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2019年1月11日工務小組委員會會議
補充資料

在2019年1月11日的工務小組委員會會議上，議員要求政府就擬於粉嶺皇后山興建兩所小學的工程項目（即工程計劃編號360EP及361EP）提供補充資料。經徵詢相關部門意見後，有關資料提供如下：

一、粉嶺皇后山擬建的兩所小學所屬校網涵蓋的地區範圍

在小一入學統籌辦法下，擬於粉嶺皇后山興建的兩所小學屬於北區81校網，該校網涵蓋粉嶺、馬尾下及打鼓嶺等地方。

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二、北區小學學位於未來五年的需求估算資料

2018/19 至 2023/24 學年居於北區的 6 至 11 歲學齡人口(一般被視為適合接受小學教育（就讀小一至小六）) 的推算數字表列如下以供參考：

年齡組別	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
6 至 11 歲	17 300	17 300	17 400	17 600	18 800	19 100

註：

1. 上表的數字是參考了政府統計處在 2017 年 9 月發表的以 2016 年為基期的人口推算及規劃署在 2018 年 6 月發表的《人口分布推算 2018－2026》而編製。
2. 數字代表在北區居住的 6 至 11 歲本地兒童（即香港常住居民）的推算人數，不包括跨境學童。該等推算數字不應直接視為在該分區內就學的學生推算人數，後者會受當時的學額分布情況、學額的需求及家長的選擇所影響。同時，不足 6 歲或超過 11 歲的學生亦可接受小學教育。
3. 在香港居住的學齡人口推算是根據政府統計處在 2017 年 9 月發表的以 2016 年為基期的人口推算而編製。人口推算涉及多項因素和假設。如所作假設有異於最終情況，則推算數字會與實際數字有所不同。
4. 數字已調整至最接近的百位數。

三、政府就新發展社區的學校用地規劃、校舍分配及建設校舍方面的政策及機制

根據現行機制，在制定城市規劃藍圖及規劃大型住宅發展區時，規劃署會根據《香港規劃標準與準則》載列的指引，按規劃人口和社區服務需求，預留土地作學校發展用途，並會在過程中諮詢教育局。

在規劃公營中小學建校計劃方面，鑑於土地是珍貴的資源，加上興建新校舍涉及龐大資源，教育局須審慎考慮營辦新學校能否配合有關地區持續長遠的發展，以免不利整體學校體

系的穩健發展。就此，教育局須考慮相關地區已規劃的發展計劃、根據政府統計處定期更新的人口推算及規劃署發表的人口分布推算而編製的學齡人口推算資料、現時各級學生的實際人數及學位數目、現行的教育政策及其他會影響學位供求的因素等，以決定應營辦新學校或重置現有學校，以及何時啓動相關的建校工程。此外，新的建校計劃由規劃至竣工，當中涉及多個程序，過程中可能出現不同變數及不確定情況。

就分配預留用地作學校用途，教育局一般會通過公開競逐的校舍分配工作進行，並透過發放新聞稿和教育局網頁，邀請全港所有合資格的非牟利機構提出申請。校舍分配委員會由官方及非官方成員組成，負責就校舍分配事宜向教育局常任秘書長作出建議。在評審申請書時，教育質素是首要的考慮因素。該委員會亦會考慮其他因素，包括辦學往績、現有校舍狀況（如適用）、擬議辦學計劃等。

按上述機制，教育局在考慮相關因素後，分別於 2010 年、2012 年、2014 年及 2017 年推出校舍分配工作，把擬於啟德發展區及安達臣道發展區預留建校用地上興建的新校舍(合共四所小學及兩所中學)，分配作重置現有學校；並於 2017 年推出校舍分配工作，把擬於粉嶺皇后山預留建校用地興建的兩所小學校舍，分配作營辦全新資助小學。

總括而言，教育局在啓動每項建校計劃前均會考慮多項因素。因此，新校舍的啓用日期未必與附近新房屋發展項目的居民入伙時間同步。儘管在人口推算方面難免有所限制，教育局仍會繼續探討如何改善規劃機制。為此，教育局會與相關部門加強溝通，以便在切實可行的情況下適時掌握最新資料，包括按主要房屋發展項目計劃最新安排和居民入伙時間而更新學齡人口的推算，務求適時確定是否需要興建新校舍，並啓動相關的建校計劃。

四、粉嶺皇后山發展項目（包括擬建的兩所小學）落成後對龍馬路的交通影響評估報告

土木工程拓展署已為粉嶺皇后山發展計劃（包括於粉嶺皇后山擬建兩所設有30間課室的小學）進行了交通影響評估，以確定上述發展計劃將不會對區內交通造成太大影響。現隨函附上相關的交通影響評估報告全文軟複本以供委員參考（見附件一）。

五、在粉嶺皇后山擬建的兩所小學建造工程費用估算資料

建築署在估算粉嶺皇后山兩所擬建小學的工程計劃之建設費用時，已參考近期同類型工程計劃之資料，及考慮是次粉嶺皇后山兩項建校工程計劃之獨特性。參照長沙灣東京街一所設有30間課室的小學（工程計劃編號352EP）之工務小組委員會討論文件，該工程計劃之估計建築費用單位價格（以建築工程和屋宇裝備兩項費用計算）為每平方米建築樓面面積22,320元（以付款當日價格計算），與是次粉嶺皇后山兩項建校工程計劃之估計建築費用單位價格（即以付款當日價格計算，第一所及第二所學校分別為每平方米建築樓面面積21,589元及21,739元）相若。

六、興建公營小學及中學校舍的設計要求

政府就標準設計的公營中小學校舍制定了用途分配表，列出教學活動、學校行政和支援用途所需的房間及設施數目與類別。因應學生的年紀、每班人數、學與教需要及課程發展的不同，一所設有30間課室的公營中學校舍所需的總建築樓面面積，會比一所設有相同課室數目的公營小學校舍為大，以提供更多教學設施。舉例來說，公營中學校舍設有設備為本的多用途室，如各科實驗室、家政室、地理室、設計與科技工作室等，而部分設施，如音樂室、視覺藝術室和圖書館等的面積要求亦比公營小學為大。

另外，《香港規劃標準與準則》第三章第 2 節有關教育設施部分已載列中小學校舍（即設有 30 間課室的中學；及設有 18 間課室，24 間課室，30 間課室的小學）的指示性設計及地盤面積，作一般參考。有關網頁連結如下：
https://www.pland.gov.hk/pland_tc/tech_doc/hkpsg/full/pdf/ch3.pdf

七、教育局就學校參加「上網電價」計劃發出的指引

教育局已於 2018 年 8 月 20 日向學校發出通函（教育局通函第 113/2018 號《學校參加「上網電價」計劃》），通知學校參加「上網電價」計劃時須留意的事項。該通函已上載教育局網頁，有關網頁連結如下：
https://applications.edb.gov.hk/circular/upload/EDBCM/EDBCM18113C.pdf

八、在粉嶺皇后山擬建的兩所小學毗鄰用地的公共運輸總站的環境評估研究資料

根據房屋署提供的資料，皇后山公共運輸總站乃採用覆蓋式設計，設有屋頂和側牆。車輛出入口設於南面，通風口則分別設於北面和南面，面向學校的西面牆身則不設任何通風口。相關圖解和公共運輸總站的通風口位置，請參閱附件二。

公共運輸總站的設計會盡可能使用自然通風。在屋頂的北面和南面將提供兩個通風口，通風口方向設計乃面向盛行風向，讓自然風吹進公共運輸總站內作通風循環，提高自然通風。此外，公共運輸總站亦按照《專業人士環保事務諮詢委員會專業守則》第 PN 1/98 號《半封閉式公共交通交匯處的空氣污染管制》中訂明的指引設計機械通風系統，以確保有足夠的通風。

房屋署亦已按照《香港規劃標準與準則》考慮合適的噪音緩解措施，包括採用覆蓋式設計，避免將公共運輸總站設於易受噪音影響用途地方的視線範圍內。位於公共運輸總站北面及南面的通風口，將提供合適的噪音緩解裝置以確保符合相關噪音要求。

教育局局長

（陳吳婷婷 代行）

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Infrastructural Works for Proposed Developments at Queen's Hill, Fanling – Investigation, Design and Construction

Traffic Impact Assessment Report (Final)



THE GOVERNMENT OF THE HONG KONG
SPECIAL ADMINSTRATIVE REGION
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Agreement No. CE63/2014 (CE)

Infrastructural Works for Proposed Developments at Queen's Hill, Fanling - Investigation, Design and Construction

Traffic Impact Assessment Report (Final)
March 2016

Reviewed by: _____ 7 March 2016
Michael Chiu

Approved for Issue: _____ 7 March 2016
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- Infrastructural Works for Proposed Developments at Queen's Hill. Fanling – Investigation, Design and Construction

Traffic Impact Assessment Report

(Final)

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1. INTRODUCTION

1.1. Background

1.1.1. AECOM was commissioned by the Civil Engineering and Development Department (CEDD) to conduct a Traffic Impact Assessment study (the Study) for the proposed developments and associated facilities at Queen's Hill in Fanling including Sites 1 to 4 (QH Development). **Figure 1.1** shows the location of the development site. Basic development parameters of the Site are appended in **Table 3.1**.

1.1.2. This Study is to appraise the likely traffic impact generated by QH Development and provide mitigation measures, if necessary.

1.1.3. This Study is taken into account the following studies:

- Preliminary Traffic Impact Assessment for Infrastructures for Housing Development at Queen's Hill- Feasibility Study;
- North East New Territories New Development Areas Planning and Engineering Study – Traffic and Transport Assessment;
- Liantang/ Heung Yuen Wai Boundary Control Point and associated works (Site Formation and Infrastructures) Revised Final Updated Traffic Impact Assessment Report;
- Proposed Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery;
- Proposed new town development in New Territories North;
- Kwu Tung South Development;
- Development of Kwu Tung North and Fanling North (FLN) New Development Areas;
- Housing Development at Queen's Hill;
- Northeast New Territories Landfill Extension;
- Engineering Study for Police Facilities in Kong Nga Po;
- Development of Organic Waste Treatment Facilities Phase 2;
- Public Rental housing development at Choi Yuen Road;
- PWP No. 9350WF Improvement of Water Supply to Sheung Shui and Fanling;
- Widening of Western Section and Eastern Section of Lin Ma Hang Road; and
- Shek Wu Hui Sewage Treatment Works- Further Expansion Phase 1A.

1.1.4. Report on Traffic Management Scheme for each stage of the works detailing all the assessment, findings and proposals in relation to the required temporary and permanent traffic management schemes and recommendations will be prepared in the Design Stage.

1.1.5. The draft TIA and CTIA reports were circulated to relevant government departments. Comments were received from parties consulted and this TIA report has incorporated the comments received (in Appendix E).

1.2. Study Objectives

1.2.1. The objectives of the Study are as follows:-

- Ø To assemble available data relevant to the Study, identify deficiency areas and conduct necessary surveys to establish the existing traffic conditions in the area of influence;
- Ø To forecast the traffic and transport conditions in the design year by taking account of the traffic growth and all other planned developments and identify any traffic/ transport deficiency areas; and
- Ø To estimate the traffic demand generated by QH Development and assesses its impact on the adjacent road system.

1.3. Structure of the Report

1.3.1. Following this introductory chapter, there are seven further chapters:-

Chapter 2 - Describes the existing traffic conditions;
Chapter 3 - Discusses the planning parameters of QH Development;
Chapter 4 - Presents the trip generation of QH Developments and the traffic forecasts;
Chapter 5 - Reports the results of the junction and link capacity assessments at operational stage;
Chapter 6 - Reports the results of the junction and link capacity assessments at construction stage;
Chapter 7 - Describes the assessment of public transport facilities and any proposal for public transport services and pedestrian assessment;
Chapter 8 - Summarises and concludes the Study; and
Chapter 9 - Recommendations of the Study.

2. EXISTING SITUATION

2.1. Site Description

2.1.1. The Site is located at Queen's Hill. **Figure 1.1** shows the location of the Site. Vehicles from QH Development could reach other parts in the territory via Lung Ma Road and Sha Tau Kok Road.

- Lung Ma Road: -
  Lung Ma Road is a two-way carriageway under single 2-lane configuration. It serves as the main access to the Site;

- Sha Tau Kok Road: -
  Sha Tau Kok Road is a dual 2 lane rural road, which forms a main traffic route along north-south direction. It serves together with Lung Ma Road as the major access roads to the Site from other city centres;

- Jockey Club Road: -
  Jockey Club Road is a dual-two lane primary distributor connecting to Man Kam To Road and Fanling Highway at the junction with Pak Wo Road; and

- Fanling Highway: -
  Fanling Highway is a dual-three lane expressway linking to San Tin Highway to the west and Tolo Highway to the east.

2.2. Existing Traffic Conditions

2.2.1. To appreciate the existing traffic conditions, classified traffic counts were conducted at the following junctions in the immediate vicinity of the site (see **Figure 1.1** for the respective junction locations). The methodology is based on the Transport Planning and Design Manual (TPDM).

- J1 – Po Shek Wu Road Interchange (Roundabout)
- J2 – So Kwun Po Road Interchange (Roundabout)
- J3 – Jockey Club Road / Ma Sik Road / So Kwun Po Road (Signal)
- J4 – Ma Sik Road / Fan Leng Lau Road (Signal)
- J5 – Ma Sik Road / Luen Chit Street (Signal)
- J6 – Ma Sik Road / Wo Tai Street (Signal)
- J7 – Sha Tau Kok Road / San Wan Road (Roundabout)
- J8 – Sha Tau Kok Road / Jockey Club Road (Roundabout)
- J9 – Sha Tau Kok Road / Lok Yip Road (Signal)
- J10 – Sha Tau Kok Road / Luen On Street (Signal)
- J11 – Sha Tau Kok Road / Ma Sik Road (Signal)
- J13 – Sha Tau Kok Road / Sui Wan Road (Signal)
- J14 – Sha Tau Kok Road / Lung Ma Road (Roundabout)

- ø J15 – Po Shek Wu Road / Choi Yuen Road (Signal)
- ø J16 – Jockey Club Road / Lung Sum Avenue (Signal)

2.2.2. The counts were undertaken on a typical weekday in March 2015 during the periods 0730-0930 and 1630-1830 hours. The morning and evening peak hours were found to be 0745-0845 and 1715-1815 respectively. The observed traffic flows during these peak hours are shown in **Figure 2.1**. In general, the morning peak hour flows are higher than those in the evening peak.

2.2.3. In comparing with the survey results conducted under Feasibility Study stage in 2014, the 2015 traffic flows along Sha Tau Kok Road are about 25% and 20% higher in the morning and evening peak hour respectively. The traffic flows at J1 are about 15% and 20% higher in the morning and evening peak hour respectively. The traffic flows at J2 are about 10% and 5% higher in the morning and evening peak hour respectively.

2.2.4. Junction capacity analyses based on the Transport Planning and Design Manual (TPDM) were carried out at key junctions using the peak hour surveyed flows. A signal-controlled junction with a reserve capacity (RC) of 0% implies that it is operating at capacity while a negative RC% suggests that it is overloaded. For roundabout, the performance indicator is the DFC (Design Flow to Capacity) ratio. A DFC ratio of 1.00 indicates that capacity has been reached; a DFC over 1.00 indicates overloaded conditions. The detailed calculation sheets are shown in **Appendix D**. The results are presented in **Table 2.1**.

Table 2.1 Year 2015 Junction Performance

No.	Junction	Control	Performance(1)	
			AM	PM
J1	Po Shek Wu Road Interchange	Roundabout	0.90	1.06
J2	So Kwun Po Road Interchange	Roundabout	0.95	0.91
J3	Jockey Club Road / Ma Sik Road / So Kwun Po Road	Signal	35%	40%
J4	Ma Sik Road / Fan Leng Lau Road	Signal	12%	8%
J5	Ma Sik Road / Luen Chit Street	Signal	43%	>50%
J6	Ma Sik Road / Wo Tai Street	Signal	32%	33%
J7	Sha Tau Kok Road / San Wan Road	Roundabout	0.56	0.47
J8	Sha Tau Kok Road / Jockey Club Road	Roundabout	0.77	0.65
J9	Sha Tau Kok Road / Lok Yip Road	Signal	1%	12%
J10	Sha Tau Kok Road / Luen On Street	Signal	>50%	>50%
J11	Sha Tau Kok Road / Ma Sik Road	Signal	-10%	-9%
J13	Sha Tau Kok Road / Sui Wan Road	Signal	3%	7%
J14	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.77	0.69
J15	Po Shek Wu Road / Choi Yuen Road	Signal	27%	17%
J16	Jockey Club Road / Lung Sum Avenue	Signal	12%	12%

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.

2.2.5. The results of the analysis indicate that all the junctions in the vicinity of QH Development are currently operating with sufficient capacity except for Junction J1 and J11 which are operating over their capacity.

2.3. Existing Public Transport Facilities

2.3.1. The nearest railway station is Fanling of MTR East Rail which is located at about 2km from the Site. There are currently two bus routes (78K & 79K) and five GMB routes (52B, 52K, 55K, 56B & 56K) operating along Sha Tau Kok Road in the vicinity of the Site. A summary of the franchised bus and GMB services operating in the vicinity of the Development is provided in **Table 2.2**. **Figure 2.2** illustrates existing locations of bus and GMB stops and route numbers served.

Table 2.2 Existing Franchised Bus and GMB Services

Route No.	Original	Destination	Peak Headway (min.)
Franchised Bus Service			
78K	Sheung Shui B/T	Sha Tau Kok B/T	15
79K	Sheung Shui B/T	Ta Kwu Ling	20
GMB Service			
52B	Fanling Station	Hok Tau	15
52K	Fanling Station	Ping Che	4
55K	Sheung Shui Station	Sha Tau Kok	4
56B	Fanling Station	Tan Chuk Hang	15
56K	Fanling Station	Luk Keng	30

3. FUTURE SITUATION & QH DEVELOPMENT

3.1. QH Development

3.1.1. QH Development comprises of 3 sites and the basic development parameters are appended in **Table 3.1**:

Table 3.1 Summary of Development Parameters

	Site 1	Site 2(2)	Site 3	Other Developments for Private Housing Development	
Area (ha) (about)	13.65	4	2.3	-	-
Development Type	PRH & Subsidized Sale Flats (SSF), Community Welfare Facilities (8,140 m^2), Retail Facilities (12,500m^2)	Private Housing	International School	School	Community Facilities(2)
Estimated No. of Flats	PRH 8,840 SSF 3,160 Total: 12,000	2,670	-	-	-
Estimated Population	PRH 24,500 SSF 9,800 Total: 34,300	8,000	-	-	-
School	2 Primary Schools (30-Classroom) 3 Kindergartens (Two 8-Classroom & One 7-classroom)	-	1 School (35-Classroom)(1)	1 School (24–Classroom)	-
Planned Year of Completion	2020/21	TBA	TBA	TBA	TBA

Notes:
(1) There is no planning data available for the international school and 35-classroom is assumed for assessment purpose as shown in Appendix A.
(2) There is no planning data available for the community facilities and a GFA of 5000 m2 is assumed for assessment purpose.

3.1.2. The planning parameters for Sites 1 is based on the information provided by Housing Department (HD) in April 2015; while Site 2 is based on the information provided by PlanD in March 2015; and the planning assumption for Site 3 is estimated with reference to other similar type of development.

3.1.3. To allow for design flexibility in later design stage, allowance is added to the estimated residential population for Sites 1 and 2.

3.1.4. For Site 1, in view of the identified district-wide infrastructural constraints, it has been agreed with HD that the maximum number of flats and population of public housing development at Site 1 will be capped respectively at 12,100 and 37,290 for infrastructural works planning and design purpose.

3.1.5. The flat number of Site 2 adopted in this TIA Study was based on the information provided by PlanD in Feasibility Study stage (FS) which was derived from plot ratio of 5.0. As the plot ratio was finally reduced to 3.6 in the approved Outline Zoning Plan, further addition of 10% allowance to the flat number as FS is not recommended as it would be too excessive and would induce further impact on the marginal acceptable TIA results for the housing sites. For the population of Site 2, a 10% allowance has been added (i.e. population = 8,800) in the assessment where applicable.

3.1.6. In view of the nature of Site 4 development (i.e. District Open Space), traffic flow attract and generate from this Site is anticipated insignificant. As there is no design information at this stage, such insignificant traffic flow is assumed to be absorbed in the above mentioned allowance of the other sites in Queen's Hill.

3.2. Proposed Upgrading of Lung Ma Road

3.2.1. QH Development' site entrance will be located at Lung Ma Road in the western side of Sites 1 to 3. Traffic to/ from the Site will be primarily travel on Lung Ma Road and Sha Tau Kok Road through Junction No. J14 - Sha Tau Kok Road/ Lung Ma Road. It is proposing to widen and upgrade Lung Ma Road for serving QH Development.

3.2.2. The section of Lung Ma Road between QH Development site boundary and Sha Tau Kok Road will be widened to 7.3m wide carriageway with 3m wide lay-by at some sections, 2m wide footpaths on both sides, and 3.5m side cycle track on one side. The preliminary layout plan of proposed road works is provided in **Figure 3.1.**

3.2.3. Peak hour "No Stopping Restriction" will be proposed along Lung Ma Road to prevent waiting vehicles subject to local consultation.

3.2.4. As the housing development will generate a lot of traffic at Lung Ma Road, it is proposed to provide an exclusive left-turn lane for Lung Ma Road at its junction with Sha Tau Kok Road as shown in **Figure 5.17**. The right-angled bend at Lung Ma Road is proposed to be smoothed.

3.2.5. The proposed Lung Ma Road will be designed in accordance with relevant requirements stipulated in Transport Planning and Design Manual (TPDM) and Highways standards. Upon completion, the widened Lung Ma Road will be handed over to the relevant Government Departments for management and maintenance.

3.2.6. Meanwhile, it is noted that EDB will include the land resumption of a strip of private lands between Lung Ma Road and the QH Development under their separate primary schools development project. CEDD will review with relevant parties for the proposed road works at LMR to cope with EDB's schools development and its associated road connection to Site 1, for implementation at an appropriate stage before the scheduled population intake at the Site.

3.3. Proposed Widening of Cycle Track along Sha Tau Kok Road between Sui Wan Road and Lung Ma Road

3.3.1. The current width of existing cycle track at the southbound of Sha Tau Kok Road between Sui Wan Road (J13) and Lung Ma Road)J14) is about 1.9m which is less than the minimum 3.5m standard width for 2-ways cycling traffic. As such District Council members and Transport Department (TD) requested for upgrading this section of cycle track as much as possible during the FS of this Project concerning additional cycling flow would be generated from QHD.

3.3.2. STKR is one of the most busy traffic road, widening of the cycle track southward to the verge would be the most feasible solution in view of its least impact to traffic at STKR and to existing roadsides building structures. Sections of the existing cycle track will be widened to 3.5m for the section without site constraint. The preliminary layout plan of proposed cycle track is provided in **Figure 3.2-3.4.**

3.4. Vehicular Access Arrangement

3.4.1. Traffic to/ from the QH Development Site will be primarily travel on Lung Ma Road and Sha Tau Kok Road. **Figures 3.5** and **3.6** illustrate the vehicular access routing to and from the Site respectively.

4. TRAFFIC FORECAST

4.1. Assessment Scenarios

4.1.1. The planned year of completion for Site 1 is 2020/21 and Site 2 & 3 together with other developments will be completed after Site 1 with no development programme by now. For assessment purpose the year of completion for Site 2 & 3 and other developments is assumed to be 2026 included as one of the assessment scenario.

4.1.2. Short-term traffic forecasts and respective study scenarios for year 2020 are examined with particular focuses on identifying the traffic impact for QH Development and with/ without LT/HYW BCP Link Road in the short-term study horizons.

4.1.3. For evaluation of long term traffic condition, another four (4) scenarios are set out for years 2026 and 2031.

4.1.4. For assessment of construction traffic, another two (2) scenarios are set out for years 2017 and 2019.

4.1.5. With the traffic and transport forecasts established for different design years, various study scenarios are examined to identify the impact due to the subject developments. The study scenarios are shown in **Table 4.1** below.

Table 4.1 Study Scenarios

Scenario	Year	Site 1	Site 2	Site 3	Other Developments	Fanling Bypass	Liantang/ HYW BCP	Remark
1	2017	X	X	X	X	X	X	2017 Reference Case (Without Liantang/ HYW BCP)
2	2019	X	X	X	X	X	√	2019 Reference Case (With Liantang/ HYW BCP)
3	2020	X	X	X	X	X	X	2020 Reference Case (Without Liantang/ HYW BCP)
4	2020	√	X	X	X	X	X	2020 Design Case (Without Liantang/ HYW BCP)
5	2020	X	X	X	X	X	√	2020 Reference Case (With Liantang/ HYW BCP)
6	2020	√	X	X	X	X	√	2020 Design Case (With Liantang/ HYW BCP)
7	2026	X	X	X	X	√	√	2026 Reference Case
8	2026	√	√	√	√	√	√	2026 Design Case
9	2031	X	X	X	X	√	√	2031 Reference Case
10	2031	√	√	√	√	√	√	2031 Design Case

4.2. Overall Traffic Modelling Approach

Background

4.2.1. The detailed traffic modelling assumptions, approach and methodology have been presented in the "Inception Report" of this Study and circulated in March 2015.

4.2.2. As mentioned in previous section of this Report, it is recommended to carry out 10 scenarios to cover all the possible cases with the design year 2017, 2019, 2020, 2026 and 2031. This Section will summarise the key points again.

Model Structure and Coverage

4.2.3. 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 incorporated the Enhanced 2011-based TPEDM (controlled version) including the demographic and land use data, socio-economic characteristics, highway infrastructure, railway network assumptions, etc.

4.2.4. To produce robust traffic forecasts that would be responsive to dynamic changes in future land use and infrastructure development, a two-tier modelling approach was proposed for this Assignment. The two-tier model structure comprised 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)

4.2.5. 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.

4.2.6. For this Assignment, our strategic transport demand model has been reviewed and refined, and also incorporated with the latest Enhanced 2011-based TPEDM (controlled version) in Planning Data Zones (PDZ) 454-zone system. In addition, the STM has also incorporated with 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.

4.2.7. In general, the latest Enhanced 2011-based TPEDM (controlled version) has been incorporated with most of the major planned developments in North East New Territories such as (a) NENT NDA comprising Kwu Tung North and Fanling North and (b) Frontier Closed Area Developments. In addition, the new cross boundary facility Liantang BCP and associated highway infrastructure has been assumed to be completed in year 2018, and included in this assignment.

4.2.8. Other potential development such as Sandy Ridge Cemetery is located near Lo Wu area which is considered far away from our study area. Generally, the cemetery would not cause any significant traffic generation during the normal weekday peak. Thus, the traffic implication caused by the cemetery on the concerned study area is minimal. Similarly, the proposed development Kwu Tung South Development is considered far away from our study area. The vehicle generated from this development would use the strategic road link Fanling Highway. Thus, the traffic implication on Fanling town centre and Sha Tau Kok Road is minimal. Another proposed New Territories North New Town Development is planned to be developed beyond year 2031. Thus, it is not necessary to take them into consideration in this assignment.

4.2.9. Two strategic road links namely (i) Liantang Connecting Road and (ii) Fanling Bypass are planned for completion in year 2018 and year 2023 respectively. Liantang Connecting Road connect the Liantang BCP and Fanling Highway which providing an alternative road for the Liantang and Sha Tau Kok area. The vehicles near the Liantang Connecting Road Interchange would be diverted to use Liantang Connecting Road. Thus, the traffic flows on Sha Tau Kok Road would be reduced after opening of the Liantang Connecting Road. Obviously, the Liantang Connecting Road Interchange is far away from the proposed Site. Thus, it could not attract QH Development traffic using the Liantang Connecting Road. For the proposed infrastructure - Fanling Bypass, the tentative date of completion year is 2026. The ingress and egress access of Fanling Bypass is located in Sha Tau Kok Road between Ma Sik Road and Sui Wan Road. The QH Development site would use this direct road heading to/from southern area including Tai Po, Sha Tin, Kowloon and Hong Kong.

Local Area Traffic Model (LATM)

4.2.10. 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.

4.2.11. 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. The AOI for this Assignment are covered by BDTMs model namely "New Territories East 1" (NTE1). Thus, the LATM was developed starting from the "NTE1 BDTM". This would enable the traffic route choice patterns and any congestion or access issues in the wider North East New Territories areas to be properly accounted for in the traffic assignment process.

4.2.12. 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.

4.3. Model Development

Base Year 2015

4.3.1. The traffic counts survey has been carried out in March 2015 which covering most of the key affected junctions within the AOI. The accuracy obtained the existing traffic situation could replicate the base year traffic flow pattern and better simulate the future traffic condition for the traffic impact assessment purposes. The existing traffic flows for year 2015 are shown in **Figure 2.1**.

2017, 2019 and 2020 Design Years

4.3.2. The development namely "Liantang Boundary Crossing Point with the associated connecting road network" is scheduled to be in operation in year 2018. Except for the development, there are no major development in the nearby of Fanling Town Centre to be completed on or before year 2020. The infrastructural works are scheduled to commence in late 2016 for completion in 2019 and the proposed development in Site 1 are tentatively completed in year 2020; therefore, the traffic flows for year 2017, 2019 and 2020 with and without the proposed public housing development at Site 1 proposed under this Project, and Liantang Boundary Crossing Point are shown in **Figure 4.1** to **4.6**. The scenario of without LT/ HYW BCP and with LT/ HYW BCP construction traffic is also included and if this project is still not completed in year 2020 the remaining work should be minor and therefore 10 pcu/hour is assumed for peak hour construction traffic.

2026 Design Year

4.3.3. The major development NENT NDA with the associated road network is scheduled to be completed phase by phase. The Fanling Bypass Interchange connecting to the Sha Tau Kok Road will be completed before year 2026. The traffic flows for year 2026 with and without proposed development at Site 1, 2 & 3 and other developments are shown in **Figure 4.7** to **4.8**.

2031 Design Year

4.3.4. Similarly, the traffic flows for year 2031 with and without QH Development (Site 1, 2 & 3 and other developments) are shown in **Figure 4.9** to **4.10.**

4.4. Site Traffic Generation

4.4.1. The likely volume of traffic generated by the QH Development was estimated based on relevant trip rates provided in 'Traffic Rates for Residential Developments at 95% Confidence Level' adopted in the Transport Planning and Design Manual (TPDM), TD Traffic Generation Survey, DR 439 and in-house survey. These rates are shown in **Table 4.2** below.

Table 4.2 Traffic Generation Rates

Component	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
PRH (pcu/hr/flat) (1)	0.0242	0.0226	0.0177	0.0201
SSF (pcu/hr/flat) (2)	0.0622	0.0426	0.0297	0.0401
Private Housing (pcu/hr/flat) (3)	0.0718	0.0425	0.0286	0.037
Primary School (pcu/hr/ class operating) (4)	0.96	1.04	1.43	0.07
International School (pcu/hr/class operating) (4)	4.12	4.87	4.12	1.25
Community/ Welfare Facilities (pcu/hr/100 m^2 GFA) (5)	0.235	0.235	0.23	0.115
Retail (pcu/hr/100 m^2 GFA) (6)	0.2296	0.2434	0.3100	0.3563

Note:
(1) Source: TPDM Volume 1, Chapter 3, Appendix, Table 1
(2) Source: TPDM Volume 1, Chapter 3, Appendix, Table 1
(3) Source: TPDM Volume 1, Chapter 3, Appendix, Table 1
(4) Source: In-house survey conducted in April 2015 attached in Appendix B
(5) Source: Rates obtained from Final Preliminary Traffic Impact Assessment Report of Agreement No. CE 1/2014 (CE) Infrastructures for Housing Development at Queen's Hill- Feasibility Study issued in September 2014
(6) Source: TPDM Volume 1, Chapter 3, Appendix, Table 2

4.4.2. The estimated traffic generation by QH Development is presented in **Table 4.3**. It is anticipated that upon completion, the QH Development would generate a total of some 1,724 and 1,239 two-way traffic (in pcus) during the morning and evening peak hours respectively.

Table 4.3 Estimated Traffic Generation (in pcus/hr)

Proposed Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Site 1				
PRH (8,840 Flats)	214	200	156	178
SSF (3,260 Flats)	203	139	97	131
2 x Primary School (30 class)	58	62	86	4
3 nos. of Kindergarten (Two 8-Classrooms and One 7-Classrooms) (1)	30	30	30	30
Welfare Facilities (8,140 m^2 GFA)	19	19	19	9
Retail (12,500 m^2 GFA)	29	30	39	45
Site 2				
Private Housing (2,670 Flats)	192	113	76	99
Site 3				
International School (35 class)	144	170	144	44
Other Developments				
1 x Primary School (24 class)	23	25	34	2
Community Facilities (5000 m^2 GFA)	12	12	12	6
Total	923	801	693	546

Note:

(1) Assuming 10 pcu/hr (each way) for each kindergarten

5. OPERATIONAL TRAFFIC IMPACT ASSESSMENT

5.1. Junction Capacity Assessment

5.1.1. Junction capacity assessment has been carried out at the key road junctions for the assessment scenarios. It covers a total of 16 junctions in the close vicinity of the QH Development Site (see **Figure 1.1** for the locations). The assessment is based on existing/ planned junction layouts and methods of control. The results for different assessment scenarios are shown in **Tables 5.1** to **5.4**. The detailed calculation sheets are shown in **Appendix D**. The existing and planned junction layouts are shown in **Figures 5.1 – 5.19**.

5.1.2. The available information of the following studies/ projects has been taken into account for the assessment:

- North East New Territories New Development Areas Planning and Engineering Study;
- Liantang/ Heung Yuen Wai Boundary Control Point and associated works (Site Formation and Infrastructures);
- Proposed Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery;
- Proposed new town development in New Territories North;
- Kwu Tung South Development;
- Development of Kwu Tung North and Fanling North New Development Areas
- Housing Development at Queen's Hill;
- Northeast New Territories Landfill Extension;
- Engineering Study for Police Facilities in Kong Nga Po;
- Development of Organic Waste Treatment Facilities Phase 2;
- Public Rental housing development at Choi Yuen Road;
- PWP No. 9350WF Improvement of Water Supply to Sheung Shui and Fanling;
- Widening of Western Section and Eastern Section of Lin Ma Hang Road; and
- Shek Wu Hui Sewage Treatment Works- Further Expansion Phase 1A.

Table 5.1 Year 2020 Junction Performance (Without Liantang/ HYW BCP)

No.	Junction	Performance[(1)]					
		Reference Case		Design Case (Site 1)		With Improvement	
		AM	PM	AM	PM	AM	PM
J1	Po Shek Wu Road Interchange	0.97	1.06	1.01	1.09	0.78	0.84
J2	So Kwun Po Road Interchange	1.03	1.00	1.11	1.09	0.90	0.89
J3	Jockey Club Road / Ma Sik Road / So Kwun Po Road	33%	39%	18%	26%	-	-
J4	Ma Sik Road / Fan Leng Lau Road	6%	7%	5%	4%	17%	17%
J5	Ma Sik Road / Luen Chit Street	42%	>50%	37%	49%	-	-
J6	Ma Sik Road / Wo Tai Street	22%	28%	16%	27%	-	-
J7	Sha Tau Kok Road / San Wan Road	0.58	0.48	0.60	0.50	-	-
J8	Sha Tau Kok Road / Jockey Club Road	0.83	0.66	0.93	0.77	0.75	0.70
J9	Sha Tau Kok Road / Lok Yip Road	-1%	8%	-9%	4%	28%	46%
J10	Sha Tau Kok Road / Luen On Street	>50%	>50%	>50%	>50%	-	-
J11	Sha Tau Kok Road / Ma Sik Road	-10%	-10%	-21%	-15%	-2%	5%
J12	Fanling Bypass / Sha Tau Kok Road [(2)]	-	-	-	-	-	-
J13	Sha Tau Kok Road / Sui Wan Road	2%	6%	-23%	-19%	1%	21%
J14	Sha Tau Kok Road / Lung Ma Road	0.80	0.70	1.09	0.93	0.81	0.80
J15	Po Shek Wu Road / Choi Yuen Road	23%	12%	16%	12%	36%	32%
J16	Jockey Club Road / Lung Sum Avenue	8%	10%	1%	4%	16%	20%

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.
(2) J12 – Fanling Bypass/ Sha Tau Kok Road will be operating in Years 2026 and 2031 scenarios, and is therefore omitted in Year 2020 scenario.

Table 5.2 Year 2020 Junction Performance (With Liantang/ HYW BCP)

No.	Junction	Performance[1]					
		Reference Case		Design Case (Site 1)		With Improvement	
		AM	PM	AM	PM	AM	PM
J1	Po Shek Wu Road Interchange	0.99	1.06	1.02	1.08	0.78	0.84
J2	So Kwun Po Road Interchange	0.86	0.82	0.94	0.92	0.76	0.75
J3	Jockey Club Road / Ma Sik Road / So Kwun Po Road	37%	35%	28%	27%	-	-
J4	Ma Sik Road / Fan Leng Lau Road	25%	18%	18%	13%	32%	28%
J5	Ma Sik Road / Luen Chit Street	>50%	>50%	>50%	>50%	-	-
J6	Ma Sik Road / Wo Tai Street	35%	46%	30%	37%	-	-
J7	Sha Tau Kok Road / San Wan Road	0.55	0.46	0.59	0.48	-	-
J8	Sha Tau Kok Road / Jockey Club Road	0.69	0.52	0.88	0.70	0.66	0.62
J9	Sha Tau Kok Road / Lok Yip Road	35%	37%	12%	15%	42%	>50%
J10	Sha Tau Kok Road / Luen On Street	>50%	>50%	>50%	>50%	-	-
J11	Sha Tau Kok Road / Ma Sik Road	49%	49%	8%	12%	37%	42%
J12	Fanling Bypass / Sha Tau Kok Road [2]	-	-	-	-	-	-
J13	Sha Tau Kok Road / Sui Wan Road	>50%	>50%	5%	15%	41%	>50%
J14	Sha Tau Kok Road / Lung Ma Road	0.43	0.40	0.72	0.61	0.53	0.47
J15	Po Shek Wu Road / Choi Yuen Road	19%	12%	13%	12%	32%	32%
J16	Jockey Club Road / Lung Sum Avenue	9%	9%	2%	5%	16%	20%

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.
(2) J12 – Fanling Bypass/ Sha Tau Kok Road will be operating in Years 2026 and 2031 scenarios, and is therefore omitted in Year 2020 scenario.

Table 5.3 Year 2026 Junction Performance

No.	Junction	Performance[1]					
		Reference Case		Design Case		With Improvement	
		AM	PM	AM	PM	AM	PM
J1	Po Shek Wu Road Interchange	1.06	1.11	1.10	1.14	0.84	0.88
J2	So Kwun Po Road Interchange	0.97	0.93	1.12	1.09	0.91	0.88
J3	Jockey Club Road / Ma Sik Road / So Kwun Po Road	23%	32%	-2%	4%	22%	28%
J4	Ma Sik Road / Fan Leng Lau Road	44%	49%	41%	49%	-	-
J5	Ma Sik Road / Luen Chit Street	>50%	>50%	>50%	>50%	-	-
J6	Ma Sik Road / Wo Tai Street	21%	44%	21%	41%	-	-
J7	Sha Tau Kok Road / San Wan Road	0.58	0.49	0.65	0.54	-	-
J8	Sha Tau Kok Road / Jockey Club Road	0.78	0.57	0.93	0.79	0.75	0.68
J9	Sha Tau Kok Road / Lok Yip Road	11%	20%	-14%	3%	40%	>50%
J10	Sha Tau Kok Road / Luen On Street	>50%	>50%	29%	>50%	-	-
J11	Sha Tau Kok Road / Ma Sik Road [2]	0.02	0.06	0.03	0.11	-	-
J12	Fanling Bypass / Sha Tau Kok Road	0.42	0.39	0.67	0.67	-	-
J13	Sha Tau Kok Road / Sui Wan Road	28%	22%	-21%	-17%	18%	30%
J14	Sha Tau Kok Road / Lung Ma Road	0.61	0.62	1.21	1.08	0.78	0.69
J15	Po Shek Wu Road / Choi Yuen Road	10%	9%	5%	8%	27%	27%
J16	Jockey Club Road / Lung Sum Avenue	8%	7%	3%	6%	17%	22%

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts and priority junctions.
(2) J11 – Sha Tau Kok Road / Ma Sik Road will be changed to priority junction from signalised junction after Year 2023.

Table 5.4 Year 2031 Junction Performance

No.	Junction	Performance[1]					
		Reference Case		Design Case		With Improvement	
		AM	PM	AM	PM	AM	PM
J1	Po Shek Wu Road Interchange	0.81	0.76	0.87	0.79	-	-
J2	So Kwun Po Road Interchange	1.03	1.02	1.19	1.15	0.97	0.93
J3	Jockey Club Road / Ma Sik Road / So Kwun Po Road	12%	8%	-9%	-8%	10%	14%
J4	Ma Sik Road / Fan Leng Lau Road	26%	38%	17%	33%	-	-
J5	Ma Sik Road / Luen Chit Street	>50%	>50%	>50%	>50%	-	-
J6	Ma Sik Road / Wo Tai Street	17%	43%	16%	41%	-	-
J7	Sha Tau Kok Road / San Wan Road	0.59	0.51	0.65	0.55	-	-
J8	Sha Tau Kok Road / Jockey Club Road	0.88	0.72	0.98	0.91	0.74	0.67
J9	Sha Tau Kok Road / Lok Yip Road	-1%	15%	-19%	0%	18%	48%
J10	Sha Tau Kok Road / Luen On Street	>50%	>50%	23%	>50%	-	-
J11	Sha Tau Kok Road / Ma Sik Road [2]	0.02	0.04	0.03	0.11	-	-
J12	Fanling Bypass / Sha Tau Kok Road	0.62	0.47	0.87	0.71	-	-
J13	Sha Tau Kok Road / Sui Wan Road	18%	16%	-24%	-17%	15%	24%
J14	Sha Tau Kok Road / Lung Ma Road	0.67	0.65	1.30	1.11	0.81	0.72
J15	Po Shek Wu Road / Choi Yuen Road	21%	29%	11%	25%	15%	22%
J16	Jockey Club Road / Lung Sum Avenue	2%	6%	-1%	4%	15%	27%

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts and priority junctions.
(2) J11 – Sha Tau Kok Road / Ma Sik Road will be changed to priority junction from signalised junction after Year 2023.

5.1.3. As shown in above tables, all the assessed junctions will be operating with acceptable capacity with proposed improvement except for year 2020 design case without Liantang/ HYW BCP, J11 and J13 will be operating close to or slightly over their capacities (**Table 5.1** referred).

5.2. Proposed Improvement Schemes

5.2.1. As Junctions J1 and J2 will be operating close to or over their capacities, but in view of the traffic impact induced by QH Development on Junctions J1 and J2 is minimal. The existing traffic problem is considered as district wide problem and the problem in Junctions J1 and J2 could only be fully addressed upon completion of the planned new roads under FLN NDA project; while minor improvement of road junction could be implemented under QH project as interim measures taking account the scope of this project.

Junction J1 - Po Shek Wu Road Interchange (Figure 5.1)

5.2.2. Junction J1 Po Shek Wu Road Interchange will be operating over its capacity in year 2020. It is proposed to modify the Po Shek Wu Road southern approach by modifying the central island as shown in **Figure 5.1** as an interim measures. Comparing with FS, one more traffic lane will be provided in Po Shek Wu Road southern approach.

5.2.3. This junction will be improved by constructing a right-turn flyover connecting Po Shek Wu Road southbound to Fanling Highway westbound in year 2031 scenario according to the FLN NDA study. **Figure 5.1** illustrates the aforesaid junction improvement scheme at J1 according to the FLN NDA study for ease of reference.

Junction J2 So Kwun Po Road Interchange (Figure 5.2)

5.2.4. Junction J2 So Kwun Po Road Interchange will be operating over its capacity in year 2020. It is proposed to modify the So Kwun Po Road southern approach by modifying the central island as shown in **Figure 5.2.** Comparing with FS, the modified section will be extended for about 20m to queue more traffic.

5.2.5. DC members have suggested some roadworks to improve the traffic condition in Transport and Traffic Committee dated 9 March 2015 as shown in **Appendix C**. Two flyovers are proposed to provide two-way direct connection between Pak Wo Road and San Wan Road bypassing So Kwun Po Road Interchange. The proposed improvement involves extensive construction works. As mentioned in para. 5.2.1, the existing traffic problem is considered as district wide problem and the problem could be fully addressed upon completion of the planned new roads under FLN NDA project; while minor improvement of road junction as proposed in para. 5.2.4 could be implemented under QH project as interim measures taking account the scope of this project. Therefore the improvement proposed by the DC members would not be implemented under QH project.

Junction J3 Jockey Club Road / Ma Sik Road / So Kwun Po Road (Figure 5.3)

5.2.6. Junction J3 Jockey Club Road / Ma Sik Road / So Kwun Po Road will be operating over its capacity in year 2026. It is proposed to change the road marking and change the MOC in year 2026 as shown in **Figure 5.3** and to be reviewed and undertaken by FLN NDA project. Comparing with FS, local widening is not required.

Junction J4 Ma Sik Road / Fan Leng Lau Road (Figure 5.4)

5.2.7. Junction J4 Ma Sik Road / Fan Leng Lau Road will be operating close to its capacity in year 2020. It is proposed to change the road marking and modify the junction locally as shown in **Figure 5.4**. The existing MOC will be maintained with straight pedestrian crossing. In year 2031 the junction will be changed from 3-arm to 4-arm after completion of FLN NDA project. It is proposed to use the road markings as shown in **Figure 5.4**. It is recommended that the proposed improvement to be reviewed and undertaken by FLN NDA project for design year 2031 as the future road alignment of the additional arm has not been designed at this stage. Comparing with FS, widening of Ma Sik Road is not required.

Junction J5 Ma Sik Road / Luen Chit Street (Figure 5.5)

5.2.8. Junction J5 Ma Sik Road / Luen Chit Street will be operating satisfactorily and no improvement will be required. Comparing with FS, widening of Ma Sik Road is not required.

Junction J6 Ma Sik Road / Wo Tai Street (Figure 5.6)

5.2.9. Junction J6 Ma Sik Road / Wo Tai Street will be changed from 3-arm to 4-arm after completion of FLN NDA project in year 2026. It is proposed use the road markings as shown in **Figure 5.6**. Straight pedestrian crossing will be maintained. It is recommended that the proposed improvement to be reviewed and undertaken by FLN NDA project for design year 2026 onward. Comparing with FS, only the proposed road markings are changed.

Junction J7 Sha Tau Kok Road / San Wan Road (Figure 5.7)

5.2.10. Junction J7 Sha Tau Kok Road / San Wan Road will be operating satisfactorily and no improvement will be required. Same result was concluded in FS.

Junction J8 Sha Tau Kok Road / Jockey Club Road (Figure 5.8)

5.2.11. Junction J8 Sha Tau Kok Road / Jockey Club Road will be operating close to its capacity in year 2020. It is proposed to modify the Sha Tau Kok Road northern approach as shown in **Figure 5.8**. The proposed modification would affect existing trees along the road. The impact on the existing trees will be provided in separated Tree Survey Report. Same improvement scheme is proposed as in FS.

Junction J9 Sha Tau Kok Road / Lok Yip Road (Figure 5.9)

5.2.12. Junction J9 Sha Tau Kok Road / Lok Yip Road will be operating close to its capacity in year 2020. It is proposed to improve the junction as illustrates in **Figure 5.9**. Footpath and cycle track will be provided along the modified carriageway. The refuge island at Fan Leng Lau Road will be widened. The proposed modification would affect existing trees, cycle track and footpath along Sha Tau Kok Road southbound and existing trees along Fan Leng Lau Road eastbound. The affected footpath and cycle track will be re-provided by occupying part of the existing planting area in LCSD's sitting-out area. The impact on the existing trees will be provided in separate Tree Survey Report. Comparing with FS, widening of Fan Leng Lau Road is not required and the refuge island is widened.

Junction J10 Sha Tau Kok Road / Luen On Street (Figure 5.10)

5.2.13. Junction J10 Sha Tau Kok Road / Luen On Street will be operating satisfactorily and no improvement will be required. Comparing with FS, local widening of Sha Tau Kok Road is not required.

Junction J11 Sha Tau Kok Road / Ma Sik Road / On Kui Street and Junction 12 Fanling Bypass / Sha Tau Kok Road (Figure 5.11-5.14)

5.2.14. Junction J11 Sha Tau Kok Road / Ma Sik Road / On Kui Street will be operating over its capacity in year 2020. It is proposed to modify Sha Tau Kok Road northbound to change the existing nearside left-turn lane to left-turn and straight-ahead lane, remove one pedestrian crossing across Sha Tau Kok Road and change the MOC as shown in **Figure 5.11**. The pedestrian crossings at Sha Tau Kok Road and On Kui Street will be changed to straight crossing. A channelizing island will be provided at Ma Sik Road to separate the proposed split movements and provide refuges for pedestrians. It is also proposed to modify Sha Tau Kok Road southbound between Ma Sik Road and Sui Wan Road from 2 lanes to 3 lanes as shown in **Figure 5.12**. This is an interim improvement for year 2020 and a permanent improvement scheme has been proposed as described in para. 5.2.15. The proposed modification would affect existing trees, cycle track and footpath along the road. The impact on the existing trees will be provided in separate Tree Survey Report; while cycle track and footpath will be re-provided along Sha Tau Kok Road southbound. Same improvement scheme is proposed as in FS.

5.2.15. Junction J12 Fanling Bypass / Sha Tau Kok Road will be constructed and be operating in years 2026 and 2031 scenarios according to the FLN NDA study. **Figure 5.14** illustrates the aforesaid junction layout at J12 according to the FLN NDA study for ease of reference. Fanling Bypass will release the capacity problems in Fanling/ Sheung Shui District. J11 is proposed to be free flow condition along Sha Tau Kok Road as shown in **Figure 5.13**. As footbridge system will be constructed at J12, the pedestrian crossing across Sha Tau Kok Road is proposed to be removed and cautionary pedestrian crossings will be provided at Ma Sik Road and On Kui Street. As the separation between this junction and Fanling Bypass/ Sha Tau Kok Road roundabout is only about 30m, in order not to affect the operation of the roundabout it is justified to maintain free flow condition by adopting cautionary pedestrian crossings. It is recommended that the proposed improvement to be reviewed and undertaken by FLN NDA project. Same improvement scheme is proposed as in FS.

Junction J13 Sha Tau Kok Road / Sui Wan Road (Figure 5.15-5.16)

5.2.16. Junction J13 Sha Tau Kok Road / Sui Wan Road will be operating over its capacity in year 2020. As shown in **Figure 5.15**, it is proposed to extend the right-turn lanes of Sha Tau Kok Road northbound and southbound so that the right-turn traffic will not block the main traffic. The straight crossing will be temporary changed to stagger crossing and the MOC will be changed. This is an interim improvement for year 2020. Comparing with FS, no turning movement will be banned. After completion of Fanling Bypass in year 2026, it is proposed to ban the right-turn movements of Sha Tau Kok Road and some turning movements of minor roads as shown in **Figure 5.16** and the traffic can use Fanling Bypass Roundabout and Sha Tau Kok Road/ Lung Ma Road roundabout. The detour routes will only take about 2 minutes. The pedestrian crossings across Sha Tau Kok Road, Sui Wan Road and the other minor road will be changed back to straight crossing with proposed revised MOC. It is recommended that the proposed improvement to be reviewed and undertaken by FLN NDA project. The proposed modification would affect existing trees at the central median. The assessment of impact on the existing trees will be provided in Tree Preservation and Removal Proposal to be submitted separately. Comparing with FS, all pedestrian crossings can be maintained and more turning movements of minor roads will be banned and will be detoured to the roundabouts in both directions.

Junction J14 Sha Tau Kok Road / Lung Ma Road (Figure 5.17)

5.2.17. Junction J14 Sha Tau Kok Road / Lung Ma Road will be operating over its capacity in year 2020. It is proposed to provide an exclusive left-turn lane for Lung Ma Road as shown in **Figure 5.17**. The proposed modification would affect existing trees, cycle track and footpath along Sha Tau Kok Road and Lung Ma Road; and footpath and cycle track along Sha Tau Kok Road will be re-provided next to the modified carriageway. The assessment of impact on the existing trees and lands requirement will be provided in Tree Preservation and Removal Proposal and Land Requirement Report to be submitted separately. Same improvement scheme is proposed as in FS.

Junction J15 Po Shek Wu Road / Choi Yuen Road (Figure 5.18)

5.2.18. Junction J15 Po Shek Wu Road / Choi Yuen Road will be operating close to its capacity in year 2020. It is proposed to change the road marking as shown in **Figure 5.18**.

Junction J16 Jockey Club Road / Lung Sum Avenue (Figure 5.19)

5.2.19. Junction J16 Jockey Club Road / Lung Sum Avenue will be operating close to its capacity in year 2020. It is proposed to change the road marking and modify Lung Sum Avenue northbound locally as shown in **Figure 5.19**. The proposed modification would affect existing trees at the central median. The impact on the existing trees will be provided in separate Tree Survey Report.

5.3. Link Capacity Assessment

5.3.1. Link capacity assessment has been carried out. These road links, namely Fanling Bypass, Liantang/ Heung Yuen Wai Connecting Road, Lung Ma Road, Sha Tau Kok Road and Fanling Highway, were selected for the assessment. Detailed description on these road links are given as below (see **Figure 1.1** for the locations):

RL 1 - Fanling Bypass is a proposed dual-2-lane rural trunk road connecting NENT NDA and Fanling Highway which is taken into consideration in years 2026 and 2031 scenarios.

RL 2 - Liantang/Heung Yuen Wai Connection Road is a proposed dual-2-lane rural trunk road connecting future Liantang/Heung Yuen Wai Boundary Crossing Point and Fanling Highway.

RL 3 - Lung Ma Road is in single-2 lane 2-way configuration with minimum width of 7.3m. Footpath and frontage accesses are provided along Lung Ma Road. It is also the sole accessing road to the Site connecting to Sha Tau Kok Road.

RL 4 - Sha Tau Kok Road is a dual-2-lane rural road connecting the Site to other districts.

RL 5 - Fanling Highway is a dual-3-lane expressway linking to San Tin Highway to the west and Tolo Highway to the east.

5.3.2. Performance of the aforesaid road links was assessed in term of Volume to Capacity (V/C) ratio. The results for the 2020, 2026 and 2031 reference and design cases are shown in **Tables 5.5** to **5.7**.

Table 5.5 Road Link Capacity Assessment Results for Year 2020

Road	Road type	Capacity	Direction	V/C Ratio			
				Reference		Design (Site 1)	
				AM	PM	AM	PM
RL 1: Fanling Bypass(1)	Dual 2	3,700	NB	-	-	-	-
	Rural Trunk Road	3,700	SB	-	-	-	-
RL 2: Liantang/ Heung Yuen Wai Connecting Road	Dual 2	4,000	NB	0.44	0.40	0.44	0.40
	Rural Trunk Road	4,000	SB	0.36	0.39	0.36	0.39
RL 3: Lung Ma Road	Single 2 2-way	1,520	NB	0.02	0.02	0.47	0.36
	Local Distributor	1,520	SB	0.03	0.03	0.43	0.35
RL 4: Sha Tau Kok Road (Without Liantang)	Dual 2	3,000	NB	0.57	0.50	0.77	0.65
	Rural Road	3,000	SB	0.48	0.51	0.70	0.68
RL 4: Sha Tau Kok Road (With Liantang)	Dual 2	3,000	NB	0.31	0.27	0.50^	0.42
	Rural Road	3,000	SB	0.26	0.30	0.46	0.46
RL 5: Fanling Highway (Without Liantang)	Dual 3	6,000	NB	0.63	0.64	0.63	0.64
	Expressway	6,000	SB	0.59	0.54	0.59	0.54
RL 5: Fanling Highway (With Liantang)	Dual 3	6,000	NB	0.69	0.70	0.69	0.70
	Expressway	6,000	SB	0.67	0.59	0.67	0.59

Note:
(1) RL 1: Fanling Bypass will be operating in Years 2026 and 2031 scenarios and is therefore omitted in Year 2020 scenario.
^ Equivalent to ~1,500pcu or ~1,240 no. of vehicles at critical section between Ma Sik Road and Sui Wan Road junctions.

Table 5.6 Road Link Capacity Assessment Results for Year 2026

Road	Road type	Capacity	Direction	V/C Ratio			
				Reference		Design	
				AM	PM	AM	PM
RL 1: Fanling Bypass	Dual 2	3,700	NB	0.10	0.14	0.21	0.23
	Rural Trunk Road	3,700	SB	0.18	0.18	0.28	0.22
RL 2: Liantang/ Heung Yuen Wai Connecting Road	Dual 2	4,000	NB	0.40	0.33	0.40	0.33
	Rural Trunk Road	4,000	SB	0.36	0.37	0.36	0.37
RL 3: Lung Ma Road	Single 2 2-way	1,520	NB	0.02	0.02	0.72	0.51
	Local Distributor	1,520	SB	0.03	0.03	0.64	0.51
RL 4: Sha Tau Kok Road	Dual 2	3,000	NB	0.44	0.44	0.71	0.66
	Rural Road	3,000	SB	0.36	0.44	0.66	0.63
RL 5: Fanling Highway	Dual 3	6,000	NB	0.74	0.73	0.74	0.73
	Expressway	6,000	SB	0.74	0.63	0.74	0.63

Table 5.7 Road Link Capacity Assessment Results for Year 2031

Road	Road type	Capacity	Direction	V/C Ratio			
				Reference		Design	
				AM	PM	AM	PM
RL 1: Fanling Bypass	Dual 2	3,700	NB	0.27	0.30	0.37	0.41
	Rural Trunk Road	3,700	SB	0.38	0.29	0.43	0.31
RL 2: Liantang/ Heung Yuen Wai Connecting Road	Dual 2	4,000	NB	0.44	0.38	0.44	0.38
	Rural Trunk Road	4,000	SB	0.40	0.43	0.40	0.43
RL 3: Lung Ma Road	Single 2 2-way	1,520	NB	0.02	0.02	0.72	0.51
	Local Distributor	1,520	SB	0.03	0.03	0.64	0.51
RL 4: Sha Tau Kok Road	Dual 2	3,000	NB	0.48	0.47	0.74	0.69
	Rural Road	3,000	SB	0.40	0.46	0.69	0.64
RL 5: Fanling Highway	Dual 3	6,000	NB	0.82	0.79	0.82	0.79
	Expressway	6,000	SB	0.87	0.70	0.87	0.70

5.3.3. All analyzed results revealed the assessed road links would be performing with ample spare capacity in Years 2020, 2026 and 2031.

5.3.4. As a conclusion, QH Development traffic would not induce any adverse traffic impact on the adjacent road network.

5.4. Contingency Traffic and Transport Plan

5.4.1. 7.3m wide carriageway width with 3m wide lay-by at some sections will be provided for Lung Ma Road, in case large vehicle breakdown, such as bus, it can be towed to the lay-by, so that 2-lane 2-way traffic can still be maintained along Lung Ma Road.

5.4.2. Peak hour "No Stopping Restriction" will be proposed along Lung Ma Road to prevent waiting vehicles.

5.4.3. Connection of QH site to the Po Kak Tsai Road as alternative access for QH Site is not recommended because the future upgraded Lung Ma Road will have adequate capacity to serve for the whole QH Development even under emergency situation when a double decked public bus break down and occupied one of the traffic lanes. Moreover, existing Po Kak Tsai Road is an non-HyD standard road, upgrading of this road to meet the required standard for either alternative /emergency access require acquisition and clearance of private lands, which would take considerable times and the works could not be completed by March 2019 for supporting the target population intake time of Site 1 (i.e. 2020).

6. CONSTRUCTION TRAFFIC IMPACT ASSESSMENT

6.1. Background

6.1.1. The proposed works are scheduled to commence in late 2016 for completion in 2019. Key location plan of the proposed works is shown in **Figure 6.1** and details of the designated sewage works are presented in **Figures 6.2** to **6.6**. The designated road works are presented in previous Section 5.

6.1.2. It is noted that under the current excavation permit application requirements, the contractors are required to submit detailed temporary traffic management schemes using latest road/junction layout, updated traffic counts, conduct on-site trial runs and obtain approvals from all relevant authorities before commencement of actual construction. The temporary traffic management schemes proposed in this TIA are as a guideline and requirement for their preparation of detailed temporary traffic management schemes during construction stage.

6.2. TIA Assumptions

6.2.1. The TIA study is conducted in accordance with the "Guidelines on Traffic Impact Assessment and Day-Time Ban Requirements for Road Works on Traffic Sensitive Routes" issued by the Highways Department with a view to identifying the traffic requirements to mitigate traffic disruption.

6.3. TIA Approach

6.3.1. Apart from the assumptions stated above, some other factors governing the selection of construction methods include:

- Technical viability – fitness for purpose, ease and feasibility of construction
- Direct construction costs
- Whole life costs – durability and maintainability
- Social costs, including environmental and public disturbance

6.3.2. For construction works on carriageway or junction, worst scenario will be considered in the assessment to determine whether it is acceptable for traffic. Also, appropriate temporary traffic management schemes will be recommended.

6.4. Guidelines to the Temporary Traffic Arrangement

6.4.1. Adequate warning signs would be provided in advance of the limits of construction works in accordance with the "Code of Practice for the Lighting, Signing and Guarding of Road Works". Flashing Arrow Sign (FAS) may be employed at the start of major works area to alert motorists of the diversion ahead if required. The implementation of adequate warning signs and FAS should be brought forward so that motorists can be alerted about the roadwork and information regarding any traffic diversions enforced at the time. The aim is to ensure that motorists are fully aware of the roadwork and exercise care while driving near the works area.

6.4.2. It is important that adequate traffic capacity be maintained at a reasonable level in order to avoid serious congestion and queue-back problems along the under study corridors or adjacent intersections.

6.4.3. It is imperative that road safety be emphasised throughout the construction period. The proposed temporary traffic management schemes are required to ensure that the potential risk of accident arising from road works is minimised.

6.4.4. All of the existing accesses (including building access and parking lot access) and footpath within the study area is to be accessible throughout the construction period and hence adequate safety measures need to be implemented to protect motorists and pedestrians against construction activities.

6.4.5. Lane closure will inevitably be necessary during part of the proposed works. However, all the existing traffic movements should be maintained as far as possible. Junction assessment will be carried out to ensure all affected junctions would operate satisfactorily under the proposed traffic management measures.

6.4.6. Where traffic cones are employed to delineate work zones, cone spacing with 2-metre centres for approach tapers and 3-metre centres along traffic lanes shall apply. Flashing lanterns shall be mounted at the top of alternate cones for night-time operation. The minimum height of the cone should be 750 mm.

6.4.7. Construction would be carried out on a lane by lane basis, with each section not exceeding 60 m in length. A minimum separation of 100m between any two adjacent sections of works area shall be maintained.

6.4.8. The minimum clear width for straight carriageway for single traffic lane is 3.5m, for one-way two traffic lanes is 6.75m, for two-way two traffic lanes is 7.3m, and for three lanes is 10.0m. At locations where there is no bus route and the percentage of large vehicles using the road is light, the minimum clear width of straight carriageway for single traffic lane is 3.3m, and for two traffic lanes is 6.0m.

6.4.9. Junctions and immediate adjacent road sections would not be constructed concurrently, except downstream road sections. This would allow more vehicle storage area during the reconstruction of junctions.

6.5. Contract Provisions to the Contractor

6.5.1. In view of the large scale and extensive working areas of the Project, the following contract provisions to the contractors are recommended in order to close monitor the temporary traffic arrangement during construction stage:

- Ø Traffic Management Liaison Group (TMLG) Meetings with relevant government departments, the Engineer and the contractors should be held during the construction stage to discuss the TTM schemes submitted by the contractors. All detailed TTM schemes should be approved by the TMLG prior to its implementation.
- Ø Under the current excavation permit application requirements, the contractors are required to submit detailed temporary traffic management schemes using latest

road/junction layout, updated traffic counts, conduct on-site trial runs and obtain approvals from all relevant authorities before commencement of actual construction.

- ø All temporary traffic management schemes should be designed by an independent, experienced and qualified Traffic Consultant appointed by the contractors.
- ø All temporary traffic management schemes should be designed in accordance with the "Guidelines on Traffic Impact Assessment and Day-Time Ban Requirements for Road Works on Traffic Sensitive Routes" issued by the Highways Department.

6.6. Construction Traffic Flows

6.6.1. The peak construction traffic of the infrastructural works including road works, sewerage works, landscaping works and other utilities installation works is summarized in **Table 6.1** below.

Table 6.1 Construction Traffic of Infrastructural Works

Location	Works	Period		Routing
		Late 2016-2018	2018-2019	
J1, J2, J15	Road works	4-5 vehicles per day in off-peak period	-	Po Shek Wu Road, Fanling Highway
J4, J8, J16	Road works	-	4-5 vehicles per day in off-peak period	Ma Sik Road, Jockey Club Road, So Kwun Po Road, Fanling Highway
J9, J11, J13, J14, L1	Road works	4-5 vehicles per day in off-peak period	-	Sha Tau Kok Road, Ma Sik Road, So Kwun Po Road and Fanling Highway
Sha Tau Kok Road between J13 & J14	Sewerage works	2-3 vehicles per day in off-peak period	2-3 vehicles per day in off-peak period	Sha Tau Kok Road, Ma Sik Road, So Kwun Po Road and Fanling Highway
L2	Road works, sewerage works including sewage pumping station, landscaping works, utilities installation works	10-12 vehicles per day in off-peak period	6-8 vehicles per day in off-peak period	Lung Ma Road, Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Po Shek Wu Road and Fanling Highway
Along Ng Tung River	Sewerage works	Around 4-5 vehicles per day in off-peak period	Around 6-8 vehicles per day in off-peak period	Lung Sum Avenue, Jockey Club Road, Po Shek Wu Road

Note:
L1 is Sha Tau Kok Road and L2 is Lung Ma Road as shown in Figure 6.8.

6.6.2. The construction traffic of the infrastructural works for junctions J1, J2, J4, J8, J9, J15, J16 and sewerage works along Ng Tung River will not pass through the problematic junction J11. The construction traffic will be restricted to off-peak periods (10am to 4pm) and with the proposed improvement at J11 implemented during

construction as presented in para. 6.6.3 below, the traffic impact is expected to be minimal.

6.6.3. Although the capacity of J11 will be improved after implementing the proposed improvement as presented in para. 6.7.13 below, it is suggested that the construction traffic of the infrastructural works at Lung Ma Road (L2) should not pass J11 in order not to worsen the condition. It is suggested to use the alternative route through Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Po Shek Wu Road and Fanling Highway. CEDD's Liantang/ HYW BCP project is currently using Ping Che Road and Lin Ma Hang Road as a haul route (Table 6.2) and the construction traffic will gradually reduce towards its completion.

6.6.4. The construction projects as listed in **Table 6.2** will be conducted concurrently with this Project during the period end 2016 to end 2019 and within the AOI. The construction traffic information collected from the project proponents of these interfacing projects is summarized in **Table 6.2** below and shown in **Figure 6.7**:

Table 6.2 Construction Traffic Information

Item No.	Project	Construction Traffic Information	Routing
1	CEDD's KTN & FLN's NDA Development Phase 1	2018-2023 20-300 vehicles per hour in off-peak period	Ma Sik Road, Jockey Club Road, Po Shek Wu Road and Fanling Highway
2	CEDD's Liantang/ HYW BCP	2015-2017 Peak generation: 179 pcu per hour	Route 1: Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Ta Kwu Ling disposal site Route 2: Sha Tau Kok Road, Ma Sik Road and So Kwun Po Road
3	CEDD's Proposed Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery	2016-2020 Peak year in 2019: 94 pcu per hour	Sha Ling Road, Man Kam To Road, Jockey Club Road, Po Shek Wu Road and Fanling Highway
4	CEDD's KTN & FLN's NDA Development Remaining Phases	To be Review	Not available
5	CEDD's Police Facilities in Kong Nga Po	2018-2021 Peak generation: 150 pcu per hour	Kong Nga Po Road, Man Kam To Road, Jockey Club Road, Ting Ping Road/ Jockey Club Road and Ma Sik Road to NDAs FLN Kong Nga Po Road, Man Kam To Road, Jockey Club Road, Po Shek Wu Road, Fanling Highway to NDAs KTN
6	HD's Queen's Hill Housing Development	Mid 2015-Mid 2016: 100 vehicles per day Mid 2016-Mid 2018: 270 vehicles per day Mid 2018-Mid 2021: 600 vehicles per day	Lung Ma Road, Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Jockey Club Road, Po Shek Wu Road and Fanling Highway Lung Ma Road, Sha Tau Kok Road, Ma Sik Road, So Kwun Po Road and Fanling Highway
7	EPD's NENT Landfill Extension	Mid 2016-Mid 2018 4 vehicles per hour	Sha Tau Kok Road and Wo Keng Shan Road
8	EPD's Development of Organic Waste Treatment Facilities, Phase 2	2017-2020 5 pcu per hour in off-peak period	Not available
9	DSD's Shek Wu Hui Sewage Treatment Works- Further Expansion Phase 1A - I	2016-2020 < 10 vehicles per hour	Chuk Wan Road, Po Wan Road, Po Shek Wu Road and Fanling Highway
10	DSD's NENT Sewerage System Upgrade and North District Sewerage	Early 2018 – Early 2023 No. of construction vehicles information not available	Not available
11	WSD's PWP 9350WF – Improvement of Water Supply to Sheung Shui and Fanling	December 2016 –May 2019 6 vehicles per hour	Man Kam To Road and Jockey Club Road

Item No.	Project	Construction Traffic Information	Routing
12	HyD's Widening of Western Section and Eastern Section of Lin Ma Hang Road	2017 – 2019 5 vehicles per hour	Lin Ma Hang Road, Man Kam To Road, Jockey Club Road, Po Shek Wu Road and Fanling Highway

6.6.5. Based on the above construction traffic information, the estimated construction traffic flows of QH Housing Development along Lung Ma Road in critical Year 2019 are presented in **Table 6.3**.

Table 6.3 Construction Traffic Generations of QH Housing Development

Component	Daily Construction Traffic Generation (veh/day)		Peak Hour Construction Traffic Generation (1) (pcu/hr)	
	Generation	Attraction	Generation	Attraction
Housing Department's QH Housing Development Works	600	600	135	135

Note: (1) Adopted pcu factor of 2.25 for construction vehicle.

6.6.6. As J1 and J11 are operating over their capacities during peak hours, traffic survey was conducted in the off-peak period, i.e. 09:00 – 17:00 on a typical weekday in June 2015 at these two junctions to assess the off-peak capacities. Junction capacity analyses were carried out using the surveyed flows. The detailed calculation sheets are shown in **Appendix D**. The results are presented in **Table 6.4**.

Table 6.4 Year 2015 Off-peak Junction Performance

Period	Performance(1)	
	J1 Po Shek Wu Road Interchange	J11 Sha Tau Kok Road / Ma Sik Road
09:00 – 10:00	0.76	-8%
10:00 – 11:00	0.70	-5%
11:00 – 12:00	0.77	-6%
12:00 – 13:00	0.68	9%
13:00 – 14:00	0.91	-3%
14:00 – 15:00	0.84	0%
15:00 – 16:00	0.76	-7%
16:00 – 17:00	0.97	-12%

Note: (1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.

6.6.7. The results of the analysis indicate that J1 is currently operating within its capacity during off-peak hour and J11 is operating over its capacity during off-peak hour except 12:00 – 13:00. This indicates the QH Development's construction traffic should not pass through J11 during daytime period not until implementing the proposed improvement as presented in para. 6.6.8 below.

6.6.8. The QH Housing Development's construction traffic should not use Sha Tau Kok Road, Ma Sik Road and So Kwun Po Road to Fanling Highway. An alternative route

of Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Po Shek Wu Road and Fanling Highway should be used. Impact assessment for the critical junctions/ links along the alternative route, i.e. junctions Sha Tau Kok Road/ Lung Ma Road, Sha Tau Kok Road/ Lau Shui Heung Road, Sha Tau Kok Road/ Ping Che Road, Ping Che Road/ Lin Ma Hang Road, Man Kam To Road/ Lin Ma Hang Road, Man Kam To Road/ Po Wan Road, Man Kam To Road/ Jockey Club Road/ Po Shek Wu Road, Po Shek Wu Road/ Po Wan Road and Lin Ma Hang Road had been conducted in a separate study and the result indicated the alternative route is feasible. The constraints in construction traffic will be included in the relevant tender documents accordingly. Banksmen will be provided at major cautionary crossings at Ping Che Road to control the construction vehicles so that the pedestrians can cross the road.

6.7. Temporary Traffic Management Schemes for Roadworks

6.7.1. The proposed construction programme of the works is shown in **Figure 6.8**. As J1, J2, J9, J11 and J13 are currently operating over or close to their capacities, it is proposed to carry out the works at J1, J2, J9, J11, J13 and L1 at earlier stage to improve their capacities. It is also proposed to improve J14 at earlier stage in order to cater for the QH development's construction traffic. For L2, the road widening and utilities works will be carried out from late 2016 to 2019. For J15, as the works are only very minor involving road marking revision, it is also proposed to carry out earlier during the period 2016 - 2018. The works at J4, J8 and J16 can be carried out at later stage between 2018 - 2019.

6.7.2. Appropriate temporary traffic management (TTM) schemes have been derived as shown in **Figures 6.9 – 6.27** and junction assessment was conducted for design year 2017 and 2019. A summary of the junction assessment result is shown in **Table 6.5 and 6.6** and the calculations are attached in **Appendix D**.

Table 6.5 Year 2017 Junction Performance

No.	Junction	Peak	Performance[1]	
			Without Construction	Critical Construction Stage
J1	Po Shek Wu Road Interchange	AM PM	0.91 1.07	0.93 1.09
J2	So Kwun Po Road Interchange	AM PM	0.96 0.92	0.99 0.95
J4	Ma Sik Road / Fan Leng Lau Road	AM PM	11% 7%	-
J8	Sha Tau Kok Road / Jockey Club Road	AM PM	0.78 0.66	-
J9	Sha Tau Kok Road / Lok Yip Road	AM PM	1% 11%	1% 11%
J11	Sha Tau Kok Road / Ma Sik Road	AM PM	6%[2] 6%[2]	6% 6%
J13	Sha Tau Kok Road / Sui Wan Road	AM PM	2% 5%	2% 5%
J14	Sha Tau Kok Road / Lung Ma Road	AM PM	0.79 0.70	0.85 0.75
J15	Po Shek Wu Road / Choi Yuen Road	AM PM	26% 15%	26% 15%
J16	Jockey Club Road / Lung Sum Avenue	AM PM	12% 12%	-

Note: (1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.
(2) Figures show the RCs with proposed improvement during construction.

Table 6.6 Year 2019 Junction Performance

No.	Junction	Peak	Performance[(1)]	
			Without Construction	Critical Construction Stage
J1	Po Shek Wu Road Interchange	AM PM	-	-
J2	So Kwun Po Road Interchange	AM PM	-	-
J4	Ma Sik Road / Fan Leng Lau Road	AM PM	26% 19%	26% 19%
J8	Sha Tau Kok Road / Jockey Club Road	AM PM	0.68 0.52	0.76 0.56
J9	Sha Tau Kok Road / Lok Yip Road	AM PM	-	-
J11	Sha Tau Kok Road / Ma Sik Road	AM PM	-	-
J13	Sha Tau Kok Road / Sui Wan Road	AM PM	-	-
J14	Sha Tau Kok Road / Lung Ma Road	AM PM	-	-
J15	Po Shek Wu Road / Choi Yuen Road	AM PM	-	-
J16	Jockey Club Road / Lung Sum Avenue	AM PM	9% 10%	9% 10%

Note: (1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.

6.7.3. The above tables indicate that all critical junctions have acceptable capacity based on the proposed construction methods during peak hours in design years 2017 and 2019.

6.7.4. Performance of Lung Ma Road was assessed in term of Volume to Capacity (V/C) ratio. The results for the 2019 reference and construction cases are shown in **Table 6.7**.

Table 6.7 Year 2019 Road Link Performance

Road	Road type	Capacity		Direction	V/C Ratio			
		Reference	Construction		Reference		Construction	
					AM	PM	AM	PM
Lung Ma Road	Single 2 2-way	710	710	NB	0.26	0.26	0.26	0.26
	Local Distributor	710	710	SB	0.27	0.30	0.27	0.30

6.7.5. The above table indicates that Lung Ma Road has acceptable capacity based on the proposed construction methods during peak hours in critical design year 2019.

6.7.6. The proposed TTM schemes and mitigation measures for the critical junctions are presented in **Figures 6.9** to **6.27**.

6.7.7. The proposed TTM Schemes in this study represent only one of the possible solutions for the works while the actual construction traffic arrangement would be designed by the contractors to suit their particular construction requirement; it is therefore signage of the schemes is omitted from the figures. However, all TTM schemes would comply with the "Code of Practice for the Lighting, Signing and Guarding of Road Works".

Junction J1 - Po Shek Wu Road Interchange (Figure 6.9)

6.7.8. 2 traffic lanes will be maintained at both bounds of Po Shek Wu Road during construction.

Junction J2 – So Kwun Po Road Interchange (Figure 6.10)

6.7.9. 2 and 3 traffic lanes will be maintained at northbound and southbound of So Kwun Po Road respectively during construction.

Junction J4 – Ma Sik Road/ Fan Leng Lau Road (Figure 6.11)

6.7.10. The lane widths at Ma Sik Road and Fan Leng Lau Road will be locally reduced during construction.

Junction J8 – Sha Tau Kok Road/ Jockey Club Road (Figure 6.12)

6.7.11. The lane width at Sha Tau Kok Road northbound will be locally reduced during construction.

Junction J9 – Sha Tau Kok Road/ Fan Leng Lau Road/ Lok Yip Road (Figure 6.13_1 and Figure 6.13_2)

6.7.12. It is proposed to carry out the construction of road modification in 2 stages. The lane widths at Sha Tau Kok Road, Lok Yip Road and Fan Leng Lau Road will be locally reduced during construction.

Junction J11 – Sha Tau Kok Road/ Ma Sik Road (Figure 6.14 and 6.15)

6.7.13. It is proposed to remove a pedestrian crossing across Sha Tau Kok Road and revise the MOC to improve the junction capacity before commencement of any physical construction for proposed infrastructural works as shown in **Figure 6.14**. After the implementation of the proposed improvement, the junction will have sufficient capacity for the QH infrastructural works' construction traffic. It is proposed to carry out the construction of road modification in 3 stages. The lane widths at Sha Tau Kok Road, Ma Sik Road and On Kui Street will be locally reduced during construction.

Link L1 – Sha Tau Kok Road between Ma Sik Road and Sui Wan Road (Figure 6.16)

6.7.14. It is proposed to carry out the road modification works in 3 stages. The lane width at Sha Tau Kok Road southbound will be locally reduced during construction.

Junction J13 – Sha Tau Kok Road/ Sui Wan Road (Figure 6.17)

6.7.15. It is proposed to carry out the road modification works in 4 stages. The lane width at Sha Tau Kok Road and Sui Wan Road will be locally reduced during construction.

Widening of Cycle Track along Sha Tau Kok Road between Sui Wan Road and Lung Ma Road (Figure 6.18_1 – Figure 6.18_7)

6.7.16. It is proposed to carry out the cycle track widening works in 7 stages. Minimum 1.5m footpath will be maintained during construction.

Junction J14 – Sha Tau Kok Road/ Lung Ma Road (Figure 6.19_1 and Figure 6.19_2)

6.7.17. It is proposed to carry out the road modification works in 4 stages. The lane widths at Sha Tau Kok Road and Lung Ma Road will be locally reduced during construction.

Link L2 – Lung Ma Road (Figure 6.20_1 – Figure 6.20_4)

6.7.18. It is proposed to carry out the road widening works and utilities works in 8 stages. Two-lane two-way traffic will be maintained during construction. All existing accesses along Lung Ma Road will be maintained.

Junction J15 – Po Shek Wu Road/ Choi Yuen Road (Figure 6.21)

6.7.19. The construction is proposed to carry out in daytime off-peak period and will be completed within one day. The construction will be carried out in 2 stages with one traffic lane closure for each stage.

Junction J16 – Jockey Club Road/ Lung Sum Avenue (Figure 6.22)

6.7.20. The lane width at Lung Sum Avenue will be locally reduced during construction. The revision of road markings is proposed to carry out in daytime off-peak period and will be completed within one day.

6.8. Temporary Traffic Management Schemes for Sewage Rising Main

6.8.1. The works will be carried out from late 2016 to 2019. Appropriate temporary traffic management (TTM) schemes have been derived as shown in **Figures 6.23 – 6.27** and link assessment was conducted for critical design year 2019. The results for the 2019 reference and construction cases are shown in **Table 6.8**.and the calculations are attached in **Appendix D**.

Table 6.8 Year 2019 Road Link Performance

Road	Road type	Capacity		Direction	V/C Ratio / R. C.*			
		Reference	Construction		Reference		Construction	
					AM	PM	AM	PM
Access Road Across Ng Tung River	Single 2 2-way Local Distributor	710 710	- -	NB SB	0.07 0.10	0.07 0.07	>100% >100%	>100% >100%

Note: *Junction Assessments were adopted to simulate the traffic condition for road sections with one-lane two-way TTM arrangements.

6.8.2. The above table indicates that Access Road across Ng Tung River has acceptable capacity based on the proposed construction methods during peak hours in critical design year 2019.

6.8.3. The proposed TTM schemes and mitigation measures are presented in **Figures 6.23** to **6.27**.

6.8.4. The proposed TTM Schemes in this study represent only one of the possible solutions for the works while the actual construction traffic arrangement would be designed by the contractors to suit their particular construction requirement; it is therefore signage of the schemes is omitted from the figures. However, all TTM schemes would comply with the "Code of Practice for the Lighting, Signing and Guarding of Road Works".

Sha Tau Kok Road (Figure 6.23_1-6.23_5)

6.8.5. Trenchless method will be applied with the working shafts located at the verge and the carriageway will not be affected.

Along Ma Wat River or Ng Tung River (Figure 6.24)

6.8.6. Open-cut method will be applied and minimum 1.5m footpath will be maintained during construction.

Access Road Across Ng Tung River (Figure 6.25)

6.8.7. Open-cut method will be applied and one-lane two-way operation will be applied during construction. Vehicles will access the maintenance road from other ends for normal maintenance during construction.

Man Kam To Road (Figure 6.26)

6.8.8. Trenchless method will be applied with the working shafts located at the verge and the carriageway will not be affected.

Chuk Wan Street (Figure 6.27)

6.8.9. Trenchless method will be applied with the working shafts located at the verge and the carriageway will not be affected.

7. PROVISION OF PUBLIC TRANSPORT AND PEDESTRIAN ASSESSMENT

7.1. Public Transport Facilities

7.1.1. The existing public transport facilities located in the vicinity of the Site are shown in **Table 7.1**:

Table 7.1 Existing Franchised Bus and GMB Services

Route No.	Original	Destination	Peak Headway (min.)
Franchised Bus Service			
78K	Sheung Shui B/T	Sha Tau Kok B/T	15
79K	Sheung Shui B/T	Ta Kwu Ling	20
GMB Service			
52B	Fanling Station	Hok Tau	15
52K	Fanling Station	Ping Che	4
55K	Sheung Shui Station	Sha Tau Kok	4
56B	Fanling Station	Tan Chuk Hang	15
56K	Fanling Station	Luk Keng	30

7.2. Pedestrian Forecasts

7.2.1. To estimate the future demand on public transport, a forecast of pedestrian generation for QH Development was derived, the adopted pedestrian generation rates are shown in **Table 7.2**. The trip rates were applied to the proposed number of flats to derive the resident trips. The estimated pedestrian trips are tabulated in **Table 7.3**.

Table 7.2 Adopted Pedestrian Generation Rates

	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
PRH (persons/hr/flat) (1)	0.598	0.098	0.246	0.463
SSF (persons/hr/flat) (1)	0.577	0.123	0.2	0.377
Private Housing (persons/hr/flat) (1)	0.226	0.122	0.108	0.163
International School(persons/hr/classroom) (1)	0.583	2.875	1.708	0.625
Primary School (persons/hr/classroom) (1)	4.733	17.533	1.467	0.333
Kindergarten (persons/hr/classroom) (1)	12.017	30.305	2.750	1.000

Note:
(1) Rates obtained from Final Preliminary Traffic Impact Assessment Report of Agreement No. CE 1/2014 (CE) Infrastructures for Housing Development at Queen's Hill- Feasibility Study issued in September 2014.

Table 7.3 Estimated Pedestrian Trips (persons/hr)

Proposed Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Site 1				
PRH (8,840 Flats)	5,287	867	2,178	4,095
SSF (3,260 Flats)	1,881	401	652	1,229
Primary School (2 nos. 30-classroom)	284	1,052	88	20
Kindergarten (Two 8-Classroom & One 7-classroom)	276	697	63	23
Site 1 Total	7,729	3,016	2,981	5,367
Site 2				
Private Housing (2,670 Flats)	603	324	287	436
Site 3				
International School (35-classroom)	20	101	60	22
Other Developments				
Primary School (1 no. 24-classroom)	114	421	35	8
Site 1-3 Total	8,465	3,862	3,363	5,833

7.2.2. As shown in **Table 7.3**, the proposed developments (Sites 1 to 3) would generate 8,465 and attract 5,833 pedestrians critical one-way during the morning and evening peak hours respectively, including 7,729 (generate) and 5,367 (attract) pedestrians from Site 1 respectively.

7.2.3. The AM peak will be critical period with some 8,465 pedestrian trips to be generated from the Site. There are no significant attractions/destinations within walking distance. For the purpose of estimating the additional public transport requirements, it was assumed as a conservative approach that 95% of pedestrians generated by QH Development will take road-based transport (i.e. 8,042 & 5,541 ped/hr generated in AM & PM peak respectively), while the remaining 5% would be internal trips within QH Development Site. According to Travel Characteristics Survey 2011 issued by Transport Department, the total distribution of taxi and private vehicle is 18%, based on this distribution we assume the remaining 82% will take public transport (i.e. 6,594 & 4,544 ped/hr generated in AM & PM peak respectively). For Site 1, the public transport demand is estimated as 6,021 and 4,181 in AM & PM peak respectively.

7.2.4. A preliminary estimate of the Public Transport (PT) requirements to meet the demand described above is shown in **Table 7.4**. The use of double-decker buses is recommended due to the high volume of passengers. An average headway of 6 minutes for bus and 5 minutes for GMB would be required to transport the potential passengers from QH Development Site to their desired destinations. These PT requirements and operational arrangement could be refined later by the prospective bus operator. It should be noted that rerouting of existing public transport services along Sha Tau Kok Road to the QH Development Site could supplement these proposed franchised bus and GMB services.

Table 7.4 Capacity Assessment of Proposed Public Transport

PT Type	Proposed Peak Average Headway (min)		Estimated Service Capacity (passenger/hr)	
	AM	PM	AM	PM
Site 1				
Bus	6.5	9	5,538	4,000
GMB	6	15	480	192
Site 1 Total			**6,018**	**4,192**
Site 1 – 3				
Bus	6	8	6,000	4,500
GMB	4.8	30	600	96
Site 1 – 3 Total			**6,600**	**4,596**

Note:
(1) The capacity of a double-decker bus is assumed to be 120 passengers.
(2) The capacity of a GMB is assumed to be 16 passengers.

7.2.5. With the proposed public transport services shown in **Table 7.4**, and taxi facilities and the potential supplementary services from Sha Tau Kok Road, it is expected that the future public transport demand of the QH Development in the AM and PM peak critical cases could be adequately catered for. The proposed public transport services have been taken into account for the traffic forecast.

7.2.6. It should be noted the public transport operators are expected to adjust and enhance the schedules / frequencies / routings of their services or introduce new routes to meet the additional demand in the area. The above recommendations for public transport services are subject to the acceptance of the operators of the proposed services.

7.2.7. It should be noted that the above recommendation is subject to the acceptance of the Transport Department and the operators of the proposed public transport services.

7.3. Pedestrian Walkway Assessment

7.3.1. The pedestrian walkway assessment framework is based on the level of service (LOS) documented in the Highway Capacity Manual 2000 (HCM) and the condition for different LOS are summarized in **Table 7.5**.

Table 7.5 Pedestrian Assessment Framework

LOS	Condition	Description
A	Pedestrian Space >5.6m^2/p Flow Rate £16p/min/m	Pedestrians move in desired paths without altering their movements in response to other pedestrians Walking speeds are freely selected and conflicts between pedestrians are unlikely.
B	Pedestrian Space >3.7-5.6 m^2/p Flow Rate >16-23p/min/m	There is sufficient area for pedestrians to select walking speeds freely, to bypass other pedestrians and to avoid crossing conflicts. At this level, pedestrians begin to aware of other pedestrians and to respond to their presence when selecting a walking path.
C	Pedestrian Space >2.2-3.7 m^2/p Flow Rate >23-33p/min/m	Space is sufficient for normal walking speeds and for bypassing other pedestrians in primarily unidirectional streams. Reverse-direction or crossing movements can cause minor conflicts, and speeds and flow rate are somewhat lower.
D	Pedestrian Space >1.4-2.2m^2/p Flow Rate >33-49p/min/m	Freedom to select individual walking speed and to bypass other pedestrians is restricted. Crossing or reverse-flow movements face a high probability of conflicts, requiring reasonably fluid flow, but friction and interaction between pedestrians is likely.
E	Pedestrian Space >0.75-1.4 m^2/p Flow Rate >49-75p/min/m	Virtually all pedestrians restrict their normal walking speed frequently adjusting their gait. At the lower range, forward movement is possible only by shuffling. Space is not sufficient for passing slower pedestrians. Crossing- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with stoppages and interruptions to flow.
F	Pedestrian Space £0.75 m^2/p Flow Rate varies	All walking speeds are severely restricted, and forward progress is made only by shuffling. There is frequent, unavoidable contact with other pedestrians. Crossing- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.

7.3.2. As there are no significant attractions/ destinations within walking distance and a PTI will be provided within QH Development Site, it is justified to assume most of the pedestrians will not walk to the destinations outside QH. For the purpose of estimating the pedestrian flow on Lung Ma Road footpath, it was assumed as a conservative approach that 10% of pedestrians generated by QH Development will walk on the footpath (i.e. 1,233 & 920 ped/hr in AM & PM peak respectively). The summary of LOS at Lung Ma Road footpath is summarized in **Table 7.6** below.

Table 7.6 Walkway Assessment

Road	Effective Width (m)	Two-way pedestrian flow (ped/min/m)		Level of Service	
		AM Peak	PM Peak	AM Peak	PM Peak
Lung Ma Road	2*	5.1	3.8	A	A

* Effective Width reduced to 1.5m at the section of footpath next to proposed noise barrier.

7.3.3. As shown in the **Table 7.6**, the footpaths in the vicinity of the Development are operating satisfactorily.

8. SUMMARY AND CONCLUSION

8.1.1. AECOM was commissioned by the Civil Engineering and Development Department to conduct a TIA study for the QH Development. Basic development parameters are appended in **Table 3.1**

8.1.2. Traffic impact assessment has been carried out for design years 2017, 2019, 2020, 2026 and 2031. Traffic generation and attraction for the subject site were estimated using trip rates provided in the TPDM, TD Traffic Generation Survey, DR 439 and in-house survey. The future background traffic flows were forecasted by traffic model. Pedestrian generation and attraction for the subject site were estimated by survey.

8.1.3. Traffic to/ from the Site will be primarily travel on Lung Ma Road and Sha Tau Kok Road through Junction No. J14- Sha Tau Kok Road/ Lung Ma Road. It is proposing to widen and upgrade Lung Ma Road for serving the QH Development. The preliminary layout plan of proposed road works is provided in **Figure 3.1**.

8.1.4. This Study is taken into account the following studies:

- Preliminary Traffic Impact Assessment for Infrastructures for Housing Development at Queen's Hill- Feasibility Study;
- North East New Territories New Development Areas Planning and Engineering Study – Traffic and Transport Assessment;
- Liantang/ Heung Yuen Wai Boundary Control Point and associated works (Site Formation and Infrastructures) Revised Final Updated Traffic Impact Assessment Report;
- Proposed Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery;
- Proposed new town development in New Territories North;
- Kwu Tung South Development;
- Development of Kwu Tung North and Fanling North New Development Areas
- Housing Development at Queen's Hill;
- Northeast New Territories Landfill Extension;
- Engineering Study for Police Facilities in Kong Nga Po;
- Development of Organic Waste Treatment Facilities Phase 2;
- Public Rental housing development at Choi Yuen Road;
- PWP No. 9350WF Improvement of Water Supply to Sheung Shui and Fanling;
- Widening of Western Section and Eastern Section of Lin Ma Hang Road; and
- Shek Wu Hui Sewage Treatment Works- Further Expansion Phase 1A.

8.1.5. All the assessed junctions will be operating with acceptable capacity with proposed improvement.

8.1.6. For this Project, junction improvements are proposed for J1, J2, J3, J4, J6, J8, J9, J11, J13, J14, J15 and J16 as shown in **Figures 5.1 – 5.19**. The proposed

improvement schemes and performance in year 2020, 2026 and 2031 are summarized in **Table 8.1-8.3**.

Table 8.1 Proposed Improvement Works and Junction Performance for Year 2020

No.	Junction	Performance(1)						Improvement Works
		Reference Case		Design Case		With Improvement		
		AM	PM	AM	PM	AM	PM	
J1	Po Shek Wu Road Interchange	0.99	1.06	1.02	1.08	0.78	0.84	Modification of PSWR approach central island (Figure 5.1)
J2	So Kwun Po Road Interchange	0.86	0.82	0.94	0.92	0.76	0.75	Modification of SKPR approach central island (Figure 5.2)
J4	Ma Sik Road / Fan Leng Lau Road	25%	18%	18%	13%	32%	28%	Junction modification and change road marking (Figure 5.4)
J8	Sha Tau Kok Road / Jockey Club Road	0.69	0.52	0.88	0.70	0.66	0.62	Modification of STKR northern approach (Figure 5.8)
J9	Sha Tau Kok Road / Lok Yip Road	35%	37%	12%	15%	42%	>50%	Junction modification (Figure 5.9)
J11	Sha Tau Kok Road / Ma Sik Road	49%	49%	8%	12%	37%	42%	Junction modification & STKR modification (Figure 5.11 - 5.12)
J13	Sha Tau Kok Road / Sui Wan Road	>50%	>50%	5%	15%	41%	>50%	Junction modification (Figure 5.15)
J14	Sha Tau Kok Road / Lung Ma Road	0.43	0.40	0.72	0.61	0.53	0.47	Junction modification (Figure 5.17)
J15	Po Shek Wu Road / Choi Yuen Road	19%	12%	13%	12%	32%	32%	Change road marking (Figure 5.18)
J16	Jockey Club Road / Lung Sum Avenue	9%	9%	2%	5%	16%	20%	Junction modification and change road marking (Figure 5.19)

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts for design case (Site 1) and with Liantang/ HYW BCP scenario.

Table 8.2 Proposed Improvement Works and Junction Performance for Year 2026

No.	Junction	Performance[1]						Improvement Works
		Reference Case		Design Case		With Improvement		
		AM	PM	AM	PM	AM	PM	
J1	Po Shek Wu Road Interchange	1.06	1.11	1.10	1.14	0.84	0.88	Modification of PSWR approach central island [2] (Figure 5.1)
J2	So Kwun Po Road Interchange	0.97	0.93	1.12	1.07	0.91	0.88	Modification of SKPR approach central island [2] (Figure 5.2)
J3	Jockey Club Road / Ma Sik Road / So Kwun Po Road	23%	32%	-1%	6%	22%	28%	Change MOC and road marking [4] (Figure 5.3)
J6	Ma Sik Road / Wo Tai Street	21%	44%	21%	41%	-	-	Modification of road marking for change from 3-arm to 4-arm junction [4] (Figure 5.6)
J8	Sha Tau Kok Road / Jockey Club Road	0.78	0.57	0.93	0.78	0.75	0.68	Modification of STKR northern approach [2] (Figure 5.8)
J9	Sha Tau Kok Road / Lok Yip Road	11%	20%	-14%	5%	40%	>50%	Junction modification [2] (Figure 5.9)
J11	Sha Tau Kok Road / Ma Sik Road	0.02	0.06	0.03	0.10	-	-	Change to free flow [3] (Figure 5.13)
J13	Sha Tau Kok Road / Sui Wan Road	28%	22%	-21%	-17%	18%	30%	Junction modification [3] (Figure 5.16)
J14	Sha Tau Kok Road / Lung Ma Road	0.61	0.62	1.17	0.98	0.78	0.69	Junction modification [2] (Figure 5.17)
J15	Po Shek Wu Road / Choi Yuen Road	10%	9%	5%	8%	27%	27%	Change road marking [2] (Figure 5.18)
J16	Jockey Club Road / Lung Sum Avenue	8%	7%	3%	6%	17%	22%	Junction modification and change road marking [2] (Figure 5.19)

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.
(2) No further modification to the improvement works carried out after year 2020 is required.
(3) Further modification to the improvement works carried out after year 2020 is required.
(4) Improvement works to be carried out by NDA

Table 8.3 Proposed Improvement Works and Junction Performance for Year 2031

No.	Junction	Performance[1]						Improvement Works
		Reference Case		Design Case		With Improvement		
		AM	PM	AM	PM	AM	PM	
J1	Po Shek Wu Road Interchange	0.81	0.76	0.87	0.79	-	-	Exclusive right-turn lane from PSWR approach by FLN [3] (Figure 5.1)
J2	So Kwun Po Road Interchange	1.03	1.02	1.18	1.13	0.97	0.93	Modification of SKPR approach central island [2] (Figure 5.2)
J3	Jockey Club Road / Ma Sik Road / So Kwun Po Road	12%	8%	-9%	-6%	10%	14%	Change MOC and road marking [2] (Figure 5.3)
J4	Ma Sik Road / Fan Leng Lau Road	26%	38%	17%	33%	-	-	Junction modification and change road marking [3] (Figure 5.4)
J6	Ma Sik Road / Wo Tai Street	17%	43%	16%	41%	-	-	Modification of road marking for change from 3-arm to 4-arm junction [3] (Figure 5.6)
J8	Sha Tau Kok Road / Jockey Club Road	0.88	0.72	0.98	0.90	0.74	0.67	Modification of STKR northern approach [2] (Figure 5.8)
J9	Sha Tau Kok Road / Lok Yip Road[2]	-1%	15%	-19%	1%	18%	48%	Junction modification [2] (Figure 5.9)
J11	Sha Tau Kok Road / Ma Sik Road	0.02	0.04	0.03	0.10	-	-	Change to free flow [2] (Figure 5.13)
J13	Sha Tau Kok Road / Sui Wan Road	18%	16%	-24%	-17%	15%	24%	Junction modification [2] (Figure 5.16)
J14	Sha Tau Kok Road / Lung Ma Road	0.67	0.65	1.25	1.00	0.81	0.72	Junction modification [2] (Figure 5.17)
J15	Po Shek Wu Road / Choi Yuen Road	21%	29%	11%	25%	15%	22%	Change road marking [2] (Figure 5.18)
J16	Jockey Club Road / Lung Sum Avenue	2%	6%	2%	5%	15%	27%	Junction modification and change road marking [2] (Figure 5.19)

Note:
(1) Figures shown represent 'Reserve Capacity' (RC) for signal controlled junctions and 'Design Flow to Capacity' (DFC) ratio for roundabouts.
(2) No further modification to the improvement works carried out after year 2020/ 2026 is required.

(3) Further modification to the improvement works carried out after year 2020/ 2026 is required.

8.1.7. The proposed modification at J8 would affect existing trees along Sha Tau Kok Road northbound. The proposed modification at J9 would affect existing cycle track and footpath along Sha Tau Kok Road southbound and existing trees along Fan Leng Lau Road eastbound. The proposed modification at J11 would affect existing trees along Sha Tau Kok Road northbound. The proposed modification at Sha Tau Kok Road southbound would affect existing cycle track, footpath and trees along Sha Tau Kok Road. The proposed modification at J13 would affect existing trees at the central median. The proposed modification at J14 would affect existing cycle track, footpath and trees along Sha Tau Kok Road and Lung Ma Road. The proposed modification at J16 would affect existing trees at the central median. The assessment of impact on the existing trees and lands requirement will be provided in Tree Preservation and Removal Proposal and Land Requirement Report to be submitted separately.

8.1.8. The assessment results indicate that the existing and future traffic circulation at all the critical adjacent junctions and links will operate with acceptable reserve capacities with proposed improvement. It is considered that the traffic impact caused by QH Development is minimal and can be smoothly accommodated by the adjacent road network, pedestrian and transport facilities with proposed recommendation.

8.1.9. As J11 Sha Tau Kok Road/ Ma Sik Road is currently operating over its capacity during both peak and off-peak hours, the construction traffic should not pass through this junction during daytime period unless improvement measures had been implemented. The QH Housing Development's construction traffic should not use Sha Tau Kok Road, Ma Sik Road and So Kwun Po Road to Fanling Highway. An alternative route of Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Po Shek Wu Road and Fanling Highway should be used. Impact assessment for the critical junctions/ links along the alternative route, i.e. Sha Tau Kok Road/ Lung Ma Road, Sha Tau Kok Road/ Lau Shui Heung Road, Sha Tau Kok Road/ Ping Che Road, Ping Che Road/ Lin Ma Hang Road, Man Kam To Road/ Lin Ma Hang Road, Man Kam To Road/ Po Wan Road, Man Kam To Road/ Jockey Club Road/ Po Shek Wu Road, Po Shek Wu Road/ Po Wan Road and Lin Ma Hang Road had been conducted in a separate study and the result indicated the alternative route is feasible. The constraints in construction traffic will be included in the relevant tender documents accordingly. Banksmen will be provided at major cautionary crossings at Ping Che Road to control the construction vehicles so that the pedestrians can cross the road.

8.1.10. Although the capacity of J11 will be improved after implementing the proposed improvement as presented in para. 6.7.13, it is suggested that the construction traffic of the infrastructural works at Lung Ma Road should not pass J11 in order not to worsen the condition. It is suggested to use the alternative route through Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Po Shek Wu Road and Fanling Highway.

8.1.11. Although junction capacities would be affected during construction, a number of measures have been proposed to minimise the traffic impact, e.g. construction works to be on a lane by lane basis, revision in signalled junction method of control etc. During construction stage, it might be possible to further improve the traffic conditions based on the site situation by increasing traffic signal cycle times and

optimisation of green splits; providing better coordination between signalled intersections through a more detailed optimisation of the junction offsets.

8.1.12. Before and during construction, it is proposed to improve the junction capacity of J11 by removing a pedestrian crossing across Sha Tau Kok Road and revising the MOC as shown in **Figure 6.14**. After the implementation of this proposed improvement, the junction will have sufficient capacity for the QH infrastructural works. After the implementation of the permanent improvement as shown in **Figure 5.11**, the construction traffic under the QH project could pass through this junction.

8.1.13. TTM schemes are proposed for J1, J2, J4, J8, J9, J11, J13, J14, J15, J16, L1 and L2 as shown in **Figures 6.9 – 6.22**. All the assessed junctions and link will be operating with acceptable capacity with proposed TTM schemes.

8.1.14. TTM schemes are proposed for sewage rising main as shown in **Figures 6.23 – 6.27**. The assessed link will be operating with acceptable capacity with proposed TTM schemes.

8.1.15. Report on Traffic Management Scheme for each stage of the works detailing all the assessment, findings and proposals in relation to the required temporary and permanent traffic management schemes and recommendations will be prepared in the Design Stage.

8.1.16. It is noted that under the current excavation permit application requirements, the contractors are required to submit detailed temporary traffic management schemes using latest road/junction layout, updated traffic counts, conduct on-site trial runs and obtain approvals from all relevant authorities before commencement of actual construction. The temporary traffic management schemes proposed in this TIA are as a guideline and requirement for their preparation of detailed temporary traffic management schemes during construction stage.

8.1.17. In conclusion, the TIA study has demonstrated that the QH Development will not cause any significant traffic impact and is acceptable from the traffic point of view.

9. RECOMMENDATIONS

9.1.1. Site 2 (private housing), Site 3 (international school) and other developments (school and community facilities) should be completed after Fanling Bypass has been in place.

9.1.2. Junction improvements for J1, J2, J4, J8, J9, J11, J13, J14, J15 and J16 should be completed by Year 2020 before population intake at Site 1.

9.1.3. The proposed road improvement works at J3, J4, J6, J11 and J13 for the design year 2026 and 2031 is recommended to be further reviewed and implemented under FLN NDA projects.

9.1.4. The proposed modification at J8 would affect existing trees along Sha Tau Kok Road northbound. The proposed modification at J9 would affect existing cycle track and footpath along Sha Tau Kok Road southbound and existing trees along Fan Leng Lau Road eastbound. The proposed modification at J11 would affect existing trees along Sha Tau Kok Road northbound. The proposed modification at Sha Tau Kok Road southbound would affect existing cycle track, footpath and trees along Sha Tau Kok Road. The proposed modification at J13 would affect existing trees at the central median. The proposed modification at J14 would affect existing cycle track, footpath and trees along Sha Tau Kok Road and Lung Ma Road. The proposed modification at J16 would affect existing trees at the central median. The assessment of impact on the existing trees and lands requirement will be provided in Tree Preservation and Removal Proposal and Land Requirement Report to be submitted separately.

Figures

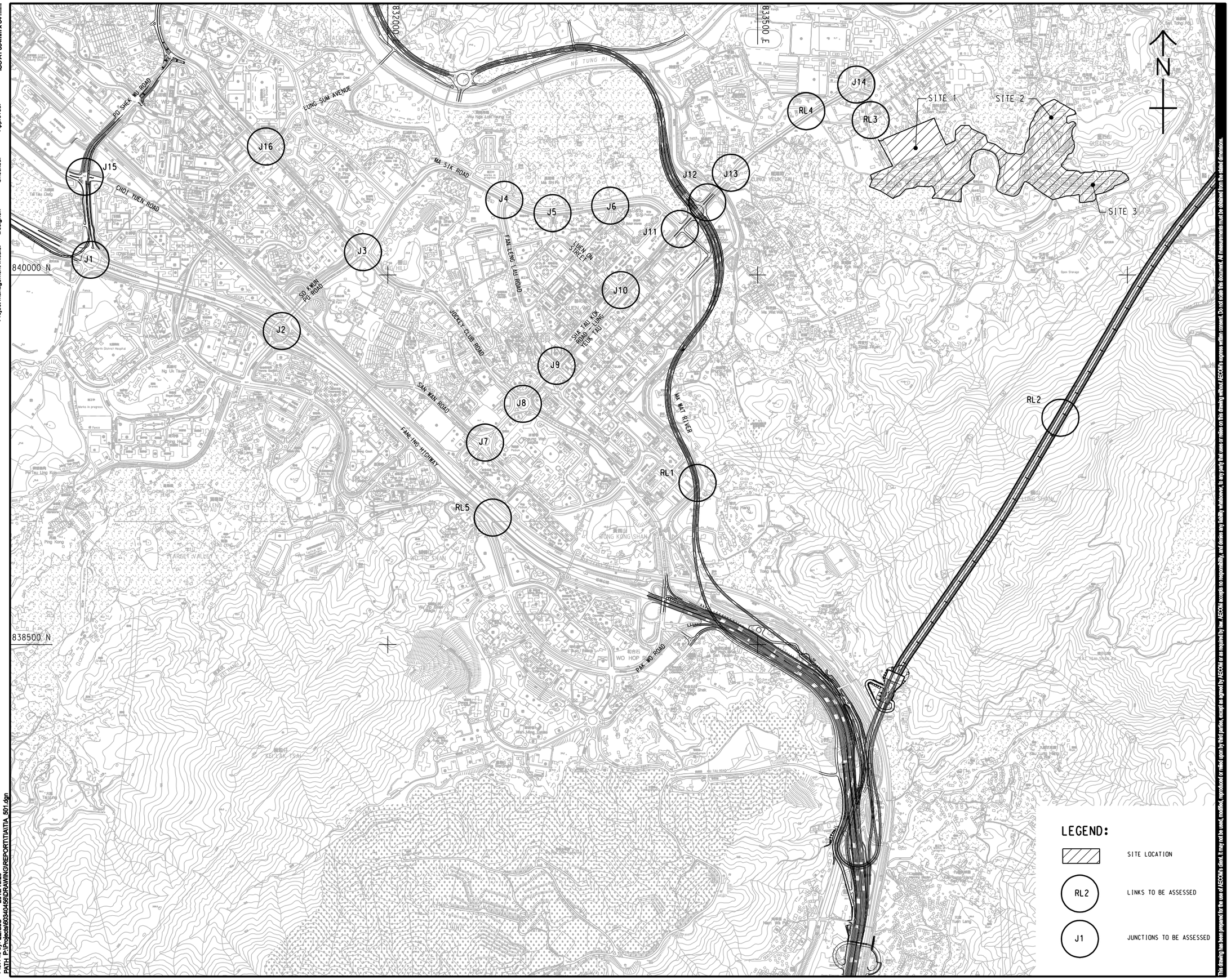
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DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
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60340456

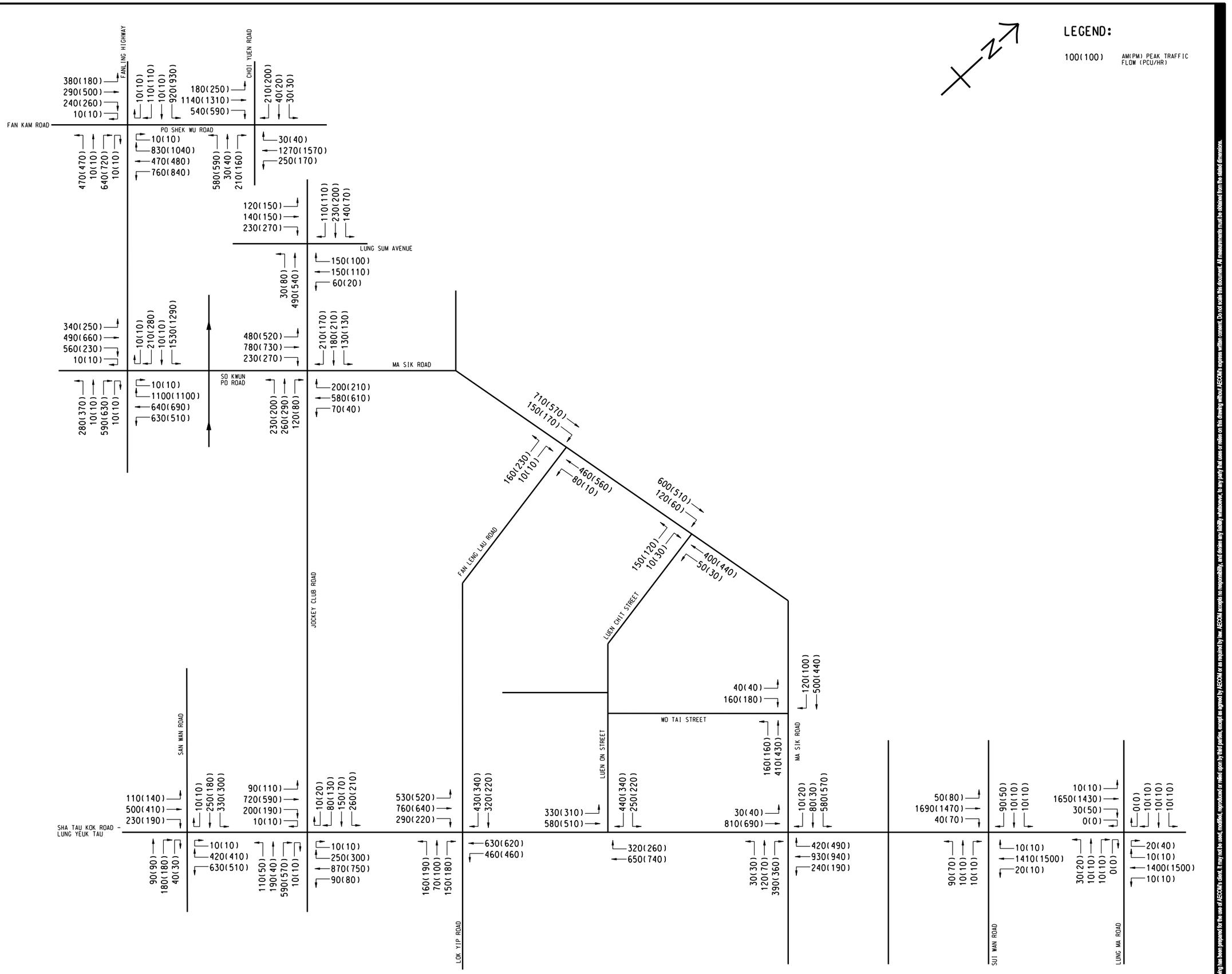
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CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

LOCATION OF SITE AND AREA OF INFLUENCE

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 1.1



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PROJECT NO. 項目編號 60340456

CONTRACT NO. 合約編號 CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

2015 EXISTING PEAK HOURS TRAFFIC FLOW

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 2.1

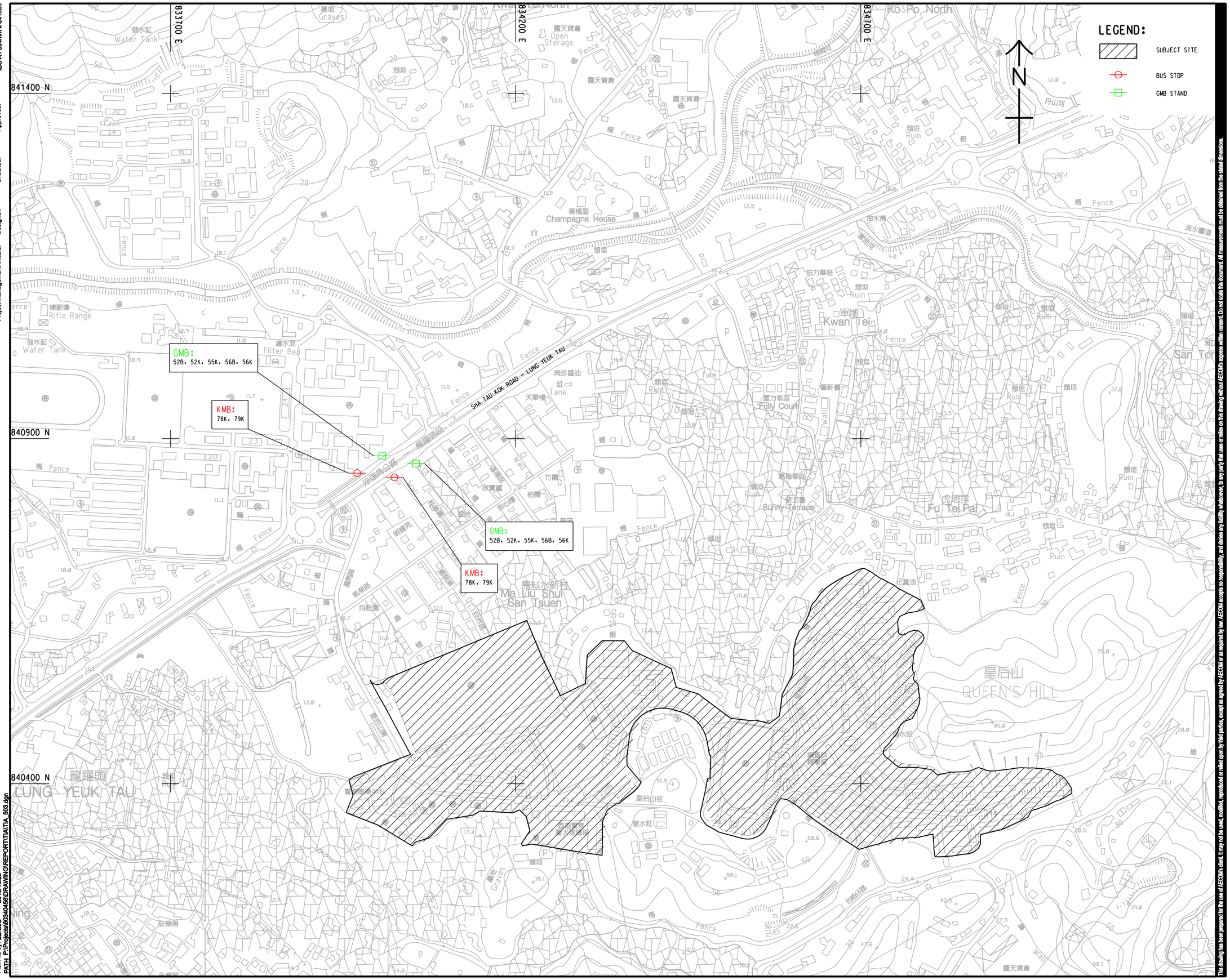
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CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PUBLIC TRANSPORT SERVICES POINT

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 2.2

ISO A1 594mm x 841mm

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Checked:

Designer:

Project Management Initials:

833700 E

833900 E

834100 E

840800 N

840600 N

LEGEND:

GAZETTE BOUNDARY

SHA TAU KOK ROAD - LUNG YEUK TAU

SAN WAI BARRACKS

新圍軍營

CYCLE TRACK

END OF CYCLE TRACK

4m MIN.

END OF CYCLE TRACK

LING MUT ROAD

APPROX. 110m

7.3m

3m

2m

2m

3.5m

FOOTPATH

FOOTPATH

CYCLE TRACK

APPROX. 30m

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A	AUG. 15	GENERAL REVISION	
-	JUL. 15	MINOR REVISION	

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SCALE 比例
A3 1 : 2000

DIMENSION UNIT 尺寸單位
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PROJECT NO. 項目編號
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CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PRELIMINARY ROADWORKS LAYOUT PLAN

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 3.1B

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

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60340456/TIA/FIGURE 3.3 AND 3.4.

LEGEND:

RE-PROVISIONING OF EXISTING RUN-INS

840650 N

840600 N

CUT LINE A-A
SEE DRAWING NO. 60340456/TIA/FIGURE 3.3

835650 E

835700 E

SHA TAU KOK ROAD - LUNG YEUK TAU

CYCLE TRACK

3.5m

斜路 Ramp

道路 Road

Pond

153

TS

沙頭角公路

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KEY PLAN
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PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED WIDENING OF CYCLE TRACK BETWEEN SUI WAN ROAD AND LUNG MA ROAD

SHEET 1 OF 3

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 3.2

ISO A1 594mm x 841mm

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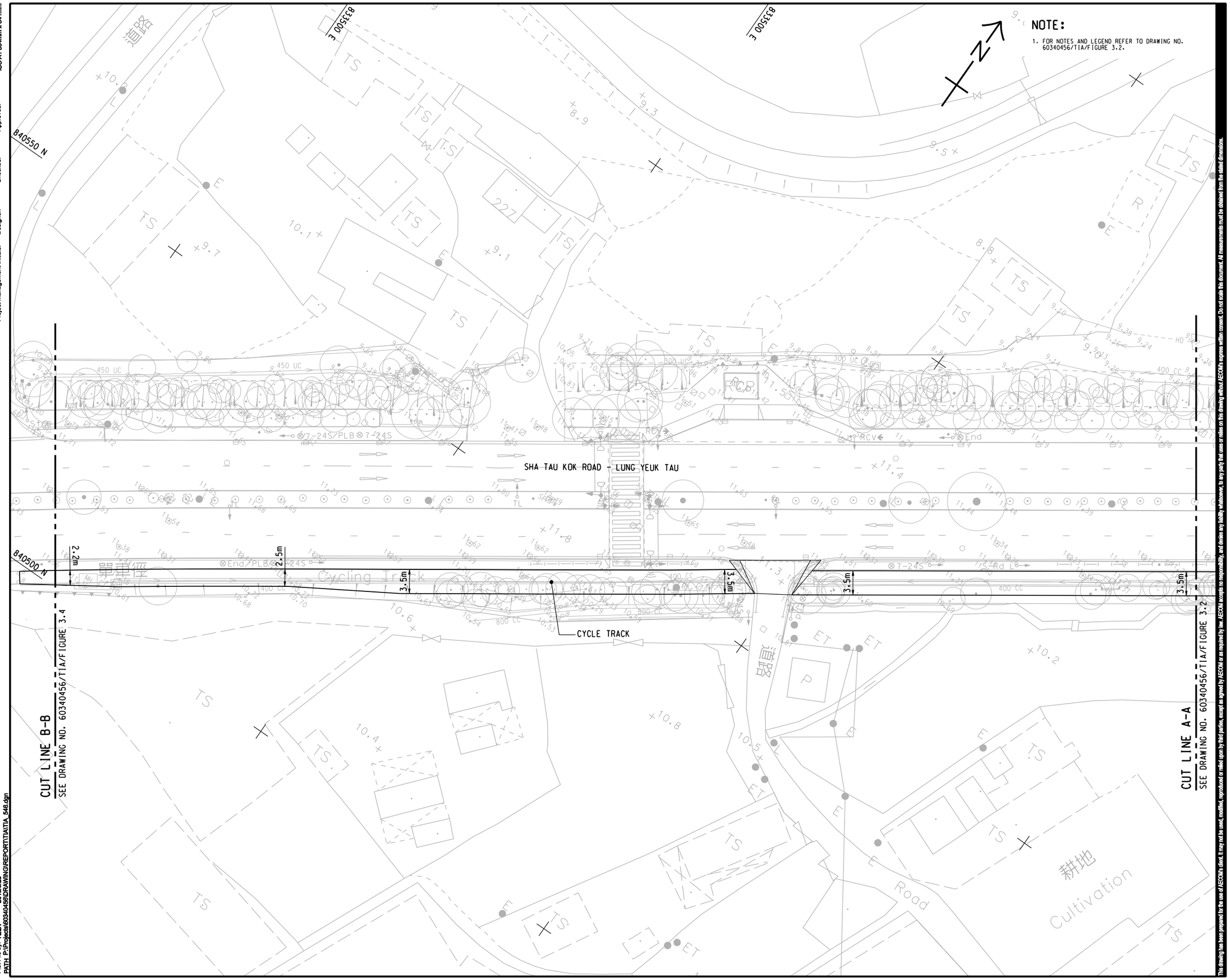
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1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60340456/TIA/FIGURE 3.2.



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KEY PLAN
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PROJECT NO. 項目編號
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CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED WIDENING OF CYCLE TRACK BETWEEN SUI WAN ROAD AND LUNG MA ROAD

SHEET 2 OF 3

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 3.3

ISO A1 594mm x 841mm

Approved:

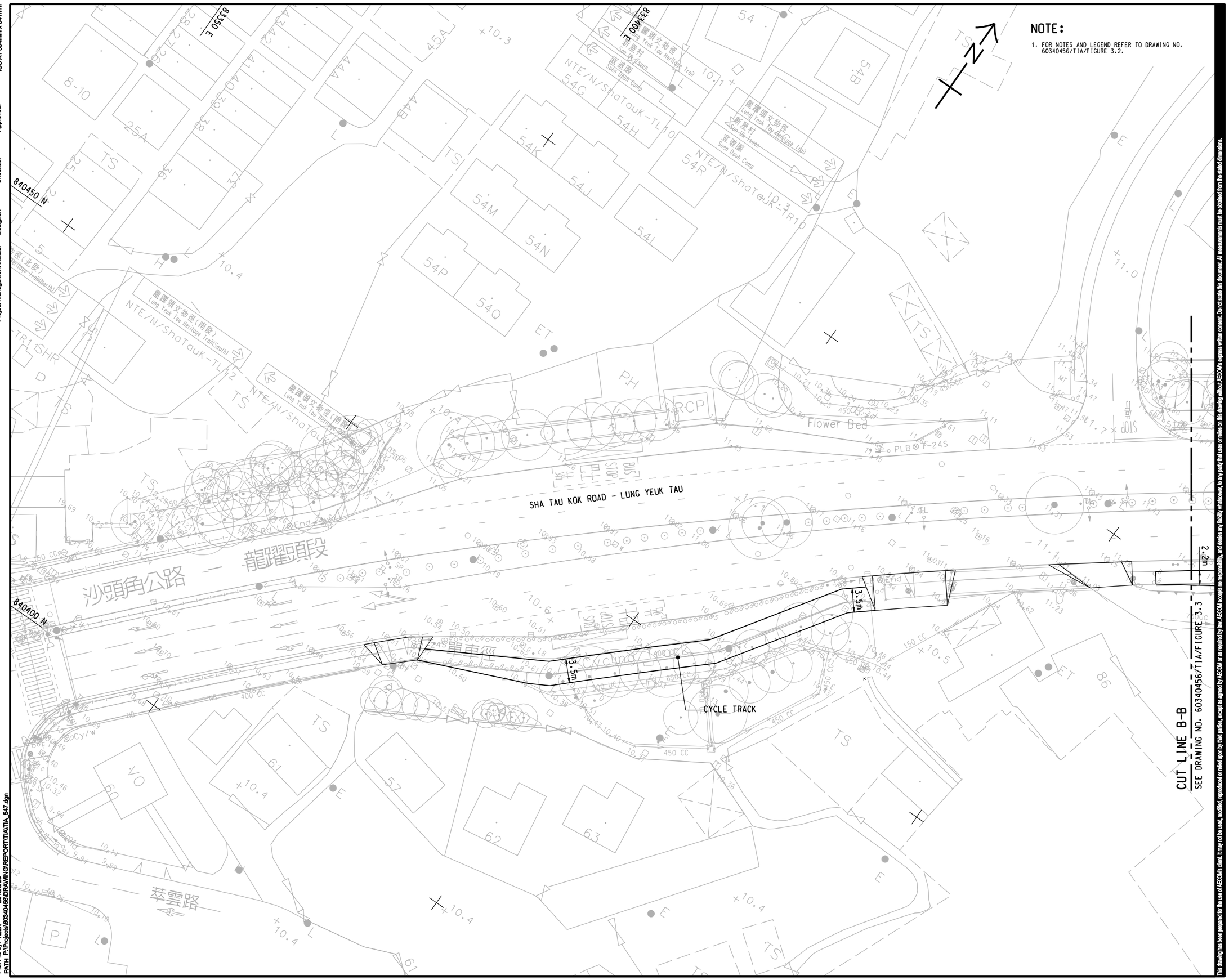
Checked:

Designer:

Project Management Initials:

NOTE:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60340456/TIA/FIGURE 3.2.



