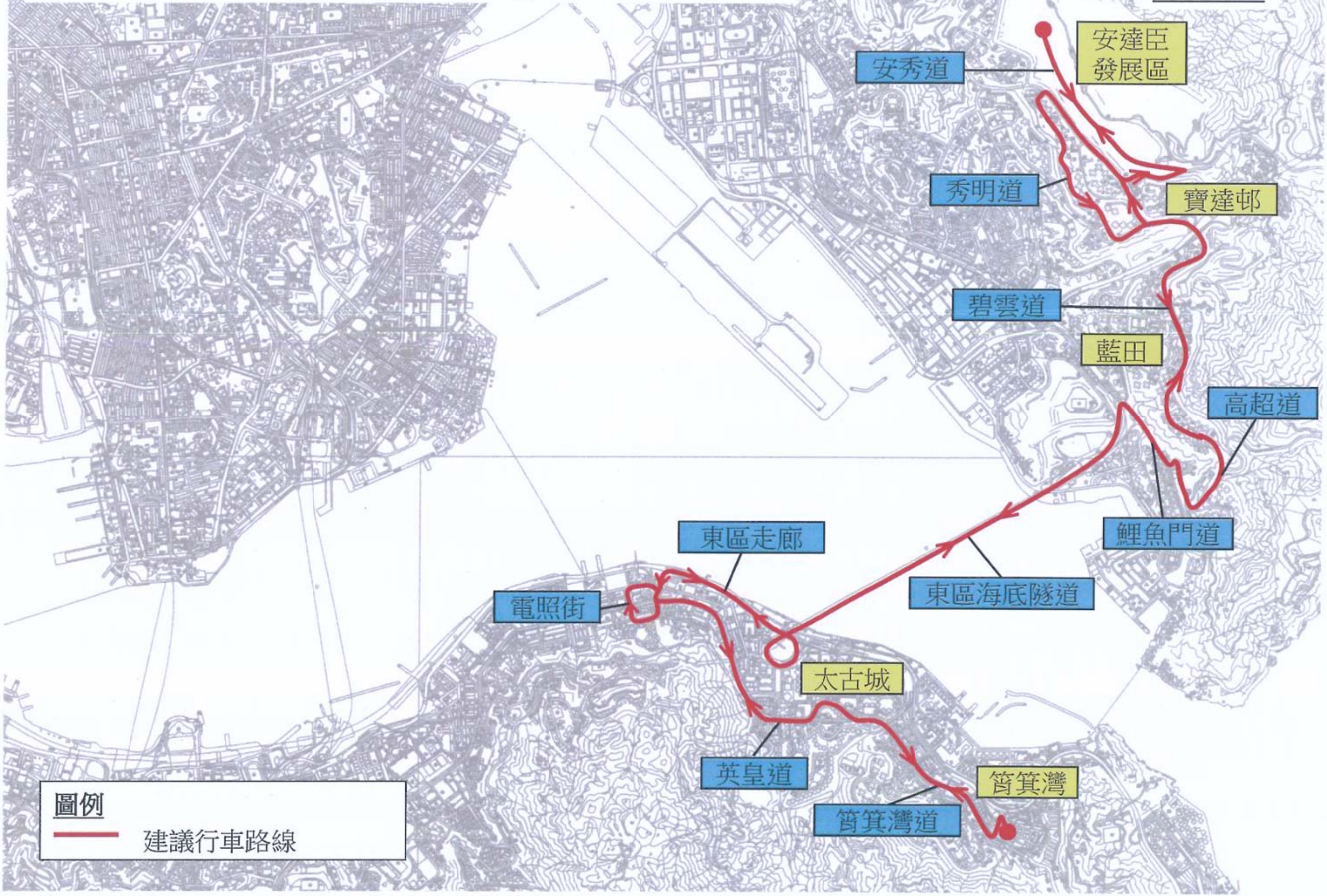
附圖三

建議新巴士路線 1
(安達臣發展區 – 藍田鐵路站(循環線))