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PROJECT
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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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STATUS
狀況

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED WIDENING OF CYCLE TRACK BETWEEN SUI WAN ROAD AND LUNG MA ROAD

SHEET 3 OF 3

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 3.4

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PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_547.dgn

ISO A1 594mm x 841mm

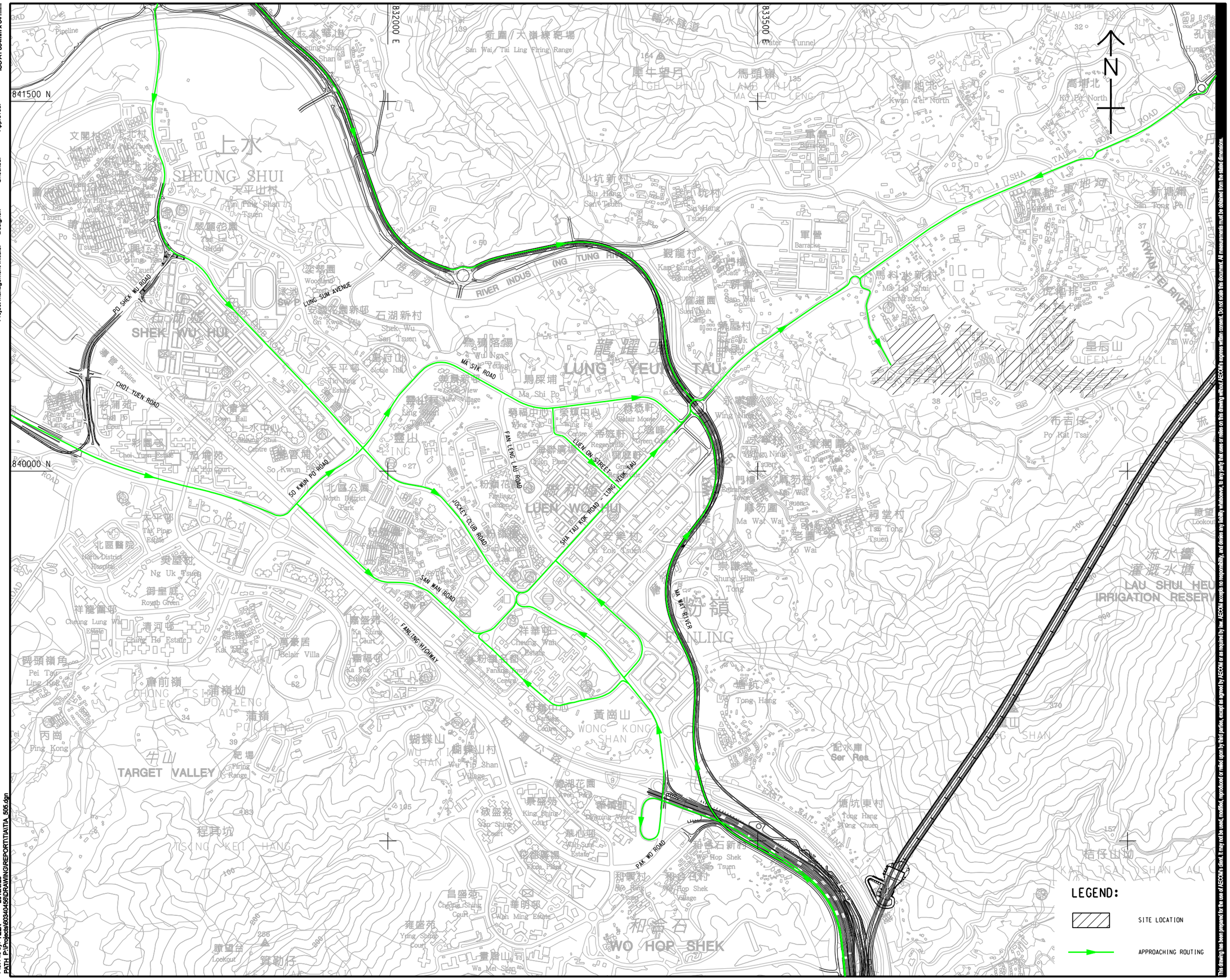
Approved:

Checked:

Designer:

Project Management Initials:

Plot File by: YELX 2015/9/29
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_505.dgn


832000 E
833500 E
841500 N
840000 N
N
SHEUNG SHUI
上水
SHEK WU HUI
LUNG YEUK TAU
龍躍頭
LUEN WO HUI
FANLING
TARGET VALLEY
WONG KONG SHAN
HO PO WOON
QUEEN'S HILL
皇后山
RIVER INDUS (NG TUNG HANG)
KWAN TEI RIVER
MA WAT RIVER
SAN WAI
Sewage Treatment Works
Water Tunnel
Pipeline
Barracks
Cemetery
Refuse Collection Point
Public Toilet
Fire Station
Police Station
Post Office
Town Hall
Sports Ground
Swimming Pool
Pumping Station
Electricity Substation
Gas Governor Station
Petrol Filling Station
Bus Terminus
Minibus Terminus
Taxi Stand
Lookout
Pedestrian Footbridge
Vehicular Footbridge
Underpass
Tunnel
Ferry Pier
Helipad
Helicopter Landing Pad
Church
Temple
Mosque
Monastery
Nunnery
Shrine
Tower
Monument
Cairn
Pagoda
Wayside Shrine
Ancestral Hall
Tsuen Wan Line
Kwun Tong Line
Ma On Shan Line
East Rail Line
West Rail Line
Light Rail Line
Peak Tram
Cable Car
Escalator
Funicular
Aerial Ropeway
Chairlift
Ski Tow
Ski Jump
Toboggan Run
Bobsleigh Run
Luge Run
Dry Ski Slope
Artificial Ski Slope
Golf Course
Golf Driving Range
Golf Tee
Golf Green
Golf Bunker
Golf Hole
Golf Tee
Golf Green
Golf Bunker
Golf Hole
Golf Tee
Golf Green
Golf Bunker
Golf Hole

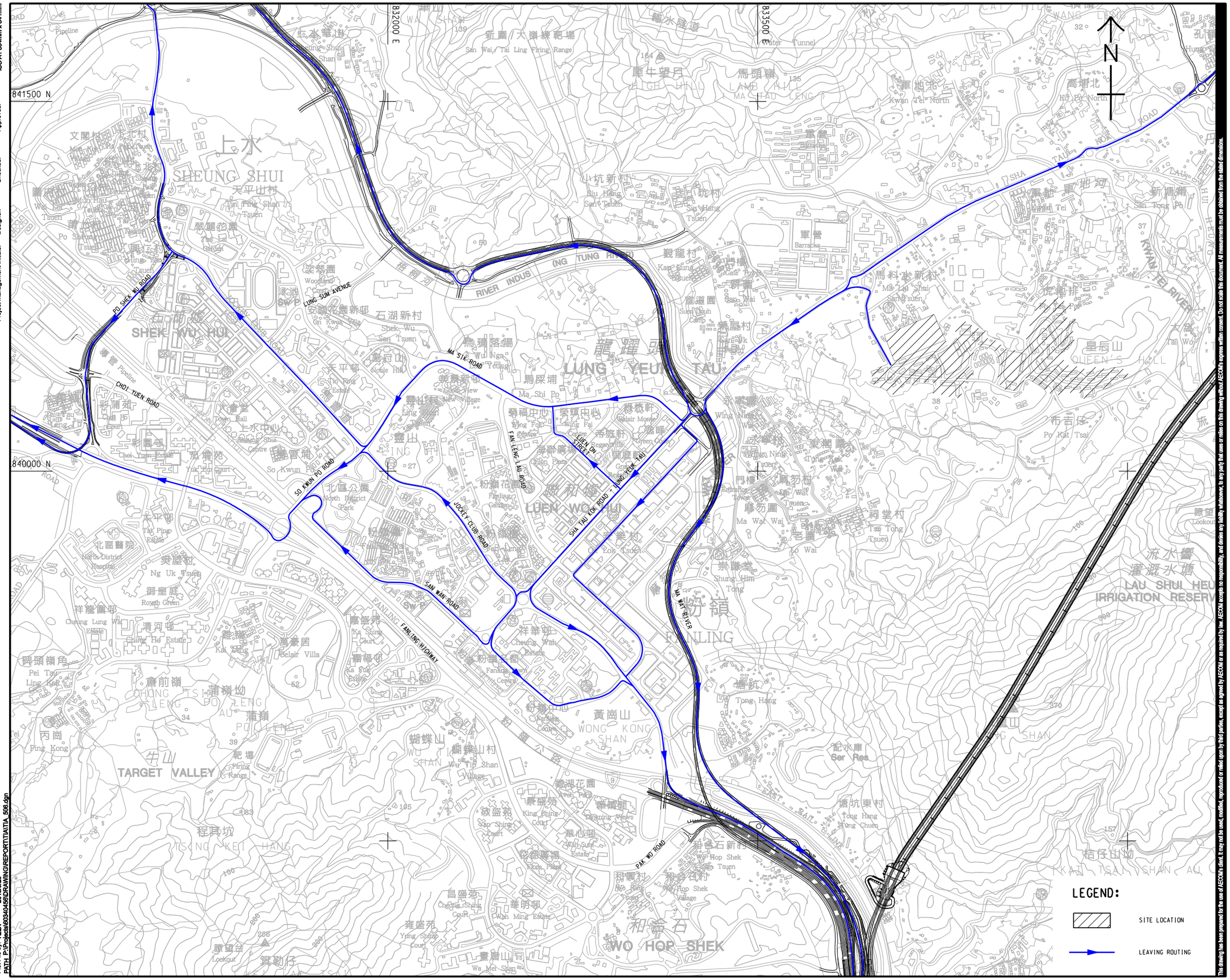
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Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: YELX
2015/9/29
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_506.dgn

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STATUS
階段

SCALE
比例

A3 1 : 14000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60340456

CONTRACT NO.
合約編號

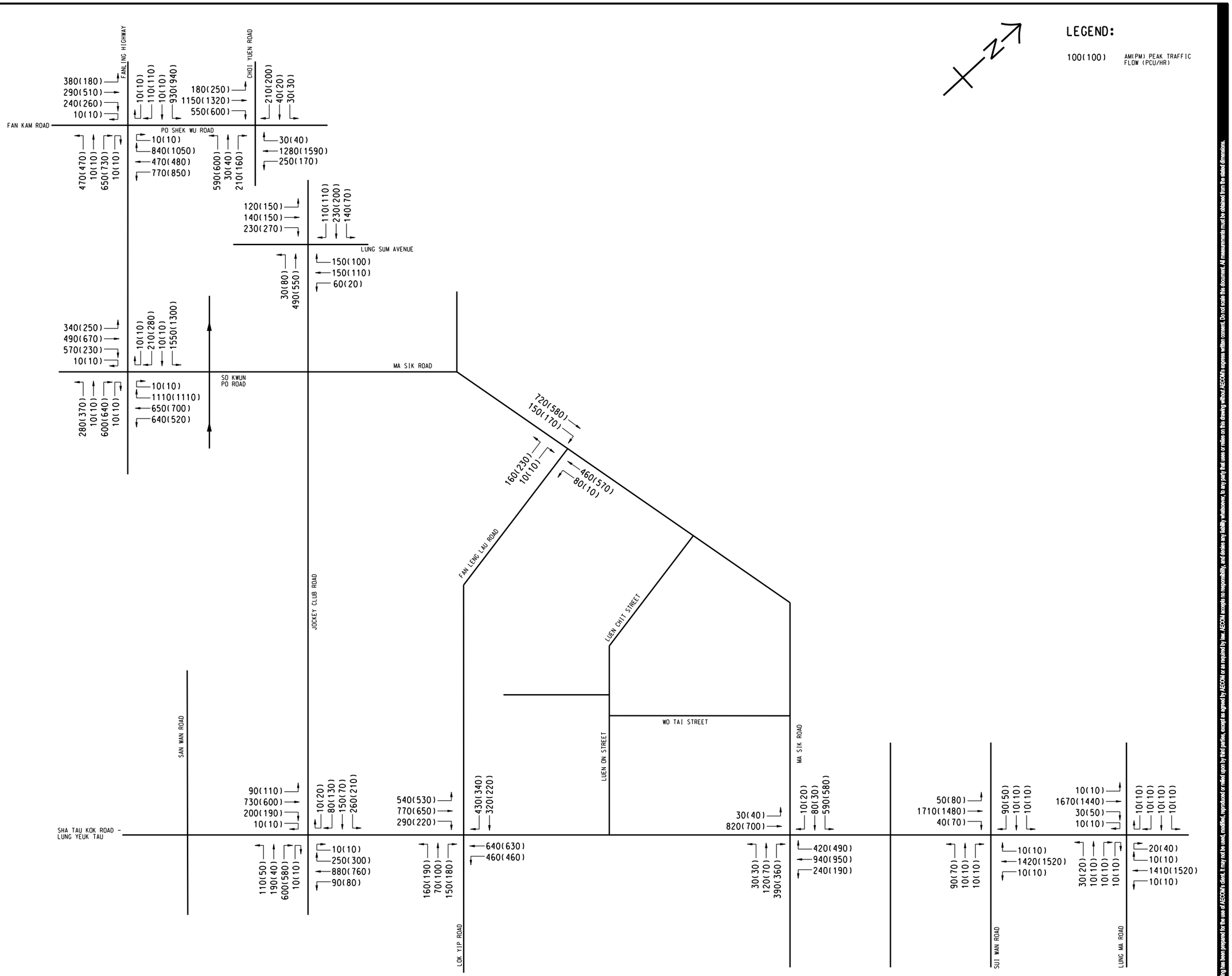
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

VEHICULAR ACCESS ROUTINGS (LEAVING)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 3.6



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

Plot File by: LEIGJS 2015/9/22
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_634.dgn

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階段

SCALE 比例: N.T.S.

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

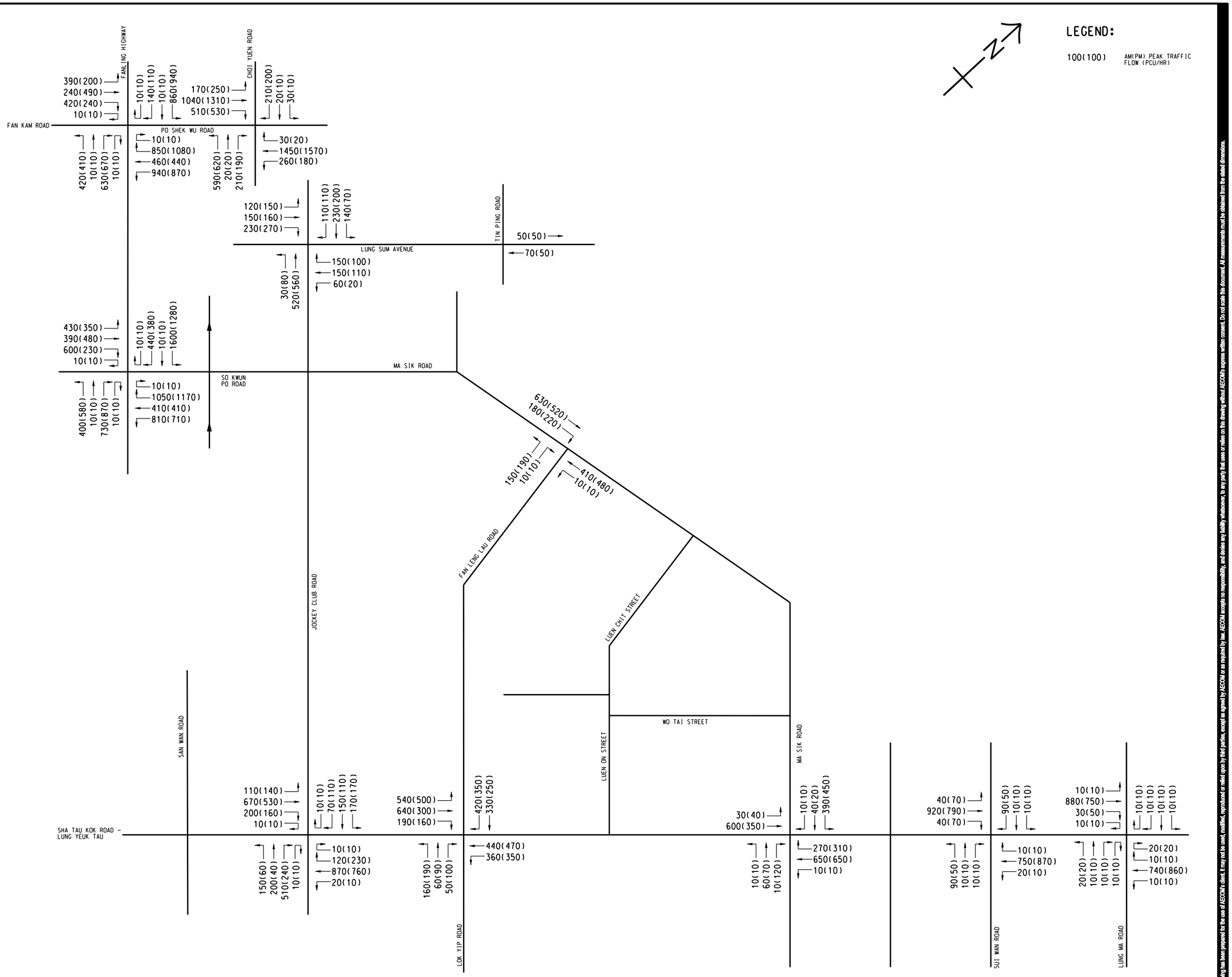
CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2017 REFERENCE TRAFFIC FLOW

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.1



Plot File by: LEIGJS 2015/9/22
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_535.dgn

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

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SCALE 比例
N.T.S.

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

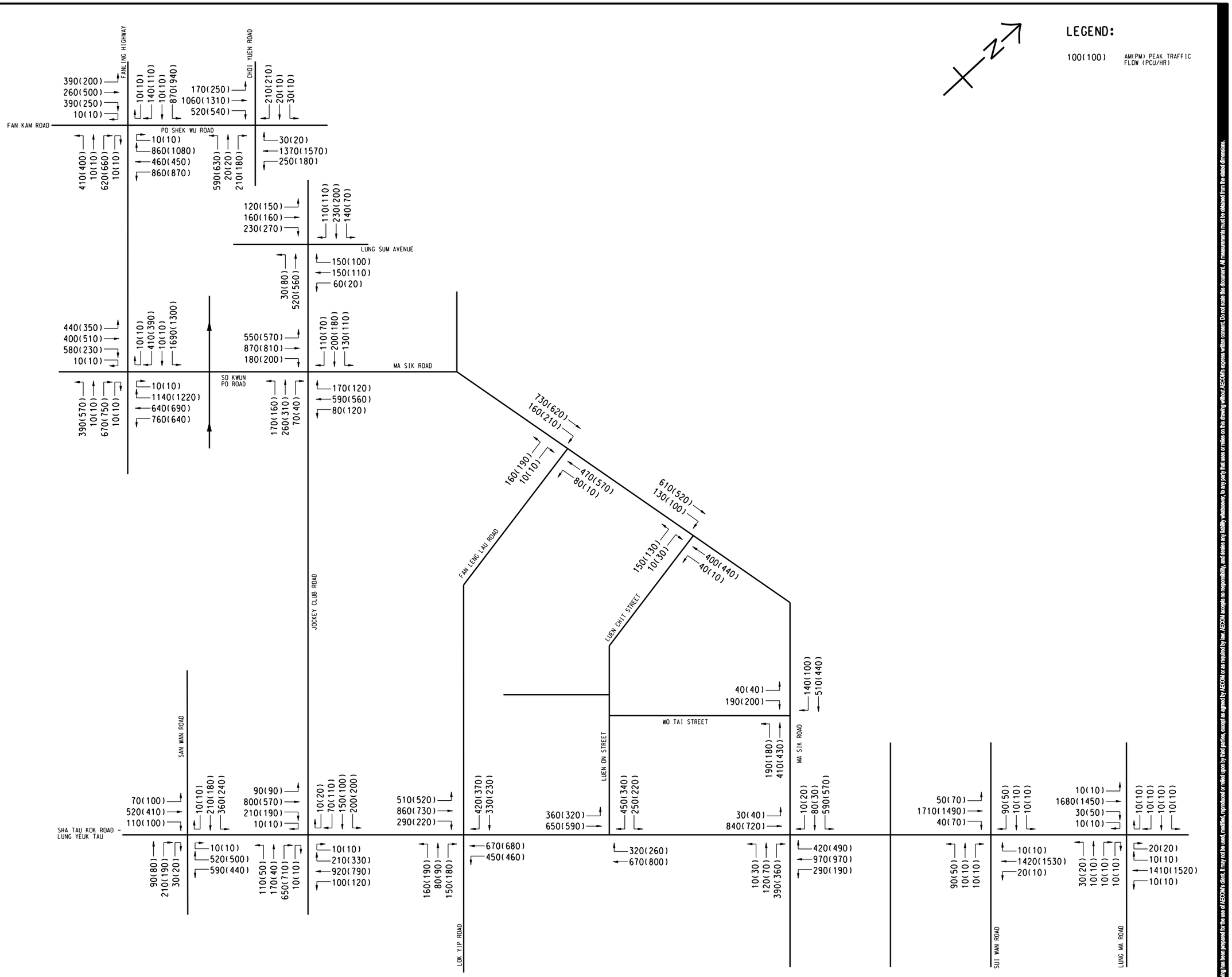
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2019 REFERENCE TRAFFIC FLOW (WITH LIANTANG / HYW BCP)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.2



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

Plot File by: DUW 2015/10/13
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_636.dgn

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現狀

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

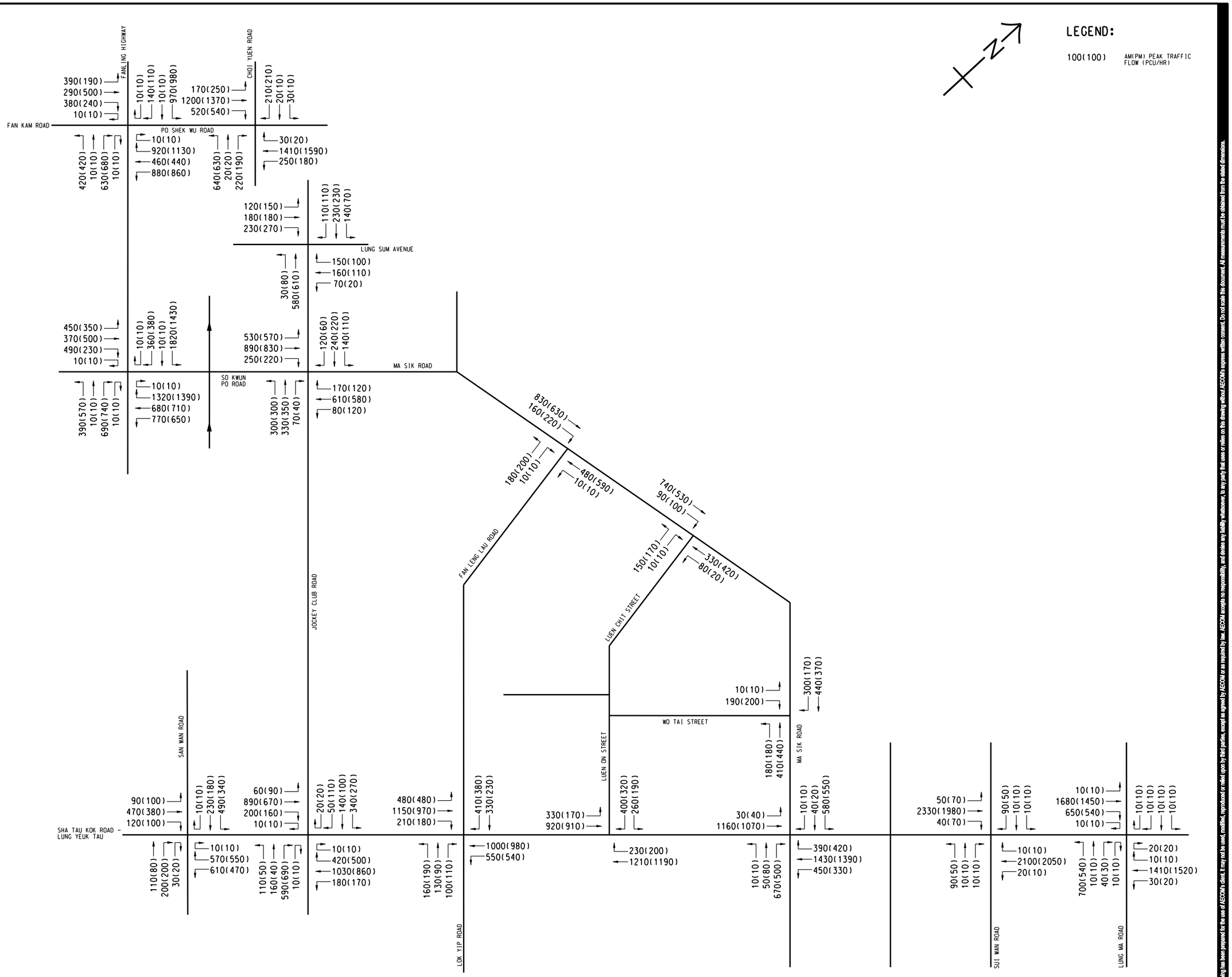
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2020 REFERENCE TRAFFIC FLOW (WITHOUT LIANTANG / HYW BCP)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.3



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

Plot File by: DUW 2015/10/13
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現狀

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

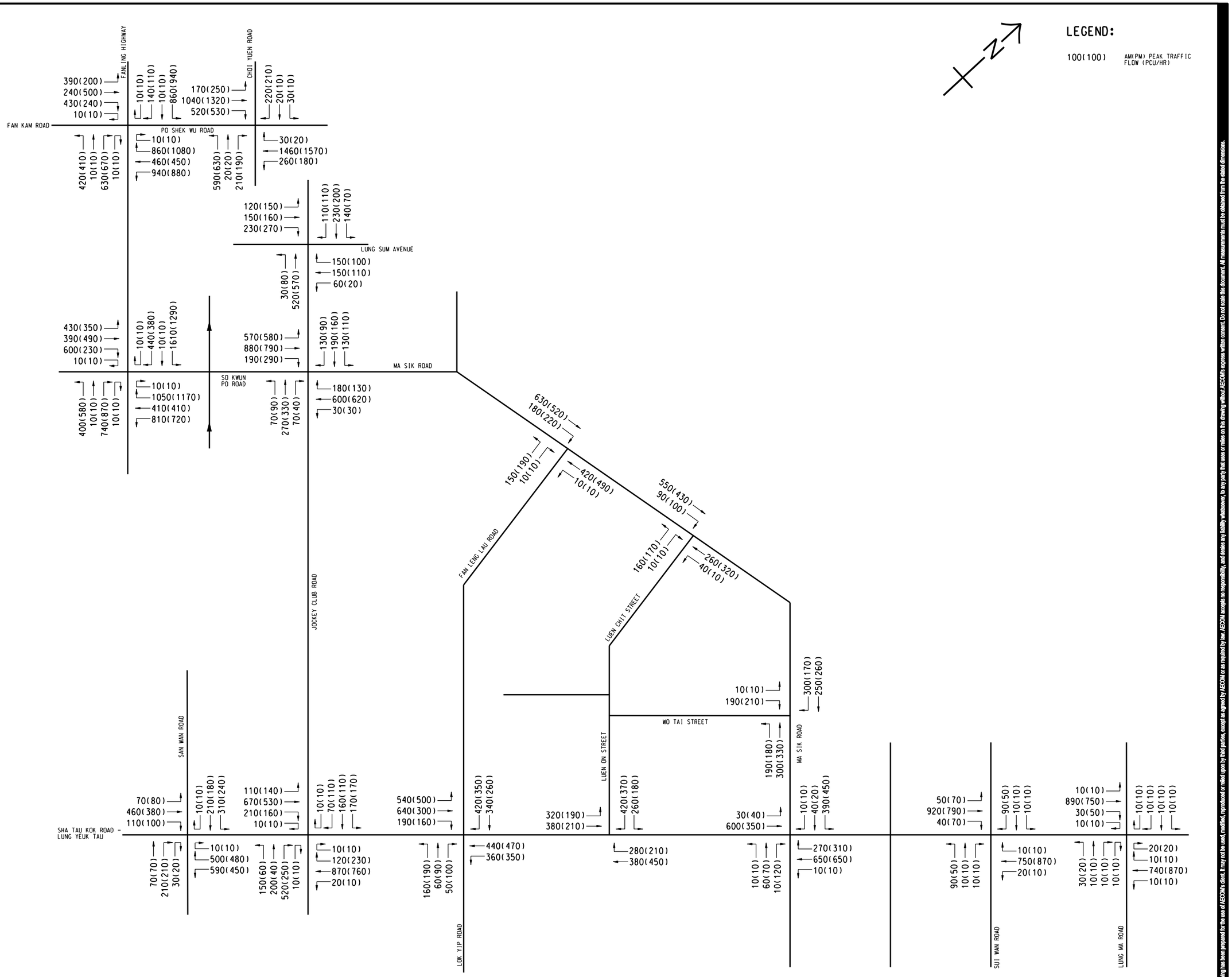
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2020 DESIGN TRAFFIC FLOW (WITHOUT LIANTANG / HYW BCP)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.4



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階段

SCALE 比例 — A3 1 : 2000

DIMENSION UNIT 尺寸基位 — METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號 — 60340456

CONTRACT NO. 合約編號 — CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

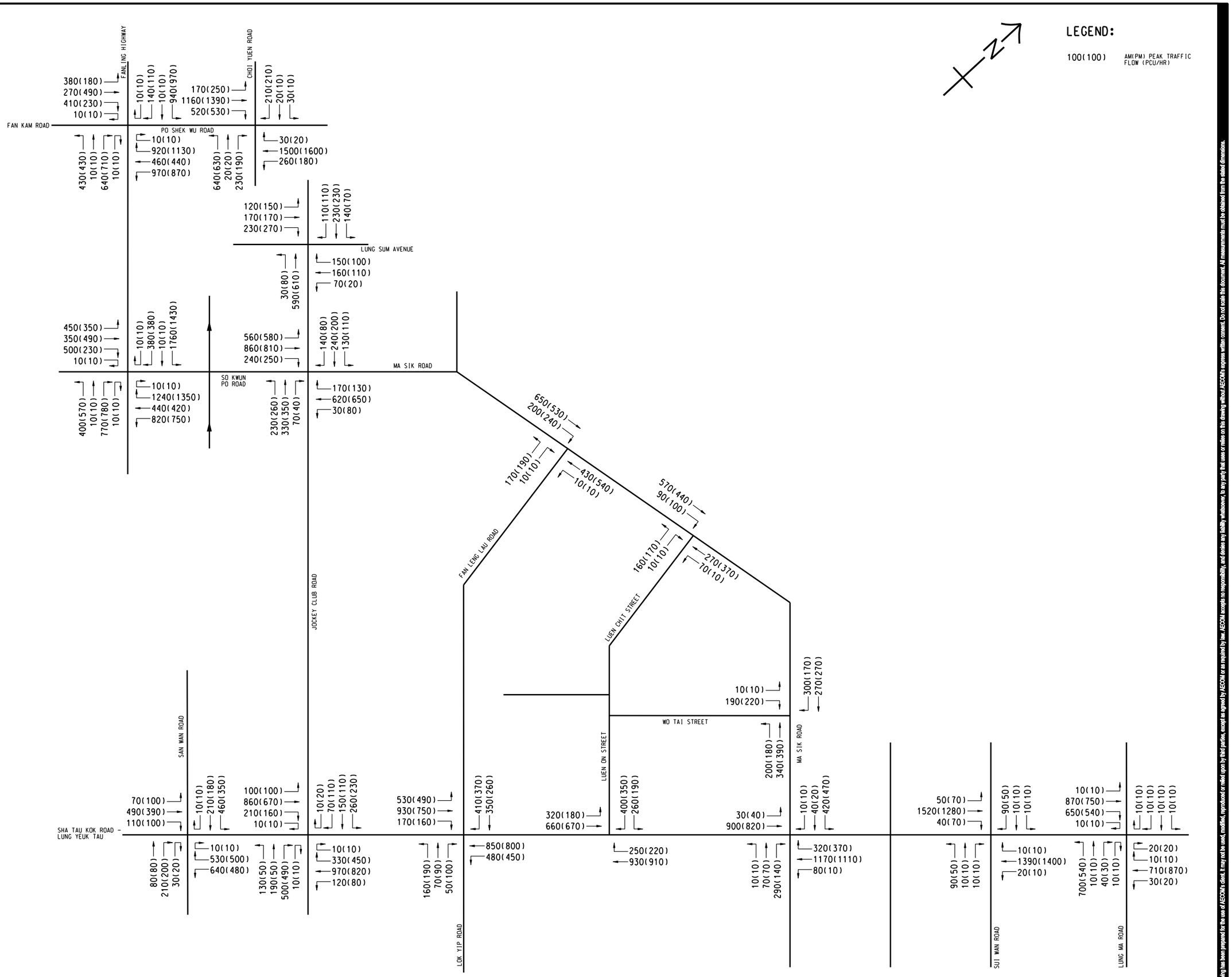
PREDICTED YEAR 2020 REFERENCE TRAFFIC FLOW (WITH LIANTANG / HYW BCP)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.5

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

Plot File by: LEIGJS 2015/9/22
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_638.dgn



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

Plot File by: DUW 2015/10/13
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_fig4.6.dgn

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階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

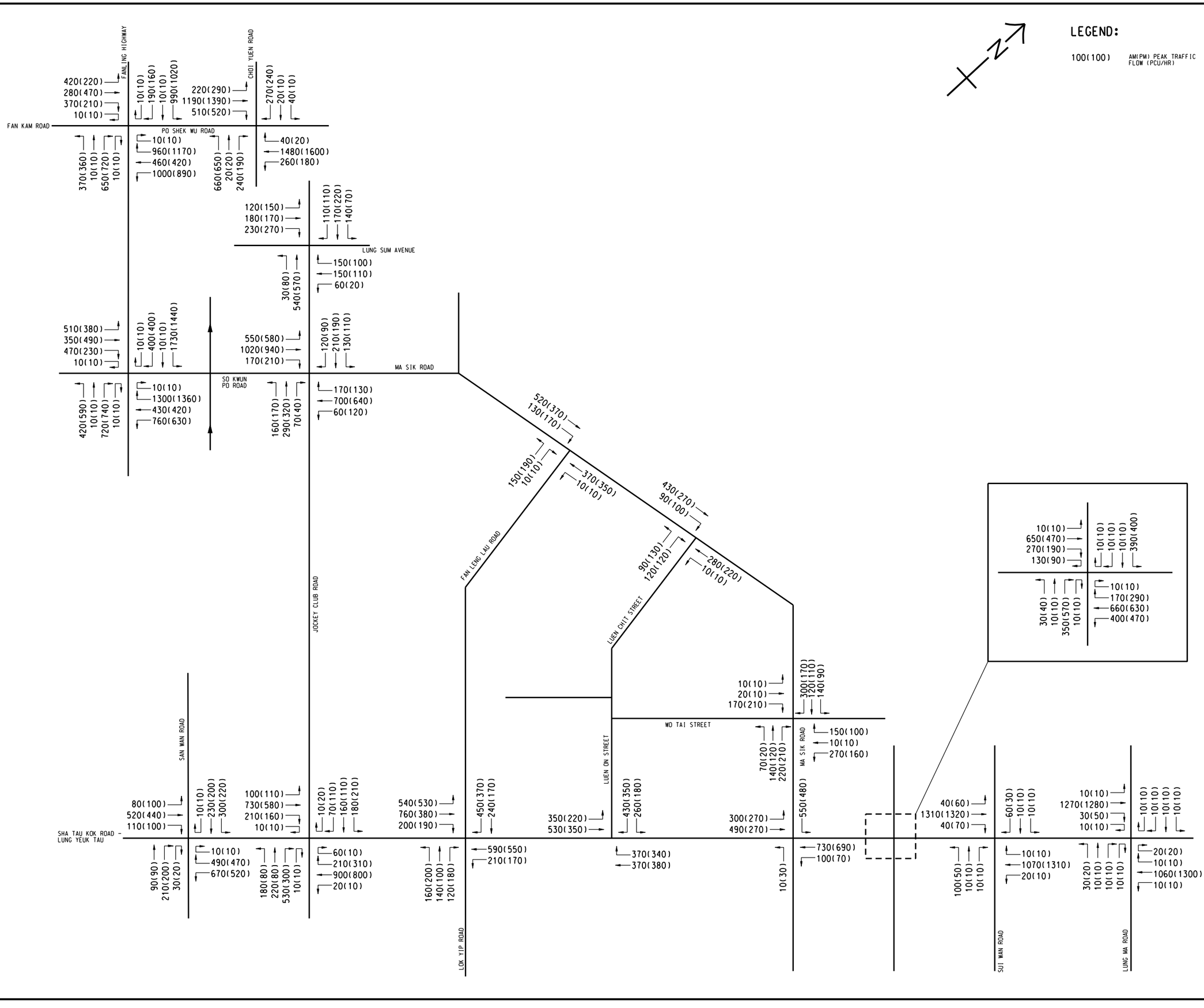
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2020 DESIGN TRAFFIC FLOW (WITH LIANTANG / HYW BCP)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.6



Plot File by: LEIGJS 2015/9/22
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ISO A1 594mm x 841mm

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SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

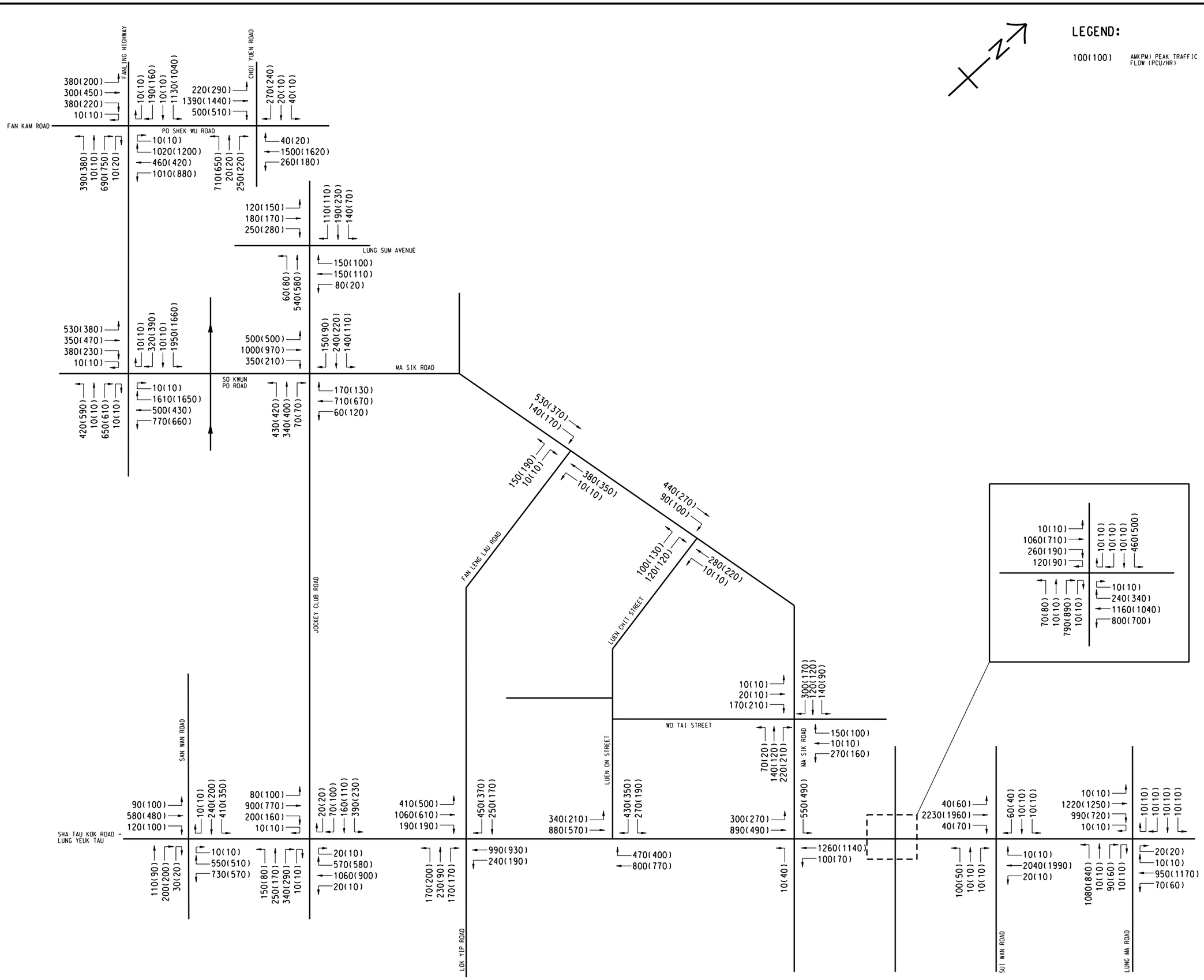
KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱
PREDICTED YEAR 2026 REFERENCE TRAFFIC FLOW

SHEET NUMBER
圖紙編號
60340456/TIA/FIGURE 4.7



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

Plot File by: YELX 2015/10/19
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現狀

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

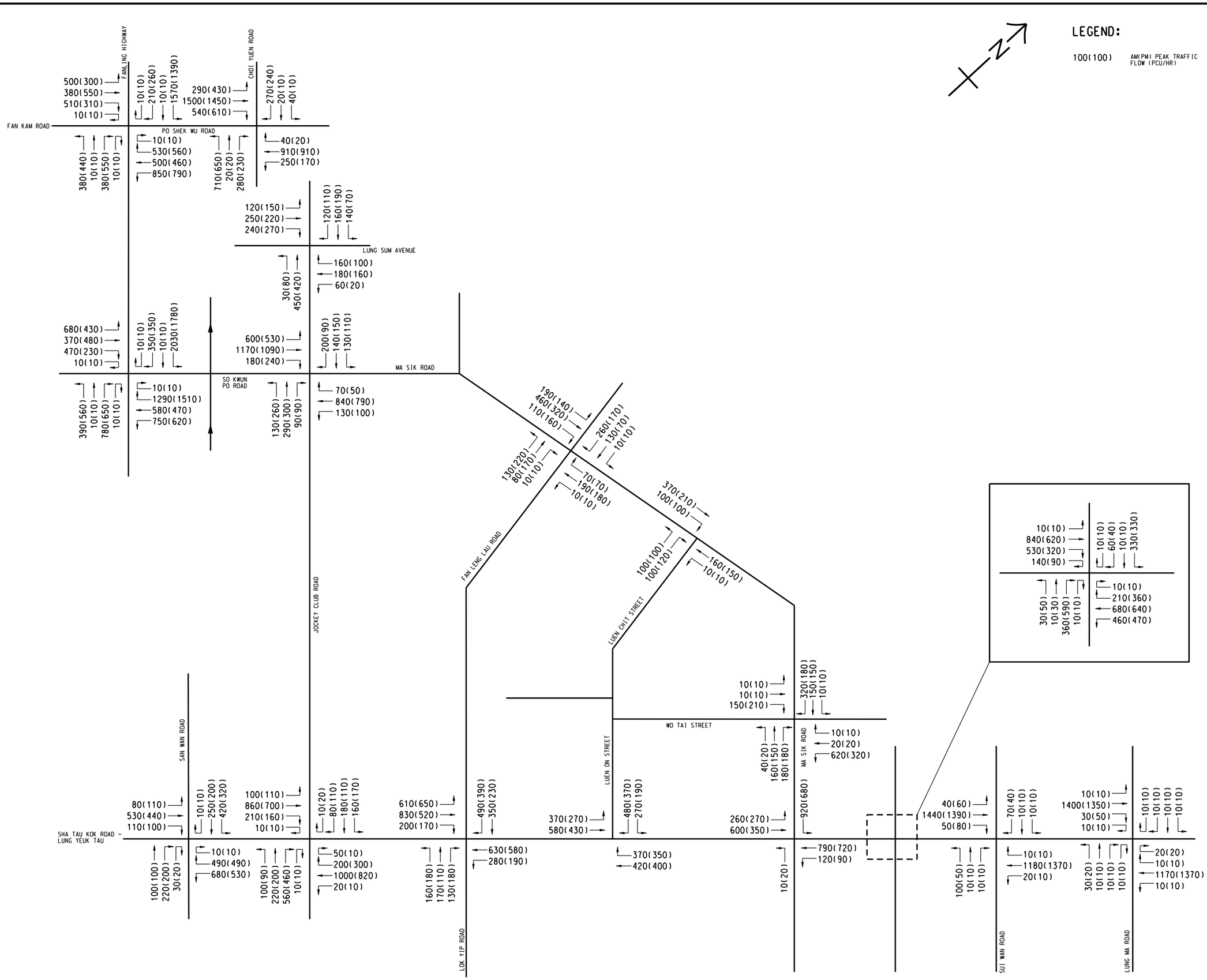
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2026 DESIGN TRAFFIC FLOW

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.8



Plot File by: LEIGUS 2015/9/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_542.dgn

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狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

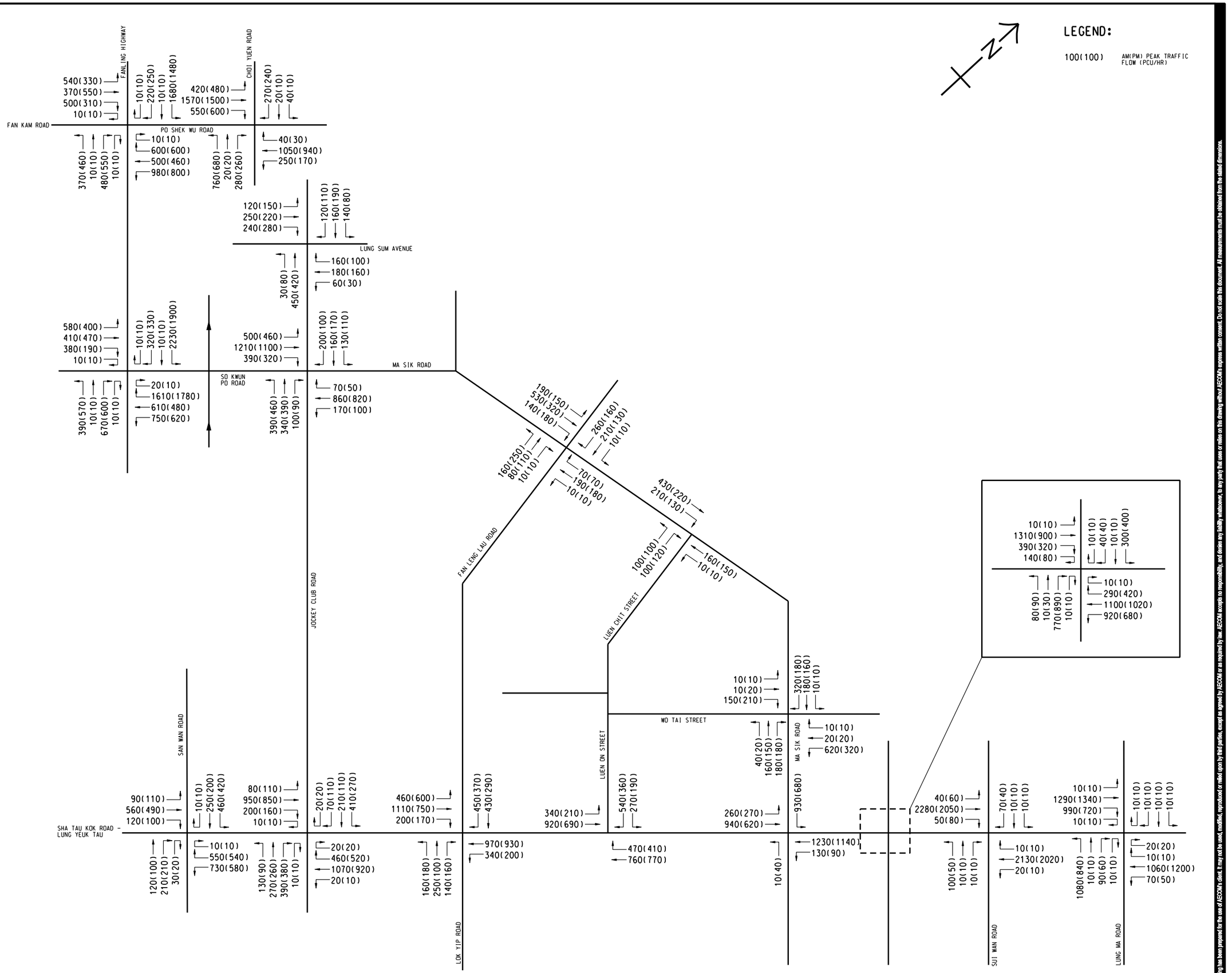
CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2031 REFERENCE TRAFFIC FLOW

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.9



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

Plot File by: LWV 2015/10/20
PATH: P:\PROJECTS\60340456\DRAWING\REPORT\TIA\TIA_543.dgn

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CEDD Civil Engineering and Development Department

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

STATUS
狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PREDICTED YEAR 2031 DESIGN TRAFFIC FLOW

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 4.10

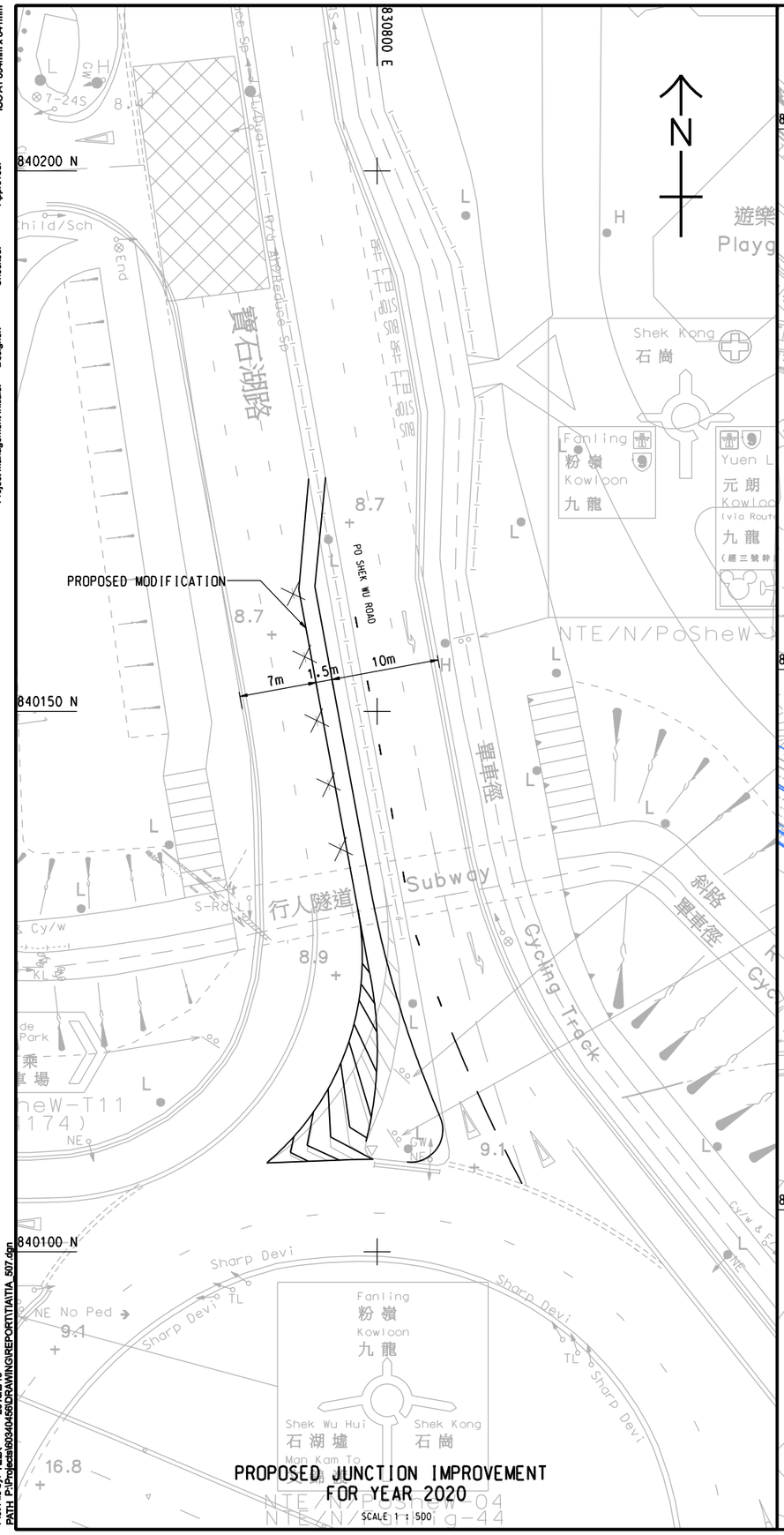
ISO A1 594mm x 841mm

Approved:

Checked:

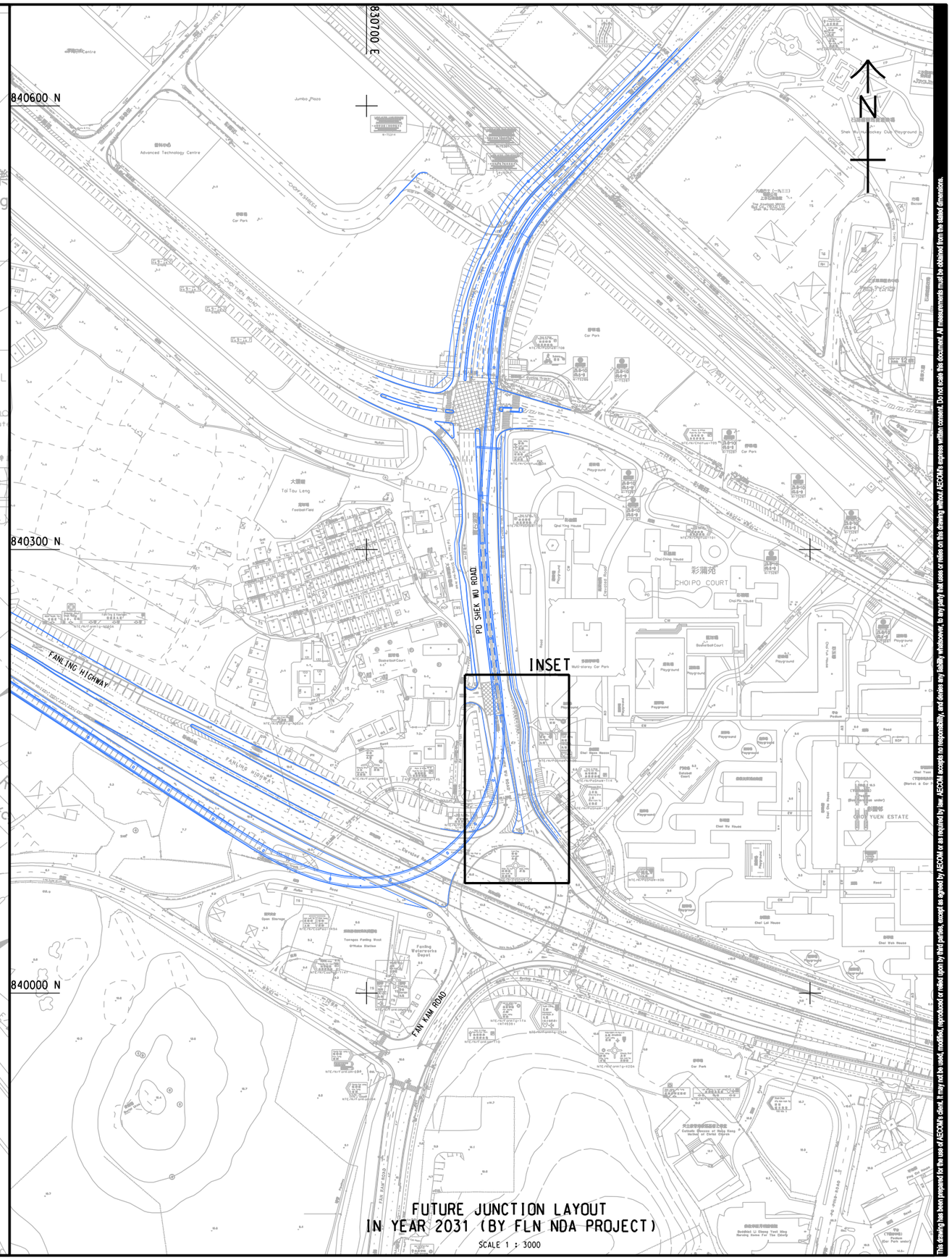
Designer:

Project Management Initials:



PROPOSED JUNCTION IMPROVEMENT
FOR YEAR 2020

SCALE 1 : 500



FUTURE JUNCTION LAYOUT
IN YEAR 2031 (BY FLN NDA PROJECT)

SCALE 1 : 3000

Plot File by: YELX 2016/2/15
PATH: J:\Projects\60340456\DRAWING\REPORT\TIA\TIA_507.dgn

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A	OCT. 15	GENERAL REVISION	
-	MAY. 15	FIRST ISSUE	

STATUS
狀況

SCALE
比例

AS SHOWN

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60340456

CONTRACT NO.
合約編號

CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J1

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.1A

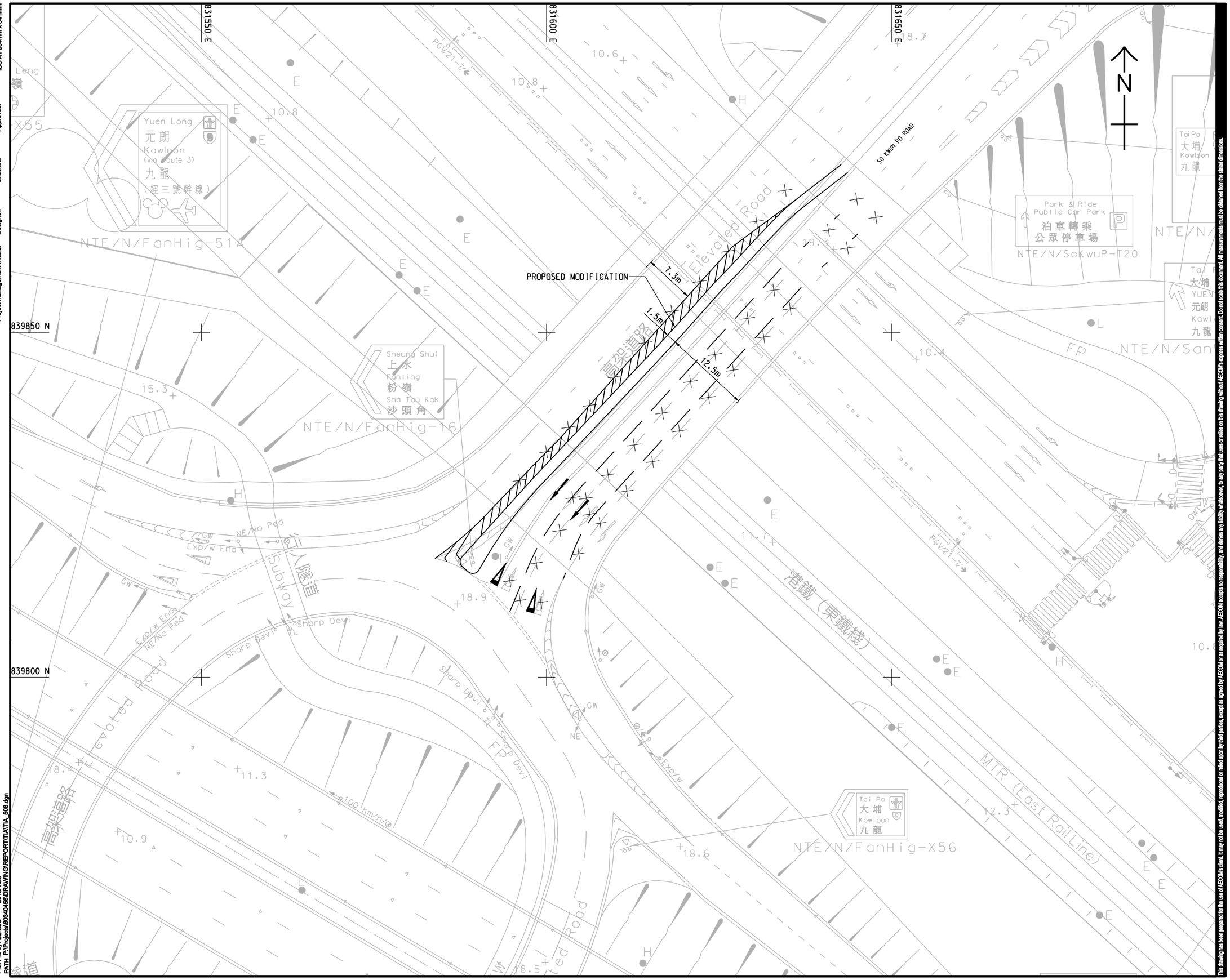
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LEIGJS 2015/10/8
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_508.dgn

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A	OCT. 15	GENERAL REVISION	
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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J2

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.2A

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

831850 E

831900 E

831950 E

840100 N

840050 N

NOTE:

1. IMPROVEMENT PROPOSED TO BE UNDERTAKEN BY FLN NDA PROJECT.

N

JOCKEY CLUB ROAD

MA SIK ROAD

SO KWUN PO ROAD

單車徑 Cycling Track

馬適路

隧道 Subway

馬會道

斜路

North District Hospital 北區醫院

Park & Ride Public Car Park 泊車轉乘公眾停車場

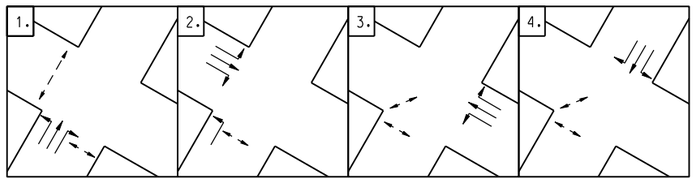
NTE/N/MaSj'k-01B

NTE/N/MaSik-T03

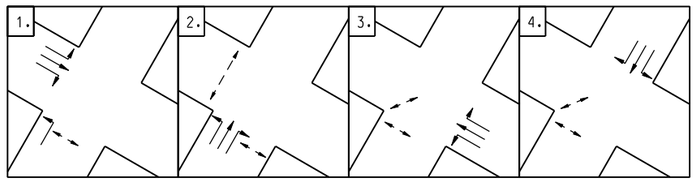
NTE/N/JocClu-32 (NT4340)

NTE/N/JocClu-T41

EXISTING METHOD OF CONTROL



PROPOSED METHOD OF CONTROL



Plot File by: TANWT 2015/5/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_500.dgn

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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

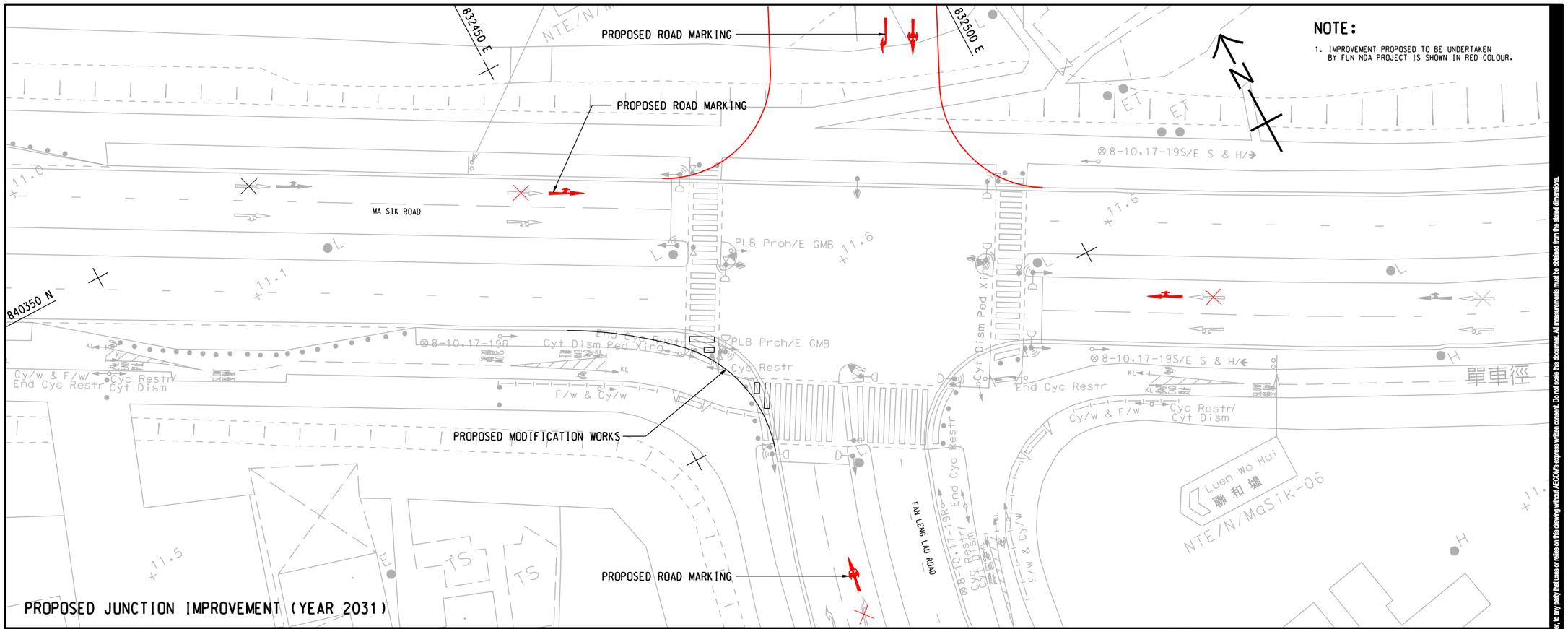
PROJECT NO. 項目編號
60340456

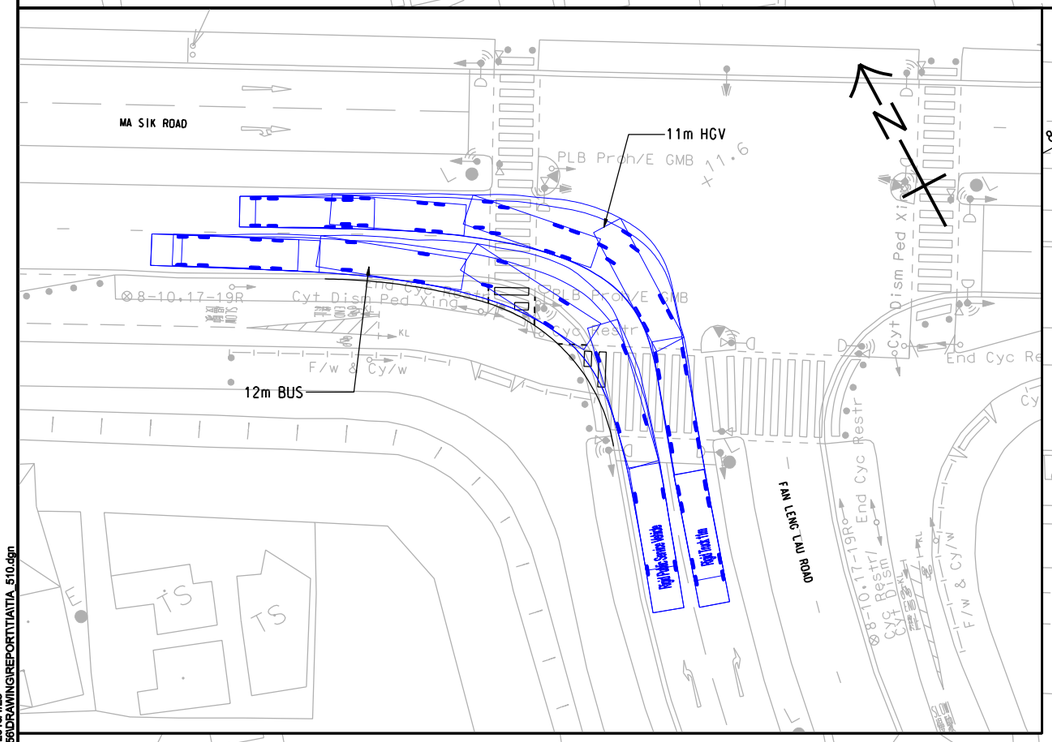
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱
PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J3 (YEAR 2026)

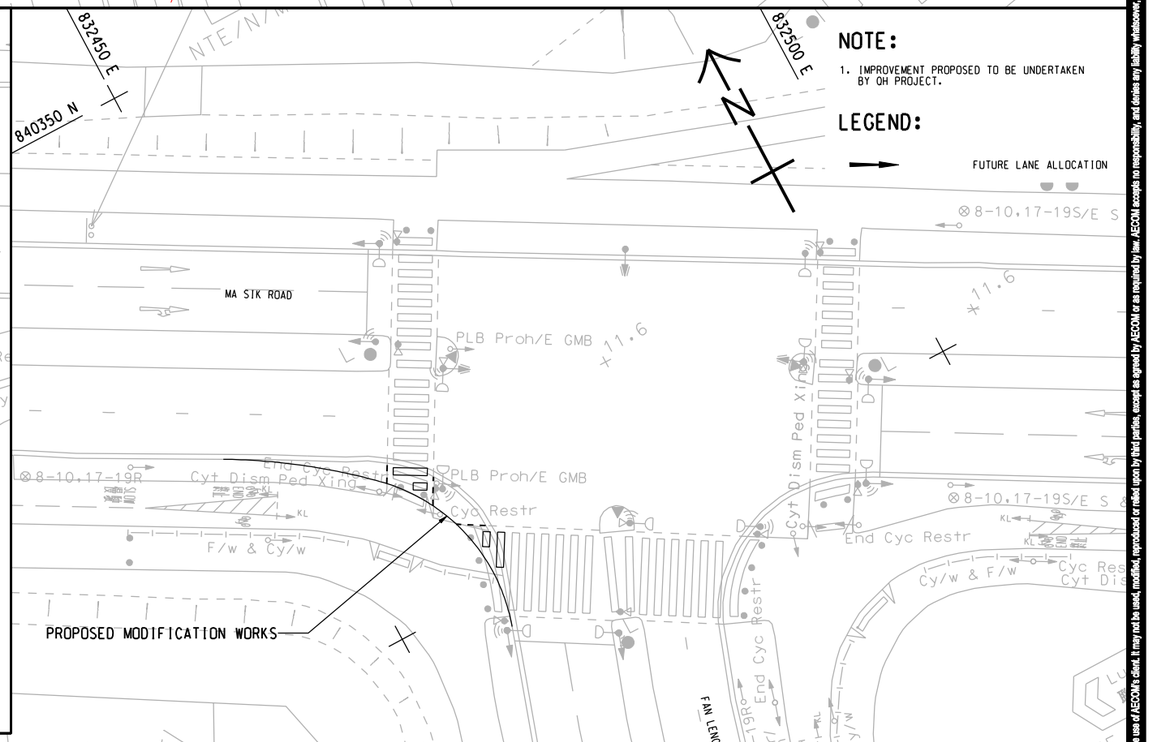
SHEET NUMBER 圖紙編號
60340456/TIA/FIGURE 5.3

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





SWEPT PATH ANALYSIS
SCALE A3 1 : 500



PROPOSED JUNCTION IMPROVEMENT (YEAR 2020)

Plot File by: YELX 2016/1/28
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_510.dgn

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C	JAN. 16	MINOR REVISION	
B	DEC. 15	MINOR REVISION	
A	OCT. 15	MINOR REVISION	
-	MAY. 15	FIRST ISSUE	

STATUS
階段

SCALE 比例: A3 1 : 500
DIMENSION UNIT 尺寸基位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456
CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J4

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.4C

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

832600 E | 832650 E | 832700 E

N

840300 N

840250 N

840200 N

馬屎埔
Ma Shi Po

MA SIK ROAD

聯捷街
LUEN CHIT STREET

第5座
TOWER 5

第6座
TOWER 6

第1座
TOWER 1

榮福中心
Wing Fok Centre

RCP

8-10,17-19R/E S & H

Cyt Dism Ped Xing

End Cyc Restr

Cyc Restr

F/w & Cy/wo

Cy/w & F/w

Length 12 m

Taxi

FP 524

8.0 | 8.2 | 8.8 | 11.6 | 11.9 | 12.1 | 12.2 | 12.5 | 12.9

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PROJECT 項目

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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

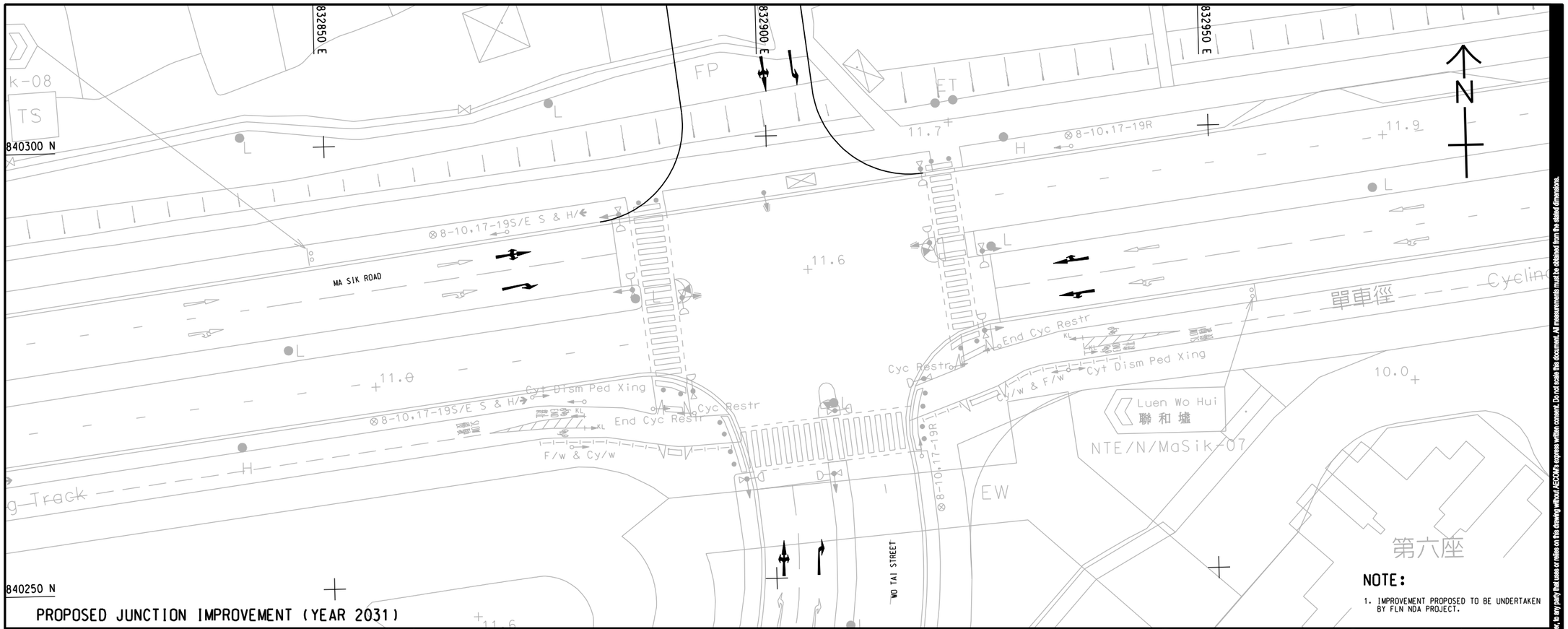
SHEET TITLE 圖紙名稱
EXISTING JUNCTION LAYOUT OF JUNCTION J5

SHEET NUMBER 圖紙編號
60340456/TIA/FIGURE 5.5

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Plot File by: LEIGJS 2015/10/29
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_511.dgn

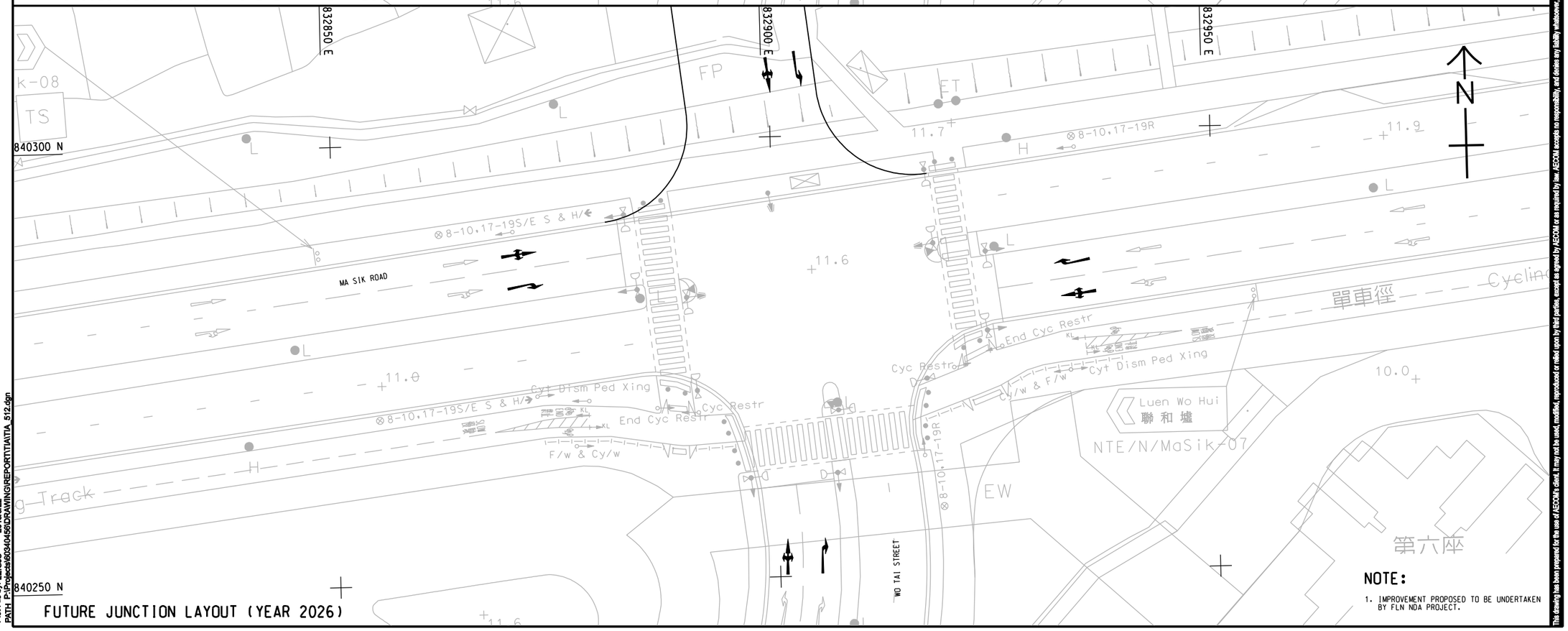
ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:



PROPOSED JUNCTION IMPROVEMENT (YEAR 2031)

NOTE:

1. IMPROVEMENT PROPOSED TO BE UNDERTAKEN BY FLN NDA PROJECT.



FUTURE JUNCTION LAYOUT (YEAR 2026)

NOTE:

1. IMPROVEMENT PROPOSED TO BE UNDERTAKEN BY FLN NDA PROJECT.

Plot File by: LEIGJS 2015/5/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_512.dgn

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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J6

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.6

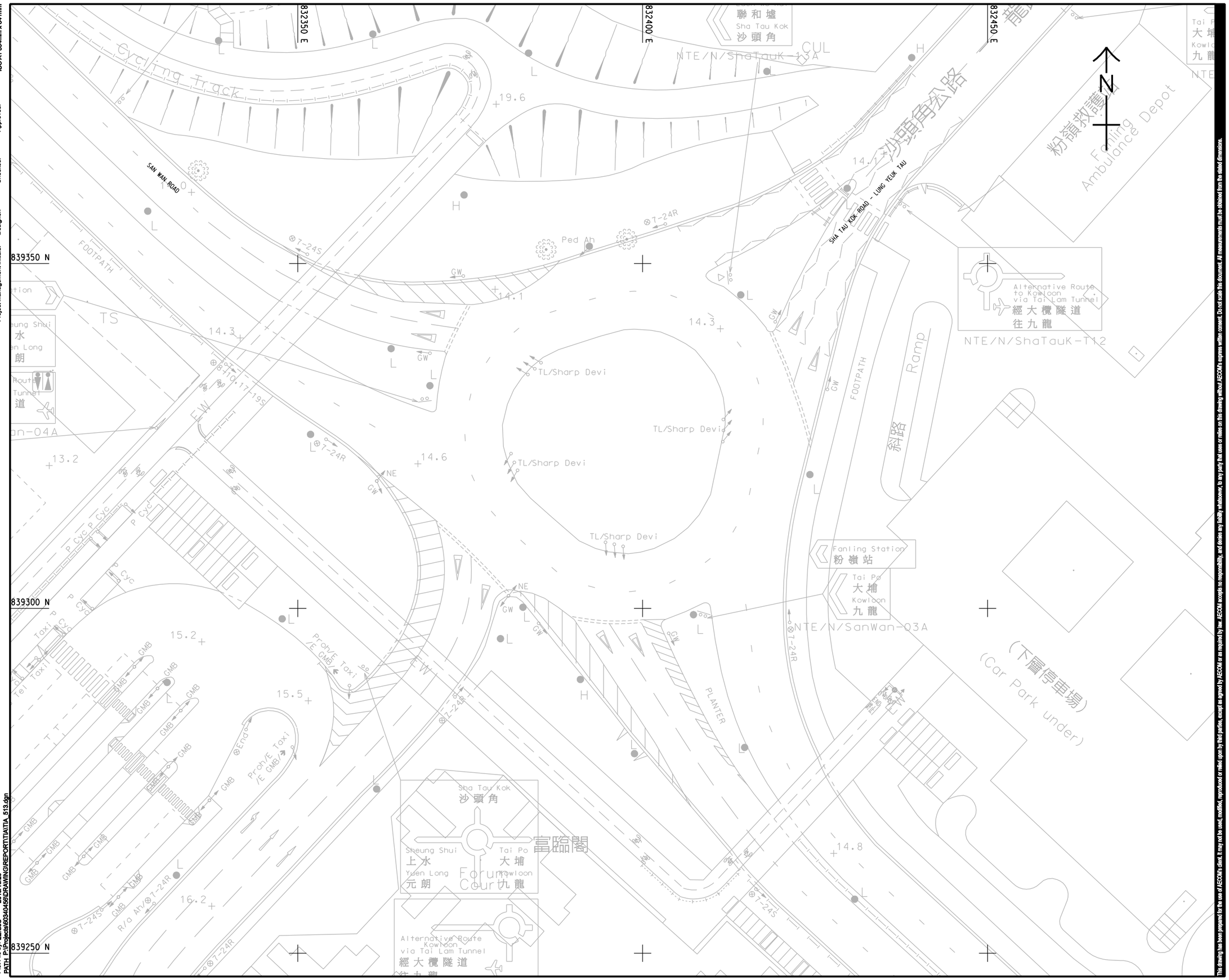
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LEIGJS 2015/10/20
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_513.dgn

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STATUS
狀態

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT OF JUNCTION J7

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.7

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

832500 E | 832550 E | 832600 E

839500 N

839450 N

JOCKEY CLUB ROAD

SHA TAU KOK ROAD - LUNG YEUK TAU

Lung Yeuk Tau Heritage Trail 龍躍頭文物徑

NTE/N/JocClu-37

Luen Wo Hui 聯和墟

Sha Tau Kok 沙頭角

香港海關邊境及口岸科總部

Hong Kong Customs and Excise Department Control Point Command Headquarters

NTE/N/HocLuo-20

龍躍頭段

單車徑 Cycling Track

Rd Ah F/w & Cy/w

行人隧道 Subway

沙頭角公路

North District Park 北區公園

Sheung Shui 上水

Man Kam To 文錦渡

NTE/N/JocClu-19B

前粉嶺裁判署

Former Fanling Magistracy

302

PROPOSED MODIFICATION WORKS

Park & Ride Public Car Park 泊車轉乘公眾停車場

NTE/N/ShaTauK-T61

Sharp Devi

Fanling Station 粉嶺站 Yuen Long 元朗

North District Park 北區公園

NTE/N/ShaTauK-10B

遊樂場 Playground

Ramp

Tai Po 大埔 Kowloon 九龍

NTE/N/JocClu-44

上水分區警署 Sheung Shui Divisional Police Station

Cycling Track

Rd Ah

PLB Proh/E GMB/

GW/50 km/h

Ped Ah

Sheung Shui 上水 Man Kam To 文錦渡

N

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PROJECT 項目

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STATUS 階段

SCALE 比例 A3 1 : 500

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60340456

CONTRACT NO. 合約編號 CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J8

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 5.8

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Plot File by: LEIGJS 2015/10/28
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_514.dgn

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

832600 E

832650 E

832700 E

839650 N

839600 N

839550 N

FAN LENG LAU ROAD

沙頭角公路

LOK YIP ROAD

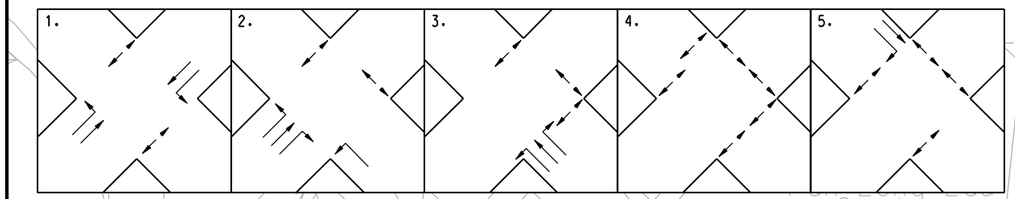
SHA TAU KOK ROAD - LUNG YEUK TAU

2-HOUR METERS (CARD-OPERATED)
Operating from 8am to 8pm daily except general holidays
On general holidays operating from 10am to 10pm
In case of meter defects Tel. 23180616
The meter number marked on the post must be given
二小時停車錶（只收儲值卡）
除公眾假期外每日收費由上午八時至下午八時
公眾假期收費由上午十時至下午十時
如錶失靈請電電話23180616 並需聽明錶柱號碼

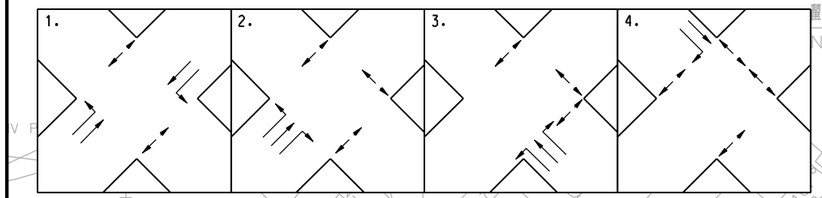
N-TS106

N-TS107

EXISTING METHOD OF CONTROL



PROPOSED METHOD OF CONTROL



PROPOSED MODIFICATION WORKS FOR REFUGE ISLAND

PROPOSED FOOTPATH

PROPOSED CYCLE TRACK

Alternative Route to Kowloon via Tai Lam Tunnel
經大欖隧道往九龍

NTE/N/ShaTauK-T26

NTE/N/ShaTauK-T17

龍昌大廈 Lung Cheong Building

粉嶺污水抽水站 Fanling Sewage Pumping Station

安樂村 On Lok Tsuen

Fanling Station 粉嶺火車站

Yuen Long 元朗

Tai Po 大埔 Kowloon 九龍

Wutongshui To 文錦渡

Lung Yeuk Tau Heritage Trail 龍頭文物徑

Fanling Sitting-Out Area

Public Car Park 泊車轉乘公眾停車場

Cycling Track

Filter Bed

FOOTPATH

Ramp 斜路

Rd Ah/Sch

Tr Sg Ah

Cyc Track

Cyc Trk

Cyc Lane

Cyc Ped Xing

Dism Ped Xing

End Cyc Restr

Cyc Restr

Cy/w & F/w

Cy/w

F/w & Cy/w

Stop/IL/Dual

Reduce Sp

3m Ah/Sch/Reduce Sp

R/a Ah/Reduce Sp

Ped Xing

Dism Ped Xing

NLT

NUT

KL

KR

P

L

H

SHR

Ah/Sch

Ah/Sch/Reduce Sp

Ah/Sch/Stop/IL/Dual

Ah/Sch/Stop/IL/Dual/Reduce Sp

Ah/Sch/Stop/IL/Dual/Reduce Sp/Cy/w & F/w

Ah/Sch/Stop/IL/Dual/Cy/w & F/w

Ah/Sch/Stop/IL/Dual/Cy/w & F/w/Reduce Sp

Ah/Sch/Stop/IL/Dual/Reduce Sp/Cy/w & F/w

Ah/Sch/Stop/IL/Dual/Reduce Sp/Cy/w & F/w/Reduce Sp

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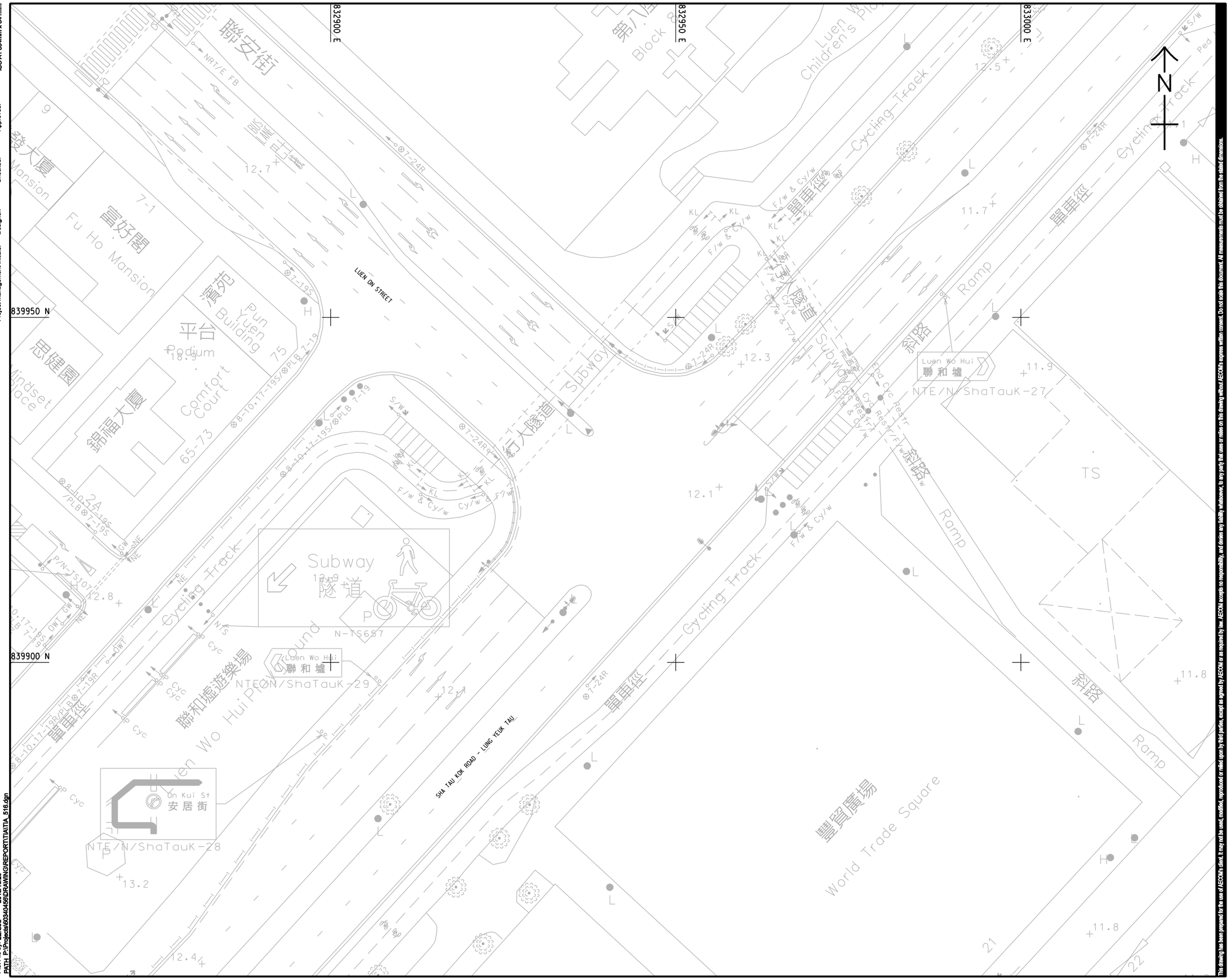
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LEIGJS 2015/10/29
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_516.dgn

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PROJECT
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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT
業主

土木工程拓展署
Civil Engineering and Development Department

CONSULTANT
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ISSUE/REVISION
參訂

I/R 參訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT OF JUNCTION J10

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.10

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

833100 E

833150 E

840150 N

840100 N

Fanling Sheung Shui Town Lot 177

MA SIK ROAD

PROPOSED ROADSIDE GREENING AREA

PROPOSED MODIFICATION WORKS

PROPOSED REALIGNMENT FOR CYCLE TRACK

PROPOSED STRAIGHT CROSSING

PEDESTRIAN CROSSING TO BE REMOVED

PROPOSED MODIFICATION WORKS

SHA TAU KOK ROAD - LUNG YEUK TAU

PROPOSED STRAIGHT CROSSING

PROPOSED MODIFICATION WORKS

Cycling Track

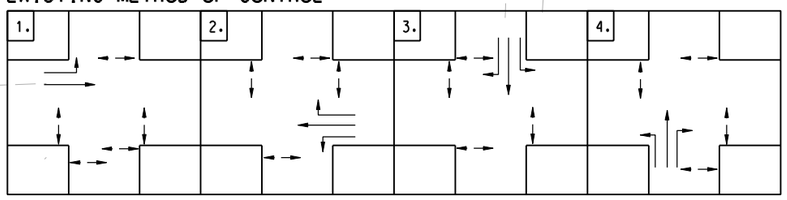
FP

Gas Station

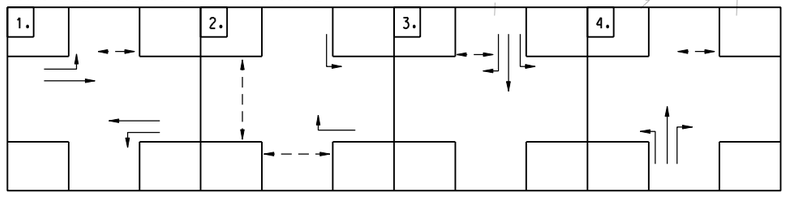
Building

Open

EXISTING METHOD OF CONTROL



PROPOSED METHOD OF CONTROL



Plot File by: TANWT 2015/10/22
PATH: Z:\Projects\60340456\DRAWING\REPORT\TIA\TIA_517.dgn

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PROJECT
項目

INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核實
B	OCT. 15	MINOR REVISION	
A	JUL. 15	MINOR REVISION	
-	MAY. 15	FIRST ISSUE	

STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

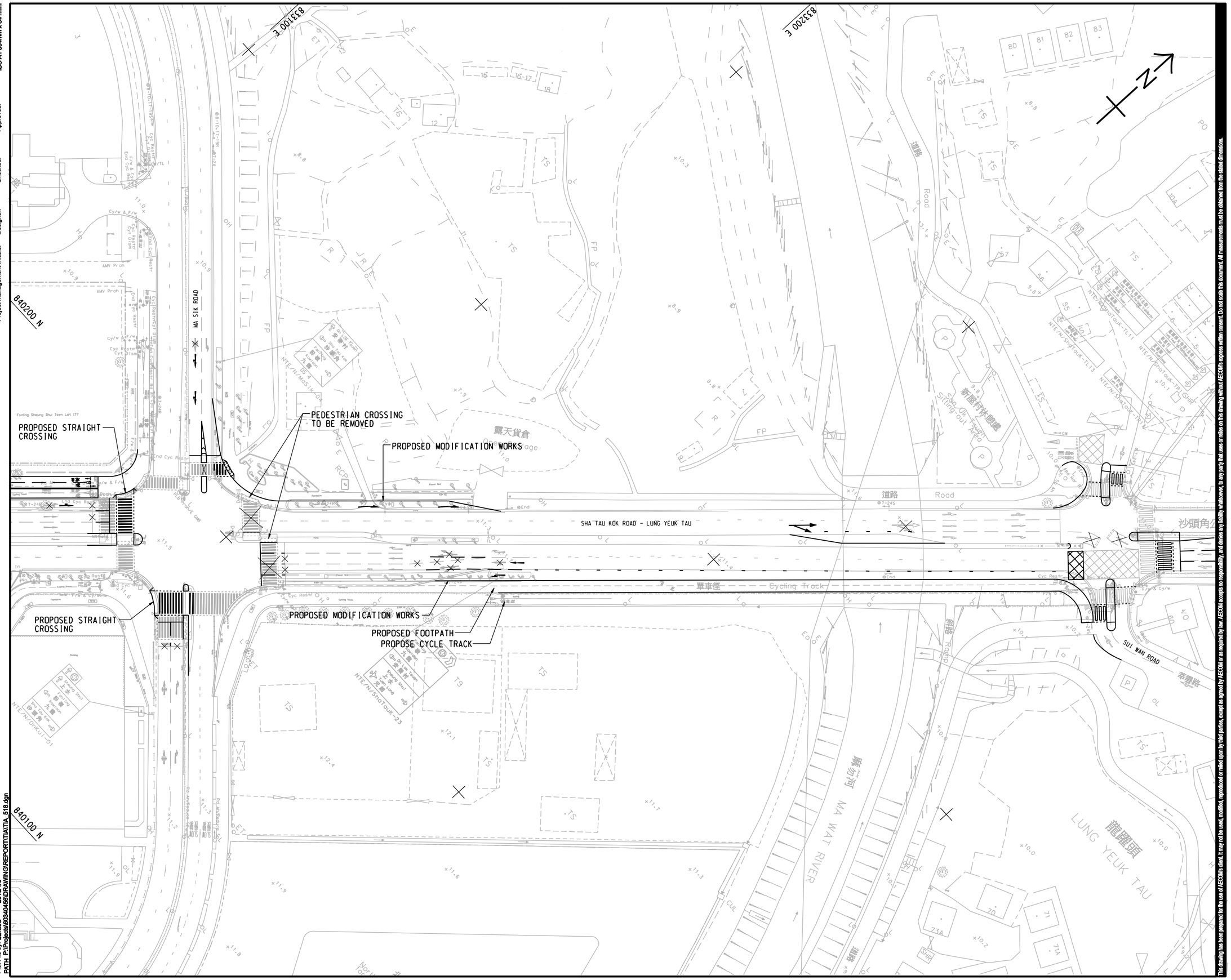
SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J11 (YEAR 2020)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.11B

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



Plot File by: LEIGUS 2016/1/5
PATH: P:\Projects\60340456\DRAWINGS\REPORT\TIA\TIA_5.12.dgn

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PROJECT 項目

INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核實
B	DEC. 15	MINOR REVISION	
A	OCT. 15	MINOR REVISION	
-	MAY. 15	FIRST ISSUE	

STATUS 階段

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED MODIFICATION OF SHA TAU KOK ROAD BETWEEN MA SIK ROAD AND SUI WAN ROAD

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 5.12B

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

PROPOSED FOOTBRIDGE SYSTEM CONSTRUCTED UNDER FANLING BYPASS PROJECT

PROPOSED CAUTIONARY PEDESTRIAN CROSSING

PROPOSED CAUTIONARY PEDESTRIAN CROSSING

833150 E

833200 E

833250 E

840200 N

840150 N

MA SIK ROAD

SHA TAU KOK ROAD

NTE/N/MaSik-04

NTE/N/ShaTauK-23

NTE/N/OnKui-01

SHA TAU KOK
SHEUNG SHUI

Sheung Shui 上水
Fanling 粉嶺
Kowloon 九龍
Sha Tau Kok 沙頭角

Fanling 粉嶺
Kowloon 九龍
On Lok Tsuen 安樂村
Sheung Shui 上水
Yuen Long 元朗

NOTE:

1. IMPROVEMENT PROPOSED TO BE UNDERTAKEN BY FLN NDA PROJECT.

LEGEND:

FUTURE LANE ALLOCATION

Plot File by: TANWT 2015/5/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_520.dgn

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PROJECT 項目

INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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

STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J11 (YEAR 2026)

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 5.13

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

FUTURE LANE ALLOCATION

833200 E

833250 E

833300 E

840300 N

840250 N

840200 N

FANLING BYPASS

SHA TAU KOK ROAD

Cycling Track

單車徑

On Lok Tsuen 安樂村

Sha Tau Kok 沙頭角

Fanling 粉嶺

Kowloon 九龍

DS 4

NTE/N/MaSik-04

Fanling 粉嶺

Kowloon 九龍

On Lok Tsuen 安樂村

Sheung Shui 上水

Yuen Long 元朗

NTE/N/ShaTauK-23

PLB Proh/E GMB

End Cyc Restr

Cyc Restr

Cy/w of F'way

RCP

RCV

TS

R

E

H

L

N

8.6

7.9

11.0

11.3

11.4

11.7

12.1

Z-24S

Z-24R

S-8g L

Plot File by: TANWT 2015/5/21
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_519.dgn

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PROJECT 項目

INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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

STATUS 狀況

SCALE 比例 — A3 1 : 500

DIMENSION UNIT 尺寸單位 — METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 — 60340456

CONTRACT NO. 合約編號 — CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

FUTURE JUNCTION LAYOUT OF JUNCTION J12 (YEAR 2026)

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 5.14

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

833400 E

840350 N

PROPOSED MODIFICATION WORKS

PROPOSED STAGGER CROSSING

PROPOSED MODIFICATION WORKS

PROPOSED MODIFICATION WORKS

PROPOSED CYCLE TRACK

PROPOSED FOOTPATH

PROPOSED MODIFICATION WORKS

PROPOSED STAGGER CROSSING

SHA TAU KOK ROAD – LUNG YEUK TAU

SUI WAN ROAD

2.5m MIN.

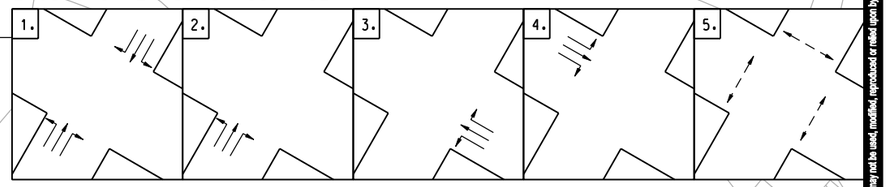
2.5m MIN.

2.5m MIN.

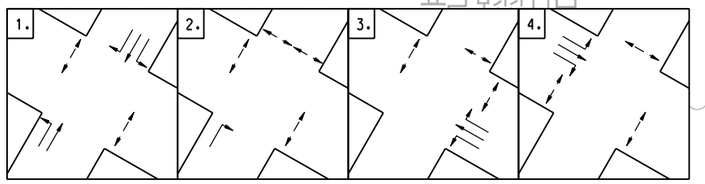
SWEPT PATH ANALYSIS FOR 11m HGV
SCALE 1 : 500

SWEPT PATH ANALYSIS FOR 11m HGV
SCALE 1 : 500

EXISTING METHOD OF CONTROL



PROPOSED METHOD OF CONTROL



Plot File by: LEIGJS 2016/2/2
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_521.dgn

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PROJECT
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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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業主

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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核
D	FEB. 16	GENERAL REVISION	
C	JAN. 16	GENERAL REVISION	
B	DEC. 15	GENERAL REVISION	
A	JUL. 15	GENERAL REVISION	
-	MAY. 15	FIRST ISSUE	

STATUS
狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J13 (YEAR 2020)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.15D

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

833300 E

833350 E

833400 E

840450 N

840400 N

840350 N

龍躍頭文物徑(北段)
Lung Yeuk Tau Heritage Trail(North)

新屋村
San Uk Tsuen

宣道園
Suen Douh Comp

NTE/N/ShaTauK-TL11

NTE/N/ShaTauK-TR11

聯和墟
Luen Wo Hui

NTE/N/ShaTauK-TL13

NTE/N/ShaTauK-TR13

龍躍頭文物徑(南段)
Lung Yeuk Tau Heritage Trail(South)

NTE/N/ShaTauK-TL12

NTE/N/ShaTauK-TR12

PROPOSED BAN RIGHT-TURN

SHA TAU KOK ROAD - LUNG YEUK TAU

沙頭角公路 — 龍躍頭段

Cycling Track 單車徑

新屋村休憩處
San Uk Tsuen
Sitting-out Area

SUI WAN ROAD

萃雲路

PROPOSED BAN RIGHT-TURN

PROPOSED MODIFICATION WORKS

PROPOSED CYCLE TRACK

PROPOSED FOOTPATH

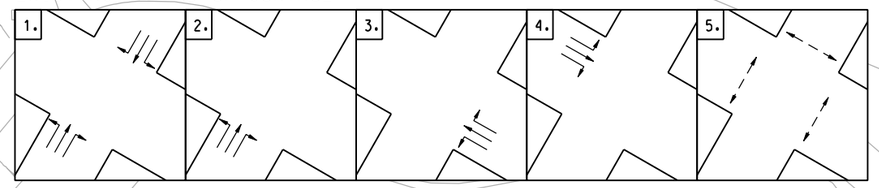
PROPOSED MODIFICATION WORKS

道路 Road

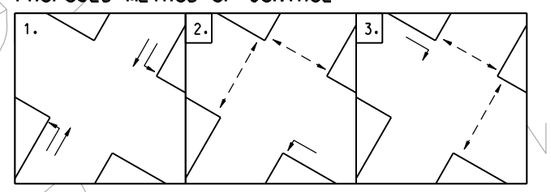
斜路 Ramp

龍躍頭
LUNG YEUK TAU

EXISTING METHOD OF CONTROL



PROPOSED METHOD OF CONTROL



NOTE:

1. IMPROVEMENT PROPOSED TO BE UNDERTAKEN BY FLN NDA PROJECT IS SHOWN IN RED COLOUR.

Plot File by: LEIGJS 2016/1/4
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_522.dgn

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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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Civil Engineering and Development Department

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B	DEC. 15	MINOR REVISION	
A	JUL. 15	GENERAL REVISION	
-	MAY. 15	FIRST ISSUE	

STATUS
狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J13 (YEAR 2026)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.16B

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

833800 E

833850 E

833900 E

833950 E

840800 N

840750 N

840700 N

PROPOSED MODIFICATION WORKS

PROPOSED EXCLUSIVE LEFT - TURN LANE

CYCLE TRACK

FOOTPATH

SHA TAU KOK ROAD

LUNG MA ROAD

SAN WAI BARRACKS

新圍軍營

Ping Che 坪輋

Sha Tau Kok 沙頭角

Lung Ma Road 龍馬路

Fanling 粉嶺

龍躍頭段

NTE/N/ShaTauK-52

NTE/N/ShaTauK-19

NTE/N/ShaTauK-20

NTE/N/ShaTauK-21

NTE/N/LunMa-01

TL/Sharp Devi

N

Plot File by: DUW
2015/10/28
PATH: P:\Projects\60340456\DRAWINGS\REPORT\TIA\TIA_623.dgn

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A	OCT. 15	GENERAL REVISION	
-	MAY. 15	FIRST ISSUE	

STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J14

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 5.17A

ISO A1 594mm x 841mm

Approved:

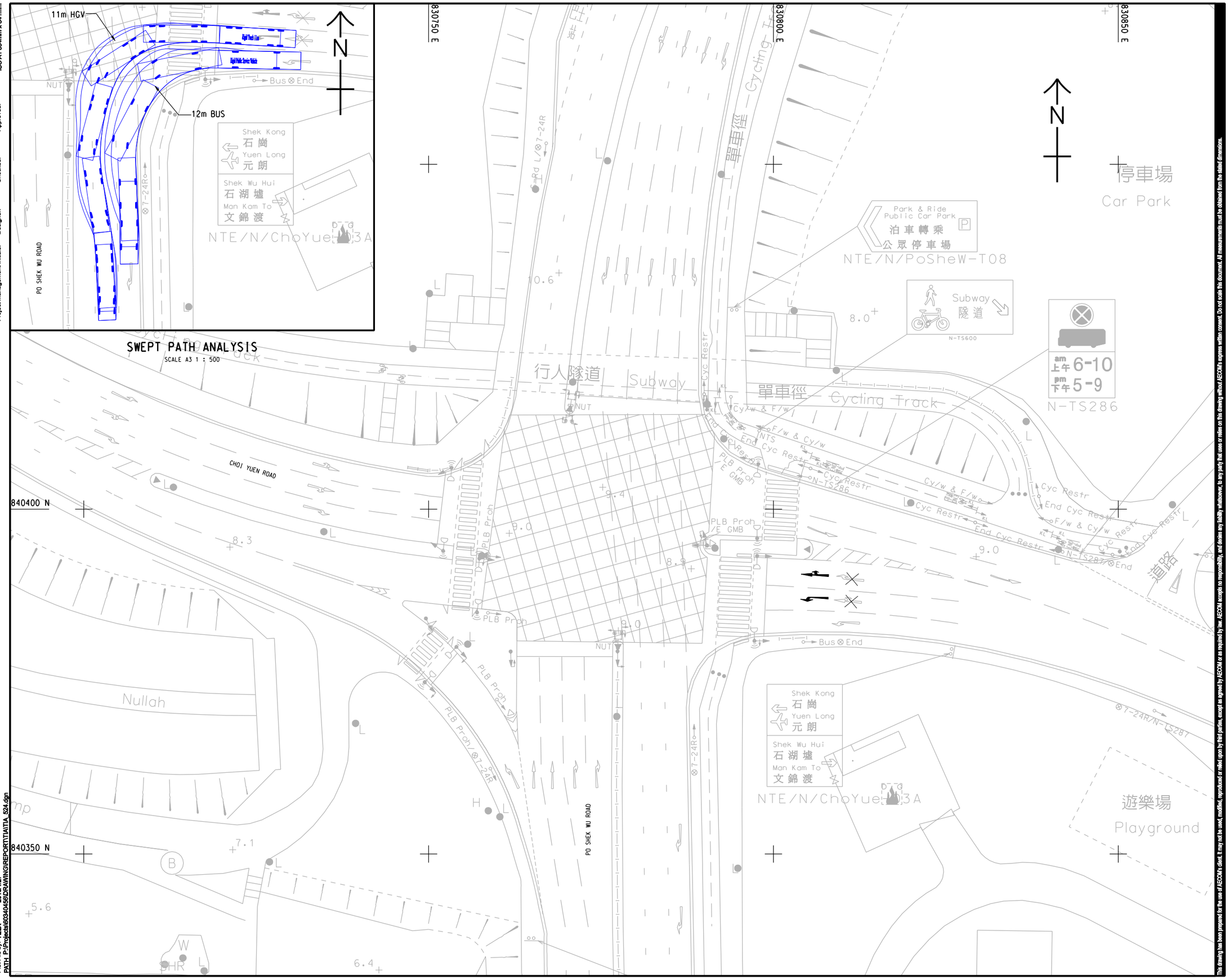
Checked:

Designer:

Project Management Initials:

SWEPT PATH ANALYSIS

SCALE A3 1 : 500



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Plot File by: YELX 2016/1/27
PATH: P:\Projects\60340456\DRAWINGS\REPORT\TIA\TIA_524.dgn

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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核實
B	JAN. 16	MINOR REVISION	
A	OCT. 15	SWEPT PATH ADDED	
-	MAY. 15	FIRST ISSUE	

STATUS
階段

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J15

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 5.18B

ISO A1 594mm x 841mm

Approved:

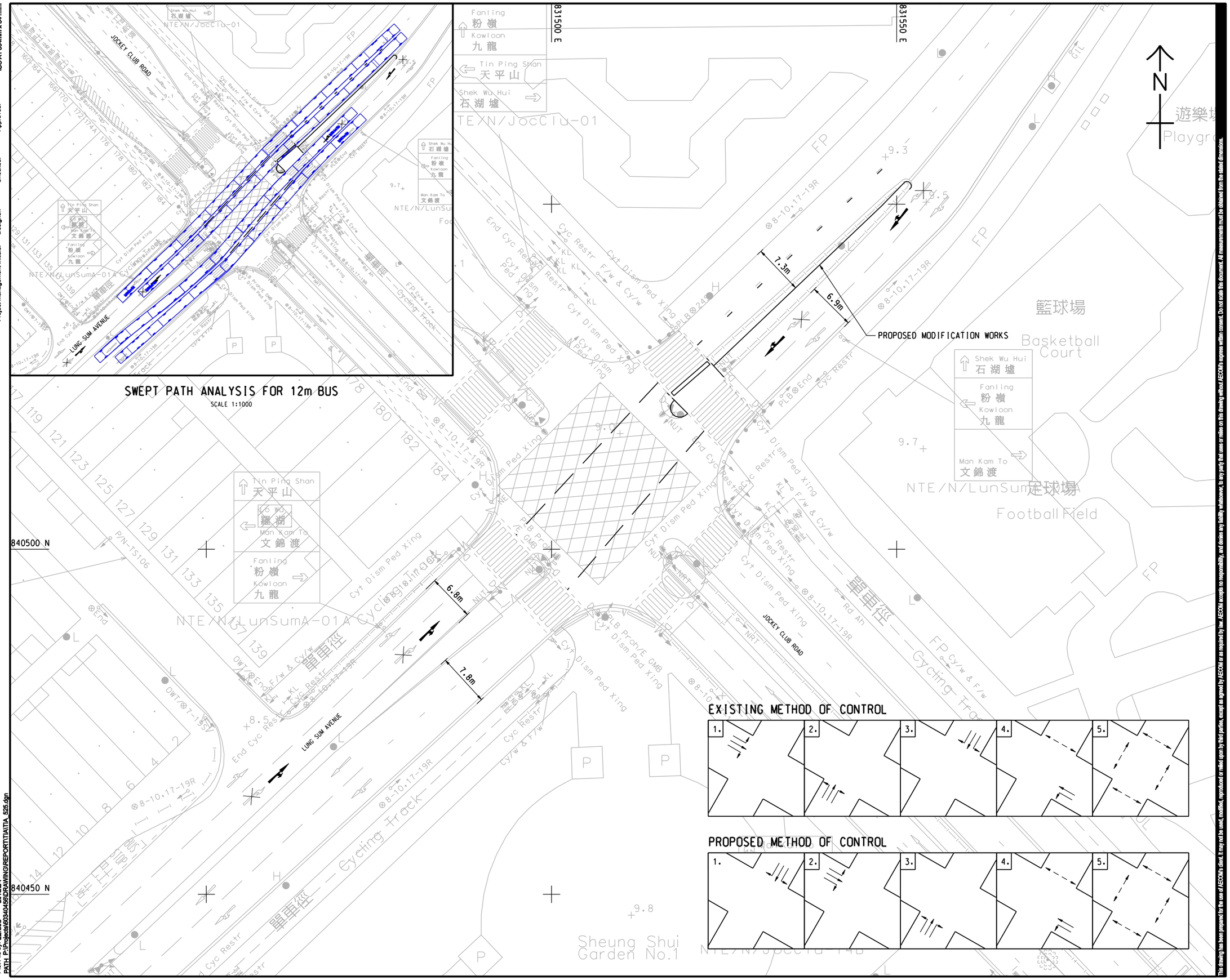
Checked:

Designer:

Project Management Initials:

SWEPT PATH ANALYSIS FOR 12m BUS

SCALE 1:1000



EXISTING METHOD OF CONTROL

PROPOSED METHOD OF CONTROL

Designer: LEI Ka Shing

Plot File by: LEIKAS 2016/2/24
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_525.dgn

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PROJECT 項目

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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J16

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 5.19B

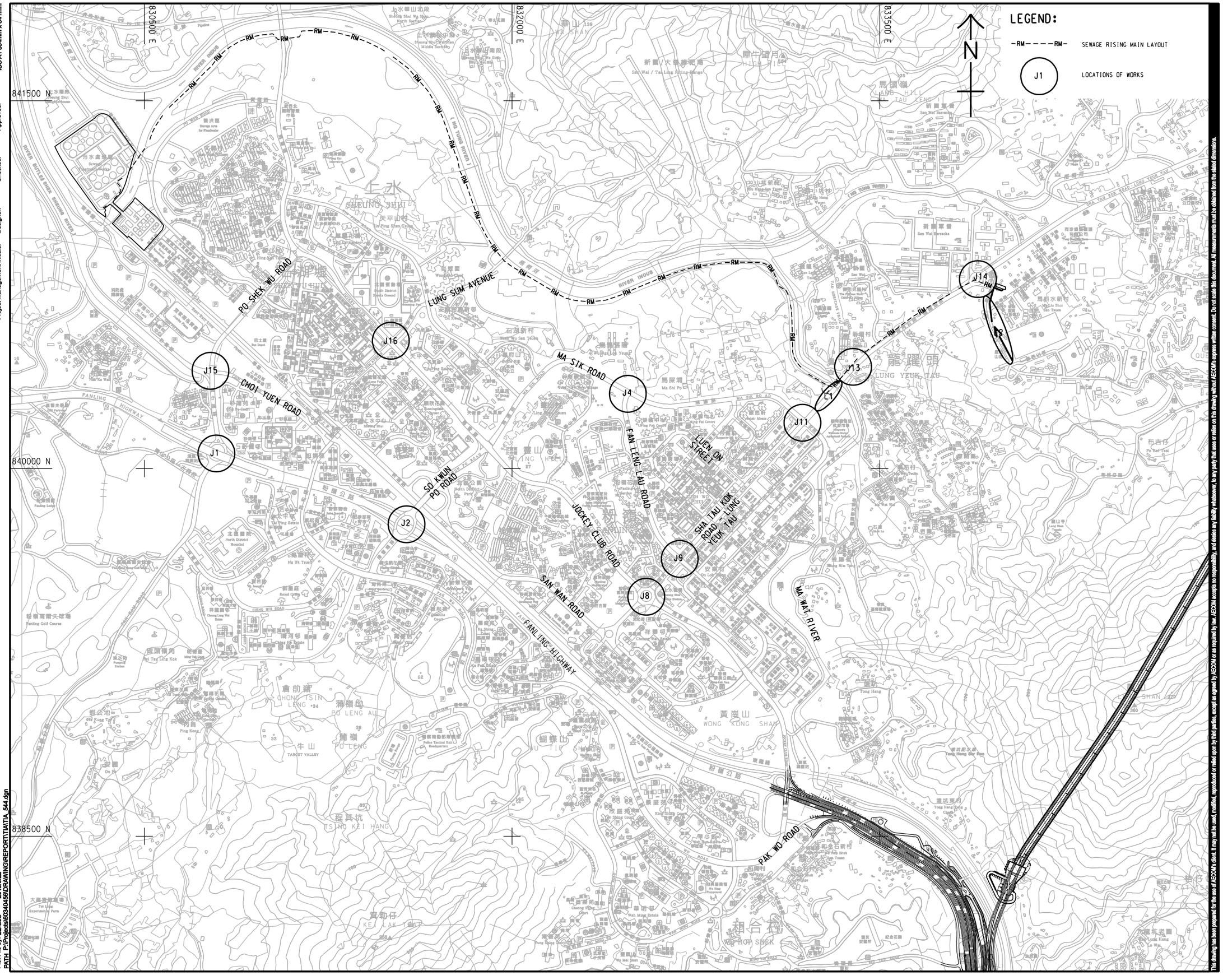
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60340456/TIA/FIGURE 6.3 TO FIGURE 6.6.

LEGEND:

RM RISING MAIN (BY OPEN-CUT METHOD)

RM RISING MAIN (BY TRENCHLESS METHOD)

WORKING SHAFT

833600 E

833800 E

840800 N

840600 N

新圍軍營 SAN WAI BARRACKS

新圍軍營 San Wai Barracks

黃料水新村 Ma Liu Shui San Tsuen

SHA TAU KOK ROAD

CUT LINE A-A

PLAN
SCALE 1 : 2000

833200 E

833400 E

833600 E

CUT LINE B-B
SEE DRAWING NO. 60340456/TIA/FIGURE 6.3

MA WAT RIVER

新屋村 San Uk Tsuen

SHA TAU KOK ROAD - LUNG YEUK TAU

CUT LINE A-A

840400 N

龍躍頭 LUNG YEUK TAU

PLAN
SCALE 1 : 2000

Plot File by: YANGBT 2015/9/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA 401.dgn

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PROJECT
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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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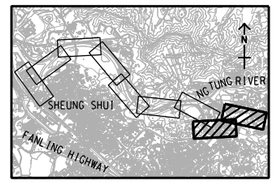
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核實

STATUS
階段

SCALE
比例
A3 1 : 2000

DIMENSION UNIT
尺寸基位
METRES

KEY PLAN
索引圖
A3 1 : 100000



PROJECT NO.
項目編號
60340456

CONTRACT NO.
合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

LAYOUT PLAN FOR SEWAGE RISING MAIN

SHEET 1 OF 5

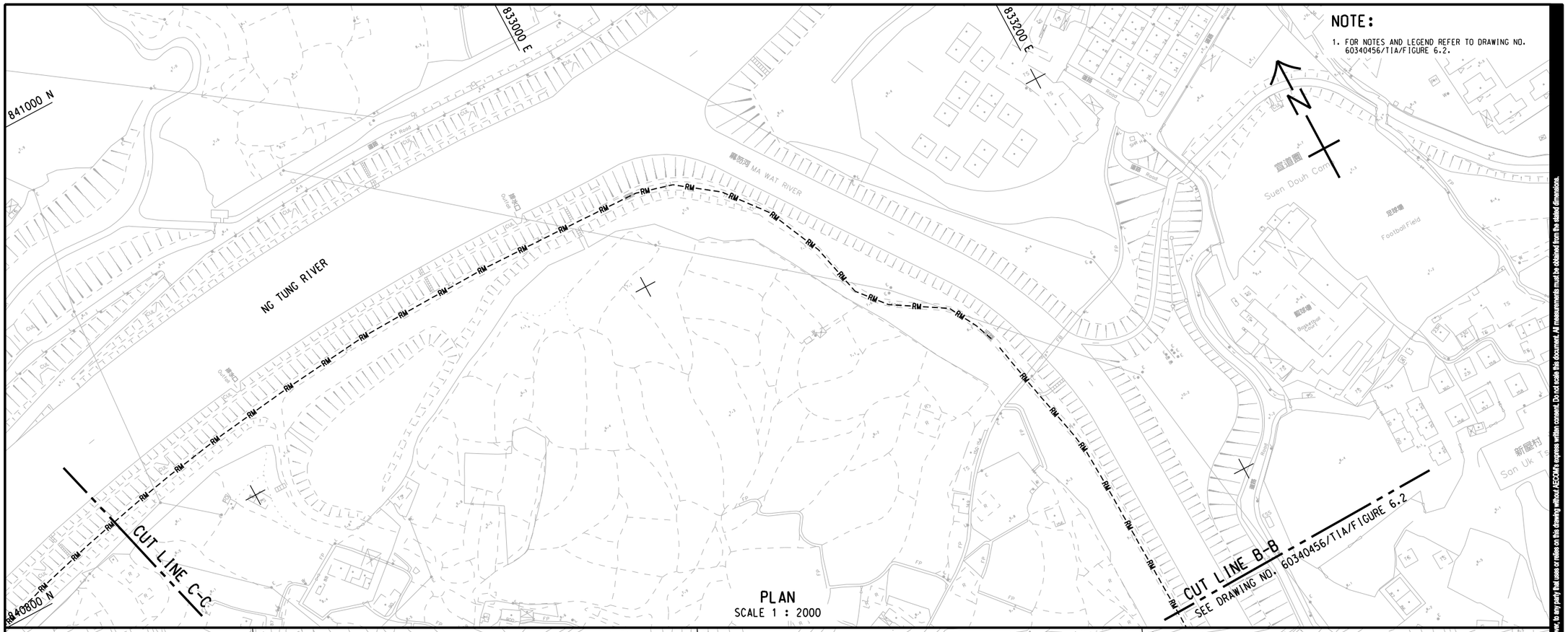
SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.2

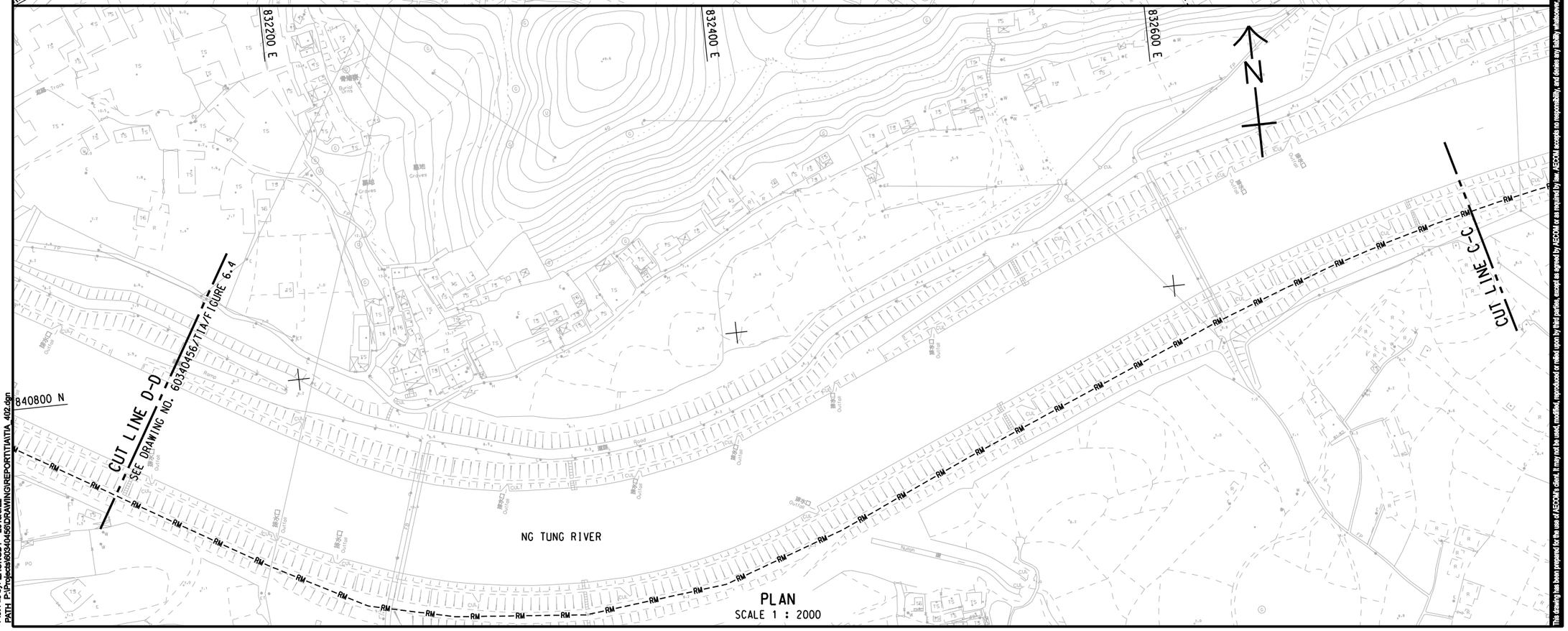
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

NOTE:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60340456/TIA/FIGURE 6.2.