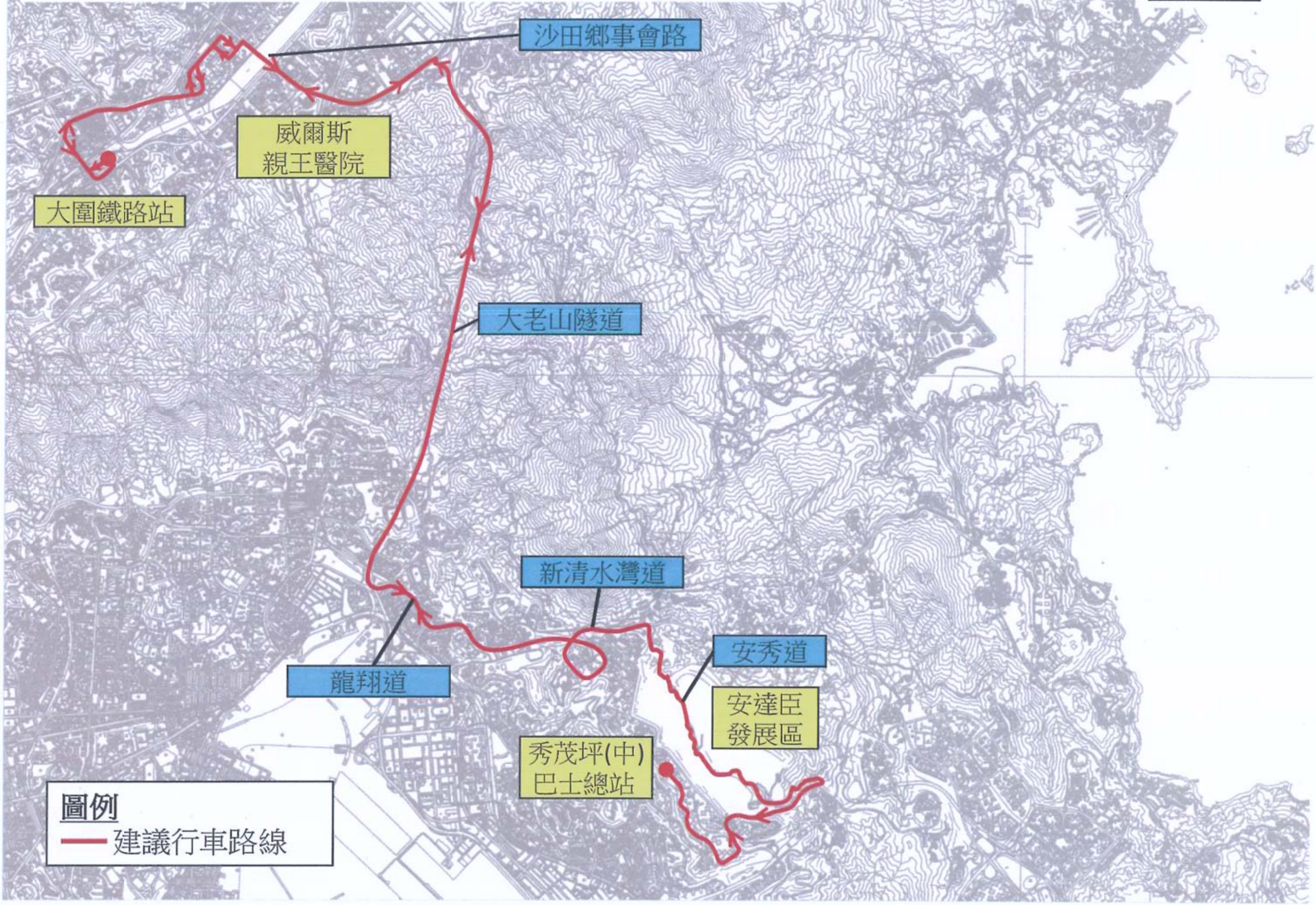
附圖四

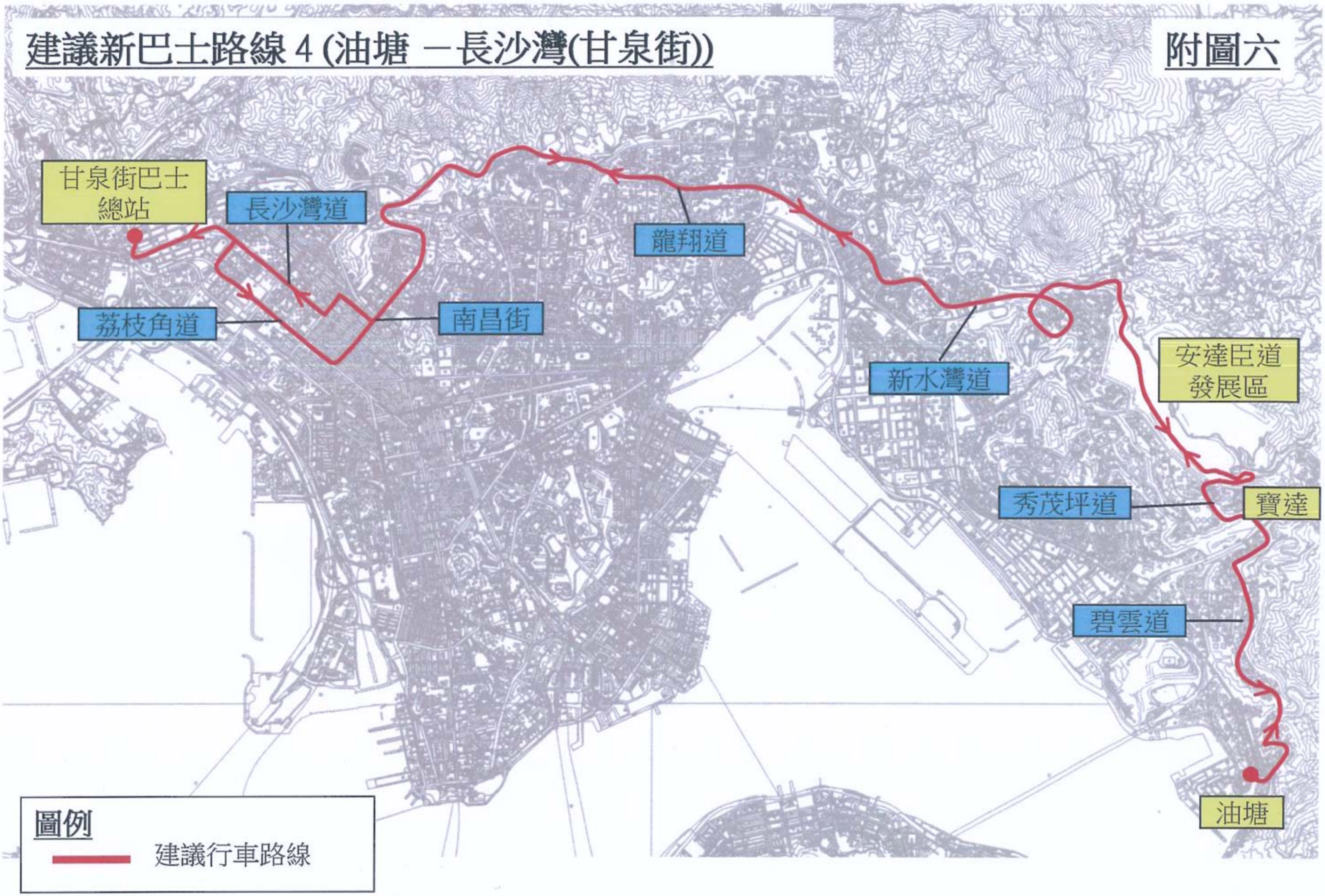
建議新巴士路線 2 (安達臣發展區－筲箕灣)



附圖五

建議新巴士路線 3 (秀茂坪(中)－大圍港鐵站)




建議新巴士路線 4 (油塘 －長沙灣(甘泉街))
附圖六
甘泉街巴士
總站
長沙灣道
荔枝角道
南昌街
龍翔道
新水灣道
安達臣道
發展區
秀茂坪道
寶達
碧雲道
油塘
圖例
建議行車路線