PLAN
SCALE 1 : 2000



PLAN
SCALE 1 : 2000

Plot File by: ZHONGDY 2015/9/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_402.dgn

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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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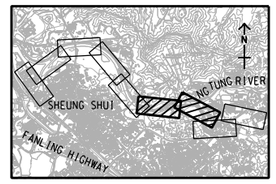
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
狀況

SCALE 比例
A3 1 : 2000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖 A3 1 : 100000



PROJECT NO. 項目編號
60340456

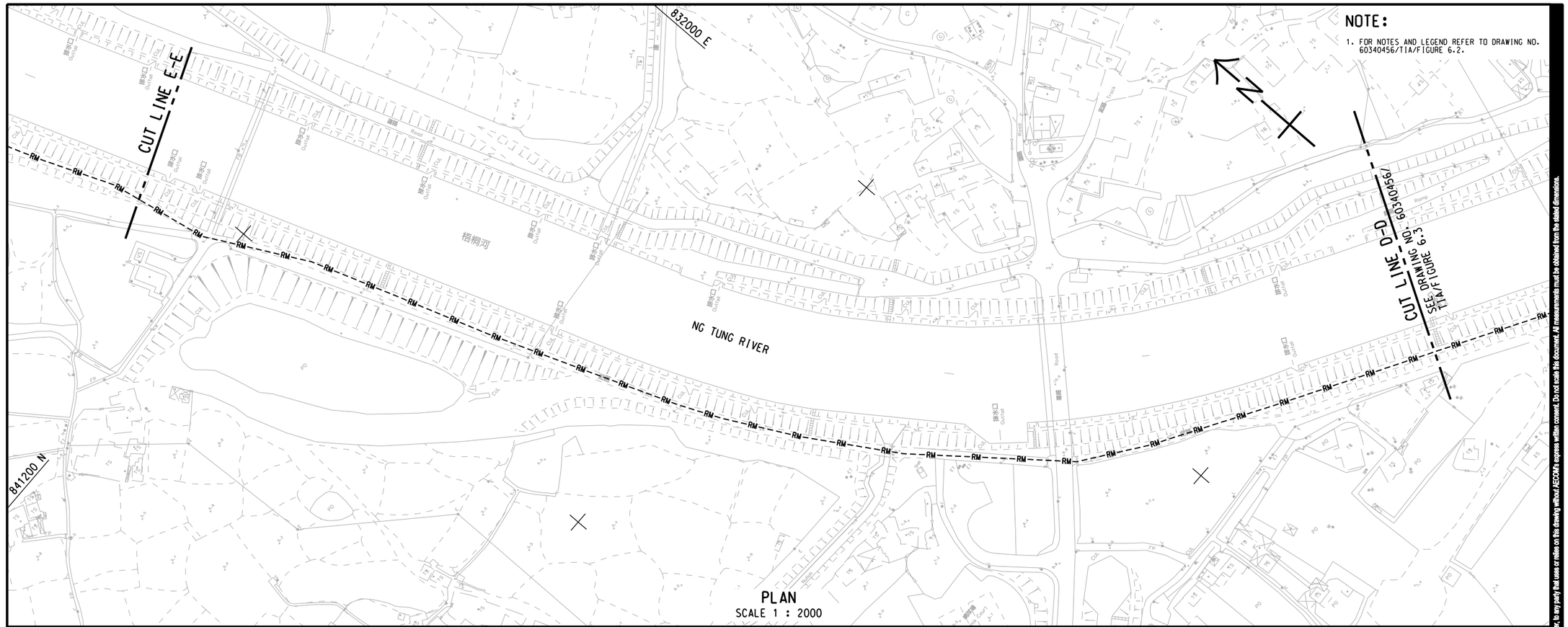
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱
LAYOUT PLAN FOR SEWAGE RISING MAIN

SHEET 2 OF 5

SHEET NUMBER 圖紙編號
60340456/TIA/FIGURE 6.3

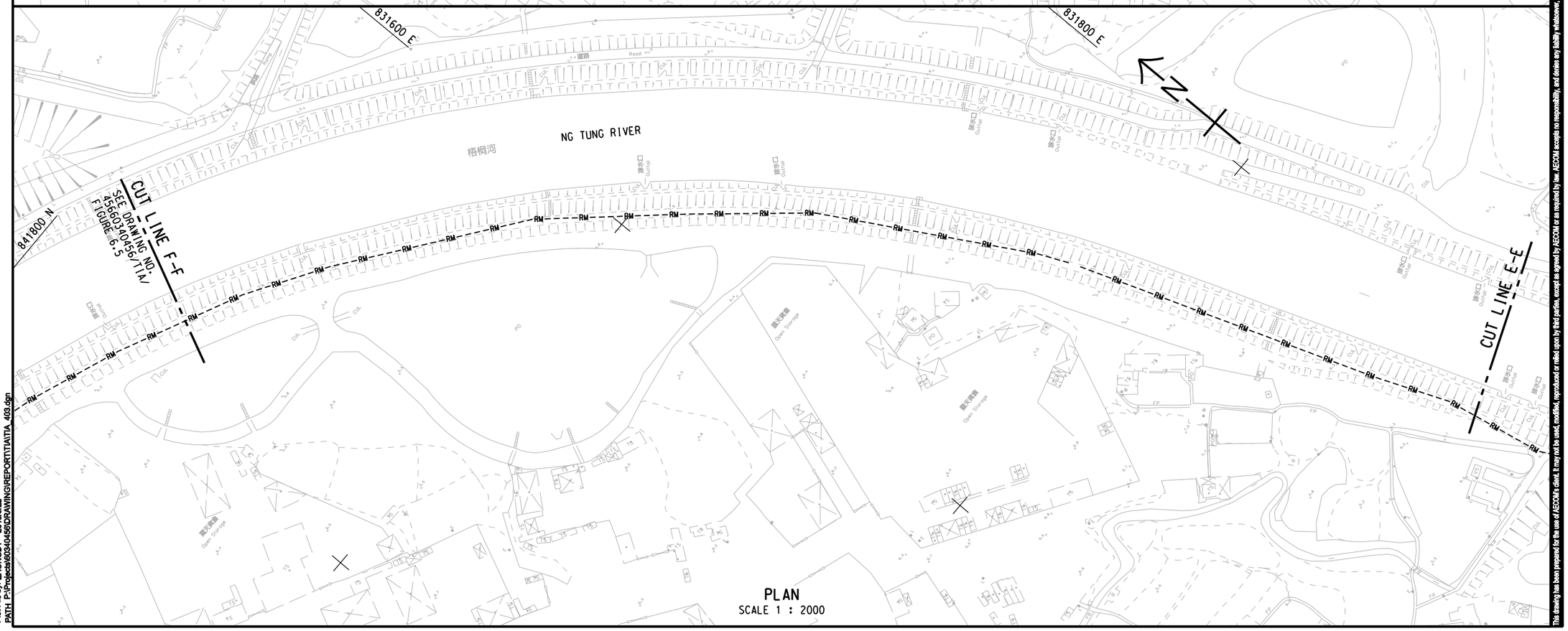
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



PLAN
SCALE 1 : 2000

NOTE:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60340456/TIA/FIGURE 6.2.



PLAN
SCALE 1 : 2000

Plot File by: ZHONGDY 2015/9/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA 403.dgn

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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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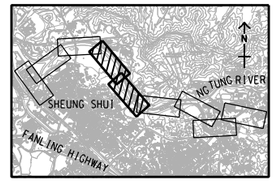
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
階段

SCALE 比例
A3 1 : 2000

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN 索引圖 A3 1 : 100000



PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱
LAYOUT PLAN FOR SEWAGE RISING MAIN

SHEET 3 OF 5

SHEET NUMBER 圖紙編號
60340456/TIA/FIGURE 6.4

ISO A1 594mm x 841mm

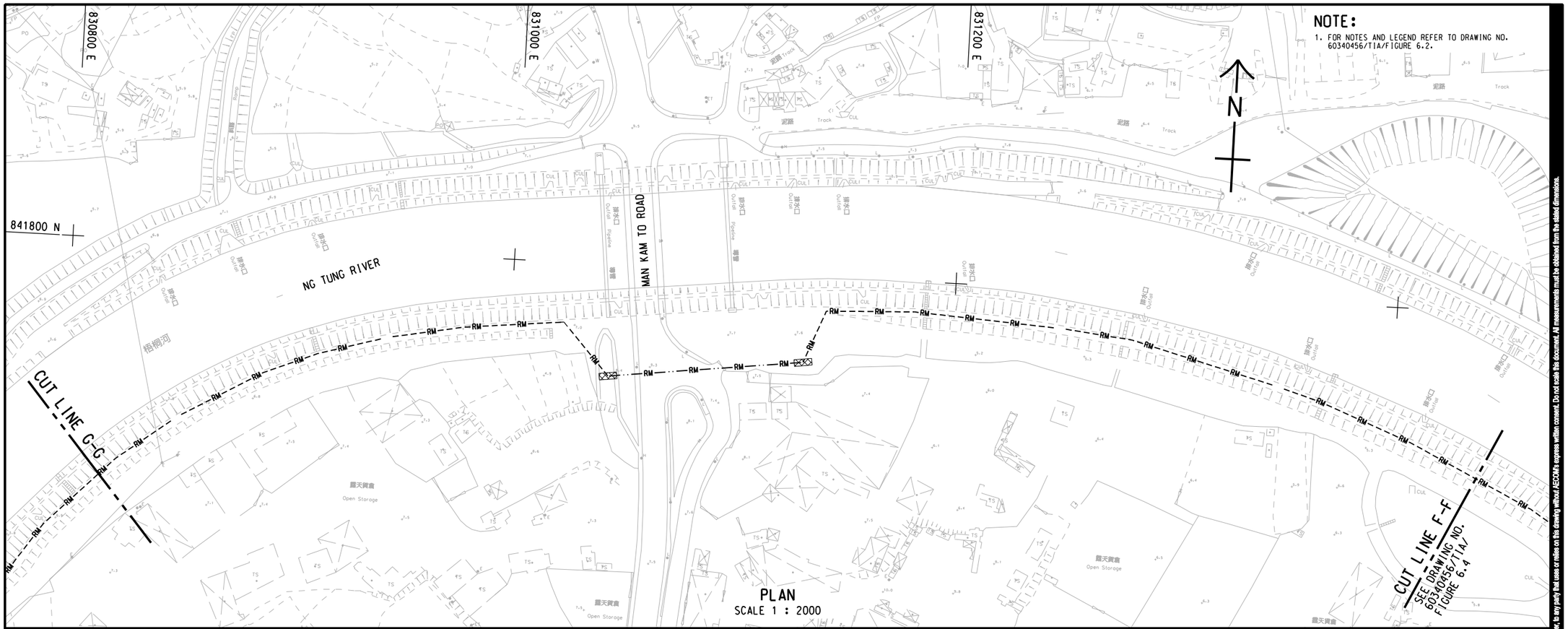
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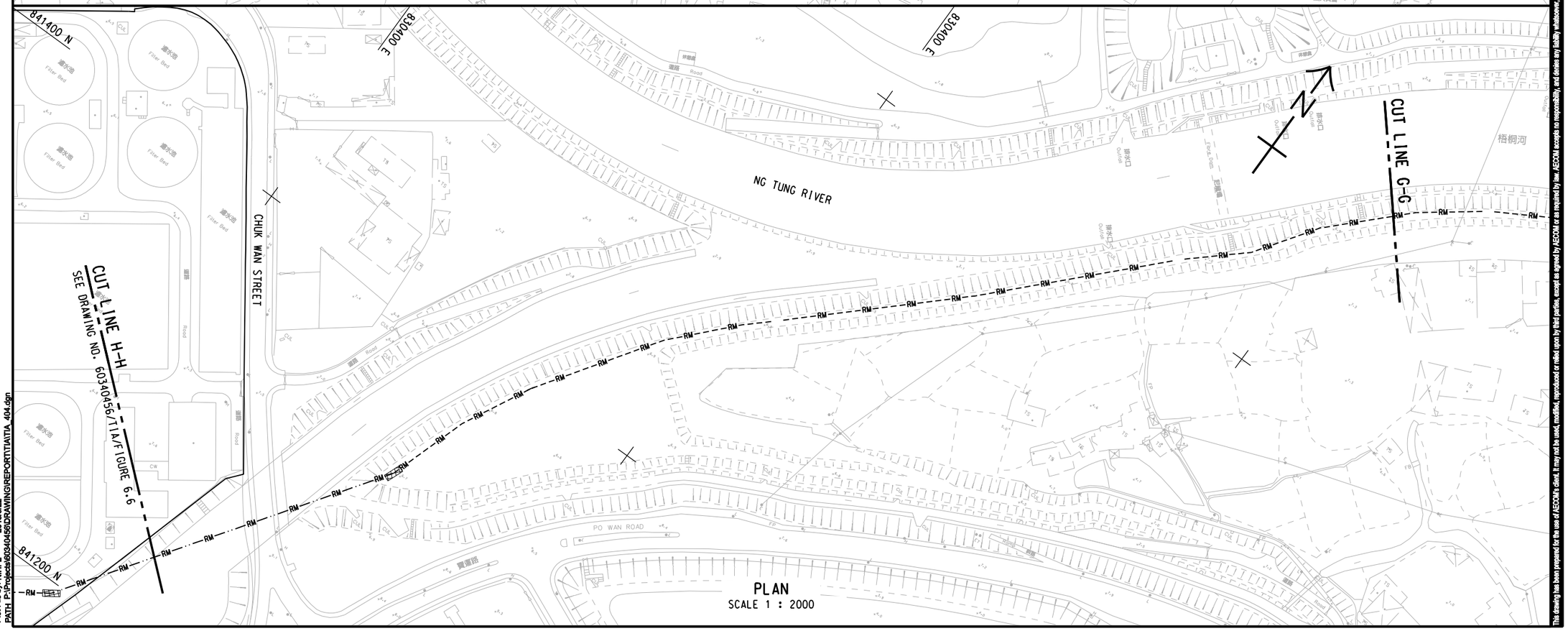
Designer:

Project Management Initials:

NOTE:
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60340456/TIA/FIGURE 6.2.



PLAN
SCALE 1 : 2000



PLAN
SCALE 1 : 2000

Plot File by: NIHP2 2015/9/22
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_404.dgn

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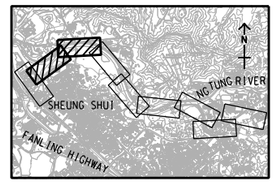
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
階段

SCALE 比例
A3 1 : 2000

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN 索引圖 A3 1 : 100000



PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

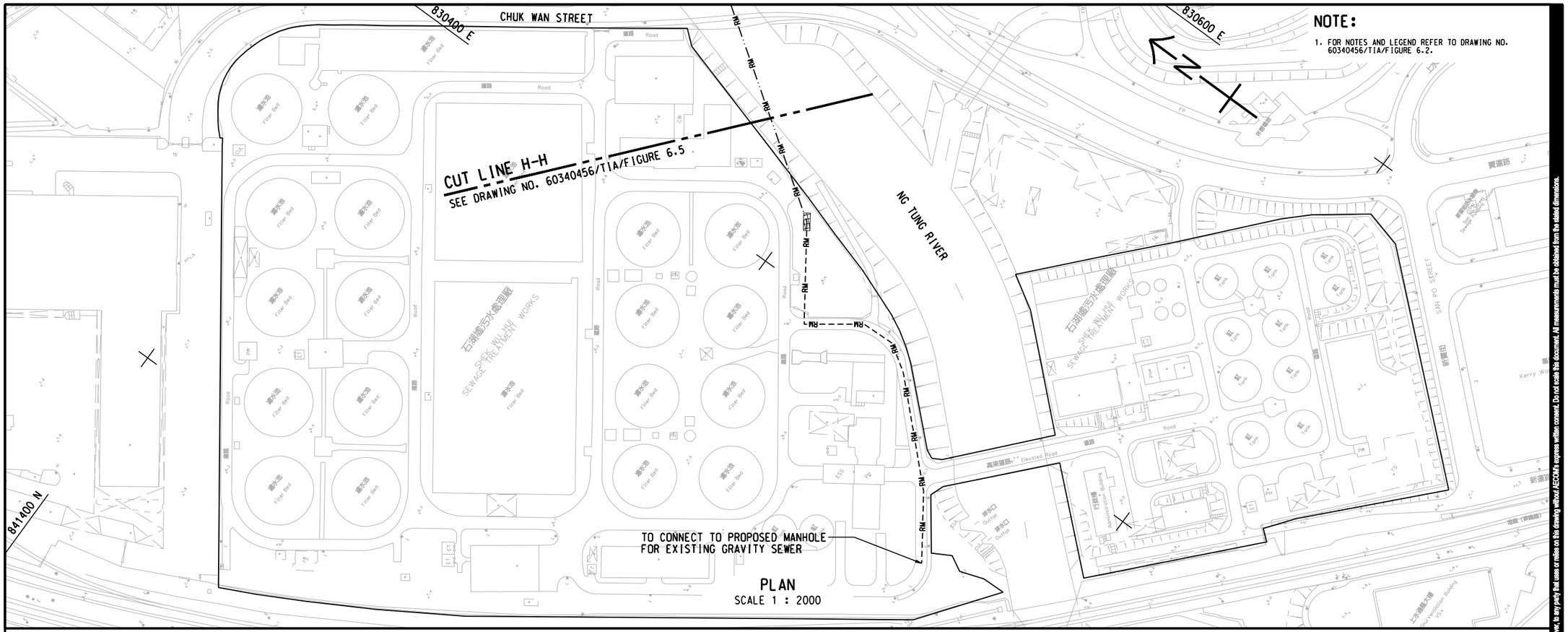
LAYOUT PLAN FOR SEWAGE RISING MAIN

SHEET 4 OF 5

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.5

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



NOTE:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60340456/TIA/FIGURE 6.2.

AECOM

PROJECT 項目

INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT 業主

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

CONSULTANT 工程顧問公司

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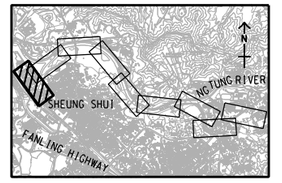
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS 階段

SCALE 比例 A3 1 : 2000

DIMENSION UNIT 尺寸基位 METRES

KEY PLAN 索引圖 A3 1 : 100000



PROJECT NO. 項目編號 60340456

CONTRACT NO. 合約編號 CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

LAYOUT PLAN FOR SEWAGE RISING MAIN

SHEET 5 OF 5

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 6.6

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Plot File by: ZHONGDY 2015/9/22
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_405.dgn

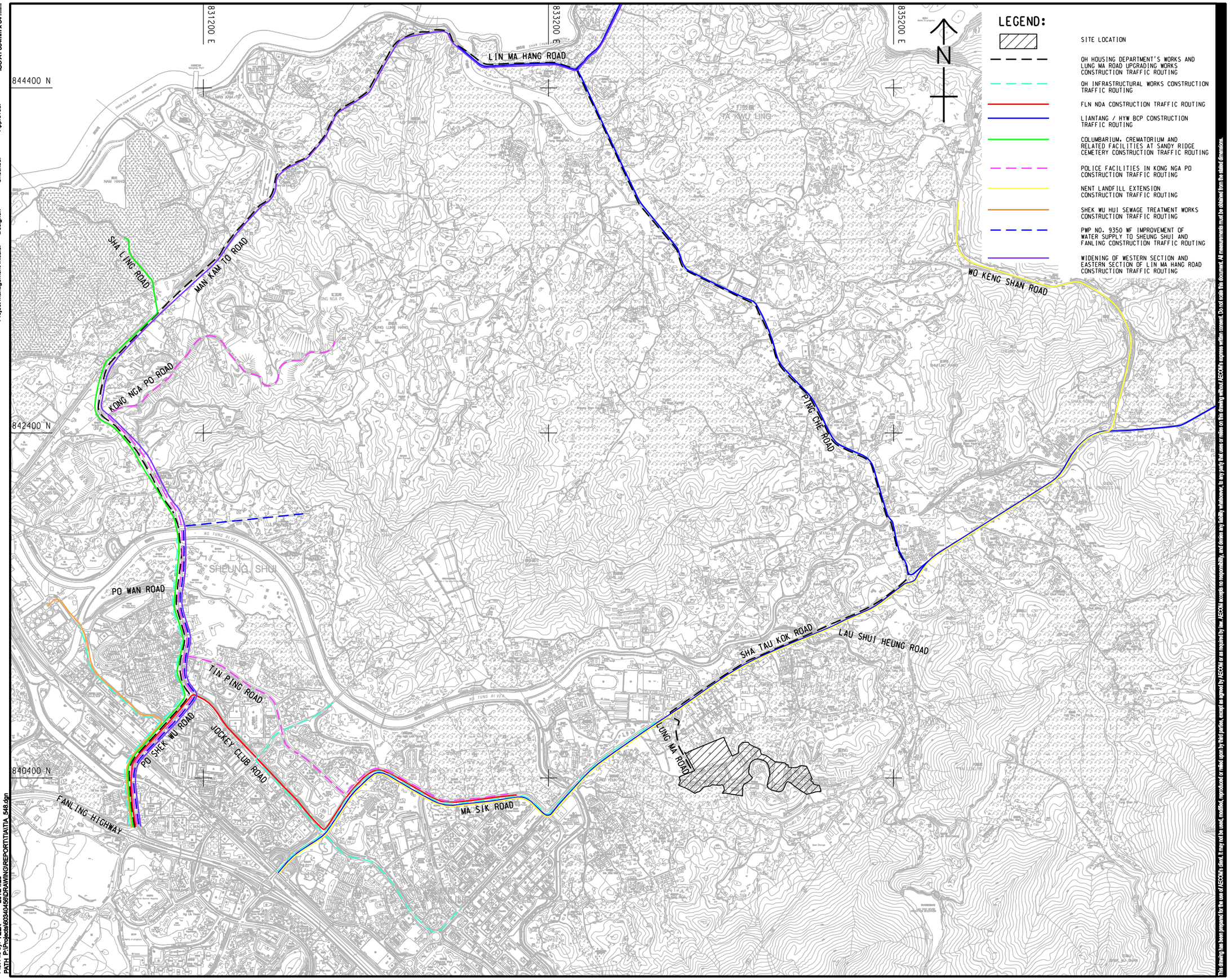
ISO A1 594mm x 841mm

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Checked:

Designer:

Project Management Initials:



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Plot File by:- YELX
PATH :- P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_548.dgn
2016/1/26

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A	DEC.15	MINOR REVISION	
-	OCT.15	FIRST ISSUE	

STATUS
狀況

SCALE 比例
A3 1 : 20000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

CONSTRUCTION TRAFFIC ROUTING

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.7A

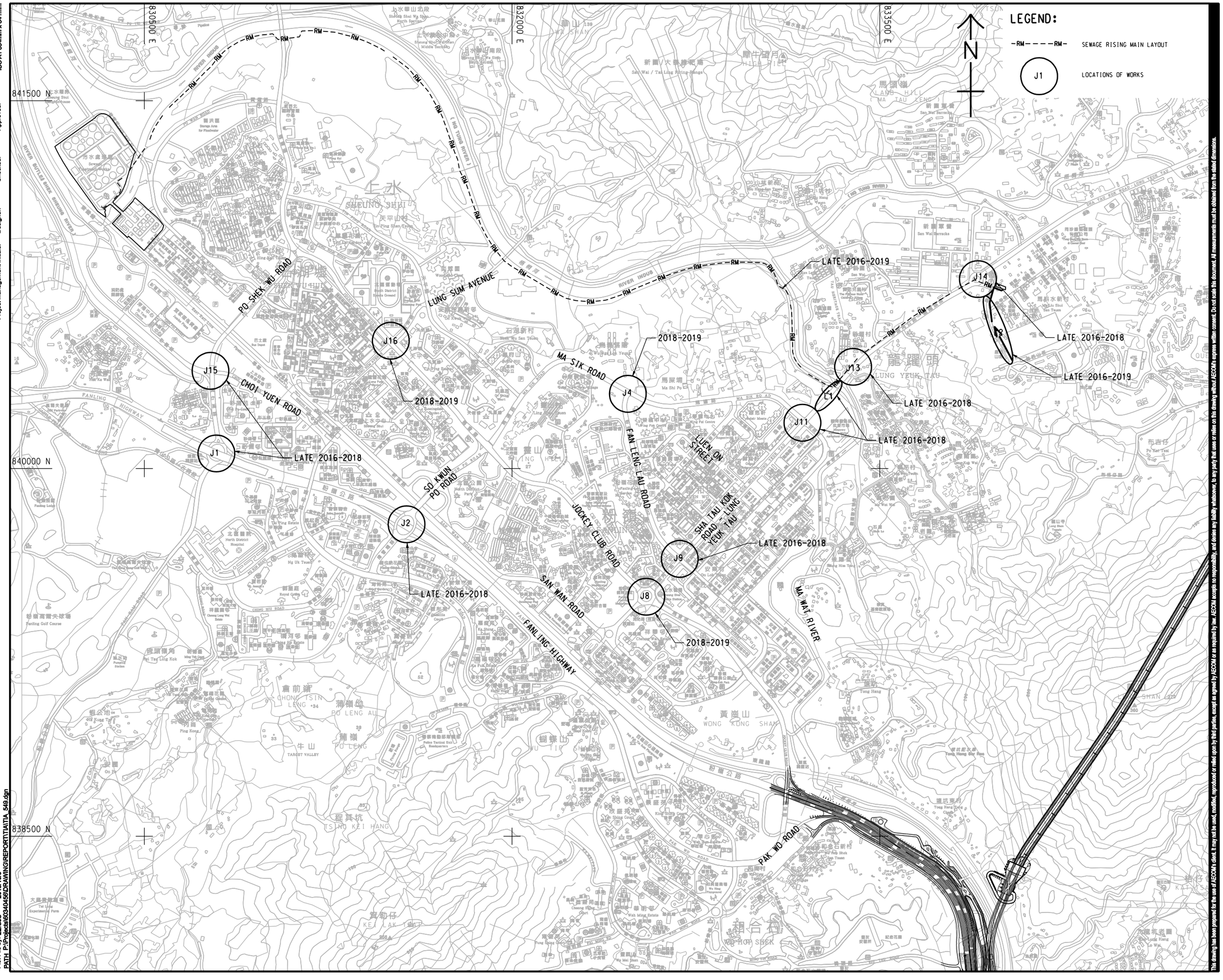
ISO A1 594mm x 841mm

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Designer:

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Plot File by: LEIGJS 2015/10/5
PATH P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_549.dgn

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I/R 參訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
階段

SCALE 比例
A3 1 : 14000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED CONSTRUCTION PROGRAMME OF THE WORKS

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.8

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

WORKS AREA

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

2 TRAFFIC LANES TO BE MAINTAINED

2 TRAFFIC LANES TO BE MAINTAINED

PO SHEK WU ROAD

6.75m

6.75m

830750 E

830800 E

840200 N

840150 N

840100 N

遊樂場 Playground

彩顏閣 Choi Ngan House

Shek Kong 石崗

Fanling 粉嶺 Kowloon 九龍

Yuen Long 元朗 Kowloon (via Route 3) 九龍 (屬三號幹線)

Park & Ride Public Car Park 泊車轉乘公眾停車場

Sheung Shui Station 上水站 Sheung Shui 上水 Man Kam To 文錦渡

Shek Wu Hui 石湖墟

Cycling Track

Subway 行人隧道

Ramp 斜路

Elevated Road

NTE/N/EanHig-T45

NTE/N/PoSheW-X10B

NTE/N/PoSheW-T14

NTE/N/PoSheW-T11

NTE/N/PoSheW-120

NTE/N/PoSheW-04

NTE/N/FanHig-44

L(NT4174)

Plot File by: YELX 2016/2/15

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SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J1

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 6.9

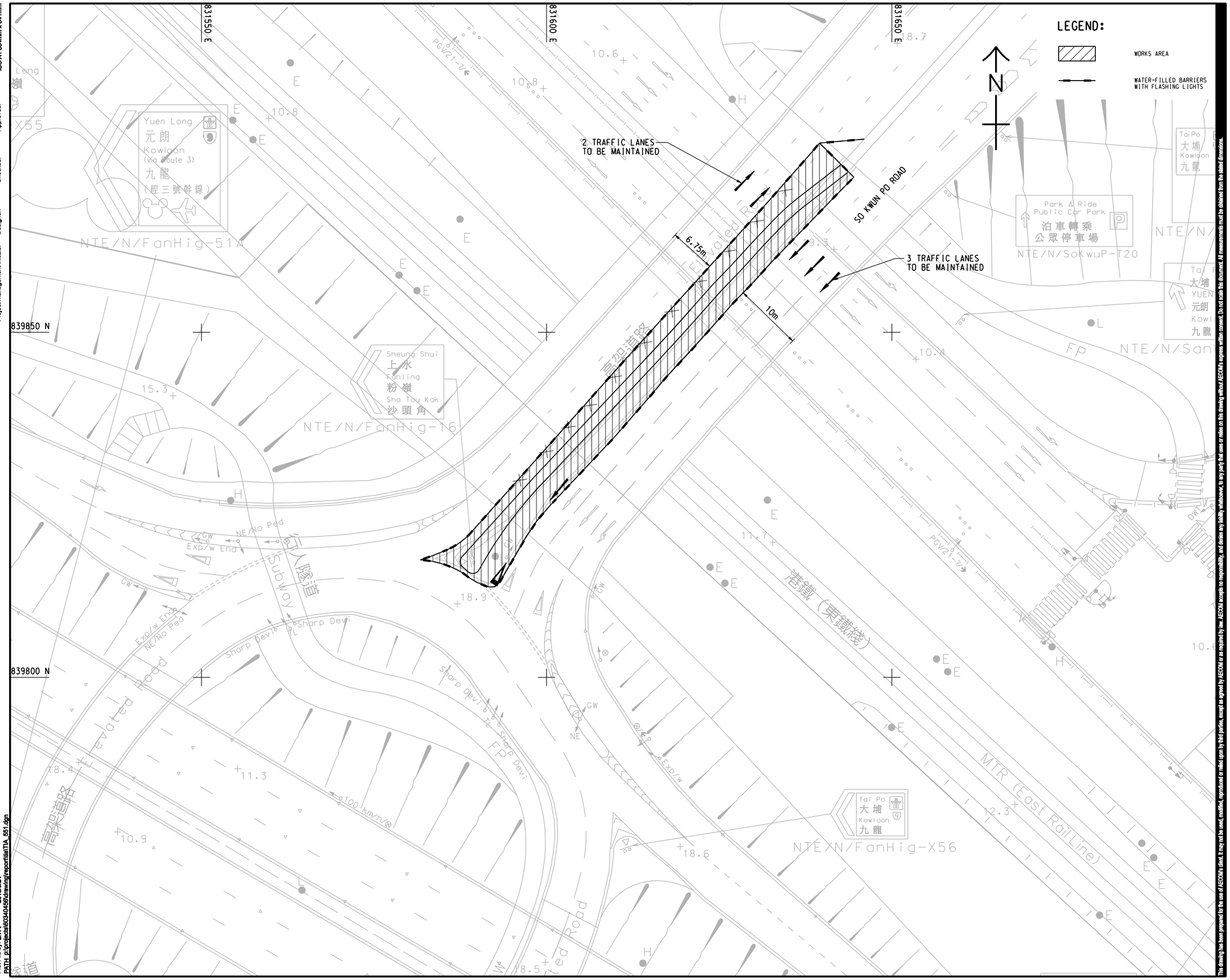
ISO A1 594mm x 841mm

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Designer:

Project Management Initials:



Plot File by: LIWY 2015/9/24
PATH: J:\projects\60340456\drawing\report\tia\TIA_551.dgn

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STATUS
狀況

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J2

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.10

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

832450 E

832500 E

840400 N

840350 N

840300 N

LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

N

MA SIK ROAD

FAN LENG LAU ROAD

Luen Wo Hui 聯和墟

NTE/N/MaSiK-05

NTE/N/MaSiK-06

2 TRAFFIC LANES TO BE MAINTAINED

PEDESTRIAN CROSSINGS TO BE MAINTAINED

2 TRAFFIC LANES TO BE MAINTAINED

⊗8-10,17-19S/E S & H/

⊗8-10,17-19R

⊗8-10,17-19S/E S & H/

⊗8-10,17-19R

PLB Proh/E GMB

PLB Proh/E GMB

Cyt Dism Ped Xing

End Cyc Restr

Cyc Restr/ Cyt Dism

Cy/w & F/w

F/w & Cy/w

Cy/w & F/w/ End Cyc Restr Cyc Restr/ Cyt Dism

Tr Sg Alt/50m

單車徑

第4座 TOWER 4

+12.3

+12.0

+12.7

+11.0

+11.1

+11.6

+11.6

+11.5

+10.9

+11.9

+11.

TS

ET

H

E

L

R

KL

D

Plot File by: TANWT 2015/10/13
PATH: P:\Projects\60340456\DRAWINGS\REPORT\TIA\TIA_652.dgn

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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J4

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 6.11

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

LEGEND:

WORKS AREA

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

N

832500 E

832550 E

832600 E

839500 N

839450 N

JOCKEY CLUB ROAD

SHA TAU KOK ROAD - LUNG YEUK TAU

2 TRAFFIC LANES TO BE MAINTAINED

MIN. 1.5m FOOTPATH TO BE MAINTAINED

Lung Yeuk Tau Heritage Trail 龍躍頭文物徑

NTE/N/JocClu-37

Luen Wo Hui 聯和墟

Sha Tau Kok 沙頭角

NTE/N/LungJoc-2

香港海關邊境及口岸科總部

Hong Kong Customs and Excise Department Control Point Command Headquarters

North District Park 北區公園

Sheung Shui 上水

Man Kam To 文錦渡

NTE/N/JocClu-19B

前粉嶺裁判署

Former Fanling Magistracy

302

Park & Ride Public Car Park 泊車轉乘公眾停車場

NTE/N/ShaTauK-T61

Fanling Station 粉嶺站 Yuen Long 元朗

North District Park 北區公園

NTE/N/ShaTauK-10B

Tai Po 大埔 Kowloon 九龍

NTE/N/JocClu-44

Sheung Shui 上水 Man Kam To 文錦渡

Sheung Shui Divisional Police Station 上水分區警署

Cycling Track

Rd Ah F/w & Cyw

Sharp Devi

PLB Proh/E GMB/

GW/50 km/h

Ped Ah/R

Ramp

Subway

行人隧道

沙頭角公路 — 龍躍頭段

斜路 單車徑

Plot File by: LIWY 2015/9/24
PATH: P:\projects\60340456\drawing\report\tia\TIA_653.dgn

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STATUS 狀況

SCALE 比例 A3 1 : 500

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60340456

CONTRACT NO. 合約編號 CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J8

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 6.12

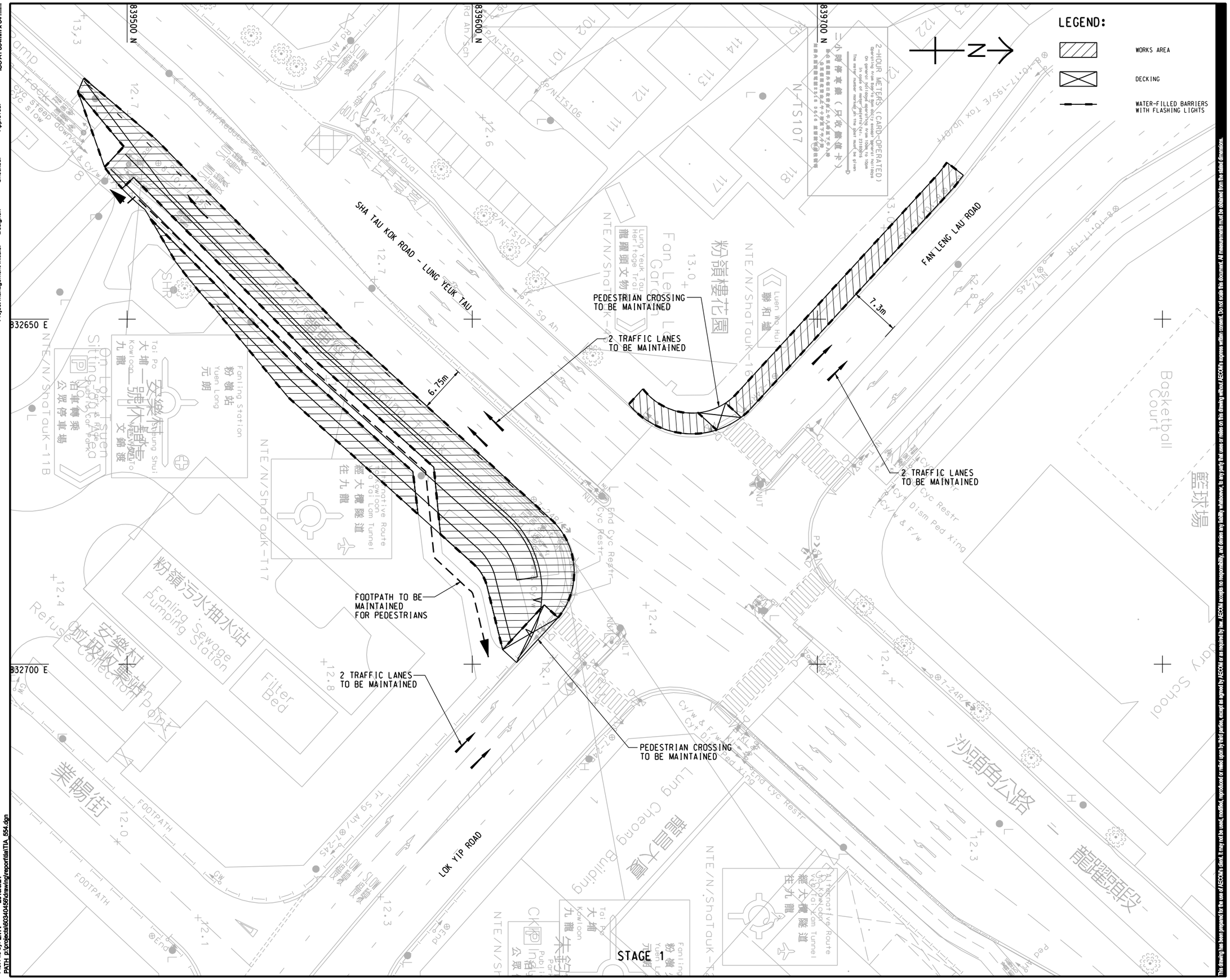
ISO A1 594mm x 841mm

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STATUS
狀況

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J9

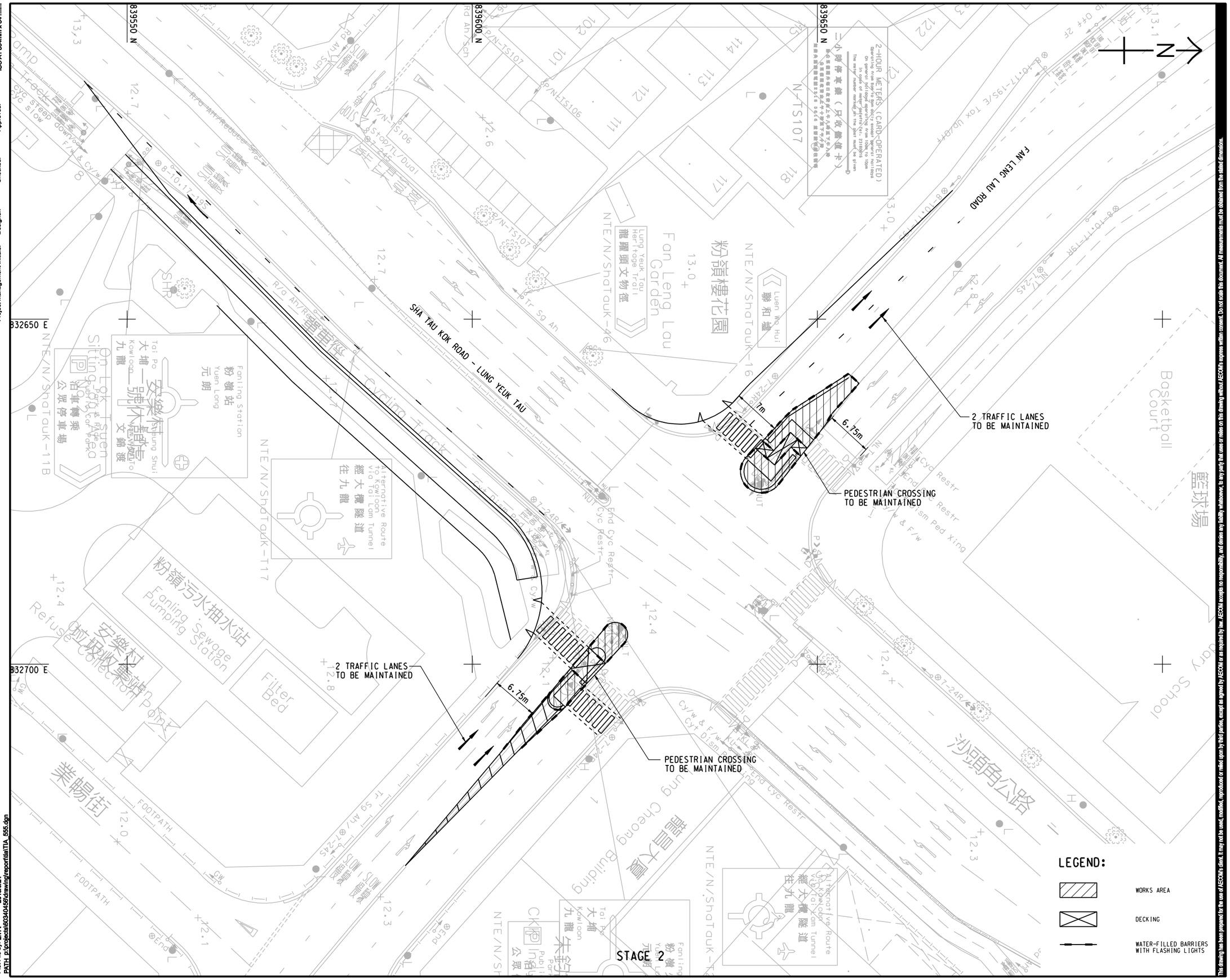
SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.13_1

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



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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J9

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.13_2

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PATH: p:\projects\60340456\drawing\report\tia\TIA_555.dgn

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

833100 E

833150 E

840150 N

840100 N

Fanling Sheung Shui Town Lot 177

MA SIK ROAD

PEDESTRIAN CROSSING TO BE REMOVED

SHA TAU KOK ROAD - LUNG YEUK TAU

Cycling Track

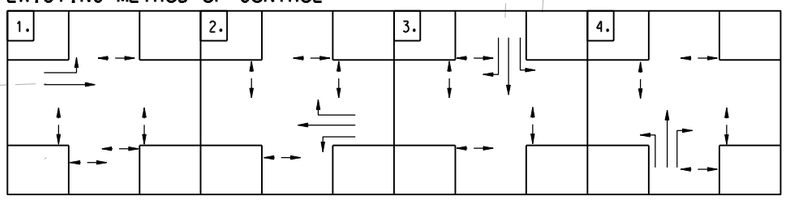
FP

Gas Station

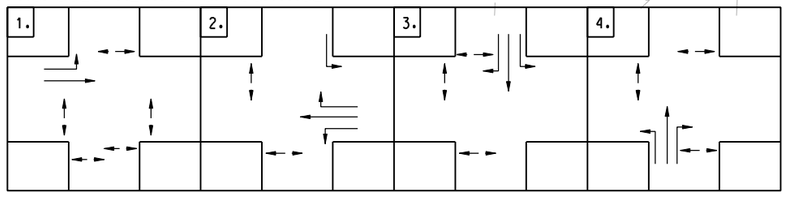
Building

Open

EXISTING METHOD OF CONTROL



PROPOSED METHOD OF CONTROL



Plot File by: LWY 2015/9/24
PATH: p:\projects\60340456\drawing\report\tia\TIA_656.dgn

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STATUS
階段

SCALE
比例

A3 1 : 500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60340456

CONTRACT NO.
合約編號

CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED JUNCTION IMPROVEMENT OF JUNCTION J11 (DURING CONSTRUCTION)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.14

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initiials:

833150 E

840250 N

4 TRAFFIC LANES TO BE MAINTAINED

2 TRAFFIC LANES TO BE MAINTAINED

SHA TAU KOK ROAD - LUNG YEUK TAU

PEDESTRIAN CROSSING TO BE REMOVED

MA SIK ROAD

STAGE 1

833200 E

840200 N

PEDESTRIAN CROSSING TO BE REMOVED

2 TRAFFIC LANES TO BE MAINTAINED

4 TRAFFIC LANES TO BE MAINTAINED

SHA TAU KOK ROAD - LUNG YEUK TAU

STAGE 2

LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

840200 N

2 TRAFFIC LANES TO BE MAINTAINED

PEDESTRIAN CROSSING TO BE MAINTAINED

PEDESTRIAN CROSSING TO BE REMOVED

MIN. 1.5m FOOTPATH TO BE MAINTAINED

EXISTING ACCESS TO BE MAINTAINED

840250 N

MIN. 1.5m FOOTPATH TO BE MAINTAINED

3 TRAFFIC LANES TO BE MAINTAINED

SHA TAU KOK ROAD - LUNG YEUK TAU

2 TRAFFIC LANES TO BE MAINTAINED

PEDESTRIAN CROSSING TO BE MAINTAINED

833150 E

PEDESTRIAN CROSSING TO BE MAINTAINED

2 TRAFFIC LANES TO BE MAINTAINED

STAGE 3

Plot File by: TANWT 2015/10/19
PATH: P:\projects\60340456\drawing\REPORT\TIA\TIA_557.dgn

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A	OCT.15	MINOR REVISION	
-	MAY 15	FIRST ISSUE	

STATUS
階段

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J11

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.15A

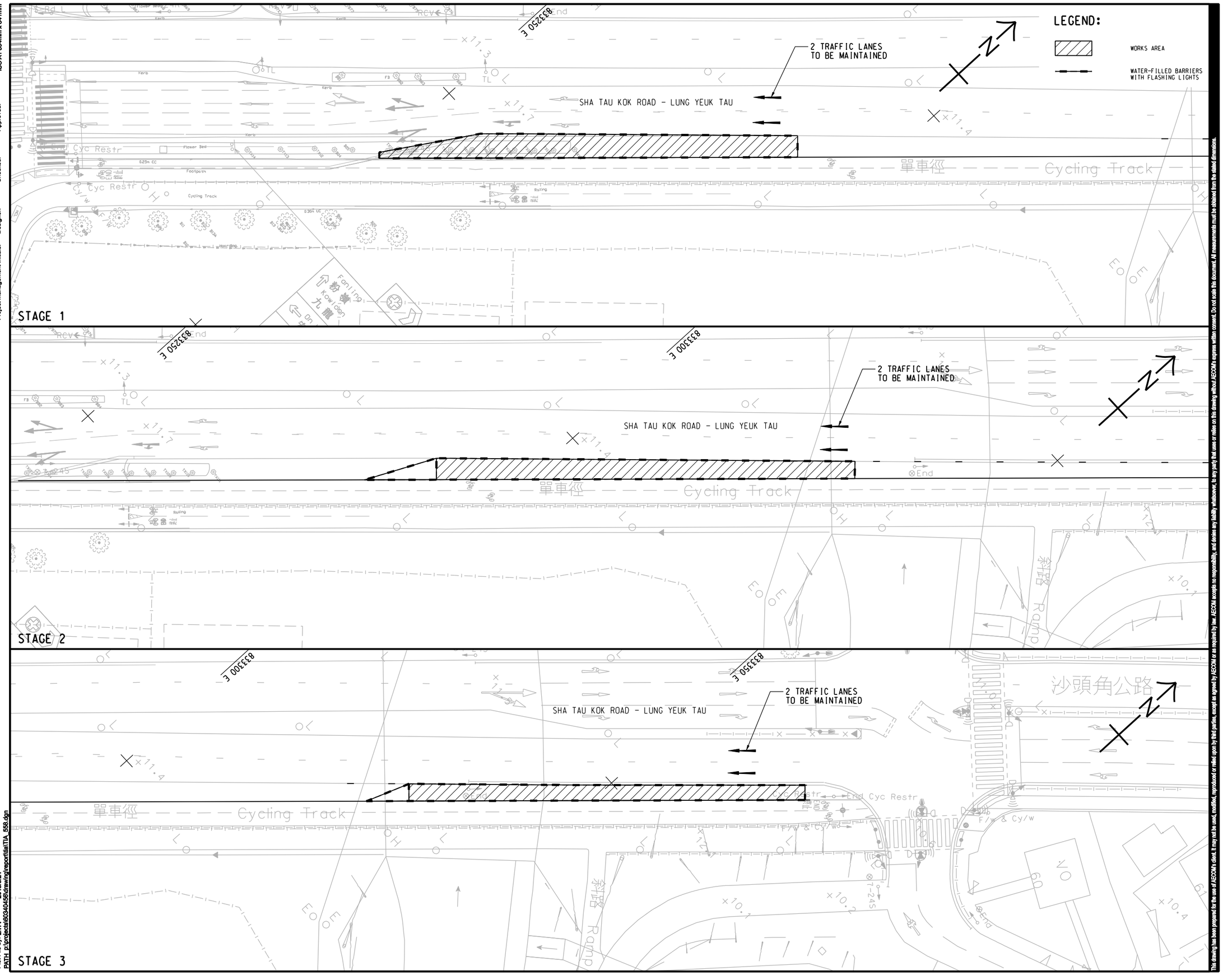
ISO A1 594mm x 841mm

Approved:

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Designer:

Project Management Initials:



Plot File by: LIWY 2015/9/24
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SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

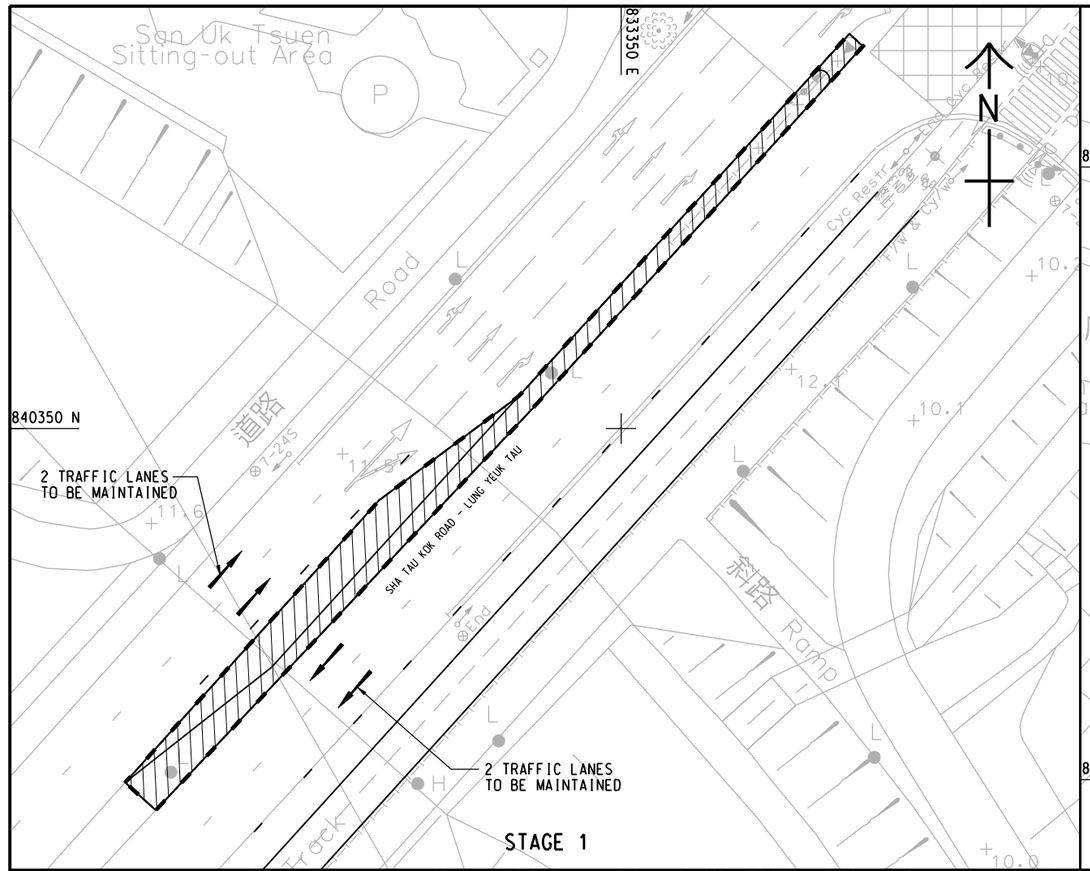
SHEET TITLE
圖紙名稱

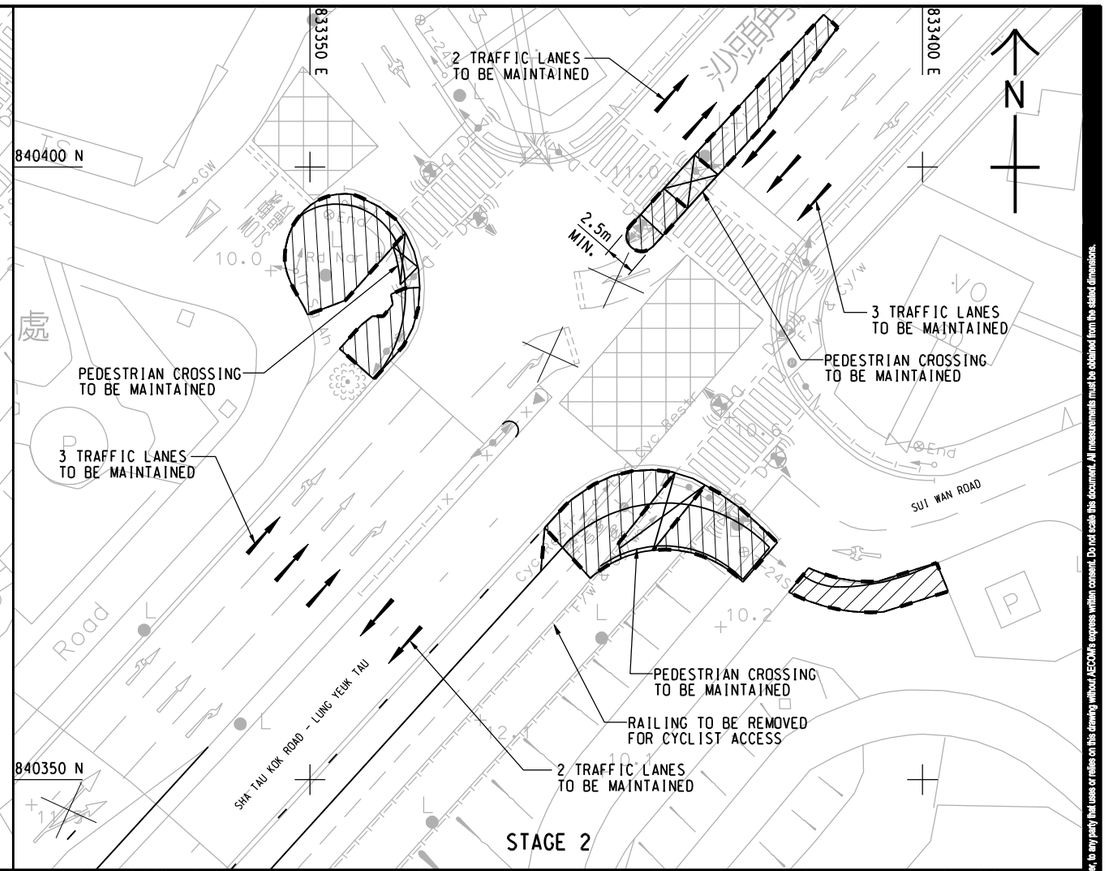
PROPOSED TTM SCHEME FOR SHA TAU KOK ROAD

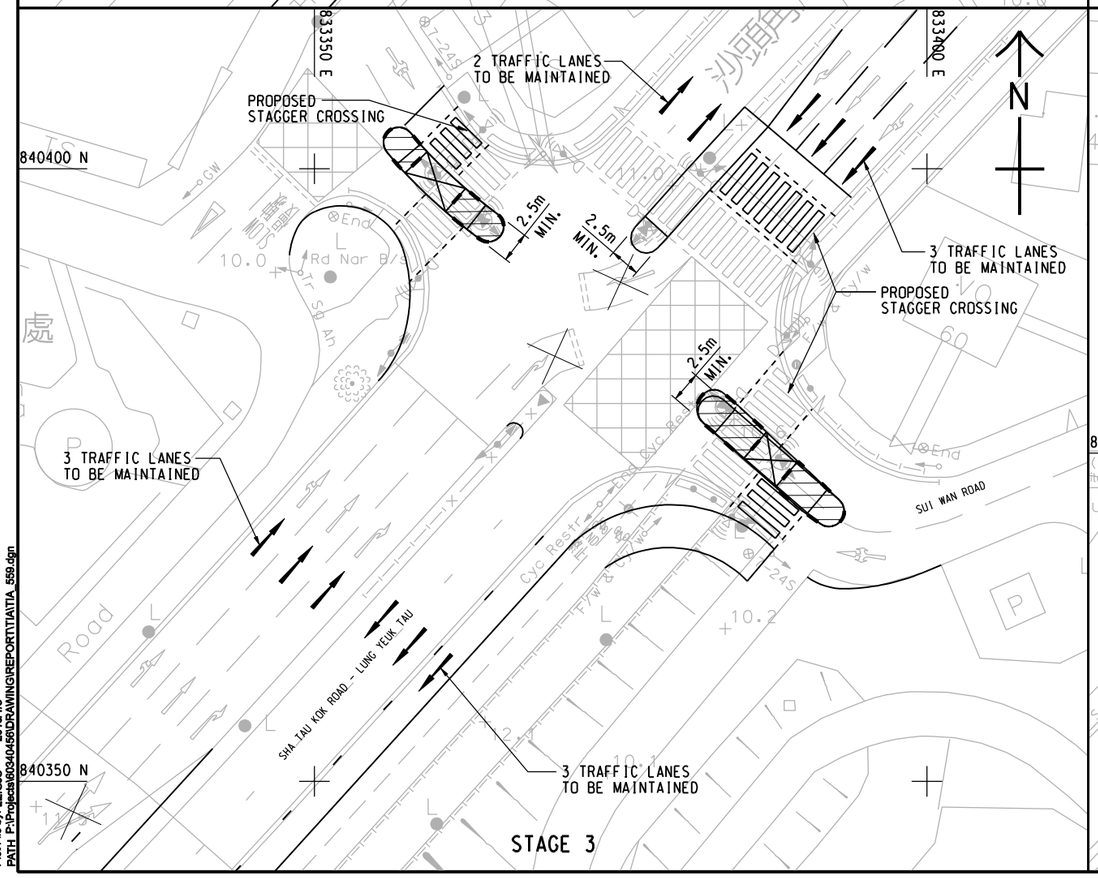
SHEET NUMBER
圖紙編號

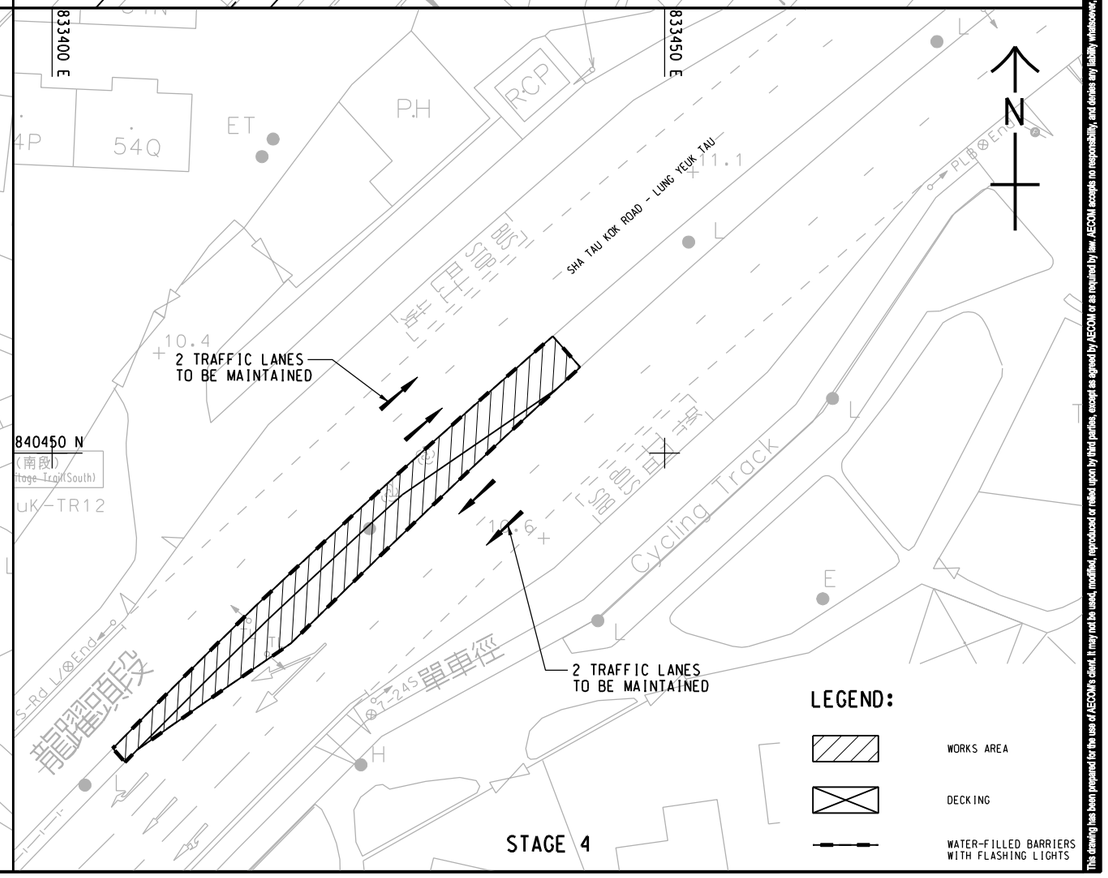
60340456/TIA/FIGURE 6.16

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









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A	DEC.15	GENERAL REVISION	
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STATUS
階段

SCALE
比例
A3 1 : 500

DIMENSION UNIT
尺寸基位
METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號
60340456

CONTRACT NO.
合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱
PROPOSED TTM SCHEME FOR JUNCTION J13

SHEET NUMBER
圖紙編號
60340456/TIA/FIGURE 6.17A

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60340456/TIA/FIGURE 6.18_1 TO 6.18_7.

LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

SHA TAU KOK ROAD - LUNG YEUK TAU

MIN. 1.5m FOOTPATH TO BE MAINTAINED

EXISTING VEHICULAR ACCESS TO BE MAINTAINED

837100 E

837150 E

840650 N

840600 N

Road

Ramp

Cycling Track

沙頭角公路 — 龍躍頭段

單車徑

道路

RCP

158

160

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

Plot File by: LEIGJS 2016/1/4
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STATUS 狀況

SCALE 比例 A3 1 : 500

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60340456

CONTRACT NO. 合約編號 CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED TEMPORARY TRAFFIC ARRANGEMENT FOR WIDENING OF CYCLE TRACK BETWEENSUI WAN ROAD AND LUNG MA ROAD - STAGE 1

SHEET 1 OF 7

SHEET NUMBER 圖紙編號 60340456/TIA/FIGURE 6.18_1A

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

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60340456/TIA/FIGURE 6.18_1 TO 6.18_7.

LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

SHA TAU KOK ROAD – LUNG YEUK TAU

MIN. 1.5m FOOTPATH TO BE MAINTAINED

EXISTING VEHICULAR ACCESS TO BE MAINTAINED

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STATUS
狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TEMPORARY TRAFFIC ARRANGEMENT FOR WIDENING OF CYCLE TRACK BETWEENSUI WAN ROAD AND LUNG MA ROAD - STAGE 2

SHEET 2 OF 7

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.18_2A

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60340456/TIA/FIGURE 6.18_1 TO 6.18_7.

LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

SHA TAU KOK ROAD - LUNG YEUK TAU

MIN. 1.5m FOOTPATH TO BE MAINTAINED

EXISTING VEHICULAR ACCESS TO BE MAINTAINED

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狀況

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TEMPORARY TRAFFIC ARRANGEMENT FOR WIDENING OF CYCLE TRACK BETWEENSUI WAN ROAD AND LUNG MA ROAD - STAGE 3

SHEET 3 OF 7

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.18_3A

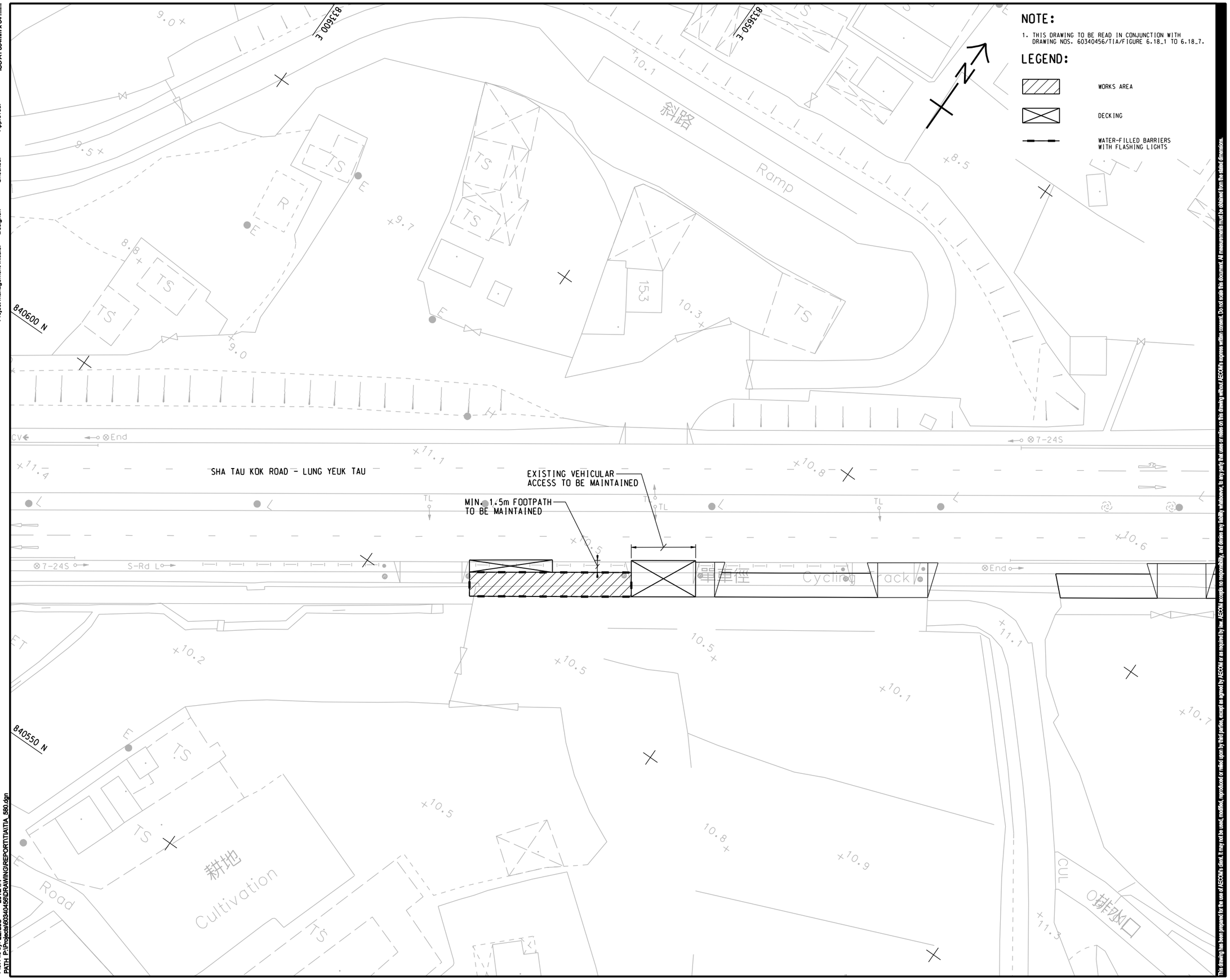
ISO A1 594mm x 841mm

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Designer:

Project Management Initials:



Plot File by: LEIGUS 2016/1/4
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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱

PROPOSED TEMPORARY TRAFFIC ARRANGEMENT FOR WIDENING OF CYCLE TRACK BETWEENSUI WAN ROAD AND LUNG MA ROAD - STAGE 4

SHEET 4 OF 7

SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 6.18_4A

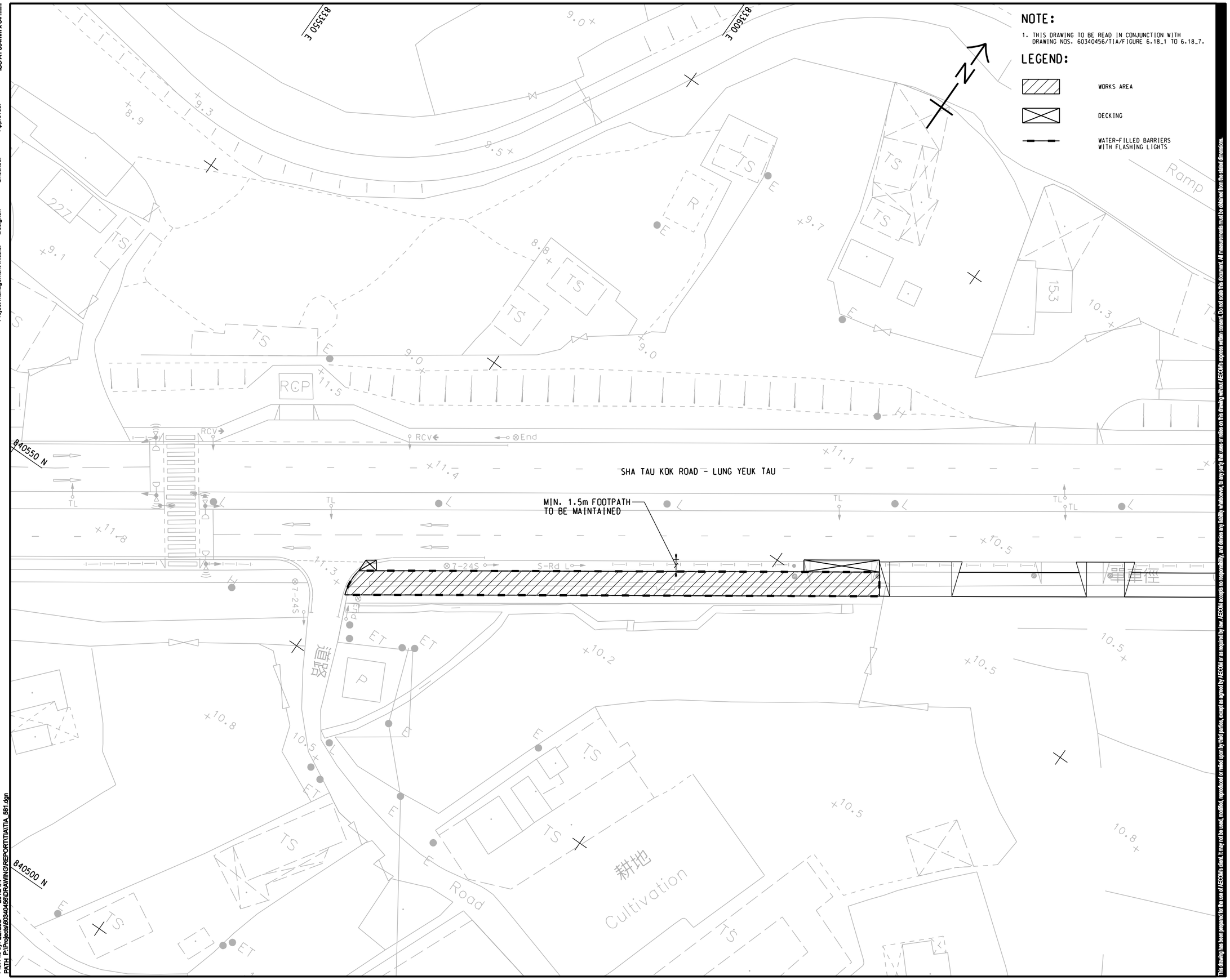
ISO A1 594mm x 841mm

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Plot File by: LEIGJS 2016/1/4
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SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TEMPORARY TRAFFIC ARRANGEMENT FOR WIDENING OF CYCLE TRACK BETWEENSUI WAN ROAD AND LUNG MA ROAD - STAGE 5

SHEET 5 OF 7

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.18_5A

ISO A1 594mm x 841mm

Approved:

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Designer:

Project Management Initials:

NOTE:

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LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

SHA TAU KOK ROAD - LUNG YEUK TAU

MIN. 1.5m FOOTPATH TO BE MAINTAINED

833450 E

833500 E

840500 N

840450 N

Plot File by: LEIGJS 2016/1/4
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SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TEMPORARY TRAFFIC ARRANGEMENT FOR WIDENING OF CYCLE TRACK BETWEENSUI WAN ROAD AND LUNG MA ROAD - STAGE 6

SHEET 6 OF 7

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.18_6A

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

NOTE:

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LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

SHA TAU KOK ROAD - LUNG YEUK TAU

EXISTING VEHICULAR ACCESS TO BE MAINTAINED

EXISTING VEHICULAR ACCESS TO BE MAINTAINED

MIN. 1.5m FOOTPATH TO BE MAINTAINED

833450 E

840450 N

840500 N

沙頭角公路

萃雲路

龍躍頭文物徑(南段)
Lung Yeuk Tau Heritage Trail(South)

龍躍頭文物徑
Lung Yeuk Tau Heritage Trail

新屋村
San Uk Tsuen

宣道園
Suen Dou Comp

NTE/N/ShaTauK-TL10

NTE/N/ShaTauK-TL12

NTE/N/ShaTauK-TR10

NTE/N/ShaTauK-TR12

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狀況

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TEMPORARY TRAFFIC ARRANGEMENT FOR WIDENING OF CYCLE TRACK BETWEENSUI WAN ROAD AND LUNG MA ROAD - STAGE 7

SHEET 7 OF 7

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.18_7A

ISO A1 594mm x 841mm

Approved:

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Designer:

Project Management Initials:

LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

N

833800 E

833850 E

833900 E

840800 N

840750 N

840700 N

Ping Che 坪輋

Sha Tau Kok 沙頭角

新圍軍營

SAN WAI BARRACKS

Lung Ma Road 龍馬路

NTE/N/ShaTauK-52

NTE/N/ShaTauK-21

NTE/N/ShaTauK-20

NTE/N/LunMa-01

Fanling 粉嶺

TL/Sharp Devi

2 TRAFFIC LANES TO BE MAINTAINED

SHA TAU KOK ROAD

2 TRAFFIC LANES TO BE MAINTAINED

1 TRAFFIC LANE TO BE MAINTAINED

PEDESTRIAN CROSSING TO BE MAINTAINED

LUNG MA ROAD

龍躍頭段

單車徑

Cycling Track

斜路

Ramp

STAGE 1

Plot File by: TANWT 2015/10/13
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_560.dgn

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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

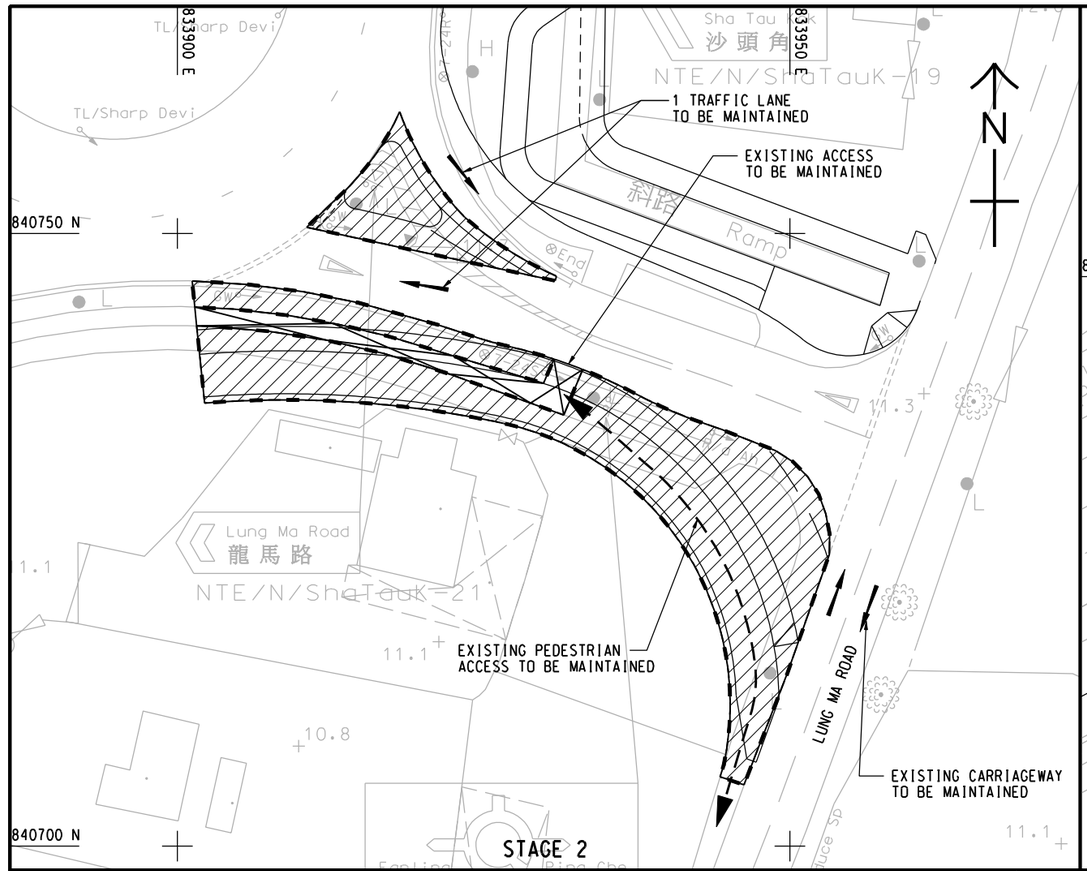
KEY PLAN 索引圖

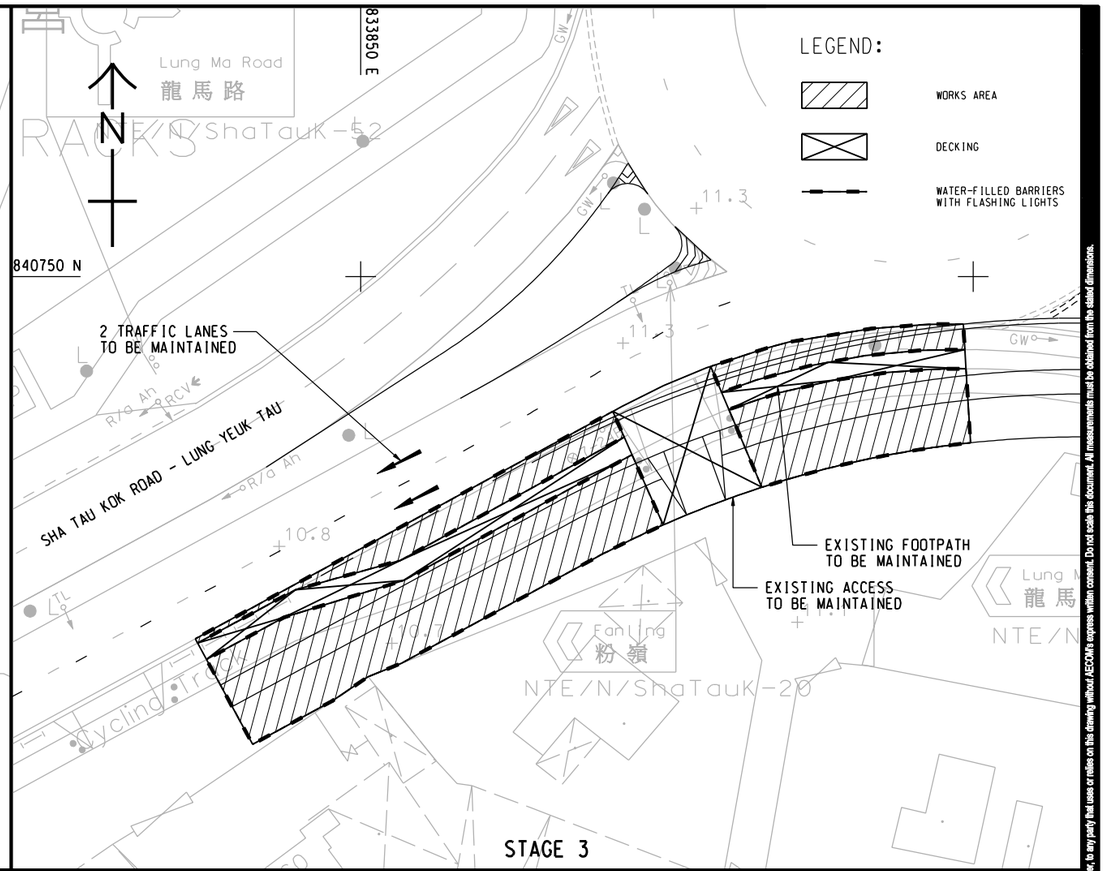
PROJECT NO. 項目編號
60340456

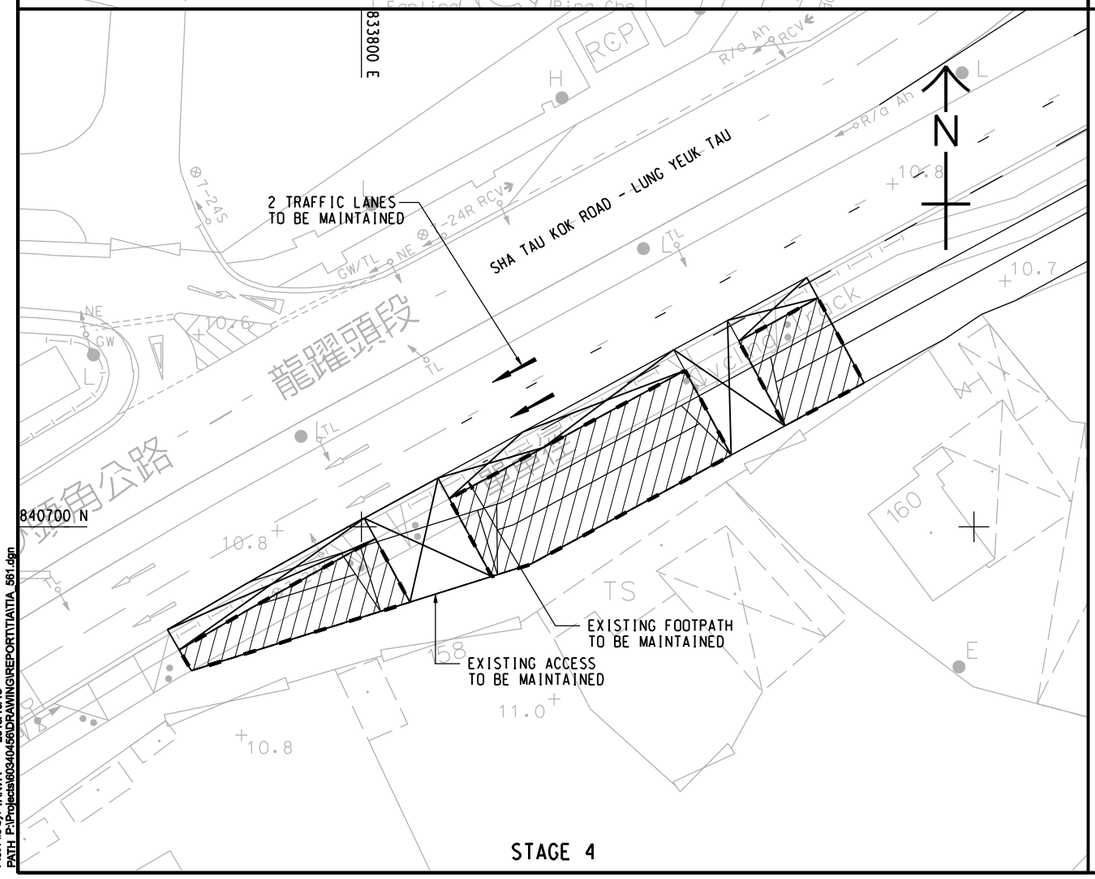
CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱
PROPOSED TTM SCHEME FOR JUNCTION J14

SHEET NUMBER 圖紙編號
60340456/TIA/FIGURE 6.19_1







ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

Plot File by: TANWT 2015/10/13
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_561.dgn

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STATUS
階段

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸基位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR JUNCTION J14

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.19_2

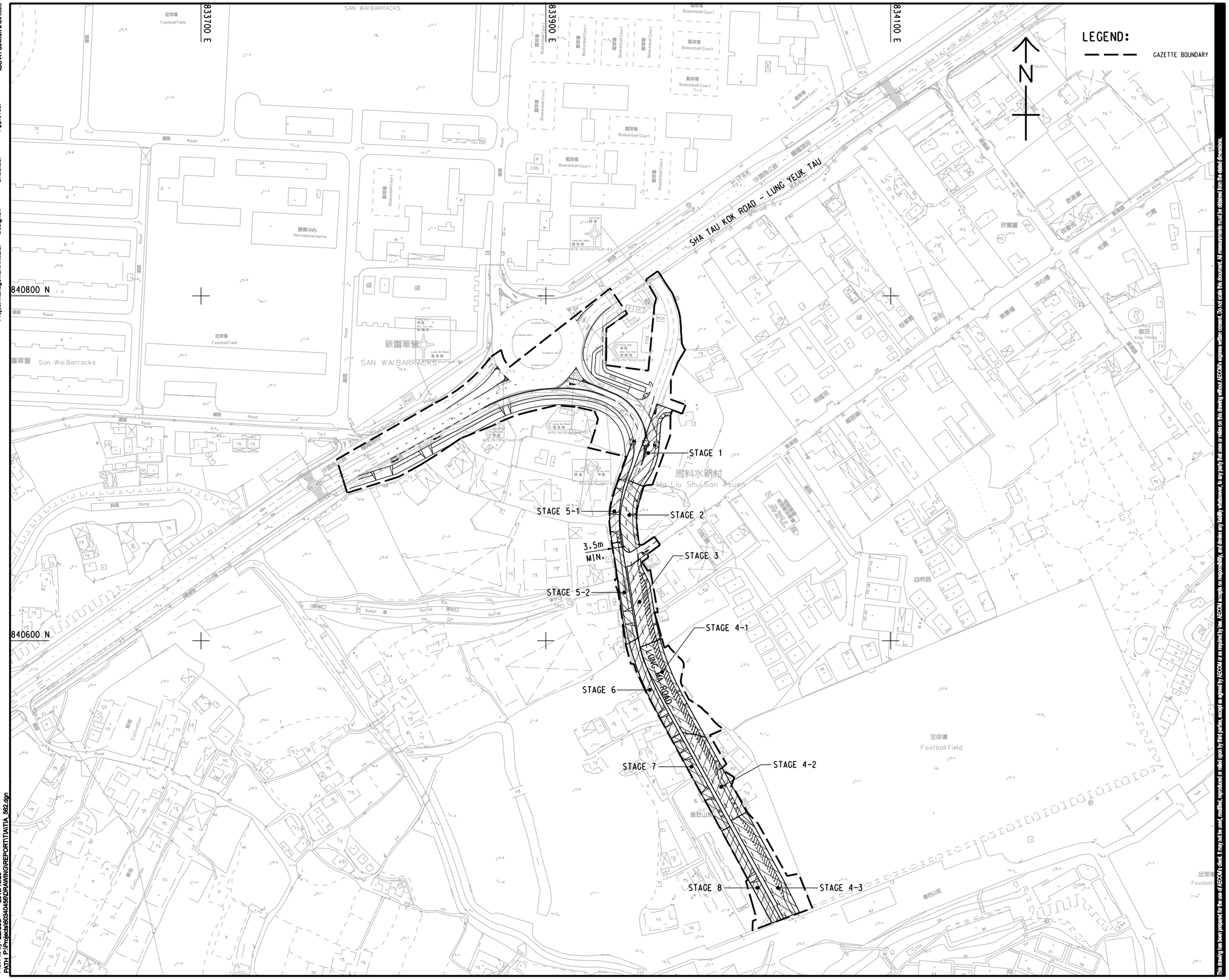
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LEIGJS 2015/10/26
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_562.dgn

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STATUS
階段

SCALE 比例
A3 1 : 2000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

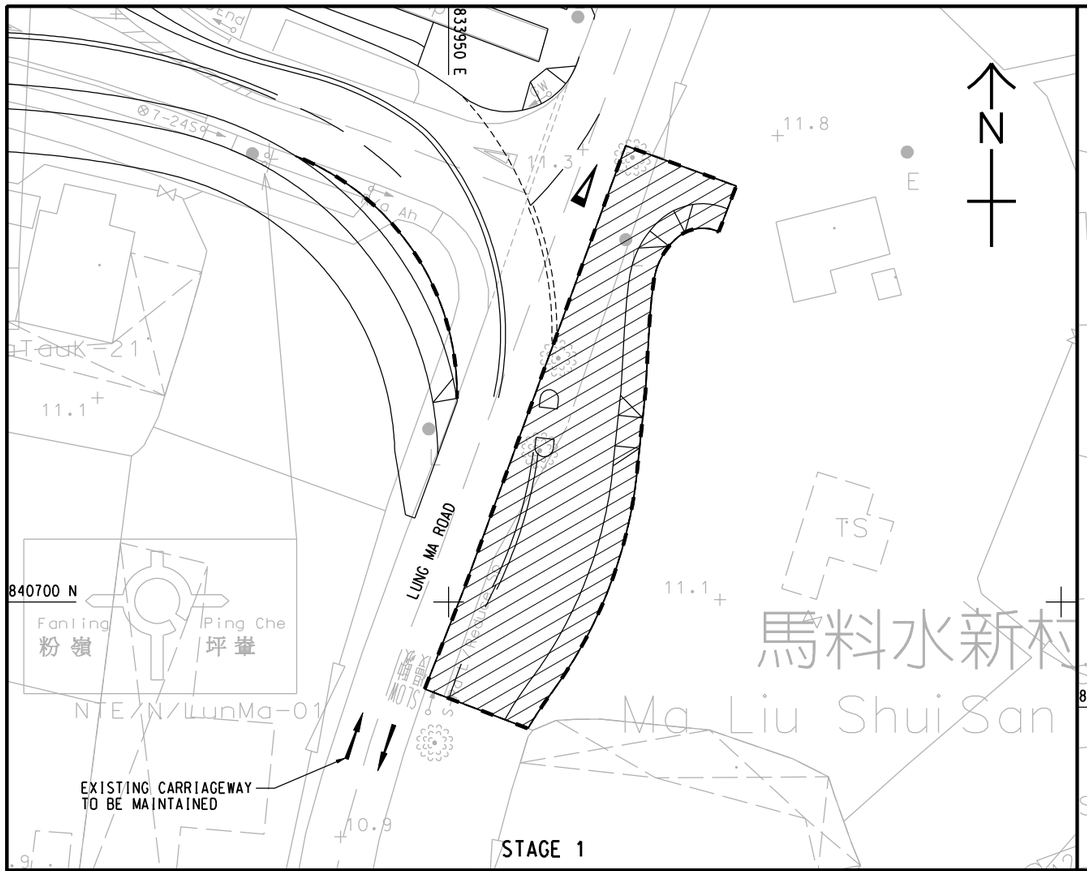
PROPOSED TTM SCHEME FOR LUNG MA ROAD (L2)

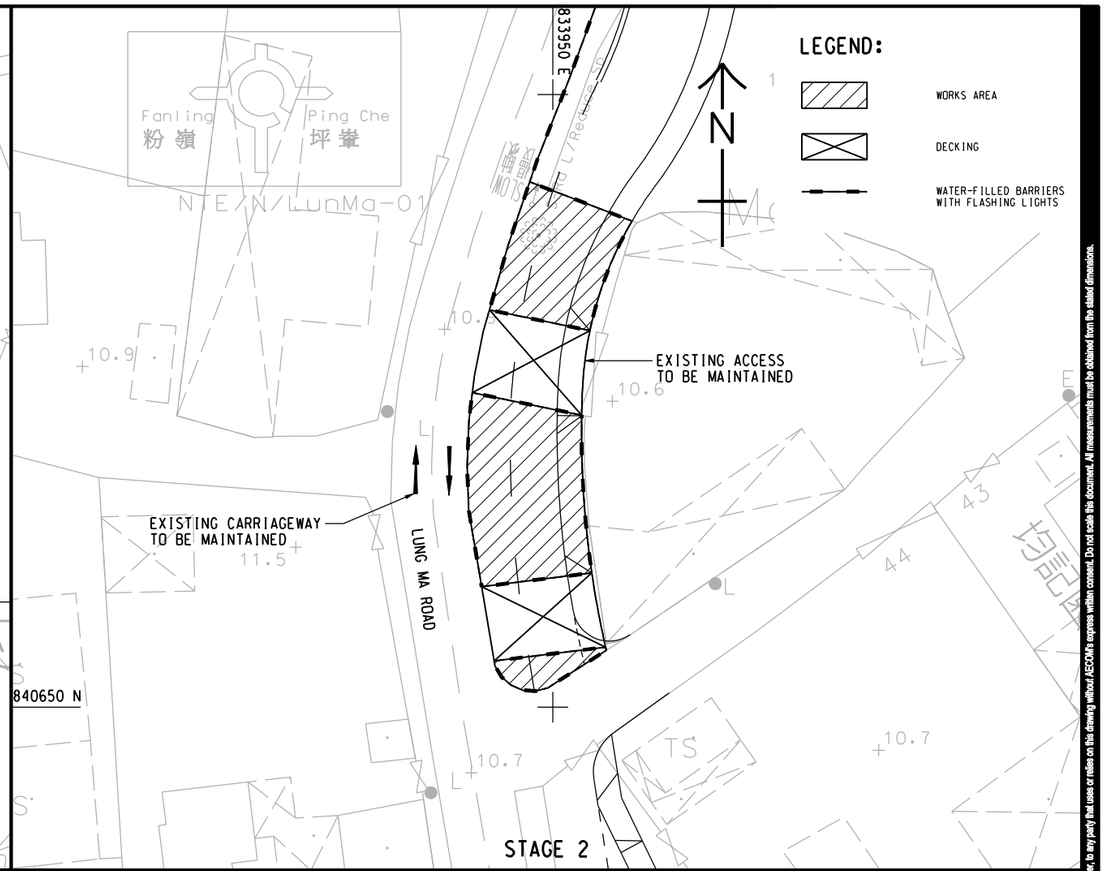
SHEET NUMBER
圖紙編號

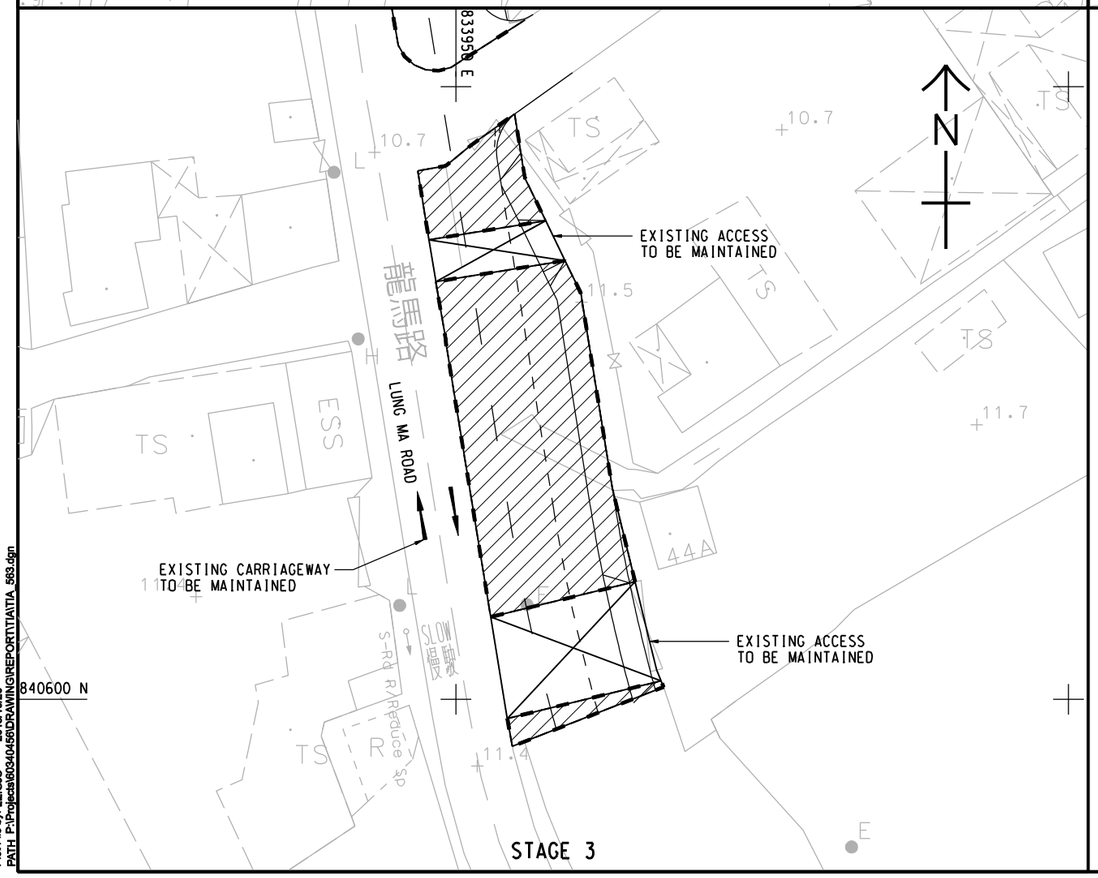
60340456/TIA/FIGURE 6.20_1

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:







Plot File by: LEIGJS 2015/10/26
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_583.dgn

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STATUS
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SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱
PROPOSED TTM SCHEME FOR LUNG MA ROAD (L2)

SHEET NUMBER
圖紙編號
60340456/TIA/FIGURE 6.20_2

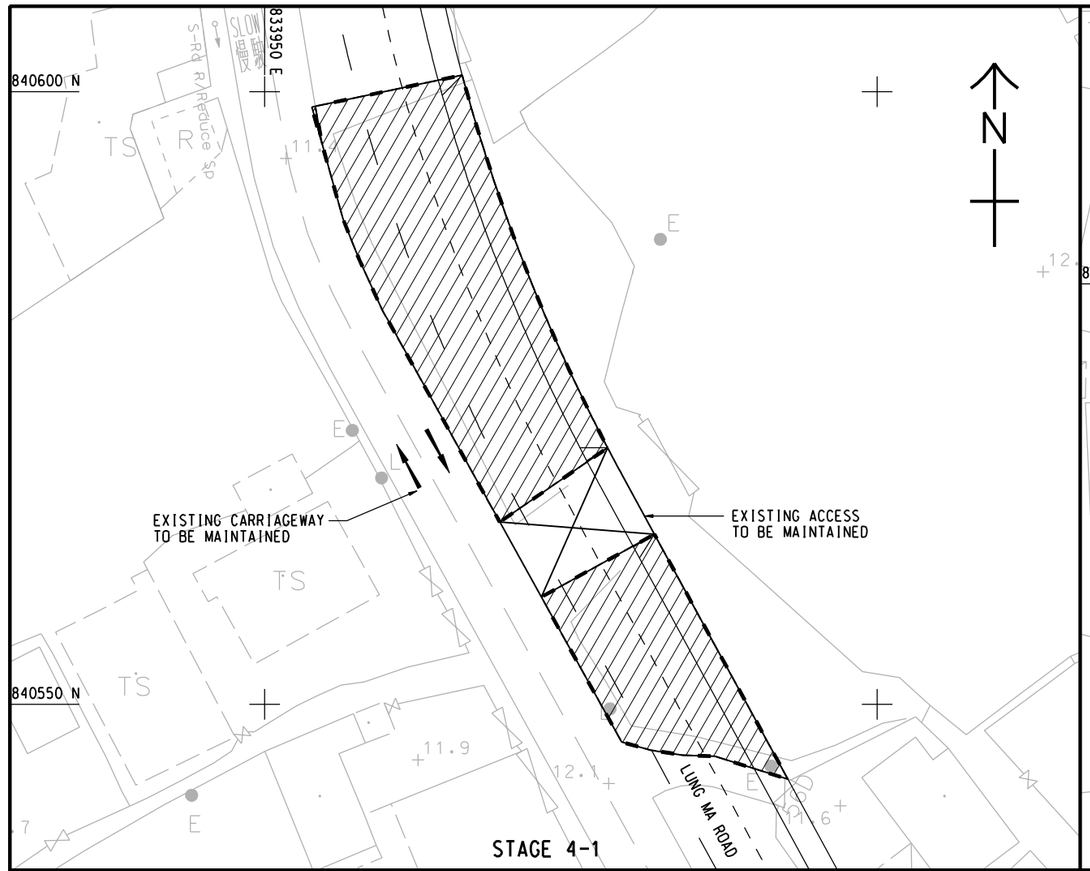
ISO A1 594mm x 841mm

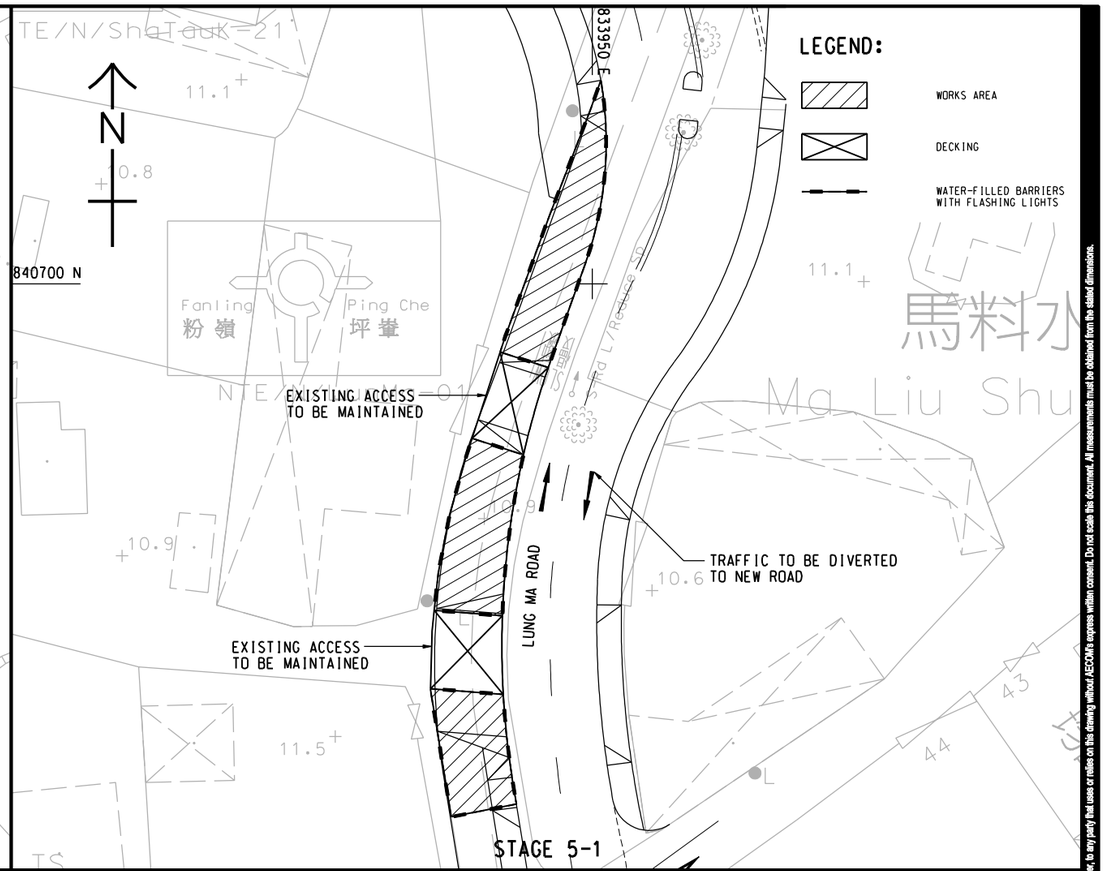
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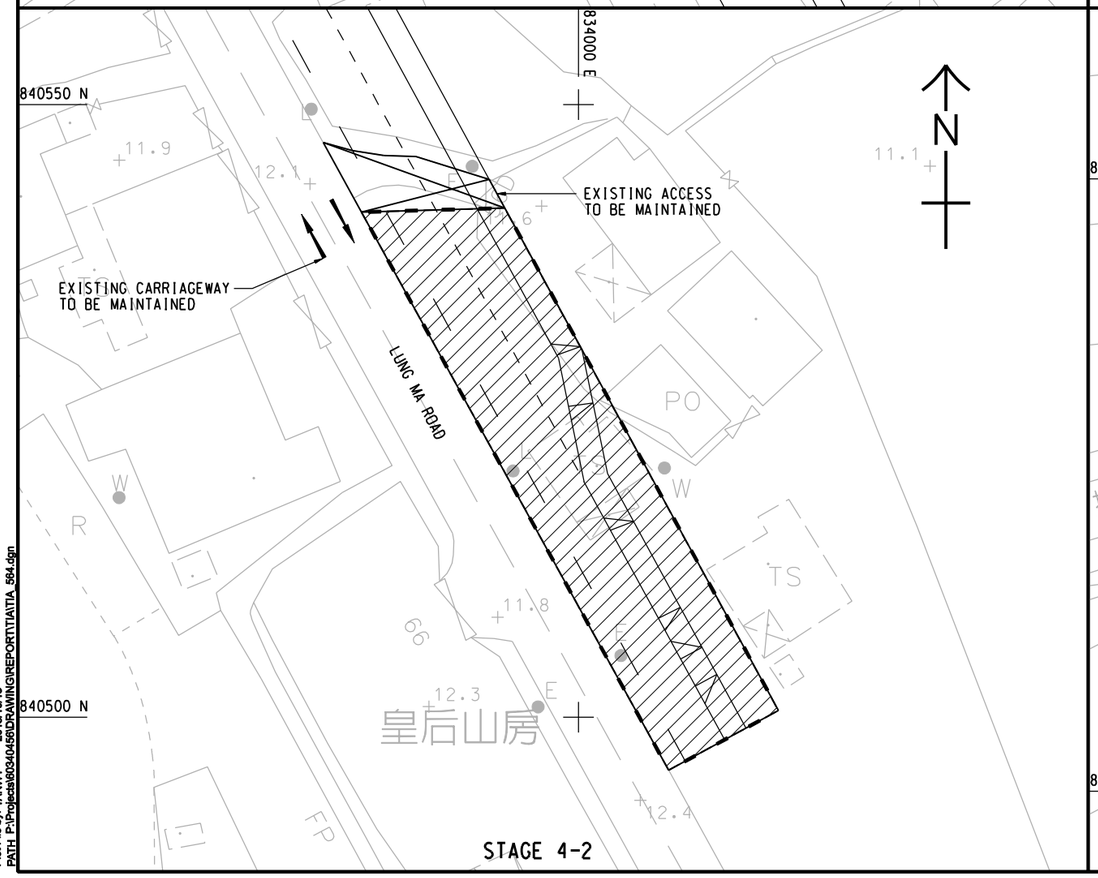
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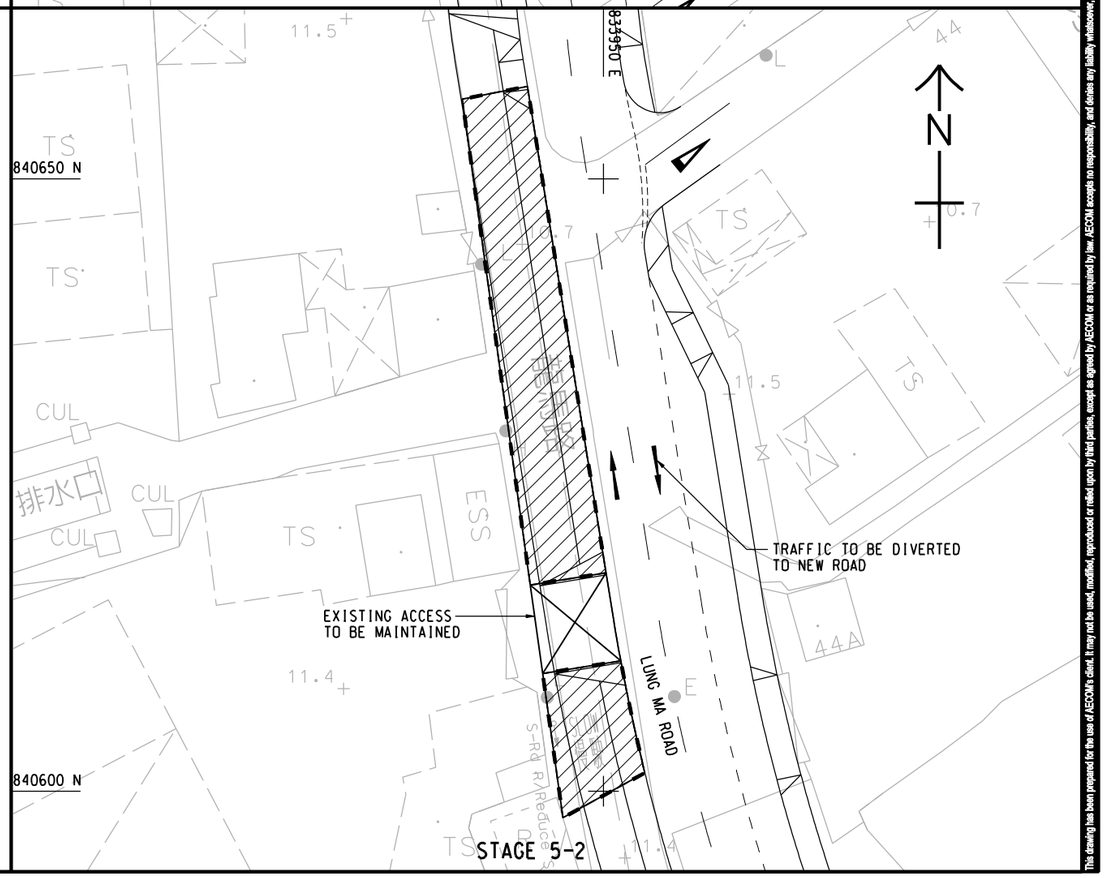
Designer:

Project Management Initials:









Plot File by: TANWT 2015/10/13
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_564.dgn

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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸基位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

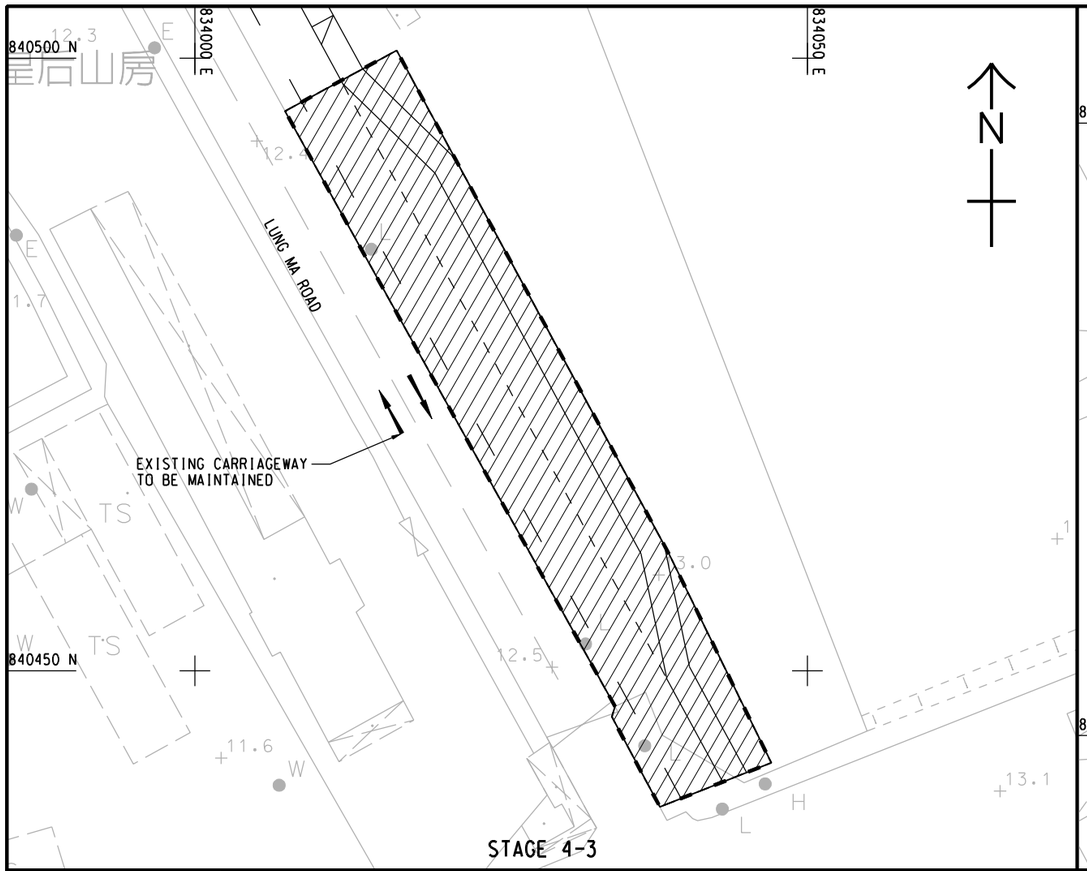
CONTRACT NO. 合約編號
CE 63/2014 (CE)

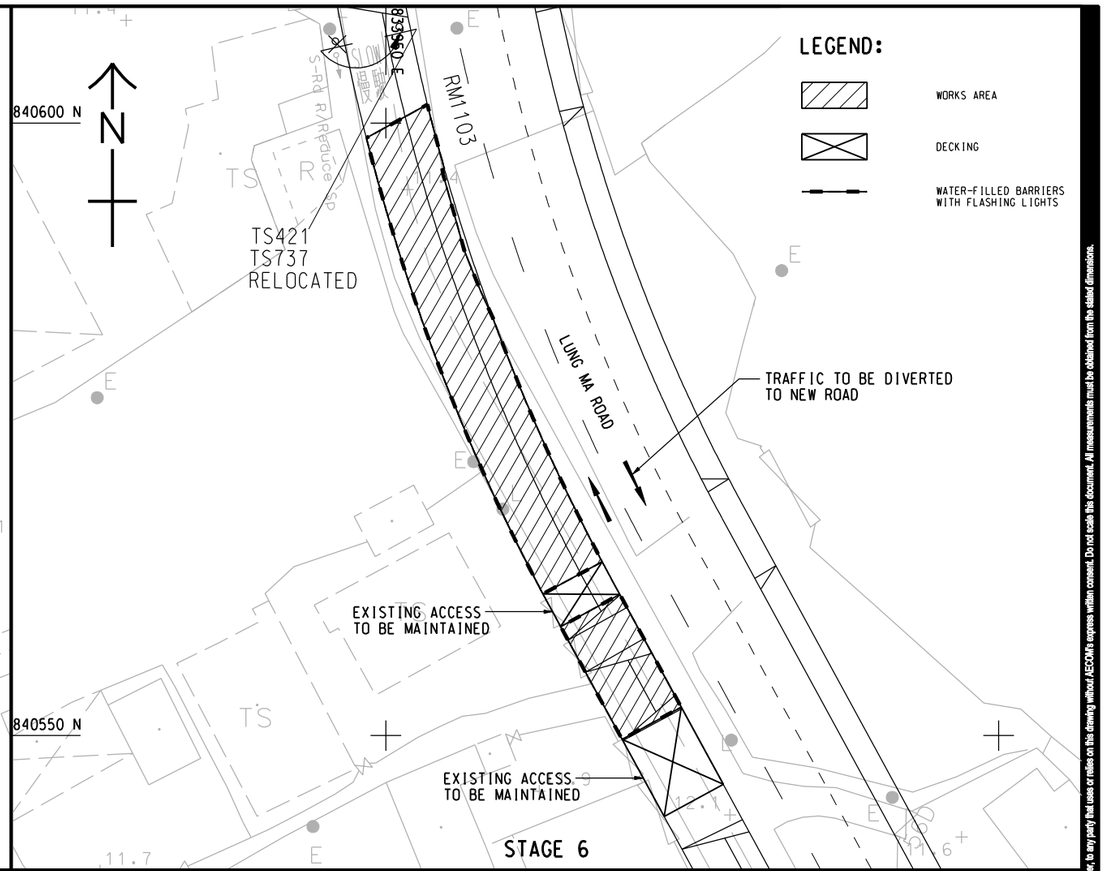
SHEET TITLE
圖紙名稱

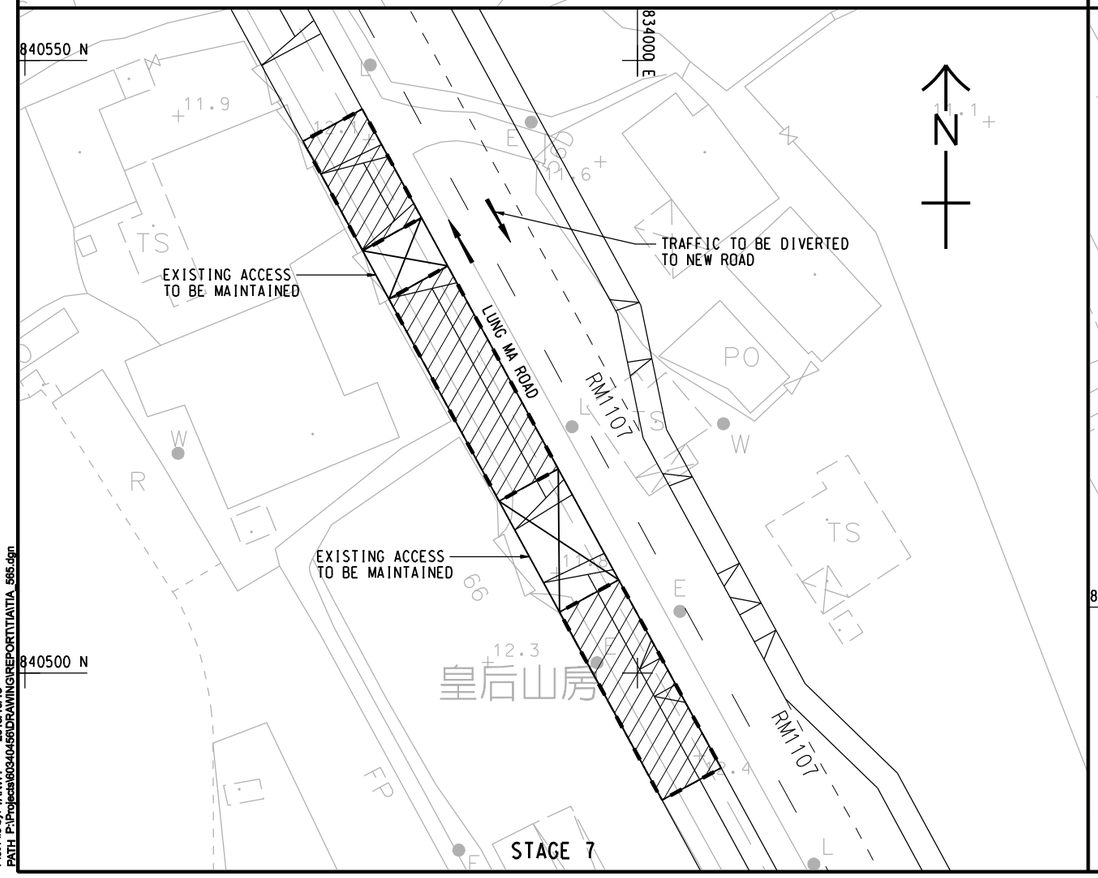
PROPOSED TTM SCHEME FOR LUNG MA ROAD (L2)

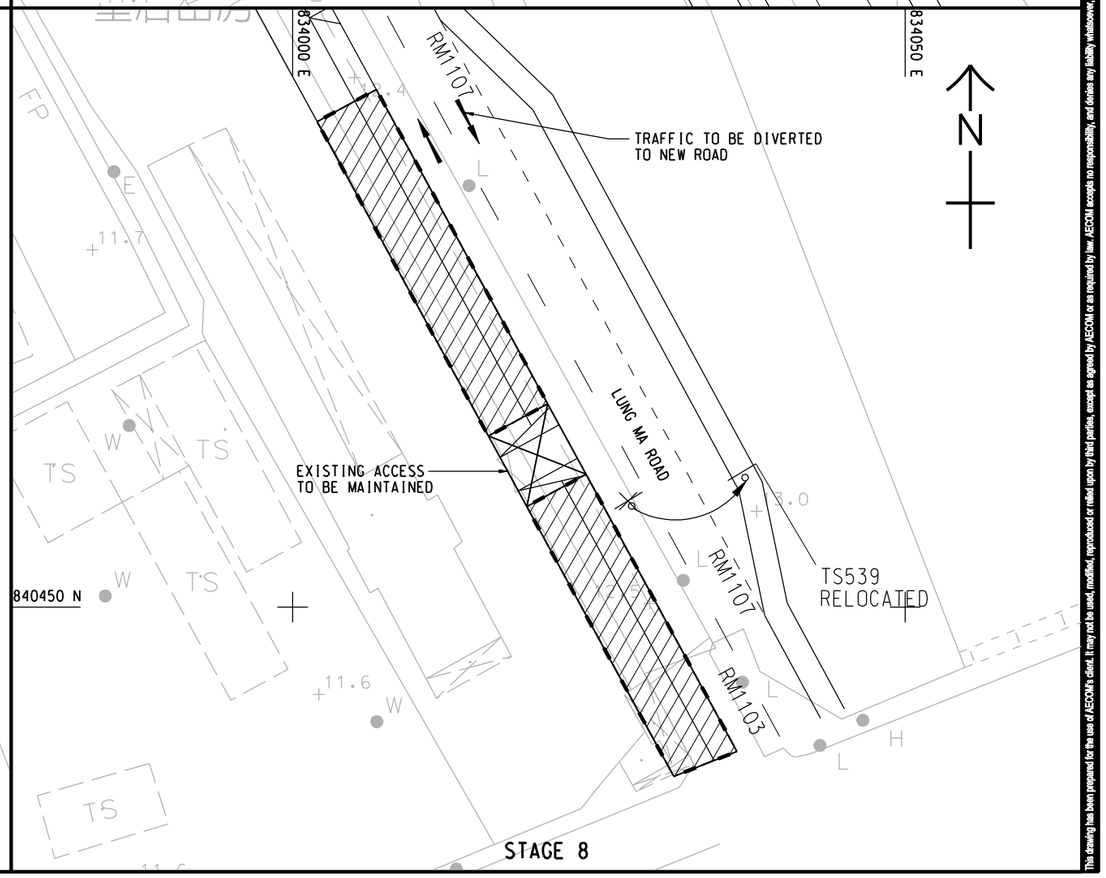
SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.20_3









LEGEND:

- WORKS AREA
- DECKING
- WATER-FILLED BARRIERS WITH FLASHING LIGHTS

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

Plot File by: TANWT 2015/10/13
PATH: P:\Projects\60340456\DRAWING\REPORT\TIA\TIA_565.dgn

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STATUS
現狀

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸基位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR LUNG MA ROAD (L2)

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.20_4

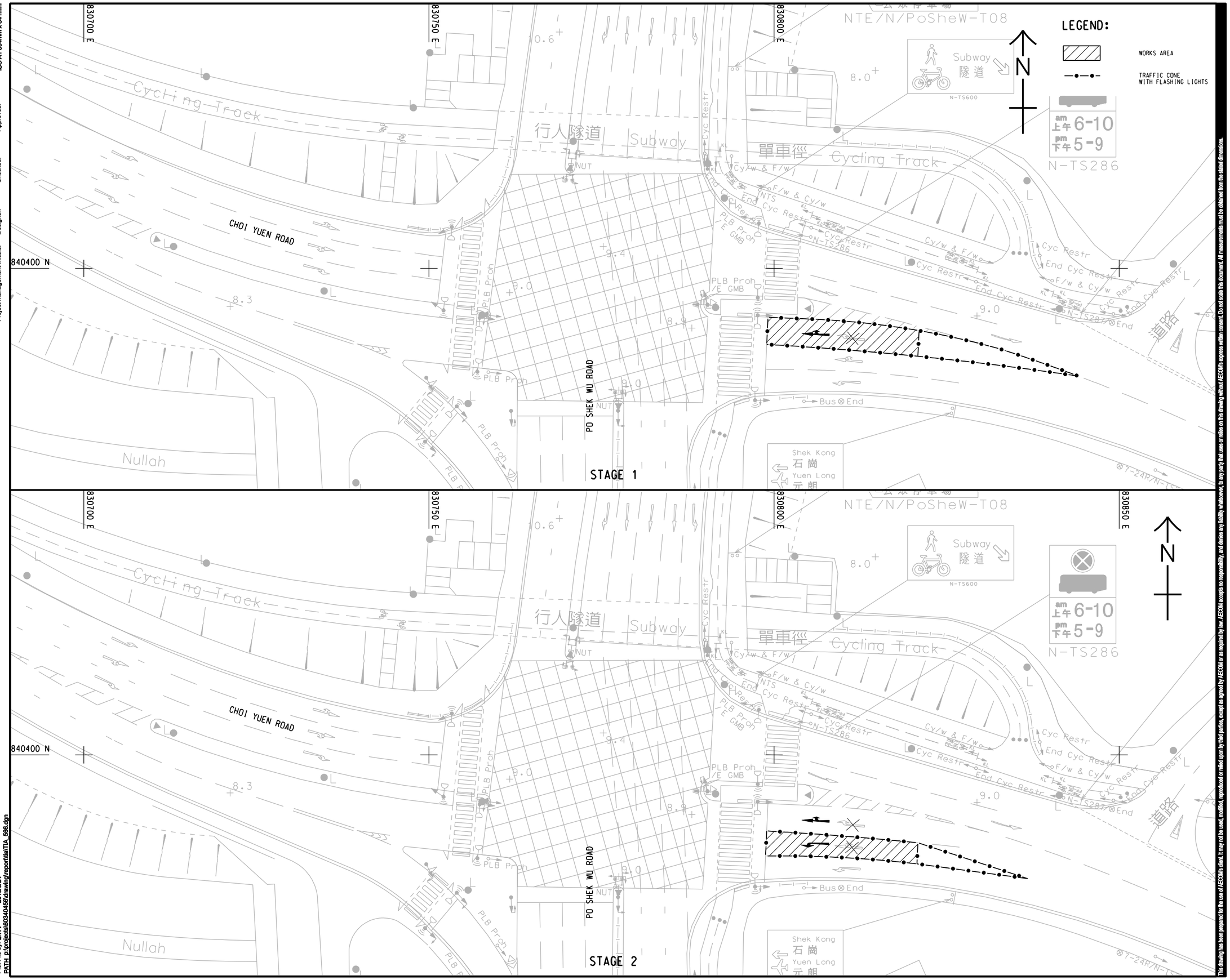
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LIWY 2015/9/24
PATH: p:\projects\60340456\drawing\report\tia\TIA_566.dgn

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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱
PROPOSED TTM SCHEME FOR JUNCTION J15

SHEET NUMBER 圖紙編號
60340456/TIA/FIGURE 6.21

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

WORKS AREA

DECKING

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

N

831450 E

831500 E

831550 E

840550 N

840500 N

840450 N

JOCKEY CLUB ROAD

LUNG SUM AVENUE

2 TRAFFIC LANES TO BE MAINTAINED

Fanling 粉嶺 Kowloon 九龍

Tin Ping Shan 天平山

Shek Wu Hui 石湖墟

Lo Wu 羅湖 Man Kam To 文錦渡

Man Kam To 文錦渡

Shek Wu Hui 石湖墟 Sheung Shui Station 上水站

NTE/N/JocClu-01

NTE/N/LunSumA-01A

NTE/N/LunSum足球場

NTE/N/JocClu-14B

Basketball Court 籃球場

Football Field

Sheung Shui Garden No.1

Cycling Track 單車徑

Playgr

FP

P

CUL

Plot File by: LWV 2015/9/24
PATH: p:\projects\60340456\drawing\report\tia\TIA_567.dgn

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STATUS 階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE 圖紙名稱
PROPOSED TTM SCHEME FOR JUNCTION J16

SHEET NUMBER 圖紙編號
60340456/TIA/FIGURE 6.22

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60340456/TIA/FIGURE 6.23_1 TO FIGURE 6.23_4.

LEGEND:

RM — — — RM RISING MAIN (BY OPEN-CUT METHOD)

RM — · · — RM RISING MAIN (BY TRENCHLESS METHOD)

WORKING SHAFT

833600 E

833800 E

840800 N

840600 N

840400 N

833200 E

833400 E

833600 E

STAGE 1

STAGE 2

STAGE 3

STAGE 4

STAGE 5

STAGE 6-1

STAGE 6-2

STAGE 7

STAGE 8

CUT LINE A-A

SHA TAU KOK ROAD

LUNG MA ROAD

MA WAT RIVER

新圍軍營 San Wai Barracks

新屋村

PLAN
SCALE 1 : 2000

PLAN
SCALE 1 : 2000

N

Plot File by: LWV 2015/9/24
PATH: P:\PROJECTS\60340450\DRAWING\REPORT\TIA\TIA_568.dgn

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STATUS
階段

SCALE
比例
A3 1 : 2000

DIMENSION UNIT
尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號
60340456

CONTRACT NO.
合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱
PROPOSED TTM SCHEME FOR WORKING SHAFT AT SHA TAU KOK ROAD

SHEET NUMBER
圖紙編號
60340456/TIA/FIGURE 6.23_1

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

RISING MAIN (BY TRENCHLESS METHOD)

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

WORKS AREA

STAGE 1

STAGE 2

MA LIU SHUI SAN TSUEN

LUNG MA ROAD

SHA TAU KOK ROAD - LUNG YEUK TAU

Lung Ma Road

Cycling Track

Ramp

Ping Che

Sha Tau Kok

NTE/N/ShaTauK-19

ShaTauK-21

ShaTauK-22

ShaTauK-5

WAIBARRACKS

840800 N

840750 N

840700 N

833900 E

833950 E

834000 E

833750 E

833800 E

833850 E

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STATUS
狀況

SCALE
比例

A3 1 : 500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60340456

CONTRACT NO.
合約編號

CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR WORKING SHAFT AT SHA TAU KOK ROAD

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.23_2

Plot File by: LUWV
PATH: P:\PROJECTS\60340456\DRAWING\REPORT\TIA\TIA_668.dgn
20150924

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

RM RM RISING MAIN (BY TRENCHLESS METHOD)

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

WORKS AREA

N

837100 E

837150 E

840650 N

SHA TAU KOK ROAD - LUNG YEUK TAU

沙頭角公路 — — 龍躍頭段

單車徑 Cycling Track

STAGE 3

837600 E

837650 E

837700 E

840600 N

SHA TAU KOK ROAD - LUNG YEUK TAU

單車徑 Cycling Track

STAGE 4

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INFRASTRUCTURAL WORKS FOR PROPOSED DEVELOPMENTS AT QUEEN'S HILL, FANLING - INVESTIGATION, DESIGN AND CONSTRUCTION

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STATUS 階段

SCALE 比例 A3 1 : 500

DIMENSION UNIT 尺寸基位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60340456

CONTRACT NO. 合約編號 CE 63/2014 (CE)

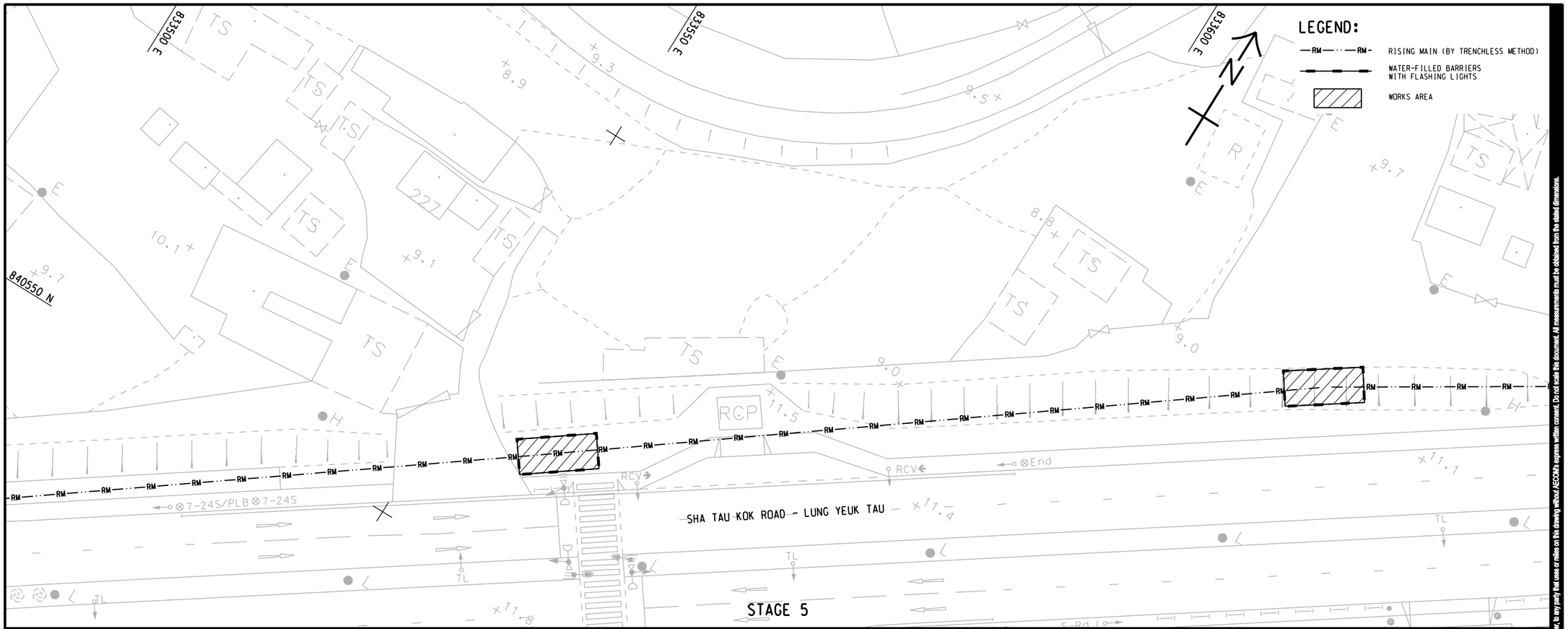
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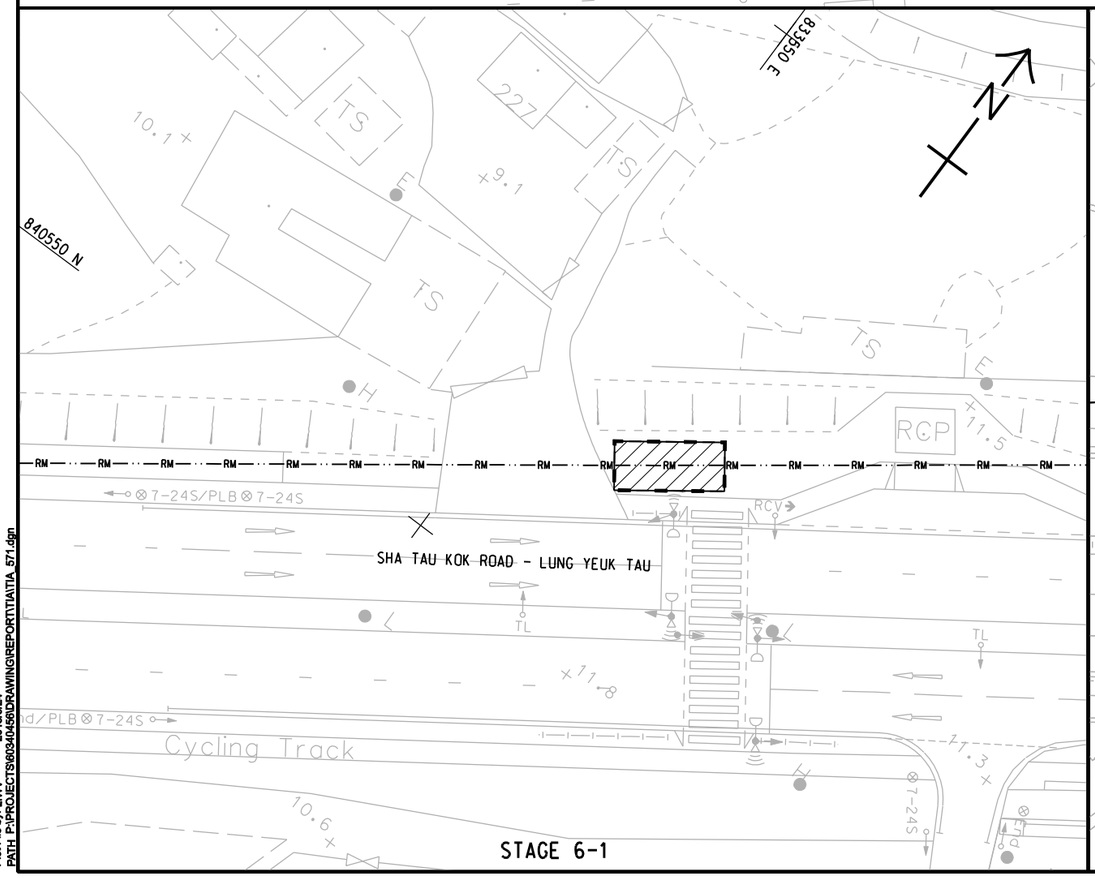
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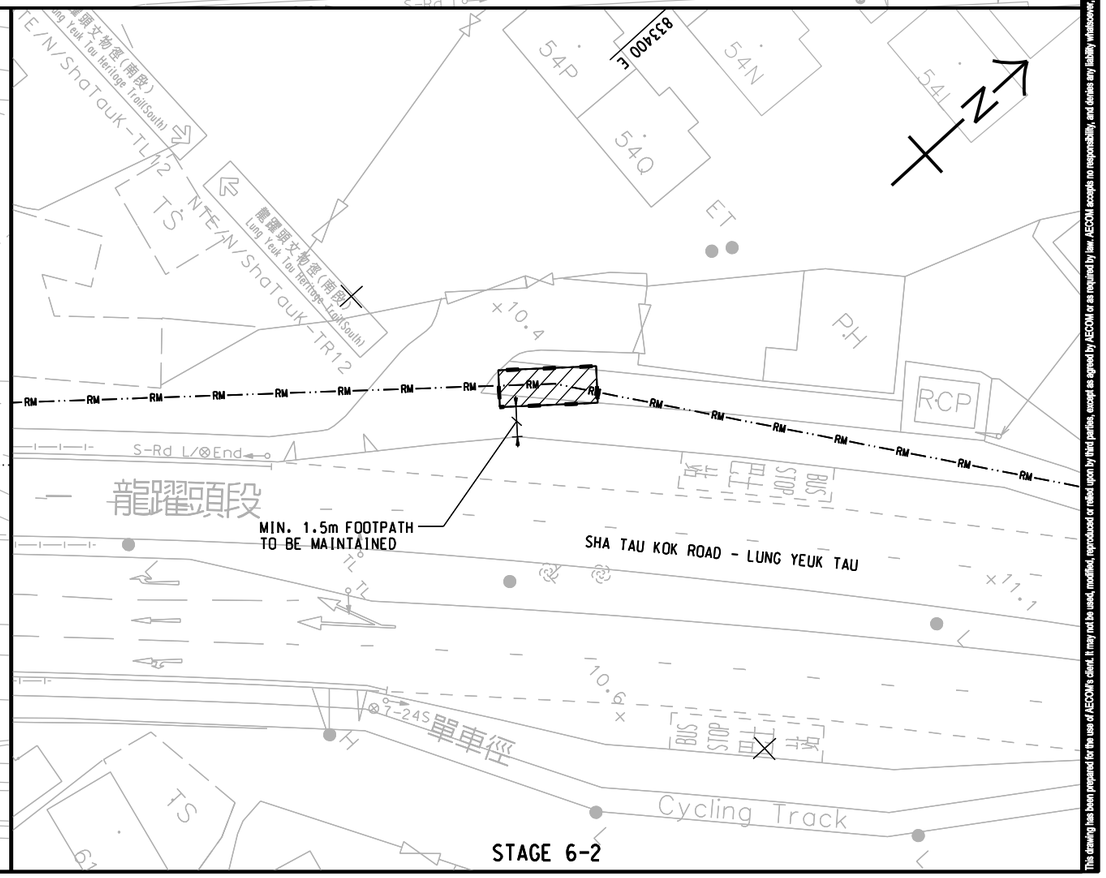
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60340456/TIA/FIGURE 6.23_3

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SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

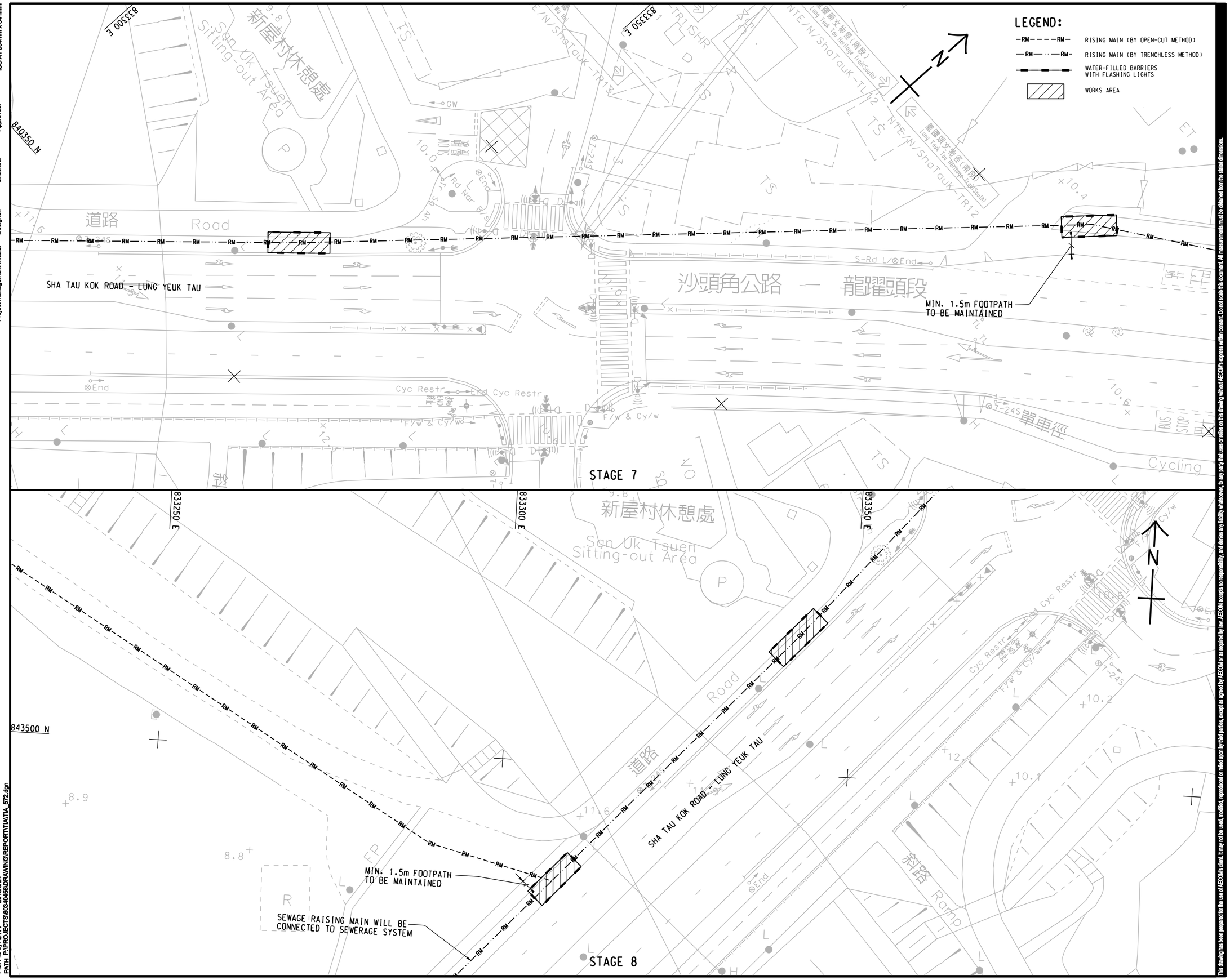
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圖紙名稱

PROPOSED TTM SCHEME FOR WORKING SHAFT AT SHA TAU KOK ROAD

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.23_4

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SCALE 比例 A3 1 : 500

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60340456

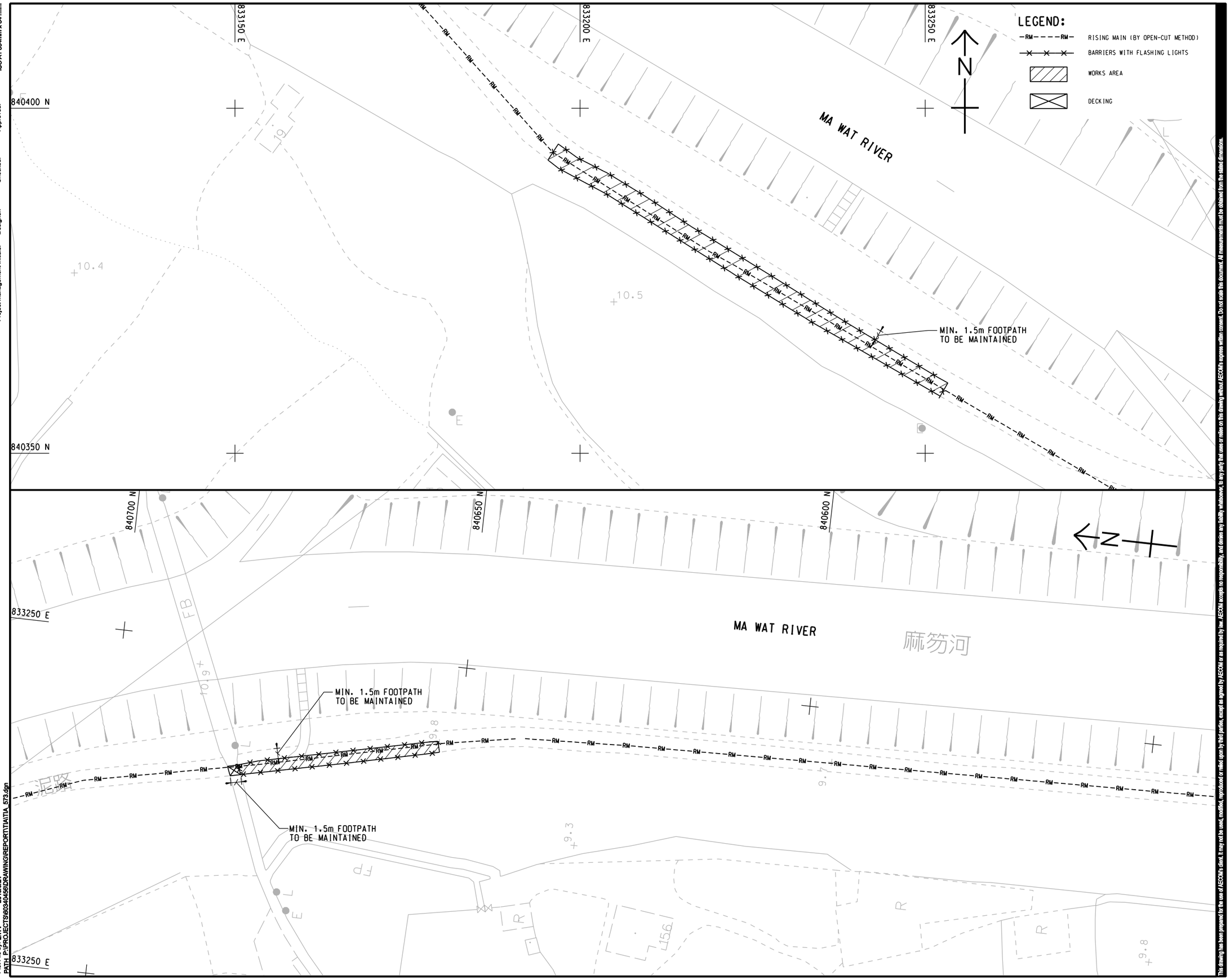
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SHEET NUMBER 圖紙編號

60340456/TIA/FIGURE 6.23_5



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

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狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

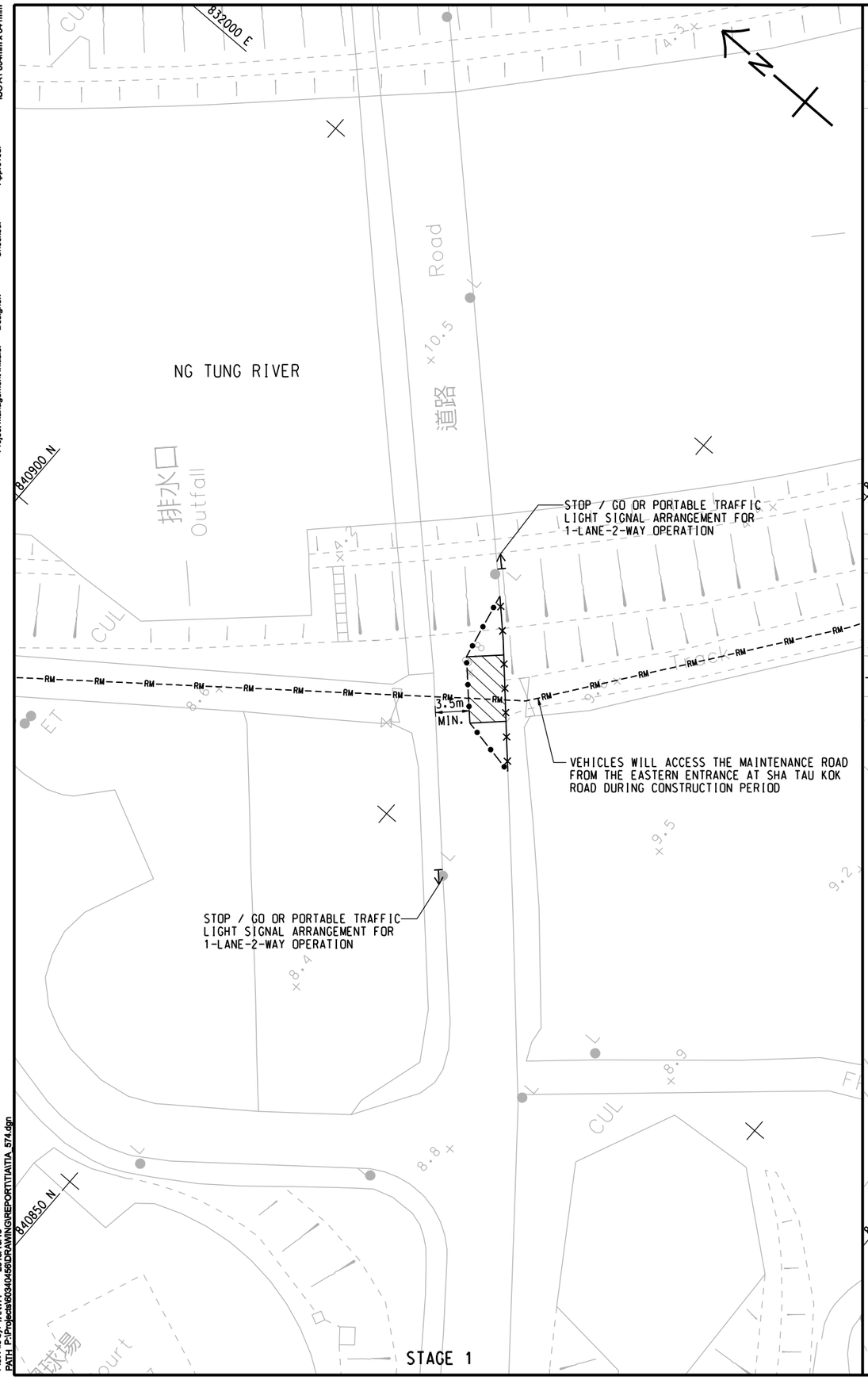
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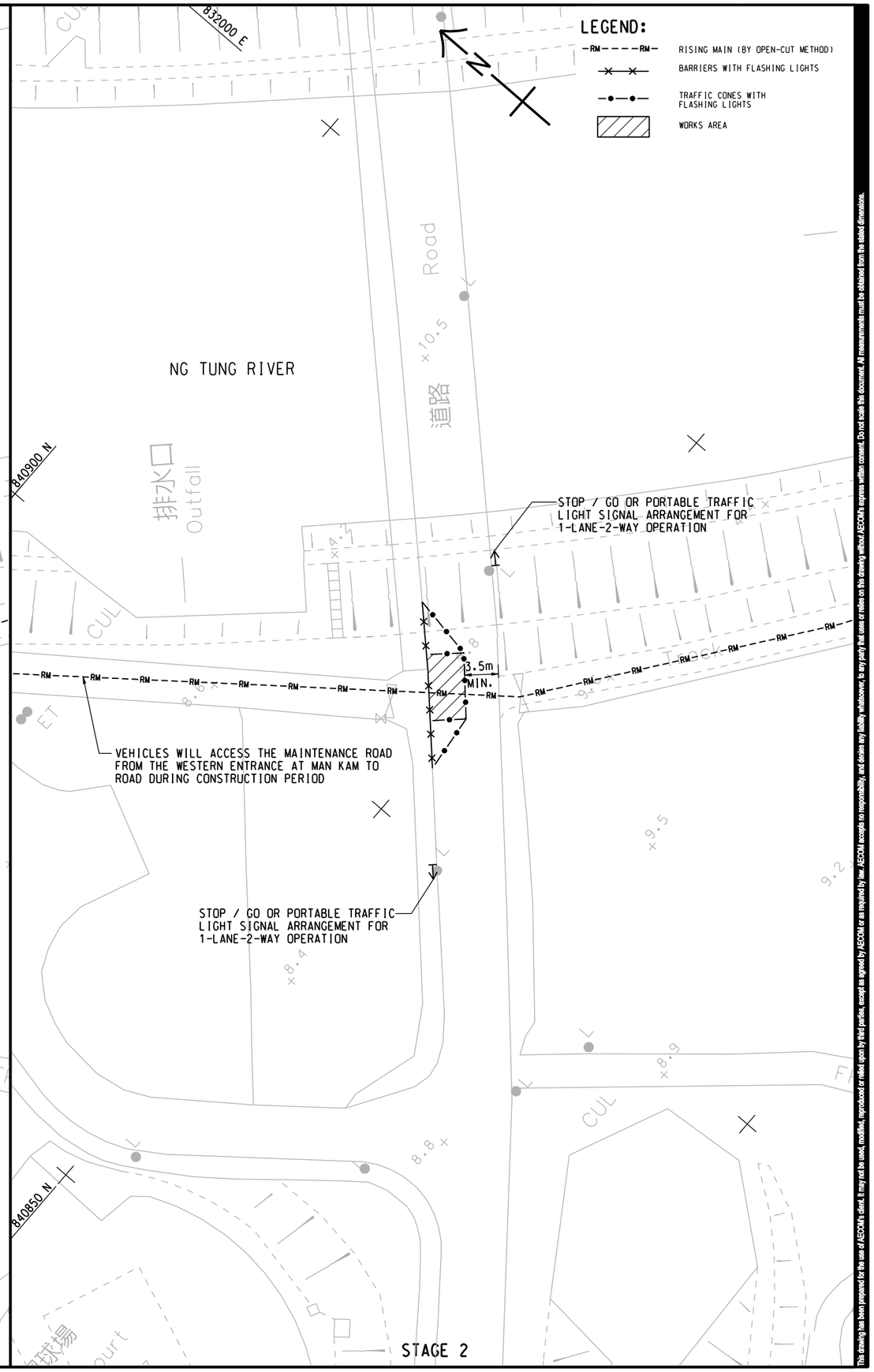
SHEET TITLE
圖紙名稱

TYPICAL PROPOSED TTM SCHEME FOR SEWAGE RISING MAIN ALONG MA WAT RIVER OR NG TUNG RIVER

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.24





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狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR ACCESS ROAD ACROSS NG TUNG RIVER

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.25

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ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

831000 E

831050 E

831100 E

排水口 Outfall

Pipeline 導管

MAN KAM TO ROAD

841800 N

841750 N

841700 N

CUL

TS

PROPOSED SITE ACCESS

PROPOSED SITE ACCESS

LEGEND:

RISING MAIN (BY TRENCHLESS METHOD)

RISING MAIN (BY OPEN-CUT METHOD)

WATER-FILLED BARRIERS WITH FLASHING LIGHTS

CONSTRUCTION ACCESS ROUTE

WORKS AREA

N

Plot File by: TANWT 2015/12/21
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-	NOV.15	CTIA REPORT DRAWING	

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狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60340456

CONTRACT NO. 合約編號: CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR WORKING SHAFT ACROSS MAN KAM TO ROAD

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.26A

ISO A1 594mm x 841mm

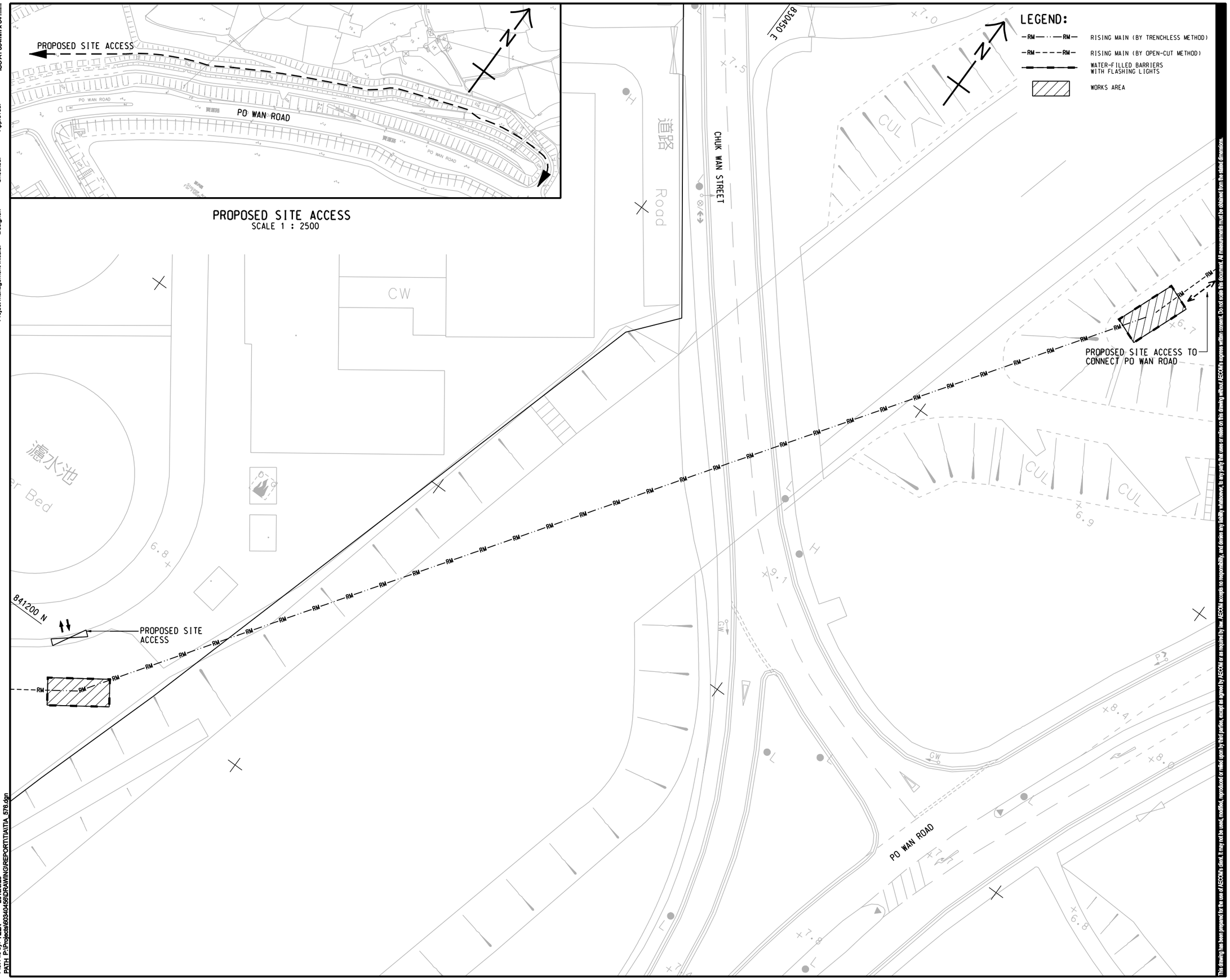
Approved:

Checked:

Designer:

Project Management Initials:

PROPOSED SITE ACCESS
SCALE 1 : 2500



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SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60340456

CONTRACT NO. 合約編號
CE 63/2014 (CE)

SHEET TITLE
圖紙名稱

PROPOSED TTM SCHEME FOR WORKING SHAFT ACROSS CHUK WAN STREET

SHEET NUMBER
圖紙編號

60340456/TIA/FIGURE 6.27

Appendix A

Planning Assumption of International School

Planning Assumption of International School

Harrow International School

According to the Finance Committee discussion paper on Harrow International School (for discussion on 8 June 2012), upon completion of the first phase construction of the school, the number of students and classes provided are shown in the table below:

	No. of Students	No. of Classes	Average Students per Class
First Phase	1,150 [(1)]	51 [(2)]	22.55

Note:
[(1)] Discussion paper item 8 referred, 400 primary and 750 secondary students, total 1,150 students
[(2)] Discussion paper enclosure 2 item (a) referred, 15 primary classes and item (b) 26 classes at Preparatory School and Senior School and 10 classes at Sixth Form, total 51 classes

According to the above discussion paper, the final development of Harrow International School will accommodate 1,500 students and according to Tuen Mun DC Meeting paper (7 September 2010) item 11 dated 7 September 2010, the GFA of final development will be 57,000 sq m. Based on the average students per class estimated above, the number of classes is estimated to be 66.5 as shown in the table below:

	No. of Students	Estimated No. of Classes
Final Development	1,500 [(3)]	66.5

Note:
[(3)] Discussion paper item 8 referred, ultimately 450 primary and 1,050 secondary students, total 1,500 students

International School in Queen's Hill

According to Planning Department's letter dated 18 March 2015, the details of international school site at Queen's Hill are shown in the table below:

Site Area	2.1 ha
Plot Ratio	1.3
GFA	27,300 sq m

Based on the GFA information the number of class of the international school at Queen's Hill is estimated as 35 as shown below.

66.5 / 57,000 x 27,300 = 31.85, say 35

For discussion **FCR(2012-13)40**
on 8 June 2012

ITEM FOR FINANCE COMMITTEE

LOAN FUND
HEAD 252 – LOANS TO SCHOOLS/TEACHERS
Subhead 104 Loans to non-profit-making international schools
Capital assistance loan to the Harrow International School (Hong Kong) Limited

Members are invited to approve –

(a) an increase in commitment under Head 252 Loans to Schools/Teachers Subhead 104 Loans to non-profit-making international schools of the Loan Fund by $272.74 million; and

(b) an allocation of $272.74 million from the Loan Fund for providing an interest-free loan to the Harrow International School (Hong Kong) Limited towards meeting part of the construction cost of its new school premises at Area 48, Castle Peak Road, So Kwun Wat, Tuen Mun, New Territories.

PROBLEM

The Harrow International School (Hong Kong) Limited (HISHKL) requires financial support to meet part of the capital cost for constructing its new school premises at the greenfield site allocated to the HISHKL in Tuen Mun.

PROPOSAL

2. The Secretary for Education (SED) proposes to –

/(a) …..

(a) increase the commitment under the Loan Fund by $272.74 million; and

(b) allocate $272.74 million from the Loan Fund for providing an interest-free loan to the HISHKL towards meeting part of the construction cost of its new school premises at Area 48, Castle Peak Road, So Kwun Wat, Tuen Mun, New Territories.

JUSTIFICATION

Provision of international school places

3. The Government is committed to developing a vibrant international school sector in meeting the demand for school places from local and overseas families living in Hong Kong and families coming to Hong Kong for work or investment. To this end, we have implemented a number of facilitation measures including providing capital assistance in the form of interest-free loan for the construction of school premises for international schools allocated with greenfield sites.

4. In the 2007-08 Policy Address, the Chief Executive announced that the Administration would make available a number of greenfield sites for development of new international schools or the expansion of existing schools with interest-free loans for construction of the school premises. In 2009, we allocated four greenfield sites in Kowloon and the New Territories to four quality operators for international school development. The HISHKL was allocated a site of about 37 980 square metres at Area 48, Castle Peak Road, So Kwun Wat, Tuen Mun, New Territories, for setting up the first international school with boarding facilities in Hong Kong. The land grant formalities were completed in August 2010 and the new school premises is being constructed for completion by the end of 2012.

5. There has been an increasing demand for international school places in recent years. According to the results of the 2011 Population Census, the number of English-speaking school-aged children (aged 19 or below) in the territory has grown by 37% from 18 300 in 2006 to 24 980 in 2011. In particular, it is foreseen that there will be increasing demand for British curriculum school places as driven by the 35% growth in the British population in Hong Kong over the past five years from 24 990 in 2006 to 33 730 in 2011. The trend on growing demand for international school places is also affirmed through the exchange of views at forums including the Legislative Council (LegCo) Panel on Education, the International Business Committee and the Business Facilitation Advisory Committee.

/6. …..

6. Under the prevailing policy for international schools, non-profit-making international schools[1] applying for government assistance in the form of land grant or vacant school premises are required to serve mainly the target group(s) of students that they have publicly stated that they would serve and that this level should be set at no less than 50% of its overall student population. As such, "target students" refer to non-local children of families coming to Hong Kong for work or investment or non-local students holding student visas for entry into Hong Kong for studies. This requirement applies to the HISHKL which has been allocated a greenfield site in Tuen Mun.[2] The HISHKL is also required to reserve at least 50% of its boarding places at the secondary school section for non-local students holding student visas for entry into Hong Kong for studies.

7. The provision of interest-free loan to the HISHKL, which provides non-local curriculum for the international community in Hong Kong, will help in facilitating the provision of additional international school places to meet the demand.

The new school premises

8. The HISHKL will set up the Harrow International School Hong Kong (Harrow) as a non-profit-making international school in Hong Kong. Harrow offers the British national curriculum at its primary and secondary levels. Upon completion of the first phase construction of the school premises at Tuen Mun, Harrow is expected to accommodate 400 primary and 750 secondary students. It will ultimately accommodate 450 primary and 1 050 secondary students. Around half of the places in the secondary school section are for boarders. In the first school year, the School will provide around 390 places at the primary school section and 310 places at the secondary school section. By April 2012, it has offered over 600 places to students in all year groups, with the remaining places for years 11 and 13 to be offered in the next school year. The new places will help meet the demand for international school places offering British national curriculum.

/9. …..

---

1 In this paper, non-profit-making international school operators refer to those that are exempted from tax under section 88 of the Inland Revenue Ordinance (Cap. 112).

2 The new requirement for the three existing operators being allocated the greenfield sites at Kowloon Bay, Lai Chi Kok and Sai Kung in 2009 to admit non-local students at no less than 70% of their overall student population is not applicable to the HISHKL, which will establish a brand new school in Hong Kong and undertake the pilot project of provision of boarding facilities. That said, we have imposed a new requirement on HISHKL to reserve at least 50% of its boarding facilities for non-local students holding student visas for entry into Hong Kong.

9. According to the plan of HISHKL, the first phase of the new school premises will comprise about 59 classrooms, 40 special rooms for art, drama, music, information and communications technology and small group teaching, a boarding house with a capacity for up to 400 students, as well as other educational related facilities, including a learning lounge, an indoor swimming pool, sports hall and fitness room, and an outdoor sports field to meet teaching and learning needs for the benefits of students. The site plan and artist's impression of the new school premises are at Enclosure 1.

Encl.1

10. The HISHKL has estimated that the first phase of the new school project would cost $878 million in total including the construction of boarding facilities. As a non-profit-making organization, the HISHKL can only obtain bridging loan for the construction of school premises from private or commercial sources with the backing of Government's interest-free loan. The loan, if approved, will contribute towards repayment of the bridging loans which the HISHKL has taken out to finance the construction of the new school premises.

11. The HISHKL has, in accordance with the requirement of the land grant, carried out assessment on sewerage, environmental, noise, air quality and traffic impact in connection with building the new premises and made recommendations for mitigation measures to the satisfaction of the Director of Environmental Protection. HISHKL will abide by the requirements and implement the approved recommendations in constructing the new premises.

FINANCIAL IMPLICATIONS

12. In accordance with prevailing Government policy, the interest-free loan to the HISHKL will be capped at 100% of the cost for constructing a standard-design public sector school accommodating the same number of students. The loan will not cover the construction cost of the boarding facilities, which are regarded as "non-standard" facilities under the prevailing schedule of accommodation for a standard-design public sector school. On this basis, the maximum loan amount available to the HISHKL will be $272.74 million. Detailed calculation is at Enclosure 2. We estimate that the amount of interest forgone[3] as a result of such loan, with a repayment period of ten years, would be $84.01 million. Subject to the approval by this Committee, we will offer the HISHKL a loan of $272.74 million.

Encl.2

/CONTROL …..

[3] The interest forgone is calculated based on the investment return for placing fiscal reserves with Hong Kong Monetary Authority, currently at 5.6% p.a..

CONTROL MECHANISM

13. In line with prevailing Government policy, a loan agreement will be signed between the Administration and the successful applicant. The HISHKL will draw down the loan on the completion of the new school premises scheduled in August 2012 and the loan is repayable in ten years. The first instalment of the loan repayment will become due one year after the HISHKL draws down the loan. The loan shall be secured by a legal charge on the property in favour of the Government. We will make repayment of the loan a first call upon the liquidated assets of the HISHKL in the event it closes down, and in case of default of repayment of the loan, the SED may take possession of the premises and assets of the HISHKL. We will specify these terms and conditions in the loan agreement.

14. In line with the existing policy to enhance school accountability, we have entered a ten-year service agreement with the HISHKL in August 2010. Apart from terms and conditions for school operation and mechanism for periodic quality assurance, the service agreement stipulates that the loan can only be drawn down upon completion of the school premises evidenced by the issue of the relevant occupation permit by the Building Authority. In addition, the loan must only be used solely to cover the construction cost of the school premises excluding the boarding facilities on the school site. The requirement of admitting non-local students at no less than 50% of the overall student population and reserving no less than 50% of the boarding places to non-local students holding student visas for entry into Hong Kong for studies have also been stipulated in the service agreement. We may terminate the service agreement if HISHKL commits any material breach of the provisions.

PUBLIC CONSULTATION

15. We consulted the LegCo Panel on Education on the proposal on 13 February 2012. Members generally supported the proposal and raised no objection to submitting it to the Finance Committee (FC) for funding approval.

BACKGROUND

16. To facilitate the development of the international school sector, it is an established policy of the Government to provide capital assistance in the form of interest-free loan for the construction of school premises to non-profit-making international school operators allocated with greenfield sites on an application basis. Details of the policy have been set out in the LegCo Brief (Ref EMBCR 15/581/94 III) issued to Members in October 1995.

/17. …..

17. The LegCo FC has subsequently approved a number of loan applications from international schools for the construction of the school premises. For example, the FC approved an interest-free loan of $66.59 million to the Canadian International School in January 1997 for building a new non-profit-making primary and secondary school at Nam Long Shan Road, Hong Kong, an interest-free loan of $44.80 million to the Hong Kong Japanese School Limited in June 1997 for building a non-profit-making primary school at Tai Po Kau, New Territories, and an interest-free loan of $77 million to the Australian International School Foundation Limited in November 1999 for building a non-profit-making primary and secondary school at Norfolk Road, Kowloon. The loans for the Canadian International School and Hong Kong Japanese School Limited were fully repaid on 1 February 2010 and 1 June 2009 respectively. The Australian International School Foundation Limited is expected to repay the final repayment in 2012-13 as scheduled.

18. The LegCo FC has approved an interest-free loan of $203.83 million to the Kellett School Association Limited on 27 April 2012 and of $157.72 million to the Hong Kong Academy Educational Foundation Limited on 25 May 2012 for meeting part of the construction cost of their new school premises at the greenfield sites respectively in Kowloon Bay, Kowloon, and Sai Kung, New Territories. The commitment of the Loan Fund will be increased by $361.55 million in 2013-14.[4]

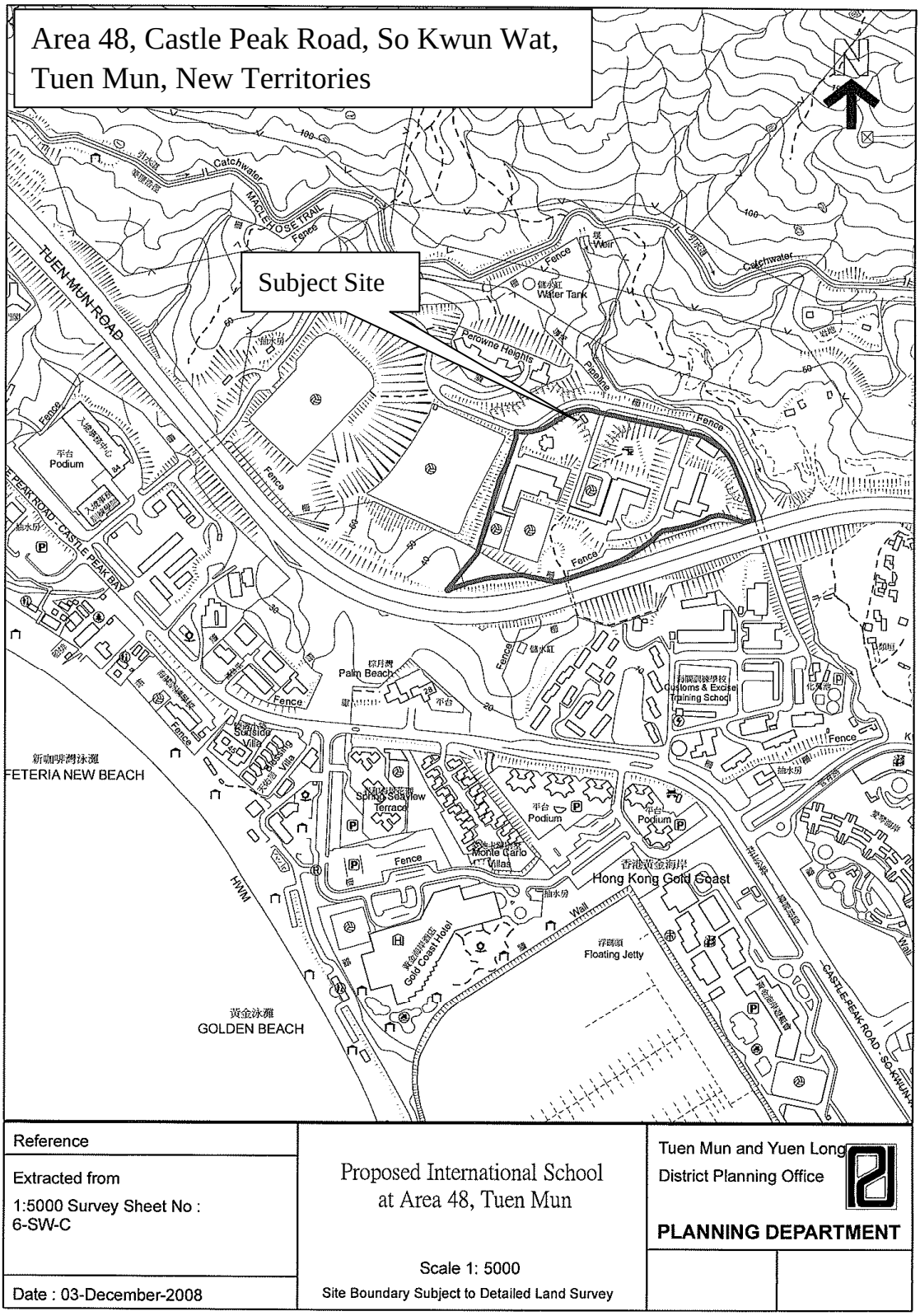
Education Bureau
May 2012

[4] With the approval of the three loan proposals in the 90s and of the recent loan proposals from the Kellett School and the Hong Kong Academy, the accumulative commitment of the Loan Fund as at today stands at $549.94 million.

Enclosure 1 to FCR(2012-13)40

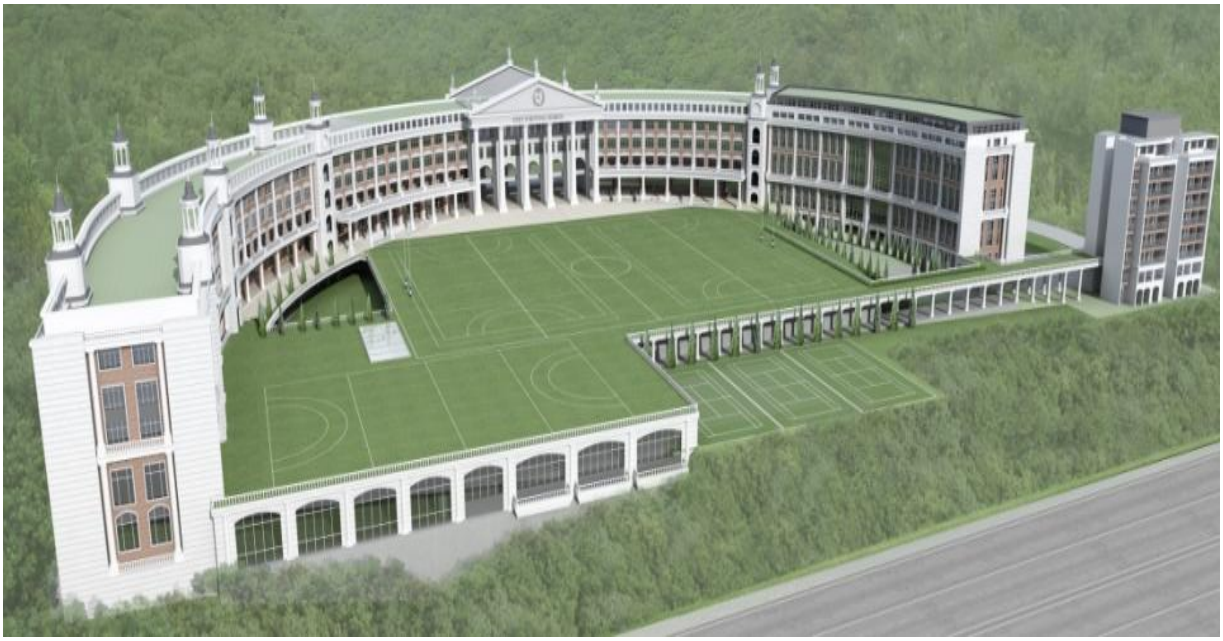
Site plan and artist's impression of the new school premises of the Harrow International School Hong Kong

Site plan



Reference Extracted from 1:5000 Survey Sheet No : 6-SW-C Date : 03-December-2008	Proposed International School at Area 48, Tuen Mun Scale 1: 5000 Site Boundary Subject to Detailed Land Survey	Tuen Mun and Yuen Long District Planning Office **PLANNING DEPARTMENT**

Artist’s impression



Calculation of the Maximum Loan Amount Available to the HISHKL

(a) Primary level

The reference cost of building a standard public sector primary school with 18 classrooms accommodating 486 students is $152 million at September 2011 prices (reference cost for primary school)[1]. The HISHKL plans to accommodate 400 primary students (i.e. 15 primary classes each with 26 to 27 students) in the new premises. On pro-rata basis, we have worked out the maximum amount of loan available to HISHKL in accommodating 400 students as follows -

$152 million (reference cost for primary school)/486 x 400
= $125.10 million

(b) Secondary level

The reference cost of building a standard public sector secondary school with 30 classrooms accommodating 1 080 students is $212.60 million at September 2011 prices (reference cost for secondary school)[2]. The HISHKL plans to accommodate 750 secondary students (i.e. 26 classes at Preparatory School and Senior School each with 23 to 24 students; and 10 classes at Sixth Form, each with 15 students) in the new premises. On pro-rata basis, we have worked out the maximum amount of loan available to HISHKL in accommodating 750 secondary students as follows -

$212.6 million (reference cost for secondary school)/1 080 x 750
= $147.64 million

The maximum loan amount available to HISHKL[3] should therefore be –

For primary level	=	$125.10 million
For secondary level	=	$147.64 million
Total		$272.74 million

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[1] A breakdown of the reference cost for building a standard public sector primary school is at Annex 1 to Enclosure 2.

[2] A breakdown of the reference cost for building a standard public sector secondary school is at Annex 2 to Enclosure 2.

[3] The maximum loan amount will be capped at the present level with reference to the number of primary and secondary students to be accommodated in the new premises (excluding the boarding facilities) upon completion of the first phase construction.

Annex 1 to Enclosure 2

Breakdown of the reference cost
for building a standard public sector primary school

	Reference costs $ million (in September 2011 prices)
(a) Piling	16.2
(b) Building	83.1
(c) Building services	21.7
(d) Drainage	3.9
(e) External works	13.3
(f) Contingencies	13.8
Total	**152.0**

Background for the Reference Cost

1. Piling cost based on percussion steel H-pile 95 no. average 30m deep.

2. Exclusions:

   (i) Demolition, site formation and geotechnical works

   (ii) Noise mitigation measures

   (iii) Diversion to existing utilities

   (iv) Consultant fees

   (v) Furniture and equipment cost

Annex 2 to Enclosure 2

Breakdown of the reference cost
for building a standard public sector secondary school

	Reference costs $ million (in September 2011 prices)
(a) Piling	22.7
(b) Building	112.8
(c) Building services	30.6
(d) Drainage	6.0
(e) External works	21.2
(f) Contingencies	19.3
Total	**212.6**

Background for the Reference Cost

1. Piling cost based on percussion steel H-pile 138 no. average 30m deep.

2. Exclusions:

   (i) Demolition, site formation and geotechnical works

   (ii) Noise mitigation measures

   (iii) Diversion to existing utilities

   (iv) Consultant fees

   (v) Furniture and equipment cost

屯門區議會

哈羅香港國際學校
掃管笏青山公路 48 區前軍營
(屯門市第 475 地段)

本文件旨在向屯門區議會滙報將於屯門掃管笏青山公路48區前軍營(屯門市第475地段)開辦的哈羅香港國際學校(下稱"哈羅香港")的發展情況。

背景

2. 跟進2007-08年《施政報告》，政府預留四幅全新土地，作爲開辦國際學校或擴展現有國際學校之用。其中位於屯門掃管笏青山公路48區前軍營的一幅土地會用作發展一所附設寄宿設施的國際學校。有關土地用途已納入於2008年進行的屯門東可發展用地規劃及工程可行性研究及公眾諮詢，而有關研究亦已於屯門區議會進行討論。

3. 教育局隨後於2008年12月進行校舍分配工作，並於去年8月將四幅全新土地分配予四個辦學團體。其中位於屯門掃管笏的用地，已分配予哈羅國際學校(香港)有限公司(下稱"哈羅(香港)") (Harrow International School (Hong Kong) Limited)用作興建和營辦一間附設寄宿設施的國際學校。哈羅(香港)隨後向屯門地政處進行正式批地申請，並就該幅土地的發展進行了各方面的評估及提交報告予各有關部門審批。通過一切既定批地程序後，地政總署於2010年8月正式以私人協約形式批出該幅土地予哈羅(香港)。哈羅(香港)稍後會展開土地平整及校舍建築工程。

哈羅學校的發展

4. 位於英國倫敦的哈羅公學已有四百多年歷史，是一間全寄宿男校，培育了不少世界著名領袖，包括前英國首相邱吉爾，印度總理尼赫魯及約旦國王侯賽因。哈羅公學與伊頓公學均並列現今英國頂尖學府。

5. 首間英國本土以外開辦的哈羅國際學校於1998年在曼谷創立，現約有1,200個男女學生，亦是一間全寄宿學校，而約一半寄宿生來自亞洲不同地區。第二間哈羅國際學校則於2005年在北京開辦，向外國使節及商貿人員的子女提供中小學英國課程。哈羅香港則預計於2012年8月開始運作。

6. 哈羅公學一向極重視學生的學術表現增值。哈羅國際學校均須貫徹及體現哈羅公學的教學理念，提供學生多元化學習課程及悉心設計的舍堂制度。各間哈羅國際學校的師生亦常參加教與學的校際交流活動，以互相切磋砥勵，提升教育質素及學習水平。

7. 哈羅公學非常重視對各間哈羅國際學校教育質素的監察，每年均派遣兩位哈羅公學學校監督到每間哈羅國際學校參加三次校董會會議，以了解該校的狀況，並作非正式的教育和財務審核。

哈羅香港國際學校

8. 哈羅香港會貫徹哈羅公學的辦學理念，爲締造更美好的世界而盡心培育未來領袖人才，教導學生積極地向社區作出貢獻。哈羅香港會提供 National Curriculum of England(英國國民課程)至Year 9(第9班)，再銜接IGCEs (國際普通教育文憑課程)和 A-levels(高級程度課程)。課程亦會加入中國及本地社會的元素，所有學生都要學習中國文化和語文。大部份教師都會來自英國或英聯邦國家，預計教師人數將會逐步增至一百人。

9. 哈羅香港會致力融入本地社會，與屯門社區和區內其他學校緊密聯繫。學校亦會安排學生參與各種不同的社區服務計劃。學校設施在特定條件下可提供予屯門社區使用。

哈羅香港國際學校校園的發展情況

10. 哈羅香港是本港第一間國際寄宿學校。屯門校園的主要建築物包括教學大樓、學生宿舍大樓及教師宿舍。運動設施則包括一個室內泳池、兩個運動場、體育館和健身中心。主建築設計參考英國總校的建築特色，引入歐洲古式建築風格，以美化大樓外觀和突顯學校的歷史及傳統。教學大樓採取綜合性的建築設計，融合了幼年中心、中小學部及學生宿舍等主要設施。佈局呈弧形編排，騰出校園中央的露天空間，作綠化平台和室外運動場之用，以配合周圍的環境。弧形的柱廊設計除可增強空間感，讓空氣流通外，同時亦可增加背山向海的景觀，營造出優美的校園環境。

11. 首期校園發展上蓋工程主要建築包括教學大樓、室內運動場、泳池、學生宿舍及教職員宿舍，總樓面面積大約37,000平方米，預計於2012年5月完工，可提供約1,200個中小學及基礎班學額，以及約400個男女中學生宿位供年齡界乎11-18歲的學生寄宿。學校將於2011年8月開始招生，以期於2012年8月開課。視乎開辦後的進展情況，校園總樓面面積最終可擴展至大約57,000平方米，中小學及基礎班學額及中學生宿位則可分別增加至1,500個及560個。根據有關條款，哈羅香港須取錄最少半數非本地學生，同時亦要把一半中學部宿位預留給非本地學生。

12. 哈羅香港位於屯門掃管笏青山公路48區，屯門公路以北，車輛可通過位於屯門舊咖啡灣泳灘車場對面的西面通道到達或離開校園。上述的西面通道連接現時青山公路（青山灣段）西行至屯門市中心；東行則至荃灣及九龍市區。哈羅(香港)已就校舍的興建及最終的營運規模對有關地區交通影響作出評估，並就評估結果提出對上述的西面通道及連接青山公路路口的道路設施的改善建議，已獲有關政府部門審核通過，由哈羅(香港)施工及推行，對有關地區交通影響將會減至最低。

教育局
2010 年 8 月

Appendix B

Primary and International School Traffic Generation

Primary and International School Traffic Generation

1.1. Site Traffic Generation

1.1.1. In order to estimate the potential traffic generations of the school developments, survey was conducted at some primary schools in North District and international schools in April 2015 which has similar characteristics of QH Development and therefore is considered appropriate for deriving the traffic generation rates of the proposed school development. The surveyed trip rates are shown in **Table 1.1**.

Table 1.1 Adopted Traffic Generation Rates (pcu/hr/classroom)

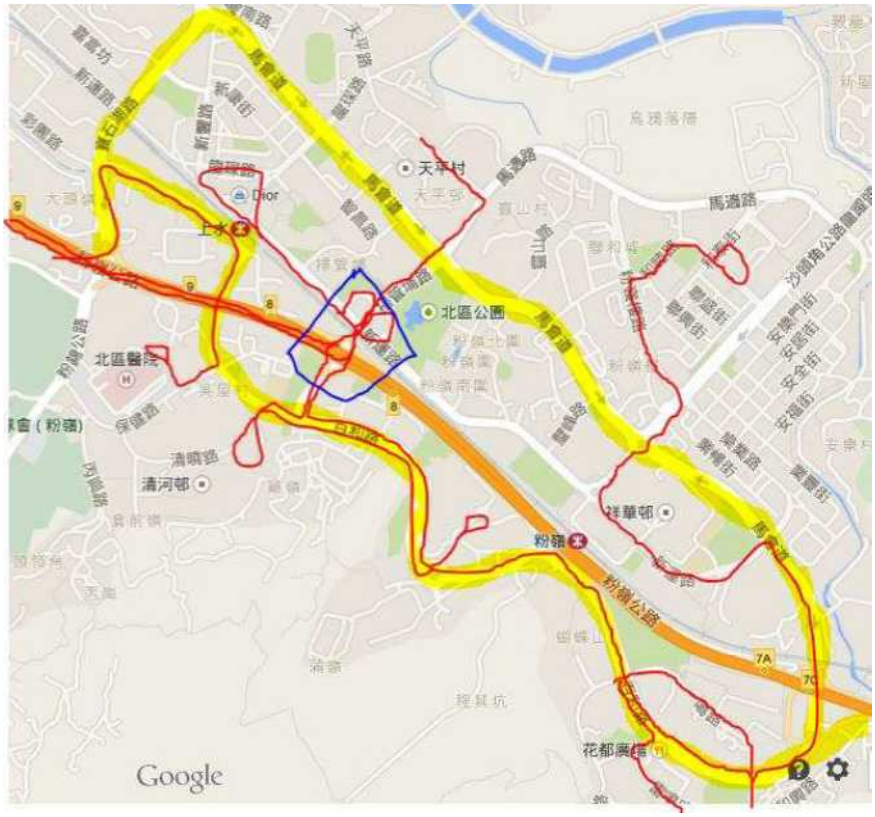
	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Primary School				
Tsang Mui Millennium School, Ching Ho Estate, Sheung Shui	0.93	0.93	1.43	0.07
Shek Wu Hui Public School, Tin Ping Estate, Sheung Shui	0.96	0.96	0.56	0
Fung Kai Liu Yun Sum Memorial School, Wah Ming Estate, Fanling	0.84	1.04	0.32	0
Maximum Value	0.96	1.04	1.43	0.07
International School				
Japanese International School, Tai Po	3.50	4.63	1.71	1.25
ESF Sha Tin College, Fo Tan	4.12	4.87	4.12	0.12
Maximum Value	4.12	4.87	4.12	1.25

Appendix C

Improvement Scheme at So Kwun Po Road Roundabout Suggested in Traffic and Transport Committee

附圖

建議加建行車天橋位置





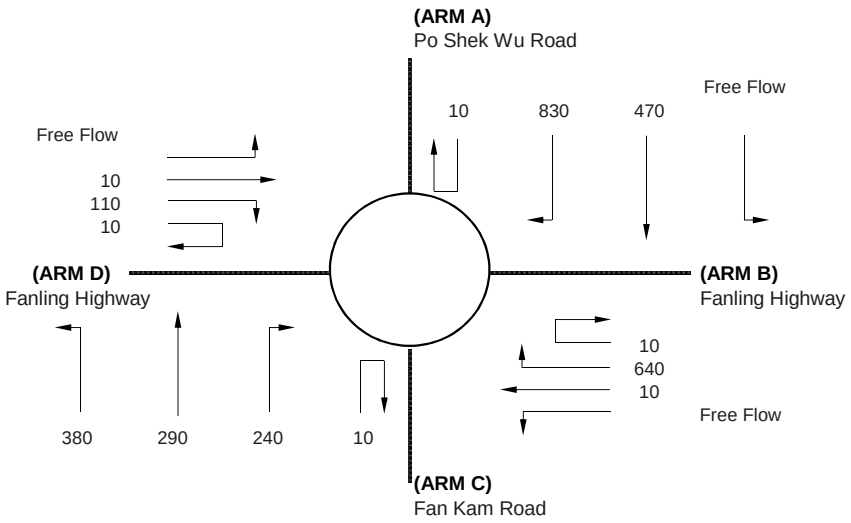
Appendix D

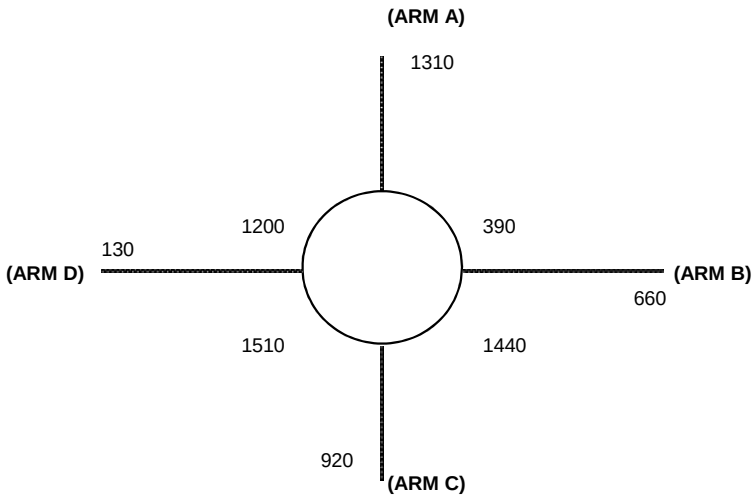
Junction Capacity Calculation

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 AM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1310	660	920	130
Qc= Circulating flow across entry (pcu/h)	390	1440	1510	1200
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1454	1072	1596	1633
DFC = Design flow/Capacity = Q/Qe	0.90	0.62	0.58	0.08

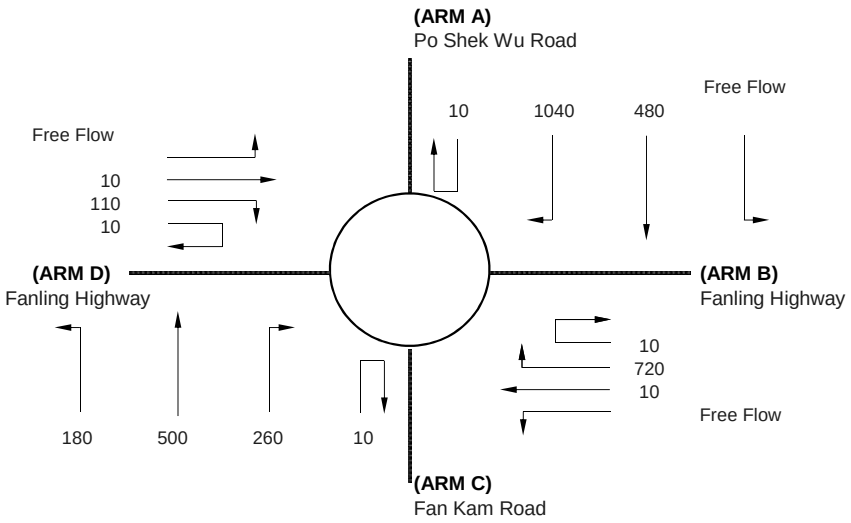
TOTAL ENTRY FLOWS = 3020 PCU

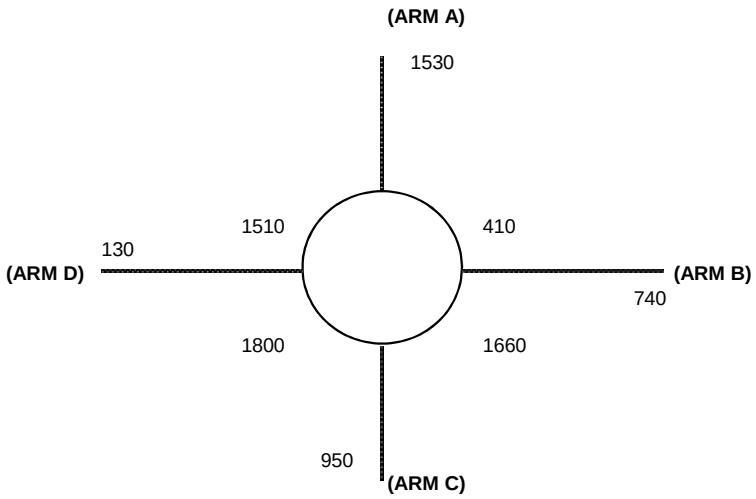
CRITICAL DFC = 0.90

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 PM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1530	740	950	130
Qc= Circulating flow across entry (pcu/h)	410	1660	1800	1510
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1445	960	1428	1458
DFC = Design flow/Capacity = Q/Qe	1.06	0.77	0.67	0.09

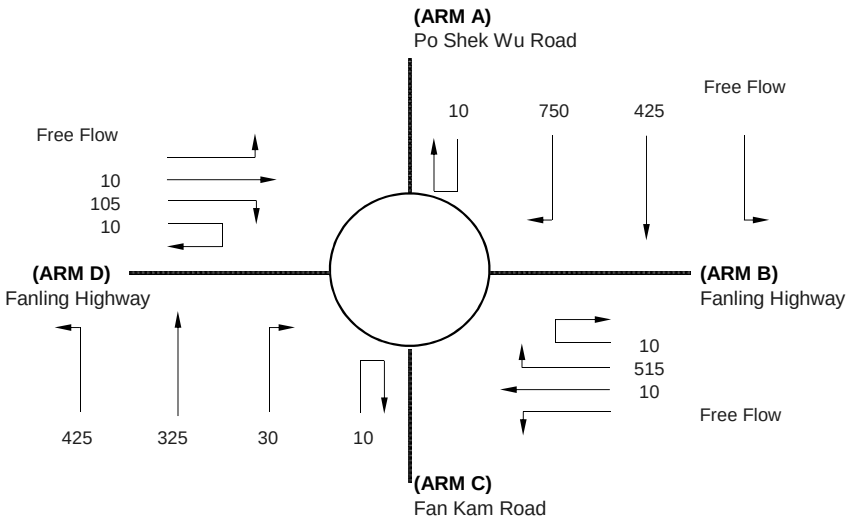
TOTAL ENTRY FLOWS = 3350 PCU

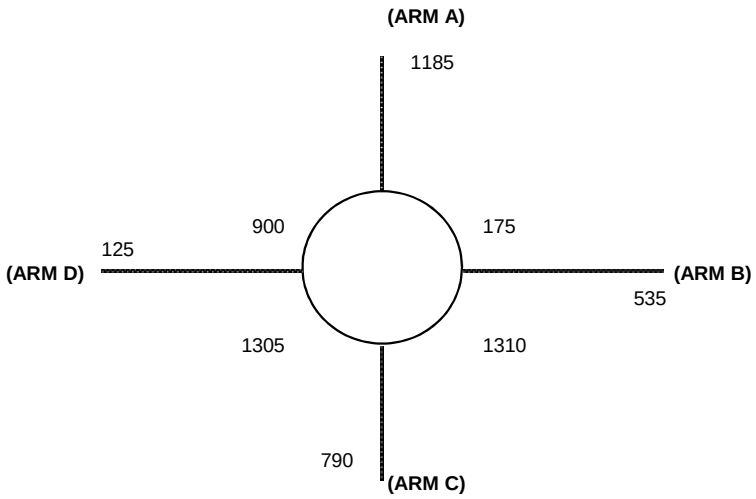
CRITICAL DFC = 1.06

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 0900-1000 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1185	535	790	125
Qc= Circulating flow across entry (pcu/h)	175	1310	1305	900
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1557	1139	1714	1802
DFC = Design flow/Capacity = Q/Qe	0.76	0.47	0.46	0.07

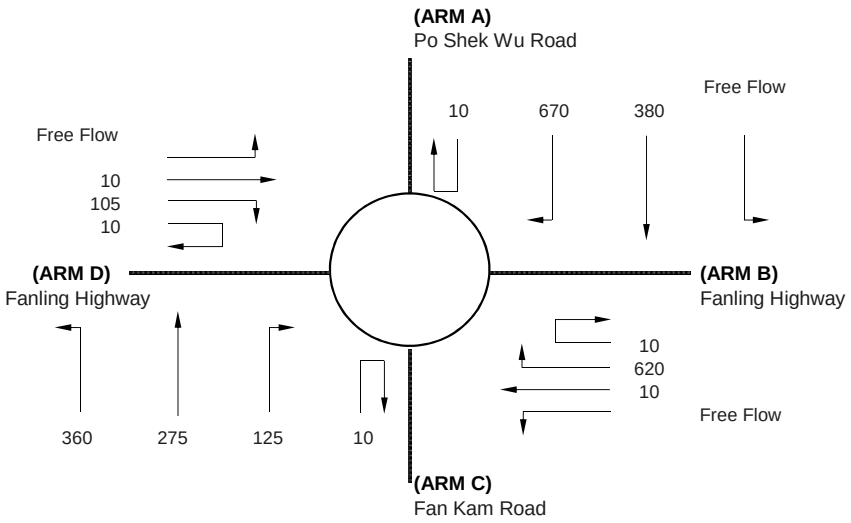
TOTAL ENTRY FLOWS = 2635 PCU

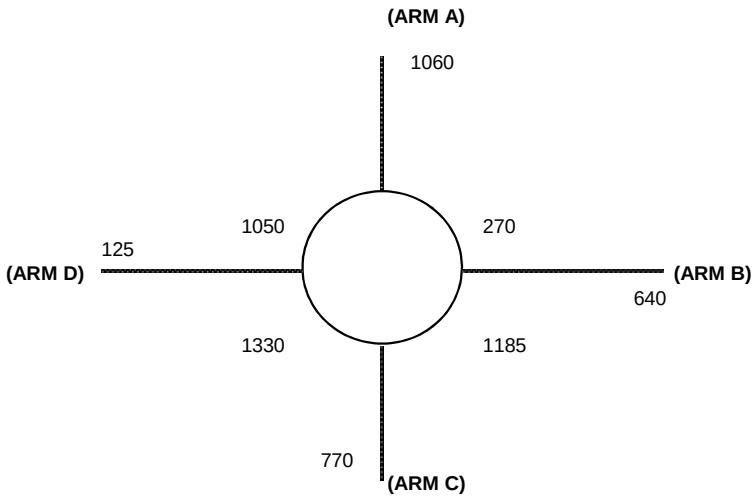
CRITICAL DFC = 0.76

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 1000-1100 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1060	640	770	125
Qc= Circulating flow across entry (pcu/h)	270	1185	1330	1050
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1512	1202	1700	1717
DFC = Design flow/Capacity = Q/Qe	0.70	0.53	0.45	0.07

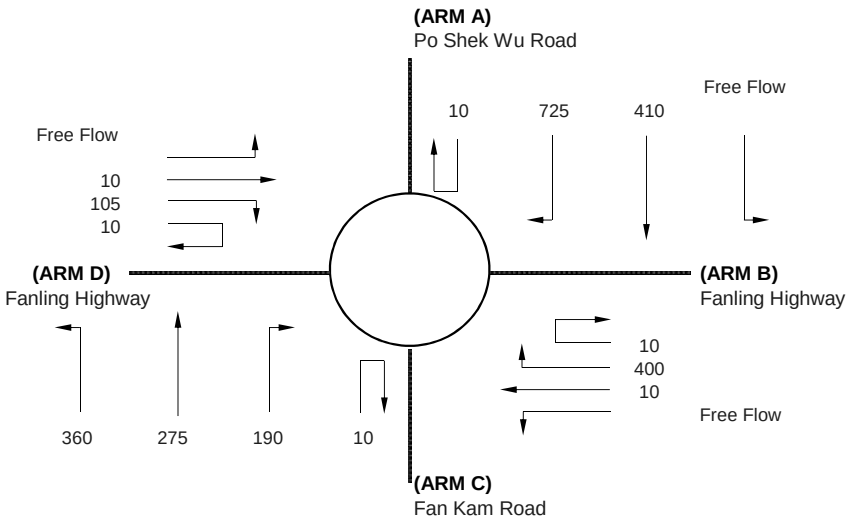
TOTAL ENTRY FLOWS = 2595 PCU

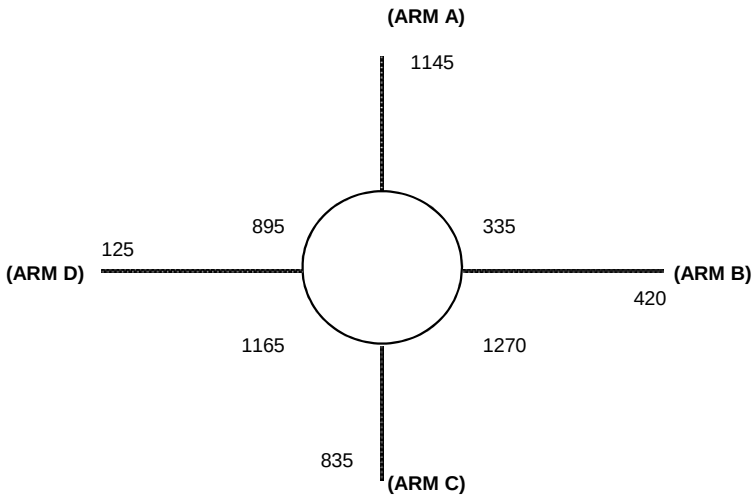
CRITICAL DFC = 0.70

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 1100-1200 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1145	420	835	125
Qc= Circulating flow across entry (pcu/h)	335	1270	1165	895
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1481	1159	1795	1805
DFC = Design flow/Capacity = Q/Qe	0.77	0.36	0.47	0.07

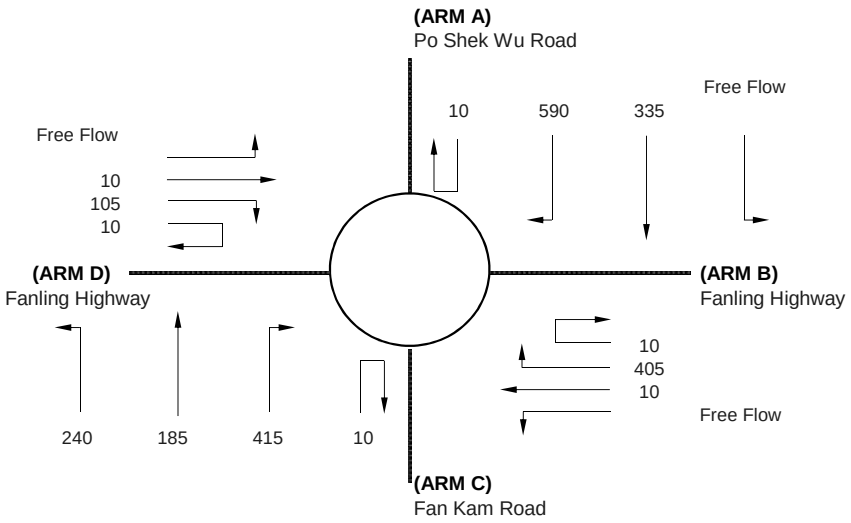
TOTAL ENTRY FLOWS = 2525 PCU

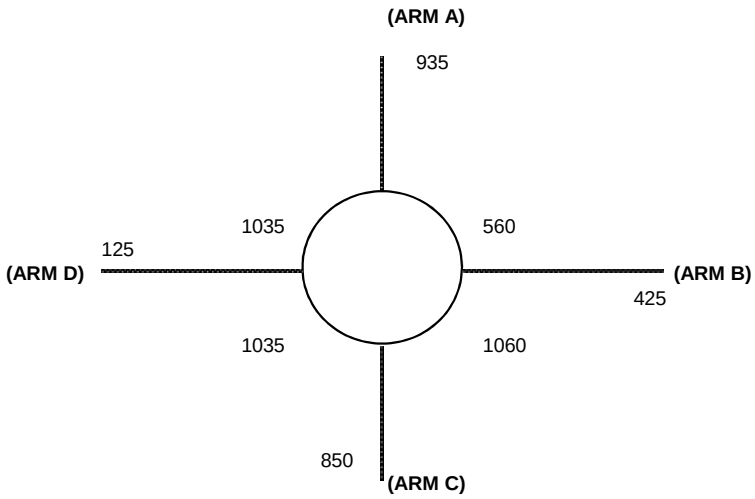
CRITICAL DFC = 0.77

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 1200-1300 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	935	425	850	125
Qc= Circulating flow across entry (pcu/h)	560	1060	1035	1035
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1373	1266	1870	1726
DFC = Design flow/Capacity = Q/Qe	0.68	0.34	0.45	0.07

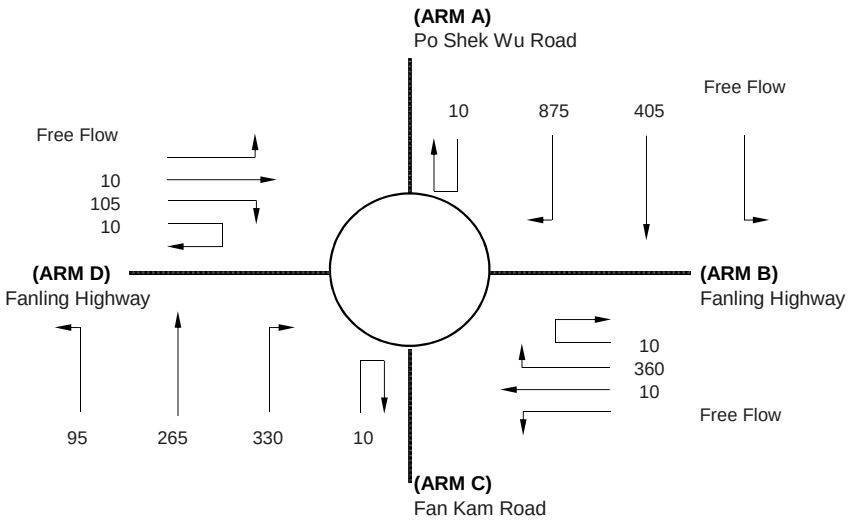
TOTAL ENTRY FLOWS = 2335 PCU

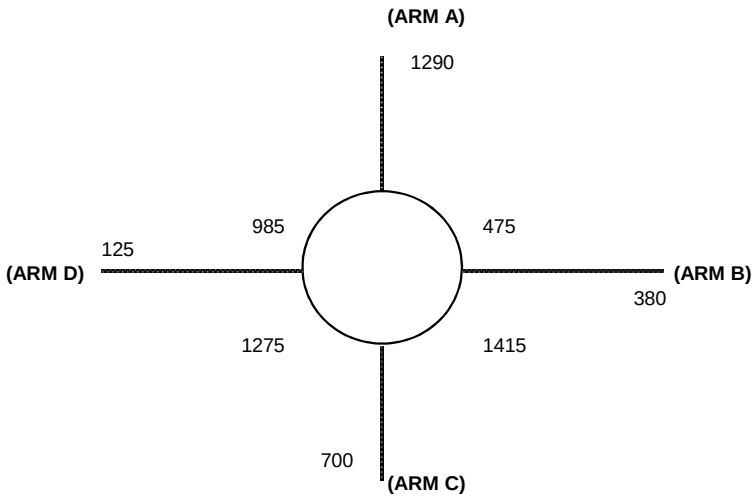
CRITICAL DFC = 0.68

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 1300-1400 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1290	380	700	125
Qc= Circulating flow across entry (pcu/h)	475	1415	1275	985
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1414	1085	1731	1754
DFC = Design flow/Capacity = Q/Qe	0.91	0.35	0.40	0.07

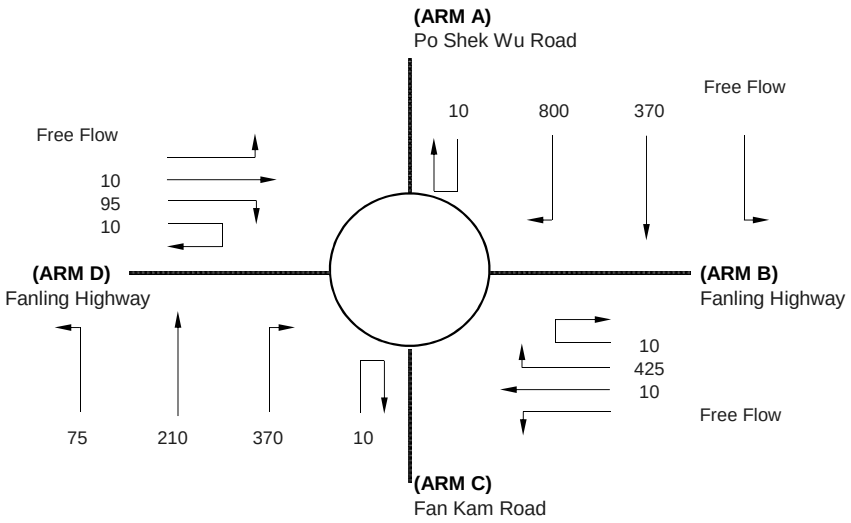
TOTAL ENTRY FLOWS = 2495 PCU

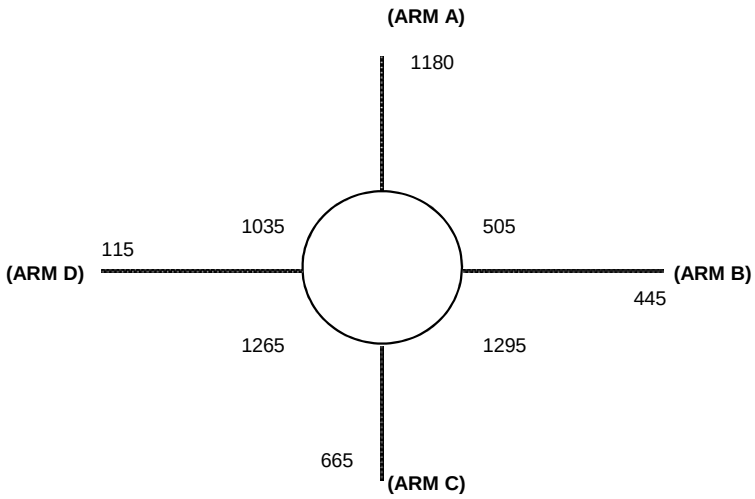
CRITICAL DFC = 0.91

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 1400-1500 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1180	445	665	115
Qc= Circulating flow across entry (pcu/h)	505	1295	1265	1035
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1399	1146	1737	1726
DFC = Design flow/Capacity = Q/Qe	0.84	0.39	0.38	0.07

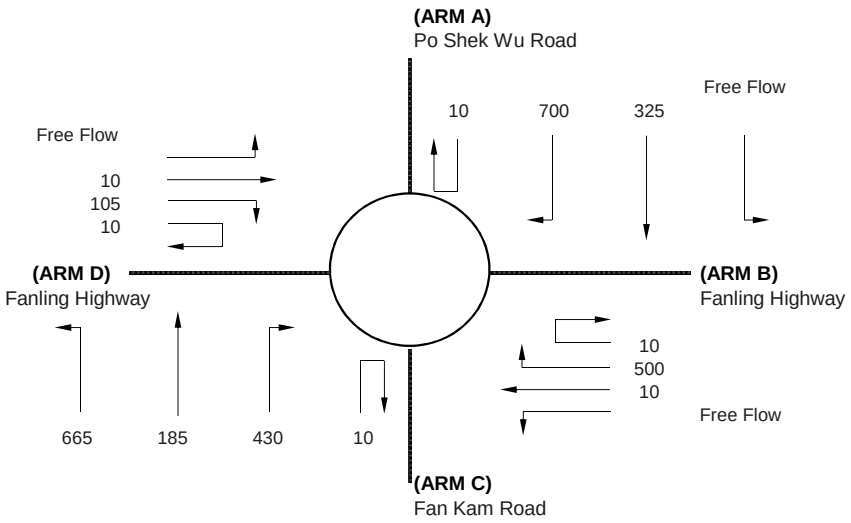
TOTAL ENTRY FLOWS = 2405 PCU

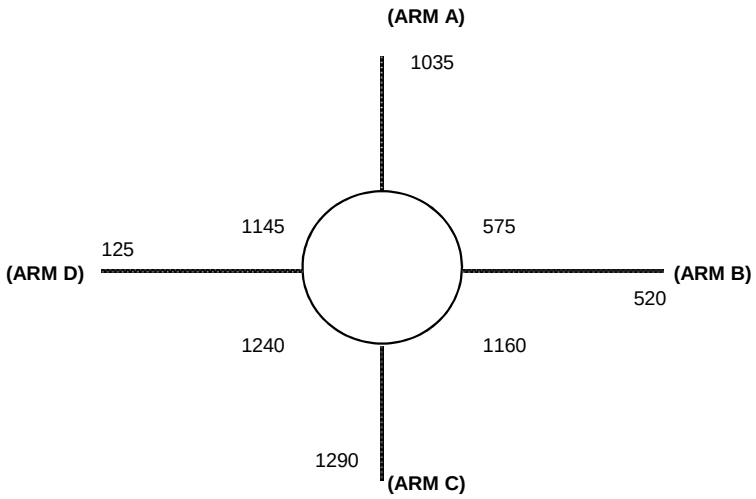
CRITICAL DFC = 0.84

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 1500-1600 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1035	520	1290	125
Qc= Circulating flow across entry (pcu/h)	575	1160	1240	1145
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1366	1215	1752	1664
DFC = Design flow/Capacity = Q/Qe	0.76	0.43	0.74	0.08

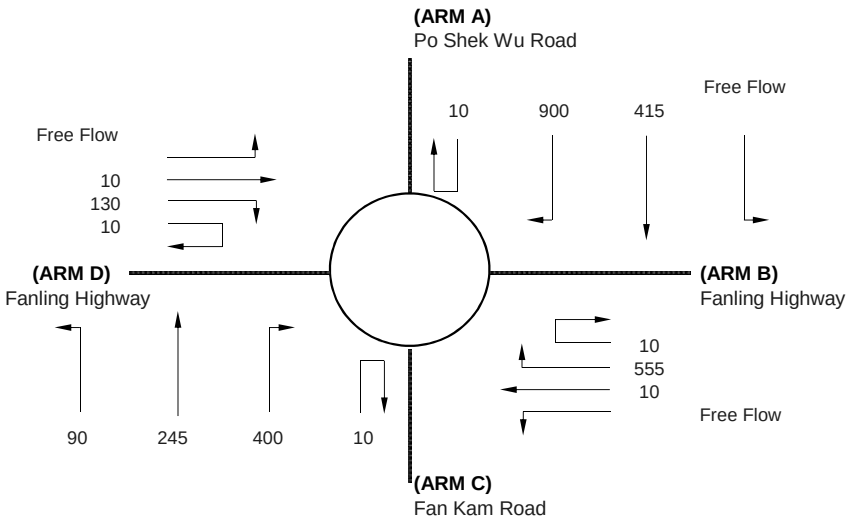
TOTAL ENTRY FLOWS = 2970 PCU

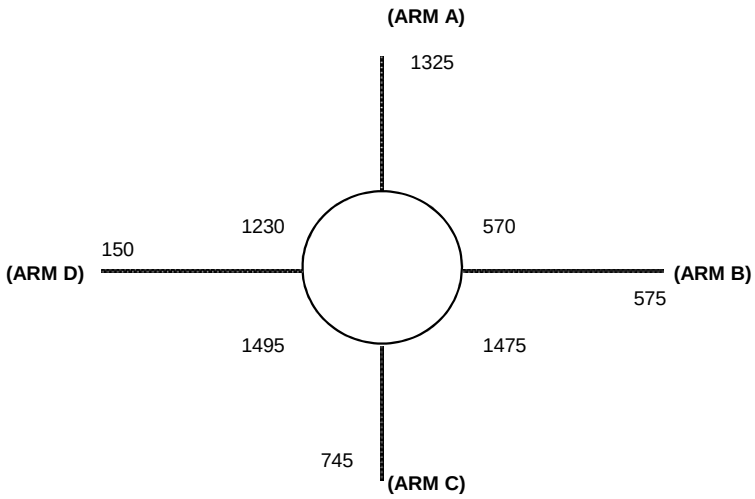
CRITICAL DFC = 0.76

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2015 1600-1700 Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Jun 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1325	575	745	150
Qc= Circulating flow across entry (pcu/h)	570	1475	1495	1230
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1368	1054	1604	1616
DFC = Design flow/Capacity = Q/Qe	0.97	0.55	0.46	0.09

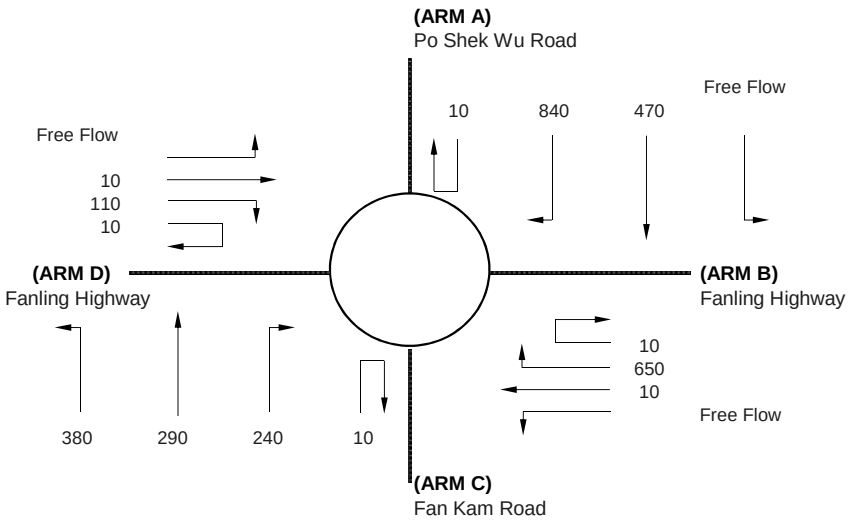
TOTAL ENTRY FLOWS = 2795 PCU

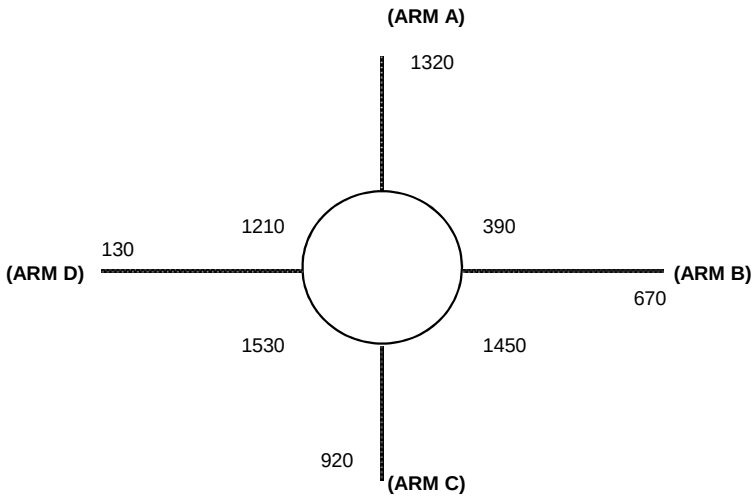
CRITICAL DFC = 0.97

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2017 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1320	670	920	130
Qc= Circulating flow across entry (pcu/h)	390	1450	1530	1210
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1454	1067	1584	1627
DFC = Design flow/Capacity = Q/Qe	0.91	0.63	0.58	0.08

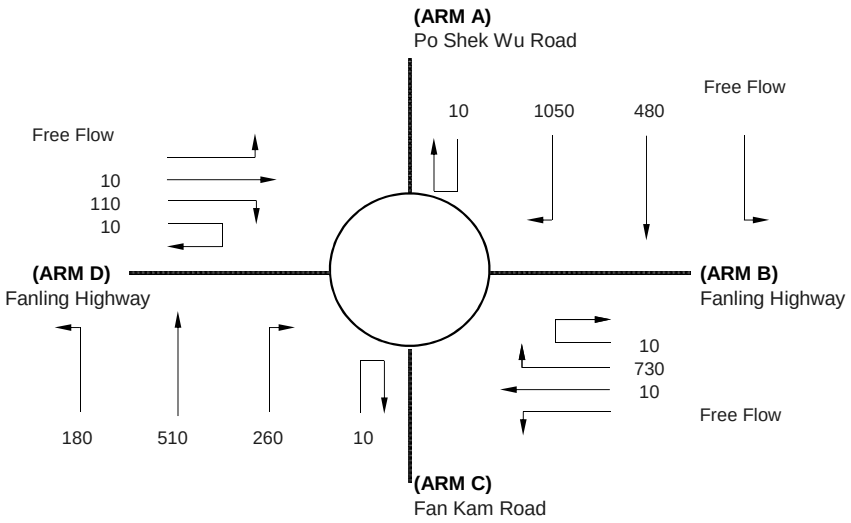
TOTAL ENTRY FLOWS = 3040 PCU

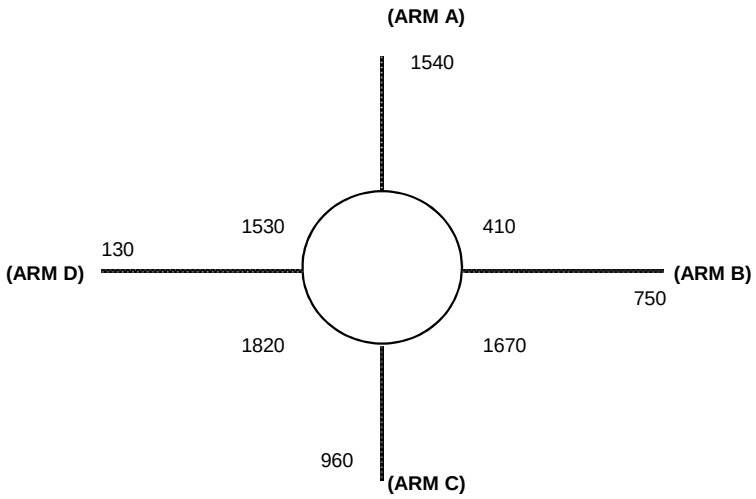
CRITICAL DFC = 0.91

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2017 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1540	750	960	130
Qc= Circulating flow across entry (pcu/h)	410	1670	1820	1530
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1445	955	1417	1447
DFC = Design flow/Capacity = Q/Qe	1.07	0.79	0.68	0.09

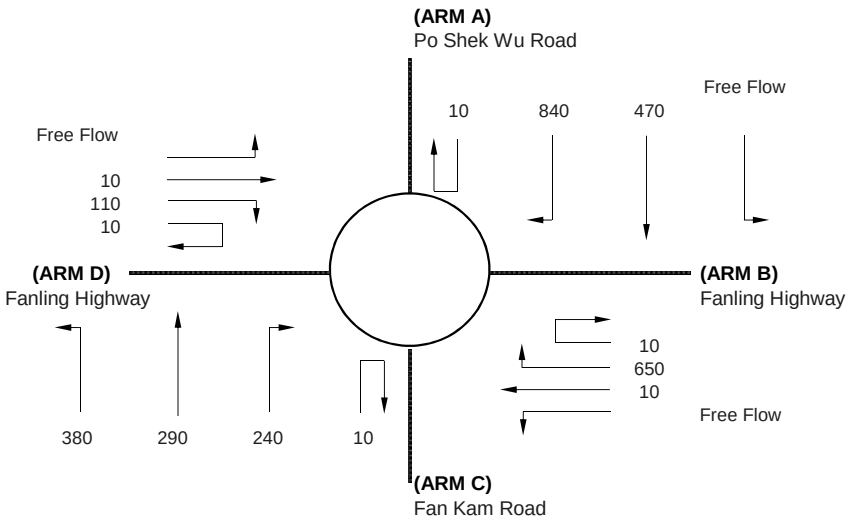
TOTAL ENTRY FLOWS = 3380 PCU

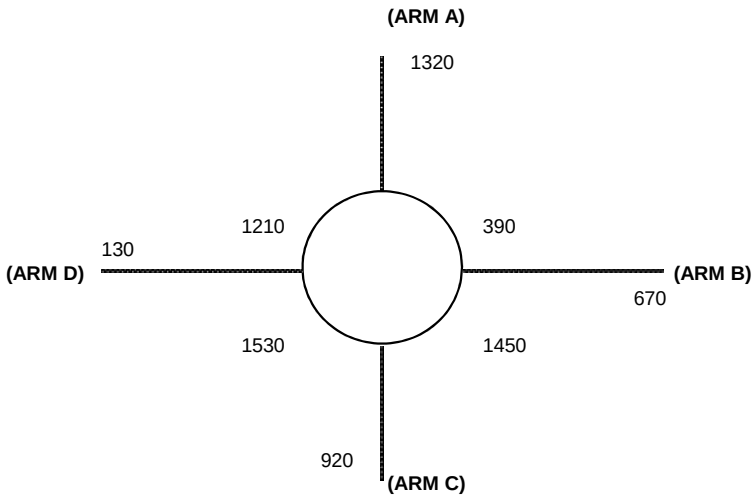
CRITICAL DFC = 1.07

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2017 AM CTIA Critical Stage	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.60	3.90	6.50	5.90
E = Entry width (m)	8.35	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1320	670	920	130
Qc= Circulating flow across entry (pcu/h)	390	1450	1530	1210
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.27	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	4.94	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1498	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.44	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1422	1067	1584	1627
DFC = Design flow/Capacity = Q/Qe	0.93	0.63	0.58	0.08

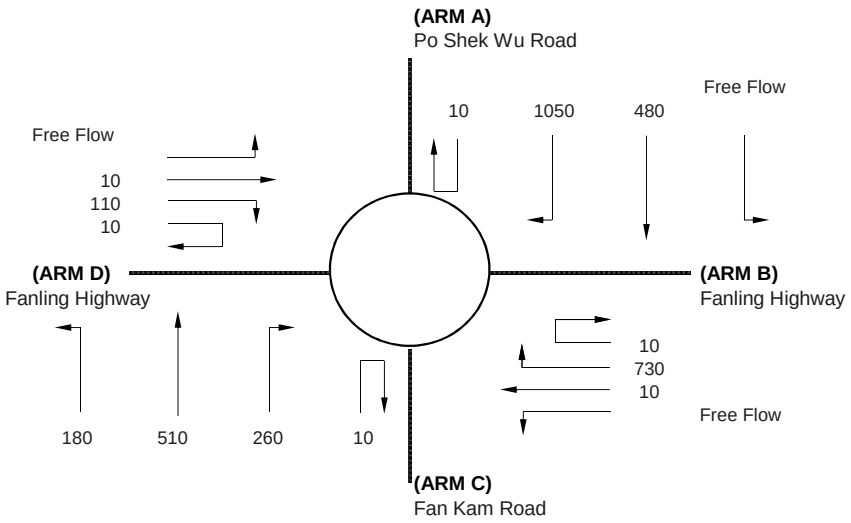
TOTAL ENTRY FLOWS = 3040 PCU

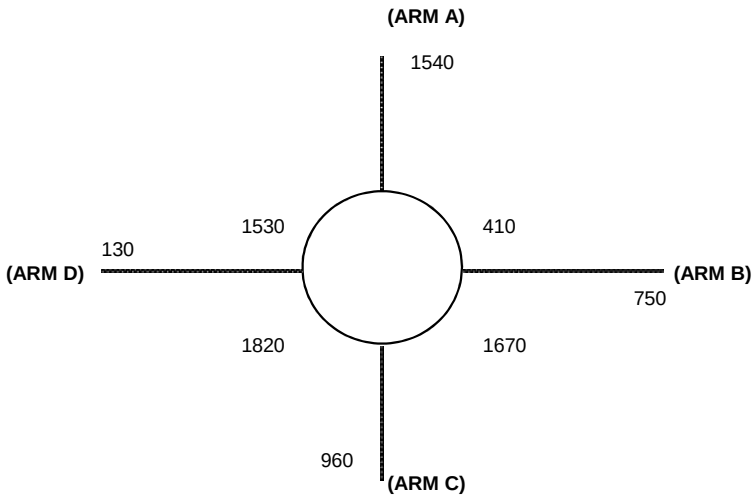
CRITICAL DFC = 0.93

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2017 PM CTIA Critical Stage	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.60	3.90	6.50	5.90
E = Entry width (m)	8.35	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1540	750	960	130
Qc= Circulating flow across entry (pcu/h)	410	1670	1820	1530
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.27	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	4.94	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1498	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.44	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1413	955	1417	1447
DFC = Design flow/Capacity = Q/Qe	1.09	0.79	0.68	0.09

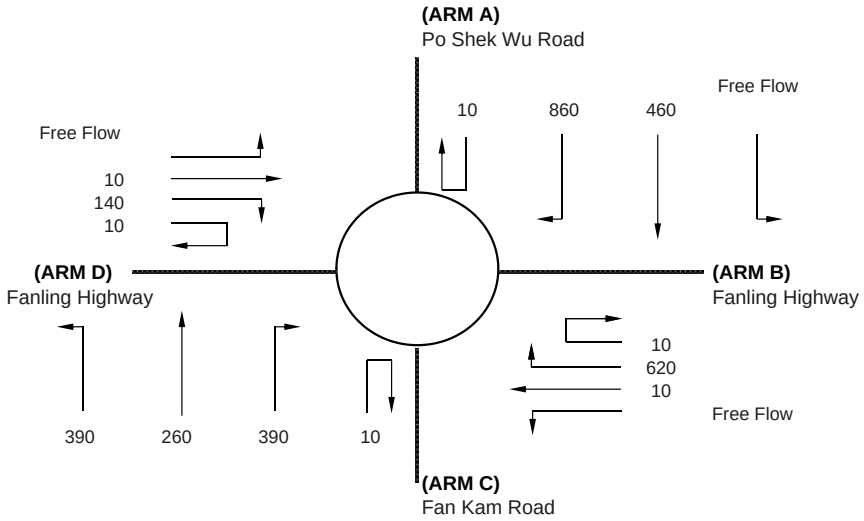
TOTAL ENTRY FLOWS = 3380 PCU

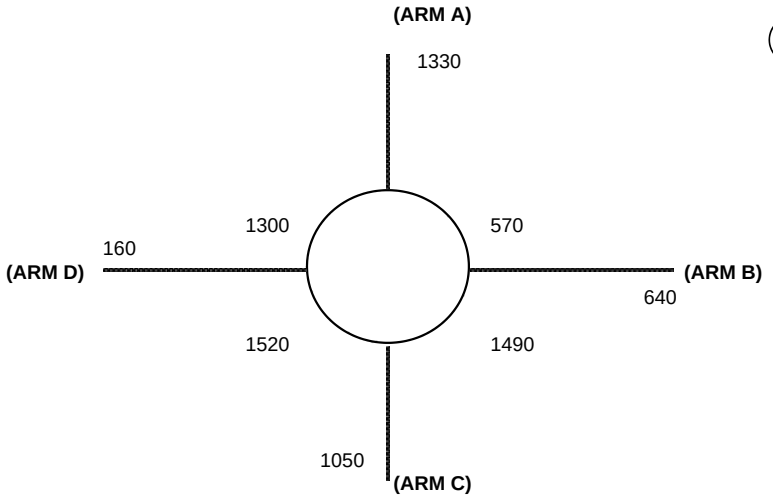
CRITICAL DFC = 1.09

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 AM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1330	640	1050	160
Qc= Circulating flow across entry (pcu/h)	570	1490	1520	1300
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1368	1047	1590	1576
DFC = Design flow/Capacity = Q/Qe	0.97	0.61	0.66	0.10

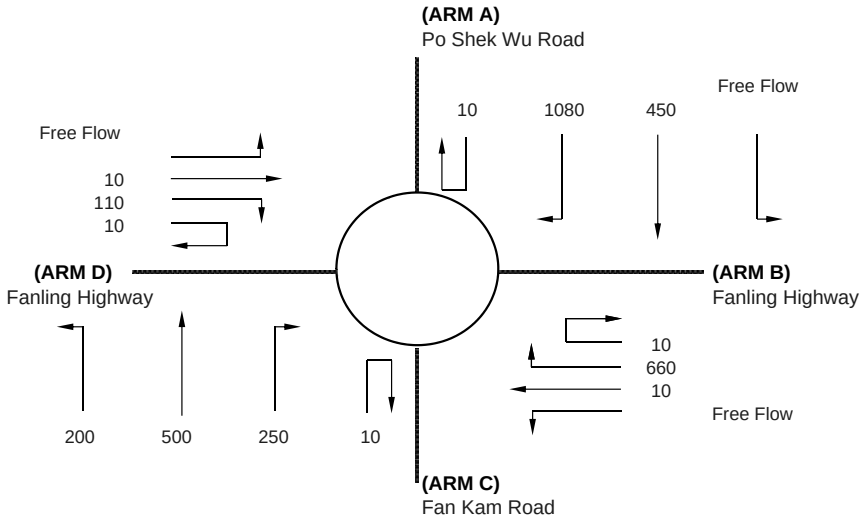
TOTAL ENTRY FLOWS = 3180 PCU

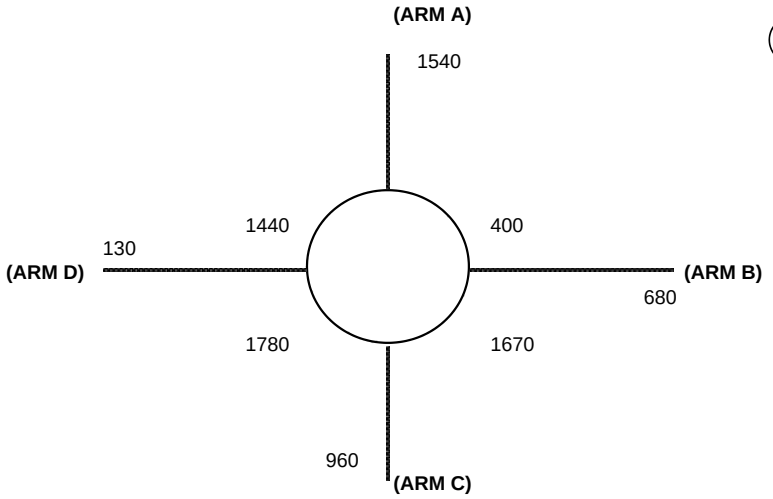
CRITICAL DFC = 0.97

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 PM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1540	680	960	130
Qc= Circulating flow across entry (pcu/h)	400	1670	1780	1440
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1450	955	1440	1497
DFC = Design flow/Capacity = Q/Qe	1.06	0.71	0.67	0.09

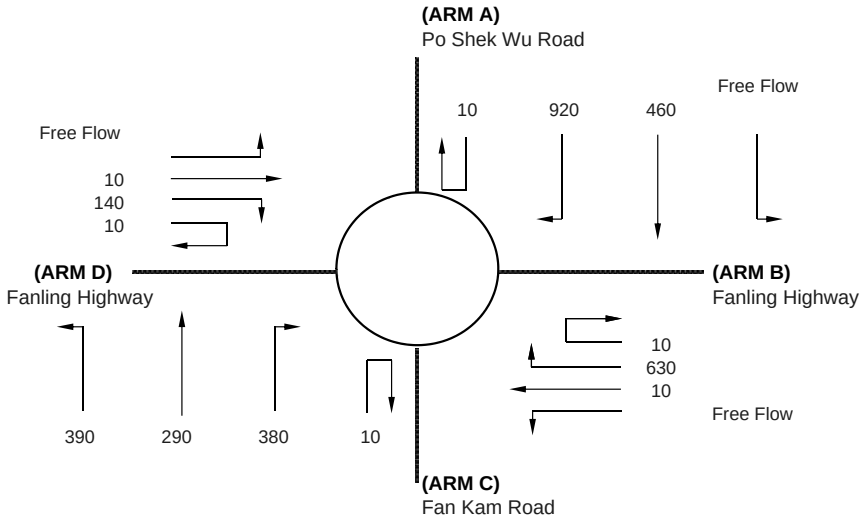
TOTAL ENTRY FLOWS = 3310 PCU

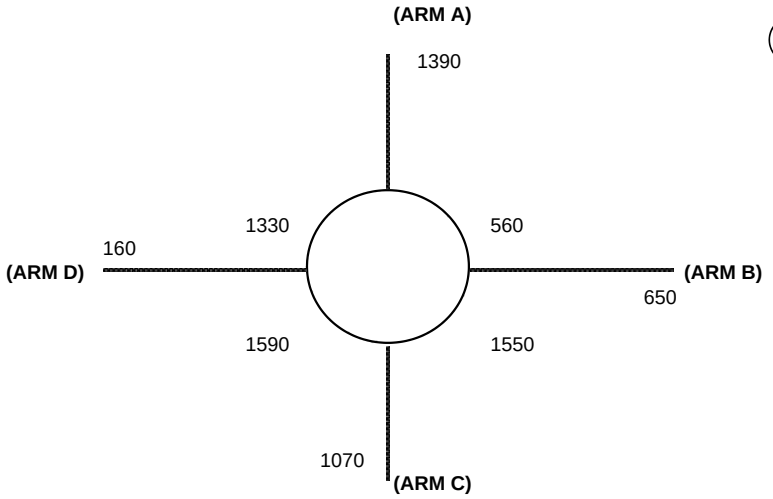
CRITICAL DFC = 1.06

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1390	650	1070	160
Qc= Circulating flow across entry (pcu/h)	560	1550	1590	1330
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1373	1016	1550	1560
DFC = Design flow/Capacity = Q/Qe	1.01	0.64	0.69	0.10

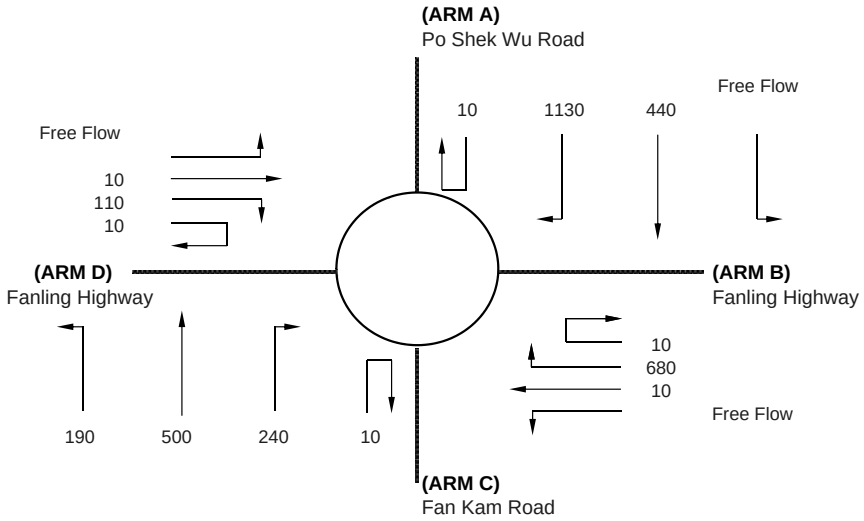
TOTAL ENTRY FLOWS = 3270 PCU

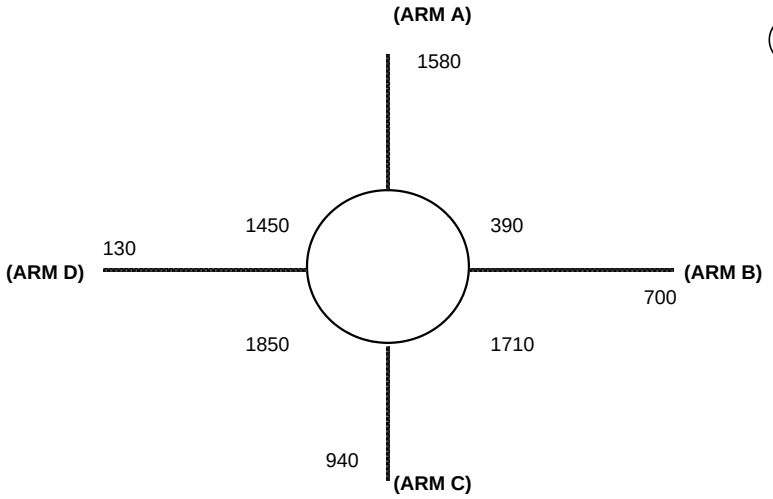
CRITICAL DFC = 1.01

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 PM Design Case (Without Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1580	700	940	130
Qc= Circulating flow across entry (pcu/h)	390	1710	1850	1450
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1454	934	1399	1492
DFC = Design flow/Capacity = Q/Qe	1.09	0.75	0.67	0.09

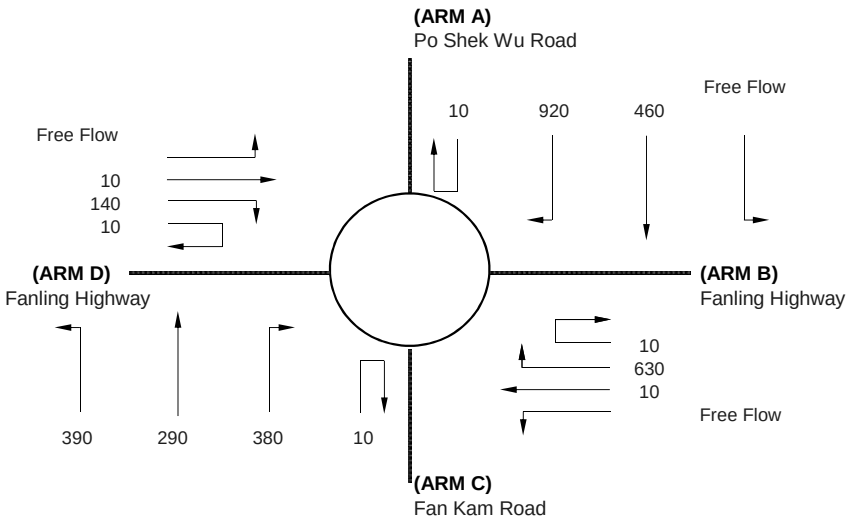
TOTAL ENTRY FLOWS = 3350 PCU

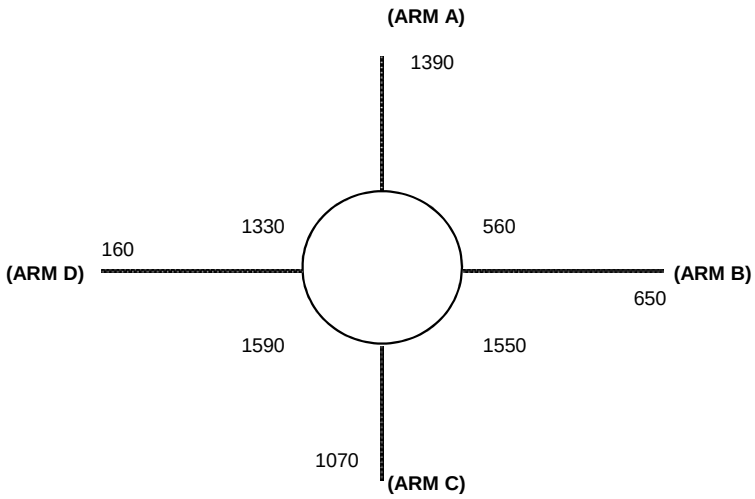
CRITICAL DFC = 1.09

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 AM Design Case (Without Liantang/ HYW E	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.66	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1390	650	1070	160
Qc= Circulating flow across entry (pcu/h)	560	1550	1590	1330
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.49	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	7.59	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	2299	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.56	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	2131	1016	1550	1560
DFC = Design flow/Capacity = Q/Qe	0.65	0.64	0.69	0.10

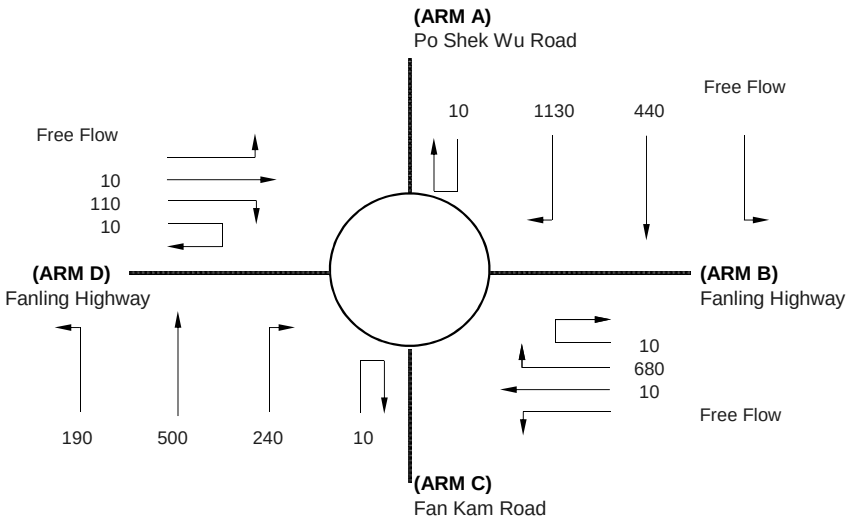
TOTAL ENTRY FLOWS = 3270 PCU

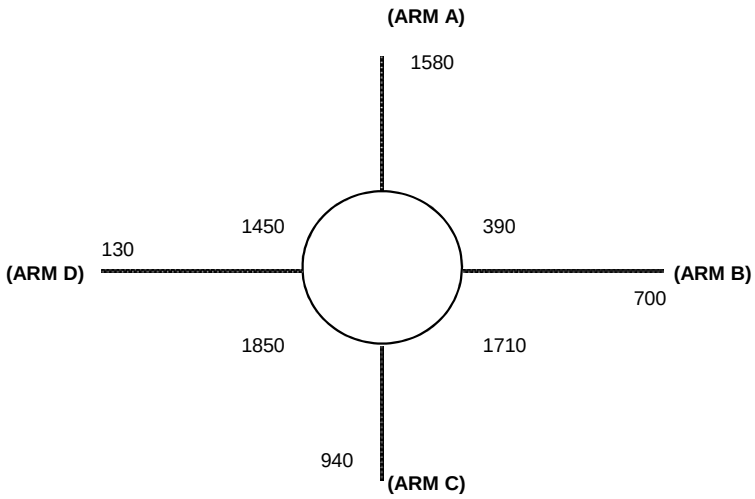
CRITICAL DFC = 0.69

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 PM Design Case (Without Liantang/ HYW E	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.66	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1580	700	940	130
Qc= Circulating flow across entry (pcu/h)	390	1710	1850	1450
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.49	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	7.59	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	2299	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.56	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	2233	934	1399	1492
DFC = Design flow/Capacity = Q/Qe	0.71	0.75	0.67	0.09