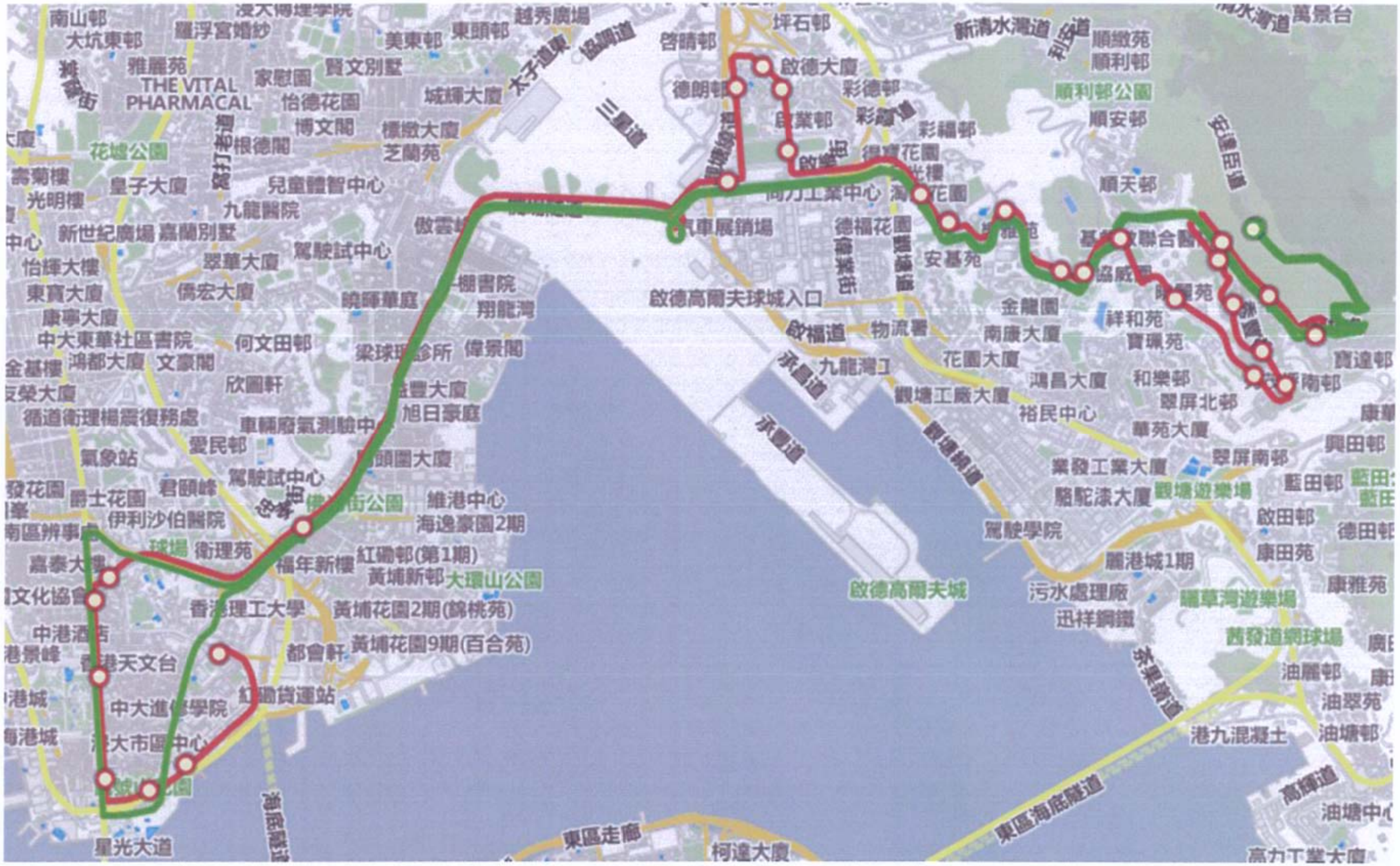
重組九巴第13D路線(寶達 - 維港灣)

圖例

紅線	13D 現時行車路線
綠線	213D 建議行車路線

重組九巴第13X路線(寶達 - 尖沙咀東)

附圖八



圖例

13X 現時行車路線

213X 建議行車路線