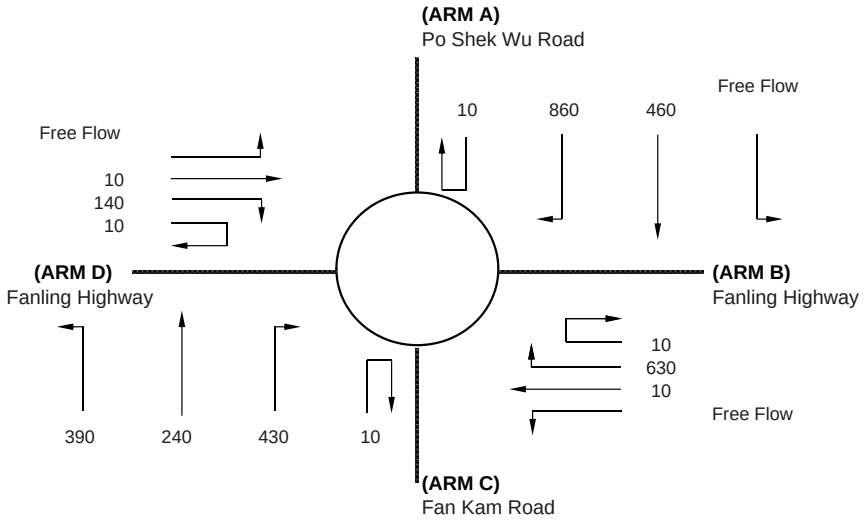
TOTAL ENTRY FLOWS = 3350 PCU

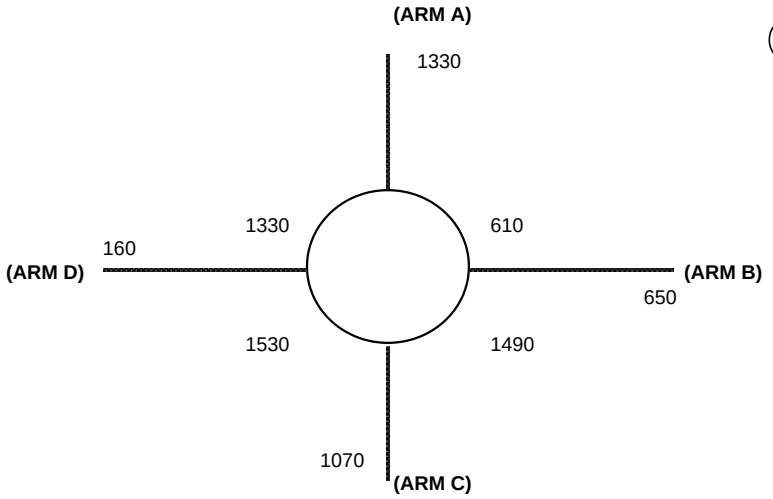
CRITICAL DFC = 0.75

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 AM Reference Case (With Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1330	650	1070	160
Qc= Circulating flow across entry (pcu/h)	610	1490	1530	1330
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1349	1047	1584	1560
DFC = Design flow/Capacity = Q/Qe	0.99	0.62	0.68	0.10

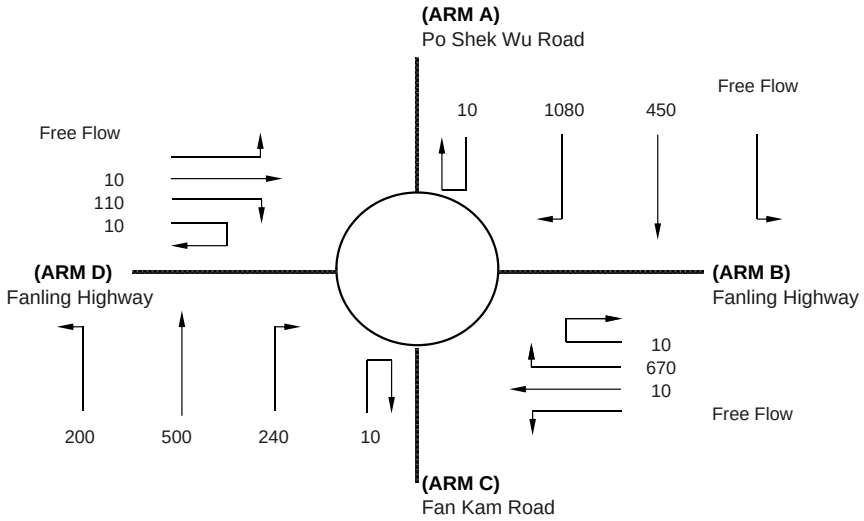
TOTAL ENTRY FLOWS = 3210 PCU

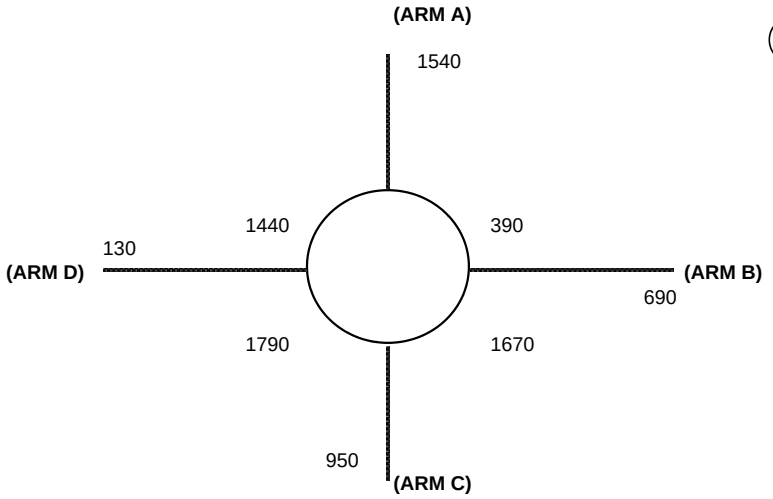
CRITICAL DFC = 0.99

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 PM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1540	690	950	130
Qc= Circulating flow across entry (pcu/h)	390	1670	1790	1440
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1454	955	1434	1497
DFC = Design flow/Capacity = Q/Qe	1.06	0.72	0.66	0.09

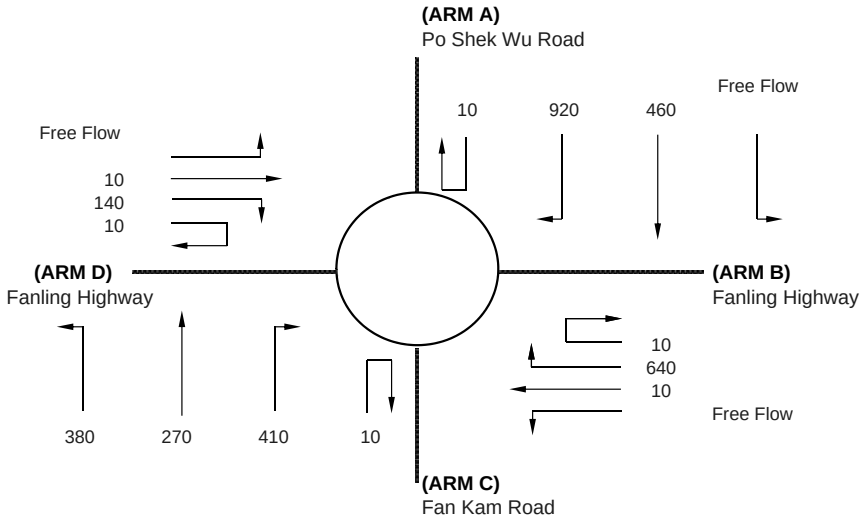
TOTAL ENTRY FLOWS = 3310 PCU

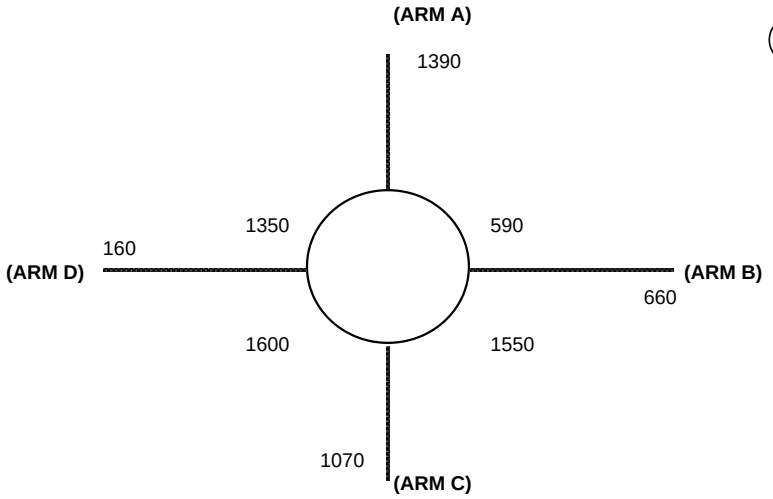
CRITICAL DFC = 1.06

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 AM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1390	660	1070	160
Qc= Circulating flow across entry (pcu/h)	590	1550	1600	1350
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1358	1016	1544	1548
DFC = Design flow/Capacity = Q/Qe	1.02	0.65	0.69	0.10

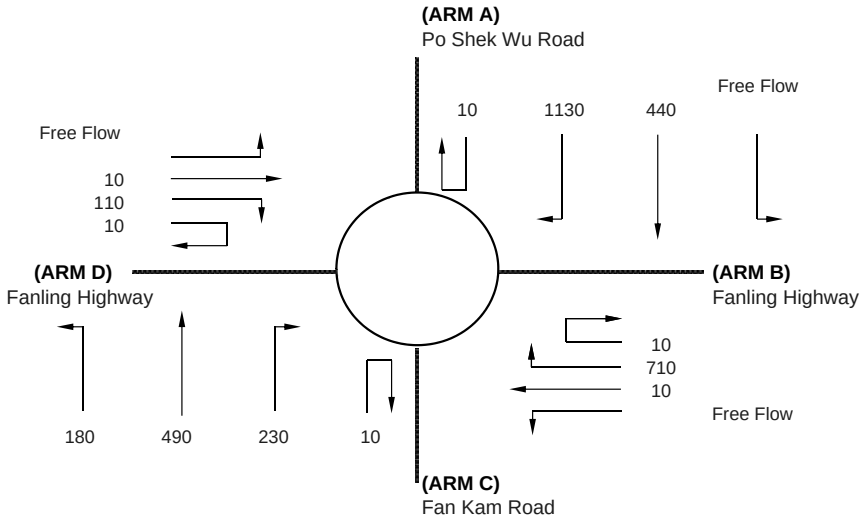
TOTAL ENTRY FLOWS = 3280 PCU

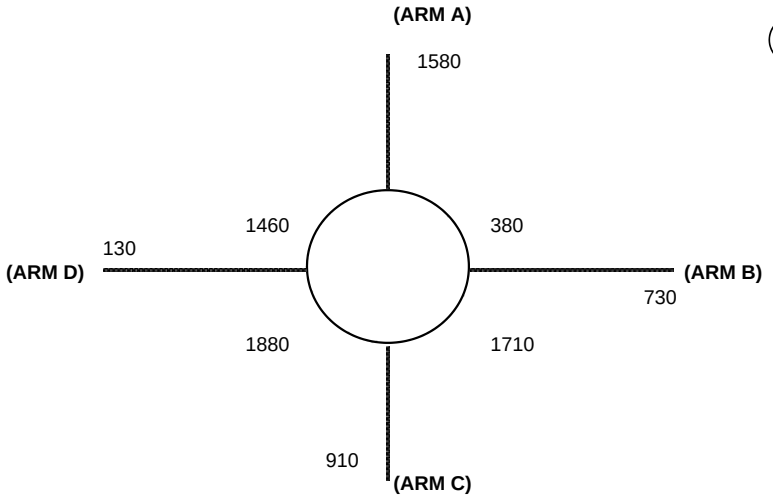
CRITICAL DFC = 1.02

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 PM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1580	730	910	130
Qc= Circulating flow across entry (pcu/h)	380	1710	1880	1460
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1459	934	1382	1486
DFC = Design flow/Capacity = Q/Qe	1.08	0.78	0.66	0.09

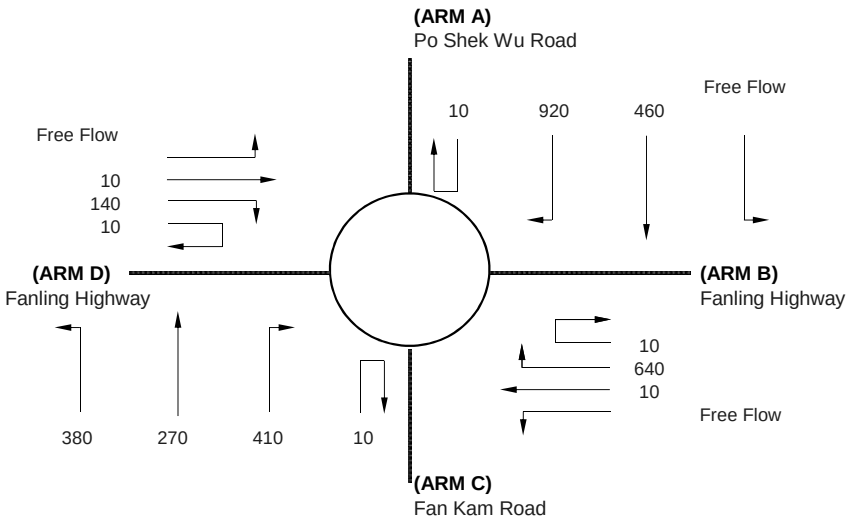
TOTAL ENTRY FLOWS = 3350 PCU

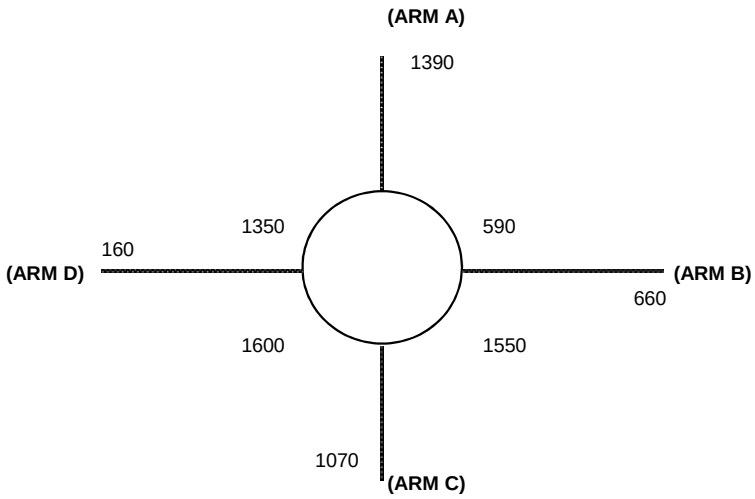
CRITICAL DFC = 1.08

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 AM Design Case (With Liantang/ HYW BCP	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.66	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	9.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1390	660	1070	160
Qc= Circulating flow across entry (pcu/h)	590	1550	1600	1350
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	7.77	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	2355	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.57	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	2167	1016	1544	1548
DFC = Design flow/Capacity = Q/Qe	0.64	0.65	0.69	0.10

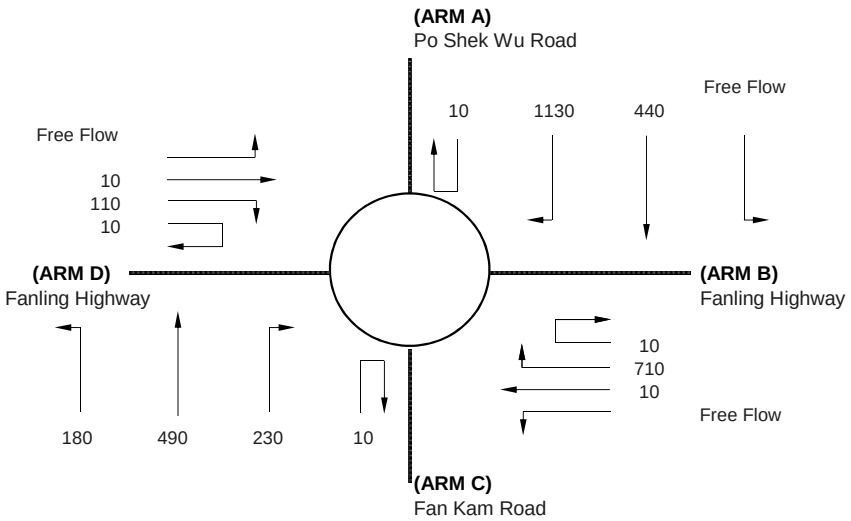
TOTAL ENTRY FLOWS = 3280 PCU

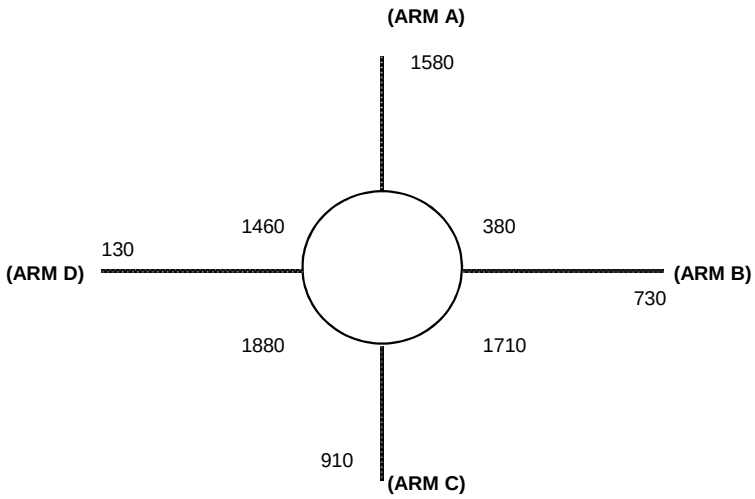
CRITICAL DFC = 0.69

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2020 PM Design Case (With Liantang/ HYW BCP	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.66	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	9.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1580	730	910	130
Qc= Circulating flow across entry (pcu/h)	380	1710	1880	1460
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	7.77	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	2355	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.57	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	2295	934	1382	1486
DFC = Design flow/Capacity = Q/Qe	0.69	0.78	0.66	0.09

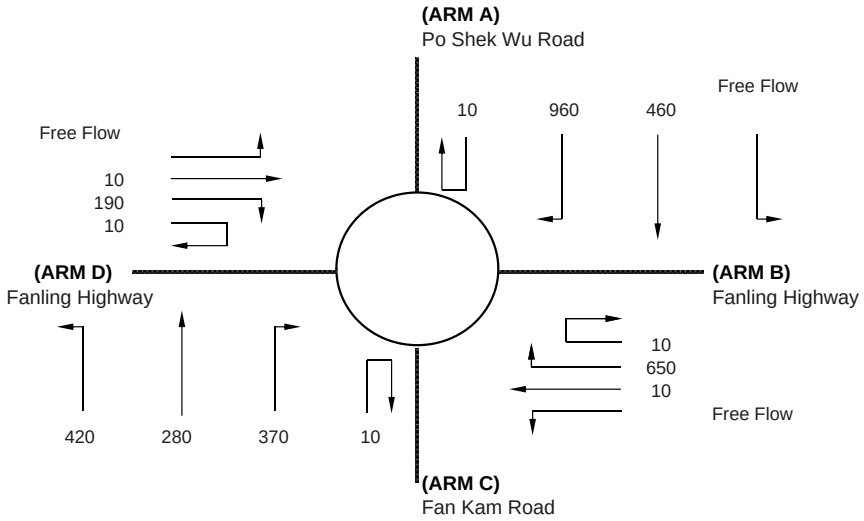
TOTAL ENTRY FLOWS = 3350 PCU

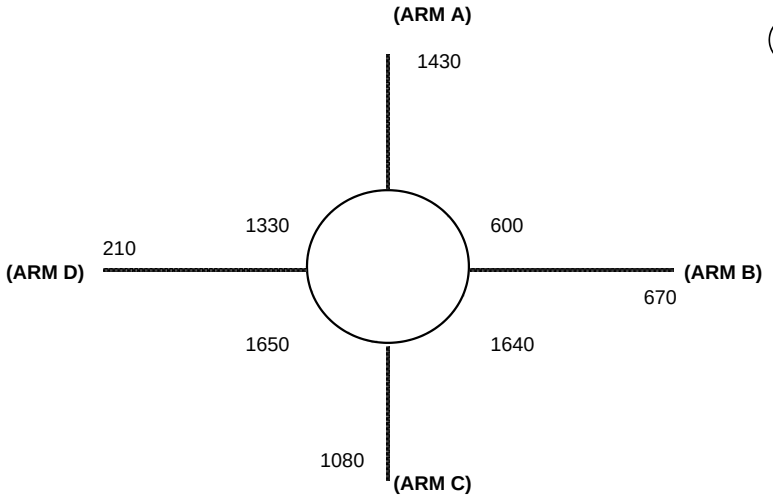
CRITICAL DFC = 0.78

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1430	670	1080	210
Qc= Circulating flow across entry (pcu/h)	600	1640	1650	1330
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1354	970	1515	1560
DFC = Design flow/Capacity = Q/Qe	1.06	0.69	0.71	0.13

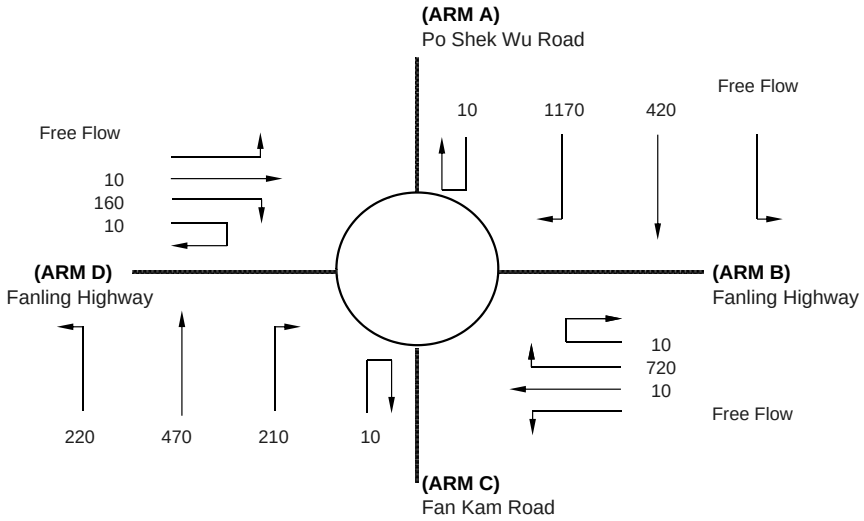
TOTAL ENTRY FLOWS = 3390 PCU

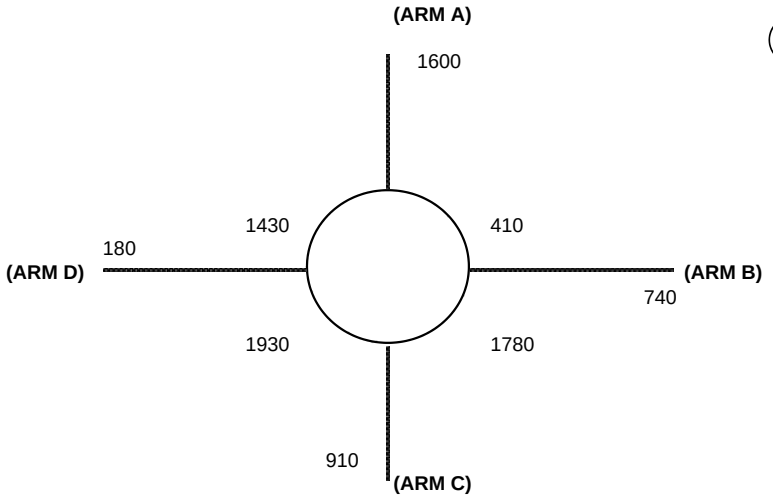
CRITICAL DFC = 1.06

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2026 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1600	740	910	180
Qc= Circulating flow across entry (pcu/h)	410	1780	1930	1430
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1445	899	1353	1503
DFC = Design flow/Capacity = Q/Qe	1.11	0.82	0.67	0.12

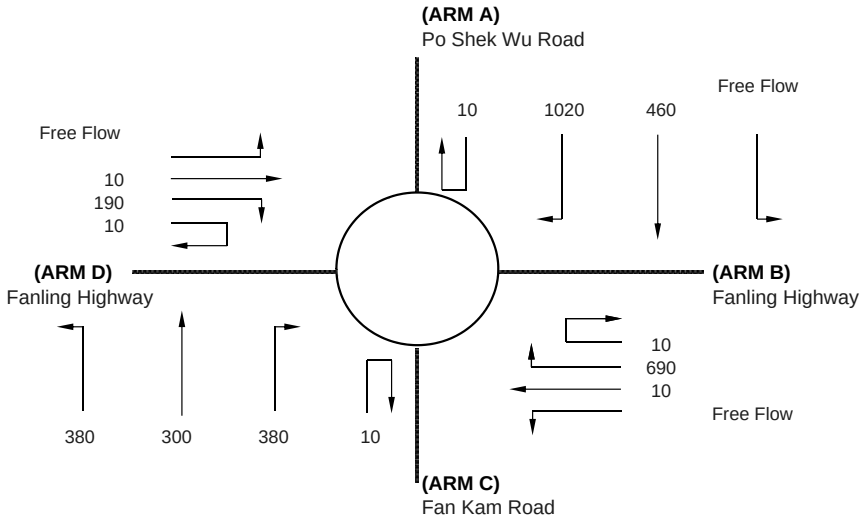
TOTAL ENTRY FLOWS = 3430 PCU

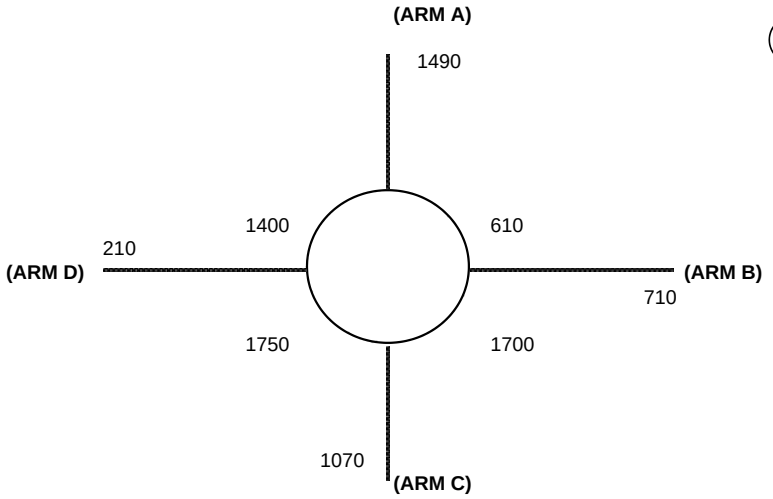
CRITICAL DFC = 1.11

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2026 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1490	710	1070	210
Qc= Circulating flow across entry (pcu/h)	610	1700	1750	1400
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1349	940	1457	1520
DFC = Design flow/Capacity = Q/Qe	1.10	0.76	0.73	0.14

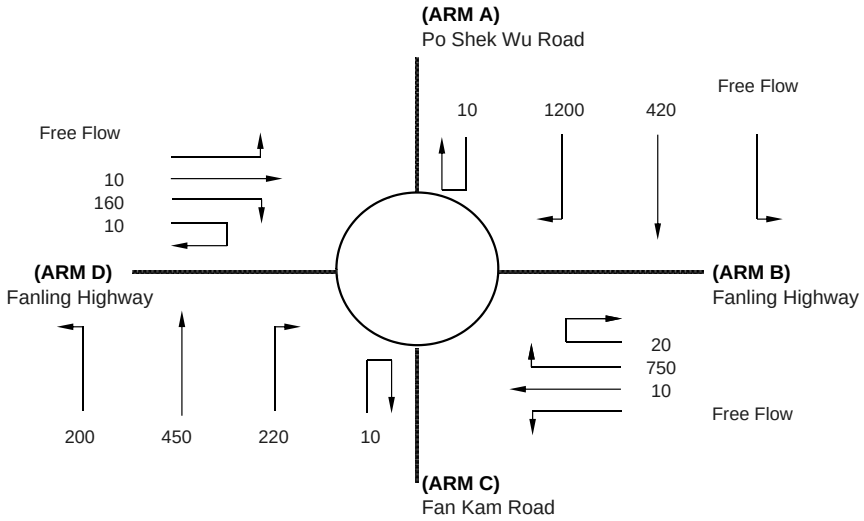
TOTAL ENTRY FLOWS = 3480 PCU

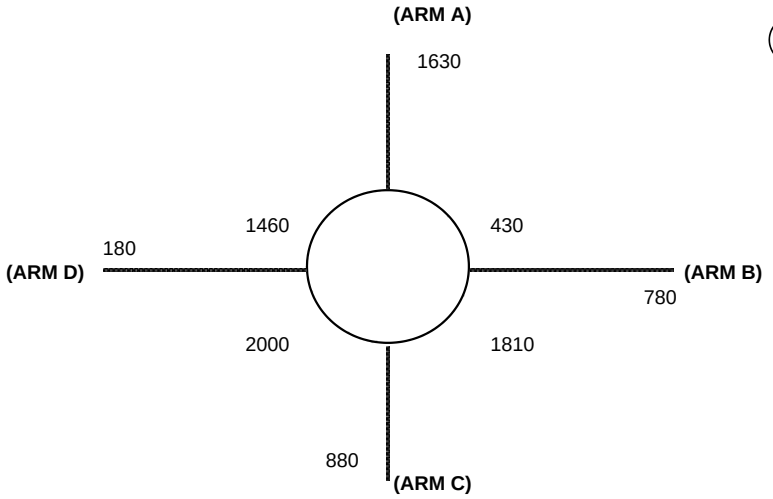
CRITICAL DFC = 1.10

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2026 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1630	780	880	180
Qc= Circulating flow across entry (pcu/h)	430	1810	2000	1460
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1435	883	1313	1486
DFC = Design flow/Capacity = Q/Qe	1.14	0.88	0.67	0.12

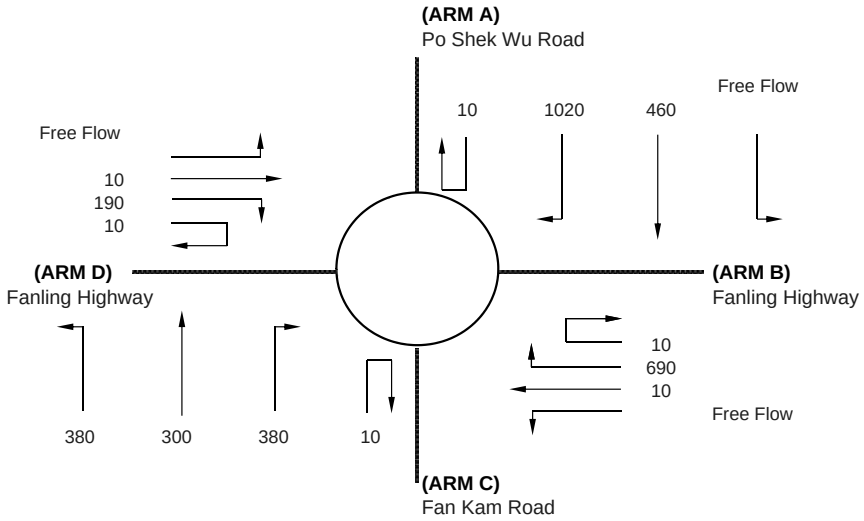
TOTAL ENTRY FLOWS = 3470 PCU

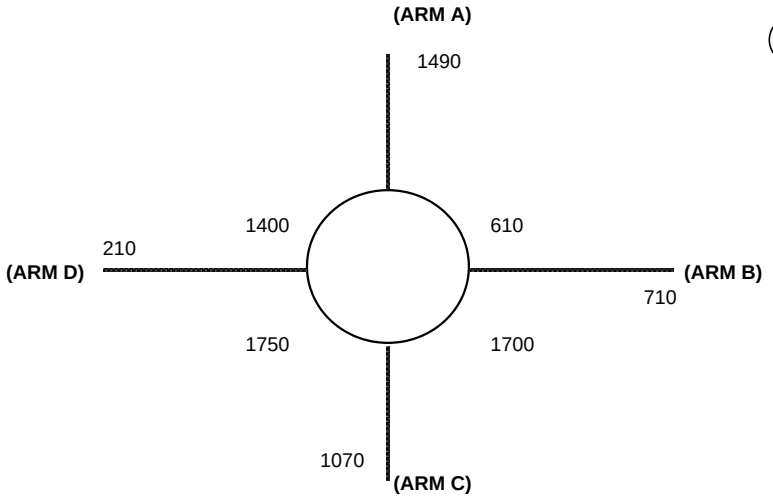
CRITICAL DFC = 1.14

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2026 AM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.66	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	9.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1490	710	1070	210
Qc= Circulating flow across entry (pcu/h)	610	1700	1750	1400
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	7.77	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	2355	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.57	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	2155	940	1457	1520
DFC = Design flow/Capacity = Q/Qe	0.69	0.76	0.73	0.14

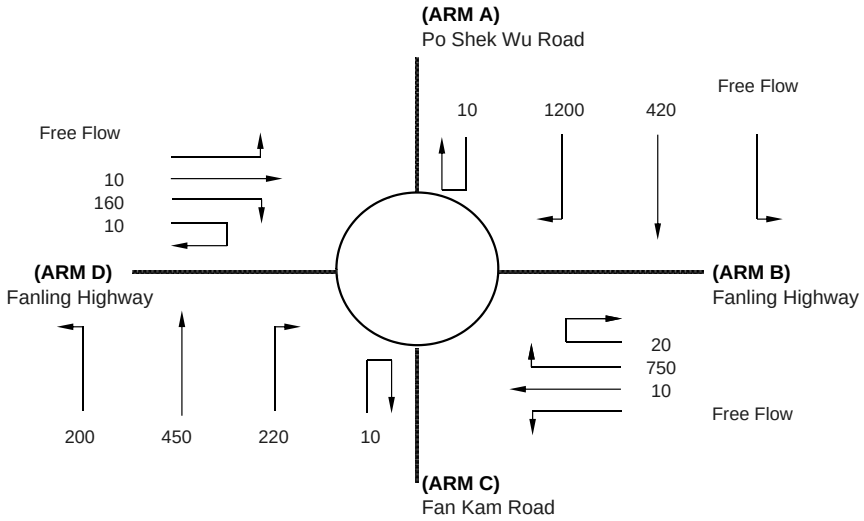
TOTAL ENTRY FLOWS = 3480 PCU

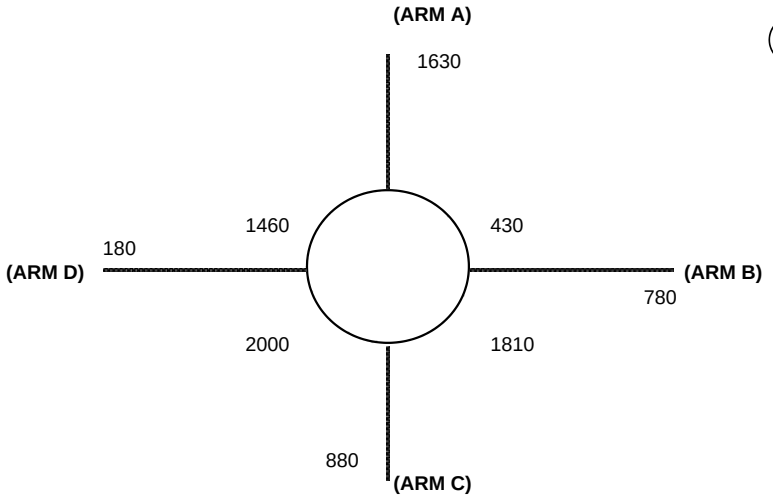
CRITICAL DFC = 0.76

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2026 PM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.66	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	9.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1630	780	880	180
Qc= Circulating flow across entry (pcu/h)	430	1810	2000	1460
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	7.77	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	2355	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.57	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	2265	883	1313	1486
DFC = Design flow/Capacity = Q/Qe	0.72	0.88	0.67	0.12

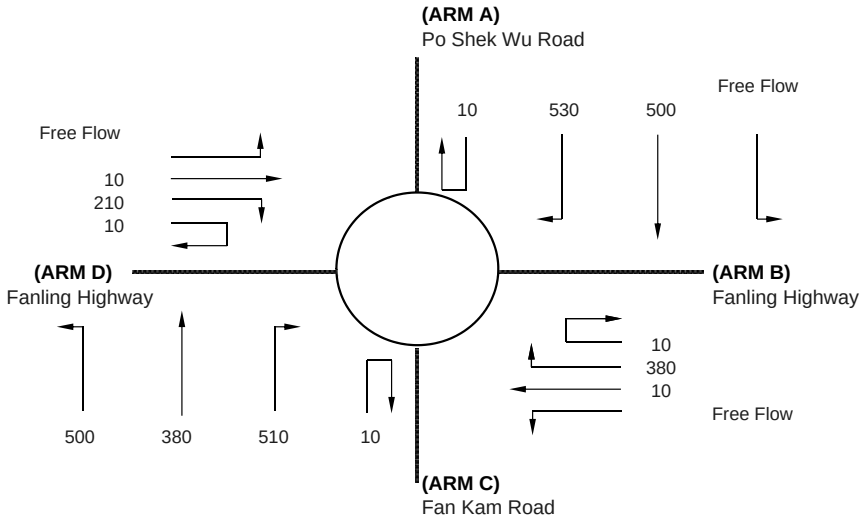
TOTAL ENTRY FLOWS = 3470 PCU

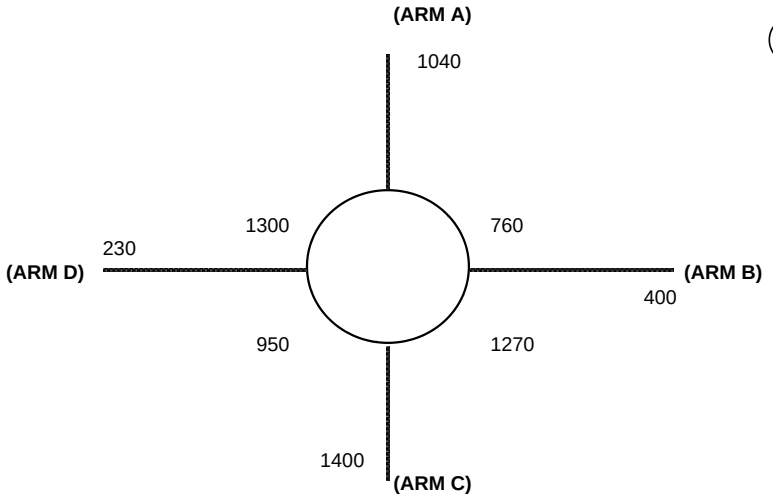
CRITICAL DFC = 0.88

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2031 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1040	400	1400	230
Qc= Circulating flow across entry (pcu/h)	760	1270	950	1300
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1277	1159	1919	1576
DFC = Design flow/Capacity = Q/Qe	0.81	0.35	0.73	0.15

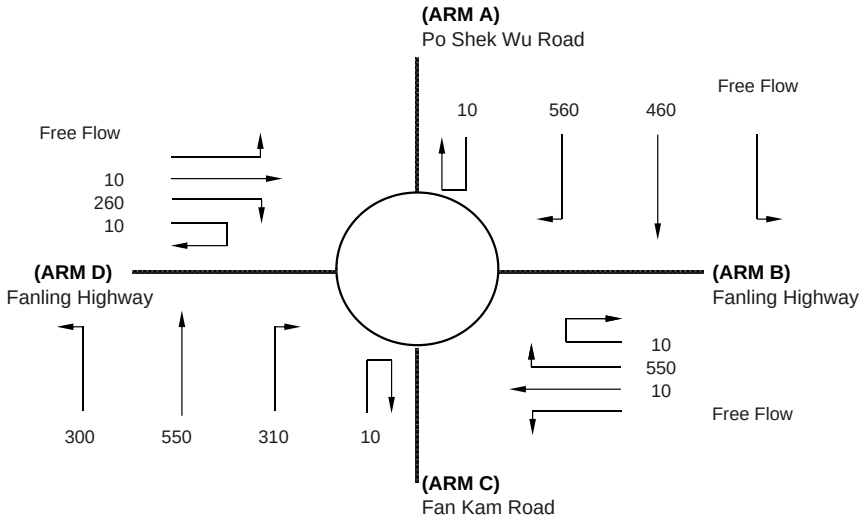
TOTAL ENTRY FLOWS = 3070 PCU

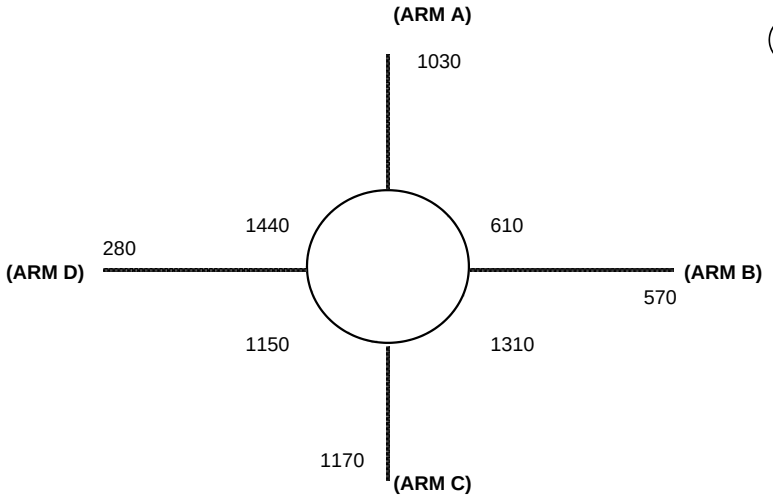
CRITICAL DFC = 0.81

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2031 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1030	570	1170	280
Qc= Circulating flow across entry (pcu/h)	610	1310	1150	1440
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1349	1139	1804	1497
DFC = Design flow/Capacity = Q/Qe	0.76	0.50	0.65	0.19

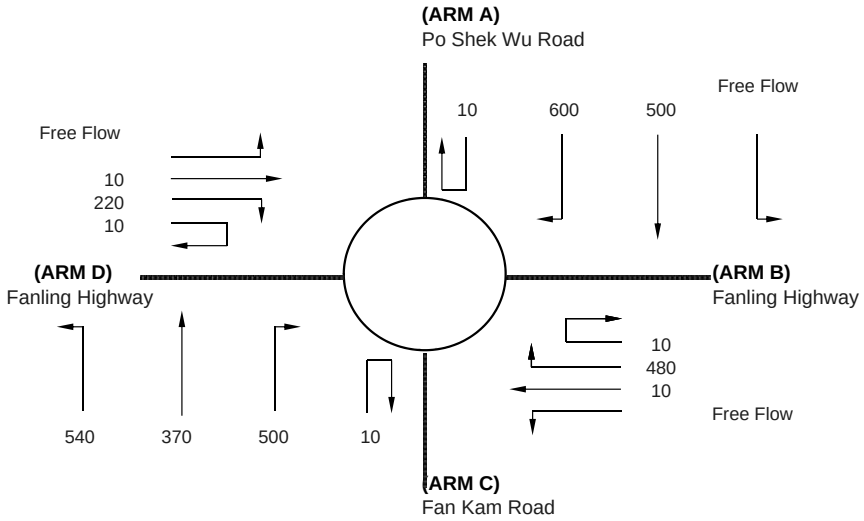
TOTAL ENTRY FLOWS = 3050 PCU

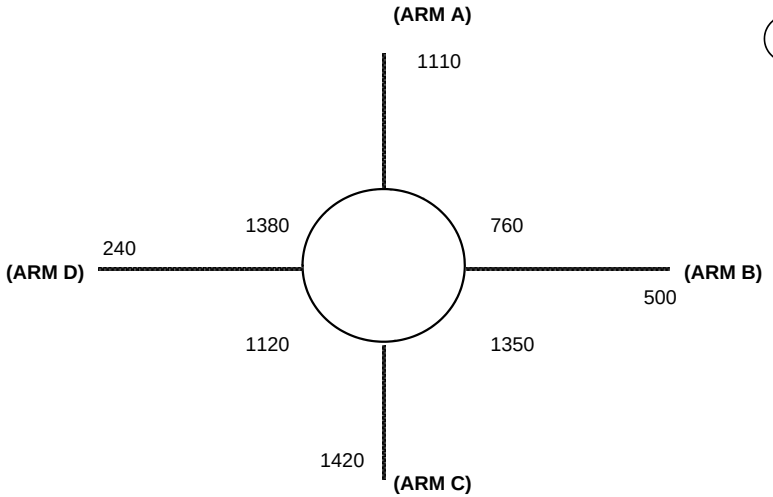
CRITICAL DFC = 0.76

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2031 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1110	500	1420	240
Qc= Circulating flow across entry (pcu/h)	760	1350	1120	1380
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1277	1118	1821	1531
DFC = Design flow/Capacity = Q/Qe	0.87	0.45	0.78	0.16

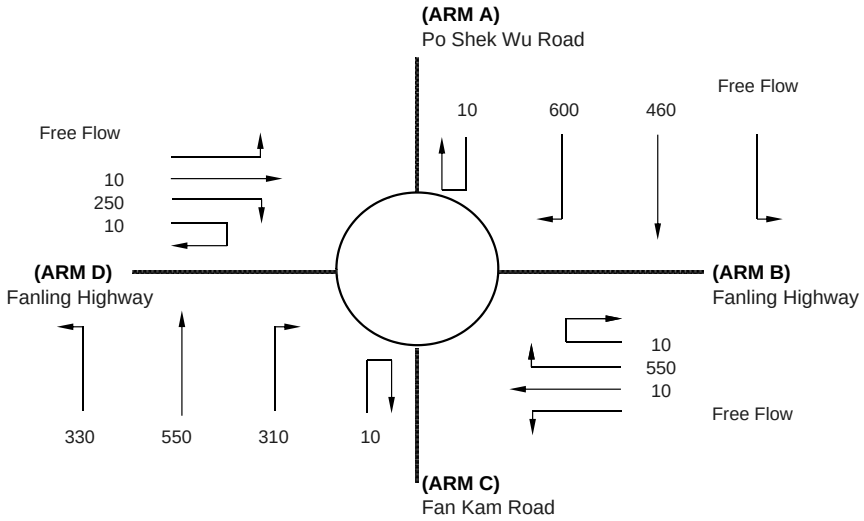
TOTAL ENTRY FLOWS = 3270 PCU

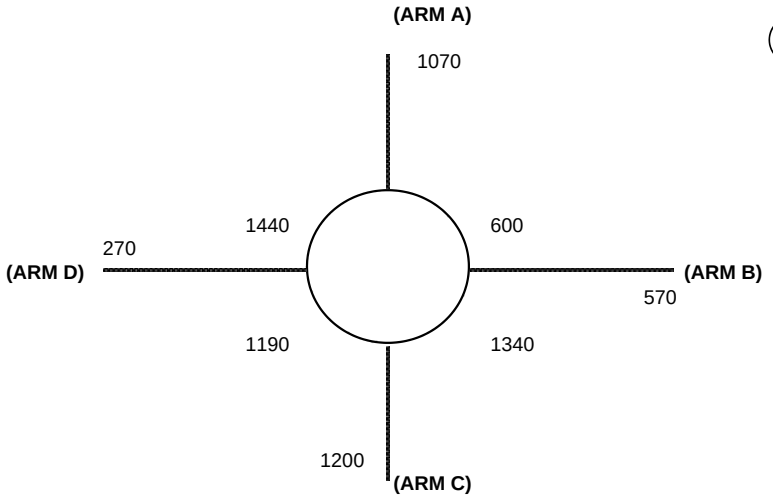
CRITICAL DFC = 0.87

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J1 - Po Shek Wu Road Interchange	2031 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	3.70	3.90	6.50	5.90
E = Entry width (m)	8.50	8.90	10.50	7.90
L = Effective length of flare (m)	6.00	7.00	12.00	30.00
R = Entry radius (m)	70.00	65.00	20.00	25.00
D = Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A = Entry angle (degree)	19.00	11.00	40.00	30.00
Q = Entry flow (pcu/h)	1070	570	1200	270
Qc= Circulating flow across entry (pcu/h)	600	1340	1190	1440
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	1.28	1.14	0.53	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.10	0.97	1.01
X2= V + ((E-V)/(1+2S))	5.05	5.42	8.44	7.55
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39
F = 303*X2	1530	1643	2556	2287
Td= 1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc= 0.21*Td(1+0.2*X2)	0.45	0.46	0.60	0.56
Qe= K(F-Fc*Qc)	1354	1123	1780	1497
DFC = Design flow/Capacity = Q/Qe	0.79	0.51	0.67	0.18

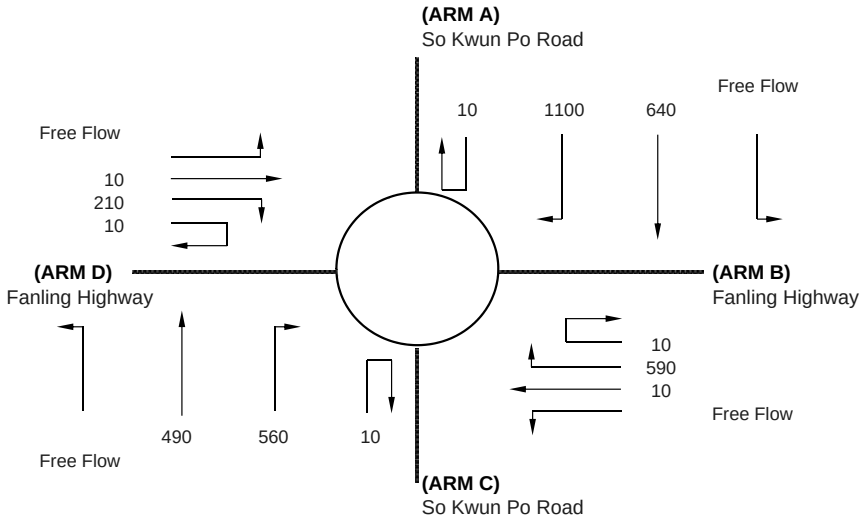
TOTAL ENTRY FLOWS = 3110 PCU

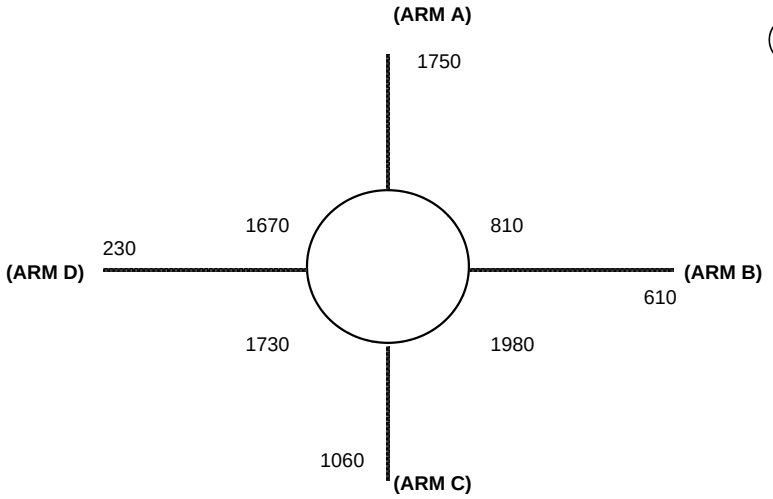
CRITICAL DFC = 0.79

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2015 AM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1750	610	1060	230
Qc= Circulating flow across entry (pcu/h)	810	1980	1730	1670
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1850	1300	1482	1212
DFC = Design flow/Capacity = Q/Qe	0.95	0.47	0.72	0.19

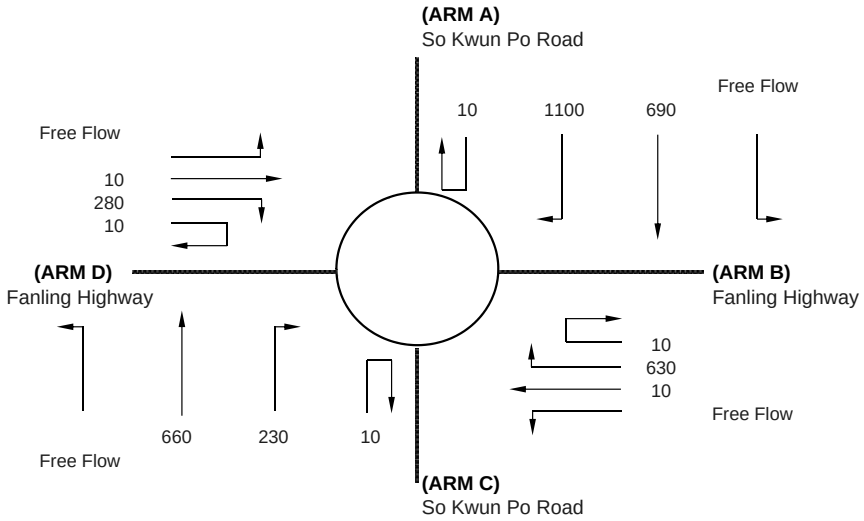
TOTAL ENTRY FLOWS = 3650 PCU

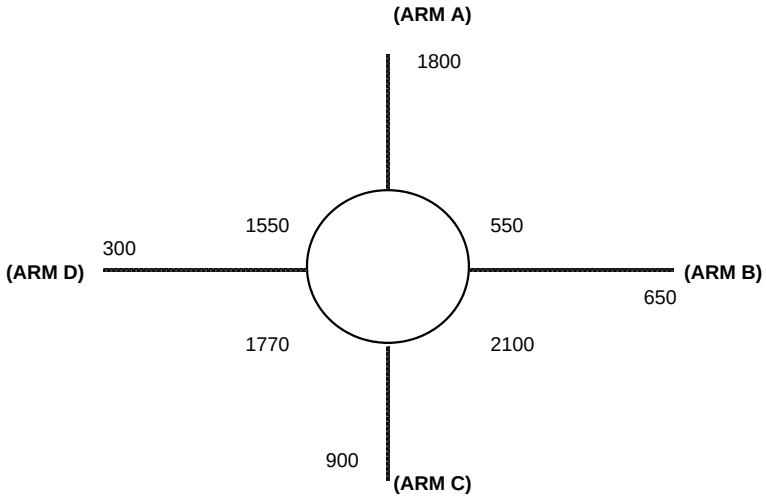
CRITICAL DFC = 0.95

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2015 PM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1800	650	900	300
Qc= Circulating flow across entry (pcu/h)	550	2100	1770	1550
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1982	1230	1460	1275
DFC = Design flow/Capacity = Q/Qe	0.91	0.53	0.62	0.24

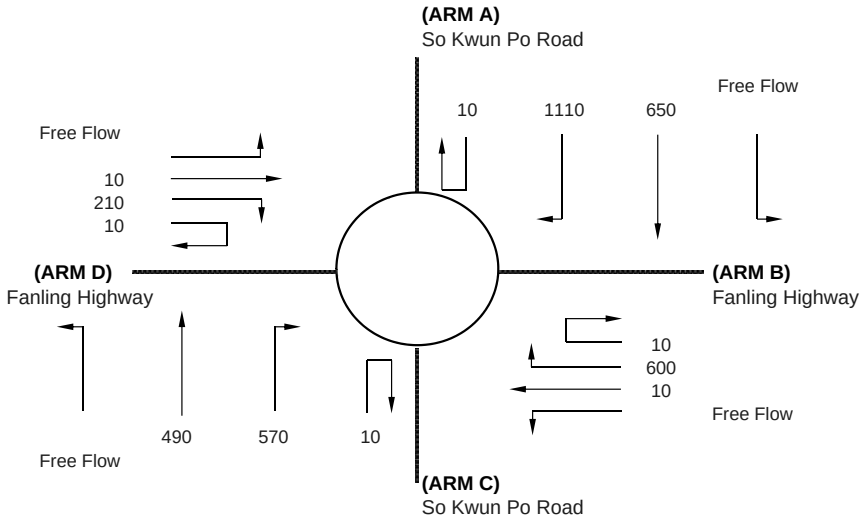
TOTAL ENTRY FLOWS = 3650 PCU

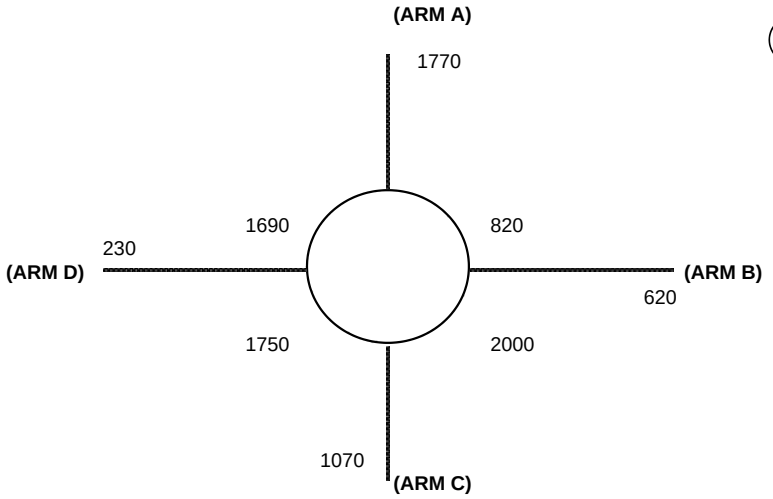
CRITICAL DFC = 0.91

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2017 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1770	620	1070	230
Qc= Circulating flow across entry (pcu/h)	820	2000	1750	1690
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1844	1289	1471	1202
DFC = Design flow/Capacity = Q/Qe	0.96	0.48	0.73	0.19

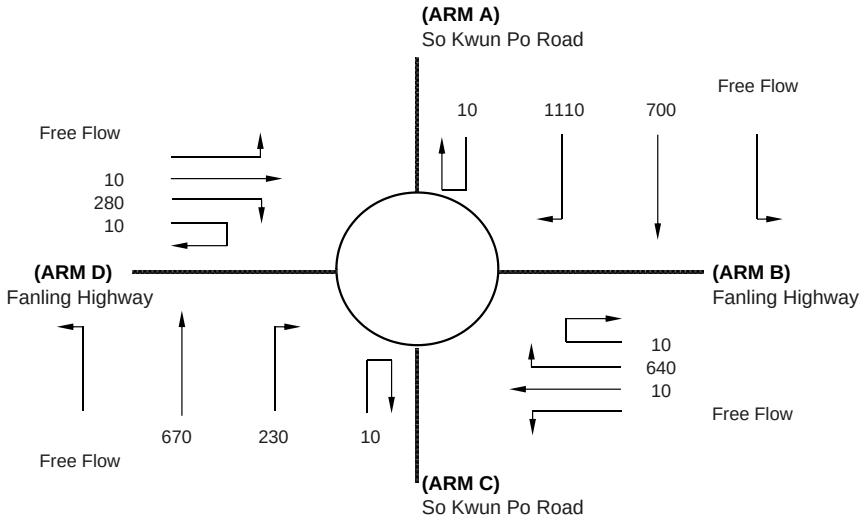
TOTAL ENTRY FLOWS = 3690 PCU

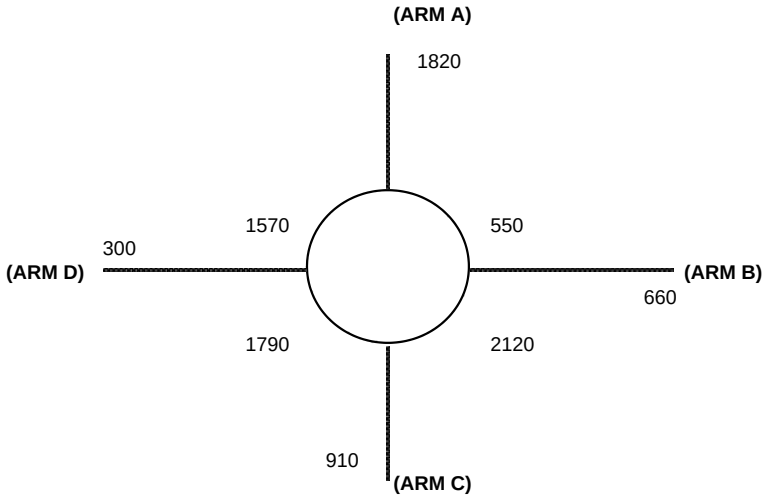
CRITICAL DFC = 0.96

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2017 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1820	660	910	300
Qc= Circulating flow across entry (pcu/h)	550	2120	1790	1570
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1982	1218	1448	1265
DFC = Design flow/Capacity = Q/Qe	0.92	0.54	0.63	0.24

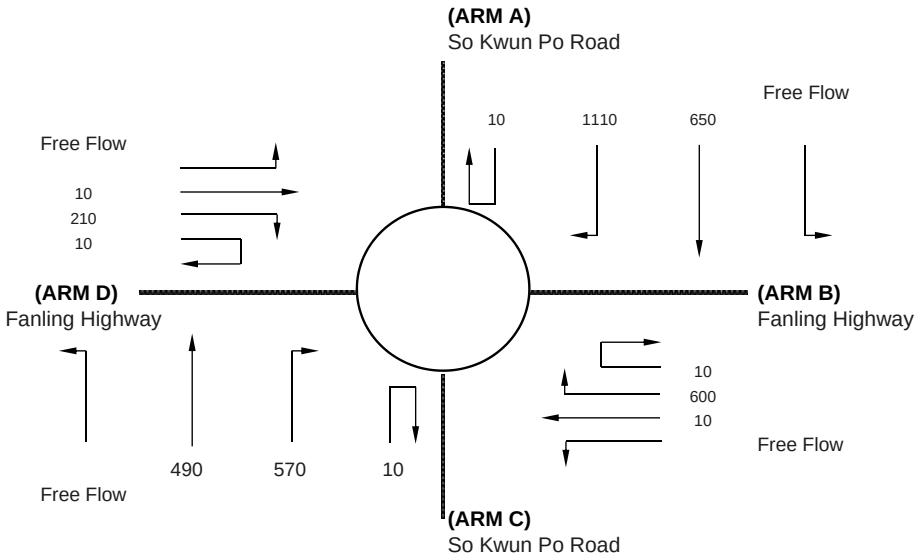
TOTAL ENTRY FLOWS = 3690 PCU

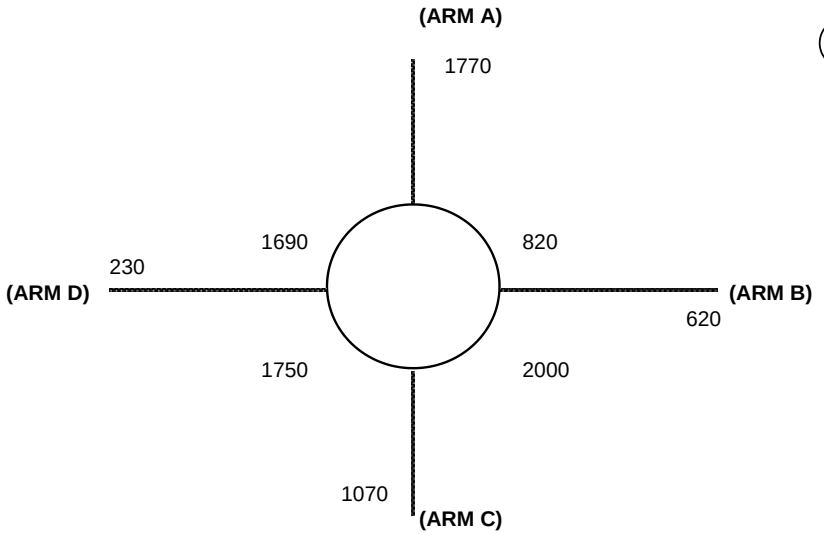
CRITICAL DFC = 0.92

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2017 AM CTIA Critical Stage	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.75	5.50	6.90	5.00
E = Entry width (m)	9.25	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1770	620	1070	230
Qc= Circulating flow across entry (pcu/h)	820	2000	1750	1690
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.25	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2500	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.57	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1786	1289	1471	1202
DFC = Design flow/Capacity = Q/Qe	0.99	0.48	0.73	0.19

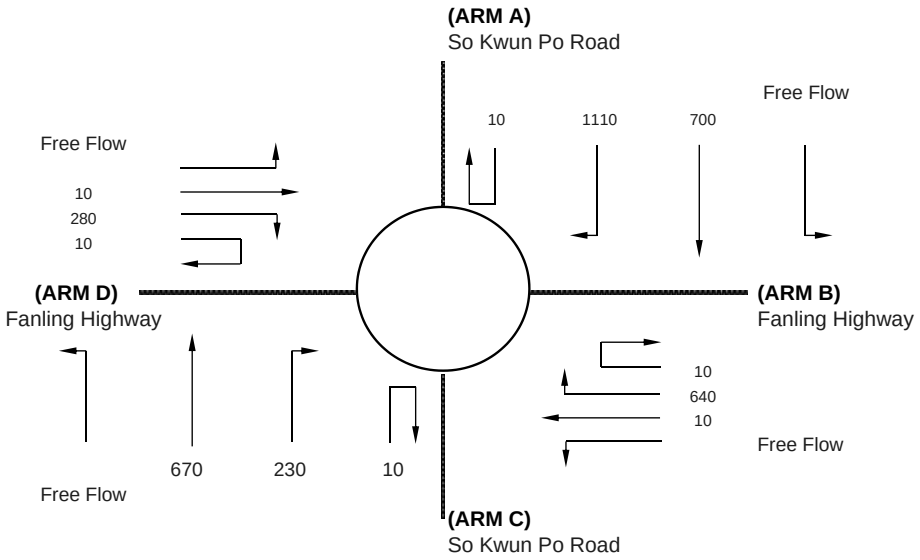
TOTAL ENTRY FLOWS = 3690 PCU

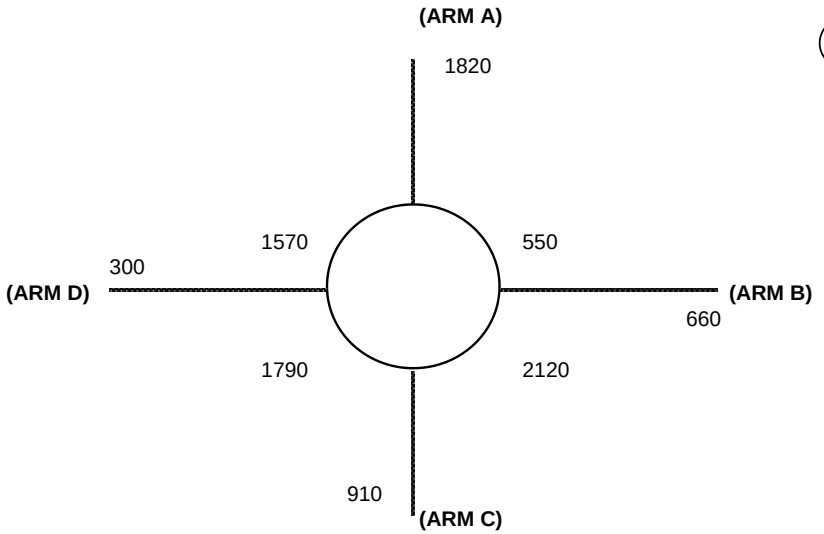
CRITICAL DFC = 0.99

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2017 PM CTIA Critical Stage	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.75	5.50	6.90	5.00
E = Entry width (m)	9.25	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1820	660	910	300
Qc= Circulating flow across entry (pcu/h)	550	2120	1790	1570
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.25	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2500	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.57	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1921	1218	1448	1265
DFC = Design flow/Capacity = Q/Qe	0.95	0.54	0.63	0.24

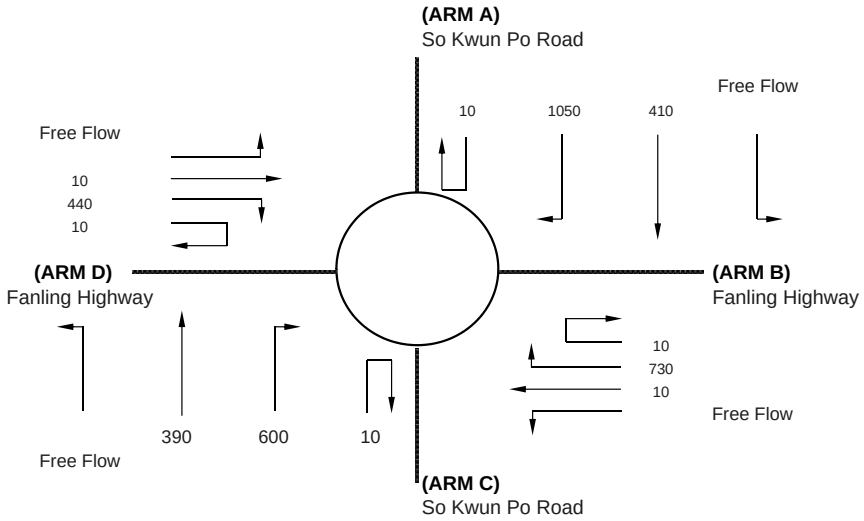
TOTAL ENTRY FLOWS = 3690 PCU

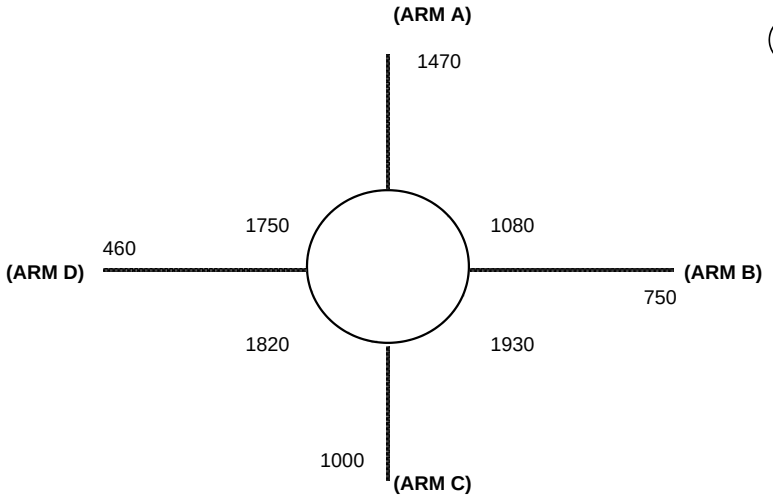
CRITICAL DFC = 0.95

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2019 AM Reference Case (With Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1470	750	1000	460
Qc= Circulating flow across entry (pcu/h)	1080	1930	1820	1750
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1712	1330	1432	1171
DFC = Design flow/Capacity = Q/Qe	0.86	0.56	0.70	0.39

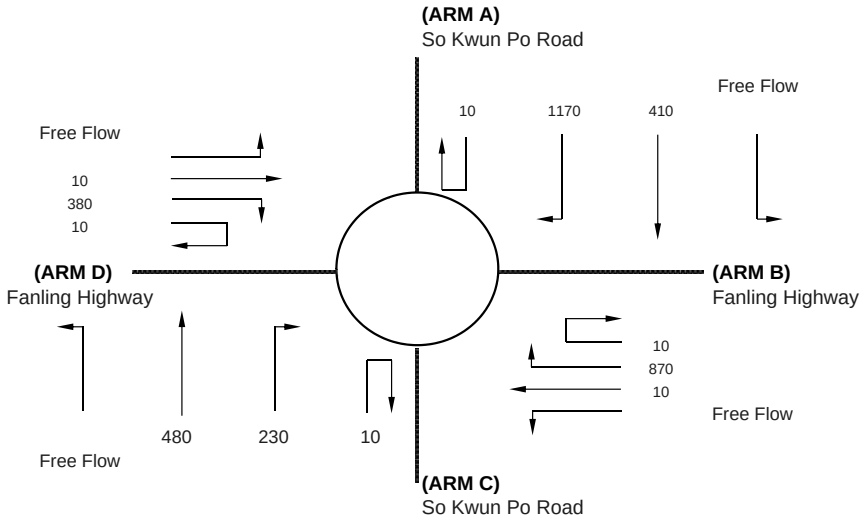
TOTAL ENTRY FLOWS = 3680 PCU

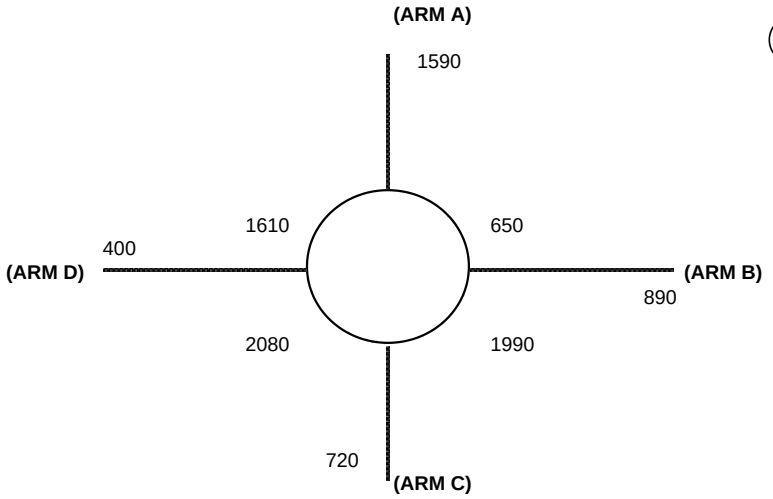
CRITICAL DFC = 0.86

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2019 PM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1590	890	720	400
Qc= Circulating flow across entry (pcu/h)	650	1990	2080	1610
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1931	1294	1286	1244
DFC = Design flow/Capacity = Q/Qe	0.82	0.69	0.56	0.32

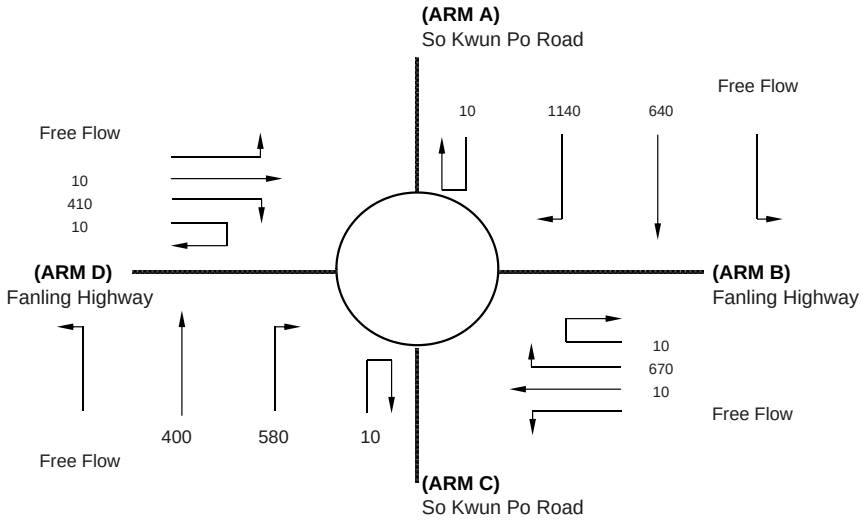
TOTAL ENTRY FLOWS = 3600 PCU

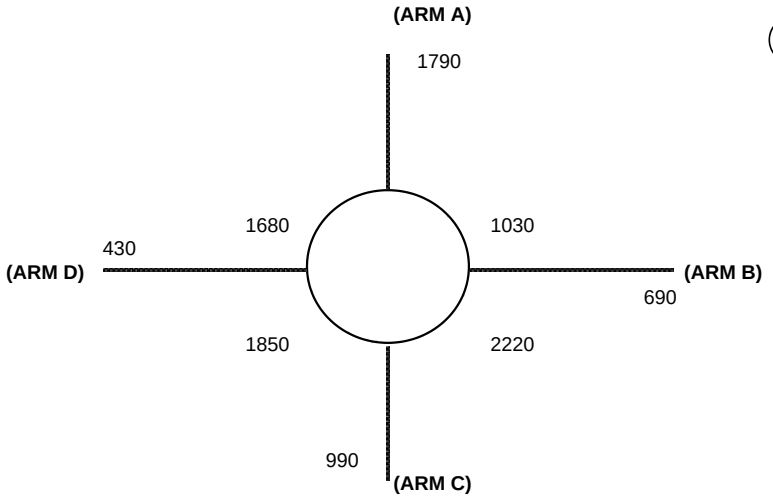
CRITICAL DFC = 0.82

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 AM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1790	690	990	430
Qc= Circulating flow across entry (pcu/h)	1030	2220	1850	1680
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1737	1160	1415	1207
DFC = Design flow/Capacity = Q/Qe	1.03	0.59	0.70	0.36

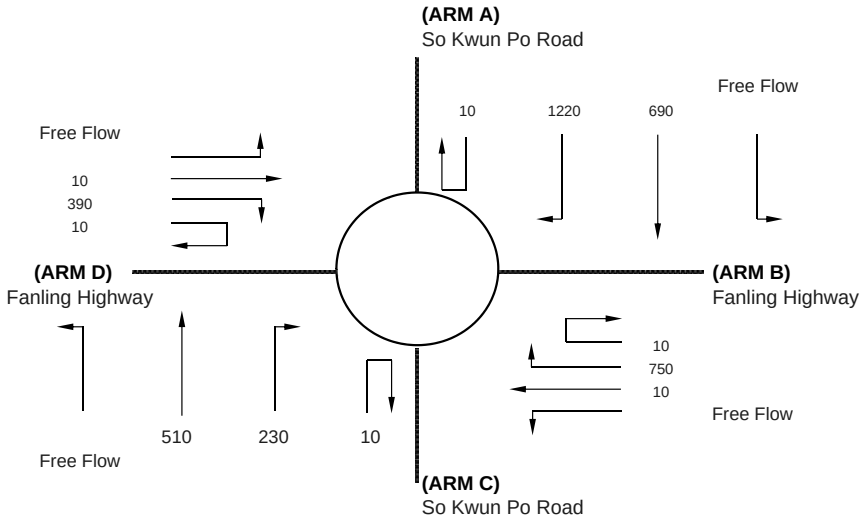
TOTAL ENTRY FLOWS = 3900 PCU

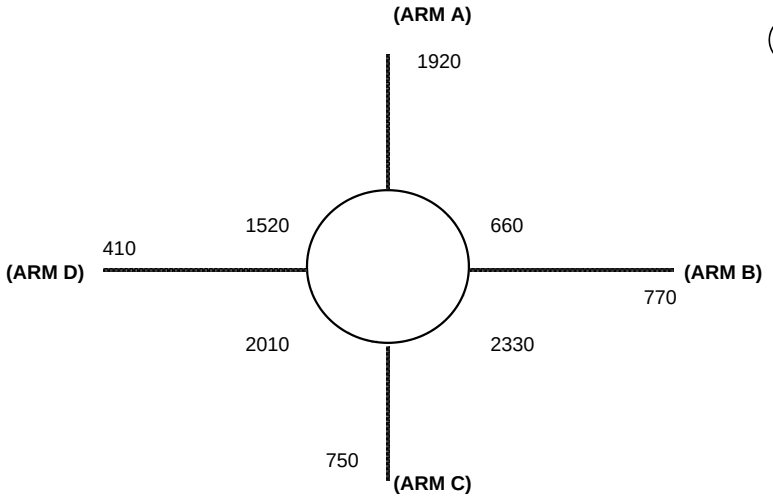
CRITICAL DFC = 1.03

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 PM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1920	770	750	410
Qc= Circulating flow across entry (pcu/h)	660	2330	2010	1520
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1926	1095	1326	1291
DFC = Design flow/Capacity = Q/Qe	1.00	0.70	0.57	0.32

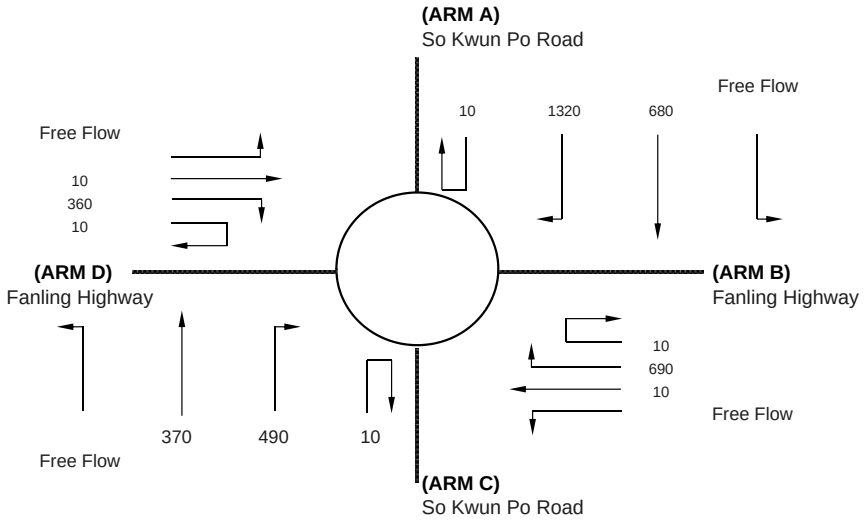
TOTAL ENTRY FLOWS = 3850 PCU

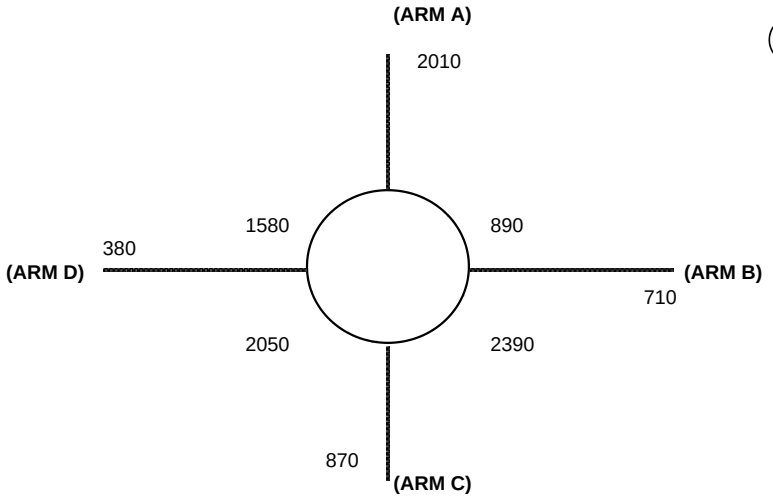
CRITICAL DFC = 1.00

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2010	710	870	380
Qc= Circulating flow across entry (pcu/h)	890	2390	2050	1580
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1809	1060	1303	1259
DFC = Design flow/Capacity = Q/Qe	1.11	0.67	0.67	0.30

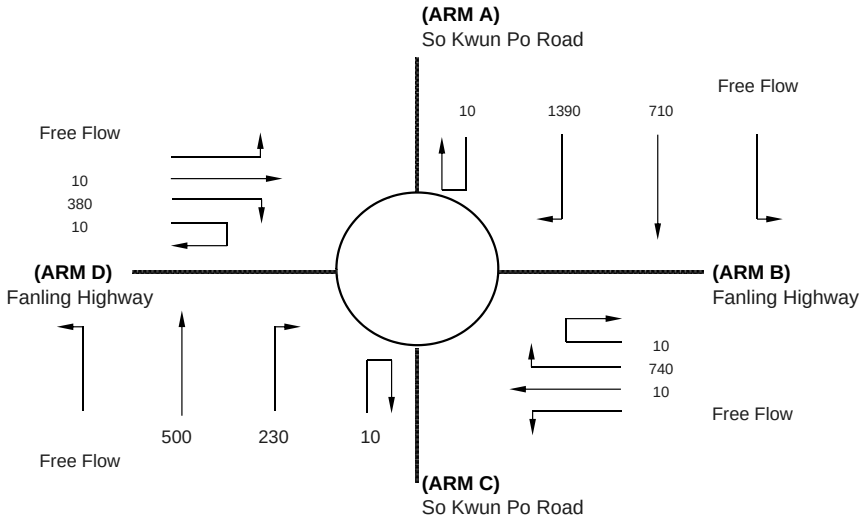
TOTAL ENTRY FLOWS = 3970 PCU

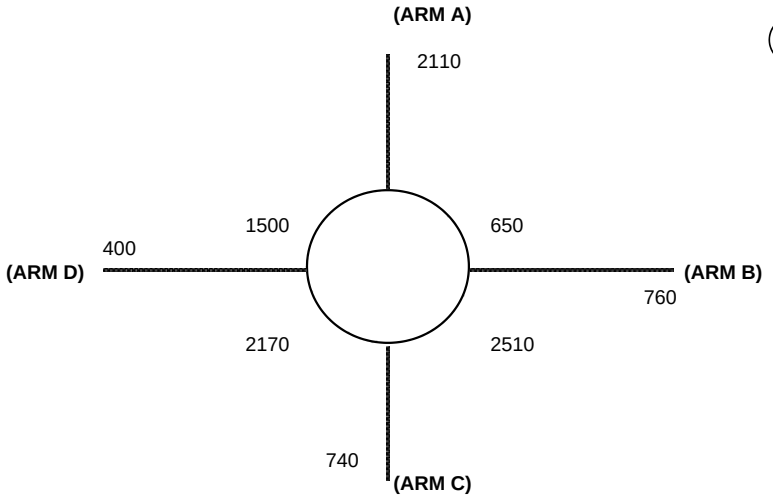
CRITICAL DFC = 1.11

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 PM Design Case (Without Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2110	760	740	400
Qc= Circulating flow across entry (pcu/h)	650	2510	2170	1500
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1931	990	1236	1301
DFC = Design flow/Capacity = Q/Qe	1.09	0.77	0.60	0.31

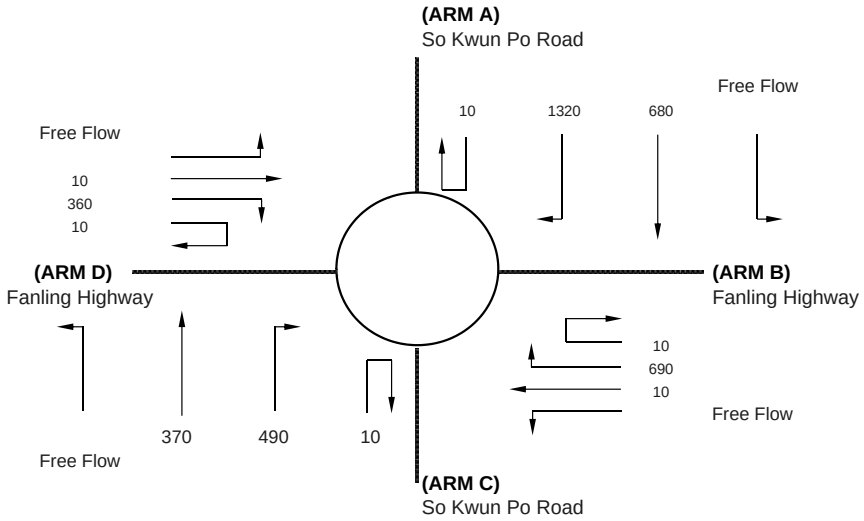
TOTAL ENTRY FLOWS = 4010 PCU

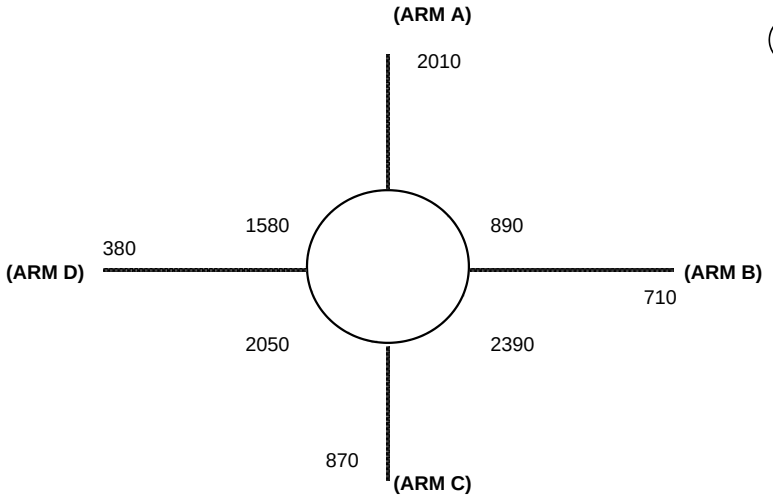
CRITICAL DFC = 1.09

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2010	710	870	380
Qc= Circulating flow across entry (pcu/h)	890	2390	2050	1580
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2406	1060	1303	1259
DFC = Design flow/Capacity = Q/Qe	0.84	0.67	0.67	0.30

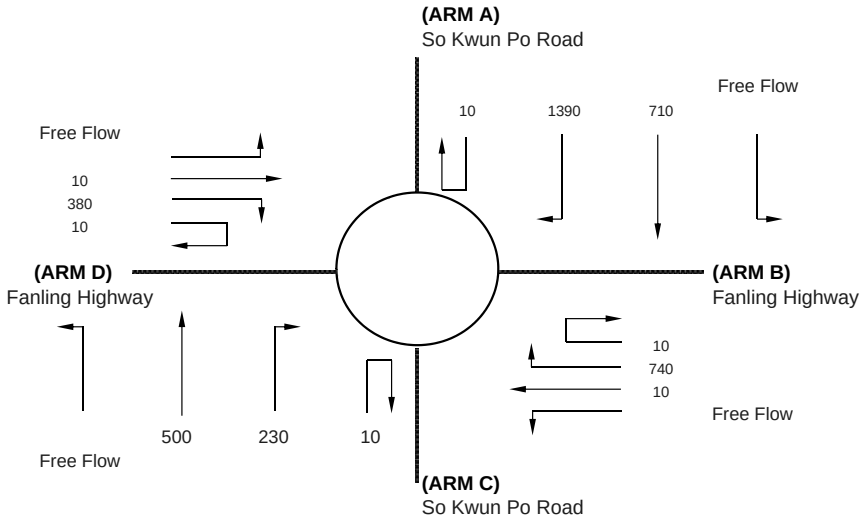
TOTAL ENTRY FLOWS = 3970 PCU

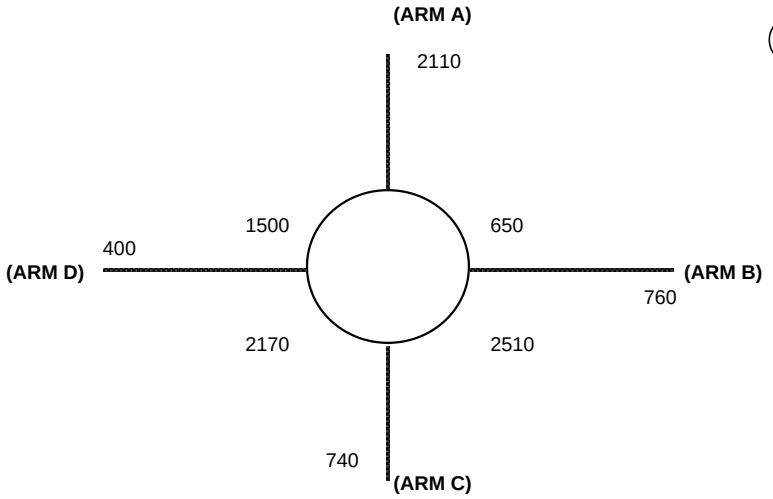
CRITICAL DFC = 0.84

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 PM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2110	760	740	400
Qc= Circulating flow across entry (pcu/h)	650	2510	2170	1500
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2552	990	1236	1301
DFC = Design flow/Capacity = Q/Qe	0.83	0.77	0.60	0.31

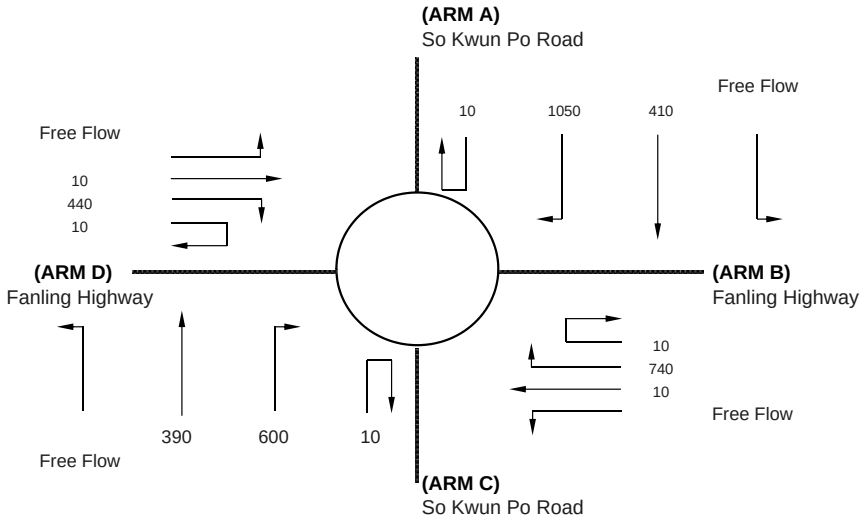
TOTAL ENTRY FLOWS = 4010 PCU

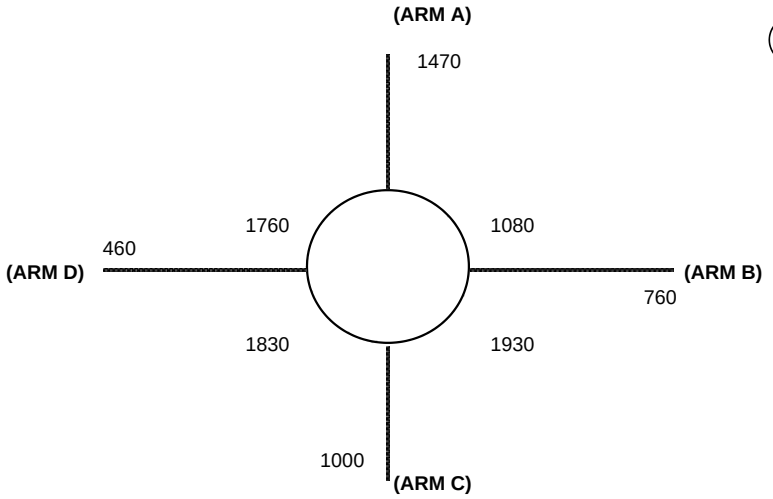
CRITICAL DFC = 0.83

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 AM Reference Case (With Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1470	760	1000	460
Qc= Circulating flow across entry (pcu/h)	1080	1930	1830	1760
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1712	1330	1426	1166
DFC = Design flow/Capacity = Q/Qe	0.86	0.57	0.70	0.39

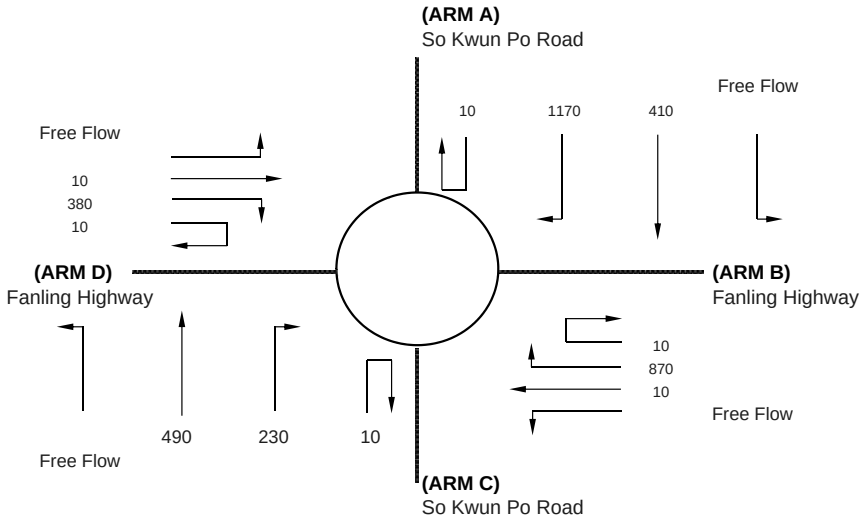
TOTAL ENTRY FLOWS = 3690 PCU

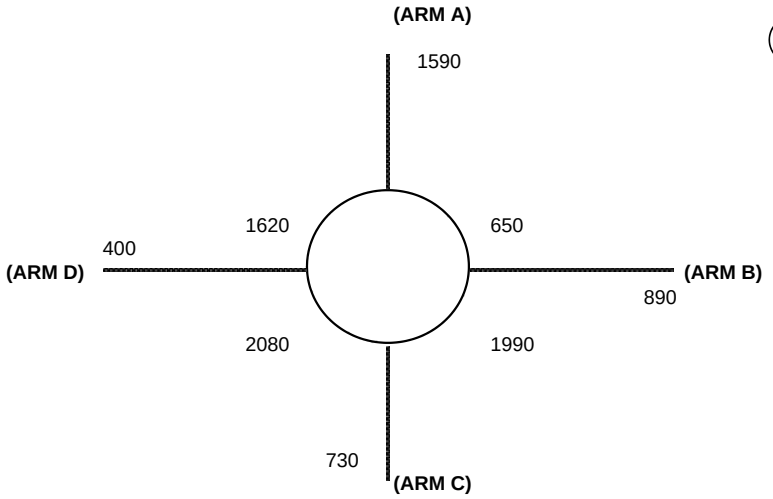
CRITICAL DFC = 0.86

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 PM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1590	890	730	400
Qc= Circulating flow across entry (pcu/h)	650	1990	2080	1620
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1931	1294	1286	1239
DFC = Design flow/Capacity = Q/Qe	0.82	0.69	0.57	0.32

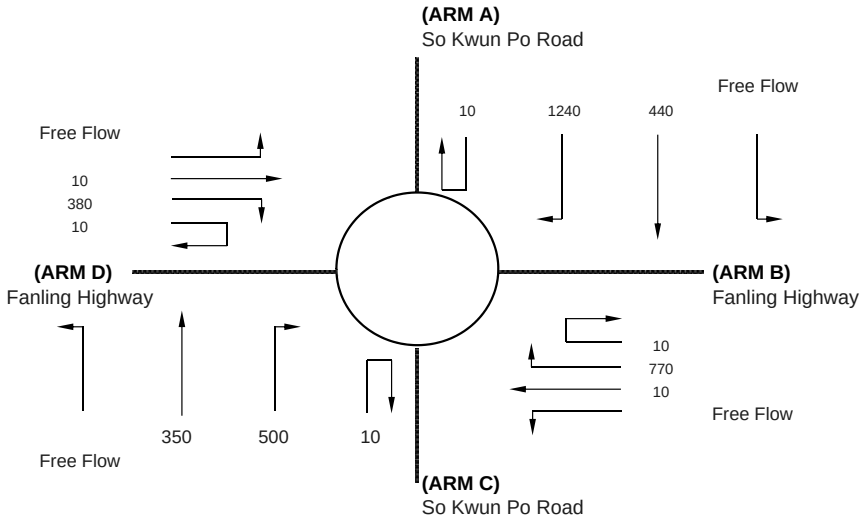
TOTAL ENTRY FLOWS = 3610 PCU

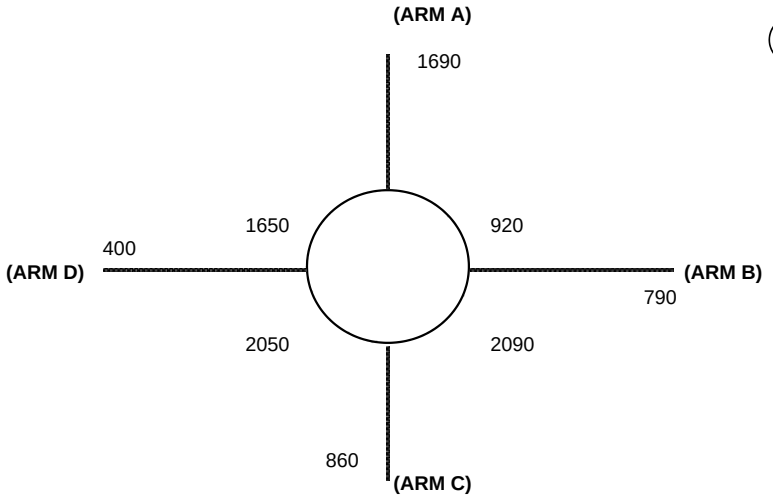
CRITICAL DFC = 0.82

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 AM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1690	790	860	400
Qc= Circulating flow across entry (pcu/h)	920	2090	2050	1650
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1793	1236	1303	1223
DFC = Design flow/Capacity = Q/Qe	0.94	0.64	0.66	0.33

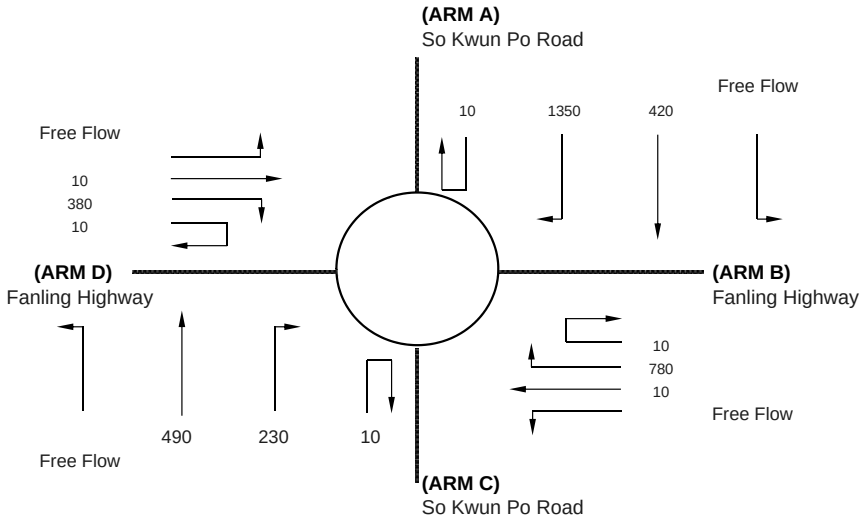
TOTAL ENTRY FLOWS = 3740 PCU

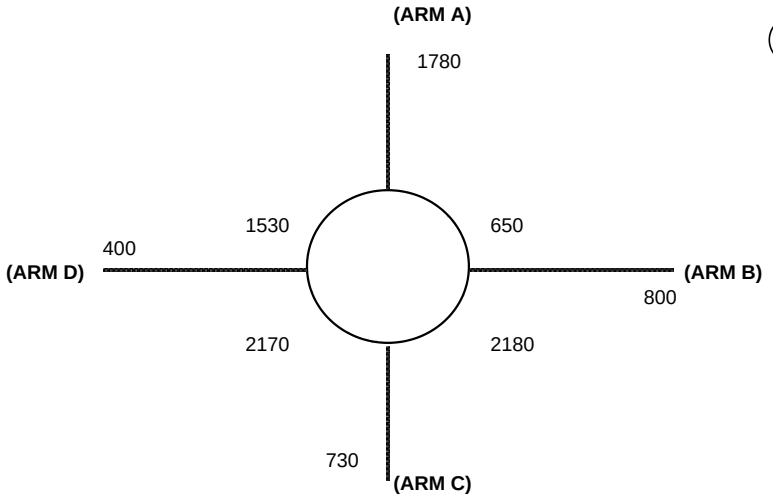
CRITICAL DFC = 0.94

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 PM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1780	800	730	400
Qc= Circulating flow across entry (pcu/h)	650	2180	2170	1530
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1931	1183	1236	1285
DFC = Design flow/Capacity = Q/Qe	0.92	0.68	0.59	0.31

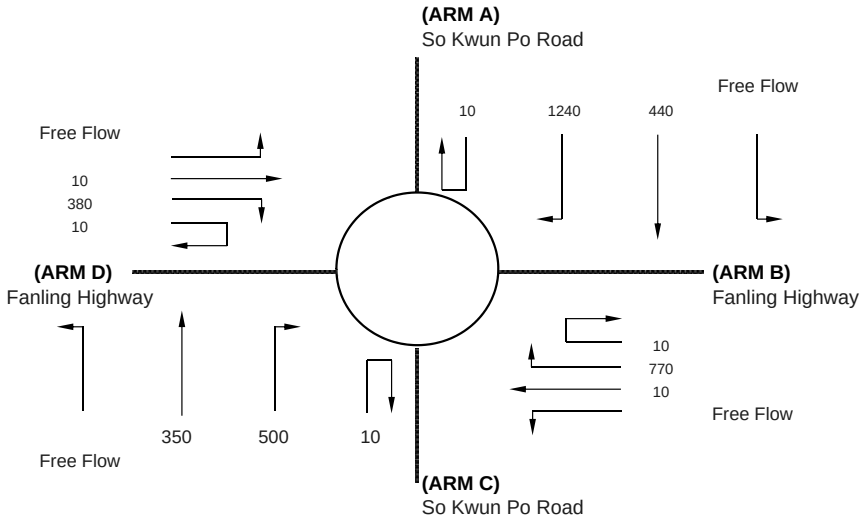
TOTAL ENTRY FLOWS = 3710 PCU

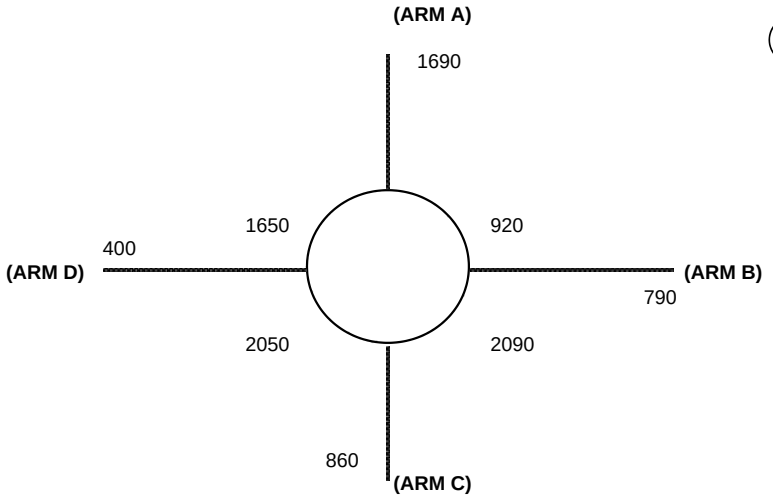
CRITICAL DFC = 0.92

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 AM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1690	790	860	400
Qc= Circulating flow across entry (pcu/h)	920	2090	2050	1650
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2388	1236	1303	1223
DFC = Design flow/Capacity = Q/Qe	0.71	0.64	0.66	0.33

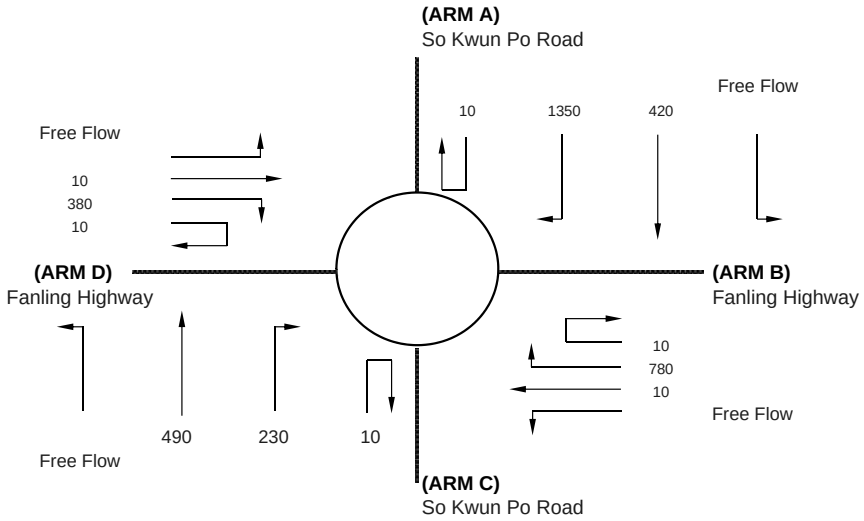
TOTAL ENTRY FLOWS = 3740 PCU

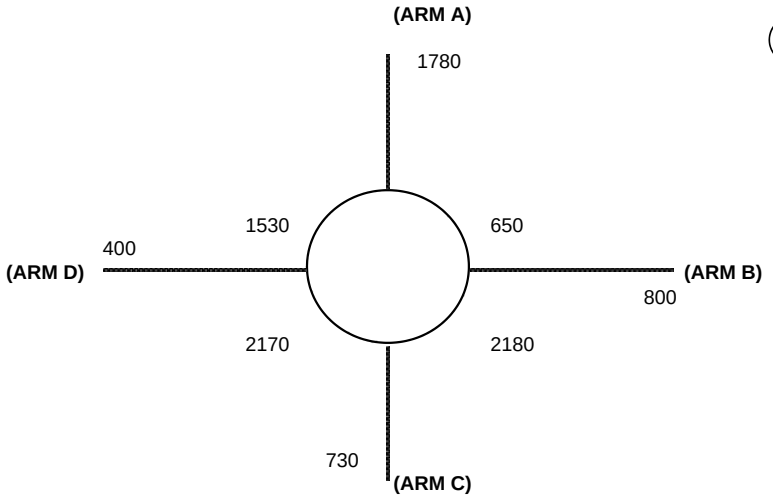
CRITICAL DFC = 0.71

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2020 PM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1780	800	730	400
Qc= Circulating flow across entry (pcu/h)	650	2180	2170	1530
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2552	1183	1236	1285
DFC = Design flow/Capacity = Q/Qe	0.70	0.68	0.59	0.31

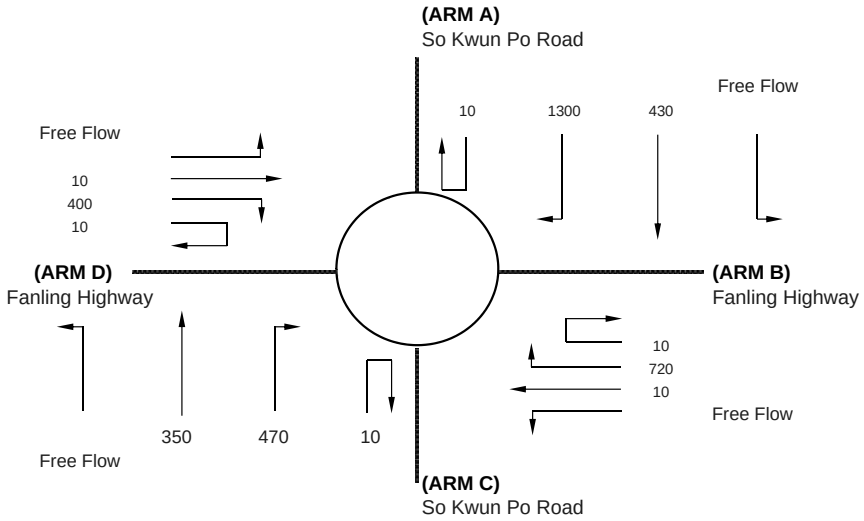
TOTAL ENTRY FLOWS = 3710 PCU

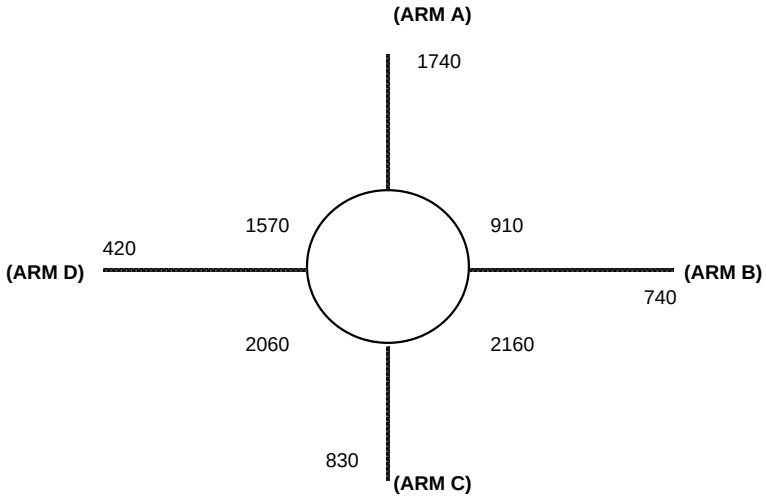
CRITICAL DFC = 0.70

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1740	740	830	420
Qc= Circulating flow across entry (pcu/h)	910	2160	2060	1570
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1799	1195	1298	1265
DFC = Design flow/Capacity = Q/Qe	0.97	0.62	0.64	0.33

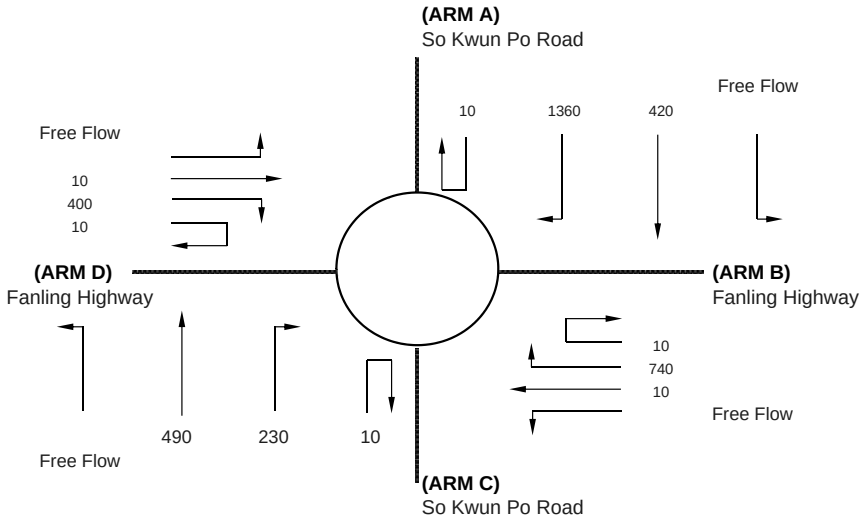
TOTAL ENTRY FLOWS = 3730 PCU

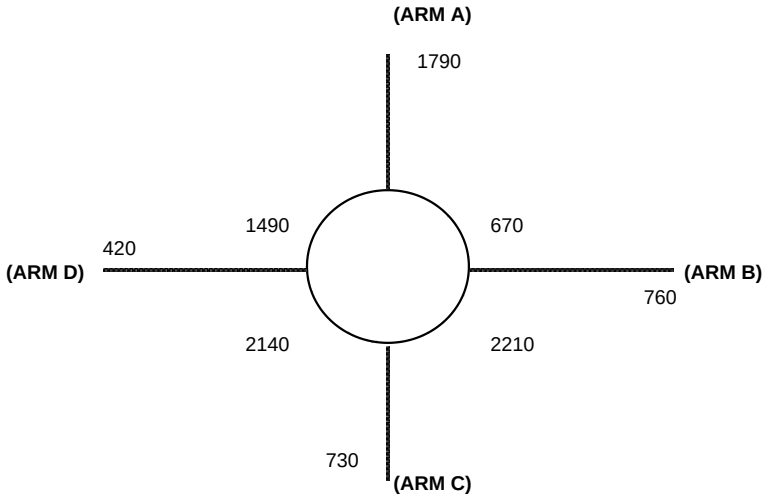
CRITICAL DFC = 0.97

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2026 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1790	760	730	420
Qc= Circulating flow across entry (pcu/h)	670	2210	2140	1490
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1921	1166	1253	1306
DFC = Design flow/Capacity = Q/Qe	0.93	0.65	0.58	0.32

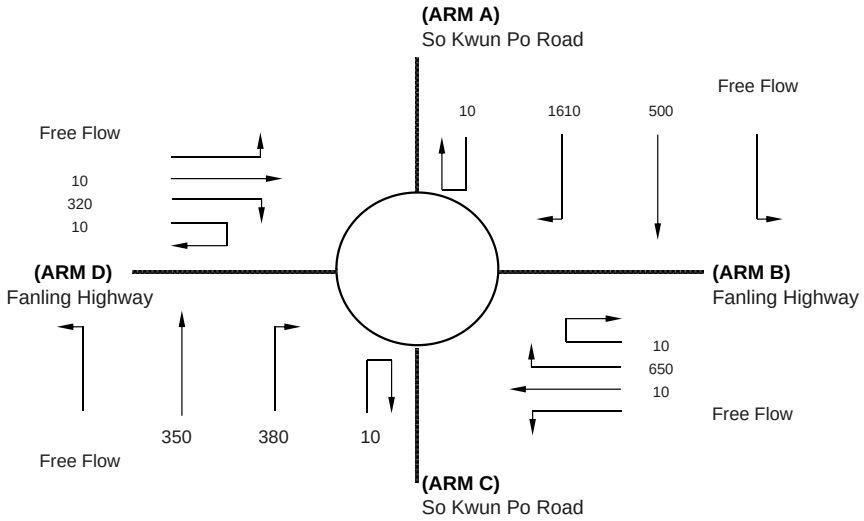
TOTAL ENTRY FLOWS = 3700 PCU

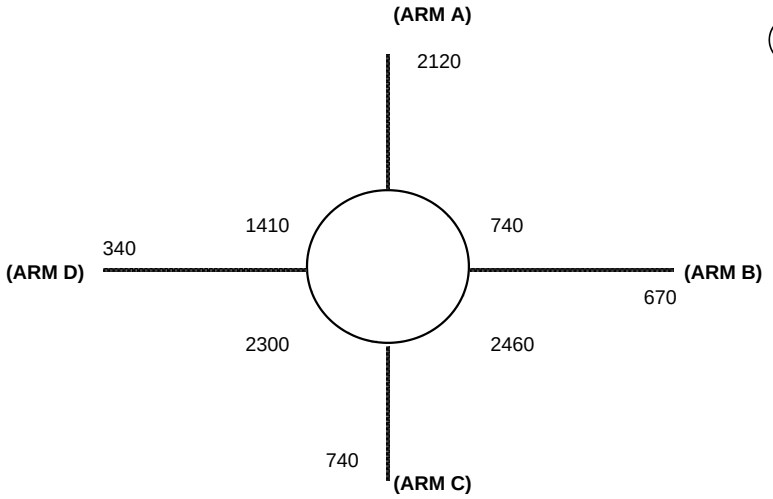
CRITICAL DFC = 0.93

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2026 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2120	670	740	340
Qc= Circulating flow across entry (pcu/h)	740	2460	2300	1410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1885	1019	1164	1348
DFC = Design flow/Capacity = Q/Qe	1.12	0.66	0.64	0.25

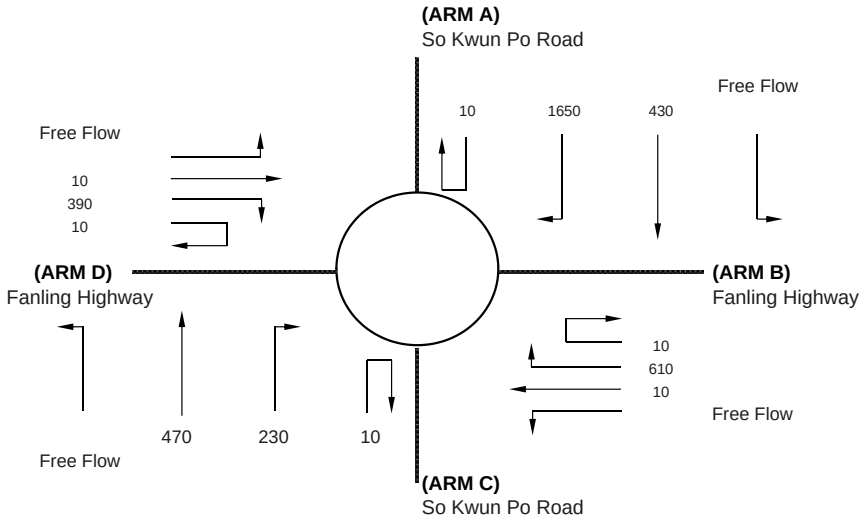
TOTAL ENTRY FLOWS = 3870 PCU

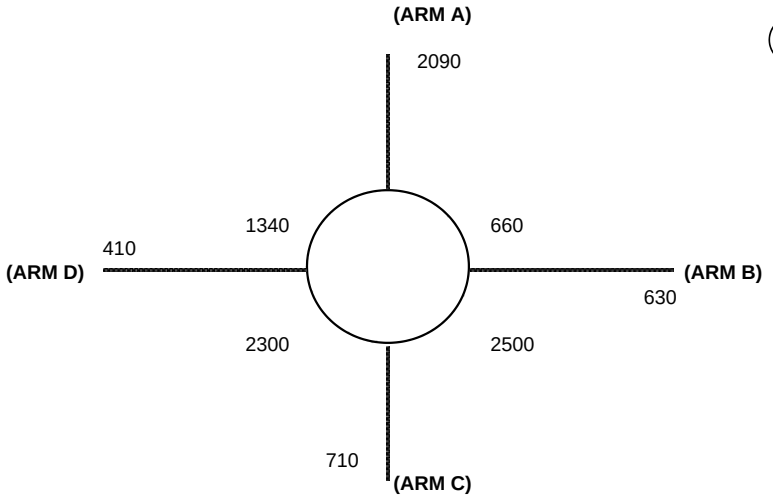
CRITICAL DFC = 1.12

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2026 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2090	630	710	410
Qc= Circulating flow across entry (pcu/h)	660	2500	2300	1340
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1926	996	1164	1384
DFC = Design flow/Capacity = Q/Qe	1.09	0.63	0.61	0.30

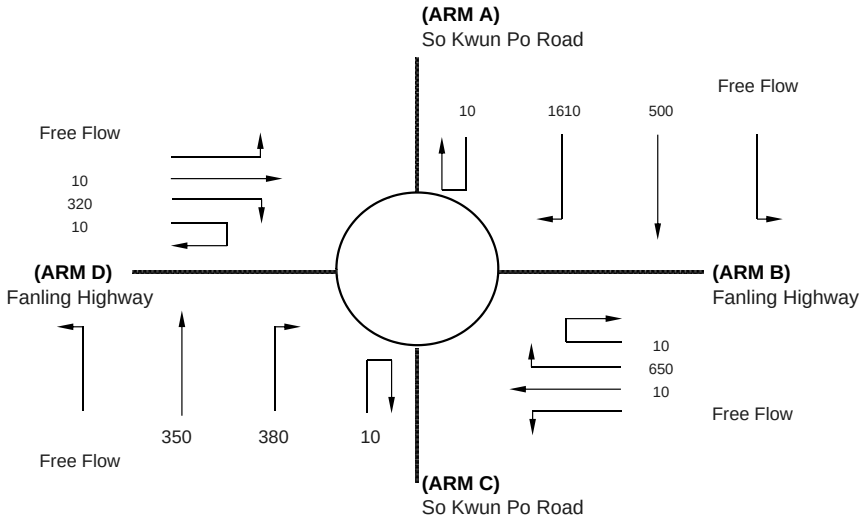
TOTAL ENTRY FLOWS = 3840 PCU

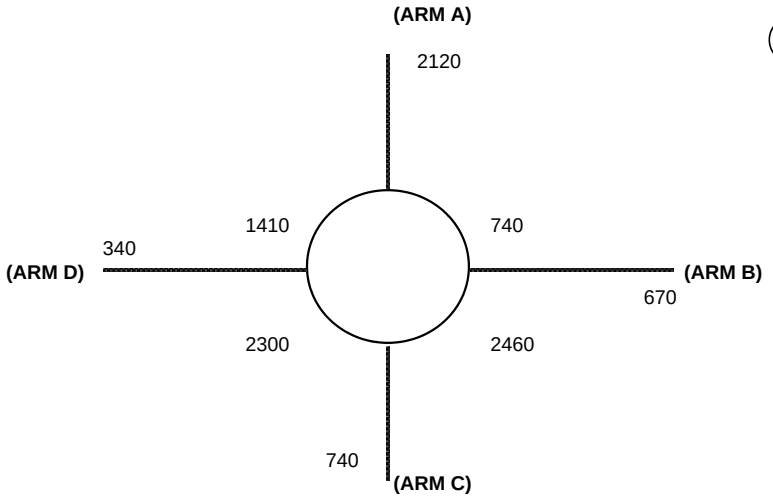
CRITICAL DFC = 1.09

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2026 AM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2120	670	740	340
Qc= Circulating flow across entry (pcu/h)	740	2460	2300	1410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2497	1019	1164	1348
DFC = Design flow/Capacity = Q/Qe	0.85	0.66	0.64	0.25

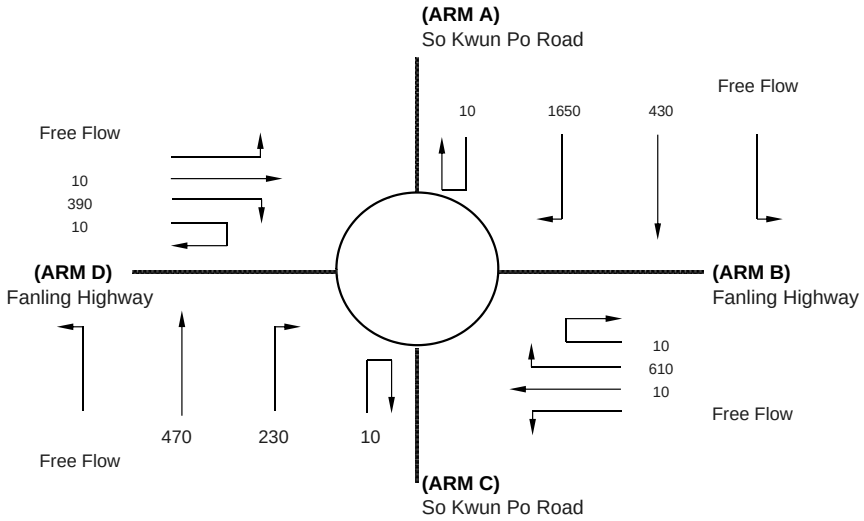
TOTAL ENTRY FLOWS = 3870 PCU

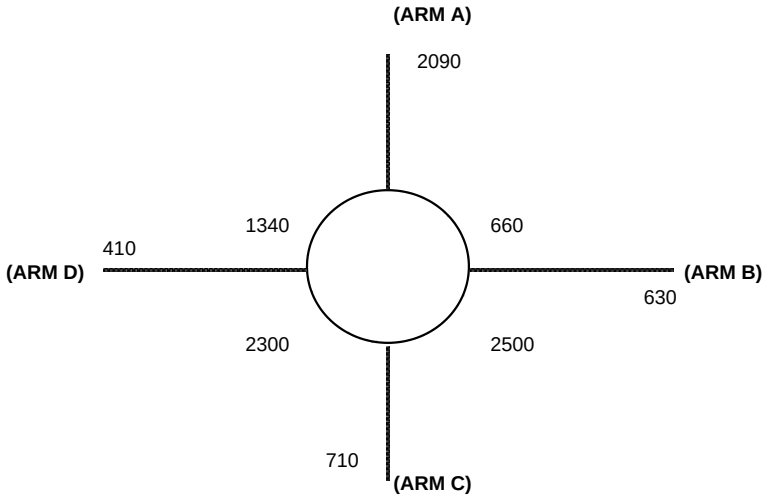
CRITICAL DFC = 0.85

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2026 PM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2090	630	710	410
Qc= Circulating flow across entry (pcu/h)	660	2500	2300	1340
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2546	996	1164	1384
DFC = Design flow/Capacity = Q/Qe	0.82	0.63	0.61	0.30

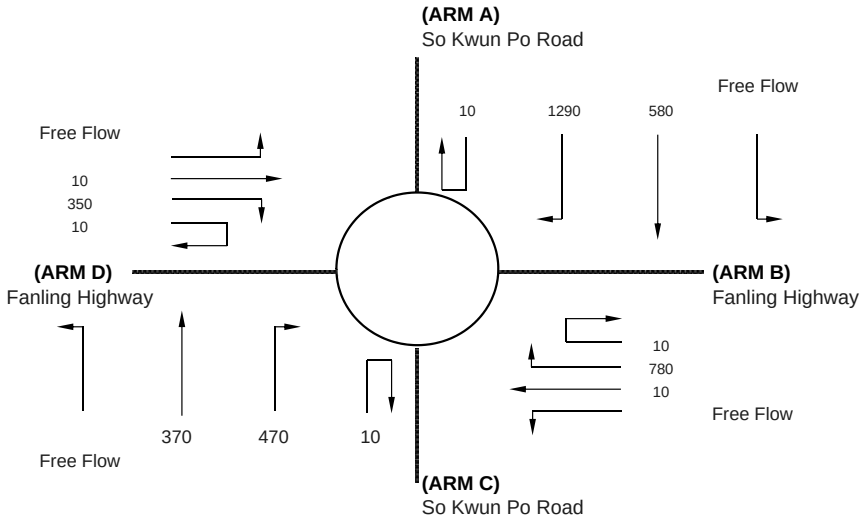
TOTAL ENTRY FLOWS = 3840 PCU

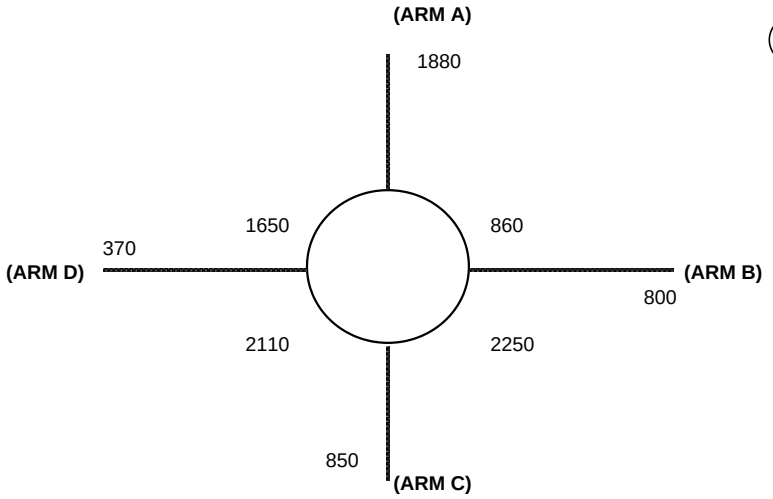
CRITICAL DFC = 0.82

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2031 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1880	800	850	370
Qc= Circulating flow across entry (pcu/h)	860	2250	2110	1650
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1824	1142	1270	1223
DFC = Design flow/Capacity = Q/Qe	1.03	0.70	0.67	0.30

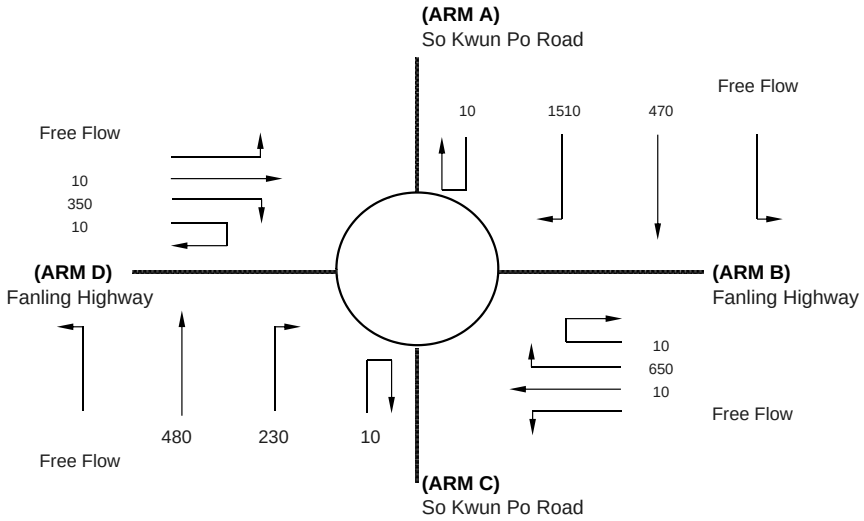
TOTAL ENTRY FLOWS = 3900 PCU

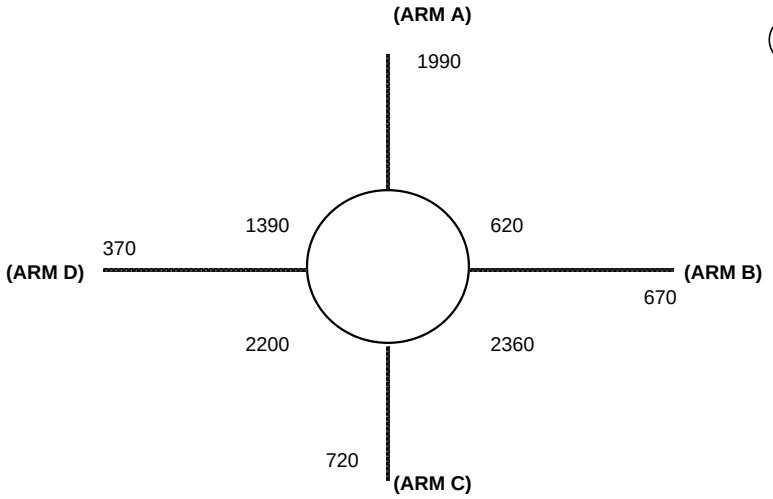
CRITICAL DFC = 1.03

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2031 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J2

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	1990	670	720	370
Qc= Circulating flow across entry (pcu/h)	620	2360	2200	1390
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1946	1078	1219	1358
DFC = Design flow/Capacity = Q/Qe	1.02	0.62	0.59	0.27

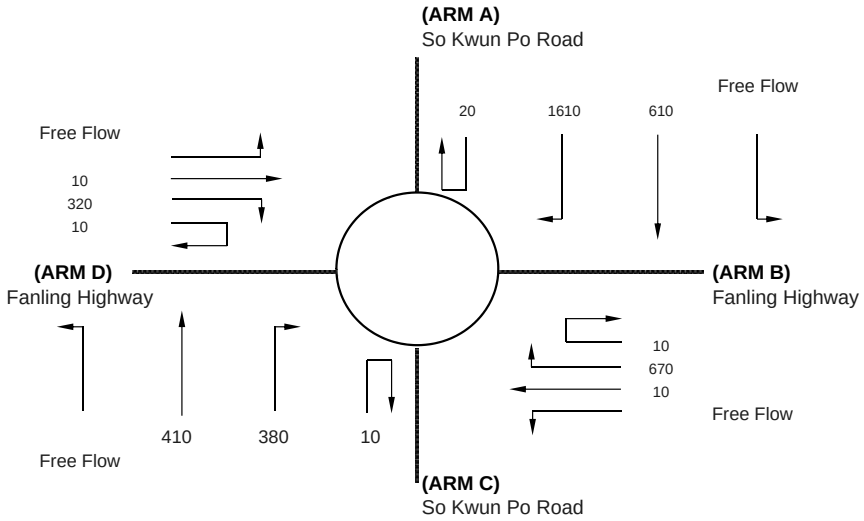
TOTAL ENTRY FLOWS = 3750 PCU

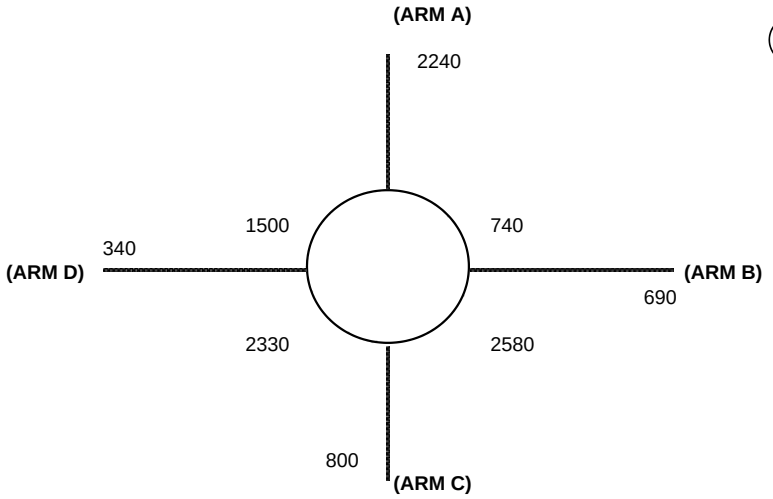
CRITICAL DFC = 1.02

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2031 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2240	690	800	340
Qc= Circulating flow across entry (pcu/h)	740	2580	2330	1500
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1885	949	1147	1301
DFC = Design flow/Capacity = Q/Qe	1.19	0.73	0.70	0.26

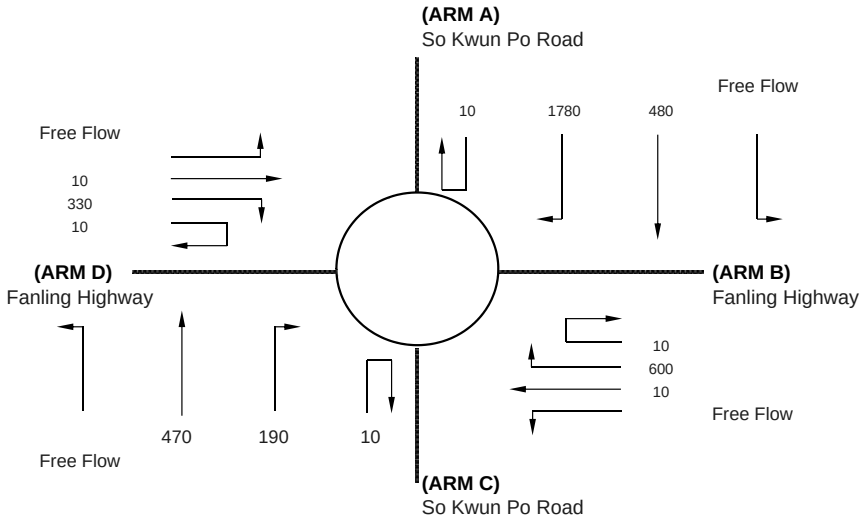
TOTAL ENTRY FLOWS = 4070 PCU

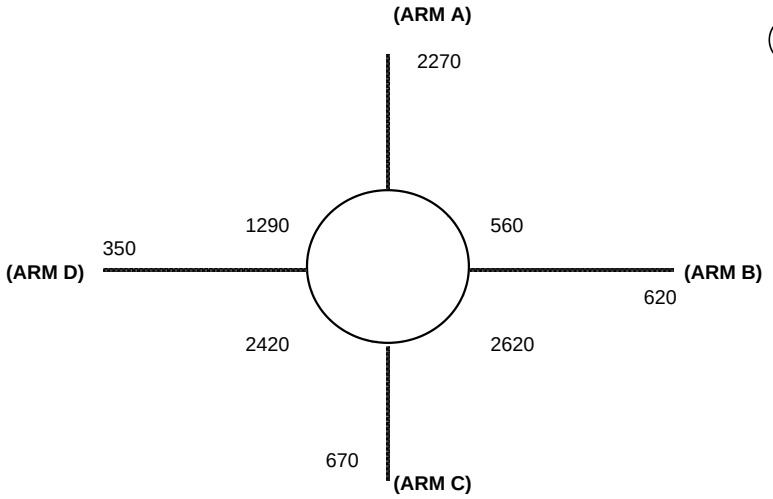
CRITICAL DFC = 1.19

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2031 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	5.50	6.90	5.00
E = Entry width (m)	9.50	8.50	8.90	7.50
L = Effective length of flare (m)	12.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	63.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2270	620	670	350
Qc= Circulating flow across entry (pcu/h)	560	2620	2420	1290
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.88	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	8.50	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	2576	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.58	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	1977	925	1096	1411
DFC = Design flow/Capacity = Q/Qe	1.15	0.67	0.61	0.25

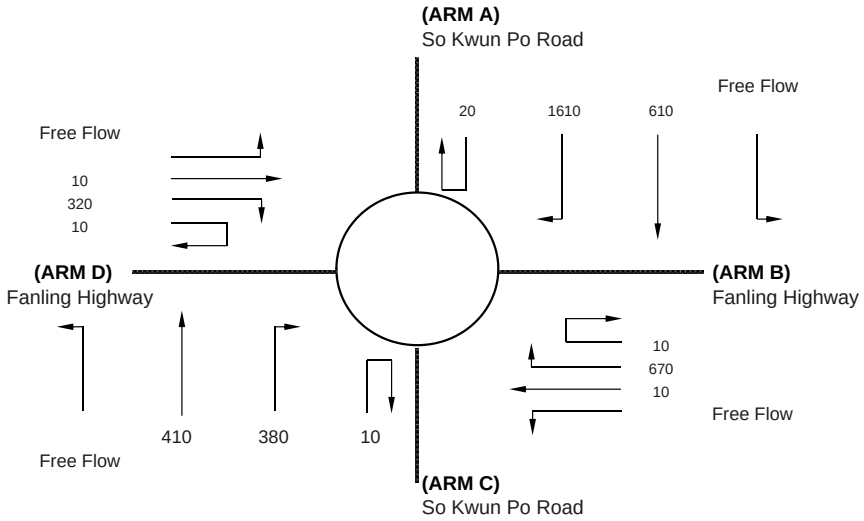
TOTAL ENTRY FLOWS = 3910 PCU

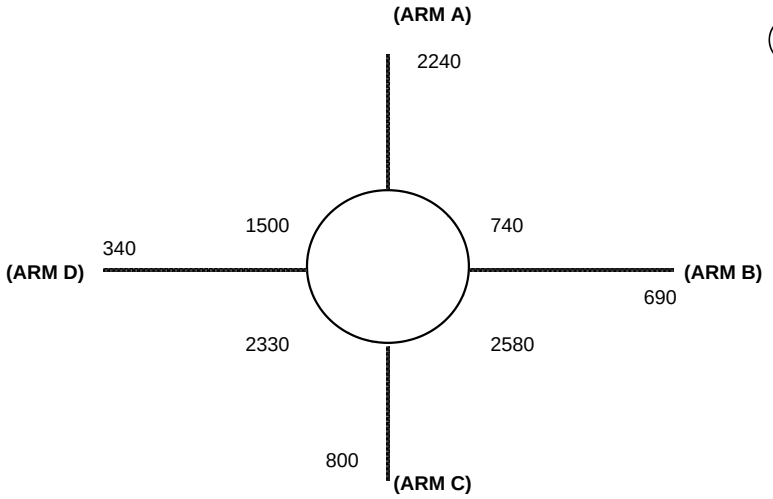
CRITICAL DFC = 1.15

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2031 AM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2240	690	800	340
Qc= Circulating flow across entry (pcu/h)	740	2580	2330	1500
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2497	949	1147	1301
DFC = Design flow/Capacity = Q/Qe	0.90	0.73	0.70	0.26

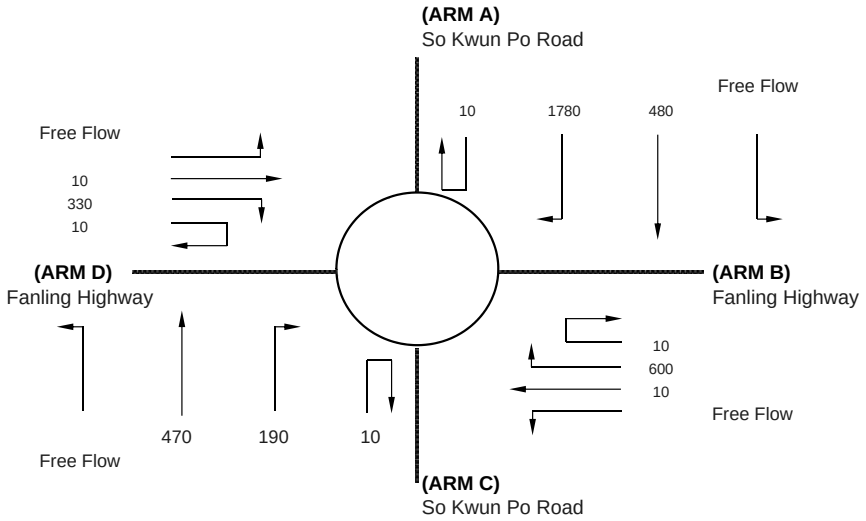
TOTAL ENTRY FLOWS = 4070 PCU

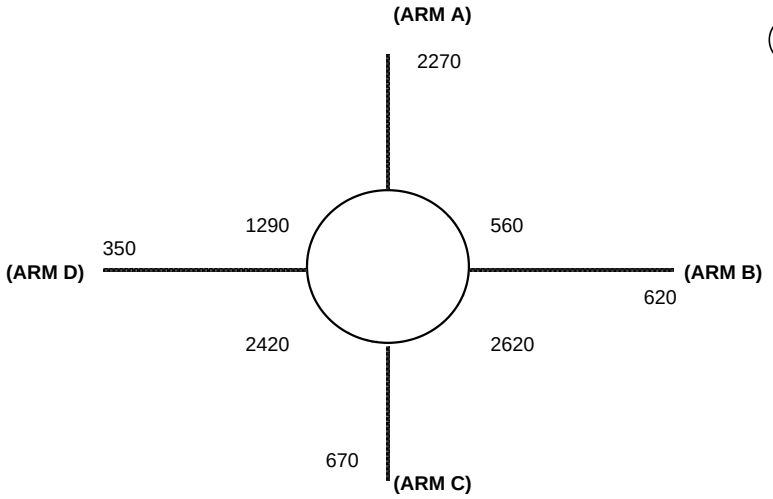
CRITICAL DFC = 0.90

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J2 - So Kwun Po Road Interchange	2031 PM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	8.50	5.50	6.90	5.00
E = Entry width (m)	12.00	8.50	8.90	7.50
L = Effective length of flare (m)	26.00	16.00	12.50	13.00
R = Entry radius (m)	17.50	70.00	35.00	60.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	60.00	11.00	41.00	25.00
Q = Entry flow (pcu/h)	2270	620	670	350
Qc= Circulating flow across entry (pcu/h)	560	2620	2420	1290
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.30	0.26	0.31
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.89	1.10	0.98	1.05
X2= V + ((E-V)/(1+2S))	10.95	7.38	8.22	6.55
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3317	2235	2491	1984
Td= 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc= 0.21*Td(1+0.2*X2)	0.69	0.53	0.57	0.50
Qe= K(F-Fc*Qc)	2607	925	1096	1411
DFC = Design flow/Capacity = Q/Qe	0.87	0.67	0.61	0.25

TOTAL ENTRY FLOWS = 3910 PCU

CRITICAL DFC = 0.87

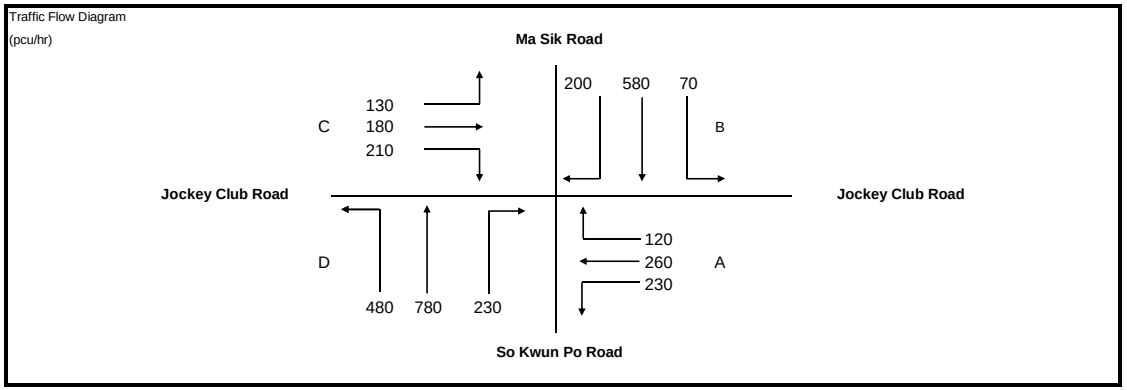
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

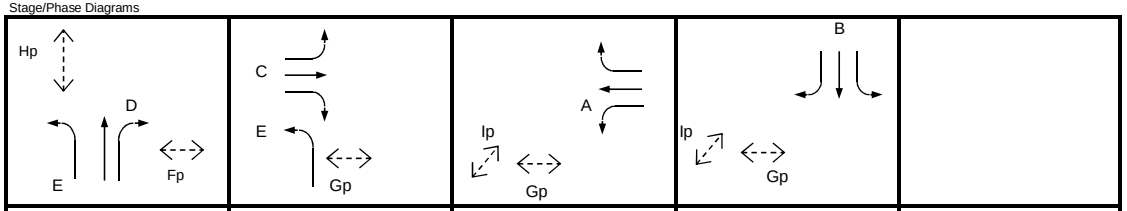
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.512	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	93	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	55	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	36.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	63	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



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

Critical Case : D,C,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*
	B	4	3.650	2				0		0		4240		580		580			4240	0.137	0.137
	B	4	3.650	1	15			1		0		1980	70			70	100%		1800	0.039	
	B	4	3.650	1		22.5	0	0		0		2120			200	200		100%	1988	0.101	
	A	3	3.650	2				1		0		4100		260		260			4100	0.063	
	A	3	3.650	1	15			0		0		2120	230			230	100%		1927	0.119	0.119
	A	3	3.650	1		30	0	0		0		2120			120	120		100%	2019	0.059	
	C	2	3.650	2				0		0		4240		180		180			4240	0.042	
	C	2	3.700	1	15			1		0		1985	130			130	100%		1805	0.072	0.072
	C	2	3.650	2		27.5	0	0		0		4240			210	210		100%	4021	0.052	
	E	1,2	4.000	1	42.5			1		0		2015	480			480	100%		1946	0.247	
	D	1	3.700	1				0		0		2125		390		390			2125	0.184	
	D	1	3.650	1		45	0			0		2120		390	0	390		0%	2120	0.184	0.184
	D	1	3.650	1		40	0	0		0		2120			230	230		100%	2043	0.113	

Pedestrian Crossing				GM		FGM															
	Ip	3,4	min.	7	+	7	=	14	sec												
	Gp	2,3,4	min.	7	+	9	=	16	sec												
	Fp	1	min.	5	+	10	=	15	sec												
	Hp	1	min.	13	+	14	=	27	sec												

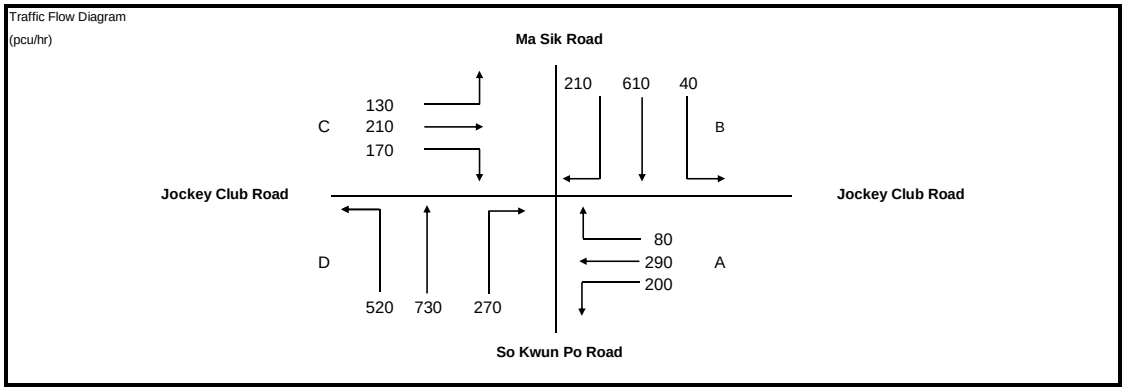
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

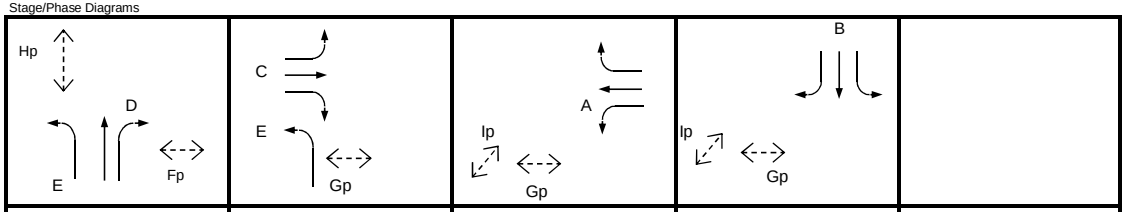
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.492	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	90	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	53	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	41.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	60	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 40%

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	4	3.650	2				0		0		4240		610		610			4240	0.144	0.144
	B	4	3.650	1	15			1		0		1980	40			40	100%		1800	0.022	
	B	4	3.650	1		22.5	0	0		0		2120			210	210		100%	1988	0.106	
	A	3	3.650	2				1		0		4100		290		290			4100	0.071	
	A	3	3.650	1	15			0		0		2120	200			200	100%		1927	0.104	0.104
	A	3	3.650	1		30	0	0		0		2120			80	80		100%	2019	0.040	
	C	2	3.650	2				0		0		4240		210		210			4240	0.050	
	C	2	3.700	1	15			1		0		1985	130			130	100%		1805	0.072	0.072
	C	2	3.650	2		27.5	0	0		0		4240			170	170		100%	4021	0.042	
	E	1,2	4.000	1	42.5			1		0		2015	520			520	100%		1946	0.267	
	D	1	3.700	1				0		0		2125		365		365			2125	0.172	0.172
	D	1	3.650	1		45	0			0		2120		365	0	365		0%	2120	0.172	
	D	1	3.650	1		40	0	0		0		2120			270	270		100%	2043	0.132	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

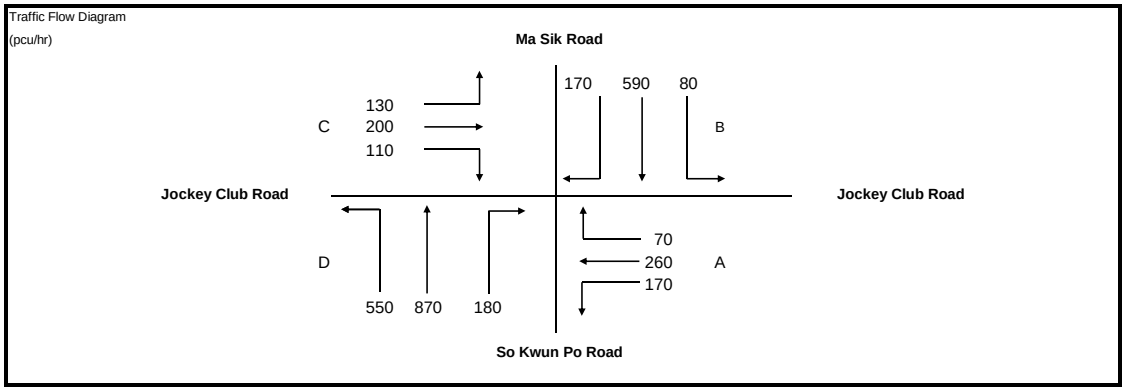
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

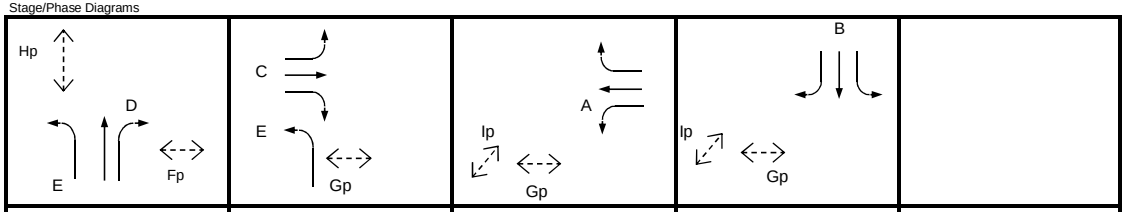
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.521	
Lost time	L =	27	sec
Total Flow	=	34,425	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	95	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	56	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	33.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	64	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Critical Case : D,C,A,B

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*
	B	4	3.000	2				0		0		4110		590		590			4110	0.144	0.144
	B	4	3.000	1	15			1		0		1915	80			80	100%		1741	0.046	
	B	4	3.000	1		22.5	0	0		0		2055			170	170		100%	1927	0.088	
	A	3	3.000	2				1		0		3970		260		260			3970	0.065	
	A	3	3.000	1	15			0		0		2055	170			170	100%		1868	0.091	0.091
	A	3	3.000	1		30	0	0		0		2055			70	70		100%	1957	0.036	
	C	2	3.000	2				0		0		4110		200		200			4110	0.049	
	C	2	3.000	1	15			1		0		1915	130			130	100%		1741	0.075	0.075
	C	2	3.000	2		27.5	0	0		0		4110			110	110		100%	3897	0.028	
	E	1,2	3.500	1	18.5			1		0		1965	550			550	100%		1818	0.303	
	D	1	3.000	1				0		0		2055		435		435			2055	0.212	0.212
	D	1	3.000	1		45	0			0		2055		435	0	435		0%	2055	0.212	
	D	1	3.000	1		40	0	0		0		2055			180	180		100%	1981	0.091	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

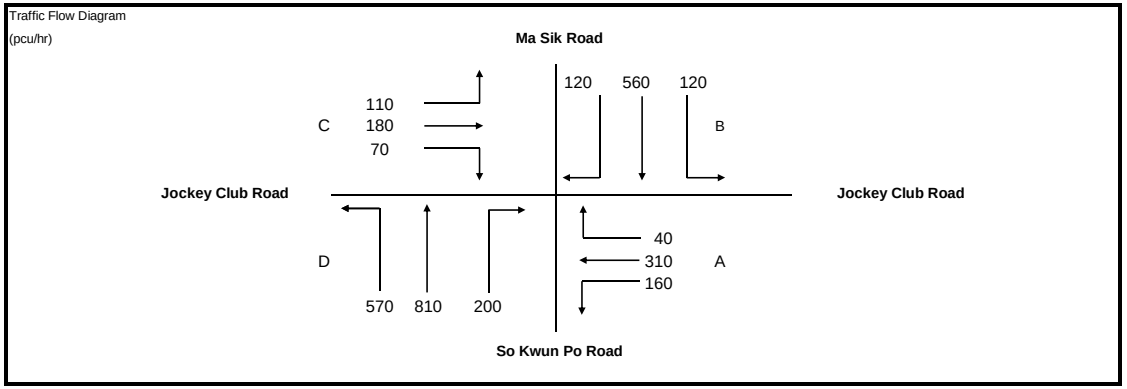
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

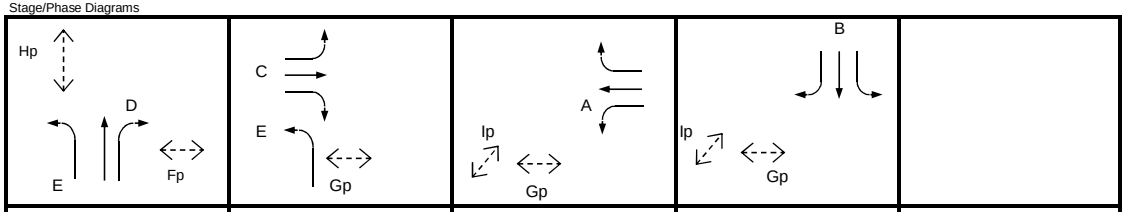
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.535	
Lost time	L =	20	sec
Total Flow	=	34,425	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	75	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	43	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	40.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	49	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



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

Critical Case : E,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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*
	B	4	3.000	2				0		0		4110		560		560			4110	0.136	0.136
	B	4	3.000	1	15			1		0		1915	120			120	100%		1741	0.069	
	B	4	3.000	1		22.5	0	0		0		2055			120	120		100%	1927	0.062	
	A	3	3.000	2				1		0		3970		310		310			3970	0.078	
	A	3	3.000	1	15			0		0		2055	160			160	100%		1868	0.086	0.086
	A	3	3.000	1		30	0	0		0		2055			40	40		100%	1957	0.020	
	C	2	3.000	2				0		0		4110		180		180			4110	0.044	
	C	2	3.000	1	15			1		0		1915	110			110	100%		1741	0.063	
	C	2	3.000	2		27.5	0	0		0		4110			70	70		100%	3897	0.018	
	E	1,2	3.500	1	18.5			1		0		1965	570			570	100%		1818	0.314	0.314
	D	1	3.000	1				0		0		2055		405		405			2055	0.197	
	D	1	3.000	1		45	0			0		2055		405	0	405		0%	2055	0.197	
	D	1	3.000	1		40	0	0		0		2055			200	200		100%	1981	0.101	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

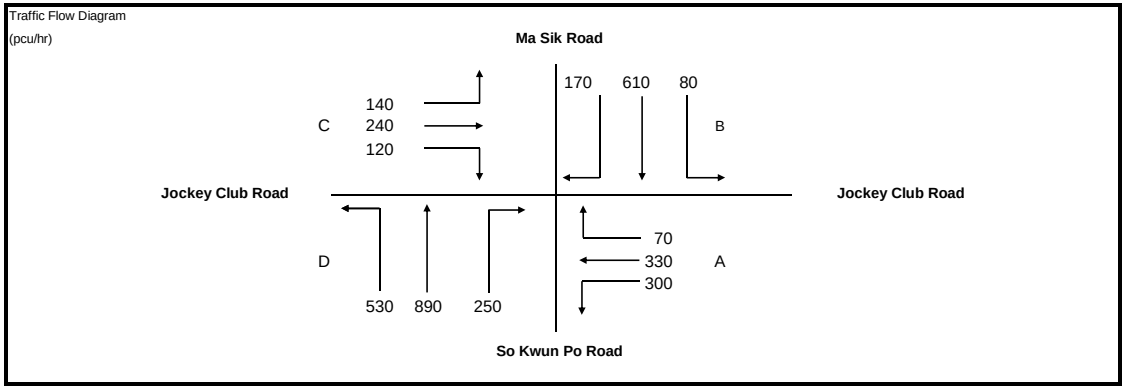
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

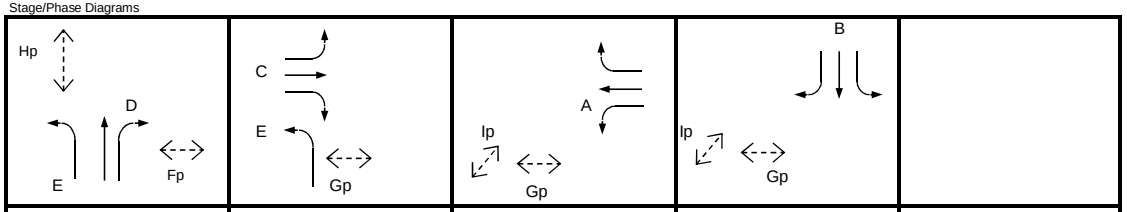
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.587	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	110	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	65	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	18.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Critical Case : D,C,A,B

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*
	B	4	3.650	2				0		0		4240		610		610			4240	0.144	0.144
	B	4	3.650	1	15			1		0		1980	80			80	100%		1800	0.044	
	B	4	3.650	1		22.5	0	0		0		2120			170	170		100%	1988	0.086	
	A	3	3.650	2				1		0		4100		330		330			4100	0.080	
	A	3	3.650	1	15			0		0		2120	300			300	100%		1927	0.156	0.156
	A	3	3.650	1		30	0	0		0		2120			70	70		100%	2019	0.035	
	C	2	3.650	2				0		0		4240		240		240			4240	0.057	
	C	2	3.700	1	15			1		0		1985	140			140	100%		1805	0.078	0.078
	C	2	3.650	2		27.5	0	0		0		4240			120	120		100%	4021	0.030	
	E	1,2	4.000	1	42.5			1		0		2015	530			530	100%		1946	0.272	
	D	1	3.700	1				0		0		2125		446		446			2125	0.210	0.210
	D	1	3.650	1		45	0			0		2120		444	0	444		0%	2120	0.210	
	D	1	3.650	1		40	0	0		0		2120			250	250		100%	2043	0.122	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

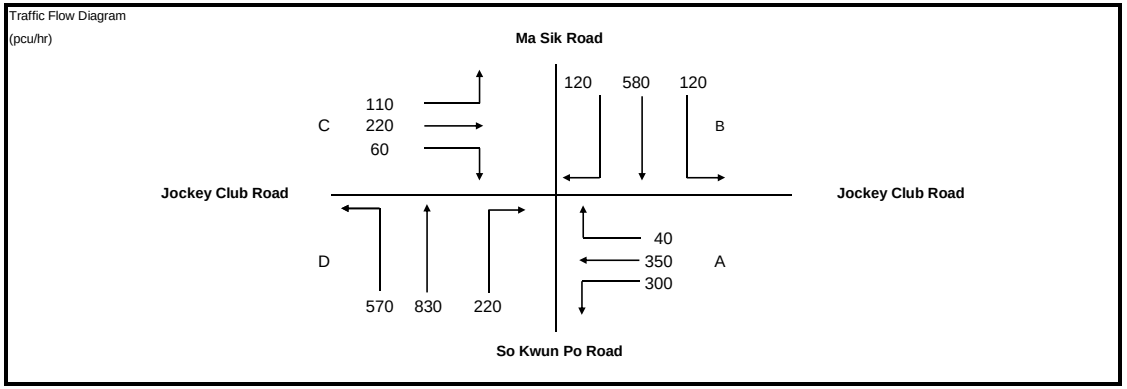
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

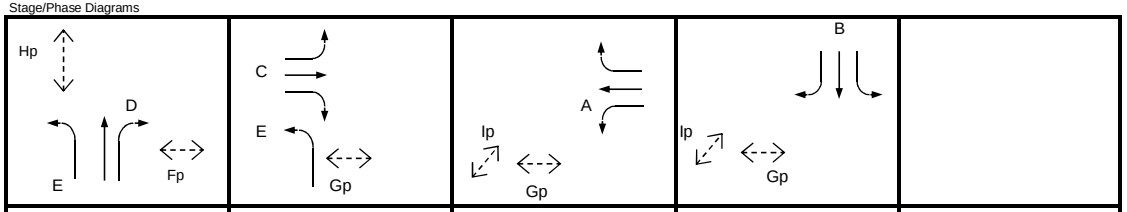
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.549	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	101	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	60	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	27.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	69	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Critical Case : D,C,A,B

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*
	B	4	3.650	2				0		0		4240		580		580			4240	0.137	0.137
	B	4	3.650	1	15			1		0		1980	120			120	100%		1800	0.067	
	B	4	3.650	1		22.5	0	0		0		2120			120	120		100%	1988	0.060	
	A	3	3.650	2				1		0		4100		350		350			4100	0.085	
	A	3	3.650	1	15			0		0		2120	300			300	100%		1927	0.156	0.156
	A	3	3.650	1		30	0	0		0		2120			40	40		100%	2019	0.020	
	C	2	3.650	2				0		0		4240		220		220			4240	0.052	
	C	2	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	0.061
	C	2	3.650	2		27.5	0	0		0		4240			60	60		100%	4021	0.015	
	E	1,2	4.000	1	42.5			1		0		2015	570			570	100%		1946	0.293	
	D	1	3.700	1				0		0		2125		415		415			2125	0.196	0.196
	D	1	3.650	1		45	0			0		2120		415	0	415		0%	2120	0.196	
	D	1	3.650	1		40	0	0		0		2120			220	220		100%	2043	0.108	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

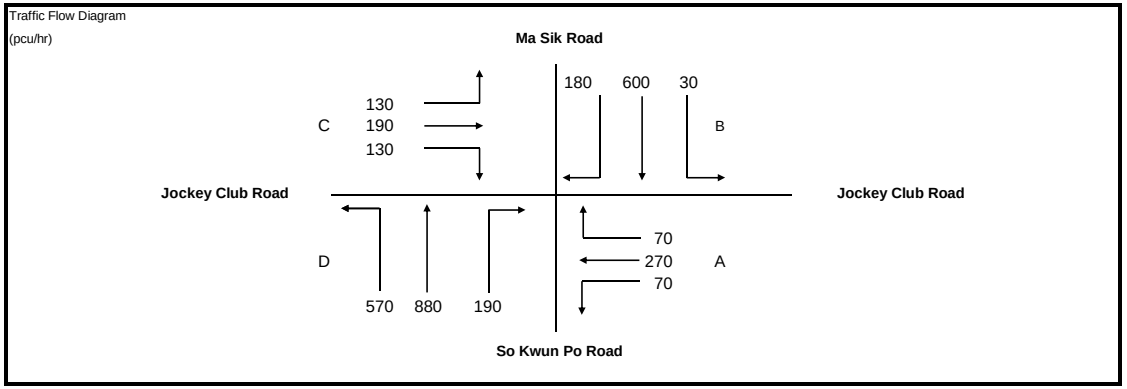
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

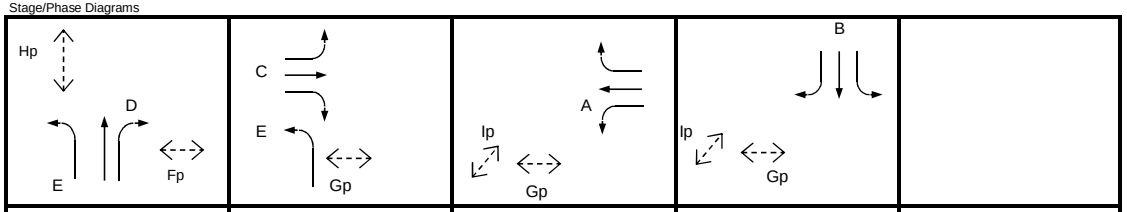
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.503	
Lost time	L =	27	sec
Total Flow	=	34,425	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	54	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	38.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	61	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 37%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	B	4	3.000	2				0		0		4110		600		600			4110	0.146	0.146
	B	4	3.000	1	15			1		0		1915	30			30	100%		1741	0.017	
	B	4	3.000	1		22.5	0	0		0		2055			180	180		100%	1927	0.093	
	A	3	3.000	2				1		0		3970		270		270			3970	0.068	0.068
	A	3	3.000	1	15			0		0		2055	70			70	100%		1868	0.037	
	A	3	3.000	1		30	0	0		0		2055			70	70		100%	1957	0.036	
	C	2	3.000	2				0		0		4110		190		190			4110	0.046	
	C	2	3.000	1	15			1		0		1915	130			130	100%		1741	0.075	0.075
	C	2	3.000	2		27.5	0	0		0		4110			130	130		100%	3897	0.033	
	E	1,2	3.500	1	18.5			1		0		1965	570			570	100%		1818	0.314	
	D	1	3.000	1				0		0		2055		440		440			2055	0.214	0.214
	D	1	3.000	1		45	0			0		2055		440	0	440		0%	2055	0.214	
	D	1	3.000	1		40	0	0		0		2055			190	190		100%	1981	0.096	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

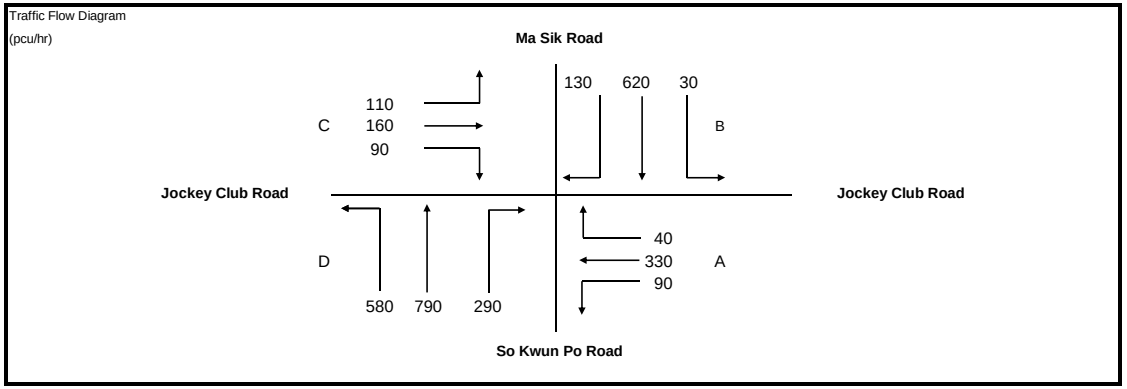
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

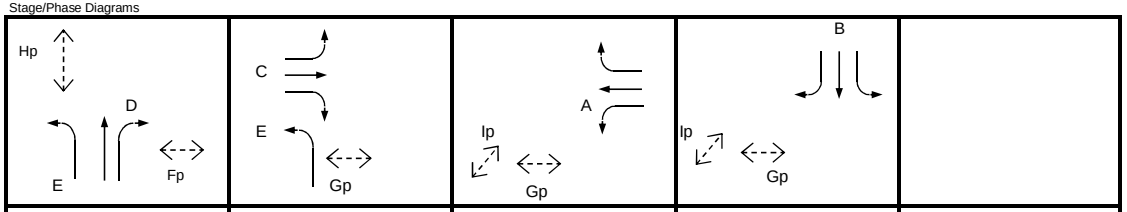
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.553	
Lost time	L =	20	sec
Total Flow	=	34,425	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	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	35.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	52	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G =	I/G = 8	I/G = 7	I/G = 8	

Critical Case : E,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*
	B	4	3.000	2				0		0		4110		620		620			4110	0.151	0.151
	B	4	3.000	1	15			1		0		1915	30			30	100%		1741	0.017	
	B	4	3.000	1		22.5	0	0		0		2055			130	130		100%	1927	0.067	
	A	3	3.000	2				1		0		3970		330		330			3970	0.083	0.083
	A	3	3.000	1	15			0		0		2055	90			90	100%		1868	0.048	
	A	3	3.000	1		30	0	0		0		2055			40	40		100%	1957	0.020	
	C	2	3.000	2				0		0		4110		160		160			4110	0.039	
	C	2	3.000	1	15			1		0		1915	110			110	100%		1741	0.063	
	C	2	3.000	2		27.5	0	0		0		4110			90	90		100%	3897	0.023	
	E	1,2	3.500	1	18.5			1		0		1965	580			580	100%		1818	0.319	0.319
	D	1	3.000	1				0		0		2055		395		395			2055	0.192	
	D	1	3.000	1		45	0			0		2055		395	0	395		0%	2055	0.192	
	D	1	3.000	1		40	0	0		0		2055			290	290		100%	1981	0.146	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

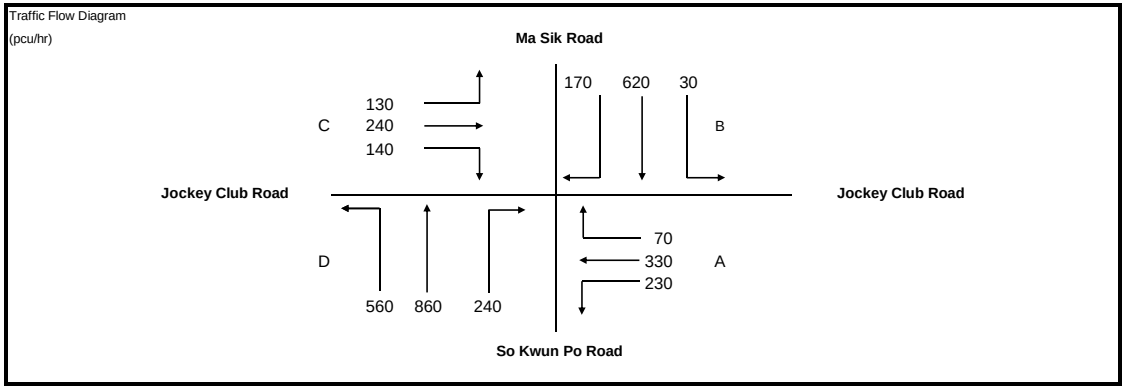
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

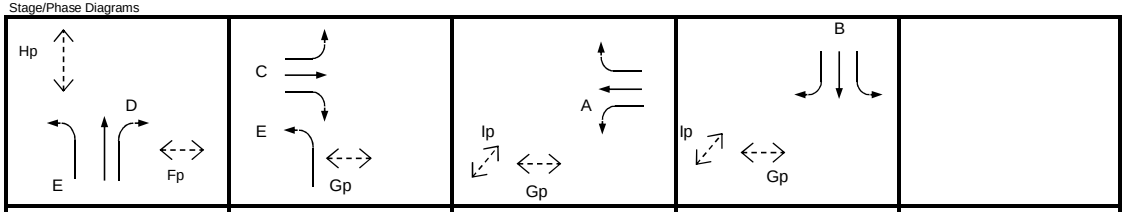
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.540	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	99	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	59	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	29.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	68	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Critical Case : D,C,A,B

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*
	B	4	3.650	2				0		0		4240		620		620			4240	0.146	0.146
	B	4	3.650	1	15			1		0		1980	30			30	100%		1800	0.017	
	B	4	3.650	1		22.5	0	0		0		2120			170	170		100%	1988	0.086	
	A	3	3.650	2				1		0		4100		330		330			4100	0.080	
	A	3	3.650	1	15			0		0		2120	230			230	100%		1927	0.119	0.119
	A	3	3.650	1		30	0	0		0		2120			70	70		100%	2019	0.035	
	C	2	3.650	2				0		0		4240		240		240			4240	0.057	
	C	2	3.700	1	15			1		0		1985	130			130	100%		1805	0.072	0.072
	C	2	3.650	2		27.5	0	0		0		4240			140	140		100%	4021	0.035	
	E	1,2	4.000	1	42.5			1		0		2015	560			560	100%		1946	0.288	
	D	1	3.700	1				0		0		2125		431		431			2125	0.203	0.203
	D	1	3.650	1		45	0			0		2120		429	0	429		0%	2120	0.203	
	D	1	3.650	1		40	0	0		0		2120			240	240		100%	2043	0.117	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

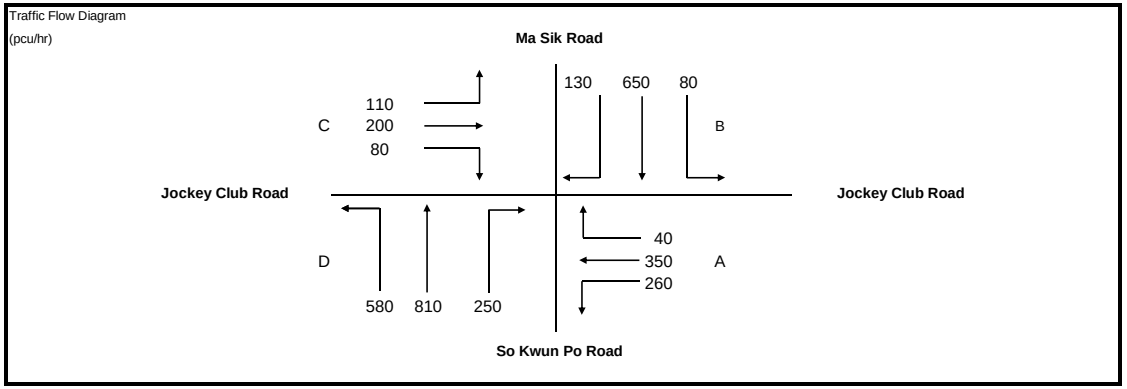
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

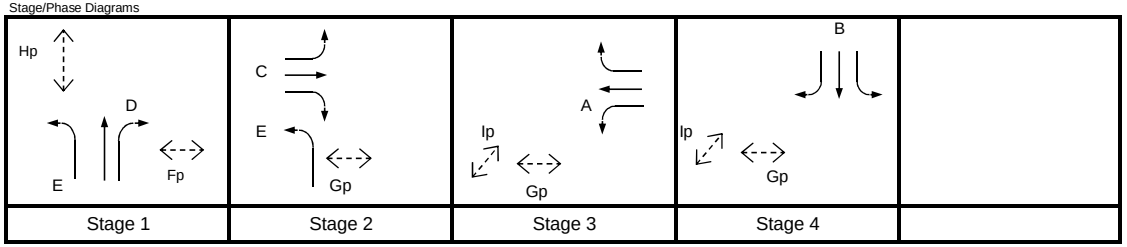
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.586	
Lost time	L =	20	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	85	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	48	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.750	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	27.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	57	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



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

Critical Case : E,A,B

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*
	B	4	3.650	2				0		0		4240		650		650			4240	0.153	0.153
	B	4	3.650	1	15			1		0		1980	80			80	100%		1800	0.044	
	B	4	3.650	1		22.5	0	0		0		2120			130	130		100%	1988	0.065	
	A	3	3.650	2				1		0		4100		350		350			4100	0.085	
	A	3	3.650	1	15			0		0		2120	260			260	100%		1927	0.135	0.135
	A	3	3.650	1		30	0	0		0		2120			40	40		100%	2019	0.020	
	C	2	3.650	2				0		0		4240		200		200			4240	0.047	
	C	2	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	
	C	2	3.650	2		27.5	0	0		0		4240			80	80		100%	4021	0.020	
	E	1,2	4.000	1	42.5			1		0		2015	580			580	100%		1946	0.298	0.298
	D	1	3.700	1				0		0		2125		405		405			2125	0.191	
	D	1	3.650	1		45	0			0		2120		405	0	405		0%	2120	0.191	
	D	1	3.650	1		40	0	0		0		2120			250	250		100%	2043	0.122	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

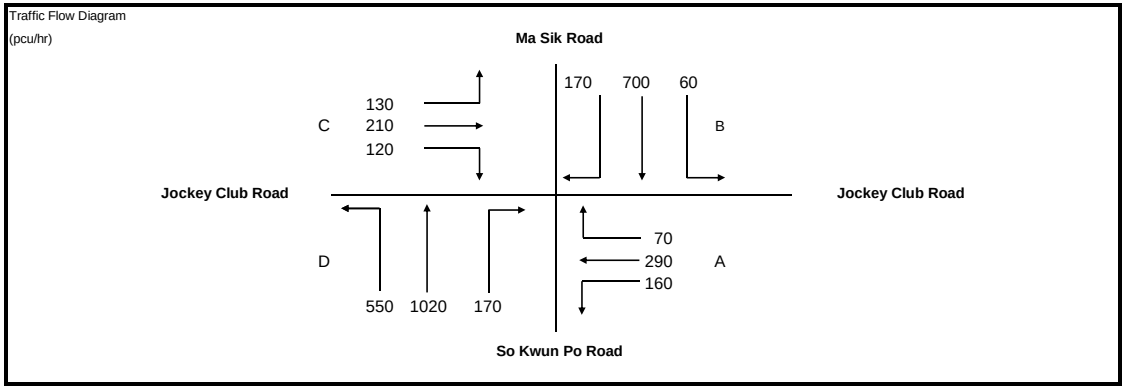
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

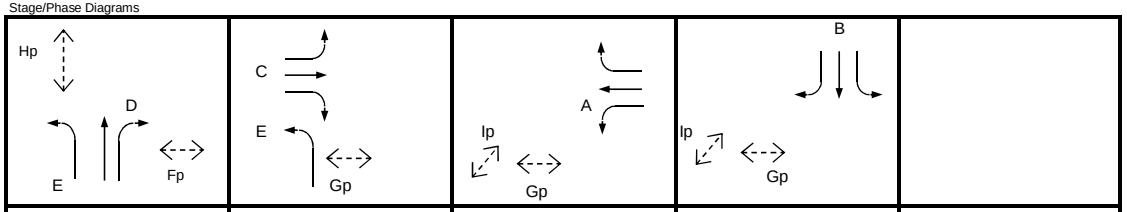
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.560	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	104	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	61	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	24.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	72	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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*
	B	4	3.650	2				0		0		4240		700		700			4240	0.165	0.165
	B	4	3.650	1	15			1		0		1980	60			60	100%		1800	0.033	
	B	4	3.650	1		22.5	0	0		0		2120			170	170		100%	1988	0.086	
	A	3	3.650	2				1		0		4100		290		290			4100	0.071	
	A	3	3.650	1	15			0		0		2120	160			160	100%		1927	0.083	0.083
	A	3	3.650	1		30	0	0		0		2120			70	70		100%	2019	0.035	
	C	2	3.650	2				0		0		4240		210		210			4240	0.050	
	C	2	3.700	1	15			1		0		1985	130			130	100%		1805	0.072	0.072
	C	2	3.650	2		27.5	0	0		0		4240			120	120		100%	4021	0.030	
	E	1,2	4.000	1	42.5			1		0		2015	550			550	100%		1946	0.283	
	D	1	3.700	1				0		0		2125		511		511			2125	0.240	0.240
	D	1	3.650	1		45	0			0		2120		509	0	509		0%	2120	0.240	
	D	1	3.650	1		40	0	0		0		2120			170	170		100%	2043	0.083	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

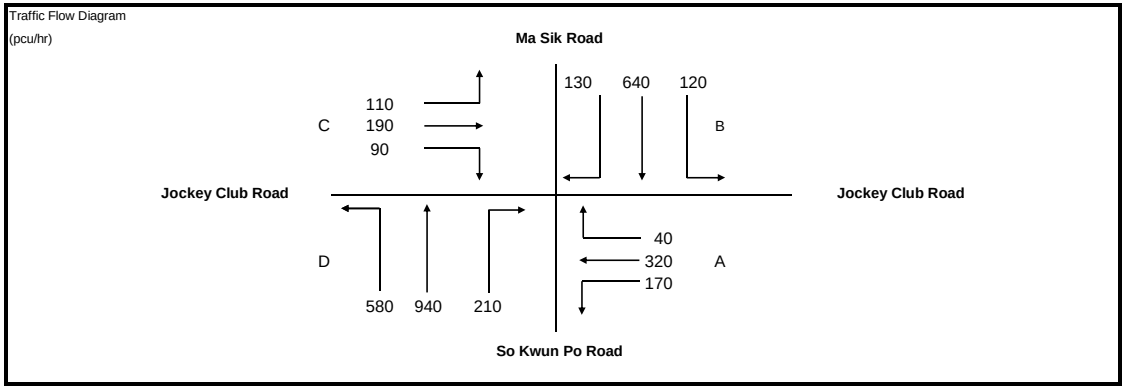
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

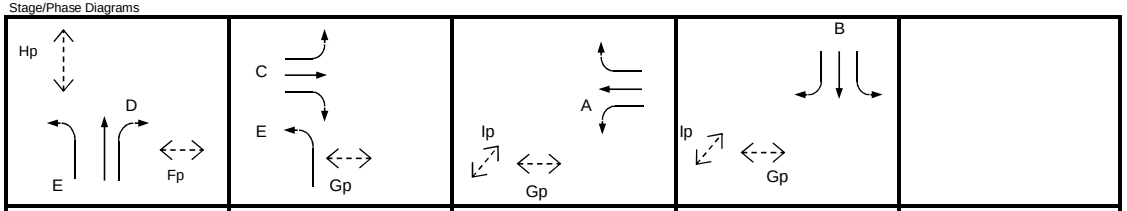
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.522	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	95	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	56	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	33.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	64	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,A,B

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	4	3.650	2				0		0		4240		640		640			4240	0.151	0.151
	B	4	3.650	1	15			1		0		1980	120			120	100%		1800	0.067	
	B	4	3.650	1		22.5	0	0		0		2120			130	130		100%	1988	0.065	
	A	3	3.650	2				1		0		4100		320		320			4100	0.078	
	A	3	3.650	1	15			0		0		2120	170			170	100%		1927	0.088	0.088
	A	3	3.650	1		30	0	0		0		2120			40	40		100%	2019	0.020	
	C	2	3.650	2				0		0		4240		190		190			4240	0.045	
	C	2	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	0.061
	C	2	3.650	2		27.5	0	0		0		4240			90	90		100%	4021	0.022	
	E	1,2	4.000	1	42.5			1		0		2015	580			580	100%		1946	0.298	
	D	1	3.700	1				0		0		2125		471		471			2125	0.221	0.221
	D	1	3.650	1		45	0			0		2120		469	0	469		0%	2120	0.221	
	D	1	3.650	1		40	0	0		0		2120			210	210		100%	2043	0.103	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

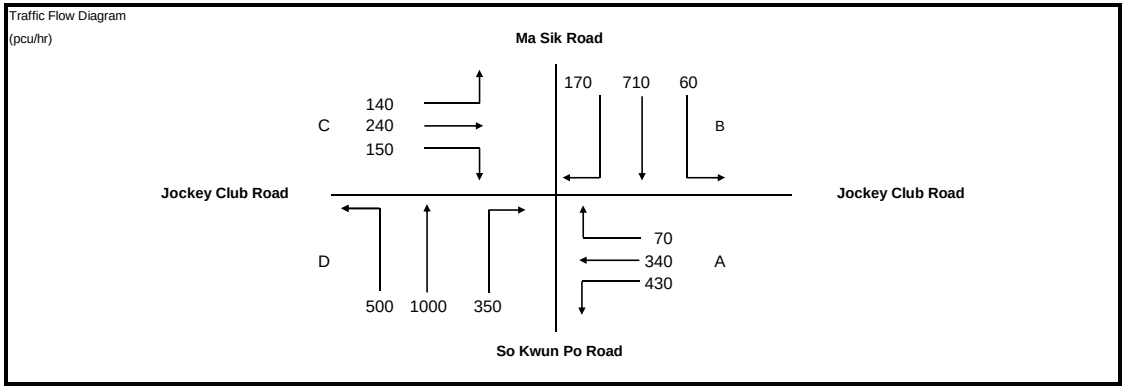
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

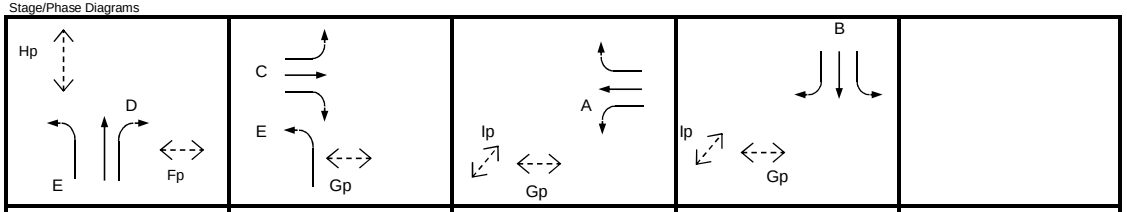
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.704	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	154	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	91	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	124	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,A,B

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*
	B	4	3.650	2				0		0		4240		710		710			4240	0.167	0.167
	B	4	3.650	1	15			1		0		1980	60			60	100%		1800	0.033	
	B	4	3.650	1		22.5	0	0		0		2120			170	170		100%	1988	0.086	
	A	3	3.650	2				1		0		4100		340		340			4100	0.083	
	A	3	3.650	1	15			0		0		2120	430			430	100%		1927	0.223	0.223
	A	3	3.650	1		30	0	0		0		2120			70	70		100%	2019	0.035	
	C	2	3.650	2				0		0		4240		240		240			4240	0.057	
	C	2	3.700	1	15			1		0		1985	140			140	100%		1805	0.078	0.078
	C	2	3.650	2		27.5	0	0		0		4240			150	150		100%	4021	0.037	
	E	1,2	4.000	1	42.5			1		0		2015	500			500	100%		1946	0.257	
	D	1	3.700	1				0		0		2125		501		501			2125	0.236	
	D	1	3.650	1		45	0			0		2120		499	0	499		0%	2120	0.236	0.236
	D	1	3.650	1		40	0	0		0		2120			350	350		100%	2043	0.171	

Pedestrian Crossing				GM		FGM															
	Ip	3,4	min.	7	+	7	=	14	sec												
	Gp	2,3,4	min.	7	+	9	=	16	sec												
	Fp	1	min.	5	+	10	=	15	sec												
	Hp	1	min.	13	+	14	=	27	sec												

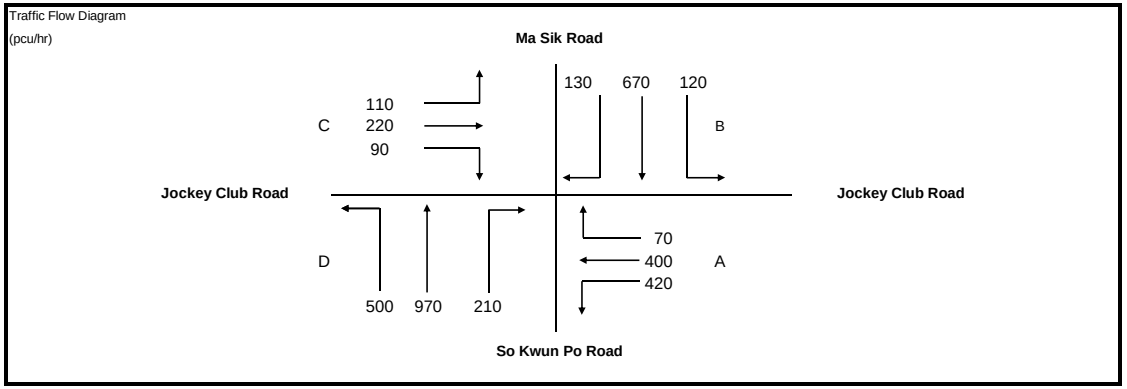
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

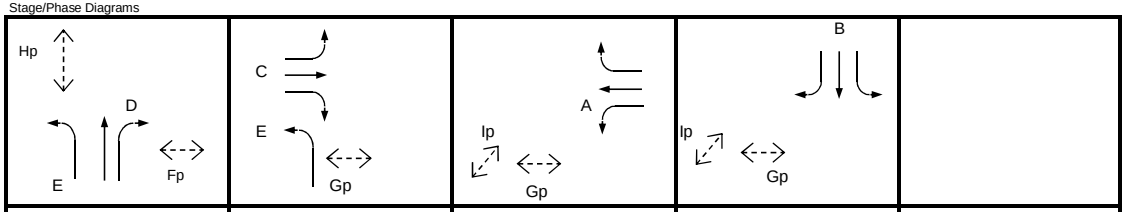
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.665	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	136	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	81	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	4.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	104	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



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

Critical Case : D,C,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 4%

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	4	3.650	2				0		0		4240		670		670			4240	0.158	0.158
	B	4	3.650	1	15			1		0		1980	120			120	100%		1800	0.067	
	B	4	3.650	1		22.5	0	0		0		2120			130	130		100%	1988	0.065	
	A	3	3.650	2				1		0		4100		400		400			4100	0.098	
	A	3	3.650	1	15			0		0		2120	420			420	100%		1927	0.218	0.218
	A	3	3.650	1		30	0	0		0		2120			70	70		100%	2019	0.035	
	C	2	3.650	2				0		0		4240		220		220			4240	0.052	
	C	2	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	0.061
	C	2	3.650	2		27.5	0	0		0		4240			90	90		100%	4021	0.022	
	E	1,2	4.000	1	42.5			1		0		2015	500			500	100%		1946	0.257	
	D	1	3.700	1				0		0		2125		486		486			2125	0.229	0.229
	D	1	3.650	1		45	0			0		2120		484	0	484		0%	2120	0.229	
	D	1	3.650	1		40	0	0		0		2120			210	210		100%	2043	0.103	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

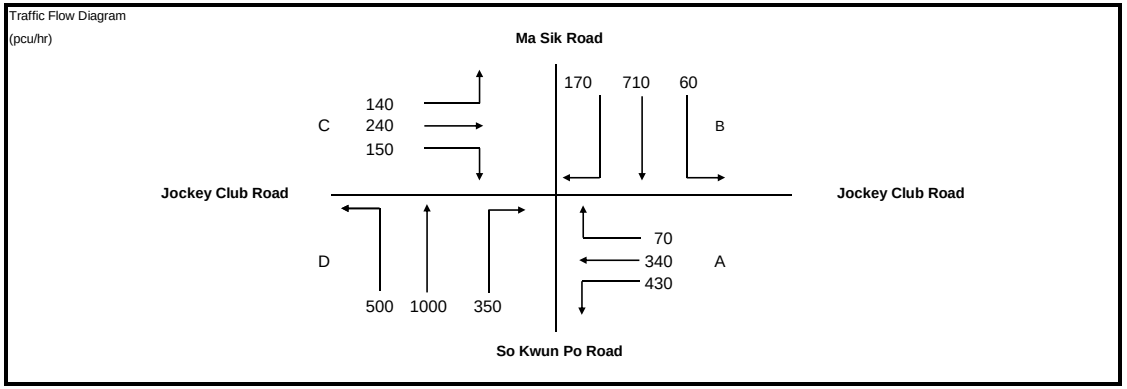
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2026 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

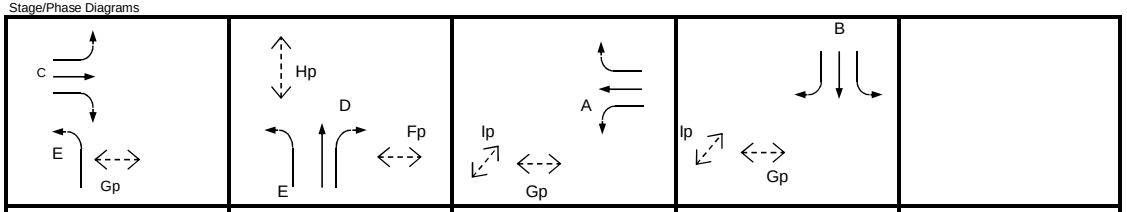
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.592	
Lost time	L =	23	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	97	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	56	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.728	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	22.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	67	sec
Y_{max}	$= 1-L/C$	=	0.802	

Stage/Phase Diagrams



Critical Case : C,D,A,B

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	4	3.650	2				0		0		4240		710		710			4240	0.167	0.167
	B	4	3.650	1	15			1		0		1980	60			60	100%		1800	0.033	
	B	4	3.650	1		22.5	0	0		0		2120			170	170		100%	1988	0.086	
	A	3	3.650	1				1		0		1980		200		200			1980	0.101	
	A	3	3.650	1		30	0	0		0		2120		140	70	210		33%	2085	0.101	
	A	3	3.650	2	15			0		0		4240	430			430	100%		3855	0.112	0.112
	C	1	3.650	2				0		0		4240		240		240			4240	0.057	
	C	1	3.700	1	15			1		0		1985	140			140	100%		1805	0.078	0.078
	C	1	3.650	2		27.5	0	0		0		4240			150	150		100%	4021	0.037	
	E	1,2	4.000	1	42.5			1		0		2015	500			500	100%		1946	0.257	
	D	2	3.700	1				0		0		2125		501		501			2125	0.236	
	D	2	3.650	1		45	0			0		2120		499	0	499		0%	2120	0.236	0.236
	D	2	3.650	1		40	0	0		0		2120			350	350		100%	2043	0.171	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

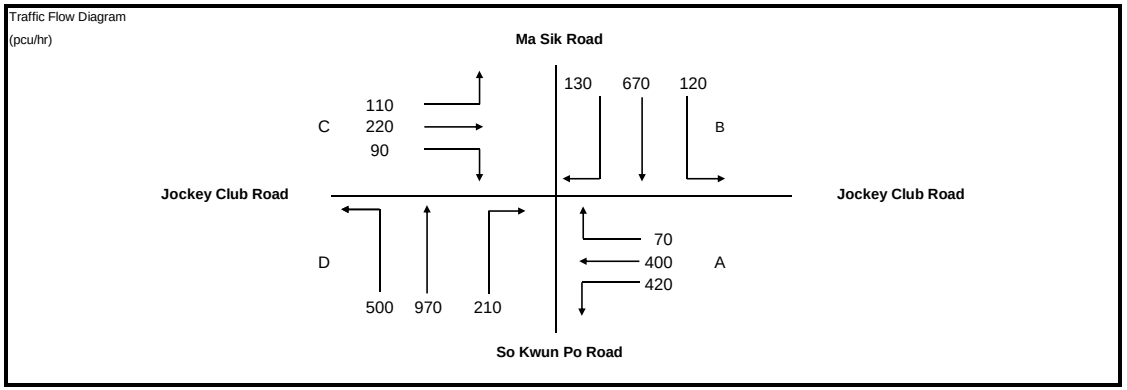
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2026 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

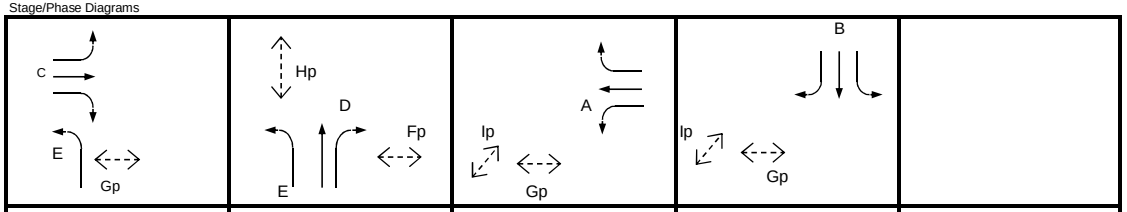
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.563	
Lost time	L =	23	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	90	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	53	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.728	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	29.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	61	sec
Y_{max}	$= 1-L/C$	=	0.802	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 7	I/G = 7	I/G = 6	

Critical Case : C,D,A,B

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*
	B	4	3.650	2				0		0		4240		670		670			4240	0.158	0.158
	B	4	3.650	1	15			1		0		1980	120			120	100%		1800	0.067	
	B	4	3.650	1		22.5	0	0		0		2120			130	130		100%	1988	0.065	
	A	3	3.650	1				1		0		1980		229		229			1980	0.115	
	A	3	3.650	1		30	0	0		0		2120		171	70	241		29%	2090	0.115	0.115
	A	3	3.650	2	15			0		0		4240	420			420	100%		3855	0.109	
	C	1	3.650	2				0		0		4240		220		220			4240	0.052	
	C	1	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	0.061
	C	1	3.650	2		27.5	0	0		0		4240			90	90		100%	4021	0.022	
	E	1,2	4.000	1	42.5			1		0		2015	500			500	100%		1946	0.257	
	D	2	3.700	1				0		0		2125		486		486			2125	0.229	0.229
	D	2	3.650	1		45	0			0		2120		484	0	484		0%	2120	0.229	
	D	2	3.650	1		40	0	0		0		2120			210	210		100%	2043	0.103	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

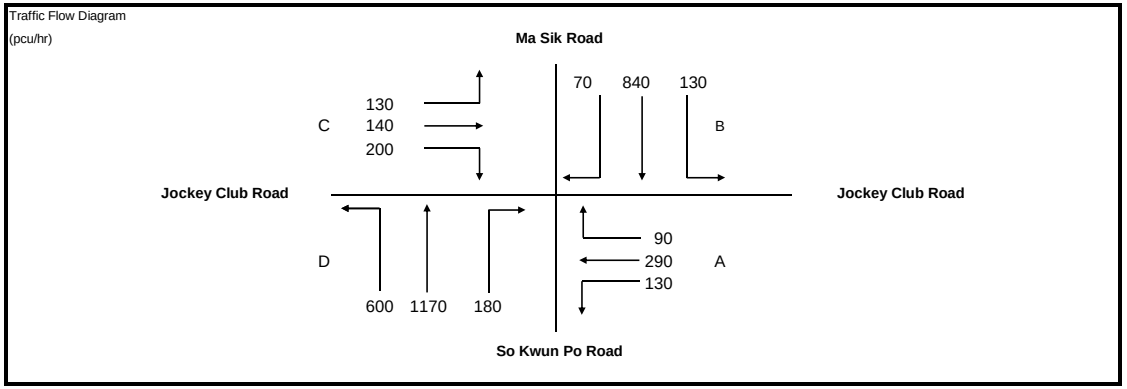
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

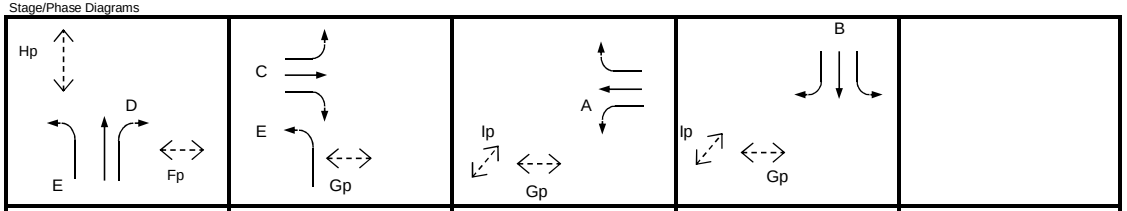
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.617	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	70	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	13.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	86	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,A,B

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*
	B	4	3.650	2				0		0		4240		840		840			4240	0.198	0.198
	B	4	3.650	1	15			1		0		1980	130			130	100%		1800	0.072	
	B	4	3.650	1		22.5	0	0		0		2120			70	70		100%	1988	0.035	
	A	3	3.650	2				1		0		4100		290		290			4100	0.071	0.071
	A	3	3.650	1	15			0		0		2120	130			130	100%		1927	0.067	
	A	3	3.650	1		30	0	0		0		2120			90	90		100%	2019	0.045	
	C	2	3.650	2				0		0		4240		140		140			4240	0.033	
	C	2	3.700	1	15			1		0		1985	130			130	100%		1805	0.072	0.072
	C	2	3.650	2		27.5	0	0		0		4240			200	200		100%	4021	0.050	
	E	1,2	4.000	1	42.5			1		0		2015	600			600	100%		1946	0.308	
	D	1	3.700	1				0		0		2125		586		586			2125	0.276	0.276
	D	1	3.650	1		45	0			0		2120		584	0	584		0%	2120	0.276	
	D	1	3.650	1		40	0	0		0		2120			180	180		100%	2043	0.088	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

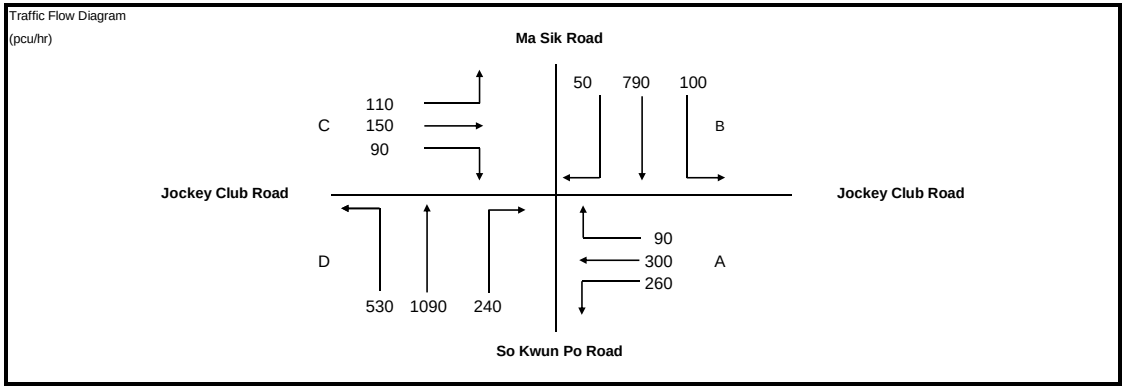
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

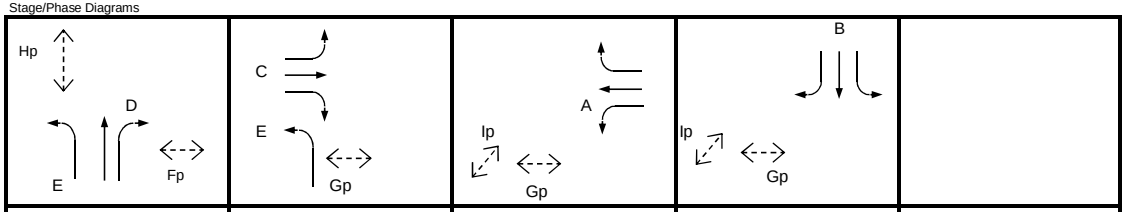
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.639	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	126	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	75	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	9.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	93	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Critical Case : D,C,A,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*
	B	4	3.650	2				0		0		4240		790		790			4240	0.186	0.186
	B	4	3.650	1	15			1		0		1980	100			100	100%		1800	0.056	
	B	4	3.650	1		22.5	0	0		0		2120			50	50		100%	1988	0.025	
	A	3	3.650	2				1		0		4100		300		300			4100	0.073	
	A	3	3.650	1	15			0		0		2120	260			260	100%		1927	0.135	0.135
	A	3	3.650	1		30	0	0		0		2120			90	90		100%	2019	0.045	
	C	2	3.650	2				0		0		4240		150		150			4240	0.035	
	C	2	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	0.061
	C	2	3.650	2		27.5	0	0		0		4240			90	90		100%	4021	0.022	
	E	1,2	4.000	1	42.5			1		0		2015	530			530	100%		1946	0.272	
	D	1	3.700	1				0		0		2125		546		546			2125	0.257	0.257
	D	1	3.650	1		45	0			0		2120		544	0	544		0%	2120	0.257	
	D	1	3.650	1		40	0	0		0		2120			240	240		100%	2043	0.117	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

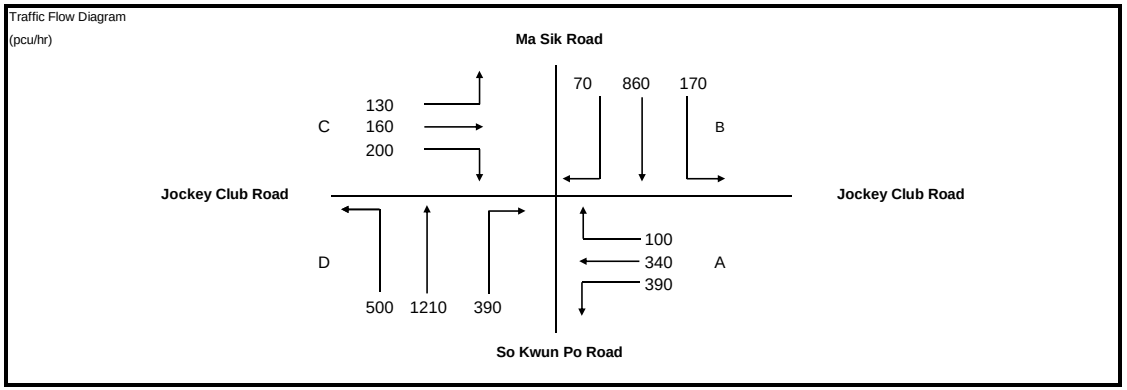
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

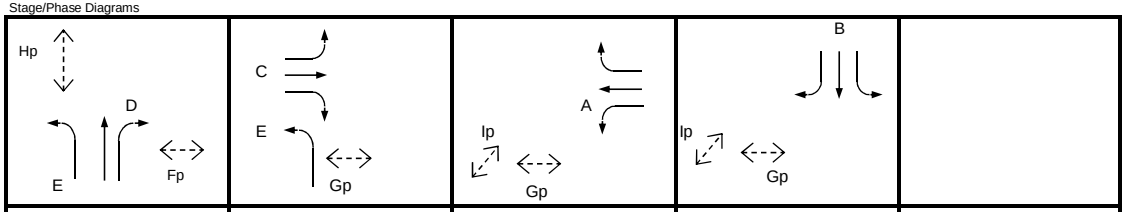
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.762	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	191	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	114	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-8.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	176	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,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*
	B	4	3.650	2				0		0		4240		860		860			4240	0.203	0.203
	B	4	3.650	1	15			1		0		1980	170			170	100%		1800	0.094	
	B	4	3.650	1		22.5	0	0		0		2120			70	70		100%	1988	0.035	
	A	3	3.650	2				1		0		4100		340		340			4100	0.083	
	A	3	3.650	1	15			0		0		2120	390			390	100%		1927	0.202	0.202
	A	3	3.650	1		30	0	0		0		2120			100	100		100%	2019	0.050	
	C	2	3.650	2				0		0		4240		160		160			4240	0.038	
	C	2	3.700	1	15			1		0		1985	130			130	100%		1805	0.072	0.072
	C	2	3.650	2		27.5	0	0		0		4240			200	200		100%	4021	0.050	
	E	1,2	4.000	1	42.5			1		0		2015	500			500	100%		1946	0.257	
	D	1	3.700	1				0		0		2125		606		606			2125	0.285	0.285
	D	1	3.650	1		45	0			0		2120		604	0	604		0%	2120	0.285	
	D	1	3.650	1		40	0	0		0		2120			390	390		100%	2043	0.191	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

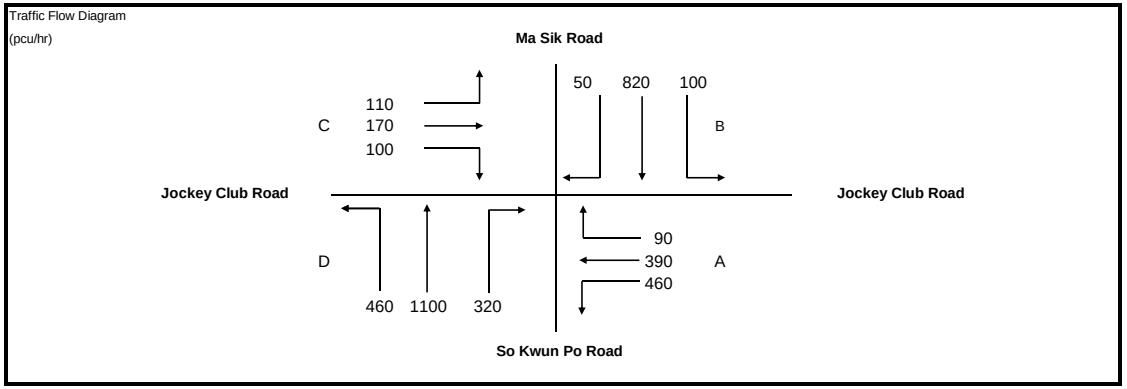
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J3

Traffic Flow Diagram

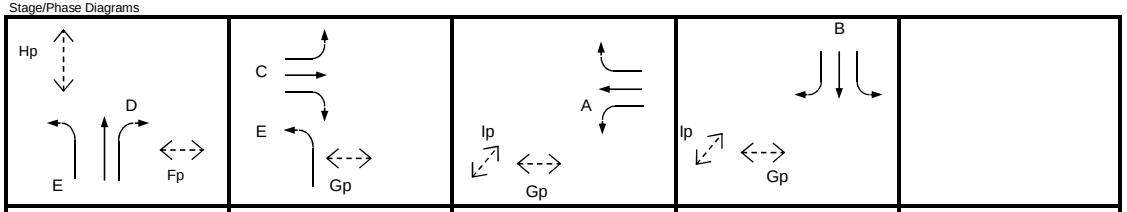
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.752	
Lost time	L =	27	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	184	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	109	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.698	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-7.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	164	sec
Y_{max}	$= 1-L/C$	=	0.767	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 8	I/G = 8	I/G = 7	I/G = 8	

Critical Case : D,C,A,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*
	B	4	3.650	2				0		0		4240		820		820			4240	0.193	0.193
	B	4	3.650	1	15			1		0		1980	100			100	100%		1800	0.056	
	B	4	3.650	1		22.5	0	0		0		2120			50	50		100%	1988	0.025	
	A	3	3.650	2				1		0		4100		390		390			4100	0.095	
	A	3	3.650	1	15			0		0		2120	460			460	100%		1927	0.239	0.239
	A	3	3.650	1		30	0	0		0		2120			90	90		100%	2019	0.045	
	C	2	3.650	2				0		0		4240		170		170			4240	0.040	
	C	2	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	0.061
	C	2	3.650	2		27.5	0	0		0		4240			100	100		100%	4021	0.025	
	E	1,2	4.000	1	42.5			1		0		2015	460			460	100%		1946	0.236	
	D	1	3.700	1				0		0		2125		551		551			2125	0.259	0.259
	D	1	3.650	1		45	0			0		2120		549	0	549		0%	2120	0.259	
	D	1	3.650	1		40	0	0		0		2120			320	320		100%	2043	0.157	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

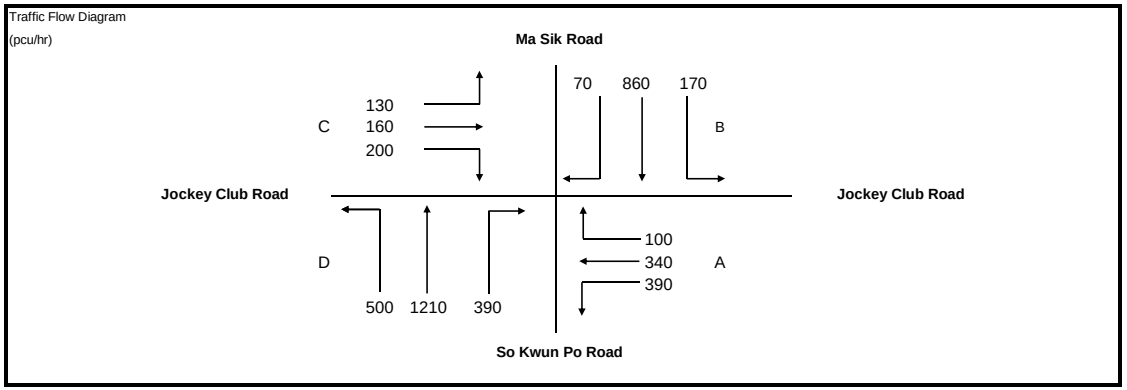
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2031 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J3

Traffic Flow Diagram

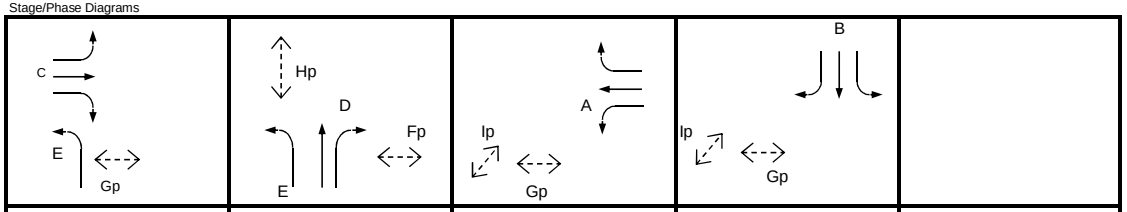
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	128	sec
Sum(y)	Y =	0.668	
Lost time	L =	23	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	69	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.728	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	8.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	89	sec
Y_{max}	$= 1-L/C$	=	0.820	

Stage/Phase Diagrams



Critical Case : C,D,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	4	3.650	2				0		0		4240		860		860			4240	0.203	0.203
	B	4	3.650	1	15			1		0		1980	170			170	100%		1800	0.094	
	B	4	3.650	1		22.5	0	0		0		2120			70	70		100%	1988	0.035	
	A	3	3.650	1				1		0		1980		215		215			1980	0.109	0.109
	A	3	3.650	1		30	0	0		0		2120		125	100	225		44%	2074	0.109	
	A	3	3.650	2	15			0		0		4240	390			390	100%		3855	0.101	
	C	1	3.650	2				0		0		4240		160		160			4240	0.038	
	C	1	3.700	1	15			1		0		1985	130			130	100%		1805	0.072	0.072
	C	1	3.650	2		27.5	0	0		0		4240			200	200		100%	4021	0.050	
	E	1,2	4.000	1	42.5			1		0		2015	500			500	100%		1946	0.257	
	D	2	3.700	1				0		0		2125		606		606			2125	0.285	0.285
	D	2	3.650	1		45	0			0		2120		604	0	604		0%	2120	0.285	
	D	2	3.650	1		40	0	0		0		2120			390	390		100%	2043	0.191	

Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

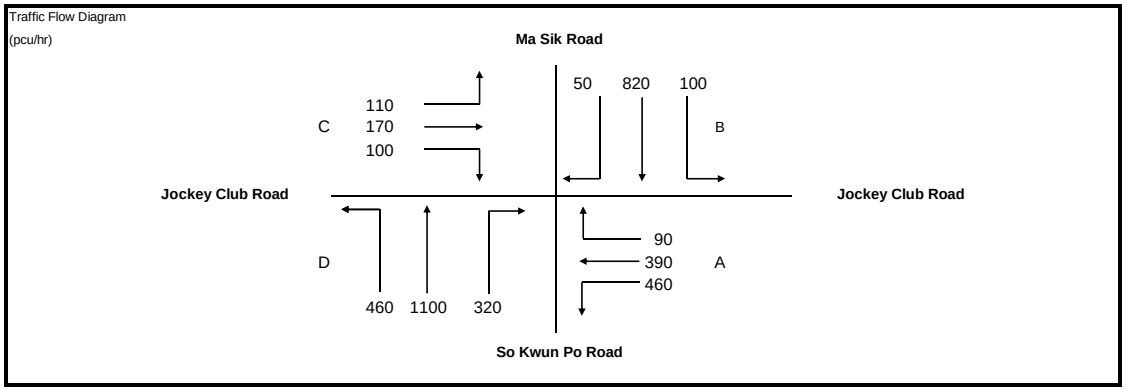
JUNCTION CAPACITY CALCULATION

Junction J3 - Jockey Club Road / Ma Sik Road / So Kwun Po Road	2031 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Oct 15

J3

Traffic Flow Diagram

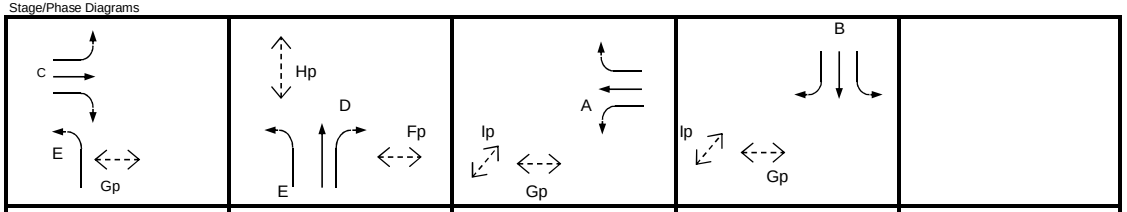
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	116	sec
Sum(y)	Y =	0.633	
Lost time	L =	23	sec
Total Flow	=	35,525	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	108	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	63	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.728	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	15.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	77	sec
Y_{max}	$= 1-L/C$	=	0.802	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 7	I/G = 7	I/G = 6	

Critical Case : C,D,A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 14%

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	4	3.650	2				0		0		4240		820		820			4240	0.193	0.193
	B	4	3.650	1	15			1		0		1980	100			100	100%		1800	0.056	
	B	4	3.650	1		22.5	0	0		0		2120			50	50		100%	1988	0.025	
	A	3	3.650	1				1		0		1980		234		234			1980	0.118	
	A	3	3.650	1		30	0	0		0		2120		156	90	246		37%	2082	0.118	
	A	3	3.650	2	15			0		0		4240	460			460	100%		3855	0.119	0.119
	C	1	3.650	2				0		0		4240		170		170			4240	0.040	
	C	1	3.700	1	15			1		0		1985	110			110	100%		1805	0.061	0.061
	C	1	3.650	2		27.5	0	0		0		4240			100	100		100%	4021	0.025	
	E	1,2	4.000	1	42.5			1		0		2015	460			460	100%		1946	0.236	
	D	2	3.700	1				0		0		2125		551		551			2125	0.259	0.259
	D	2	3.650	1		45	0			0		2120		549	0	549		0%	2120	0.259	
	D	2	3.650	1		40	0	0		0		2120			320	320		100%	2043	0.157	

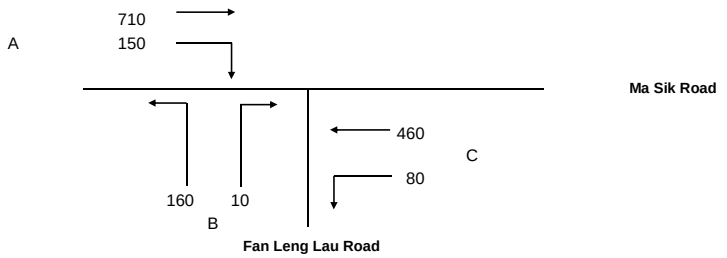
Pedestrian Crossing			GM		FGM				
Ip	3,4	min.	7	+	7	=	14	sec	
Gp	2,3,4	min.	7	+	9	=	16	sec	
Fp	1	min.	5	+	10	=	15	sec	
Hp	1	min.	13	+	14	=	27	sec	

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

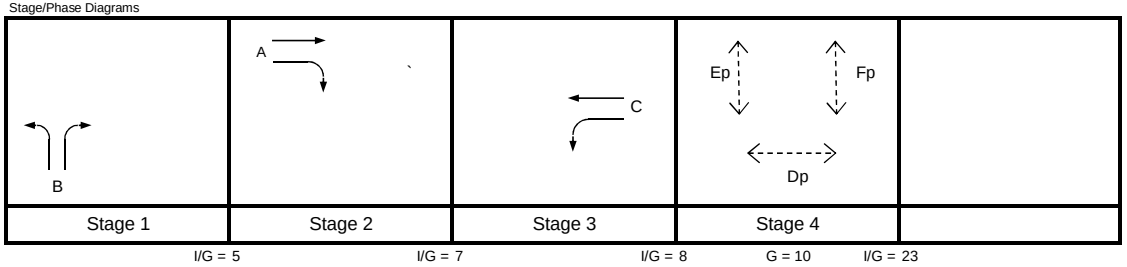
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.433	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	141	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	88	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	21.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	96	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 12%

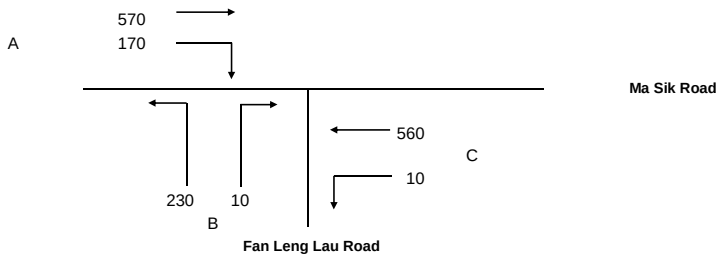
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		420		420			1965	0.214	0.214
	A	2	3.500	1		25	0	0		0		2105		290	150	440		34%	2063	0.214	
	B	1	4.000	1	17.5			1		0		2015	160			160	100%		1856	0.086	0.086
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	80	177		257	31%		1930	0.133	0.133
	C	3	3.750	1				0		0		2130		283		283			2130	0.133	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

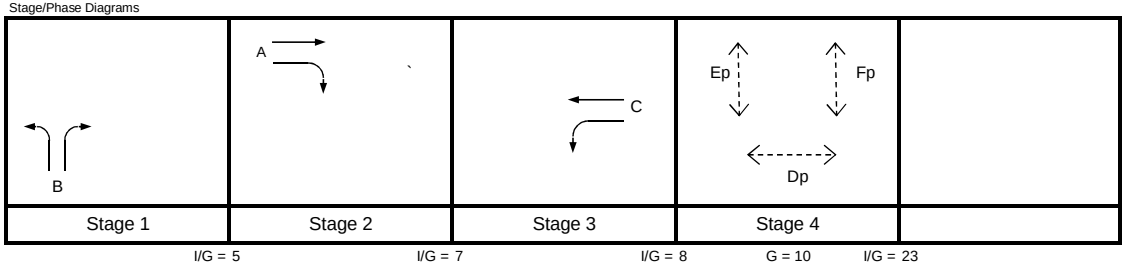
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.447	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	145	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	90	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	17.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	99	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 8%

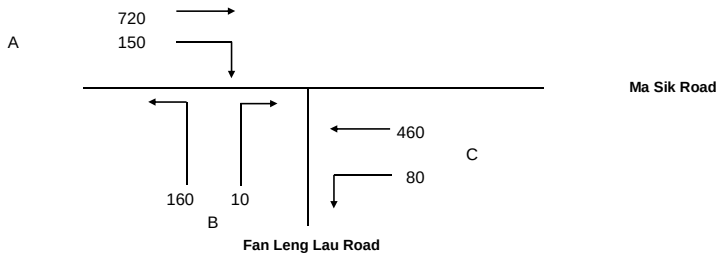
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		362		362			1965	0.184	0.184
	A	2	3.500	1		25	0	0		0		2105		208	170	378		45%	2050	0.184	
	B	1	4.000	1	17.5			1		0		2015	230			230	100%		1856	0.124	0.124
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	265		275	4%		1983	0.139	0.139
	C	3	3.750	1				0		0		2130		295		295			2130	0.139	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2017 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

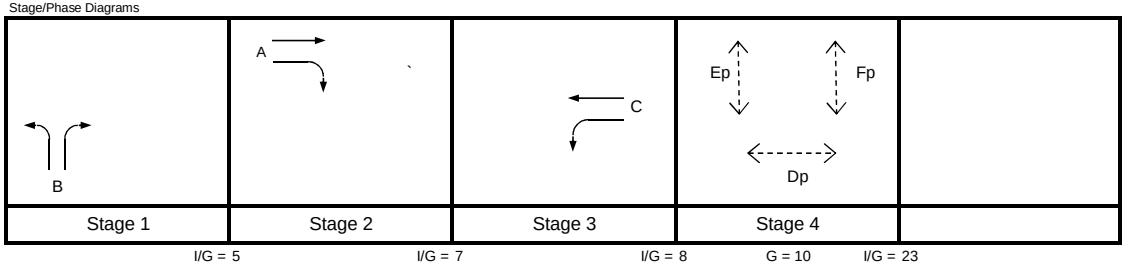
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.435	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	142	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	89	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	20.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	97	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

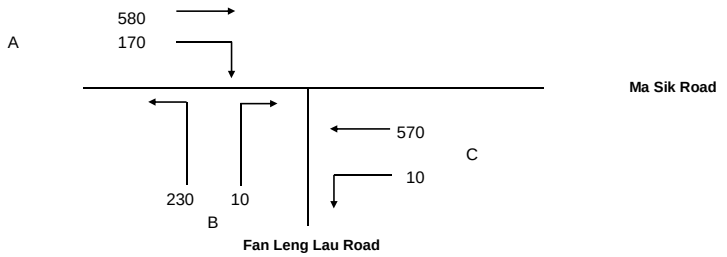
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		424		424			1965	0.216	0.216
↱	A	2	3.500	1		25	0	0		0		2105		296	150	446		34%	2063	0.216	
↰	B	1	4.000	1	17.5			1		0		2015	160			160	100%		1856	0.086	0.086
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	80	177		257	31%		1930	0.133	0.133
↑	C	3	3.750	1				0		0		2130		283		283			2130	0.133	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2017 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

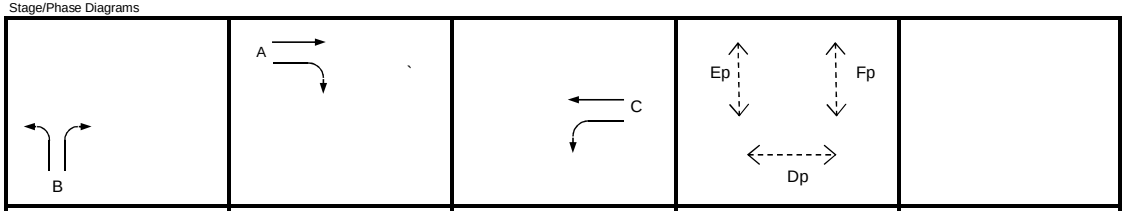
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.452	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	146	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	91	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	16.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	100	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 7%

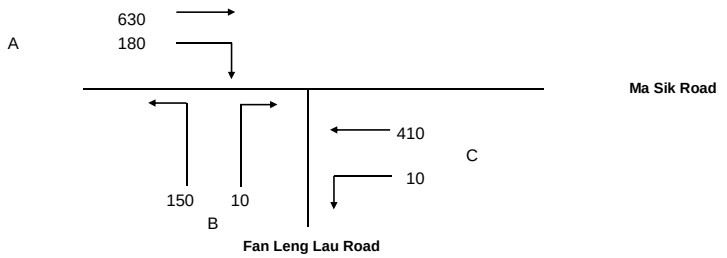
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		367		367			1965	0.187	0.187
↑→	A	2	3.500	1		25	0	0		0		2105		213	170	383		44%	2050	0.187	
↰	B	1	4.000	1	17.5			1		0		2015	230			230	100%		1856	0.124	0.124
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	270		280	4%		1983	0.141	0.141
↑	C	3	3.750	1				0		0		2130		300		300			2130	0.141	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2019 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

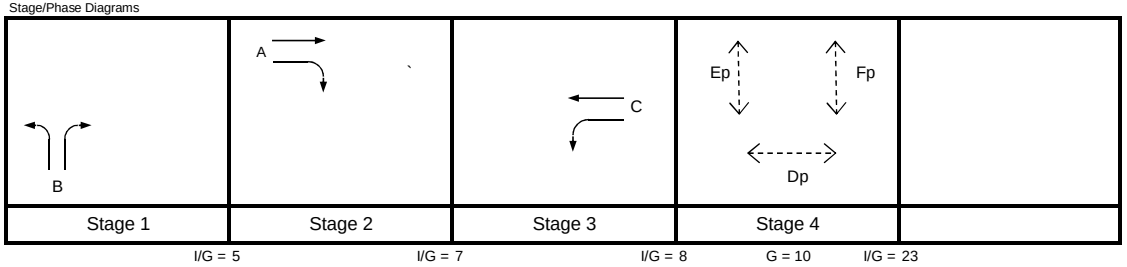
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.385	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	130	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	81	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	36.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	87	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 26%

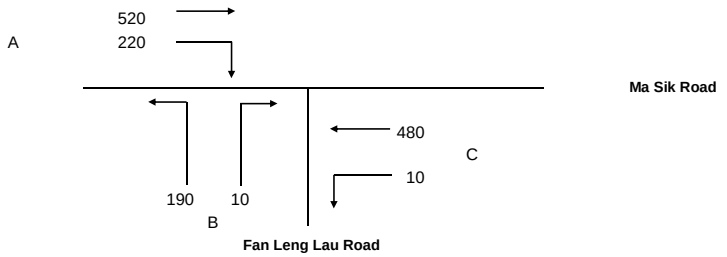
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		396		396			1965	0.202	
	A	2	3.500	1		25	0	0		0		2105		234	180	414		44%	2051	0.202	0.202
	B	1	4.000	1	17.5			1		0		2015	150			150	100%		1856	0.081	0.081
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	192		202	5%		1980	0.102	0.102
	C	3	3.750	1				0		0		2130		218		218			2130	0.102	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2019 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

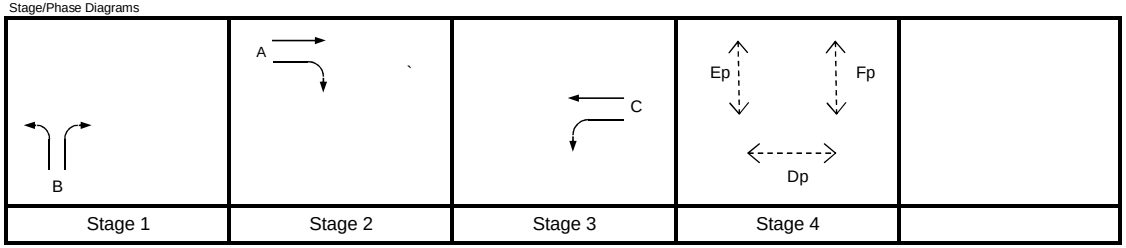
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.407	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	135	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	84	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	29.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	91	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

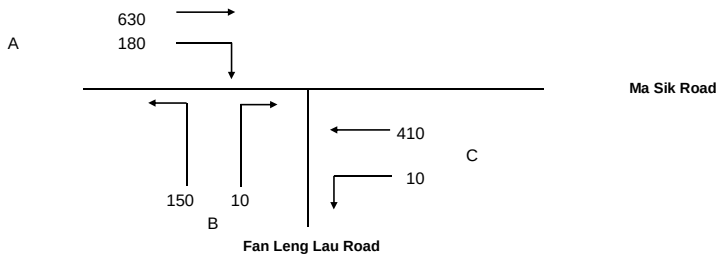
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		364		364			1965	0.185	
	A	2	3.500	1		25	0	0		0		2105		156	220	376		58%	2034	0.185	0.185
	B	1	4.000	1	17.5			1		0		2015	190			190	100%		1856	0.102	0.102
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	226		236	4%		1982	0.119	0.119
	C	3	3.750	1				0		0		2130		254		254			2130	0.119	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2019 AM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

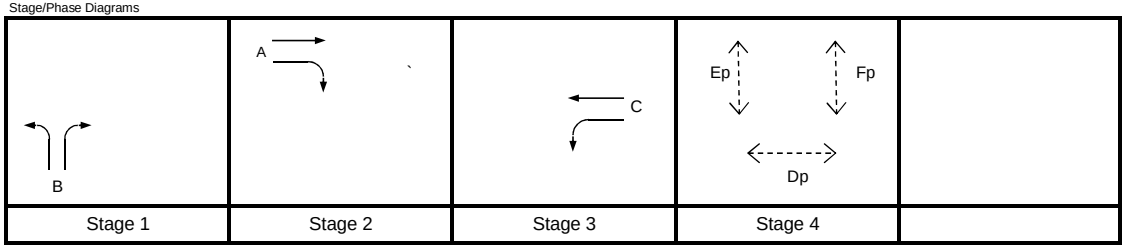
J4

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.385	
Lost time		L =	50	sec
Total Flow		=	12,360	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	130	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	81	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	36.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	87	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 26%

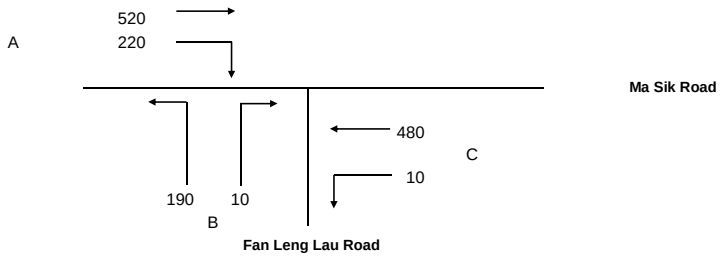
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		396		396			1965	0.202	
↱	A	2	3.500	1		25	0	0		0		2105		234	180	414		44%	2051	0.202	0.202
↰	B	1	4.000	1	17.5			1		0		2015	150			150	100%		1856	0.081	0.081
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	192		202	5%		1980	0.102	0.102
↑	C	3	3.750	1				0		0		2130		218		218			2130	0.102	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2019 PM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

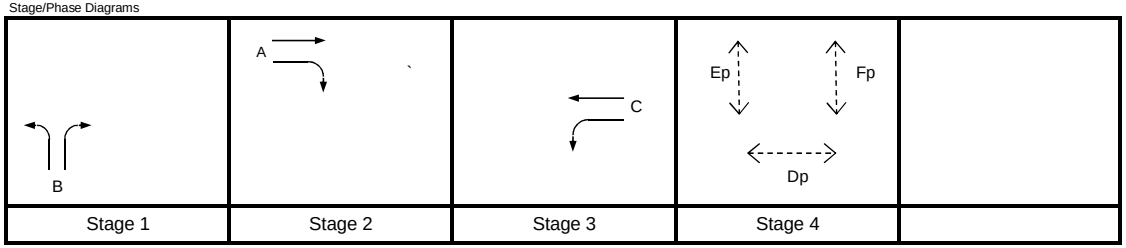
J4

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.407	
Lost time		L =	50	sec
Total Flow		=	12,360	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	135	sec
Min. Cycle Time C_m	= L/(1-Y)	=	84	sec
Y_{ult}	= 0.9-0.0075×L	=	0.525	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	29.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	91	sec
Y_{max}	= 1-L/C	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

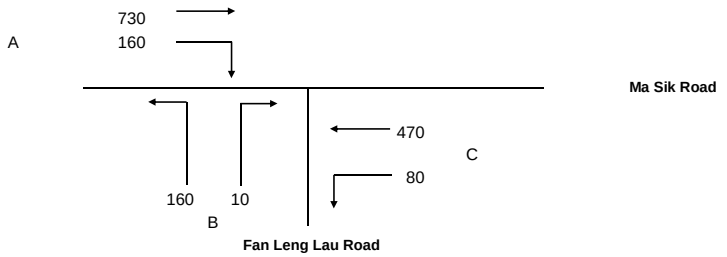
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		364		364			1965	0.185	
↱	A	2	3.500	1		25	0	0		0		2105		156	220	376		58%	2034	0.185	0.185
↰	B	1	4.000	1	17.5			1		0		2015	190			190	100%		1856	0.102	0.102
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	226		236	4%		1982	0.119	0.119
↑	C	3	3.750	1				0		0		2130		254		254			2130	0.119	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

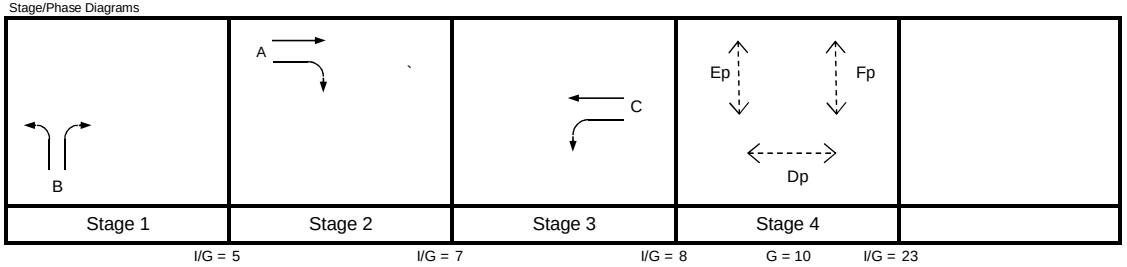
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.454	
Lost time	L =	50	sec
Total Flow	=	12,010	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	147	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	92	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	15.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	101	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

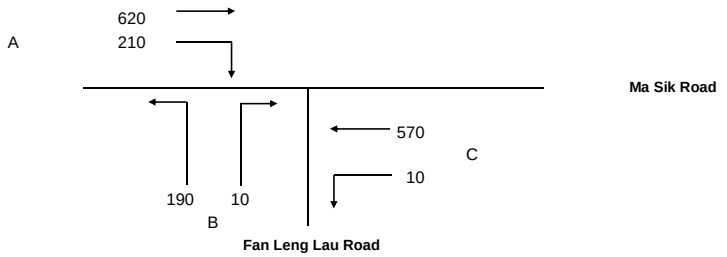
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.250	1				1		0		1940		434		434			1940	0.224	0.224
	A	2	3.250	1		25	0	0		0		2080		296	160	456		35%	2037	0.224	
	B	1	3.250	1	17.5			1		0		1940	160			160	100%		1787	0.090	0.090
	B	1	3.250	1		27.5	0	0		0		2080			10	10		100%	1972	0.005	
	C	3	3.000	1	12			1		0		1915	80	180		260	31%		1844	0.141	0.141
	C	3	3.000	1				0		0		2055		290		290			2055	0.141	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

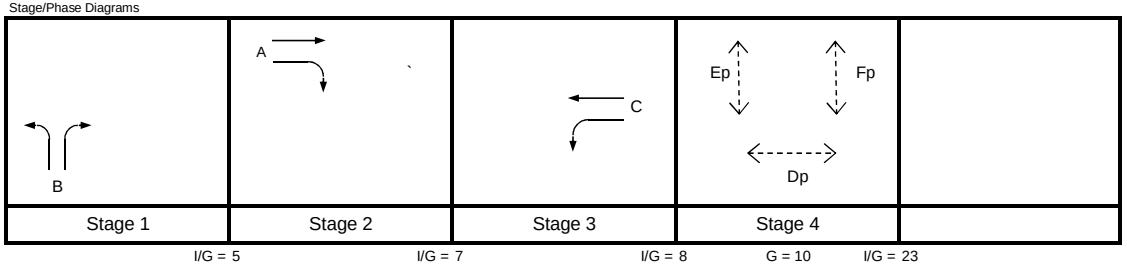
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.450	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	146	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	91	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	16.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	100	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 7%

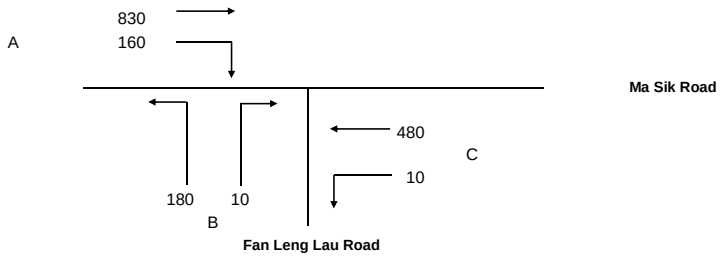
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		407		407			1965	0.207	0.207
↱	A	2	3.500	1		25	0	0		0		2105		213	210	423		50%	2044	0.207	
↰	B	1	4.000	1	17.5			1		0		2015	190			190	100%		1856	0.102	0.102
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	270		280	4%		1983	0.141	
↑	C	3	3.750	1				0		0		2130		300		300			2130	0.141	0.141
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

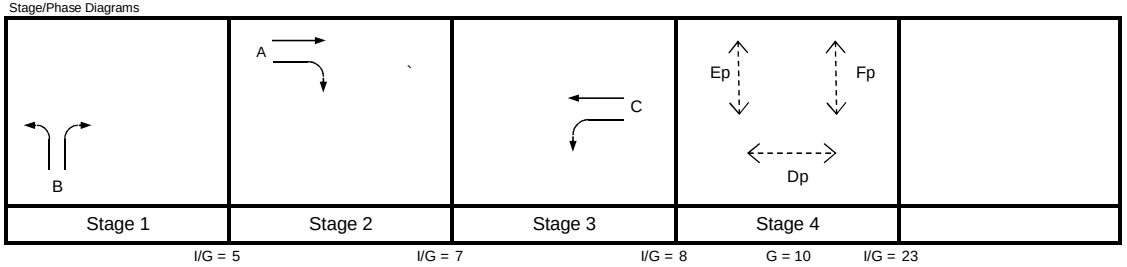
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.462	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	149	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	93	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	13.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	103	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

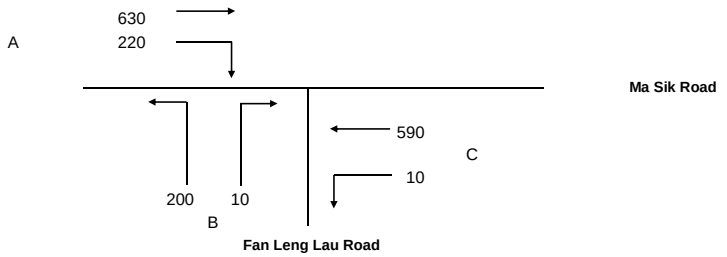
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		483		483			1965	0.246	
	A	2	3.500	1		25	0	0		0		2105		347	160	507		32%	2066	0.246	0.246
	B	1	4.000	1	17.5			1		0		2015	180			180	100%		1856	0.097	0.097
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	226		236	4%		1982	0.119	0.119
	C	3	3.750	1				0		0		2130		254		254			2130	0.119	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

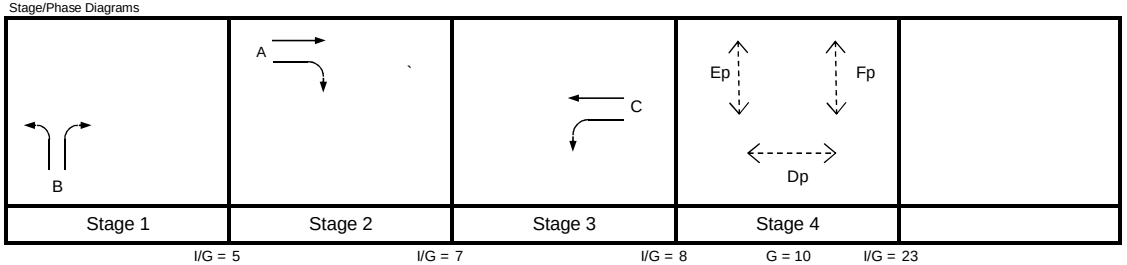
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.466	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	150	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	94	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	12.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	104	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 4%

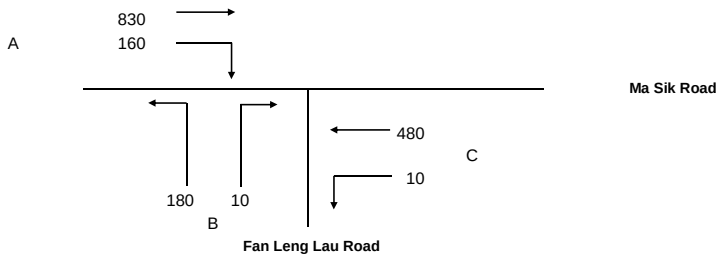
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		417		417			1965	0.212	
	A	2	3.500	1		25	0	0		0		2105		213	220	433		51%	2043	0.212	0.212
	B	1	4.000	1	17.5			1		0		2015	200			200	100%		1856	0.108	0.108
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	279		289	3%		1983	0.146	
	C	3	3.750	1				0		0		2130		311		311			2130	0.146	0.146
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 AM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

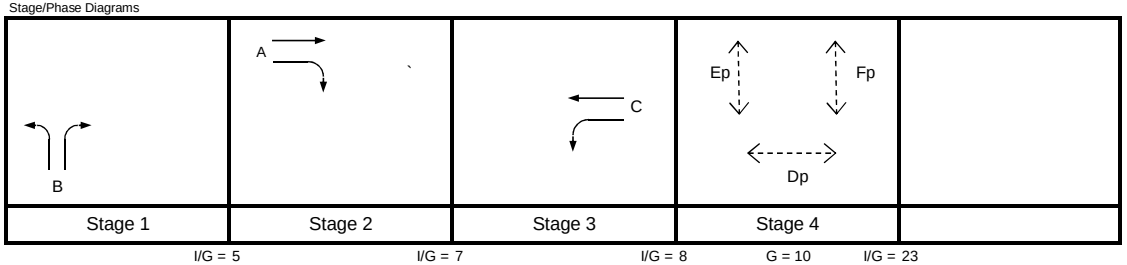
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.414	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	136	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	85	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	26.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	93	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

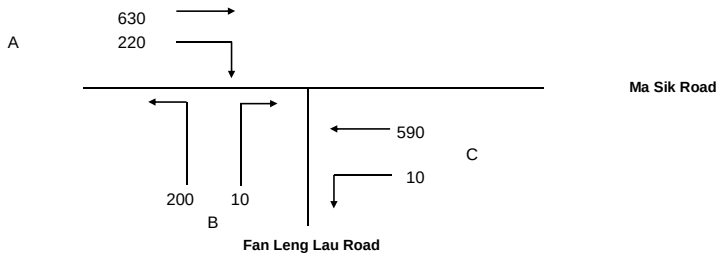
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		483		483			1965	0.246	0.246
	A	2	3.500	1		25	0	0		0		2105		347	160	507		32%	2066	0.246	
	B	1	4.000	1	17.5			1		0		2015	91			91	100%		1856	0.049	
	B	1	4.000	1	22.5	27.5	0	0		0		2155	89		10	99	90%	10%	2023	0.049	0.049
	C	3	3.750	1	15			1		0		1990	10	226		236	4%		1982	0.119	0.119
	C	3	3.750	1				0		0		2130		254		254			2130	0.119	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	19	=	29	sec												*
	Ep	4	min.	8	+	17	=	25	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 PM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

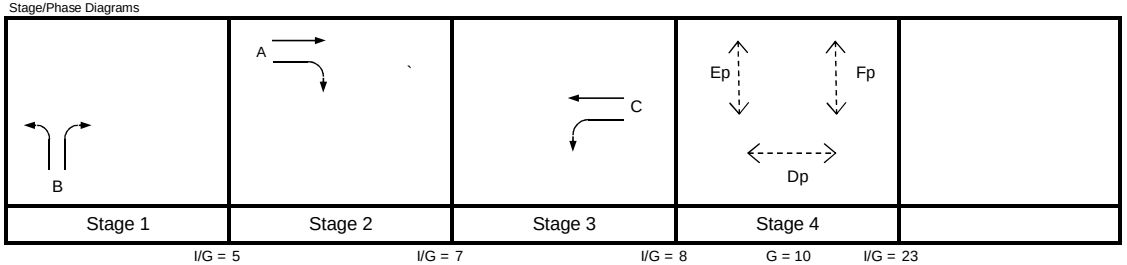
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.412	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	136	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	85	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	27.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	92	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

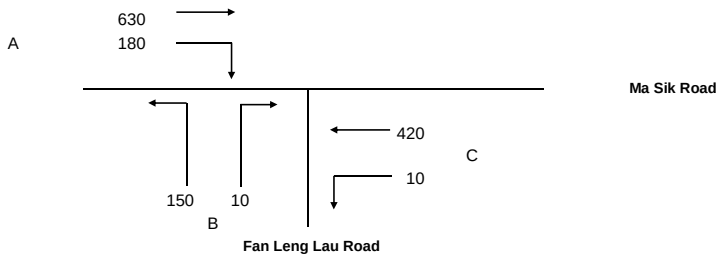
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		417		417			1965	0.212	
	A	2	3.500	1		25	0	0		0		2105		213	220	433		51%	2043	0.212	0.212
	B	1	4.000	1	17.5			1		0		2015	100			100	100%		1856	0.054	0.054
	B	1	4.000	1	22.5	27.5	0	0		0		2155	100		10	110	91%	9%	2022	0.054	
	C	3	3.750	1	15			1		0		1990	10	279		289	3%		1983	0.146	
	C	3	3.750	1				0		0		2130		311		311			2130	0.146	0.146
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	19	=	29	sec												*
	Ep	4	min.	8	+	17	=	25	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

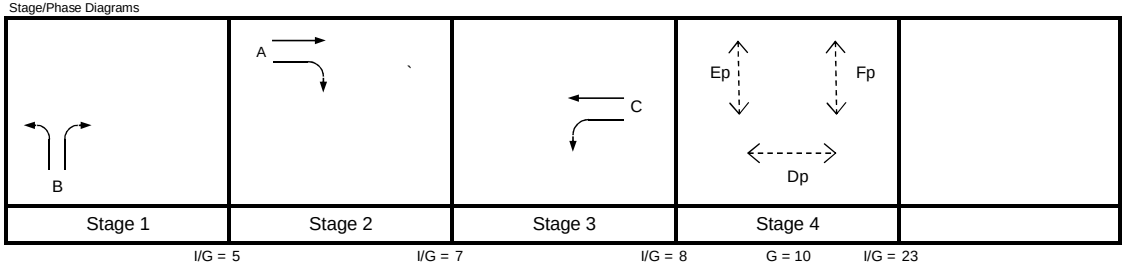
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.387	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	131	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	82	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	35.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	88	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

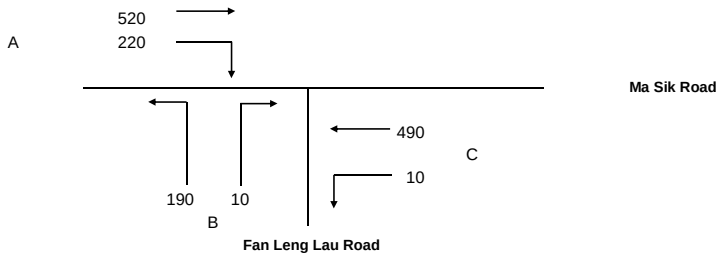
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		396		396			1965	0.202	
↑→	A	2	3.500	1		25	0	0		0		2105		234	180	414		44%	2051	0.202	0.202
↰	B	1	4.000	1	17.5			1		0		2015	150			150	100%		1856	0.081	0.081
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	197		207	5%		1980	0.105	0.105
↑	C	3	3.750	1				0		0		2130		223		223			2130	0.105	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

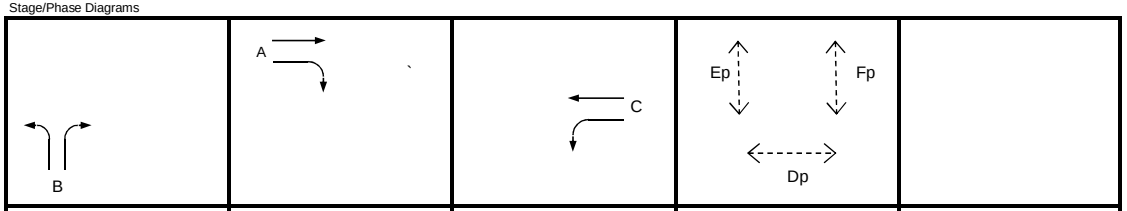
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.409	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	135	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	85	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	28.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	92	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

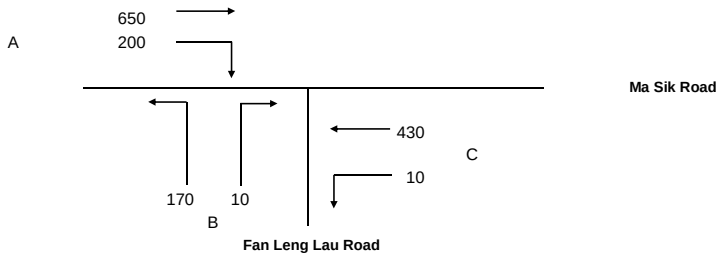
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		364		364			1965	0.185	
	A	2	3.500	1		25	0	0		0		2105		156	220	376		58%	2034	0.185	0.185
	B	1	4.000	1	17.5			1		0		2015	190			190	100%		1856	0.102	0.102
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	231		241	4%		1982	0.122	0.122
	C	3	3.750	1				0		0		2130		259		259			2130	0.122	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

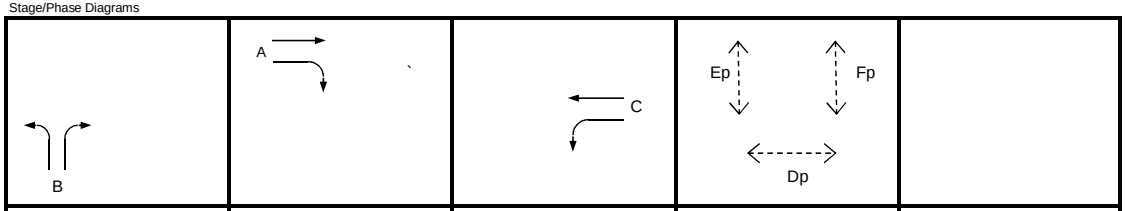
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.410	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	136	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	85	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	27.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	92	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

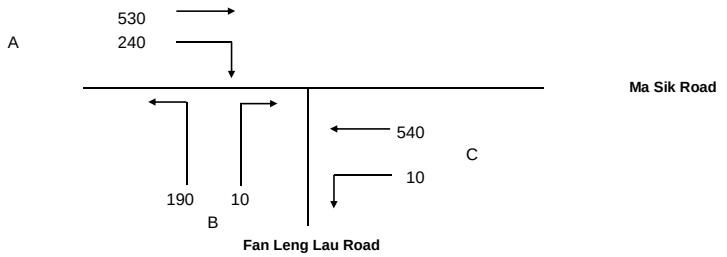
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		416		416			1965	0.212	
↱	A	2	3.500	1		25	0	0		0		2105		234	200	434		46%	2048	0.212	0.212
↰	B	1	4.000	1	17.5			1		0		2015	170			170	100%		1856	0.092	0.092
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	202		212	5%		1981	0.107	
↑	C	3	3.750	1				0		0		2130		228		228			2130	0.107	0.107
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

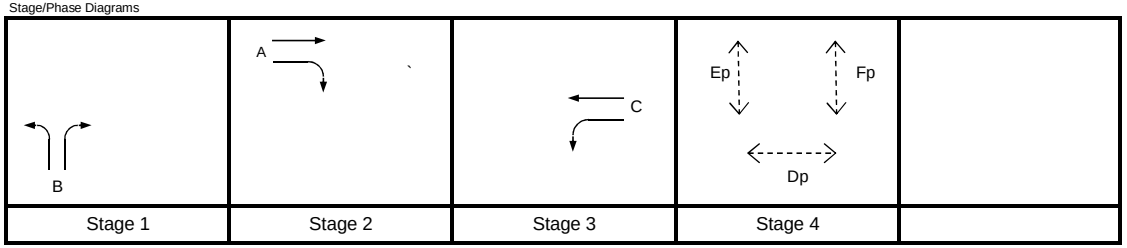
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.429	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	140	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	88	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	22.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	96	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

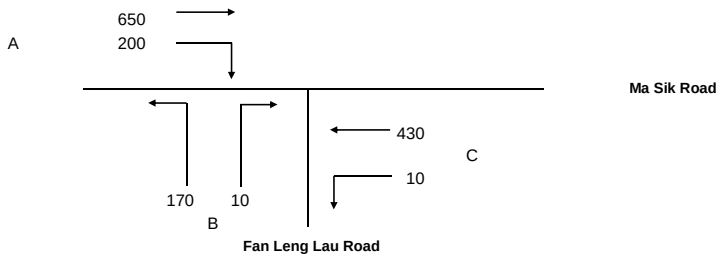
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		379		379			1965	0.193	
	A	2	3.500	1		25	0	0		0		2105		151	240	391		61%	2030	0.193	0.193
	B	1	4.000	1	17.5			1		0		2015	190			190	100%		1856	0.102	0.102
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	255		265	4%		1983	0.134	
	C	3	3.750	1				0		0		2130		285		285			2130	0.134	0.134
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 AM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

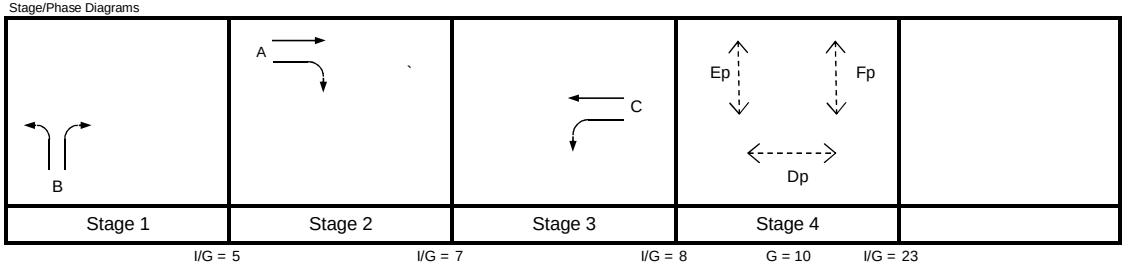
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.365	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	126	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	79	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	43.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	84	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

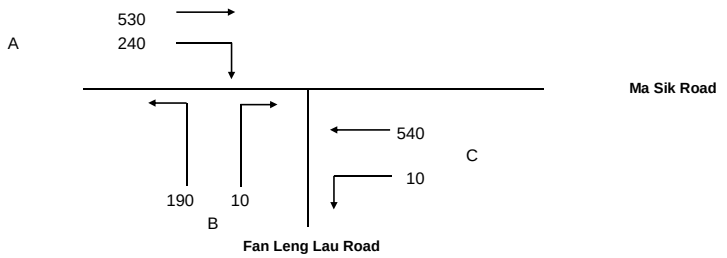
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		416		416			1965	0.212	0.212
↱	A	2	3.500	1		25	0	0		0		2105		234	200	434		46%	2048	0.212	
↰	B	1	4.000	1	17.5			1		0		2015	86			86	100%		1856	0.046	
↰↱	B	1	4.000	1	22.5	27.5	0	0		0		2155	84		10	94	89%	11%	2023	0.046	0.046
↰↑	C	3	3.750	1	15			1		0		1990	10	202		212	5%		1981	0.107	0.107
↑	C	3	3.750	1				0		0		2130		228		228			2130	0.107	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	19	=	29	sec												*
	Ep	4	min.	8	+	17	=	25	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2020 PM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

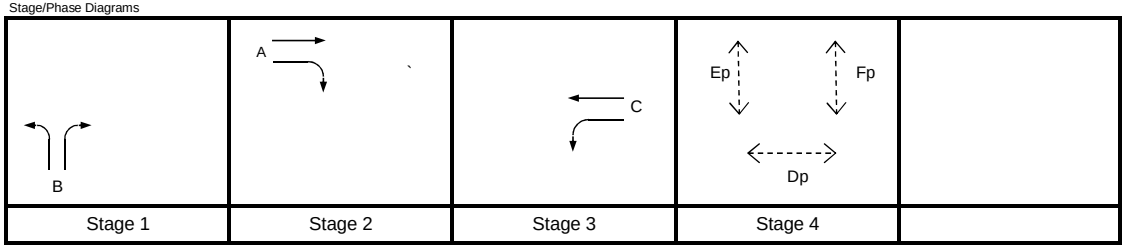
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.378	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	129	sec
Min. Cycle Time C_m	= L/(1-Y)	=	80	sec
Y_{ult}	= 0.9-0.0075×L	=	0.525	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	38.9	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	86	sec
Y_{max}	= 1-L/C	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 28%

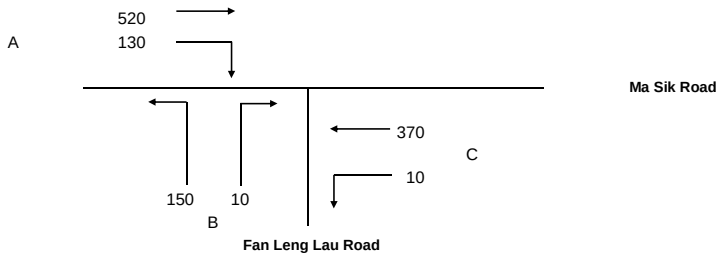
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		379		379			1965	0.193	0.193
	A	2	3.500	1		25	0	0		0		2105		151	240	391		61%	2030	0.193	
	B	1	4.000	1	17.5			1		0		2015	96			96	100%		1856	0.052	
	B	1	4.000	1	22.5	27.5	0	0		0		2155	94		10	104	90%	10%	2023	0.052	0.052
	C	3	3.750	1	15			1		0		1990	10	255		265	4%		1983	0.134	0.134
	C	3	3.750	1				0		0		2130		285		285			2130	0.134	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	19	=	29	sec												*
	Ep	4	min.	8	+	17	=	25	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J4

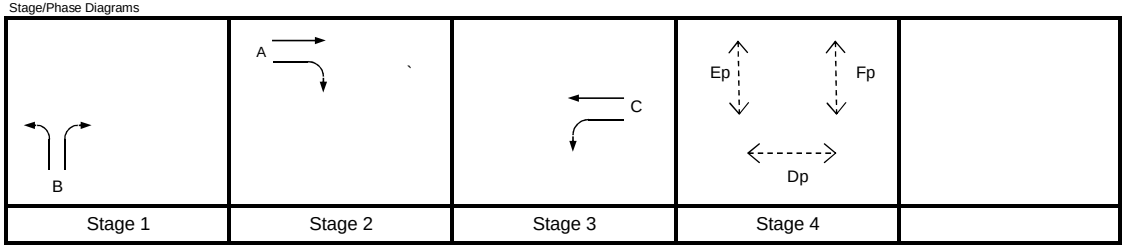
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.335	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	120	sec
Min. Cycle Time C_m	= L/(1-Y)	=	75	sec
Y_{ult}	= 0.9-0.0075×L	=	0.525	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	56.8	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	80	sec
Y_{max}	= 1-L/C	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

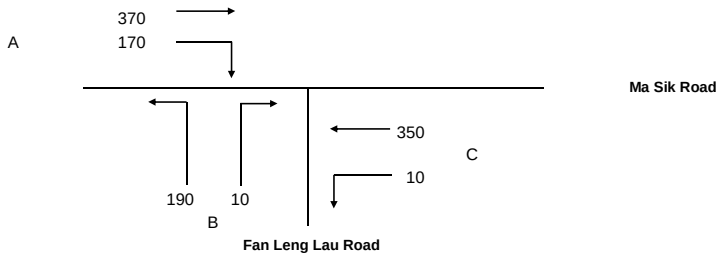
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		318		318			1965	0.162	0.162
	A	2	3.500	1		25	0	0		0		2105		202	130	332		39%	2057	0.162	
	B	1	4.000	1	17.5			1		0		2015	150			150	100%		1856	0.081	0.081
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	173		183	5%		1979	0.092	
	C	3	3.750	1				0		0		2130		197		197			2130	0.092	0.092
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J4

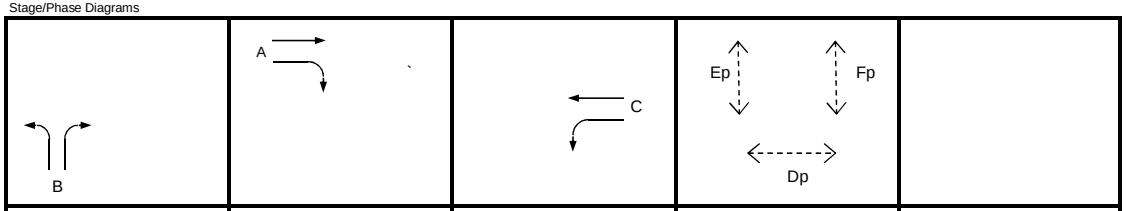
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.325	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	74	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	61.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

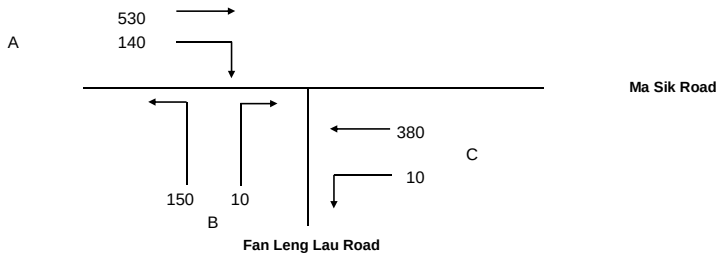
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	2	3.500	1				1		0		1965		266		266			1965	0.135	0.135
	A	2	3.500	1		25	0	0		0		2105		104	170	274		62%	2030	0.135	
	B	1	4.000	1	17.5			1		0		2015	190			190	100%		1856	0.102	0.102
	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
	C	3	3.750	1	15			1		0		1990	10	163		173	6%		1979	0.088	0.088
	C	3	3.750	1				0		0		2130		187		187			2130	0.088	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J4

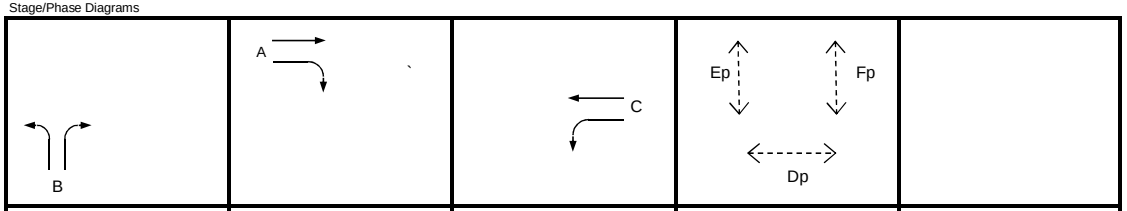
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.342	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	122	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	76	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	53.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	81	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

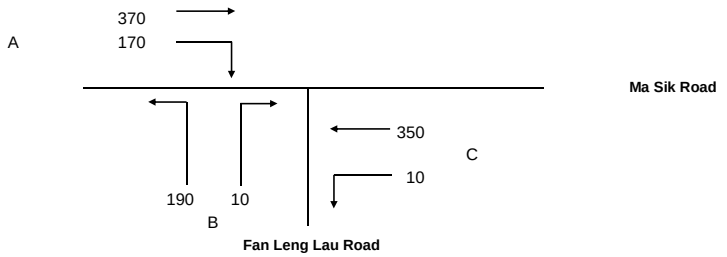
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		328		328			1965	0.167	0.167
↑→	A	2	3.500	1		25	0	0		0		2105		202	140	342		41%	2055	0.167	
↰	B	1	4.000	1	17.5			1		0		2015	150			150	100%		1856	0.081	0.081
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	178		188	5%		1979	0.095	
↑	C	3	3.750	1				0		0		2130		202		202			2130	0.095	0.095
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J4

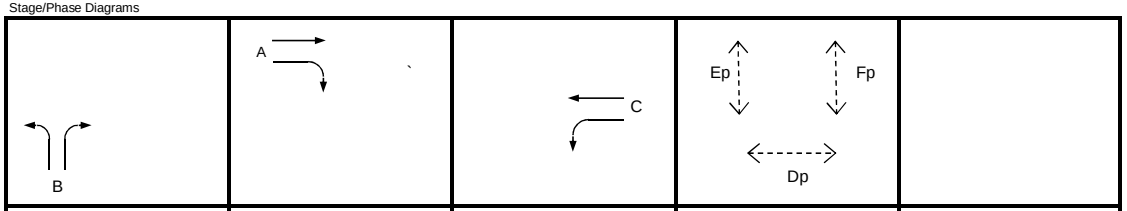
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.325	
Lost time	L =	50	sec
Total Flow	=	12,360	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	74	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	61.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.537	

Stage/Phase Diagrams



Critical Case : B,A,C,Dp

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

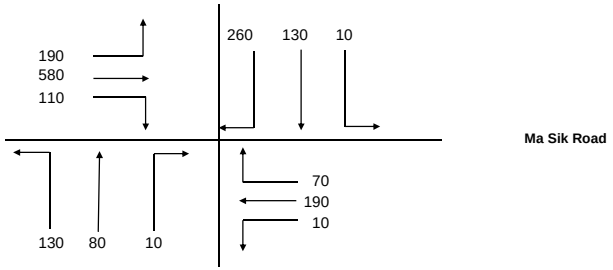
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.500	1				1		0		1965		266		266			1965	0.135	0.135
↱	A	2	3.500	1		25	0	0		0		2105		104	170	274		62%	2030	0.135	
↰	B	1	4.000	1	17.5			1		0		2015	190			190	100%		1856	0.102	0.102
↱	B	1	4.000	1		27.5	0	0		0		2155			10	10		100%	2044	0.005	
↰↑	C	3	3.750	1	15			1		0		1990	10	163		173	6%		1979	0.088	0.088
↑	C	3	3.750	1				0		0		2130		187		187			2130	0.088	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	10	+	20	=	30	sec												*
	Ep	4	min.	8	+	16	=	24	sec												
	Fp	4	min.	8	+	16	=	24	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

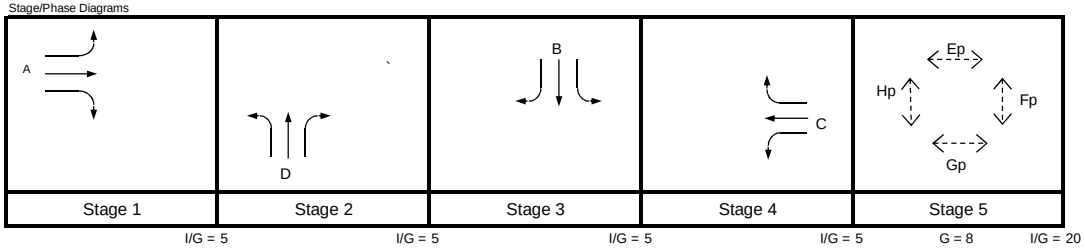
J4

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	120	sec
Sum(y)		Y =	0.453	
Lost time		L =	44	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	130	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	80	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	25.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	89	sec
Y_{max}	$= 1-L/C$	=	0.633	

Stage/Phase Diagrams



Critical Case : A,D,B,C,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 26%

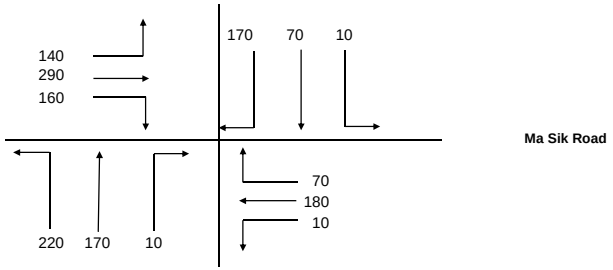
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.500	1	12			1		0		1965	190	227		417	46%		1859	0.225	
	A	1	3.500	1		16.5	0	0		0		2105		353	110	463		24%	2060	0.225	0.225
	D	2	3.950	1	11.5			1		0		2010	102			102	100%		1778	0.058	0.058
	D	2	3.500	1	18	15.5	0	0		0		2105	28	80	10	118	24%	8%	2048	0.058	
	B	3	3.750	1	11	20	0	1		0		1990	10	130	60	200	5%	30%	1934	0.103	0.103
	B	3	3.750	1		15.5	0	0		0		2130			200	200		100%	1942	0.103	
	C	4	3.750	1	15			1		0		1990	70	57		127	55%		1886	0.067	
	C	4	3.750	1		20	0	0		0		2130		133	10	143		7%	2119	0.067	0.067
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	8	+	17	=	25	sec												*
	Fp	5	min.	8	+	17	=	25	sec												
	Gp	5	min.	9	+	16	=	25	sec												
	Hp	5	min.	8	+	17	=	25	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

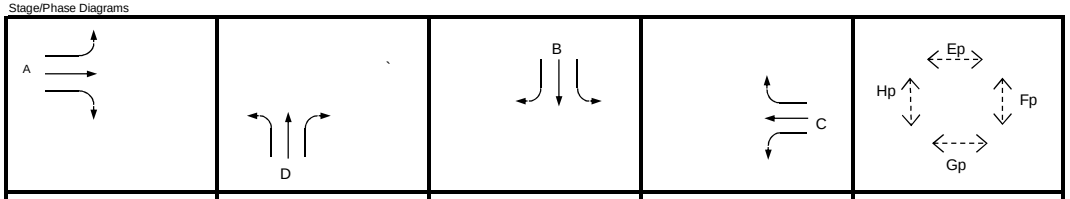
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	108	sec
Sum(y)	Y =	0.387	
Lost time	L =	44	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	116	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	72	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	47.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	77	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 5	I/G = 5	I/G = 5	G = 8 I/G = 20

Critical Case : A,D,B,C,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 38%

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	12			1		0		1965	140	143		283	50%		1850	0.153	0.153
	A	1	3.500	1		16.5	0	0		0		2105		147	160	307		52%	2010	0.153	
	D	2	3.950	1	11.5			1		0		2010	185			185	100%		1778	0.104	0.104
	D	2	3.500	1	18	15.5	0	0		0		2105	35	170	10	215	16%	5%	2068	0.104	
	B	3	3.750	1	11	20	0	1		0		1990	10	70	44	124	8%	36%	1918	0.065	
	B	3	3.750	1		15.5	0	0		0		2130			126	126		100%	1942	0.065	0.065
	C	4	3.750	1	15			1		0		1990	70	52		122	57%		1882	0.065	0.065
	C	4	3.750	1		20	0	0		0		2130		128	10	138		7%	2118	0.065	

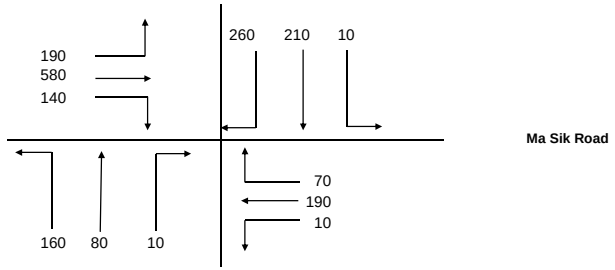
Pedestrian Crossing			GM		FGM						
Ep	5	min.	8	+	17	=	25	sec			*
Fp	5	min.	8	+	17	=	25	sec			
Gp	5	min.	9	+	16	=	25	sec			
Hp	5	min.	8	+	17	=	25	sec			

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

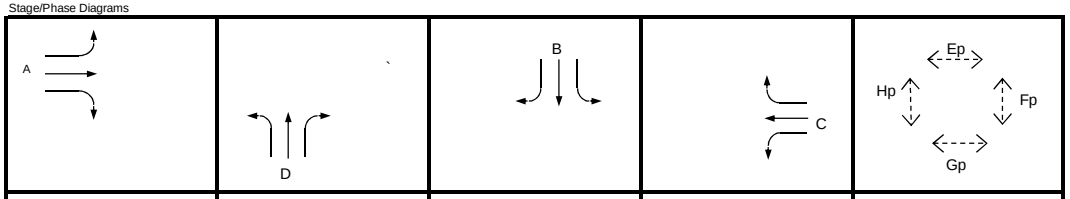
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.488	
Lost time	L =	44	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	139	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	86	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	16.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	96	sec
Y_{max}	$= 1-L/C$	=	0.633	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 5	I/G = 5	I/G = 5	G = 8 I/G = 20

Critical Case : A,D,B,C,Ep

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

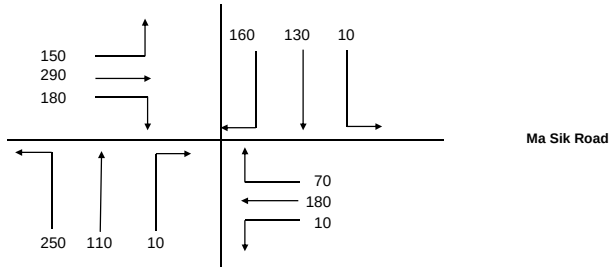
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.500	1	12			1		0		1965	190	243		433	44%		1863	0.233	
	A	1	3.500	1		16.5	0	0		0		2105		337	140	477		29%	2050	0.233	0.233
	D	2	3.950	1	11.5			1		0		2010	117			117	100%		1778	0.066	0.066
	D	2	3.500	1	18	15.5	0	0		0		2105	43	80	10	133	33%	7%	2035	0.066	
	B	3	3.750	1	11	20	0	1		0		1990	10	210	21	241	4%	9%	1966	0.123	0.123
	B	3	3.750	1		15.5	0	0		0		2130			239	239		100%	1942	0.123	
	C	4	3.750	1	15			1		0		1990	70	57		127	55%		1886	0.067	
	C	4	3.750	1		20	0	0		0		2130		133	10	143		7%	2119	0.067	0.067
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	8	+	17	=	25	sec												*
	Fp	5	min.	8	+	17	=	25	sec												
	Gp	5	min.	9	+	16	=	25	sec												
	Hp	5	min.	8	+	17	=	25	sec												

JUNCTION CAPACITY CALCULATION

Junction J4 - Ma Sik Road / Fan Leng Lau Road	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J4

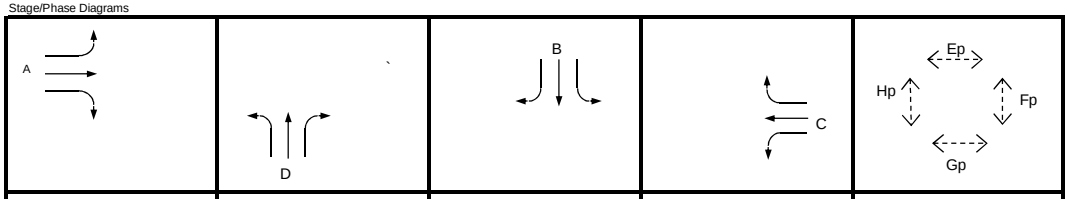
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	108	sec
Sum(y)	Y =	0.400	
Lost time	L =	44	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	118	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	73	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	42.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	79	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 5	I/G = 5	I/G = 5	G = 8 I/G = 20

Critical Case : A,D,B,C,Ep

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	3.500	1	12			1		0		1965	150	148		298	50%		1849	0.161	0.161
	A	1	3.500	1		16.5	0	0		0		2105		142	180	322		56%	2003	0.161	
	D	2	3.950	1	11.5			1		0		2010	173			173	100%		1778	0.097	0.097
	D	2	3.500	1	18	15.5	0	0		0		2105	77	110	10	197	39%	5%	2029	0.097	
	B	3	3.750	1	11	20	0	1		0		1990	10	130	11	151	7%	7%	1962	0.077	
	B	3	3.750	1		15.5	0	0		0		2130			149	149		100%	1942	0.077	0.077
	C	4	3.750	1	15			1		0		1990	70	52		122	57%		1882	0.065	0.065
	C	4	3.750	1		20	0	0		0		2130		128	10	138		7%	2118	0.065	

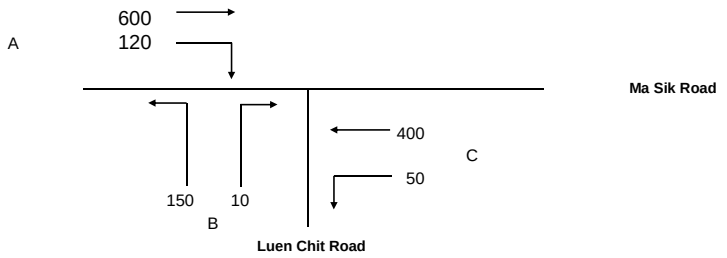
Pedestrian Crossing				GM		FGM				
Ep	5	min.	8	+	17	=	25	sec		*
Fp	5	min.	8	+	17	=	25	sec		
Gp	5	min.	9	+	16	=	25	sec		
Hp	5	min.	8	+	17	=	25	sec		

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

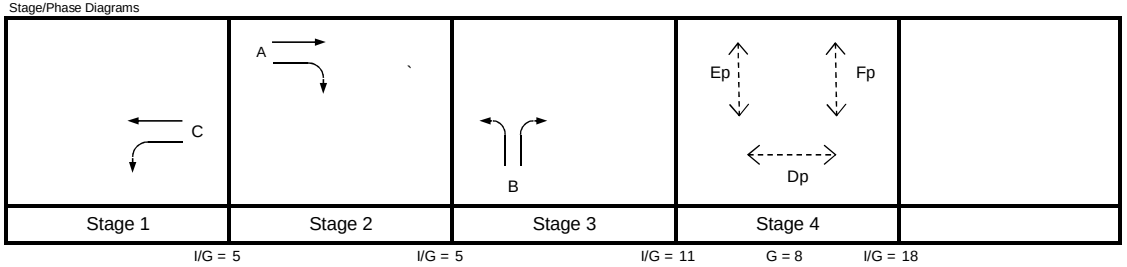
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.373	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	113	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	70	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	52.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	75	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 43%

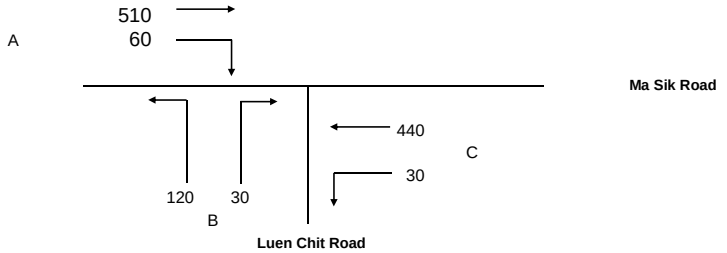
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		351		351			1980	0.177	0.177
↱	A	2	3.650	1		27.5	0	0		0		2120		249	120	369		33%	2083	0.177	
↰	B	3	4.000	1	20	27.5	0	1		0		2015	150		10	160	94%	6%	1877	0.085	0.085
↰	C	1	3.750	1	17.5			1		0		1990	50	165		215	23%		1951	0.110	
↑	C	1	3.750	1				0		0		2130		235		235			2130	0.110	0.110
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

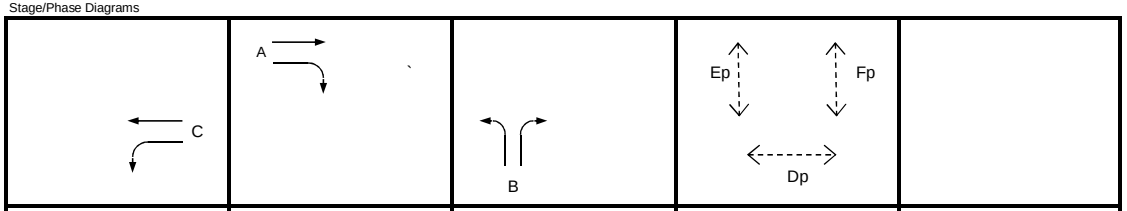
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.334	
Lost time	L =	44	sec
Total Flow	=	10,235	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}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	70.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	70	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 60%

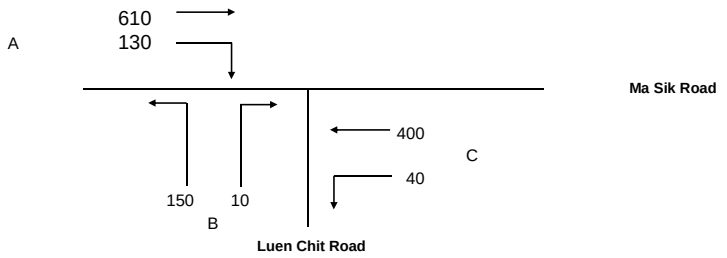
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		277		277			1980	0.140	0.140
↱	A	2	3.650	1		27.5	0	0		0		2120		233	60	293		20%	2097	0.140	
↰↑↱	B	3	4.000	1	20	27.5	0	1		0		2015	120		30	150	80%	20%	1882	0.080	0.080
↰	C	1	3.750	1	17.5			1		0		1990	30	196		226	13%		1968	0.115	0.115
↑	C	1	3.750	1				0		0		2130		244		244			2130	0.115	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

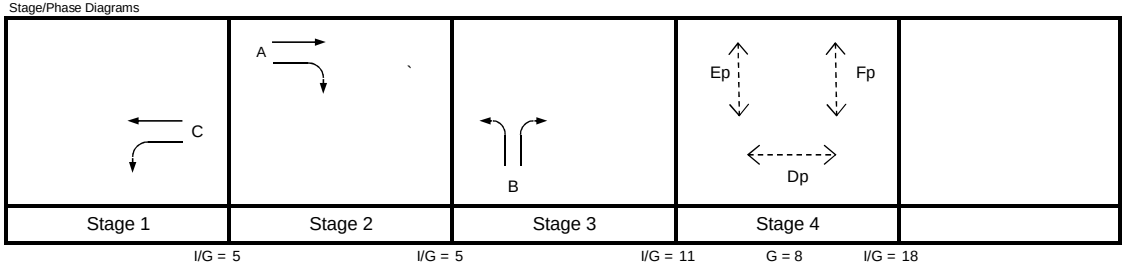
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.375	
Lost time	L =	44	sec
Total Flow	=	10,235	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}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	52.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	75	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 42%

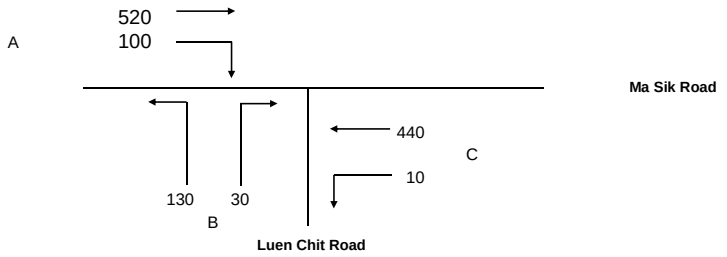
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		361		361			1980	0.182	0.182
↱	A	2	3.650	1		27.5	0	0		0		2120		249	130	379		34%	2081	0.182	
↰	B	3	4.000	1	20	27.5	0	1		0		2015	150		10	160	94%	6%	1877	0.085	0.085
↰	C	1	3.750	1	17.5			1		0		1990	40	171		211	19%		1958	0.108	
↑	C	1	3.750	1				0		0		2130		229		229			2130	0.108	0.108
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

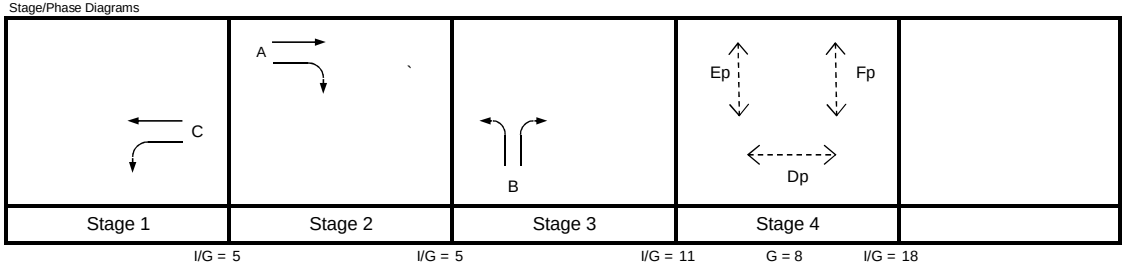
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.347	
Lost time		L =	44	sec
Total Flow		=	10,235	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	109	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	67	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	64.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	72	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 54%

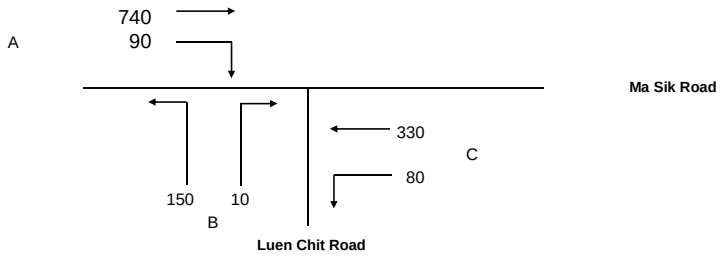
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		302		302			1980	0.153	0.153
↑→	A	2	3.650	1		27.5	0	0		0		2120		218	100	318		31%	2084	0.153	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	130		30	160	81%	19%	1881	0.085	0.085
↰↑	C	1	3.750	1	17.5			1		0		1990	10	207		217	5%		1982	0.109	
↑	C	1	3.750	1				0		0		2130		233		233			2130	0.109	0.109
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

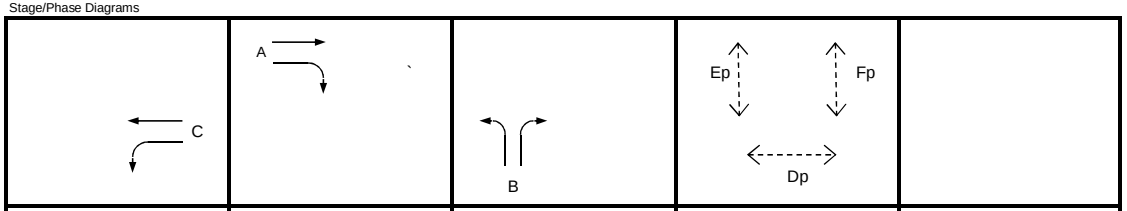
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.390	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	116	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	72	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	46.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 37%

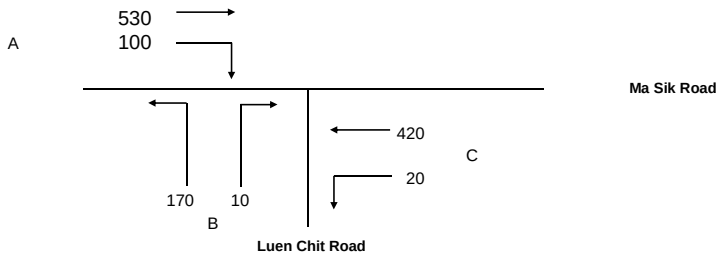
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.650	1				1		0		1980		403		403			1980	0.204	
↱	A	2	3.650	1		27.5	0	0		0		2120		337	90	427		21%	2096	0.204	0.204
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	150		10	160	94%	6%	1877	0.085	0.085
↰	C	1	3.750	1	17.5			1		0		1990	80	114		194	41%		1922	0.101	0.101
↑	C	1	3.750	1				0		0		2130		216		216			2130	0.101	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

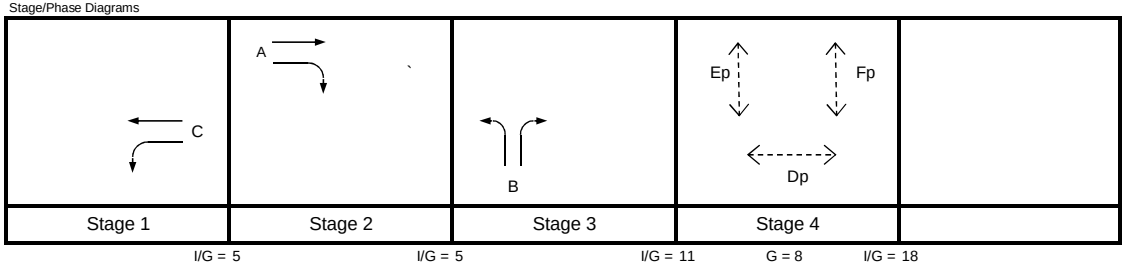
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.358	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	111	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	69	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	59.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	73	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

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

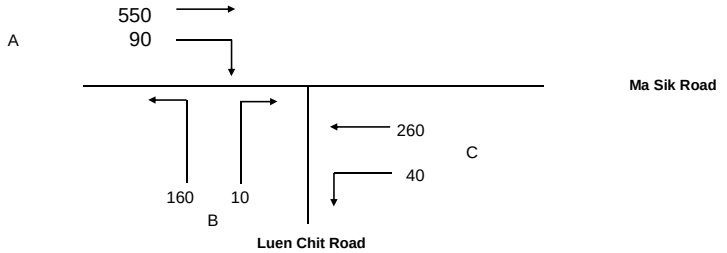
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.650	1				1		0		1980		307		307			1980	0.155	0.155
↱	A	2	3.650	1		27.5	0	0		0		2120		223	100	323		31%	2085	0.155	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	170		10	180	94%	6%	1876	0.096	0.096
↰	C	1	3.750	1	17.5			1		0		1990	20	192		212	9%		1974	0.107	0.107
↑	C	1	3.750	1				0		0		2130		228		228			2130	0.107	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

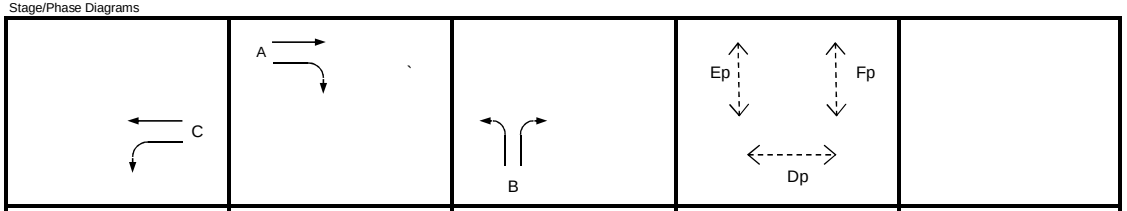
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.322	
Lost time		L =	44	sec
Total Flow		=	10,235	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	105	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	65	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	77.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	68	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 66%

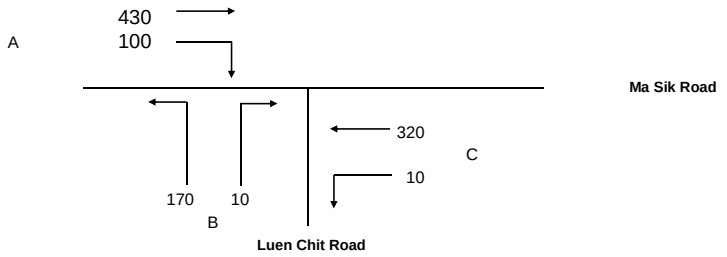
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		311		311			1980	0.157	
↑→	A	2	3.650	1		27.5	0	0		0		2120		239	90	329		27%	2089	0.157	0.157
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	160		10	170	94%	6%	1877	0.091	0.091
↰↑	C	1	3.750	1	17.5			1		0		1990	40	103		143	28%		1943	0.074	0.074
↑	C	1	3.750	1				0		0		2130		157		157			2130	0.074	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

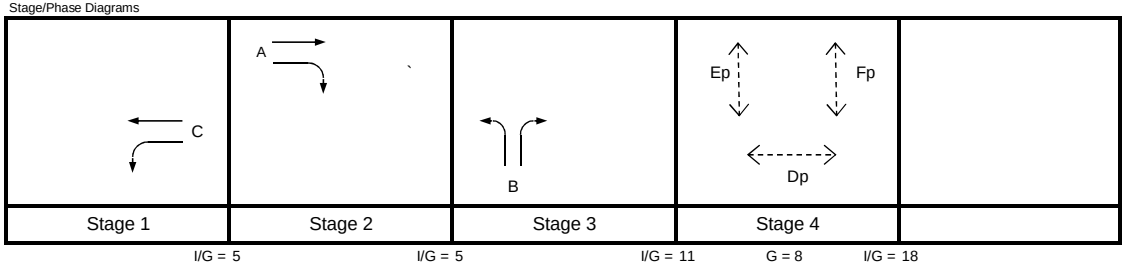
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.307	
Lost time		L =	44	sec
Total Flow		=	10,235	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	102	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	63	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	85.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	67	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

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

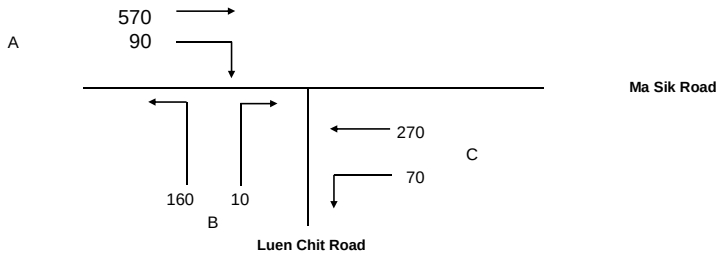
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.650	1				1		0		1980		259		259			1980	0.131	
↑→	A	2	3.650	1		27.5	0	0		0		2120		171	100	271		37%	2078	0.131	0.131
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	170		10	180	94%	6%	1876	0.096	0.096
↰↑	C	1	3.750	1	17.5			1		0		1990	10	149		159	6%		1979	0.080	0.080
↑	C	1	3.750	1				0		0		2130		171		171			2130	0.080	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

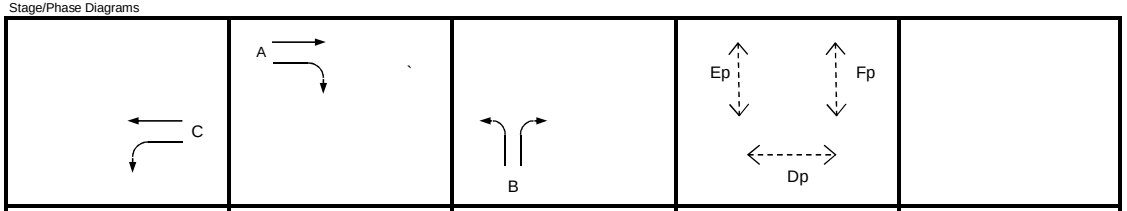
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.337	
Lost time	L =	44	sec
Total Flow	=	10,235	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}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	69.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	70	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

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

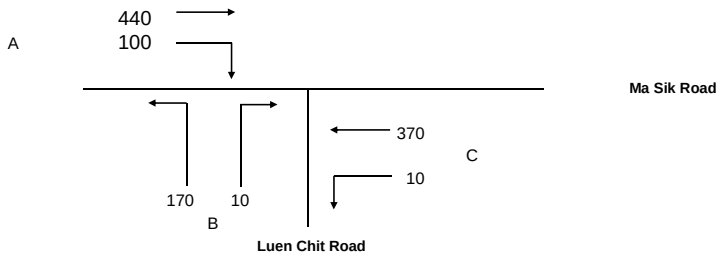
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.650	1				1		0		1980		321		321			1980	0.162	0.162
↱	A	2	3.650	1		27.5	0	0		0		2120		249	90	339		27%	2090	0.162	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	160		10	170	94%	6%	1877	0.091	0.091
↰	C	1	3.750	1	17.5			1		0		1990	70	91		161	43%		1919	0.084	0.084
↑	C	1	3.750	1				0		0		2130		179		179			2130	0.084	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

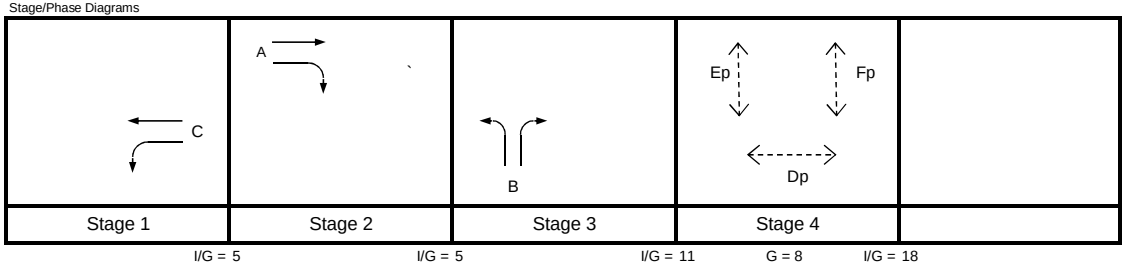
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.321	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	105	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	65	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	77.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	68	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 66%

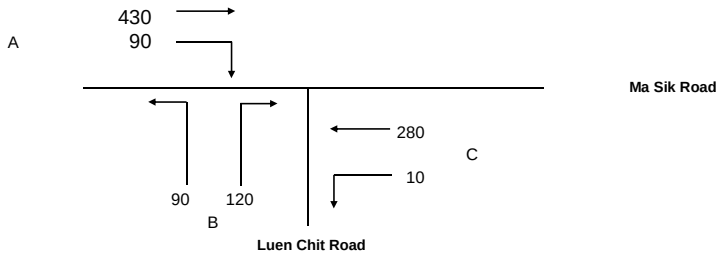
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		263		263			1980	0.133	0.133
↑→	A	2	3.650	1		27.5	0	0		0		2120		177	100	277		36%	2079	0.133	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	170		10	180	94%	6%	1876	0.096	0.096
↰↑	C	1	3.750	1	17.5			1		0		1990	10	173		183	5%		1981	0.092	0.092
↑	C	1	3.750	1				0		0		2130		197		197			2130	0.092	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J5

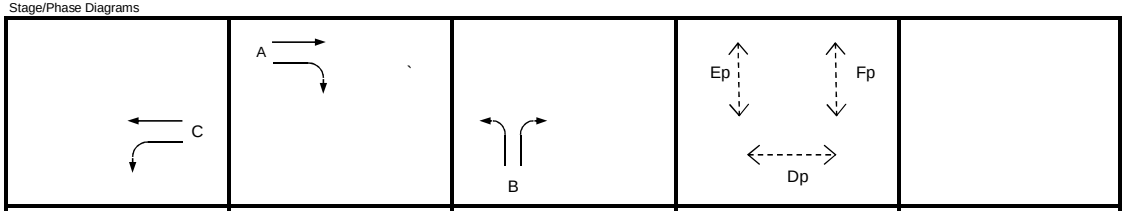
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.309	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	103	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	64	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	84.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	67	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 72%

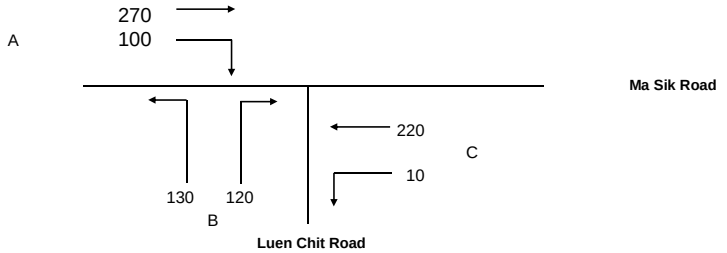
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.650	1				1		0		1980		253		253			1980	0.128	0.128
↑→	A	2	3.650	1		27.5	0	0		0		2120		177	90	267		34%	2082	0.128	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	90		120	210	43%	57%	1895	0.111	0.111
↰↑	C	1	3.750	1	17.5			1		0		1990	10	130		140	7%		1978	0.071	0.071
↑	C	1	3.750	1				0		0		2130		150		150			2130	0.071	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

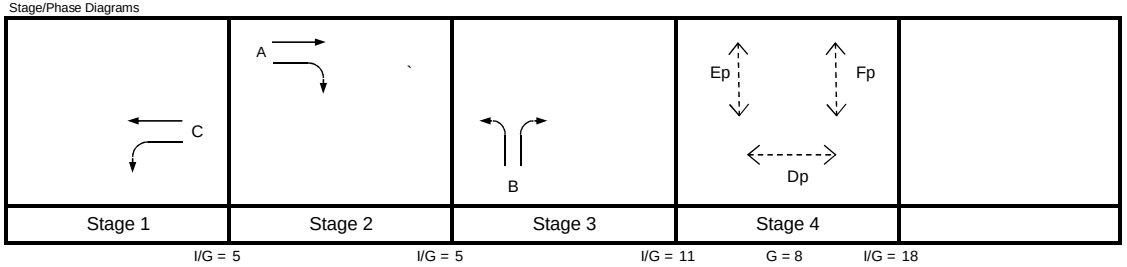
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.280	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	99	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	61	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	103.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	64	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\%$ = 91%

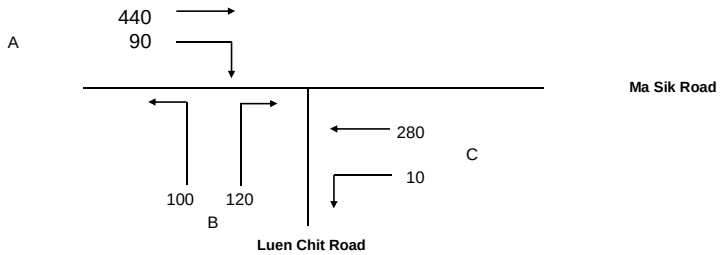
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		181		181			1980	0.092	0.092
↱	A	2	3.650	1		27.5	0	0		0		2120		89	100	189		53%	2060	0.092	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	130		120	250	52%	48%	1892	0.132	0.132
↰	C	1	3.750	1	17.5			1		0		1990	10	101		111	9%		1975	0.056	
↑	C	1	3.750	1				0		0		2130		119		119			2130	0.056	0.056
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

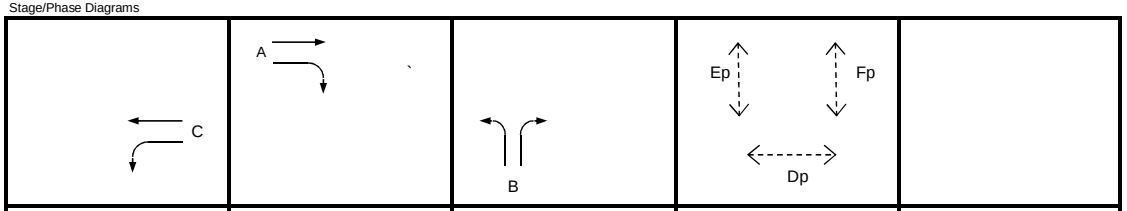
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.317	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	104	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	64	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	79.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	68	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 68%

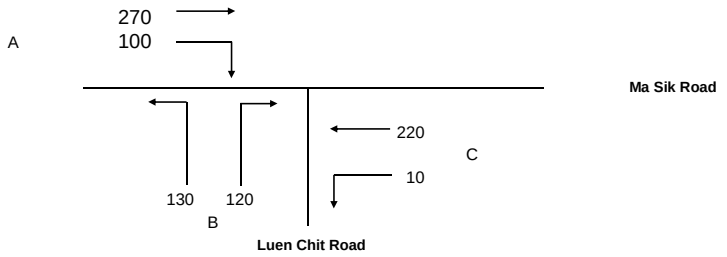
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		258		258			1980	0.130	0.130
↱	A	2	3.650	1		27.5	0	0		0		2120		182	90	272		33%	2082	0.130	
↰↑↱	B	3	4.000	1	20	27.5	0	1		0		2015	100		120	220	45%	55%	1894	0.116	0.116
↰	C	1	3.750	1	17.5			1		0		1990	10	130		140	7%		1978	0.071	0.071
↑	C	1	3.750	1				0		0		2130		150		150			2130	0.071	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

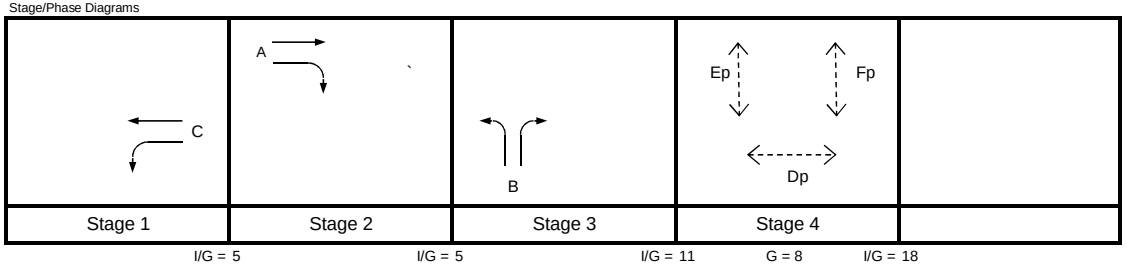
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.280	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	99	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	61	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	103.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	64	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 91%

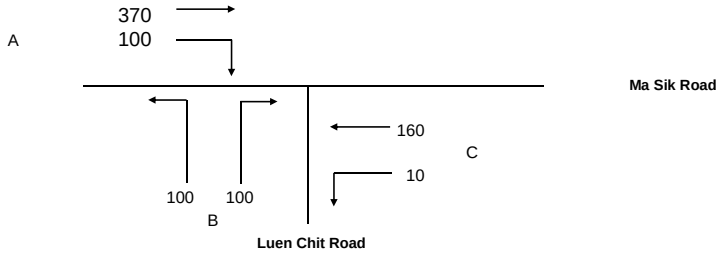
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		181		181			1980	0.092	0.092
↱	A	2	3.650	1		27.5	0	0		0		2120		89	100	189		53%	2060	0.092	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	130		120	250	52%	48%	1892	0.132	0.132
↰	C	1	3.750	1	17.5			1		0		1990	10	101		111	9%		1975	0.056	
↑	C	1	3.750	1				0		0		2130		119		119			2130	0.056	0.056
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

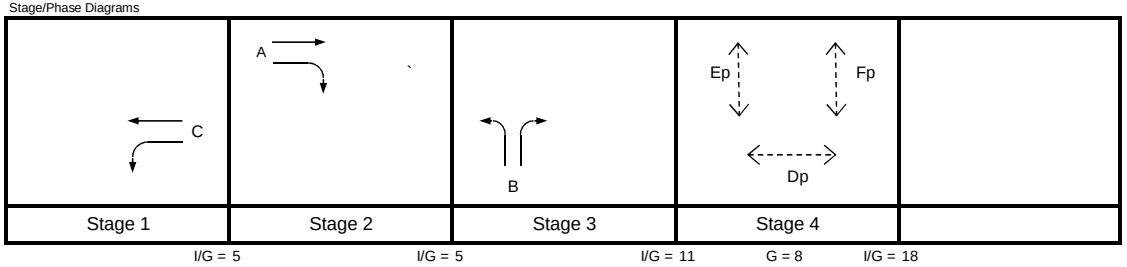
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.263	
Lost time		L =	44	sec
Total Flow		=	10,235	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	96	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	60	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	116.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	62	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 103%

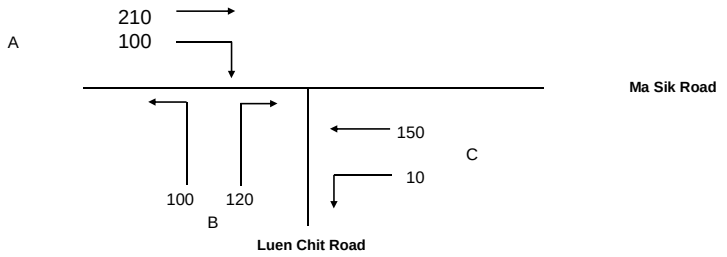
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		230		230			1980	0.116	0.116
↑→	A	2	3.650	1		27.5	0	0		0		2120		140	100	240		42%	2073	0.116	
↰↑	B	3	4.000	1	20	27.5	0	1		0		2015	100		100	200	50%	50%	1892	0.106	0.106
↰↑	C	1	3.750	1	17.5			1		0		1990	10	72		82	12%		1969	0.041	0.041
↑	C	1	3.750	1				0		0		2130		88		88			2130	0.041	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

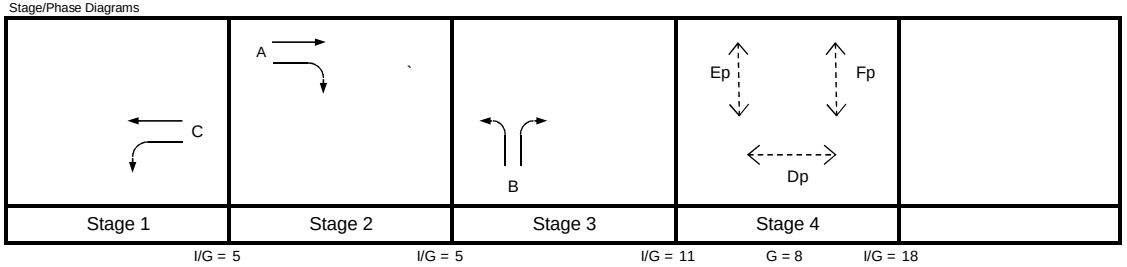
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.232	
Lost time		L =	44	sec
Total Flow		=	10,235	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	57	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	145.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	59	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 130%

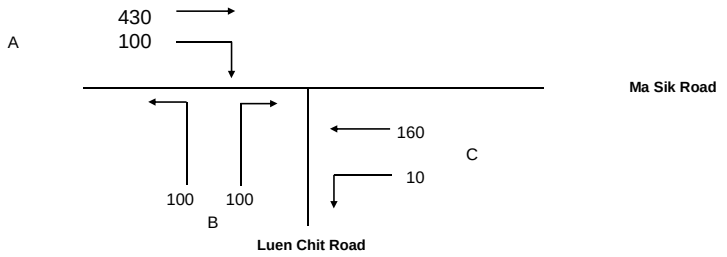
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		152		152			1980	0.077	0.077
	A	2	3.650	1		27.5	0	0		0		2120		58	100	158		63%	2049	0.077	
	B	3	4.000	1	20	27.5	0	1		0		2015	100		120	220	45%	55%	1894	0.116	0.116
	C	1	3.750	1	17.5			1		0		1990	10	67		77	13%		1968	0.039	
	C	1	3.750	1				0		0		2130		83		83			2130	0.039	0.039
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

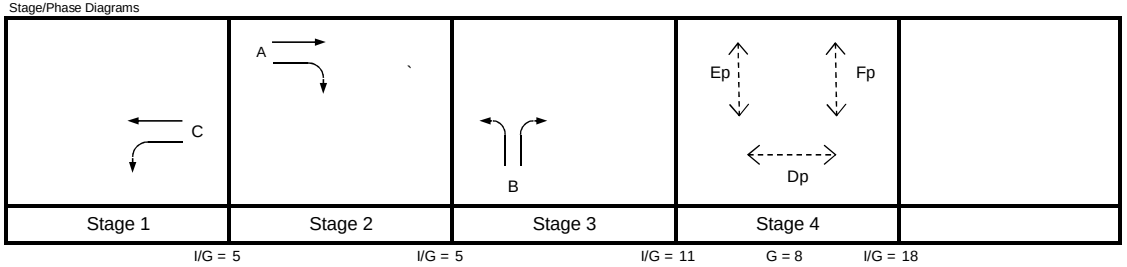
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.280	
Lost time	L =	44	sec
Total Flow	=	10,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	99	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	61	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	103.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	64	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 90%

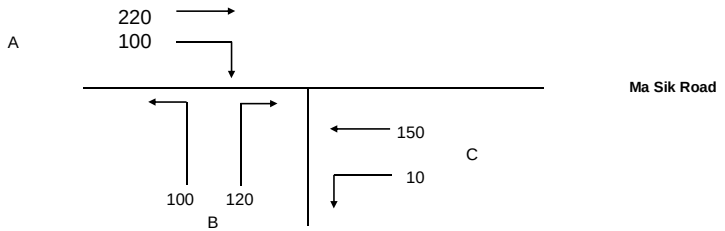
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1980		259		259			1980	0.131	
↑→	A	2	3.650	1		27.5	0	0		0		2120		171	100	271		37%	2078	0.131	0.131
↰↑	B	3	3.500	1	20	27.5	0	1		0		1965	100		100	200	50%	50%	1845	0.108	0.108
↰	C	1	3.750	1	17.5			1		0		1990	10	72		82	12%		1969	0.041	0.041
↑	C	1	3.750	1				0		0		2130		88		88			2130	0.041	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J5 - Ma Sik Road / Luen Chit Street	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J5

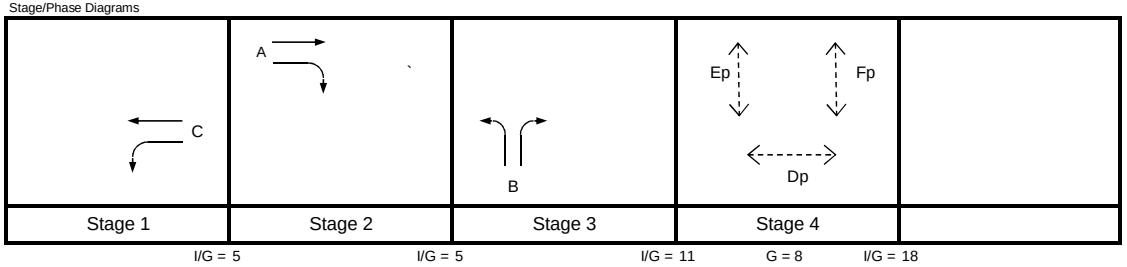
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.235	
Lost time	L =	44	sec
Total Flow	=	10,235	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	93	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	57	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.570	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	143.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	60	sec
Y_{max}	$= 1-L/C$	=	0.593	

Stage/Phase Diagrams



Critical Case : C,A,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 127%

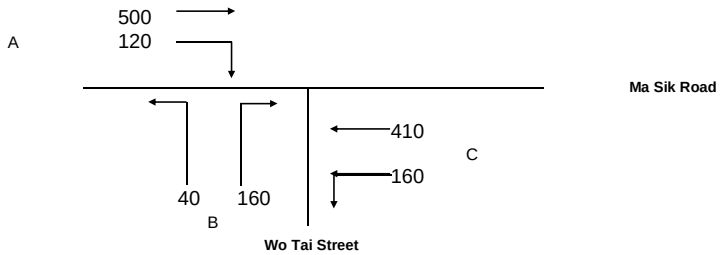
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	2	3.650	1				1		0		1980		157		157			1980	0.079	
↱	A	2	3.650	1		27.5	0	0		0		2120		63	100	163		61%	2051	0.079	0.079
↰↑↱	B	3	4.000	1	20	27.5	0	1		0		2015	100		120	220	45%	55%	1894	0.116	0.116
↰	C	1	3.750	1	17.5			1		0		1990	10	67		77	13%		1968	0.039	0.039
↑	C	1	3.750	1				0		0		2130		83		83			2130	0.039	
Pedestrian Crossing				GM		FGM															
	Dp	4	min.	7	+	8	=	15	sec												
	Ep	4	min.	8	+	9	=	17	sec												
	Fp	4	min.	8	+	9	=	17	sec												*

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J6

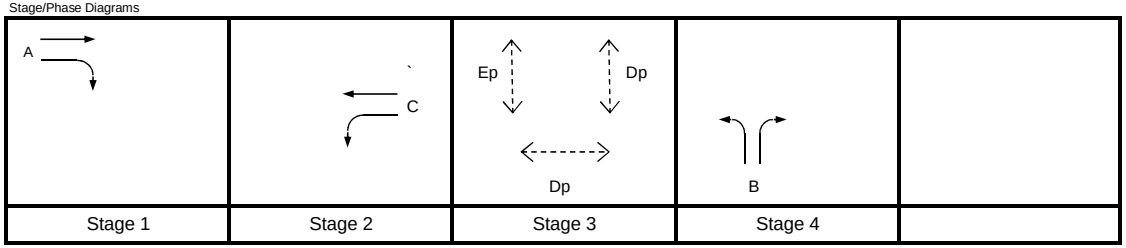
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.374	
Lost time	L =	49	sec
Total Flow	=	12,375	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}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	42.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	84	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

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

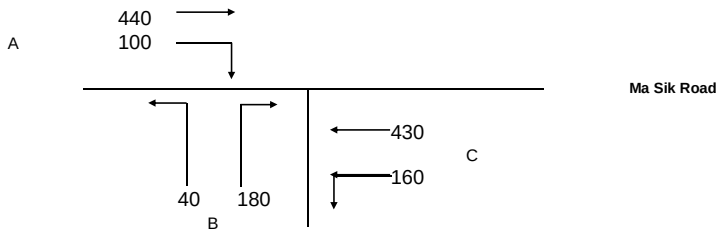
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		299		299			1945	0.154	
	A	1	3.750	1		25	0	0		0		2130		201	120	321		37%	2083	0.154	0.154
	B	4	4.000	1	20			1		0		2015	40			40	100%		1874	0.021	
	B	4	4.200	1		30	0	0		0		2175			160	160		100%	2071	0.077	0.077
	C	2	3.500	1	15			1		0		1965	160	104		264	61%		1853	0.143	0.143
	C	2	3.900	1				0		0		2145		306		306			2145	0.143	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

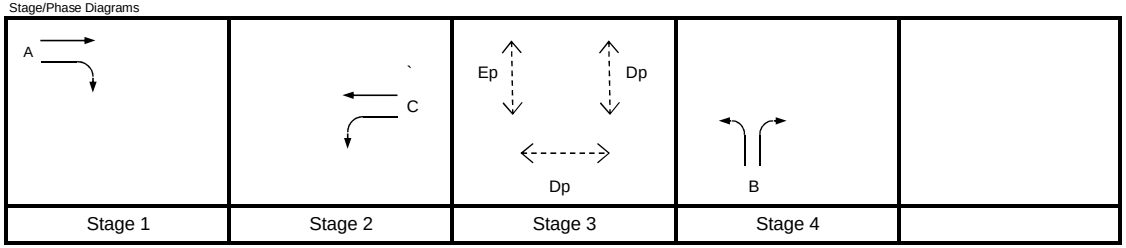
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.368	
Lost time		L =	49	sec
Total Flow		=	12,375	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	124	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	78	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	44.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	83	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

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

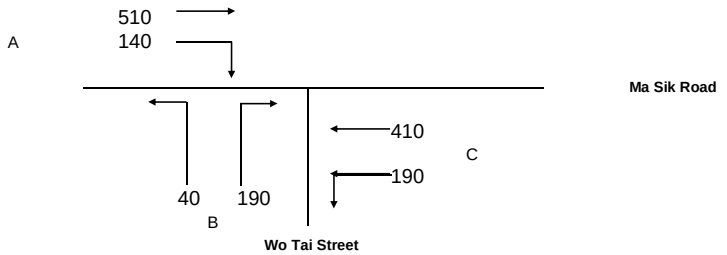
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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				1		0		1945		261		261			1945	0.134	
	A	1	3.750	1		25	0	0		0		2130		179	100	279		36%	2085	0.134	0.134
	B	4	4.000	1	20			1		0		2015	40			40	100%		1874	0.021	
	B	4	4.200	1		30	0	0		0		2175			180	180		100%	2071	0.087	0.087
	C	2	3.500	1	15			1		0		1965	160	114		274	58%		1856	0.147	0.147
	C	2	3.900	1				0		0		2145		316		316			2145	0.147	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

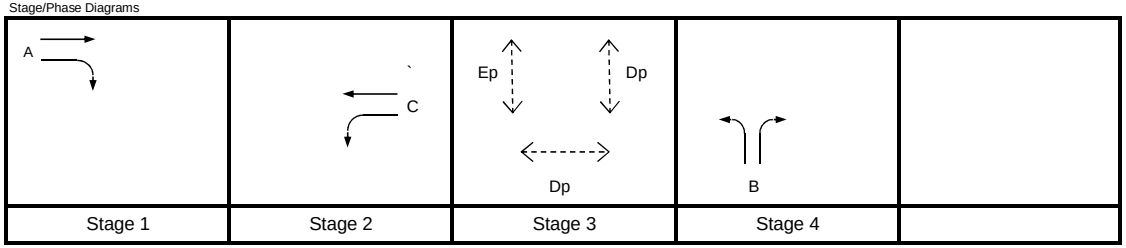
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.404	
Lost time		L =	49	sec
Total Flow		=	12,375	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	132	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	82	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	31.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	89	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

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

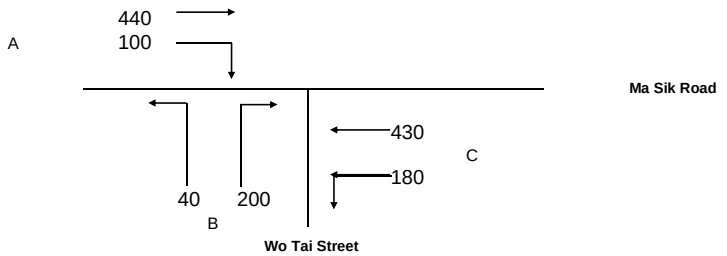
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		314		314			1945	0.162	0.162
	A	1	3.750	1		25	0	0		0		2130		196	140	336		42%	2078	0.162	
	B	4	4.000	1	20			1		0		2015	40			40	100%		1874	0.021	
	B	4	4.200	1		30	0	0		0		2175			190	190		100%	2071	0.092	0.092
	C	2	3.500	1	15			1		0		1965	190	87		277	69%		1839	0.151	0.151
	C	2	3.900	1				0		0		2145		323		323			2145	0.151	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

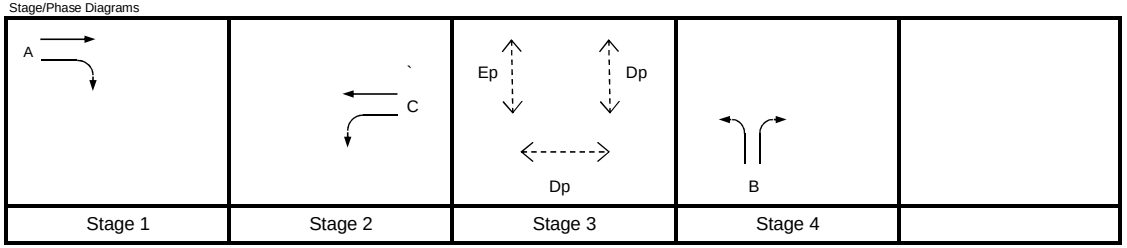
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.383	
Lost time		L =	49	sec
Total Flow		=	12,375	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	127	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	79	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	38.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	85	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 28%

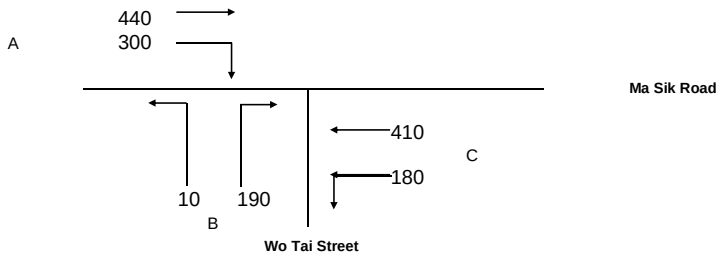
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		261		261			1945	0.134	0.134
	A	1	3.750	1		25	0	0		0		2130		179	100	279		36%	2085	0.134	
	B	4	4.000	1	20			1		0		2015	40			40	100%		1874	0.021	
	B	4	4.200	1		30	0	0		0		2175			200	200		100%	2071	0.097	0.097
	C	2	3.500	1	15			1		0		1965	180	102		282	64%		1847	0.153	0.153
	C	2	3.900	1				0		0		2145		328		328			2145	0.153	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J6

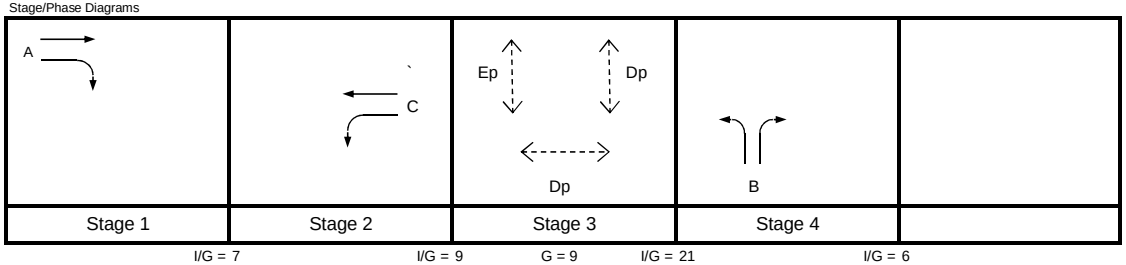
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.426	
Lost time	L =	49	sec
Total Flow	=	12,375	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	137	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	85	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	25.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	93	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

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

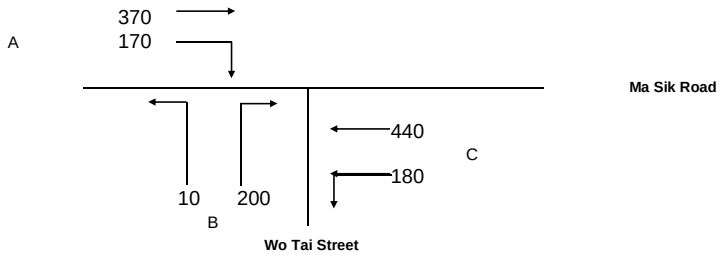
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		362		362			1945	0.186	
	A	1	3.750	1		25	0	0		0		2130		78	300	378		79%	2033	0.186	0.186
	B	4	4.000	1	20			1		0		2015	10			10	100%		1874	0.005	
	B	4	4.200	1		30	0	0		0		2175			190	190		100%	2071	0.092	0.092
	C	2	3.500	1	15			1		0		1965	180	93		273	66%		1843	0.148	0.148
	C	2	3.900	1				0		0		2145		317		317			2145	0.148	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J6

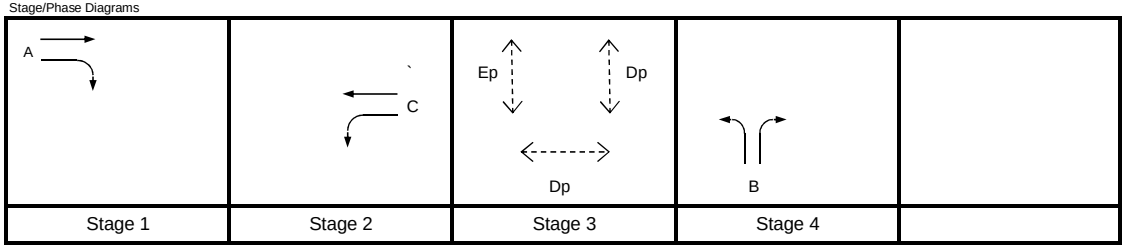
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.387	
Lost time	L =	49	sec
Total Flow	=	12,375	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	128	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	80	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	37.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	86	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 27%

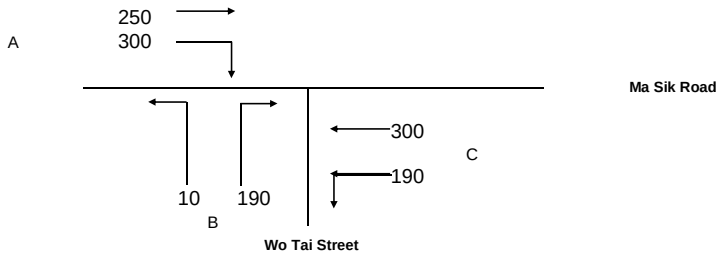
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	1				1		0		1945		263		263			1945	0.135	0.135
	A	1	3.750	1		25	0	0		0		2130		107	170	277		61%	2054	0.135	
	B	4	4.000	1	20			1		0		2015	10			10	100%		1874	0.005	
	B	4	4.200	1		30	0	0		0		2175			200	200		100%	2071	0.097	0.097
	C	2	3.500	1	15			1		0		1965	180	107		287	63%		1849	0.155	0.155
	C	2	3.900	1				0		0		2145		333		333			2145	0.155	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

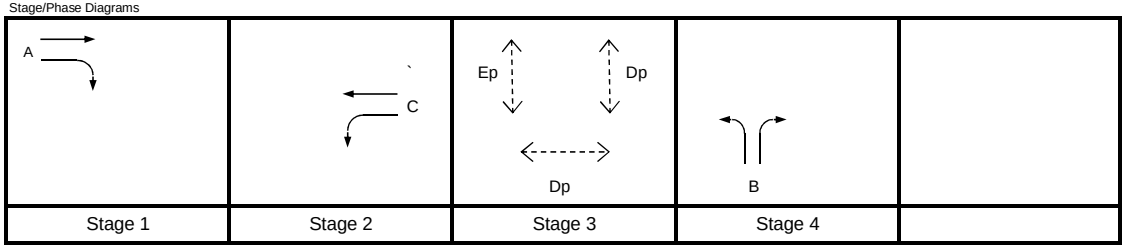
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	108	sec
Sum(y)		Y =	0.365	
Lost time		L =	49	sec
Total Flow		=	12,375	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	124	sec
Min. Cycle Time C_m	= L/(1-Y)	=	77	sec
Y_{ult}	= 0.9-0.0075×L	=	0.533	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	45.9	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	82	sec
Y_{max}	= 1-L/C	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

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

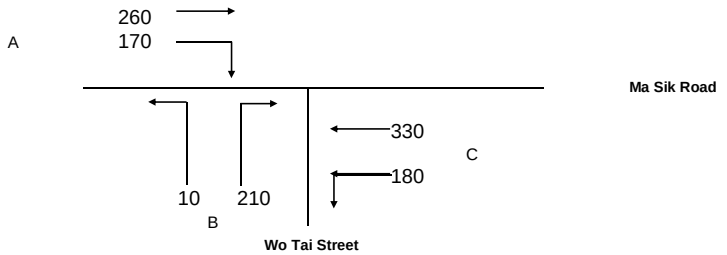
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		250		250			1945	0.129	
	A	1	3.750	1		25	0	0		0		2130		0	300	300		100%	2009	0.149	0.149
	B	4	4.000	1	20			1		0		2015	10			10	100%		1874	0.005	
	B	4	4.200	1		30	0	0		0		2175			190	190		100%	2071	0.092	0.092
	C	2	3.500	1	15			1		0		1965	190	34		224	85%		1812	0.124	0.124
	C	2	3.900	1				0		0		2145		266		266			2145	0.124	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J6

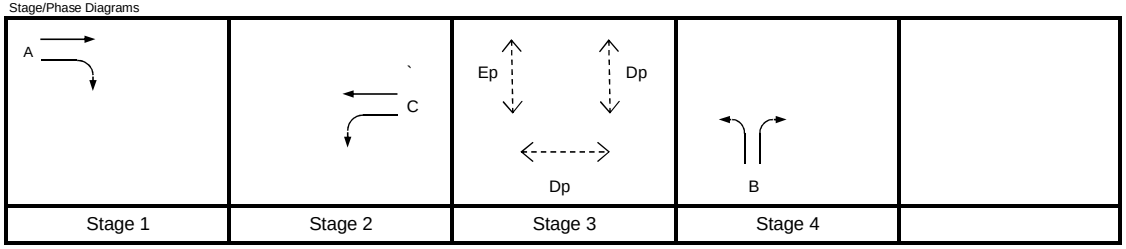
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.338	
Lost time	L =	49	sec
Total Flow	=	12,375	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	74	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	57.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 46%

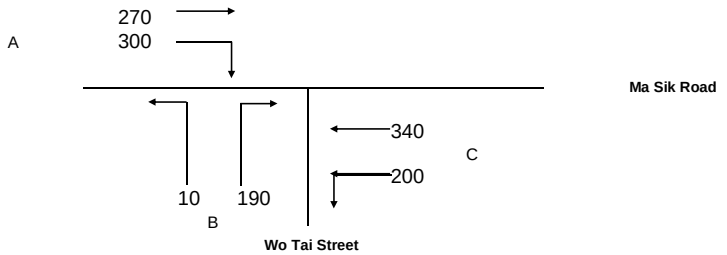
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		210		210			1945	0.108	0.108
	A	1	3.750	1		25	0	0		0		2130		50	170	220		77%	2036	0.108	
	B	4	4.000	1	20			1		0		2015	10			10	100%		1874	0.005	
	B	4	4.200	1		30	0	0		0		2175			210	210		100%	2071	0.101	0.101
	C	2	3.500	1	15			1		0		1965	180	54		234	77%		1825	0.128	
	C	2	3.900	1				0		0		2145		276		276			2145	0.128	0.128
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J6

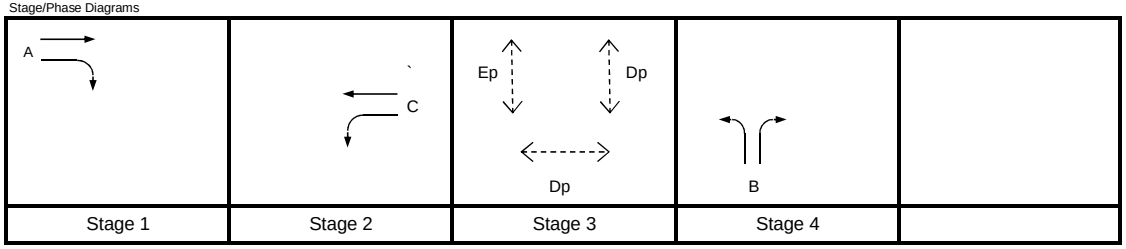
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.377	
Lost time	L =	49	sec
Total Flow	=	12,375	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	126	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	79	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	41.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	84	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

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

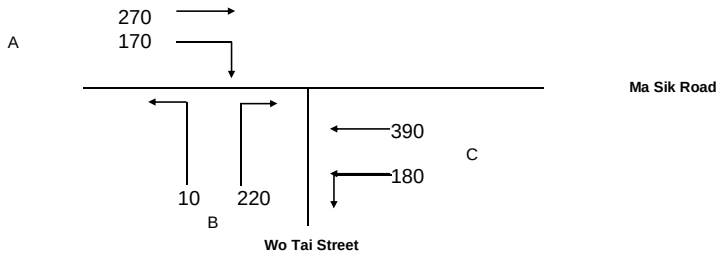
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		270		270			1945	0.139	
	A	1	3.750	1		25	0	0		0		2130		0	300	300		100%	2009	0.149	0.149
	B	4	4.000	1	20			1		0		2015	10			10	100%		1874	0.005	
	B	4	4.200	1		30	0	0		0		2175			190	190		100%	2071	0.092	0.092
	C	2	3.500	1	15			1		0		1965	200	48		248	81%		1818	0.136	
	C	2	3.900	1				0		0		2145		292		292			2145	0.136	0.136
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J6

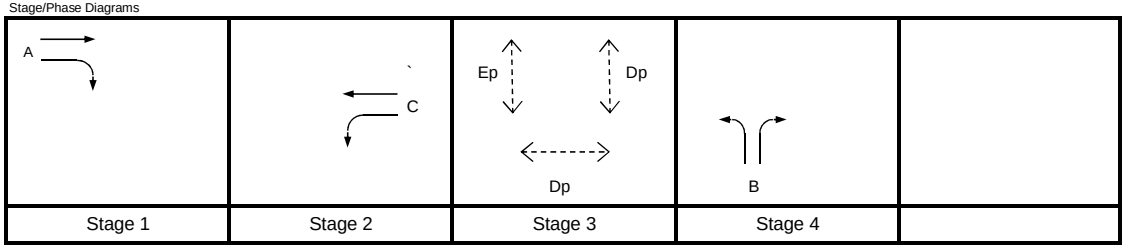
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	108	sec
Sum(y)	Y =	0.360	
Lost time	L =	49	sec
Total Flow	=	12,375	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	123	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	77	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.533	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	48.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	82	sec
Y_{max}	$= 1-L/C$	=	0.546	

Stage/Phase Diagrams



Critical Case : A,C,Dp,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 37%

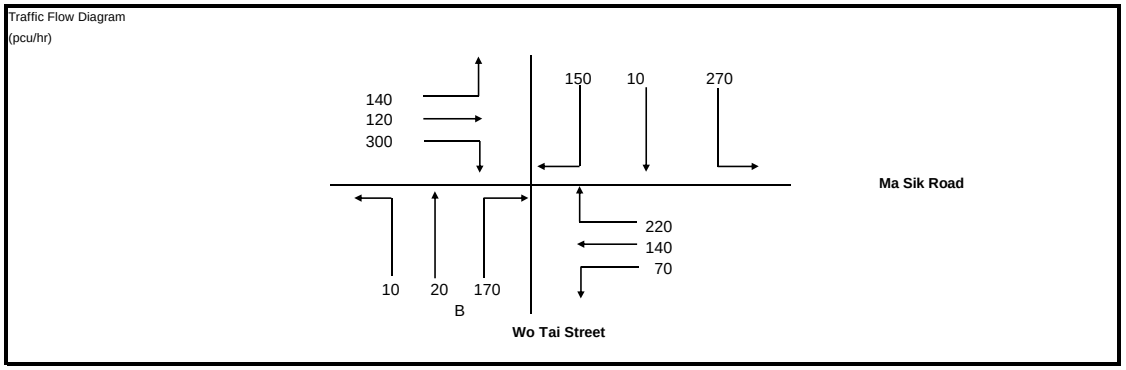
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.300	1				1		0		1945		215		215			1945	0.110	
	A	1	3.750	1		25	0	0		0		2130		55	170	225		76%	2038	0.110	0.110
	B	4	4.000	1	20			1		0		2015	10			10	100%		1874	0.005	
	B	4	4.200	1		30	0	0		0		2175			220	220		100%	2071	0.106	0.106
	C	2	3.500	1	15			1		0		1965	180	83		263	68%		1839	0.143	0.143
	C	2	3.900	1				0		0		2145		307		307			2145	0.143	
Pedestrian Crossing				GM		FGM															
	Dp	3	min.	9	+	18	=	27	sec												*
	Ep	3	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J6

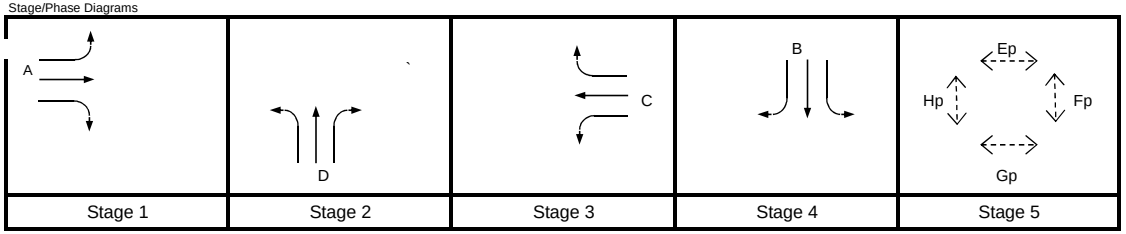
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.421	
Lost time	L =	52	sec
Total Flow	=	4,070	pcu

Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	143	sec
Min. Cycle Time C_m	= L/(1-Y)	=	90	sec
Y_{ult}	= 0.9-0.0075×L	=	0.510	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	21.3	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	98	sec
Y_{max}	= 1-L/C	=	0.567	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

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

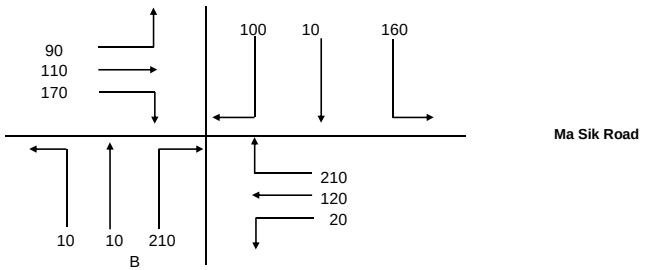
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	140	120	10	270	52%	4%	1870	0.144	
	A	1	3.800	1		25	0	0		0		2135			290	290		100%	2014	0.144	0.144
	D	2	4.000	1	18	28	0	1		0		2015	10	20	67	97	10%	69%	1927	0.050	0.050
	D	2	4.000	1		30	0	0		0		2155			103	103		100%	2052	0.050	
	C	3	3.500	1	15	28	0	1		0		1965	70	140	0	210	33%	0%	1902	0.110	0.110
	C	3	4.000	1		25	0	0		0		2155			220	220		100%	2033	0.108	
	B	4	3.500	1	12			1		0		1965	202			202	100%		1747	0.116	0.116
	B	4	3.500	1	15	25	0	0		0		2105	68	10	150	228	30%	66%	1969	0.116	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J6

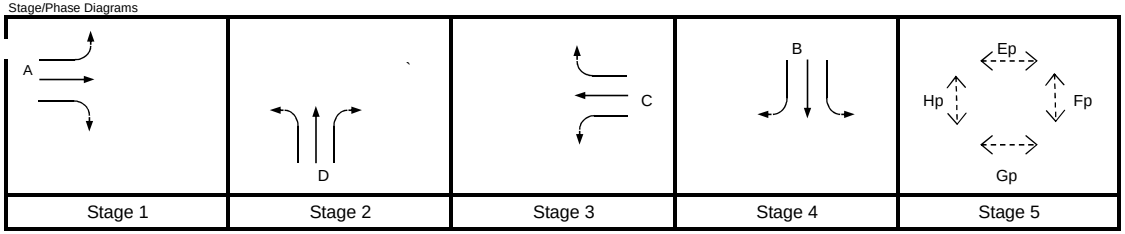
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	108	sec
Sum(y)	Y =	0.325	
Lost time	L =	52	sec
Total Flow	=	4,070	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	123	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	77	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	57.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	81	sec
Y_{max}	$= 1-L/C$	=	0.519	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

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

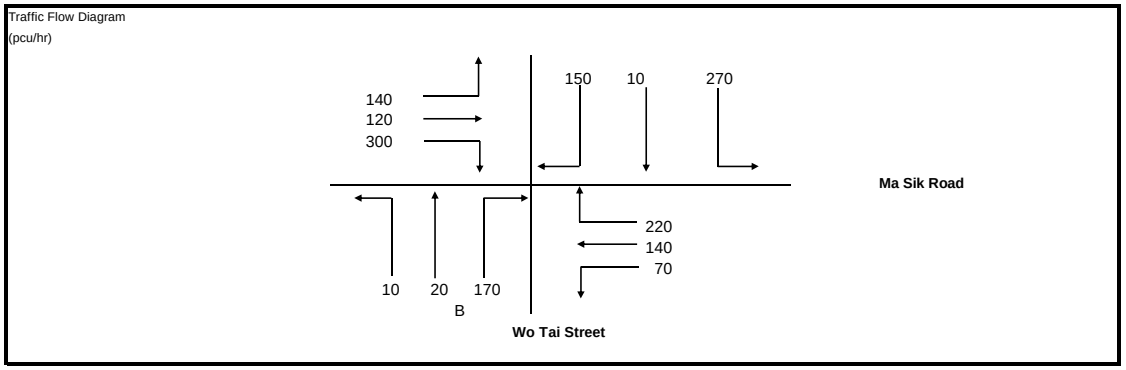
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	90	110	0	200	45%	0%	1889	0.106	0.106
	A	1	3.800	1		25	0	0		0		2135			170	170		100%	2014	0.084	
	D	2	4.000	1	18	28	0	1		0		2015	10	10	91	111	9%	82%	1916	0.058	0.058
	D	2	4.000	1		30	0	0		0		2155			119	119		100%	2052	0.058	
	C	3	3.500	1	15	28	0	1		0		1965	20	120	30	170	12%	18%	1924	0.088	0.088
	C	3	4.000	1		25	0	0		0		2155			180	180		100%	2033	0.088	
	B	4	3.500	1	12			1		0		1965	127			127	100%		1747	0.073	
	B	4	3.500	1	15	25	0	0		0		2105	33	10	100	143	23%	70%	1976	0.073	0.073
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J6

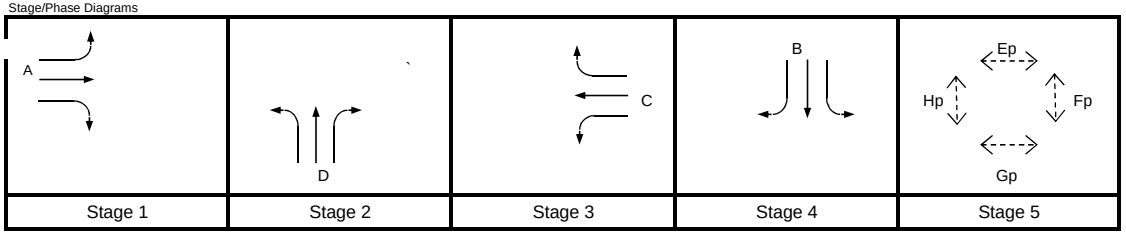
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.421	
Lost time	L =	52	sec
Total Flow	=	4,070	pcu

Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	143	sec
Min. Cycle Time C_m	= L/(1-Y)	=	90	sec
Y_{ult}	= 0.9-0.0075×L	=	0.510	
$R.C._{ult}$	= $(Y_{ult}$-Y)/Yx100%	=	21.3	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	98	sec
Y_{max}	= 1-L/C	=	0.567	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

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

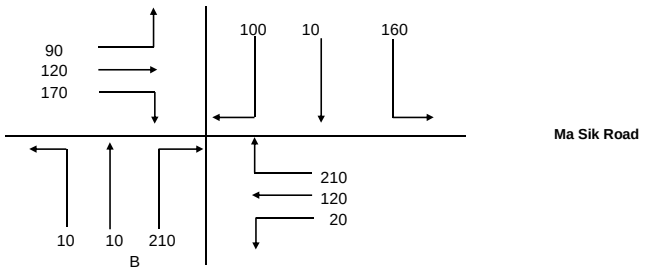
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	140	120	10	270	52%	4%	1870	0.144	
	A	1	3.800	1		25	0	0		0		2135			290	290		100%	2014	0.144	0.144
	D	2	4.000	1	18	28	0	1		0		2015	10	20	67	97	10%	69%	1927	0.050	0.050
	D	2	4.000	1		30	0	0		0		2155			103	103		100%	2052	0.050	
	C	3	3.500	1	15	28	0	1		0		1965	70	140	0	210	33%	0%	1902	0.110	0.110
	C	3	4.000	1		25	0	0		0		2155			220	220		100%	2033	0.108	
	B	4	3.500	1	12			1		0		1965	202			202	100%		1747	0.116	0.116
	B	4	3.500	1	15	25	0	0		0		2105	68	10	150	228	30%	66%	1969	0.116	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J6

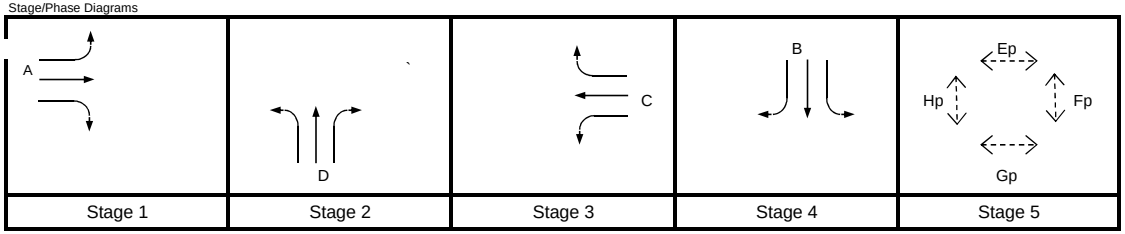
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	108	sec
Sum(y)	Y =	0.330	
Lost time	L =	52	sec
Total Flow	=	4,070	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	124	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	78	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	54.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	82	sec
Y_{max}	$= 1-L/C$	=	0.519	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

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

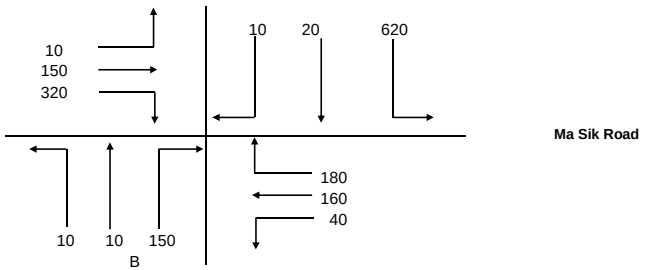
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	90	120	0	210	43%	0%	1894	0.111	0.111
	A	1	3.800	1		25	0	0		0		2135			170	170		100%	2014	0.084	
	D	2	4.000	1	18	28	0	1		0		2015	10	10	91	111	9%	82%	1916	0.058	0.058
	D	2	4.000	1		30	0	0		0		2155			119	119		100%	2052	0.058	
	C	3	3.500	1	15	28	0	1		0		1965	20	120	30	170	12%	18%	1924	0.088	0.088
	C	3	4.000	1		25	0	0		0		2155			180	180		100%	2033	0.088	
	B	4	3.500	1	12			1		0		1965	127			127	100%		1747	0.073	
	B	4	3.500	1	15	25	0	0		0		2105	33	10	100	143	23%	70%	1976	0.073	0.073
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

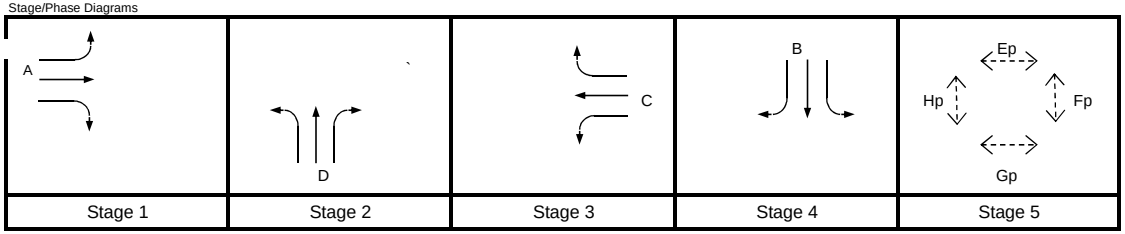
J6

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	5
Cycle time		C =	120 sec
Sum(y)		Y =	0.437
Lost time		L =	52 sec
Total Flow		=	4,070 pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	147 sec
Min. Cycle Time C_m	= L/(1-Y)	=	92 sec
Y_{ult}	= 0.9-0.0075×L	=	0.510
R.C_{ult}	= (Y_{ult}-Y)/Yx100%	=	16.8 %
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	101 sec
Y_{max}	= 1-L/C	=	0.567

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

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

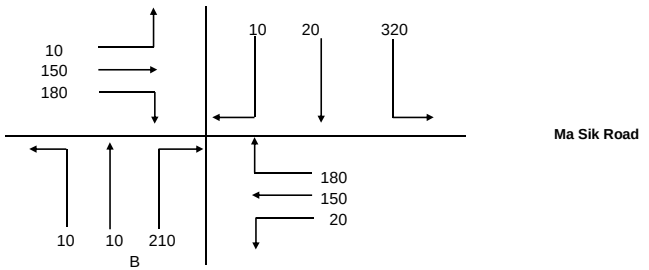
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	10	150	76	236	4%	32%	1951	0.121	0.121
	A	1	3.800	1		25	0	0		0		2135			244	244		100%	2014	0.121	
	D	2	4.000	1	18	28	0	1		0		2015	10	10	62	82	12%	76%	1918	0.043	0.043
	D	2	4.000	1		30	0	0		0		2155			88	88		100%	2052	0.043	
	C	3	3.500	1	15			1		0		1965	40	144		184	22%		1923	0.096	0.096
	C	3	4.000	1		25	0	0		0		2155		16	180	196		92%	2042	0.096	
	B	4	3.500	1	12			1		0		1965	309			309	100%		1747	0.177	0.177
	B	4	3.500	1	15	25	0	0		0		2105	311	20	10	341	91%	3%	1926	0.177	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J6

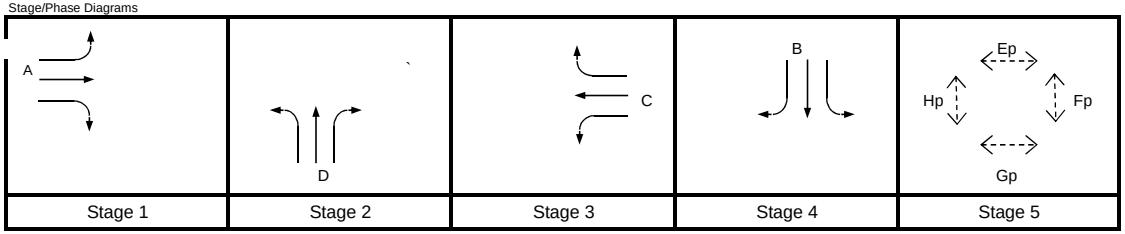
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	108	sec
Sum(y)	Y =	0.327	
Lost time	L =	52	sec
Total Flow	=	4,070	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	123	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	77	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	56.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	82	sec
Y_{max}	$= 1-L/C$	=	0.519	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 43%

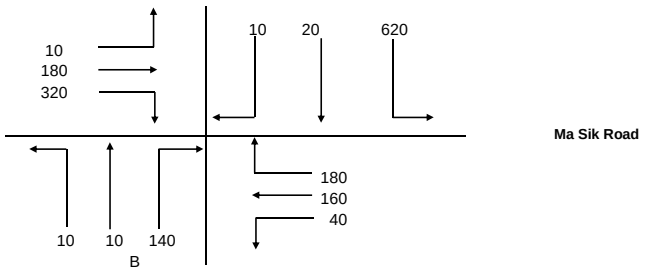
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	10	150	8	168	6%	5%	1975	0.085	
	A	1	3.800	1		25	0	0		0		2135			172	172		100%	2014	0.085	0.085
	D	2	4.000	1	18	28	0	1		0		2015	10	10	91	111	9%	82%	1916	0.058	0.058
	D	2	4.000	1		30	0	0		0		2155			119	119		100%	2052	0.058	
	C	3	3.500	1	15			1		0		1965	20	150		170	12%		1942	0.088	
	C	3	4.000	1		25	0	0		0		2155		0	180	180		100%	2033	0.089	0.089
	B	4	3.500	1	12			1		0		1965	166			166	100%		1747	0.095	0.095
	B	4	3.500	1	15	25	0	0		0		2105	154	20	10	184	84%	5%	1937	0.095	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J6

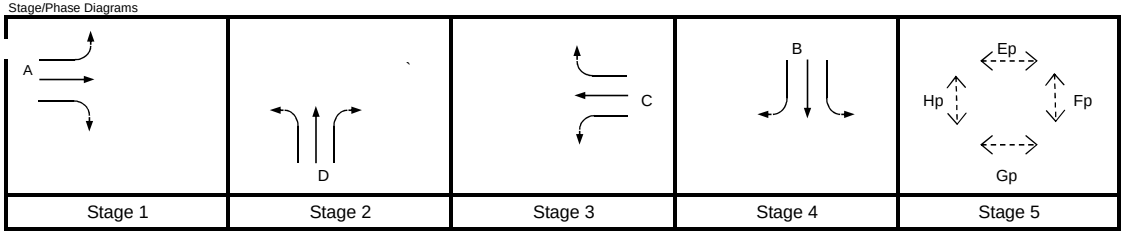
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	120	sec
Sum(y)	Y =	0.441	
Lost time	L =	52	sec
Total Flow	=	4,070	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	149	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	93	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	15.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	102	sec
Y_{max}	$= 1-L/C$	=	0.567	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

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

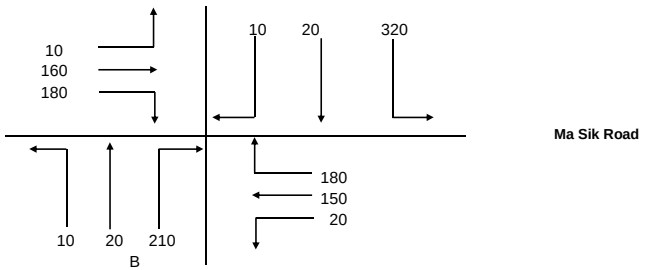
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	10	180	61	251	4%	24%	1960	0.128	0.128
	A	1	3.800	1		25	0	0		0		2135			259	259		100%	2014	0.128	
	D	2	4.000	1	18	28	0	1		0		2015	10	10	57	77	13%	74%	1918	0.040	0.040
	D	2	4.000	1		30	0	0		0		2155			83	83		100%	2052	0.040	
	C	3	3.500	1	15			1		0		1965	40	144		184	22%		1923	0.096	0.096
	C	3	4.000	1		25	0	0		0		2155		16	180	196		92%	2042	0.096	
	B	4	3.500	1	12			1		0		1965	309			309	100%		1747	0.177	0.177
	B	4	3.500	1	15	25	0	0		0		2105	311	20	10	341	91%	3%	1926	0.177	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J6 - Ma Sik Road / Wo Tai Street	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J6

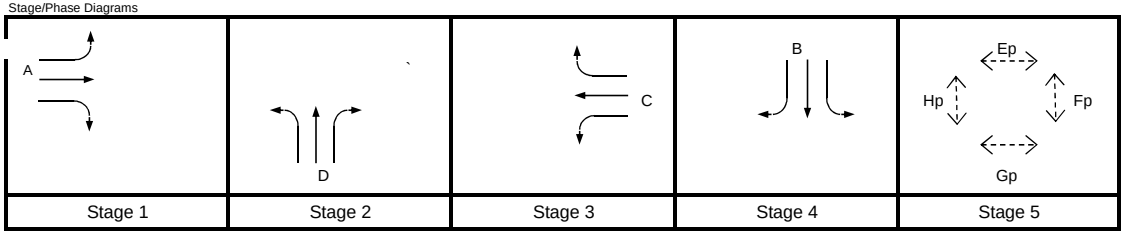
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	108	sec
Sum(y)	Y =	0.332	
Lost time	L =	52	sec
Total Flow	=	4,070	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	124	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	78	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	53.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	82	sec
Y_{max}	$= 1-L/C$	=	0.519	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 7 I/G = 9 G = 8 I/G = 21

Critical Case : A,D,C,B,Gp

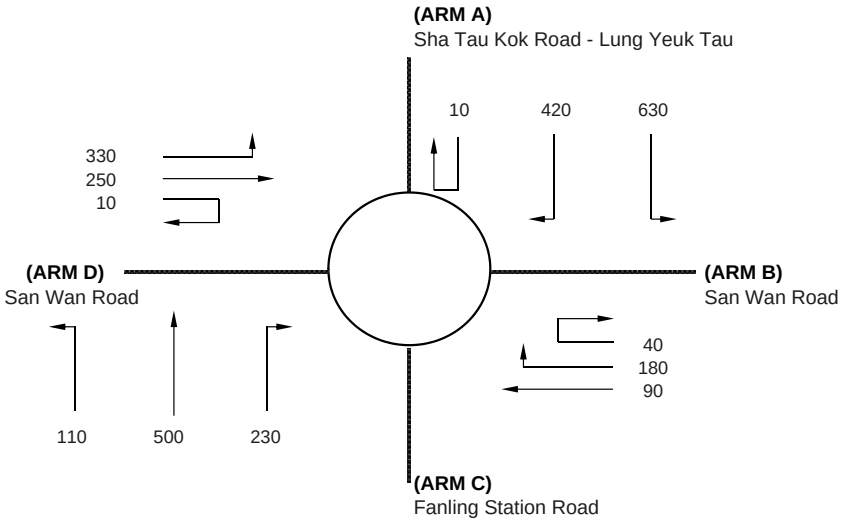
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 41%

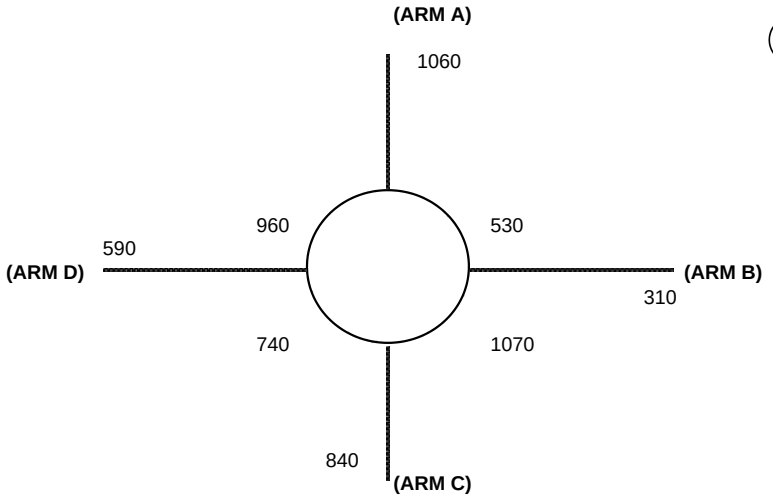
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.800	1	12	28	0	1		0		1995	10	160	3	173	6%	2%	1979	0.088	
	A	1	3.800	1		25	0	0		0		2135			177	177		100%	2014	0.088	0.088
	D	2	4.000	1	18	28	0	1		0		2015	10	20	86	116	9%	74%	1925	0.060	0.060
	D	2	4.000	1		30	0	0		0		2155			124	124		100%	2052	0.060	
	C	3	3.500	1	15			1		0		1965	20	150		170	12%		1942	0.088	
	C	3	4.000	1		25	0	0		0		2155		0	180	180		100%	2033	0.089	0.089
	B	4	3.500	1	12			1		0		1965	166			166	100%		1747	0.095	0.095
	B	4	3.500	1	15	25	0	0		0		2105	154	20	10	184	84%	5%	1937	0.095	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	7	+	13	=	20	sec												
	Fp	5	min.	8	+	16	=	24	sec												
	Gp	5	min.	8	+	16	=	24	sec												*
	Hp	5	min.	9	+	18	=	27	sec												

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2015 AM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1060	310	840	590
Qc= Circulating flow across entry (pcu/h)	530	1070	740	960
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1892	1383	1985	1373
DFC = Design flow/Capacity = Q/Qe	0.56	0.22	0.42	0.43

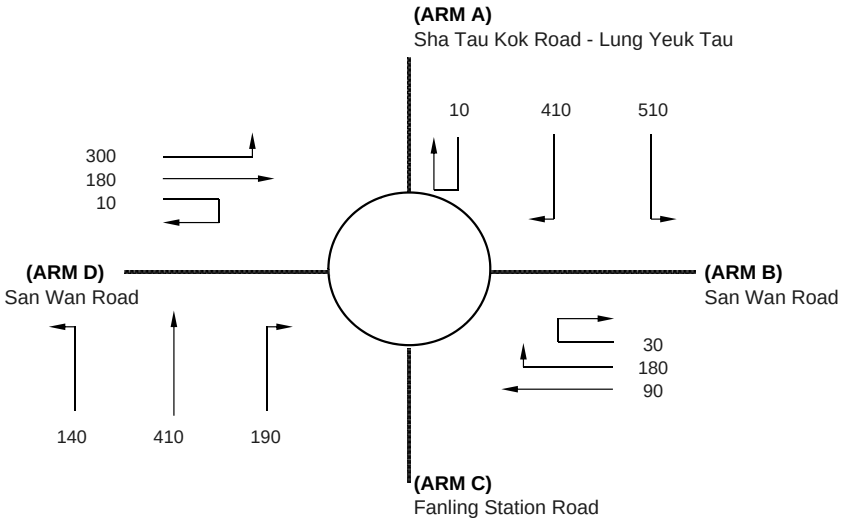
TOTAL ENTRY FLOWS = 2800 PCU

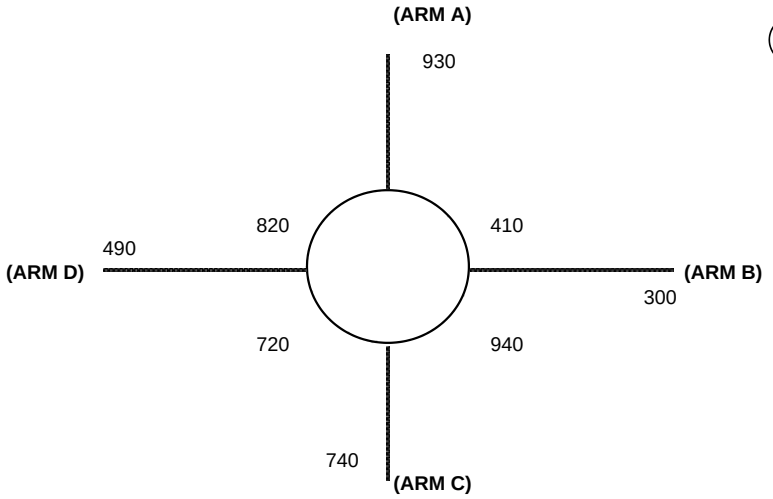
CRITICAL DFC = 0.56

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2015 PM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	930	300	740	490
Qc= Circulating flow across entry (pcu/h)	410	940	720	820
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1979	1473	2000	1463
DFC = Design flow/Capacity = Q/Qe	0.47	0.20	0.37	0.33

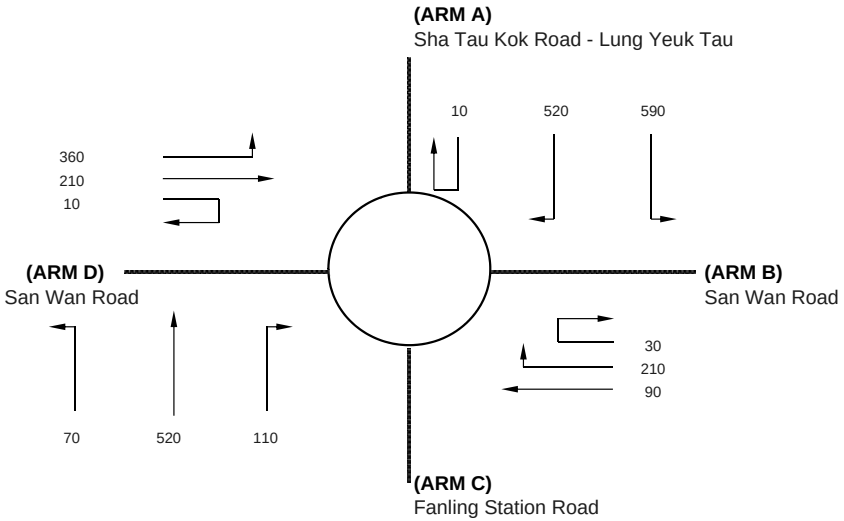
TOTAL ENTRY FLOWS = 2460 PCU

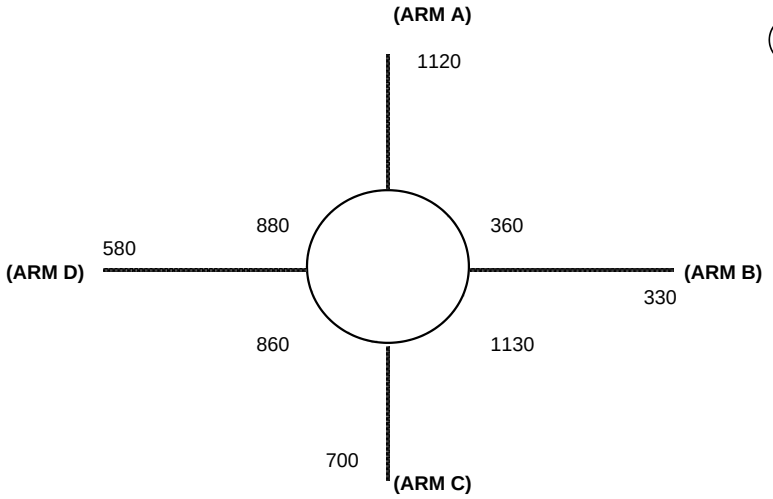
CRITICAL DFC = 0.47

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 AM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	8.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1120	330	700	580
Qc= Circulating flow across entry (pcu/h)	360	1130	860	880
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.46	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.57	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	1990	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.64	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1941	1341	1894	1424
DFC = Design flow/Capacity = Q/Qe	0.58	0.25	0.37	0.41

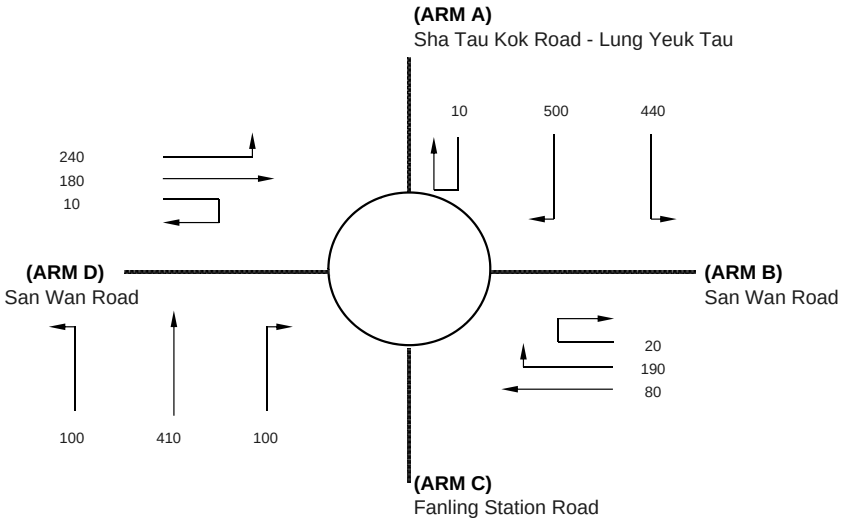
TOTAL ENTRY FLOWS = 2730 PCU

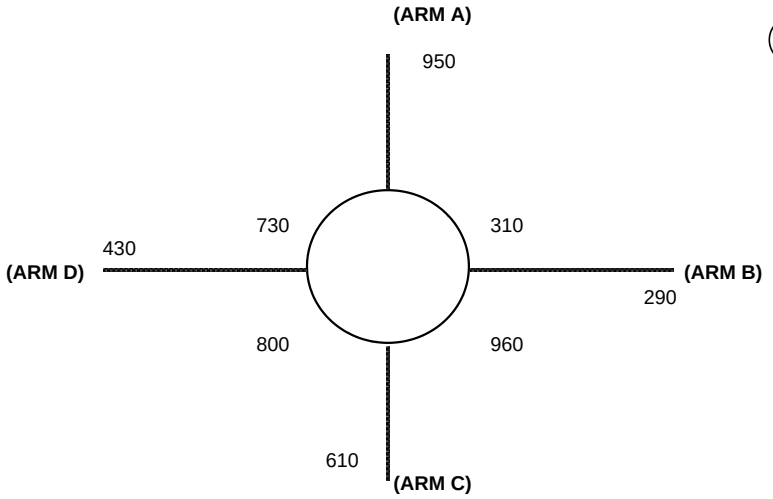
CRITICAL DFC = 0.58

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 PM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	8.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	950	290	610	430
Qc= Circulating flow across entry (pcu/h)	310	960	800	730
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.46	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.57	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	1990	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.64	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1977	1459	1940	1521
DFC = Design flow/Capacity = Q/Qe	0.48	0.20	0.31	0.28

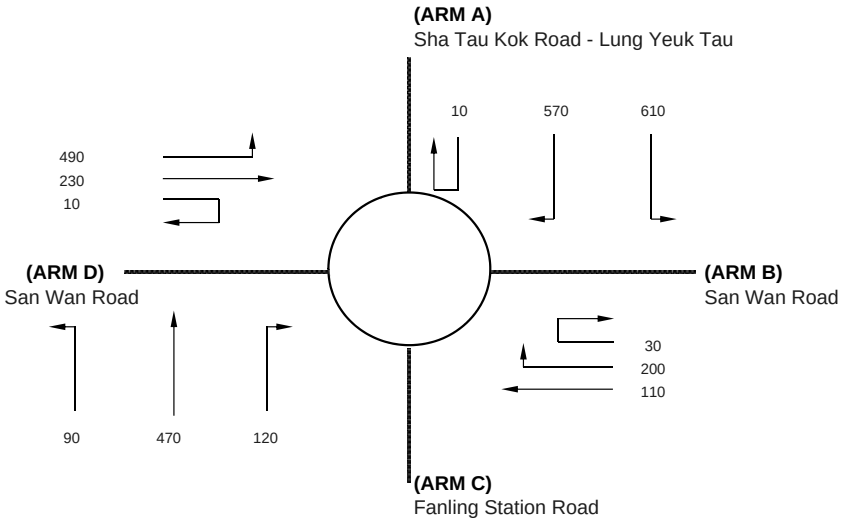
TOTAL ENTRY FLOWS = 2280 PCU

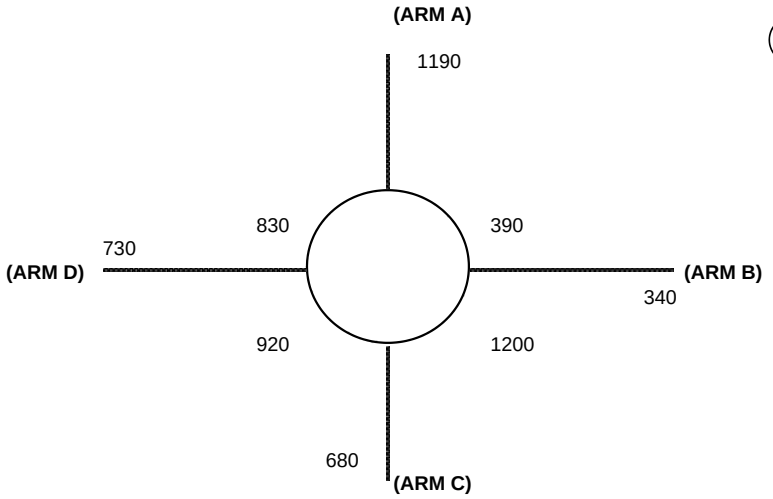
CRITICAL DFC = 0.48

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1190	340	680	730
Qc= Circulating flow across entry (pcu/h)	390	1200	920	830
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1993	1293	1849	1457
DFC = Design flow/Capacity = Q/Qe	0.60	0.26	0.37	0.50

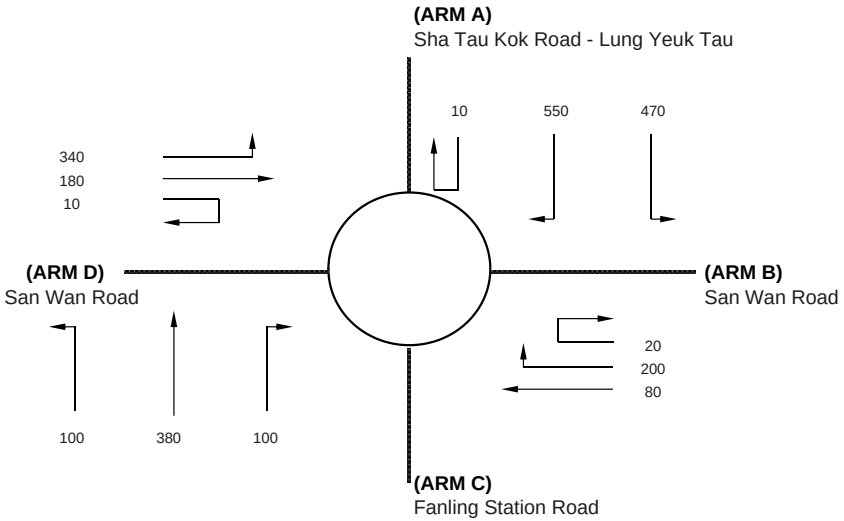
TOTAL ENTRY FLOWS = 2940 PCU

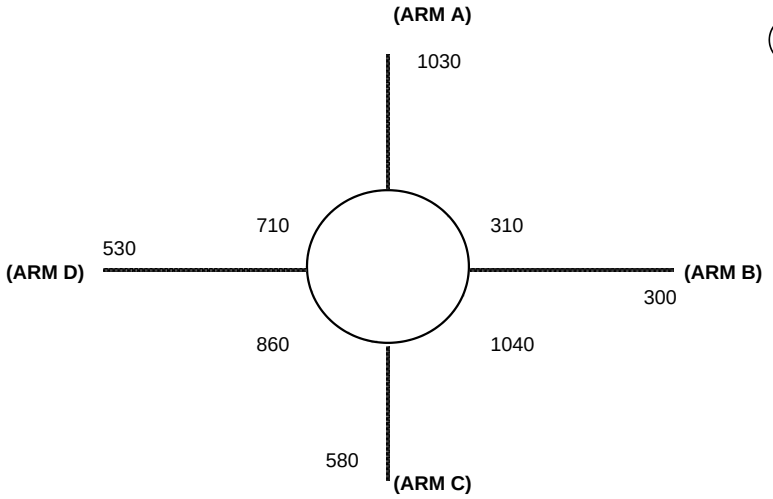
CRITICAL DFC = 0.60

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 PM Design Case (Without Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1030	300	580	530
Qc= Circulating flow across entry (pcu/h)	310	1040	860	710
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2051	1403	1894	1534
DFC = Design flow/Capacity = Q/Qe	0.50	0.21	0.31	0.35

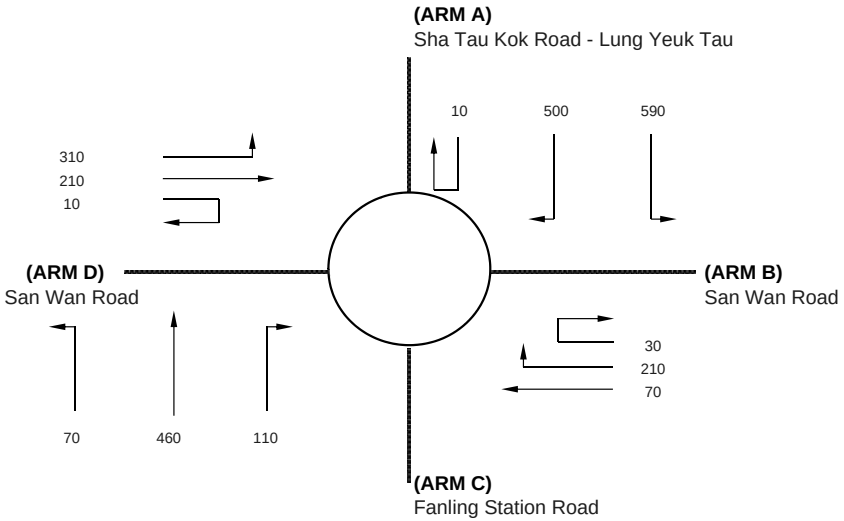
TOTAL ENTRY FLOWS = 2440 PCU

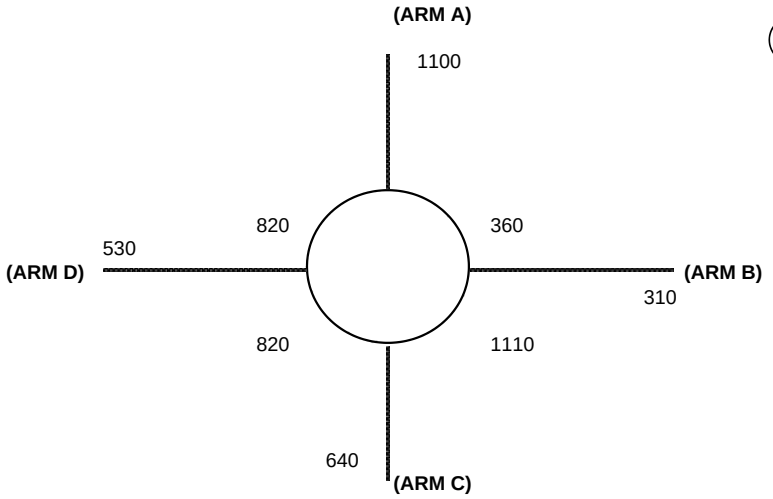
CRITICAL DFC = 0.50

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 AM Reference Case (With Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1100	310	640	530
Qc= Circulating flow across entry (pcu/h)	360	1110	820	820
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2015	1355	1925	1463
DFC = Design flow/Capacity = Q/Qe	0.55	0.23	0.33	0.36

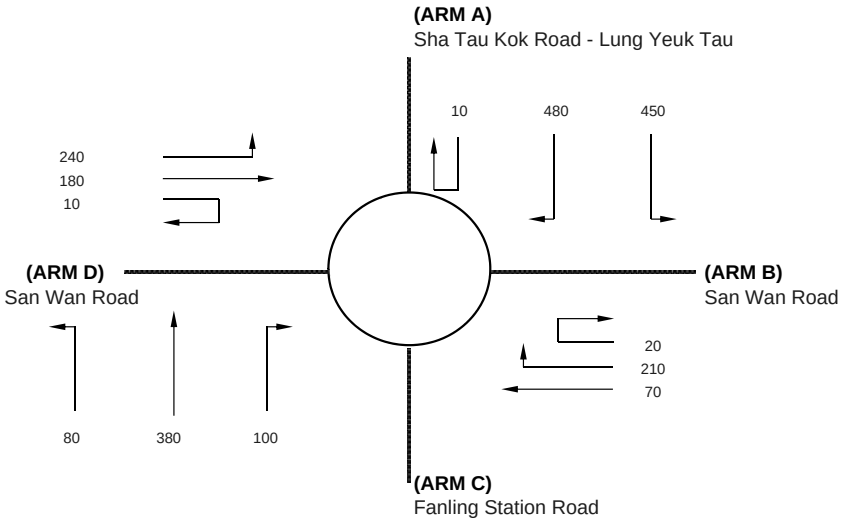
TOTAL ENTRY FLOWS = 2580 PCU

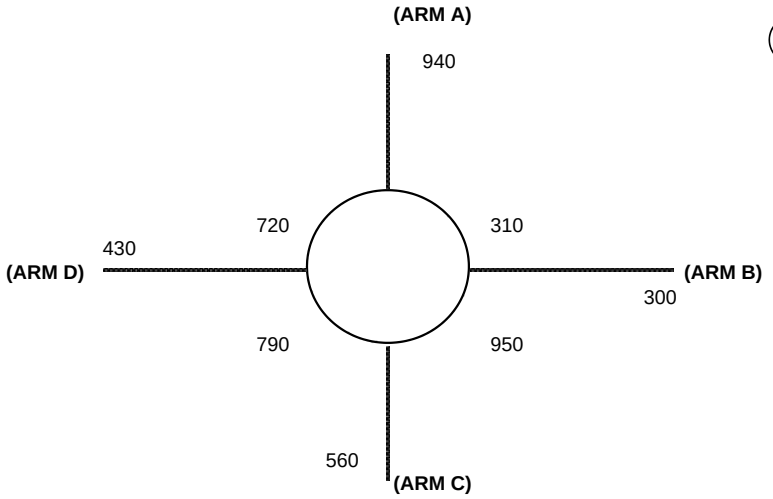
CRITICAL DFC = 0.55

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 PM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J7

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	940	300	560	430
Qc= Circulating flow across entry (pcu/h)	310	950	790	720
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2051	1466	1947	1528
DFC = Design flow/Capacity = Q/Qe	0.46	0.20	0.29	0.28

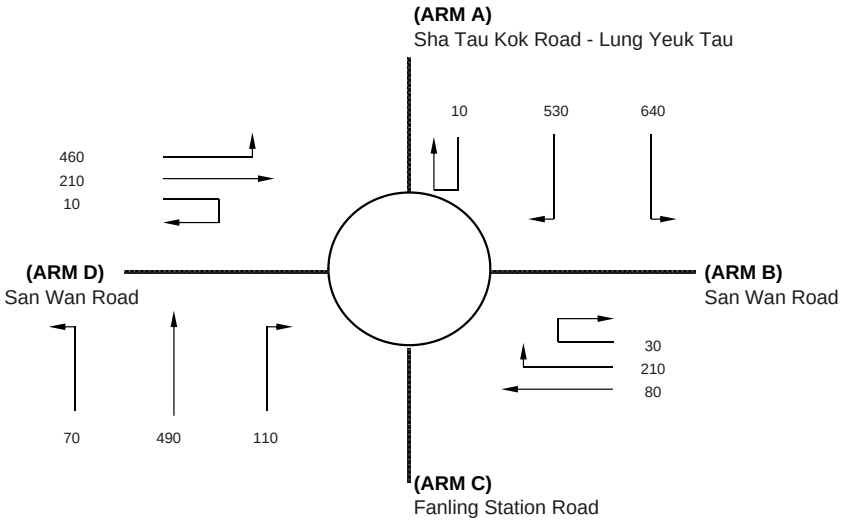
TOTAL ENTRY FLOWS = 2230 PCU

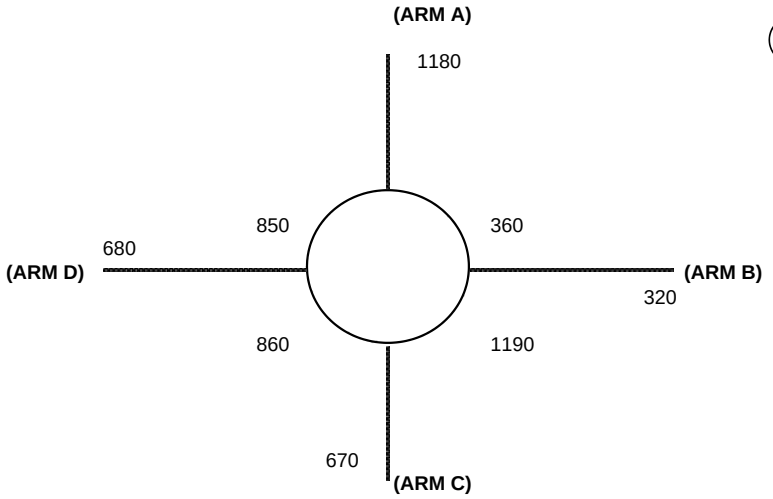
CRITICAL DFC = 0.46

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 AM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1180	320	670	680
Qc= Circulating flow across entry (pcu/h)	360	1190	860	850
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2015	1300	1894	1444
DFC = Design flow/Capacity = Q/Qe	0.59	0.25	0.35	0.47

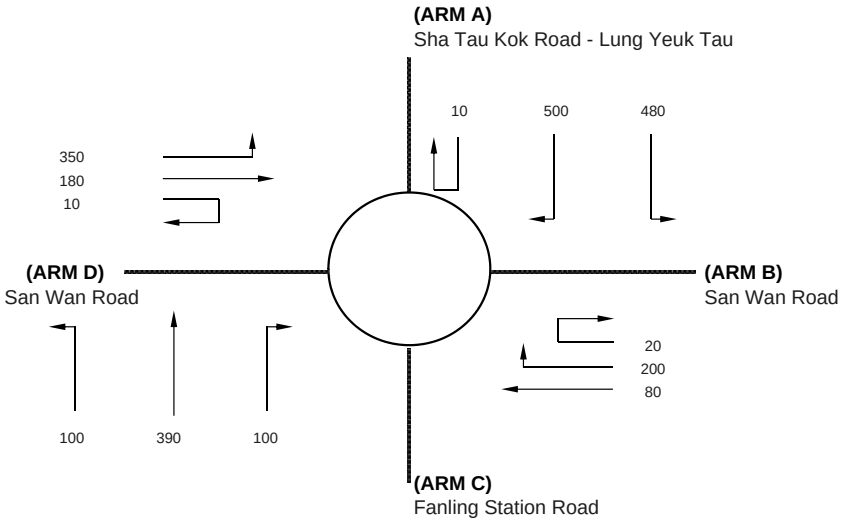
TOTAL ENTRY FLOWS = 2850 PCU

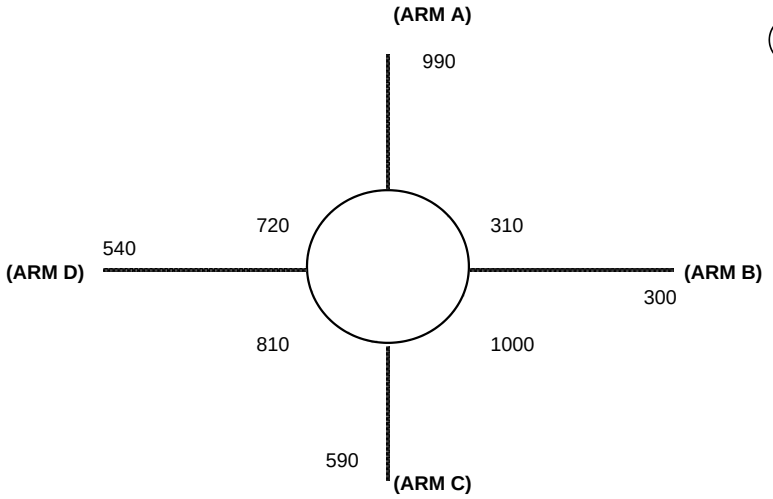
CRITICAL DFC = 0.59

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2020 PM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	990	300	590	540
Qc= Circulating flow across entry (pcu/h)	310	1000	810	720
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2051	1431	1932	1528
DFC = Design flow/Capacity = Q/Qe	0.48	0.21	0.31	0.35

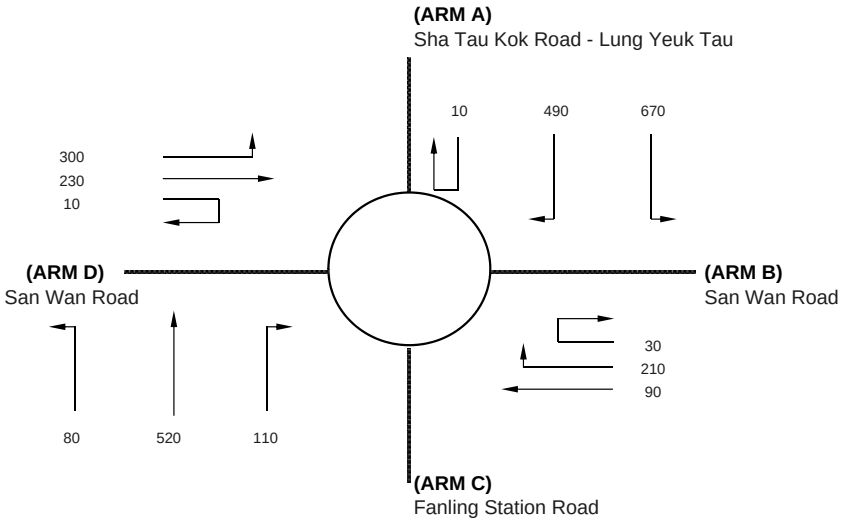
TOTAL ENTRY FLOWS = 2420 PCU

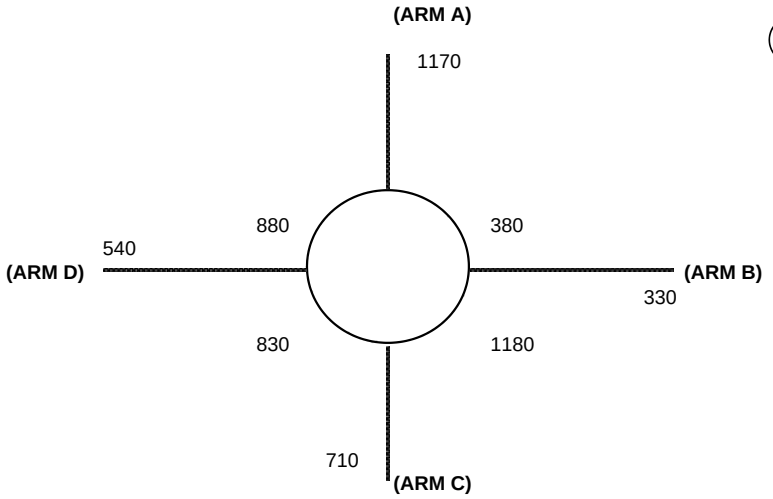
CRITICAL DFC = 0.48

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J7

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1170	330	710	540
Qc= Circulating flow across entry (pcu/h)	380	1180	830	880
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2000	1307	1917	1424
DFC = Design flow/Capacity = Q/Qe	0.58	0.25	0.37	0.38

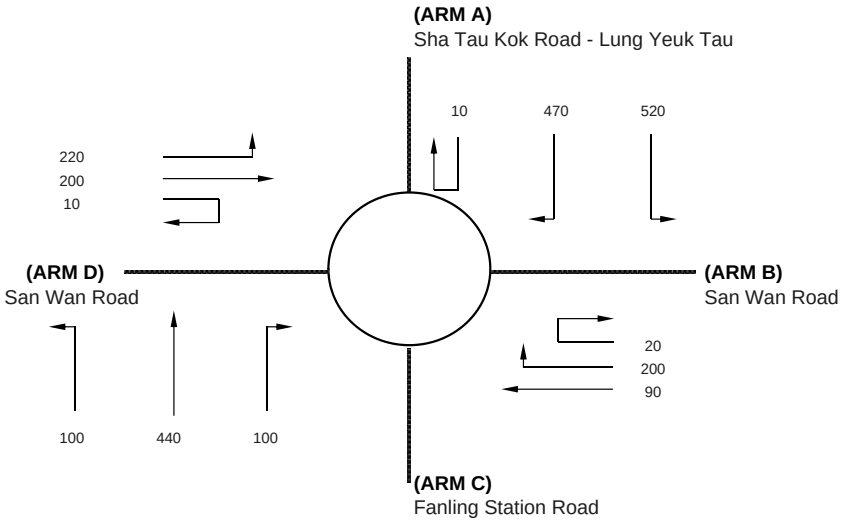
TOTAL ENTRY FLOWS = 2750 PCU

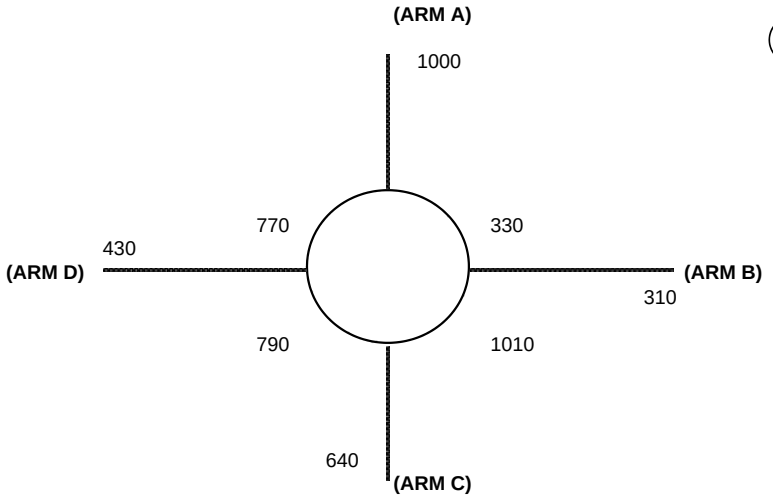
CRITICAL DFC = 0.58

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2026 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1000	310	640	430
Qc= Circulating flow across entry (pcu/h)	330	1010	790	770
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2037	1424	1947	1495
DFC = Design flow/Capacity = Q/Qe	0.49	0.22	0.33	0.29

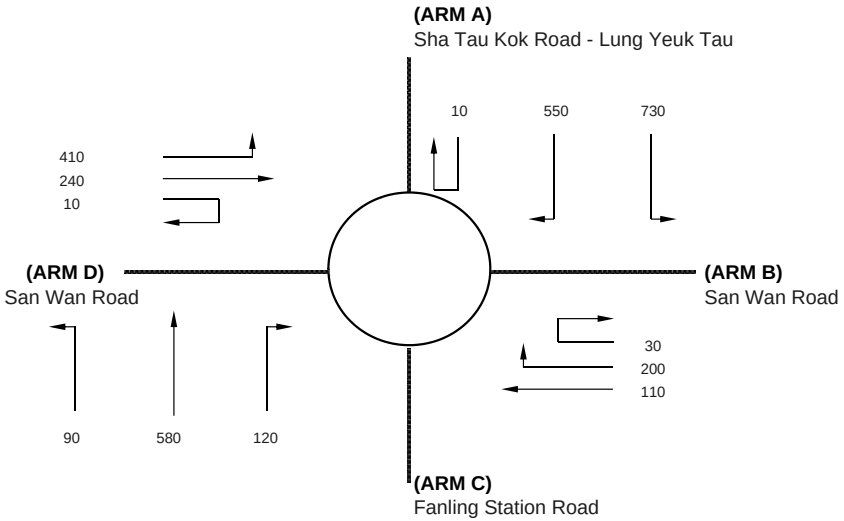
TOTAL ENTRY FLOWS = 2380 PCU

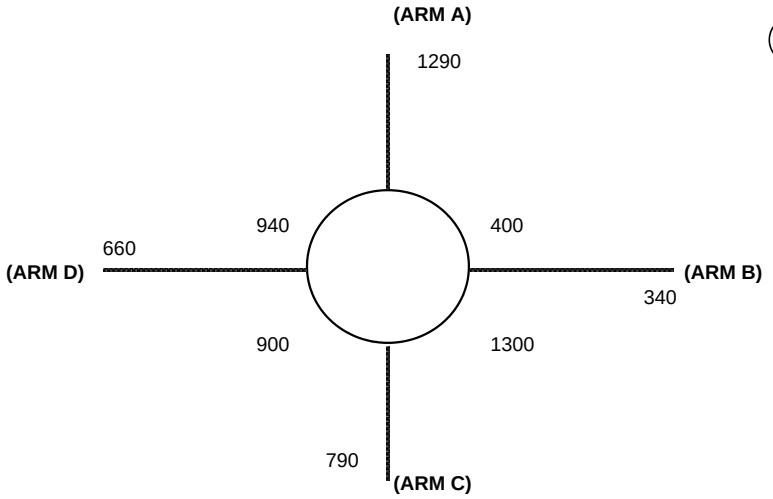
CRITICAL DFC = 0.49

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2026 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1290	340	790	660
Qc= Circulating flow across entry (pcu/h)	400	1300	900	940
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1986	1224	1864	1386
DFC = Design flow/Capacity = Q/Qe	0.65	0.28	0.42	0.48

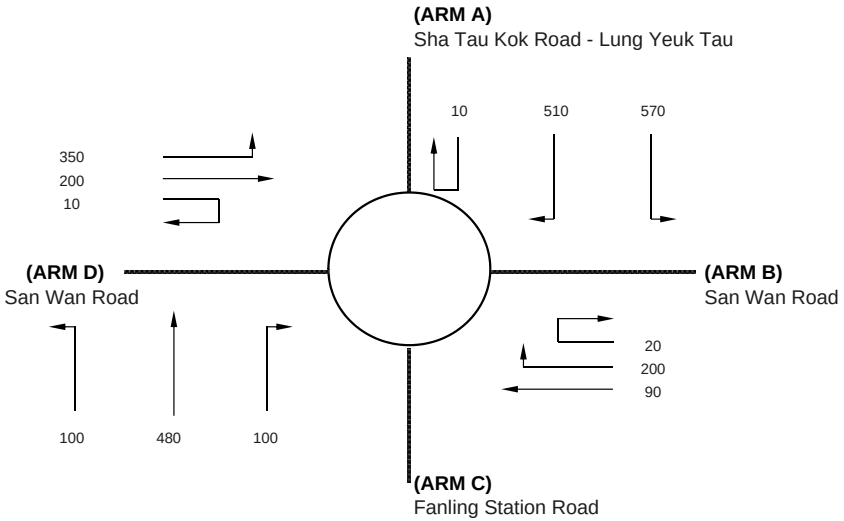
TOTAL ENTRY FLOWS = 3080 PCU

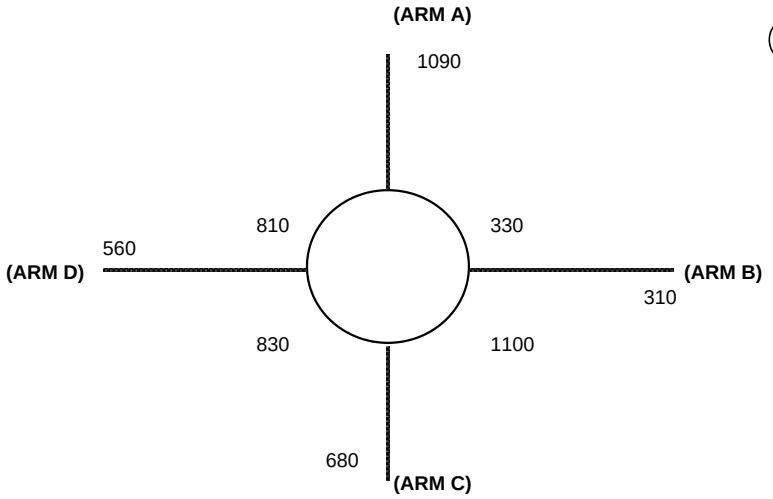
CRITICAL DFC = 0.65

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2026 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1090	310	680	560
Qc= Circulating flow across entry (pcu/h)	330	1100	830	810
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2037	1362	1917	1469
DFC = Design flow/Capacity = Q/Qe	0.54	0.23	0.35	0.38

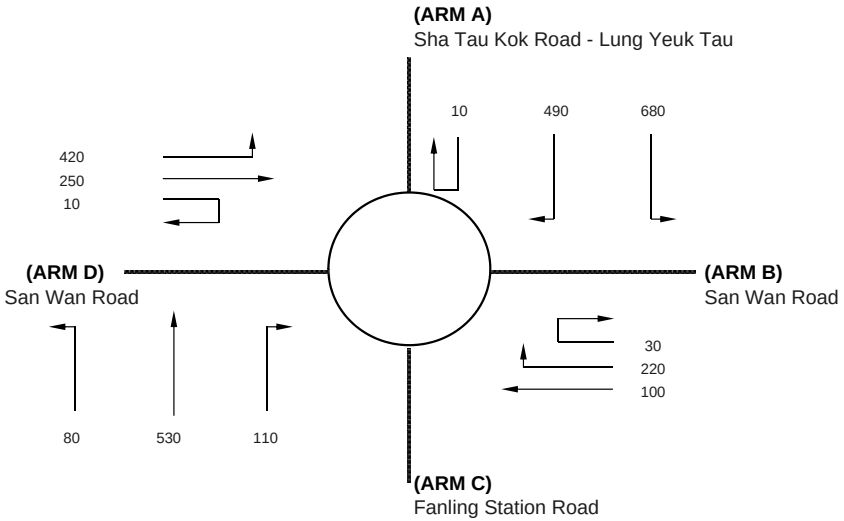
TOTAL ENTRY FLOWS = 2640 PCU

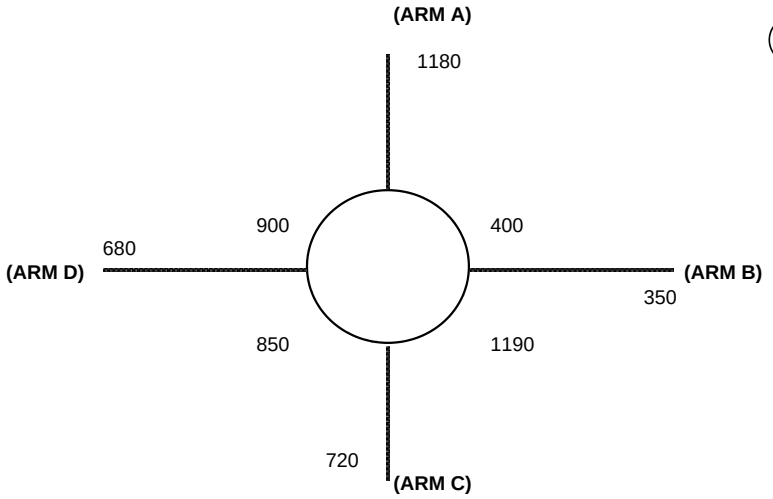
CRITICAL DFC = 0.54

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2031 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J7

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1180	350	720	680
Qc= Circulating flow across entry (pcu/h)	400	1190	850	900
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1986	1300	1902	1411
DFC = Design flow/Capacity = Q/Qe	0.59	0.27	0.38	0.48

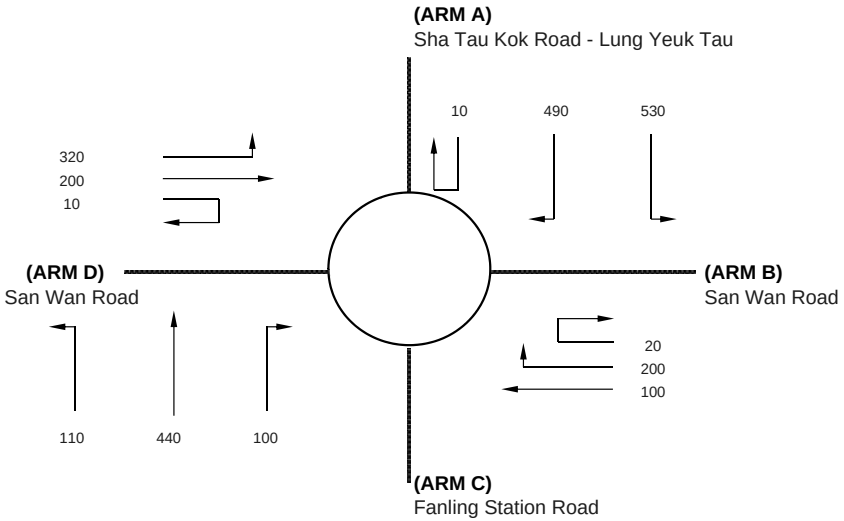
TOTAL ENTRY FLOWS = 2930 PCU

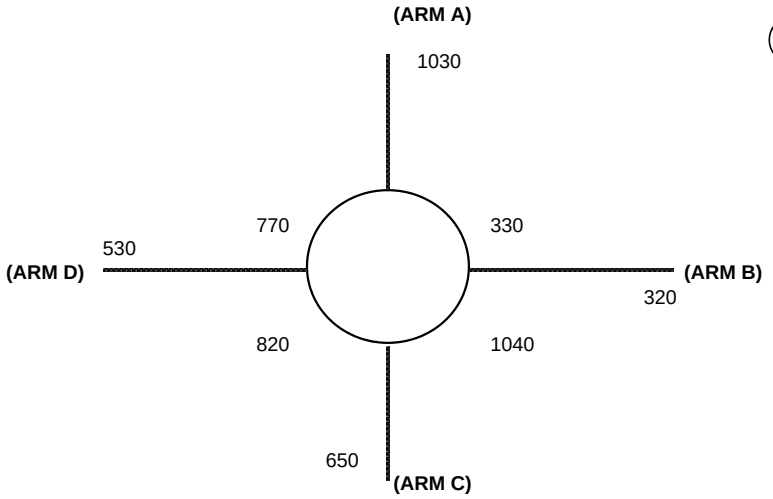
CRITICAL DFC = 0.59

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2031 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1030	320	650	530
Qc= Circulating flow across entry (pcu/h)	330	1040	820	770
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2037	1403	1925	1495
DFC = Design flow/Capacity = Q/Qe	0.51	0.23	0.34	0.35

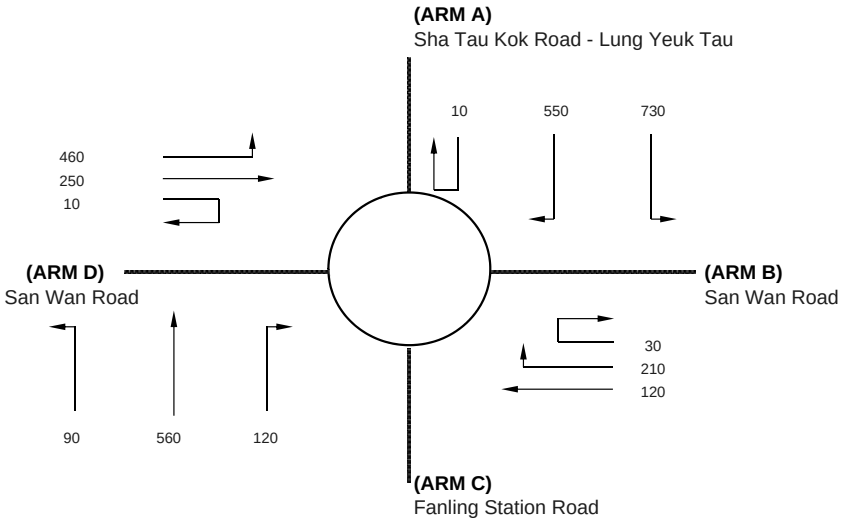
TOTAL ENTRY FLOWS = 2530 PCU

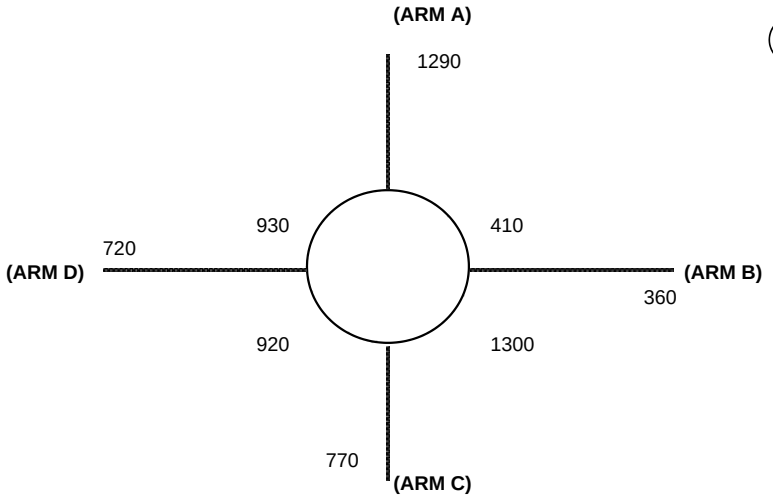
CRITICAL DFC = 0.51

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2031 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J7

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1290	360	770	720
Qc= Circulating flow across entry (pcu/h)	410	1300	920	930
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	1979	1224	1849	1392
DFC = Design flow/Capacity = Q/Qe	0.65	0.29	0.42	0.52

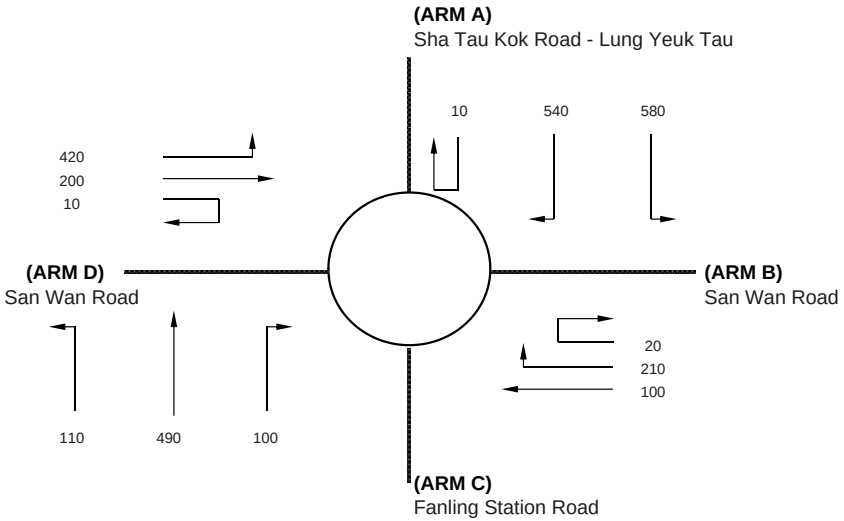
TOTAL ENTRY FLOWS = 3140 PCU

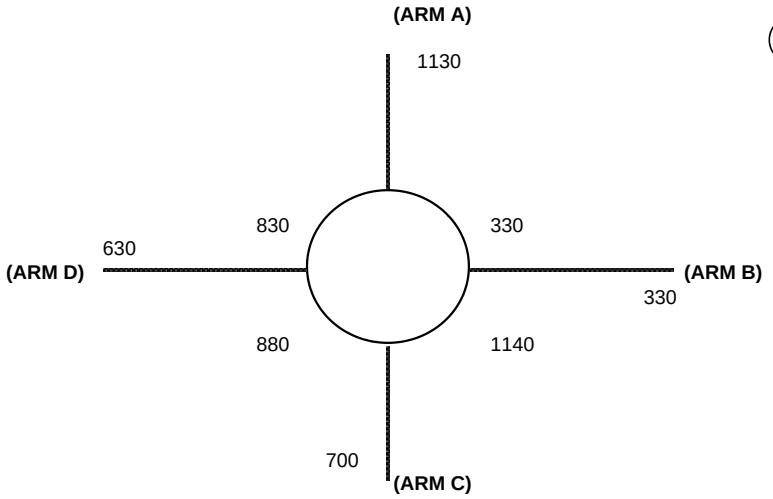
CRITICAL DFC = 0.65

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J7 - Sha Tau Kok Road / San Wan Road	2031 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.00	7.50	7.10	5.80
E = Entry width (m)	9.00	7.00	9.10	7.00
L = Effective length of flare (m)	10.50	3.00	7.00	6.00
R = Entry radius (m)	90.00	90.00	22.50	27.50
D = Inscribed circle diameter (m)	54.00	54.00	54.00	54.00
A = Entry angle (degree)	11.00	15.00	23.00	32.00
Q = Entry flow (pcu/h)	1130	330	700	630
Qc= Circulating flow across entry (pcu/h)	330	1140	880	830
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.61	-0.27	0.46	0.32
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.09	1.03	1.01
X2= V + ((E-V)/(1+2S))	6.80	6.43	8.14	6.53
M = EXP((D-60)/10)	0.55	0.55	0.55	0.55
F = 303*X2	2061	1948	2468	1979
Td= 1+(0.5/(1+M))	1.32	1.32	1.32	1.32
Fc= 0.21*Td(1+0.2*X2)	0.66	0.63	0.73	0.64
Qe= K(F-Fc*Qc)	2037	1334	1879	1457
DFC = Design flow/Capacity = Q/Qe	0.55	0.25	0.37	0.43

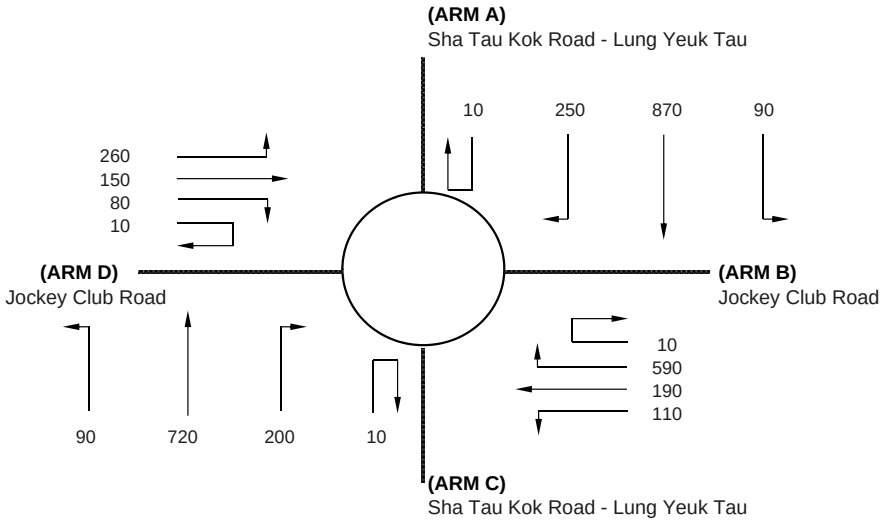
TOTAL ENTRY FLOWS = 2790 PCU

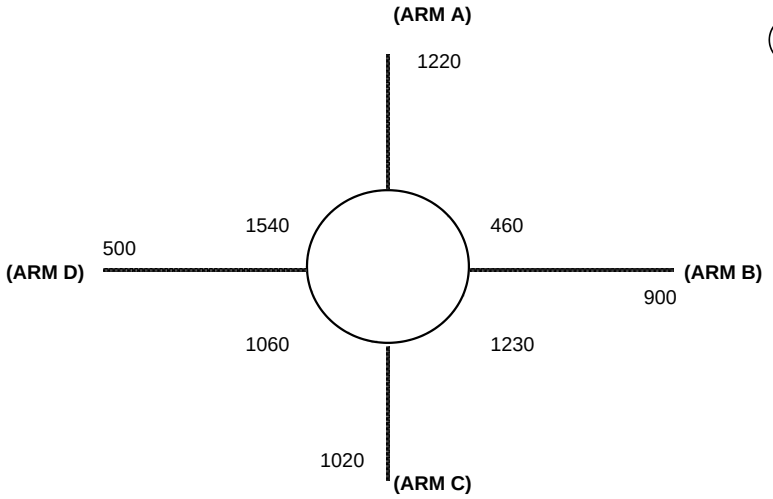
CRITICAL DFC = 0.55

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2015 AM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1220	900	1020	500
Qc= Circulating flow across entry (pcu/h)	460	1230	1060	1540
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2164	1538	1329	1492
DFC = Design flow/Capacity = Q/Qe	0.56	0.59	0.77	0.34

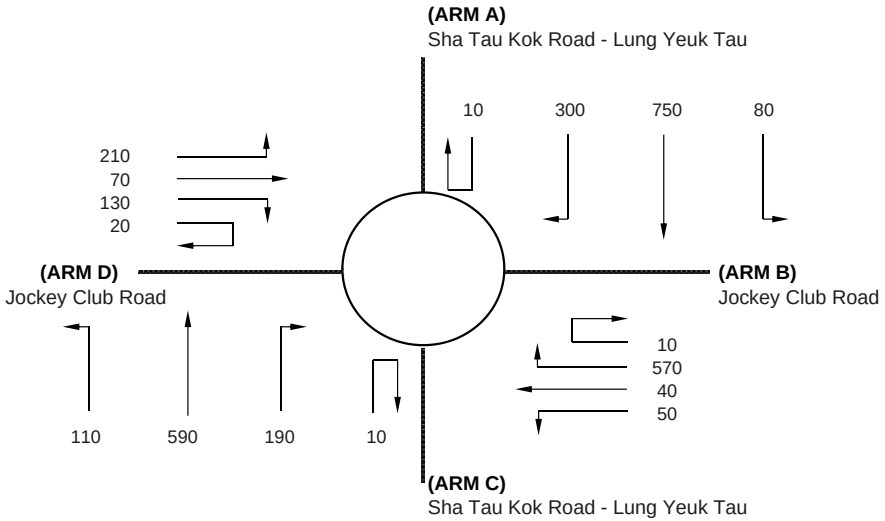
TOTAL ENTRY FLOWS = 3640 PCU

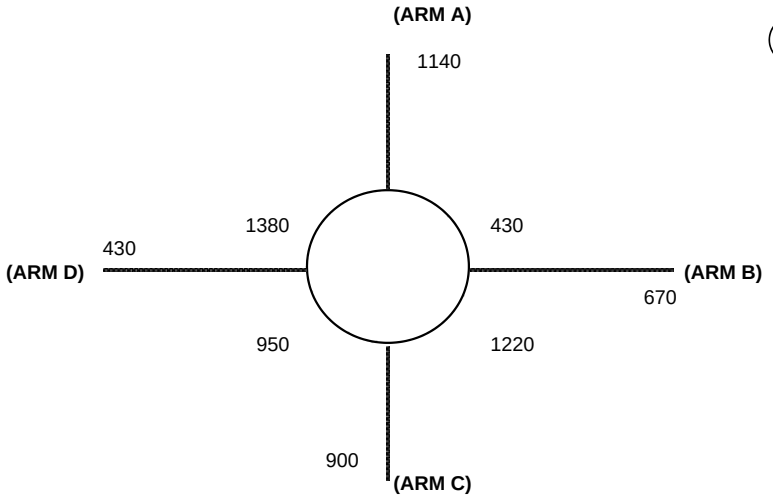
CRITICAL DFC = 0.77

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2015 PM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1140	670	900	430
Qc= Circulating flow across entry (pcu/h)	430	1220	950	1380
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2184	1544	1393	1601
DFC = Design flow/Capacity = Q/Qe	0.52	0.43	0.65	0.27

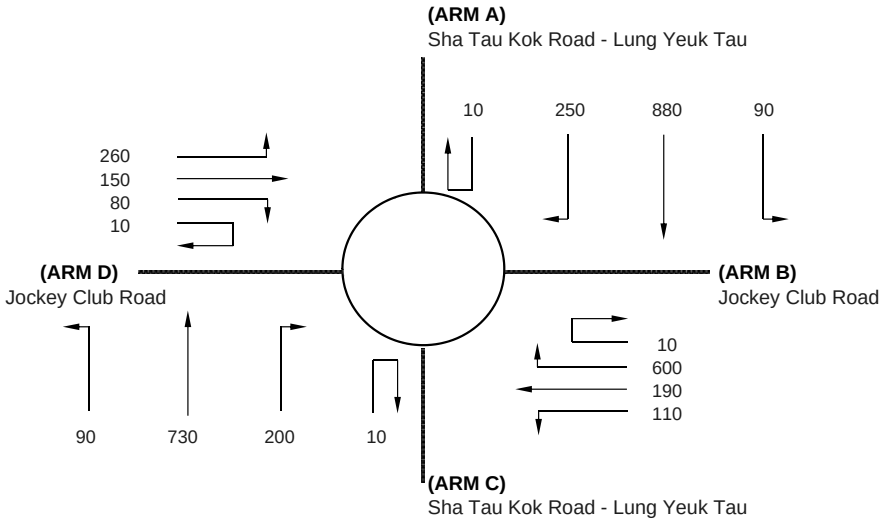
TOTAL ENTRY FLOWS = 3140 PCU

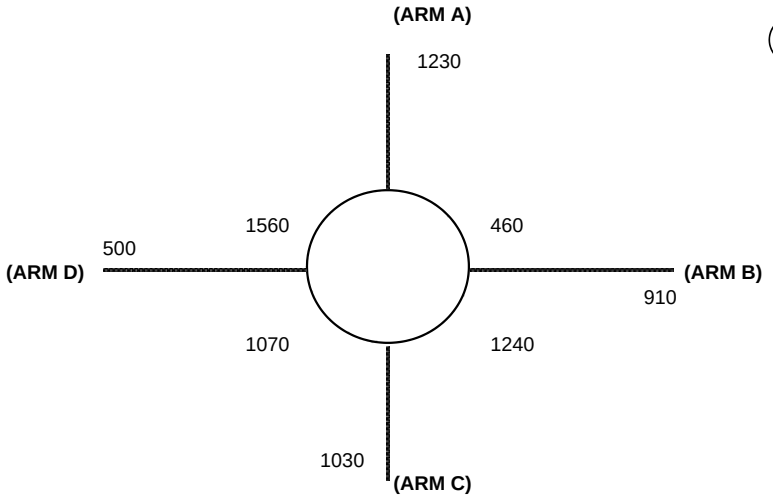
CRITICAL DFC = 0.65

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2017 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1230	910	1030	500
Qc= Circulating flow across entry (pcu/h)	460	1240	1070	1560
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2164	1531	1324	1478
DFC = Design flow/Capacity = Q/Qe	0.57	0.59	0.78	0.34

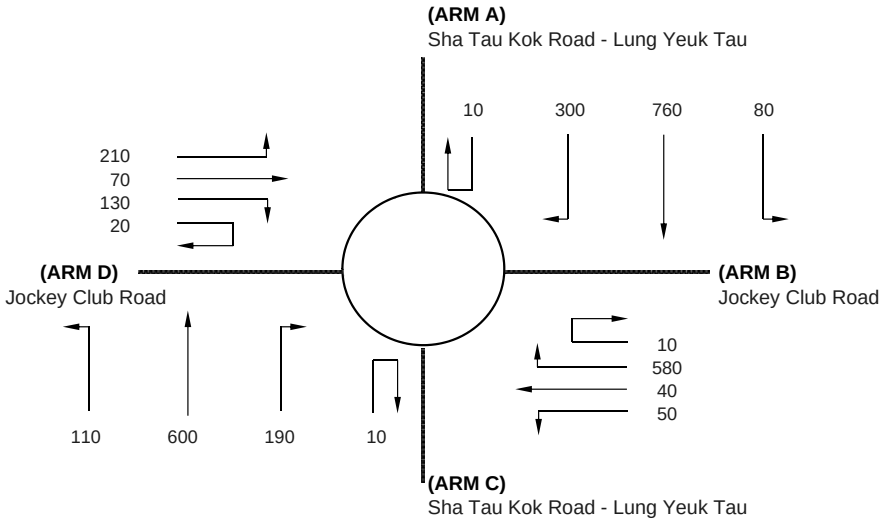
TOTAL ENTRY FLOWS = 3670 PCU

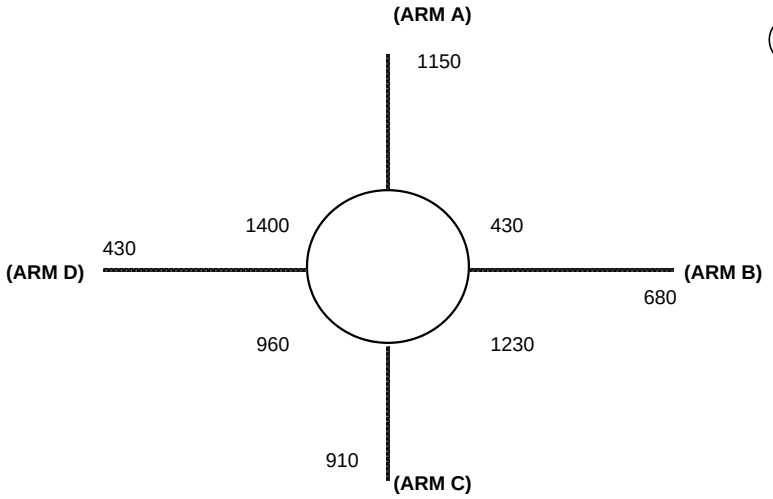
CRITICAL DFC = 0.78

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2017 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1150	680	910	430
Qc= Circulating flow across entry (pcu/h)	430	1230	960	1400
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2184	1538	1387	1587
DFC = Design flow/Capacity = Q/Qe	0.53	0.44	0.66	0.27

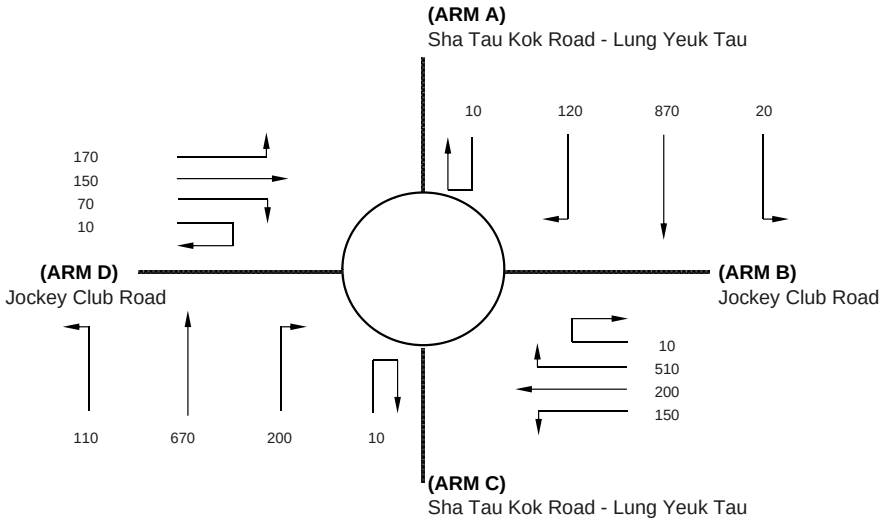
TOTAL ENTRY FLOWS = 3170 PCU

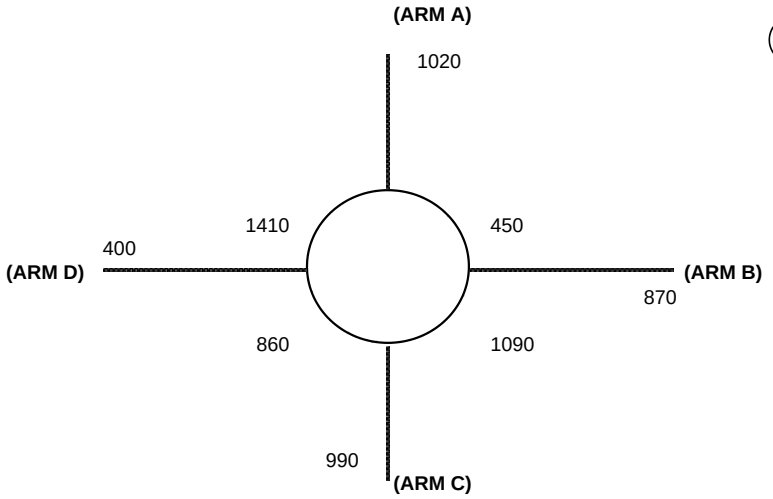
CRITICAL DFC = 0.66

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2019 AM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1020	870	990	400
Qc= Circulating flow across entry (pcu/h)	450	1090	860	1410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2171	1631	1445	1580
DFC = Design flow/Capacity = Q/Qe	0.47	0.53	0.68	0.25

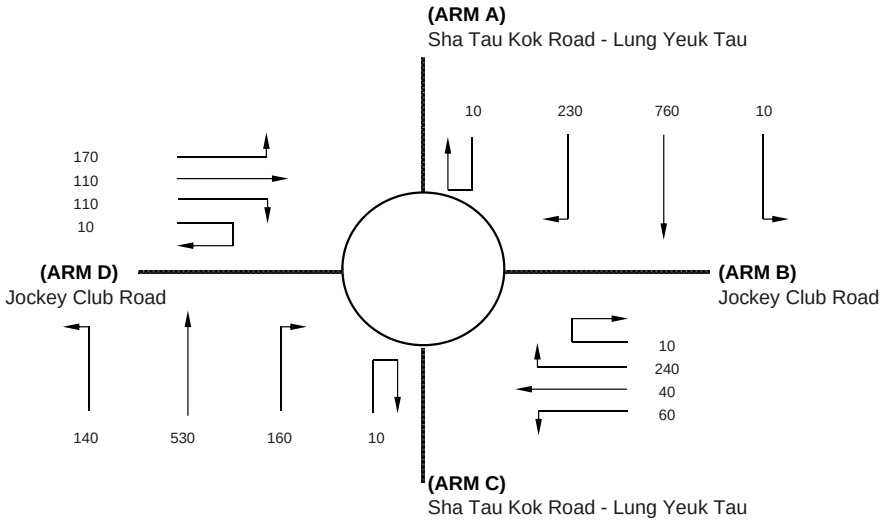
TOTAL ENTRY FLOWS = 3280 PCU

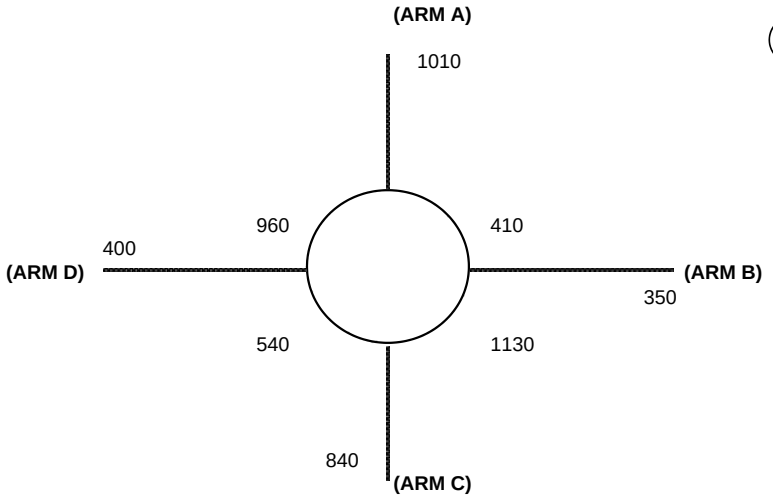
CRITICAL DFC = 0.68

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2019 PM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1010	350	840	400
Qc= Circulating flow across entry (pcu/h)	410	1130	540	960
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2197	1604	1631	1887
DFC = Design flow/Capacity = Q/Qe	0.46	0.22	0.52	0.21

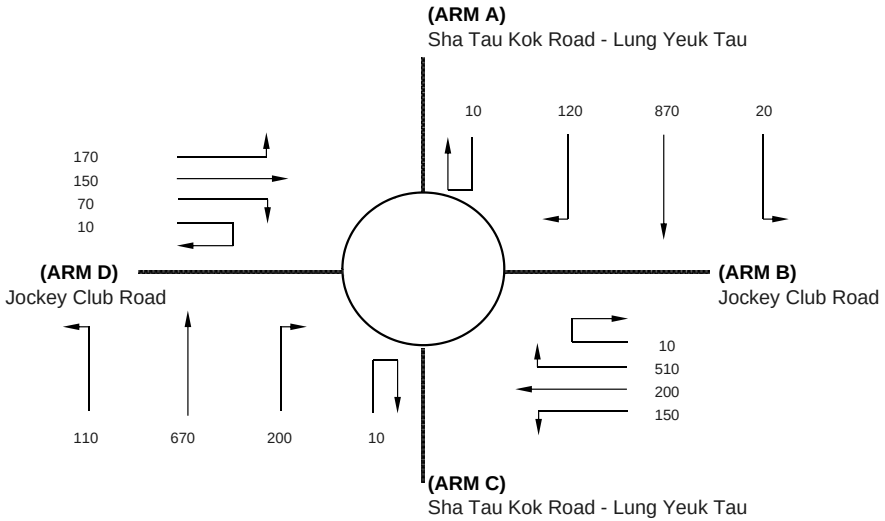
TOTAL ENTRY FLOWS = 2600 PCU

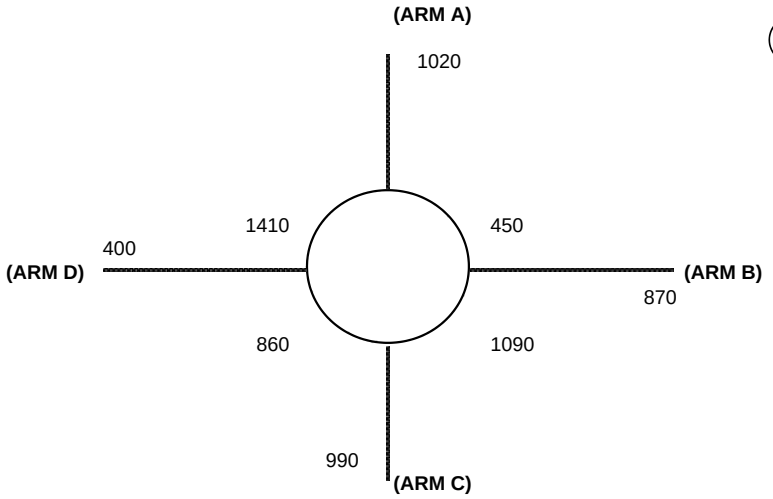
CRITICAL DFC = 0.52

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2019 AM CTIA Critical Stage	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	4.60	7.80
E = Entry width (m)	8.50	7.00	6.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1020	870	990	400
Qc= Circulating flow across entry (pcu/h)	450	1090	860	1410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	5.68	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1720	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.53	0.65
Qe= K(F-Fc*Qc)	2171	1631	1310	1580
DFC = Design flow/Capacity = Q/Qe	0.47	0.53	0.76	0.25

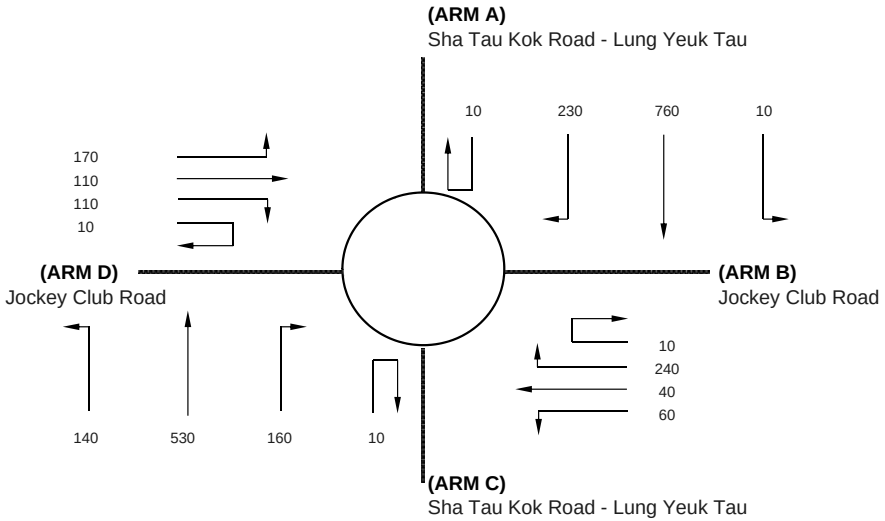
TOTAL ENTRY FLOWS = 3280 PCU

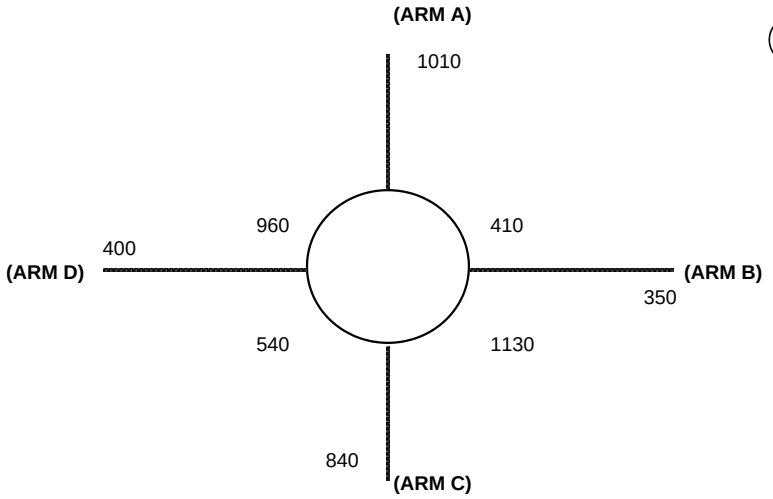
CRITICAL DFC = 0.76

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2019 AM CTIA Critical Stage	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	4.60	7.80
E = Entry width (m)	8.50	7.00	6.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1010	350	840	400
Qc= Circulating flow across entry (pcu/h)	410	1130	540	960
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	5.68	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1720	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.53	0.65
Qe= K(F-Fc*Qc)	2197	1604	1487	1887
DFC = Design flow/Capacity = Q/Qe	0.46	0.22	0.56	0.21

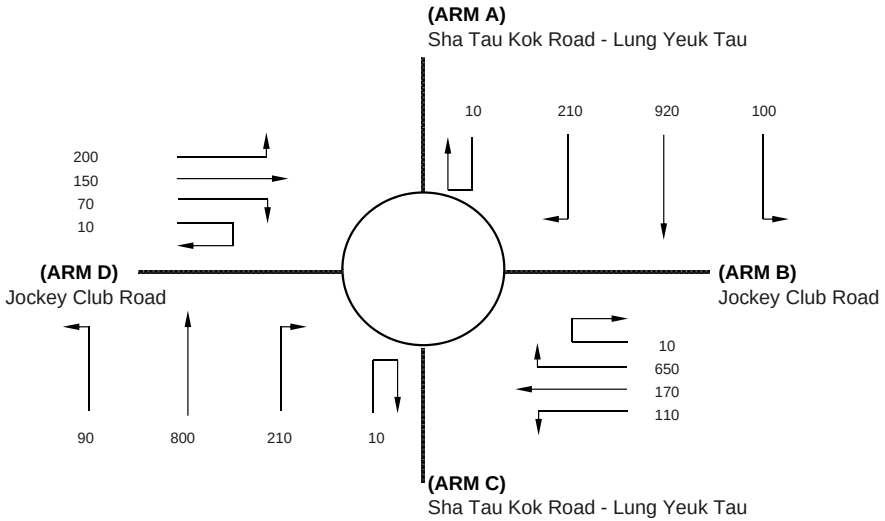
TOTAL ENTRY FLOWS = 2600 PCU

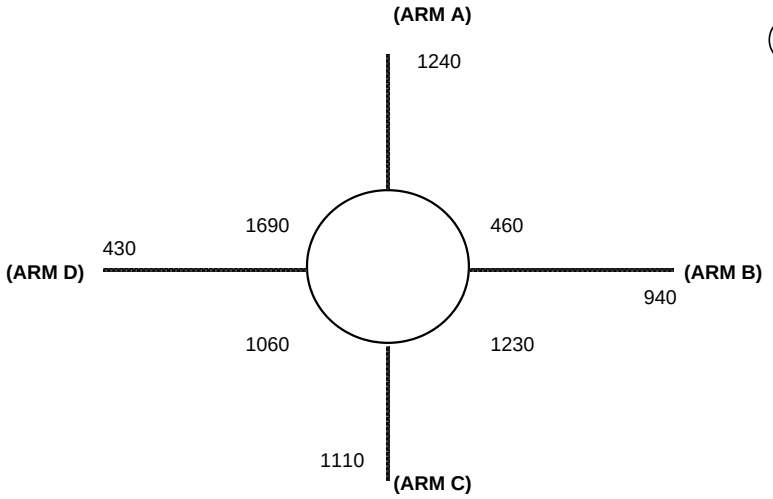
CRITICAL DFC = 0.56

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 AM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1240	940	1110	430
Qc= Circulating flow across entry (pcu/h)	460	1230	1060	1690
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2164	1538	1329	1390
DFC = Design flow/Capacity = Q/Qe	0.57	0.61	0.83	0.31

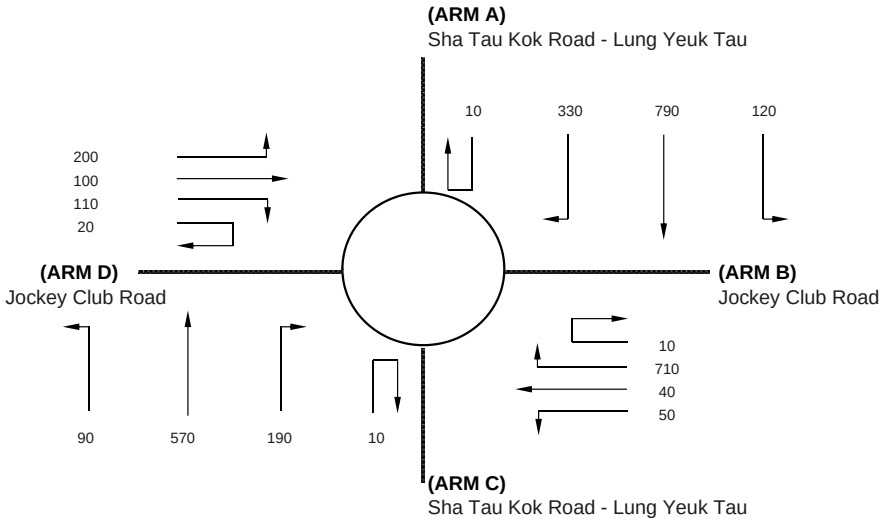
TOTAL ENTRY FLOWS = 3720 PCU

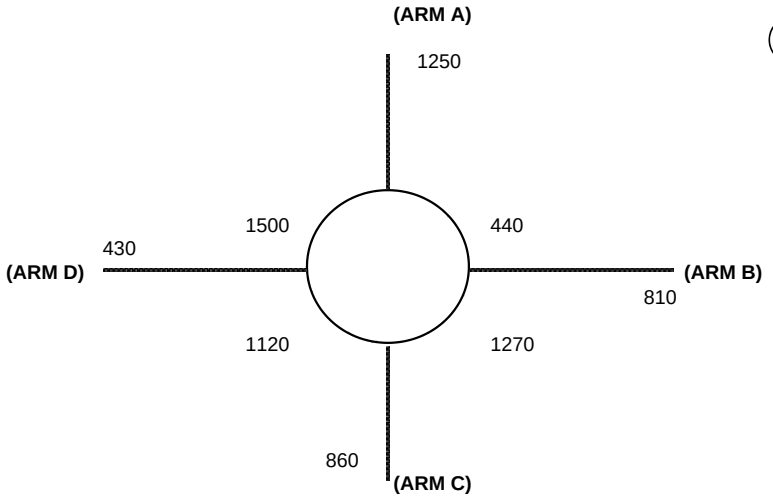
CRITICAL DFC = 0.83

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 PM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1250	810	860	430
Qc= Circulating flow across entry (pcu/h)	440	1270	1120	1500
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2177	1511	1295	1519
DFC = Design flow/Capacity = Q/Qe	0.57	0.54	0.66	0.28

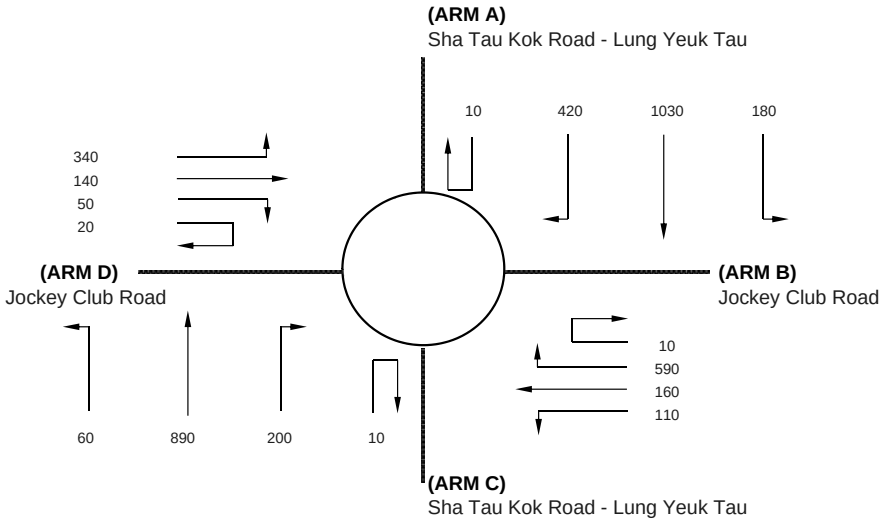
TOTAL ENTRY FLOWS = 3350 PCU

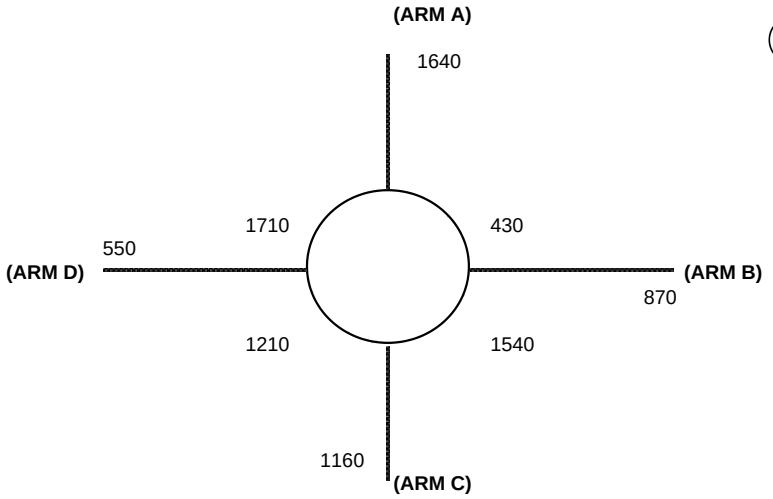
CRITICAL DFC = 0.66

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1640	870	1160	550
Qc= Circulating flow across entry (pcu/h)	430	1540	1210	1710
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2184	1331	1243	1376
DFC = Design flow/Capacity = Q/Qe	0.75	0.65	0.93	0.40

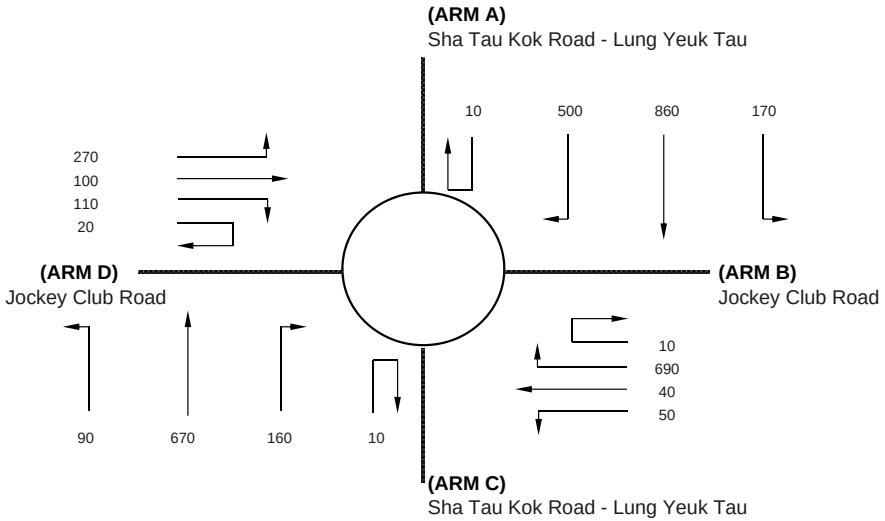
TOTAL ENTRY FLOWS = 4220 PCU

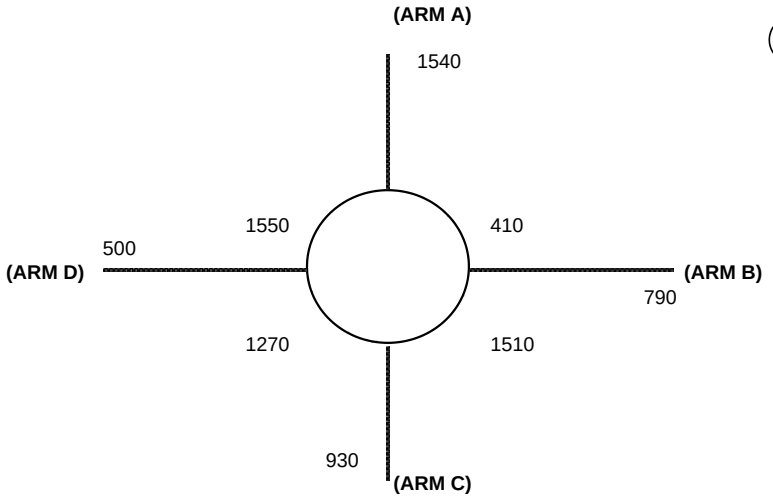
CRITICAL DFC = 0.93

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 PM Design Case (Without Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1540	790	930	500
Qc= Circulating flow across entry (pcu/h)	410	1510	1270	1550
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2197	1351	1208	1485
DFC = Design flow/Capacity = Q/Qe	0.70	0.58	0.77	0.34

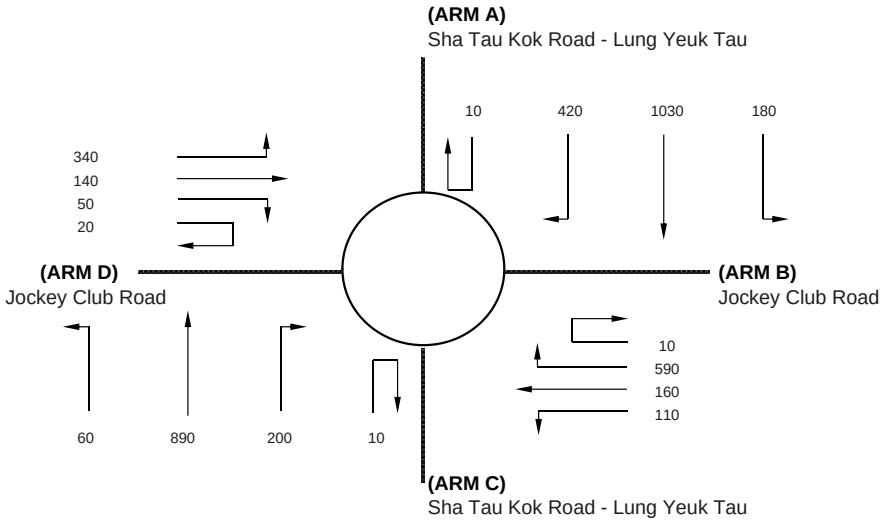
TOTAL ENTRY FLOWS = 3760 PCU

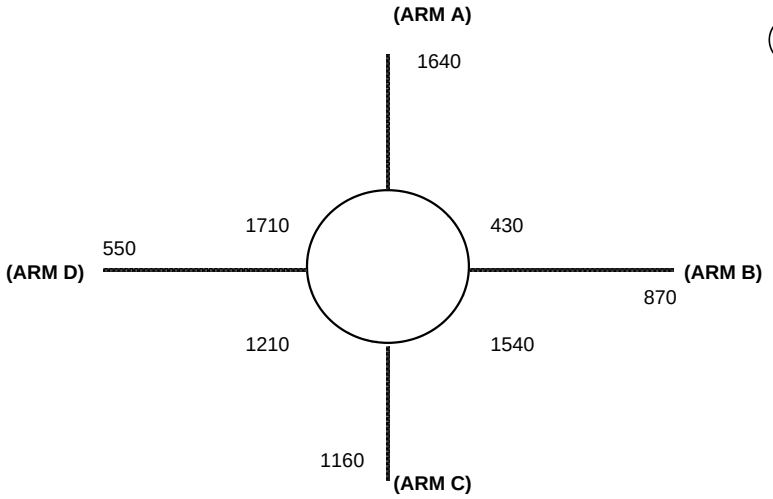
CRITICAL DFC = 0.77

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1640	870	1160	550
Qc= Circulating flow across entry (pcu/h)	430	1540	1210	1710
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2184	1331	1910	1376
DFC = Design flow/Capacity = Q/Qe	0.75	0.65	0.61	0.40

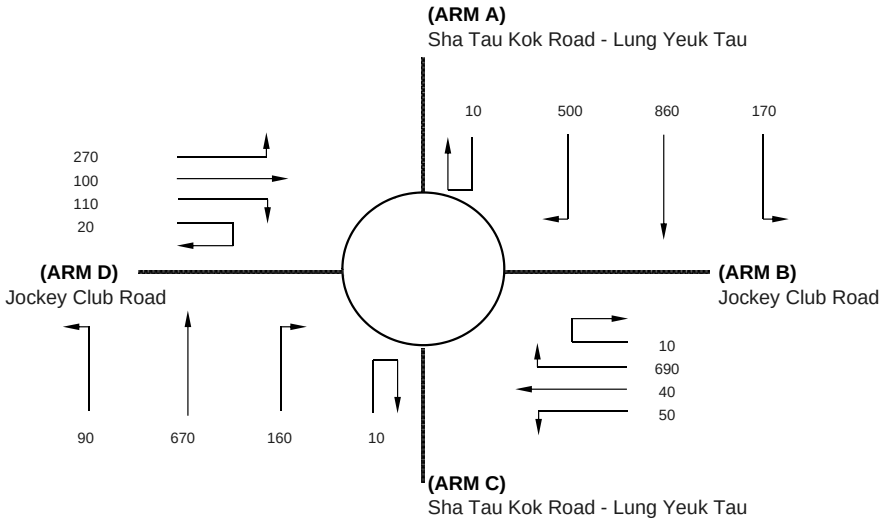
TOTAL ENTRY FLOWS = 4220 PCU

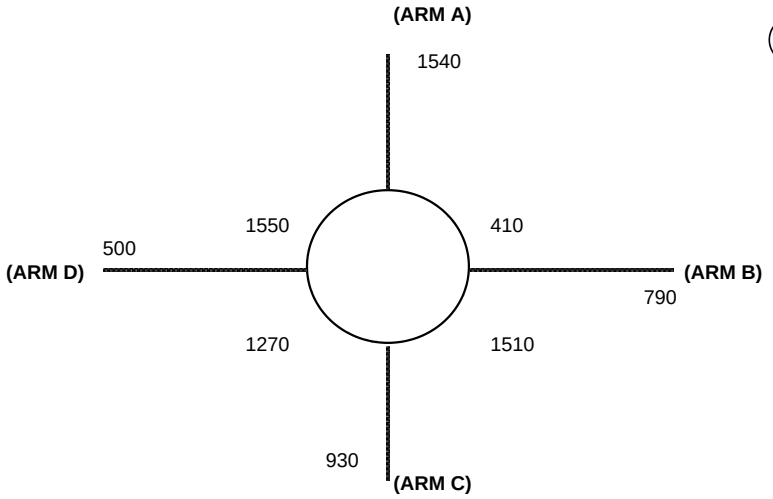
CRITICAL DFC = 0.75

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 PM Design Case (Without Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1540	790	930	500
Qc= Circulating flow across entry (pcu/h)	410	1510	1270	1550
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2197	1351	1867	1485
DFC = Design flow/Capacity = Q/Qe	0.70	0.58	0.50	0.34

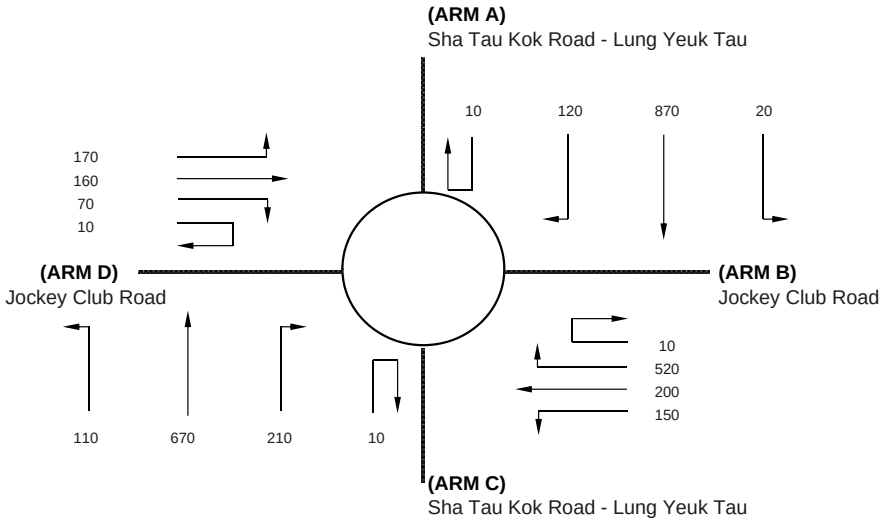
TOTAL ENTRY FLOWS = 3760 PCU

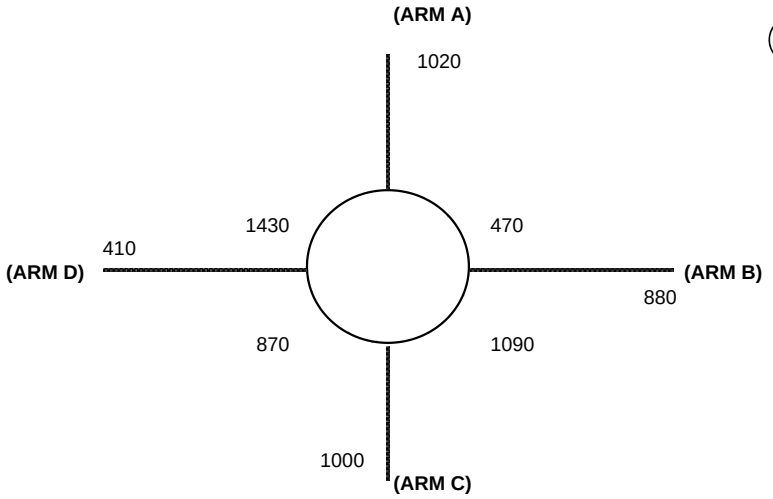
CRITICAL DFC = 0.70

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 AM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J8

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1020	880	1000	410
Qc= Circulating flow across entry (pcu/h)	470	1090	870	1430
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2158	1631	1440	1567
DFC = Design flow/Capacity = Q/Qe	0.47	0.54	0.69	0.26

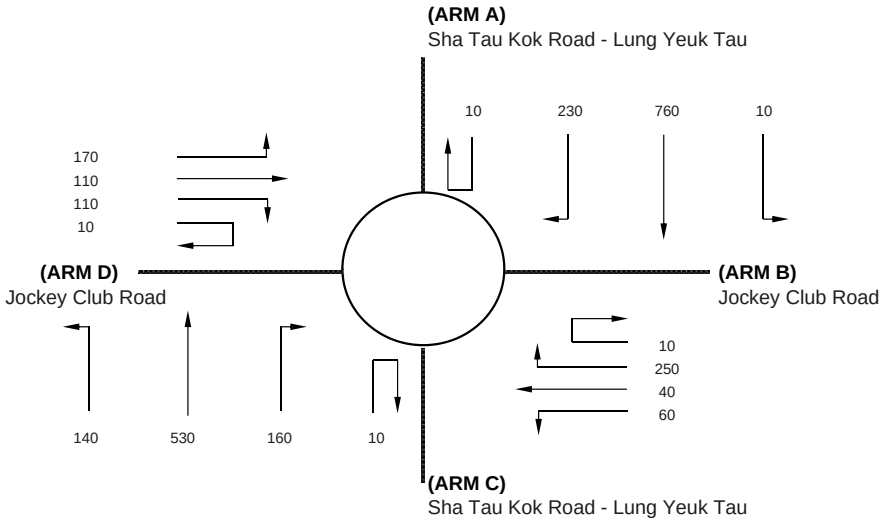
TOTAL ENTRY FLOWS = 3310 PCU

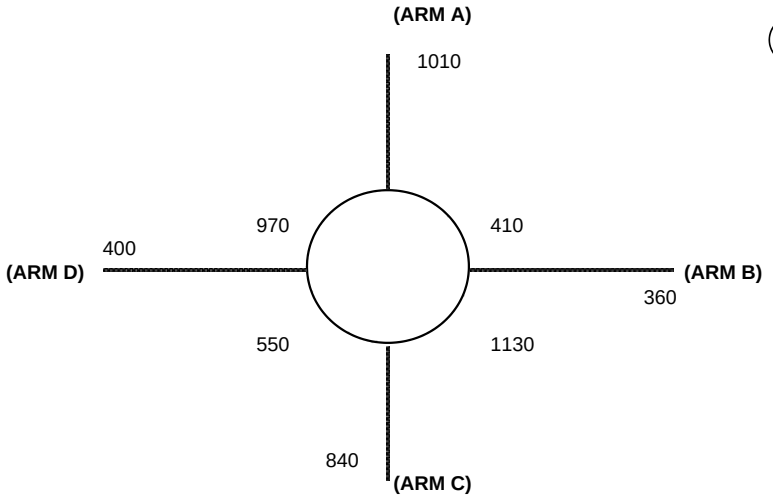
CRITICAL DFC = 0.69

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 PM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1010	360	840	400
Qc= Circulating flow across entry (pcu/h)	410	1130	550	970
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2197	1604	1625	1880
DFC = Design flow/Capacity = Q/Qe	0.46	0.22	0.52	0.21

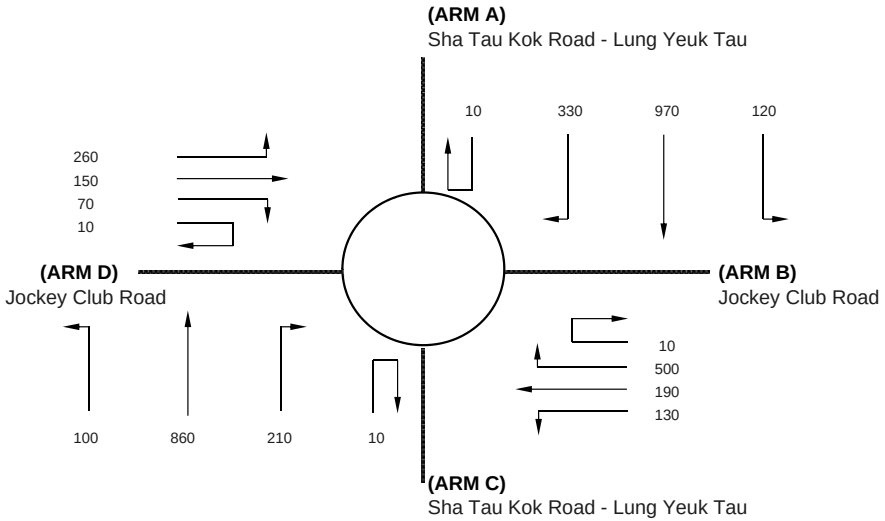
TOTAL ENTRY FLOWS = 2610 PCU

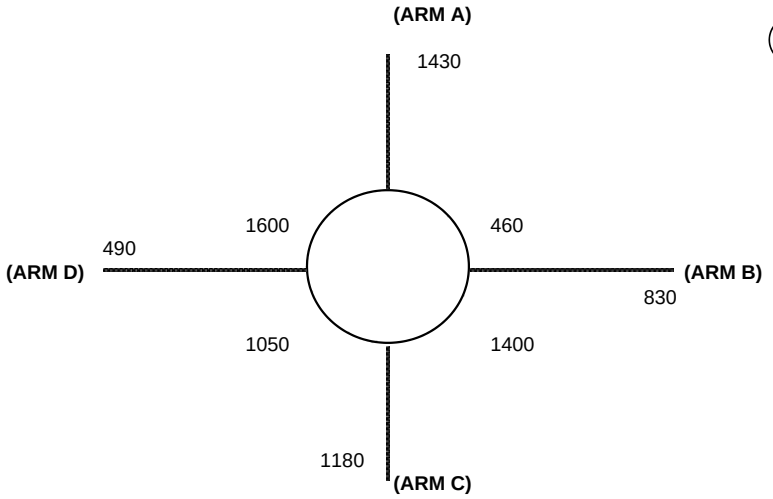
CRITICAL DFC = 0.52

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 AM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1430	830	1180	490
Qc= Circulating flow across entry (pcu/h)	460	1400	1050	1600
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2164	1424	1335	1451
DFC = Design flow/Capacity = Q/Qe	0.66	0.58	0.88	0.34

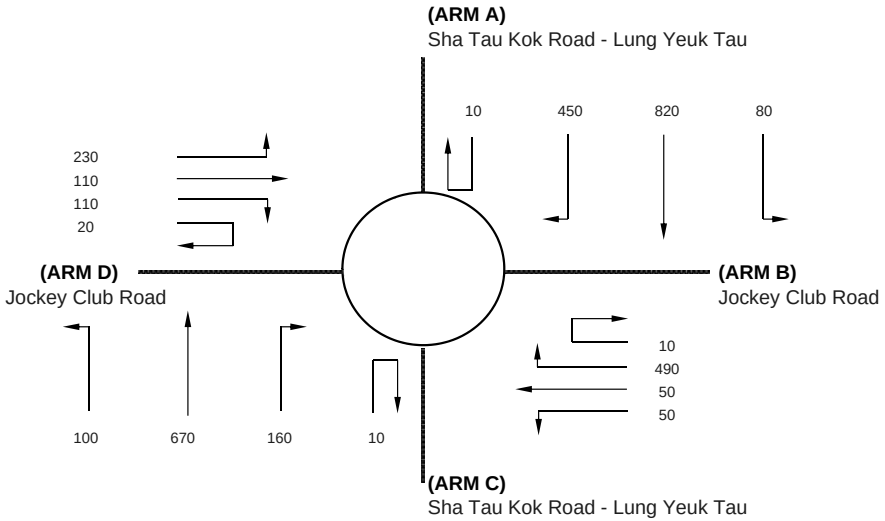
TOTAL ENTRY FLOWS = 3930 PCU

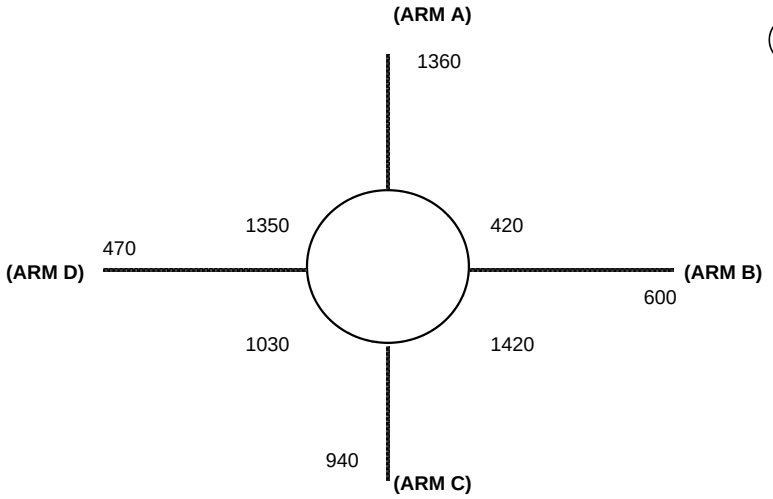
CRITICAL DFC = 0.88

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 PM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1360	600	940	470
Qc= Circulating flow across entry (pcu/h)	420	1420	1030	1350
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2191	1411	1347	1621
DFC = Design flow/Capacity = Q/Qe	0.62	0.43	0.70	0.29

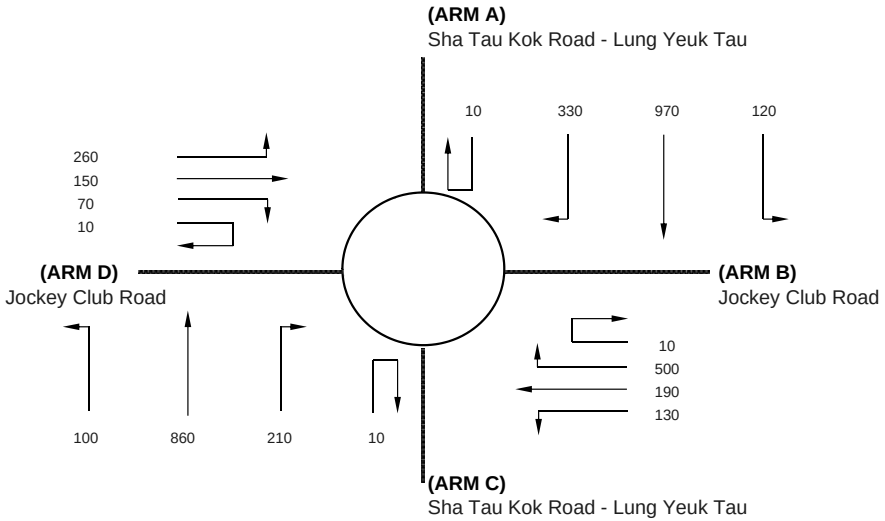
TOTAL ENTRY FLOWS = 3370 PCU

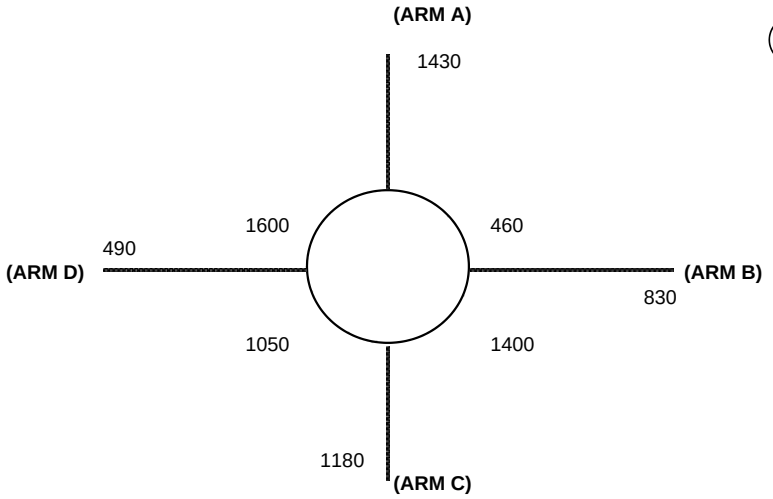
CRITICAL DFC = 0.70

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 AM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1430	830	1180	490
Qc= Circulating flow across entry (pcu/h)	460	1400	1050	1600
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2164	1424	2025	1451
DFC = Design flow/Capacity = Q/Qe	0.66	0.58	0.58	0.34

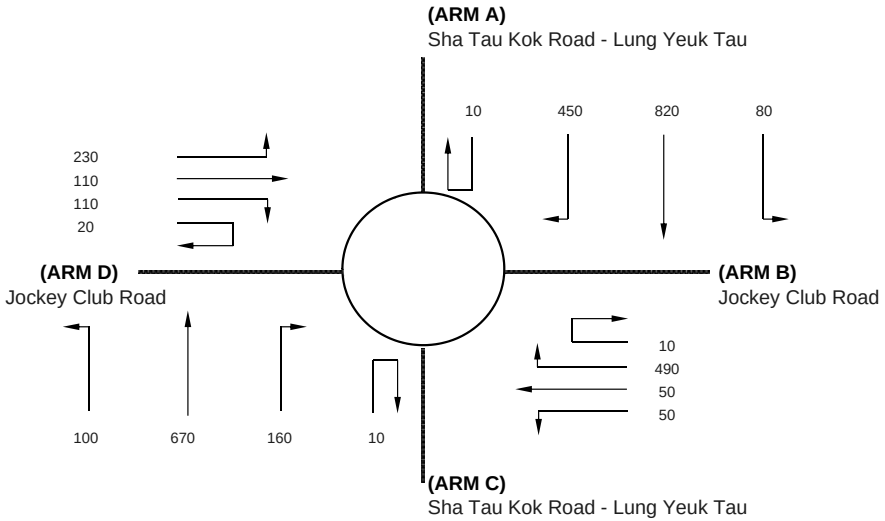
TOTAL ENTRY FLOWS = 3930 PCU

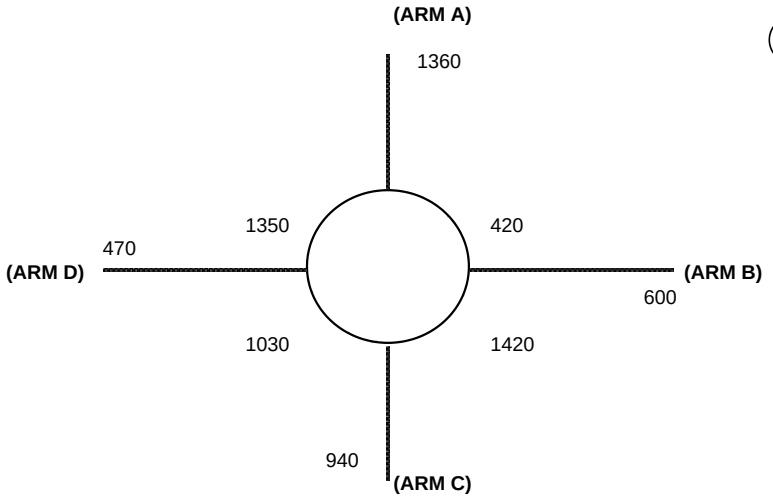
CRITICAL DFC = 0.66

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2020 PM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1360	600	940	470
Qc= Circulating flow across entry (pcu/h)	420	1420	1030	1350
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2191	1411	2039	1621
DFC = Design flow/Capacity = Q/Qe	0.62	0.43	0.46	0.29

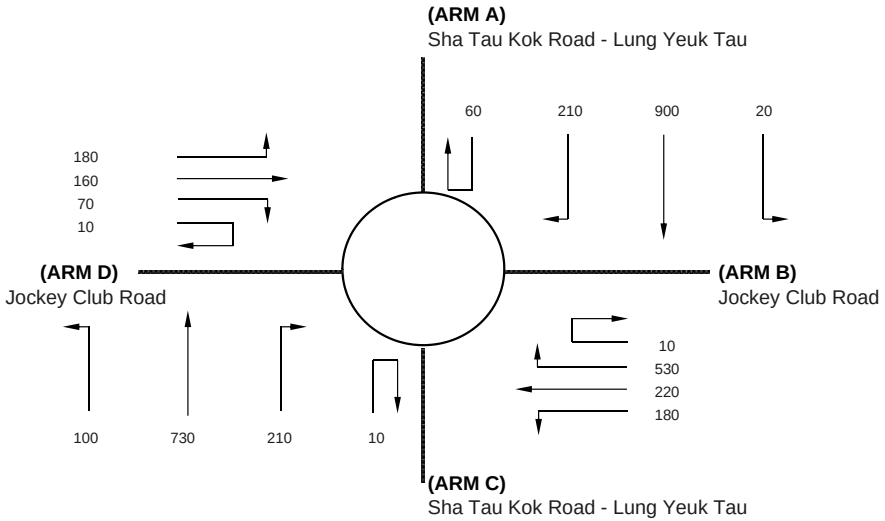
TOTAL ENTRY FLOWS = 3370 PCU

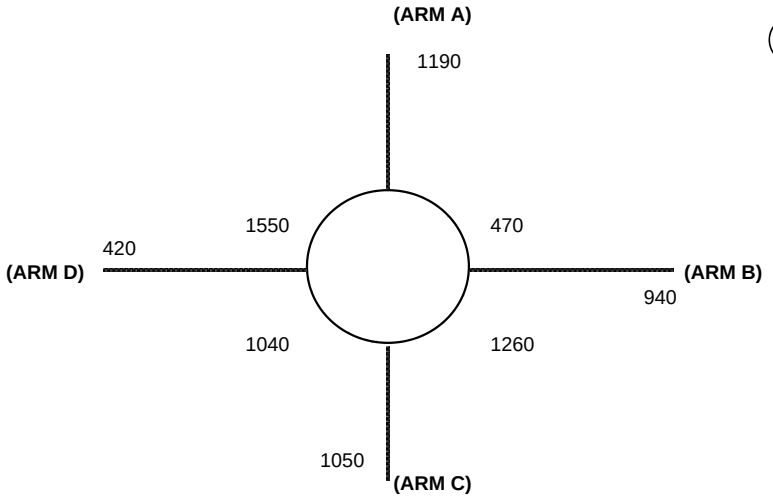
CRITICAL DFC = 0.62

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1190	940	1050	420
Qc= Circulating flow across entry (pcu/h)	470	1260	1040	1550
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2158	1518	1341	1485
DFC = Design flow/Capacity = Q/Qe	0.55	0.62	0.78	0.28

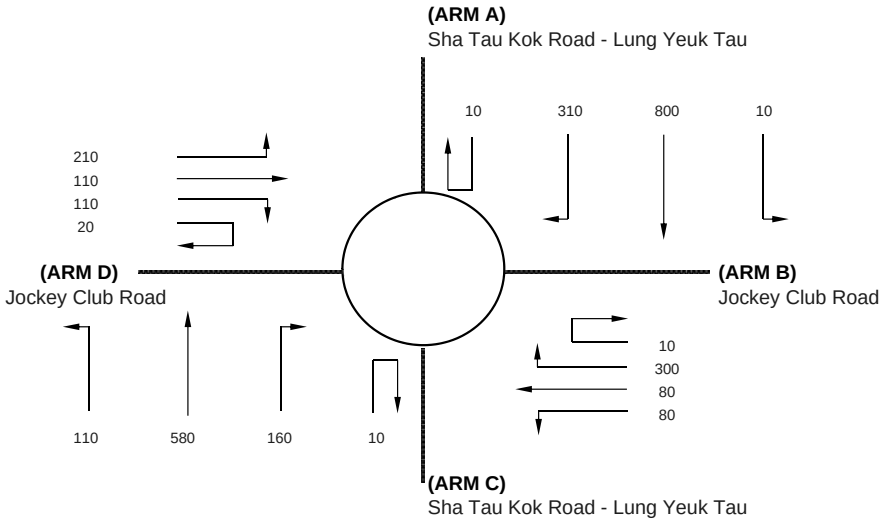
TOTAL ENTRY FLOWS = 3600 PCU

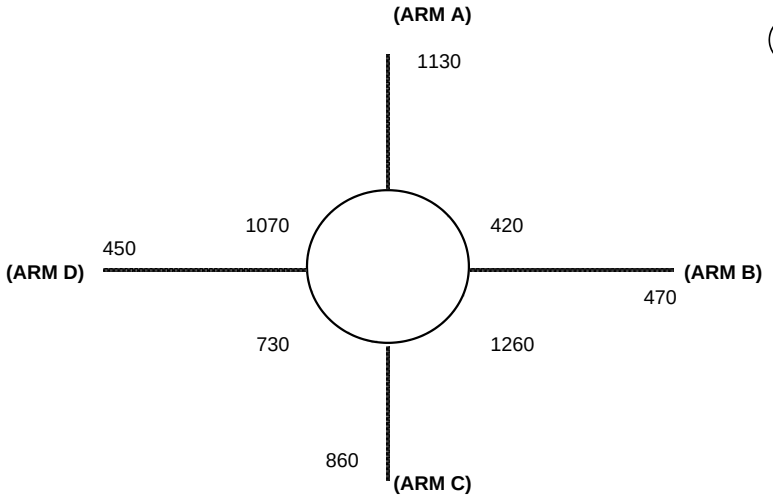
CRITICAL DFC = 0.78

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2026 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1130	470	860	450
Qc= Circulating flow across entry (pcu/h)	420	1260	730	1070
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2191	1518	1521	1812
DFC = Design flow/Capacity = Q/Qe	0.52	0.31	0.57	0.25

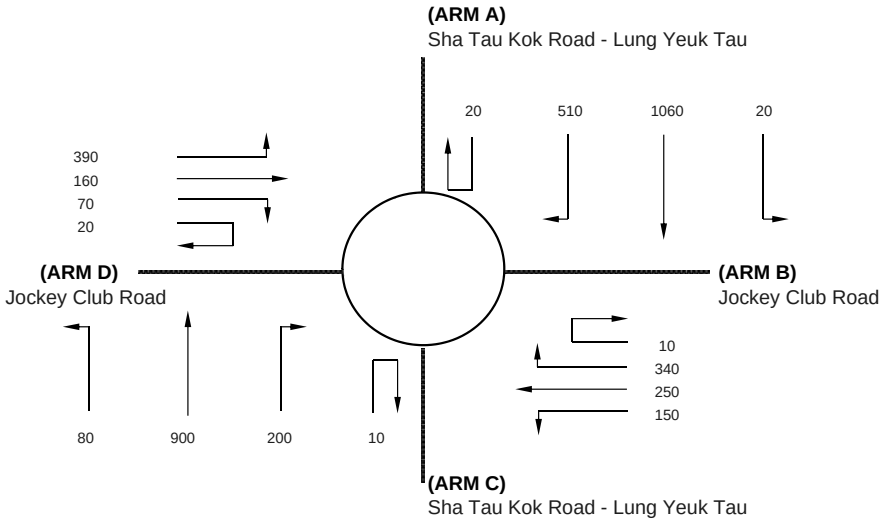
TOTAL ENTRY FLOWS = 2910 PCU

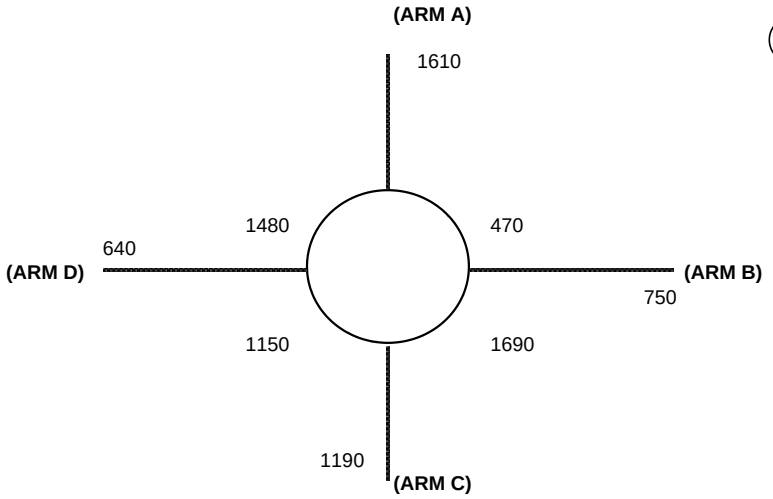
CRITICAL DFC = 0.57

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2026 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1610	750	1190	640
Qc= Circulating flow across entry (pcu/h)	470	1690	1150	1480
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2158	1231	1277	1533
DFC = Design flow/Capacity = Q/Qe	0.75	0.61	0.93	0.42

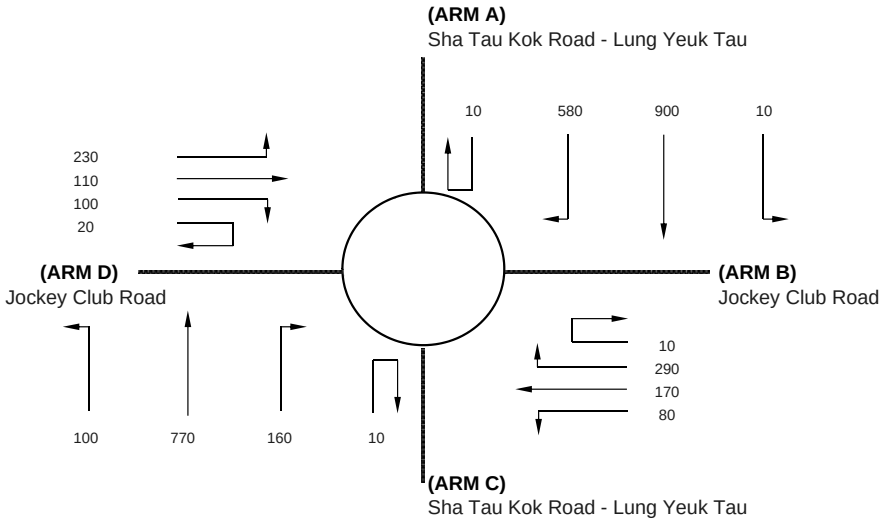
TOTAL ENTRY FLOWS = 4190 PCU

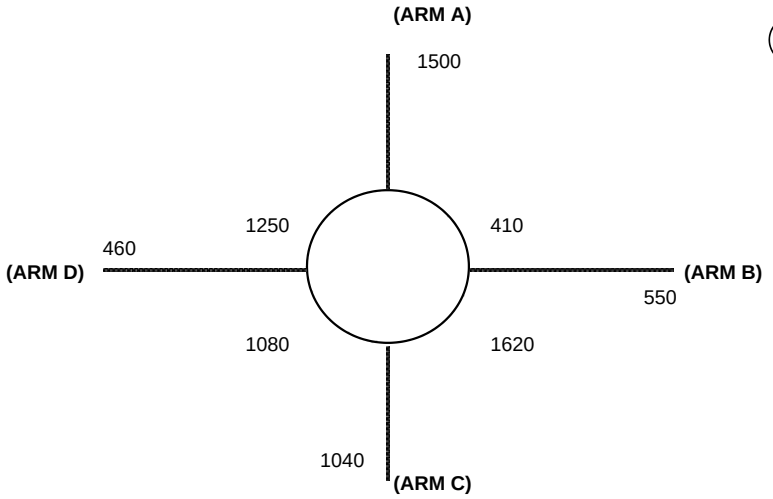
CRITICAL DFC = 0.93

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2026 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1500	550	1040	460
Qc= Circulating flow across entry (pcu/h)	410	1620	1080	1250
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2197	1277	1318	1689
DFC = Design flow/Capacity = Q/Qe	0.68	0.43	0.79	0.27

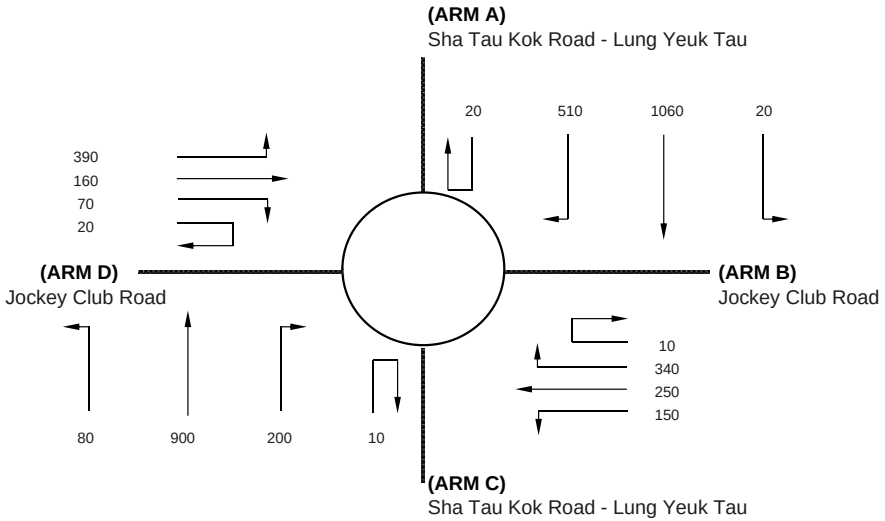
TOTAL ENTRY FLOWS = 3550 PCU

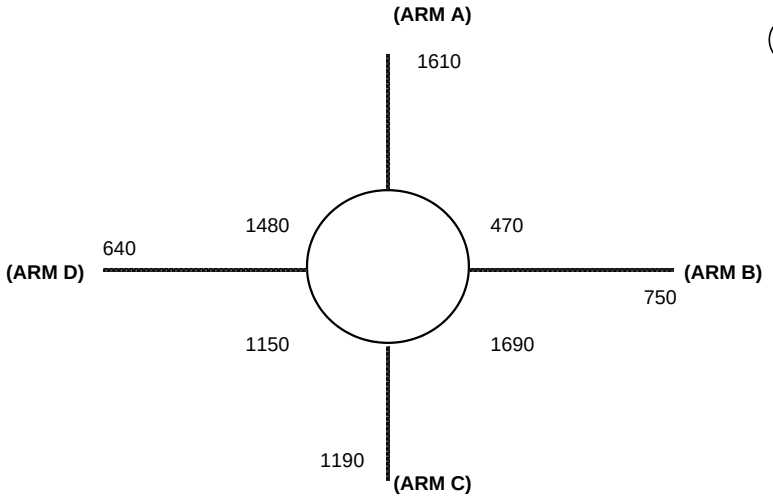
CRITICAL DFC = 0.79

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2026 AM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1610	750	1190	640
Qc= Circulating flow across entry (pcu/h)	470	1690	1150	1480
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2158	1231	1953	1533
DFC = Design flow/Capacity = Q/Qe	0.75	0.61	0.61	0.42

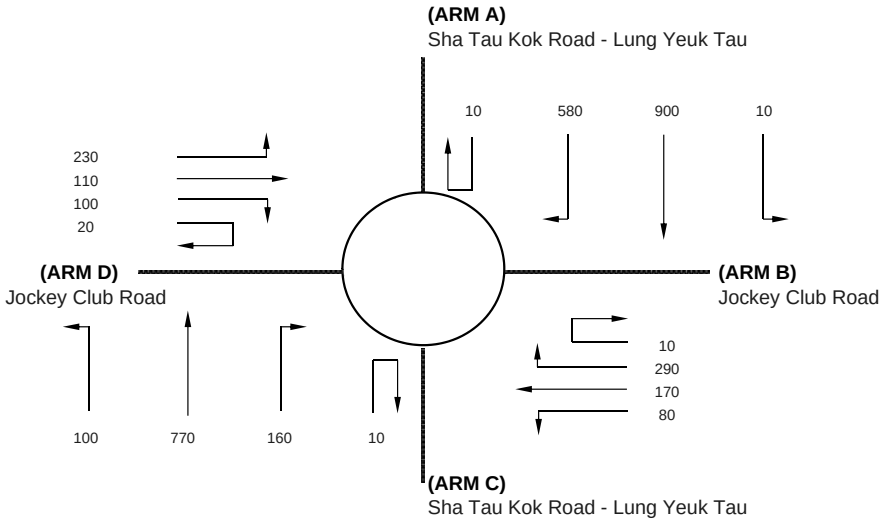
TOTAL ENTRY FLOWS = 4190 PCU

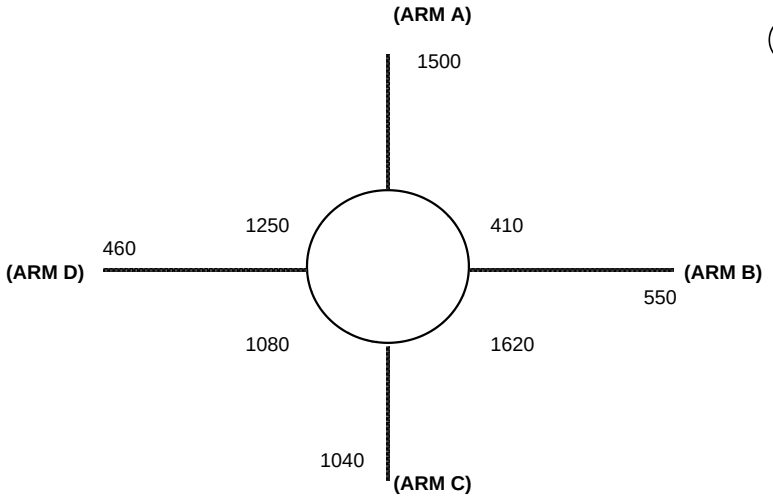
CRITICAL DFC = 0.75

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2026 PM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





J8

ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1500	550	1040	460
Qc= Circulating flow across entry (pcu/h)	410	1620	1080	1250
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2197	1277	2004	1689
DFC = Design flow/Capacity = Q/Qe	0.68	0.43	0.52	0.27

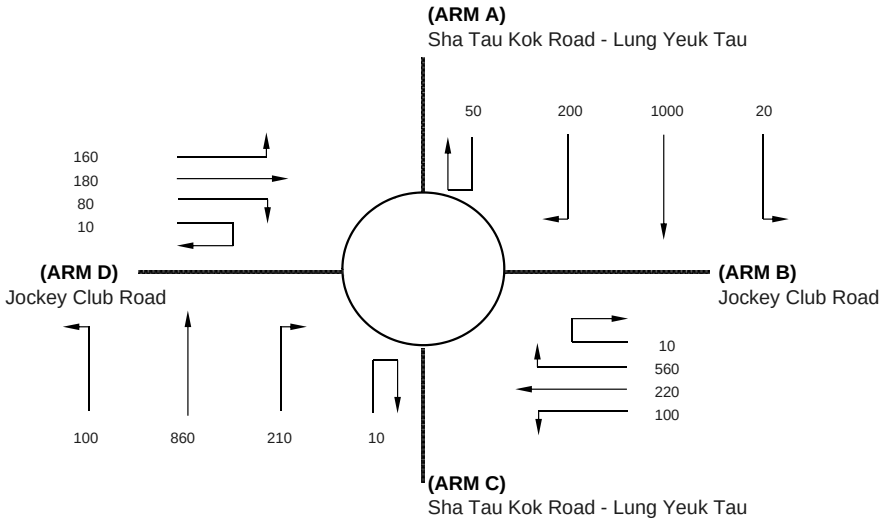
TOTAL ENTRY FLOWS = 3550 PCU

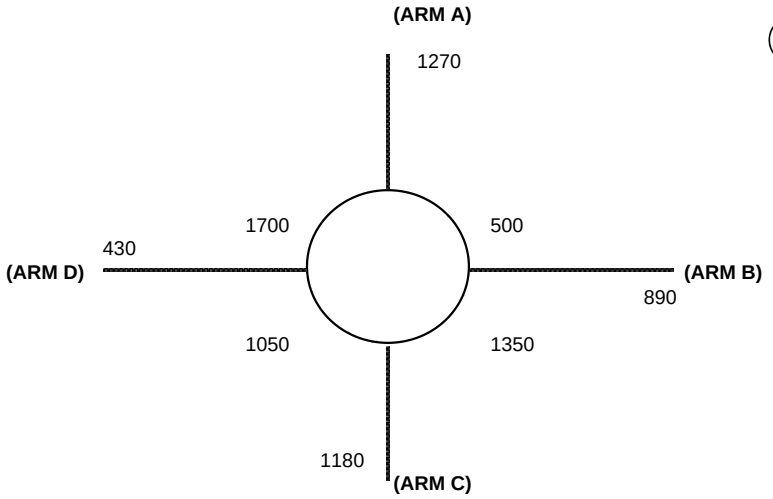
CRITICAL DFC = 0.68

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2031 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1270	890	1180	430
Qc= Circulating flow across entry (pcu/h)	500	1350	1050	1700
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2138	1458	1335	1383
DFC = Design flow/Capacity = Q/Qe	0.59	0.61	0.88	0.31

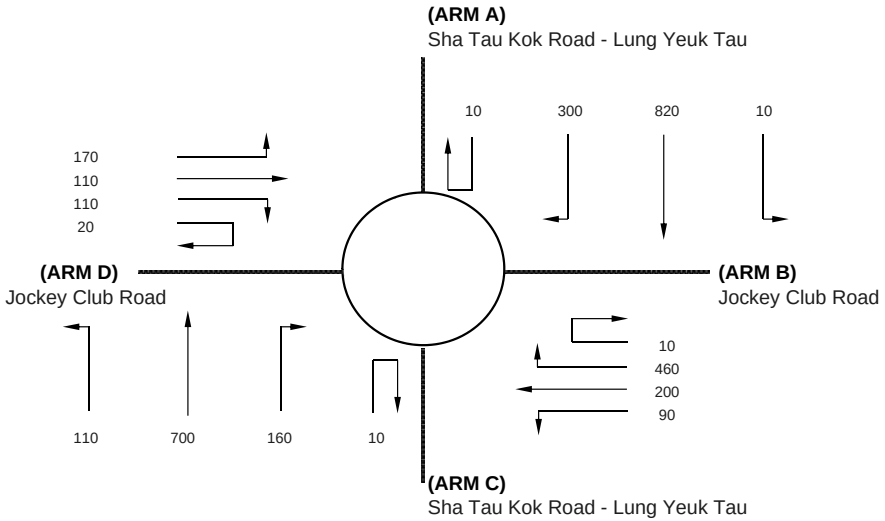
TOTAL ENTRY FLOWS = 3770 PCU

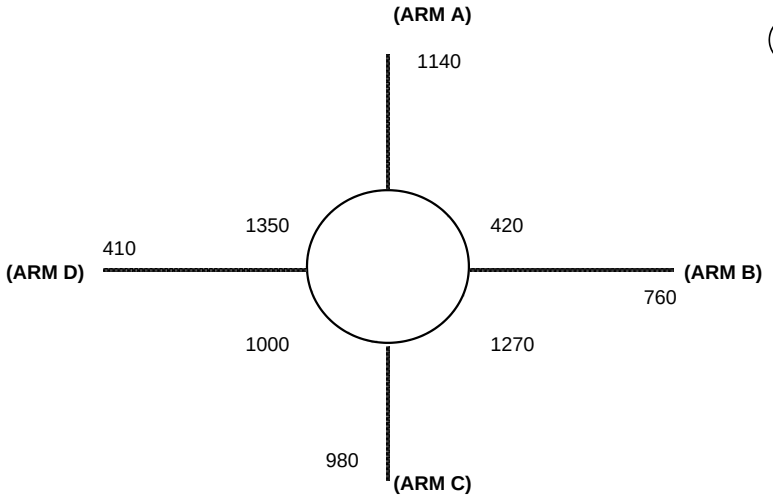
CRITICAL DFC = 0.88

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2031 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1140	760	980	410
Qc= Circulating flow across entry (pcu/h)	420	1270	1000	1350
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2191	1511	1364	1621
DFC = Design flow/Capacity = Q/Qe	0.52	0.50	0.72	0.25

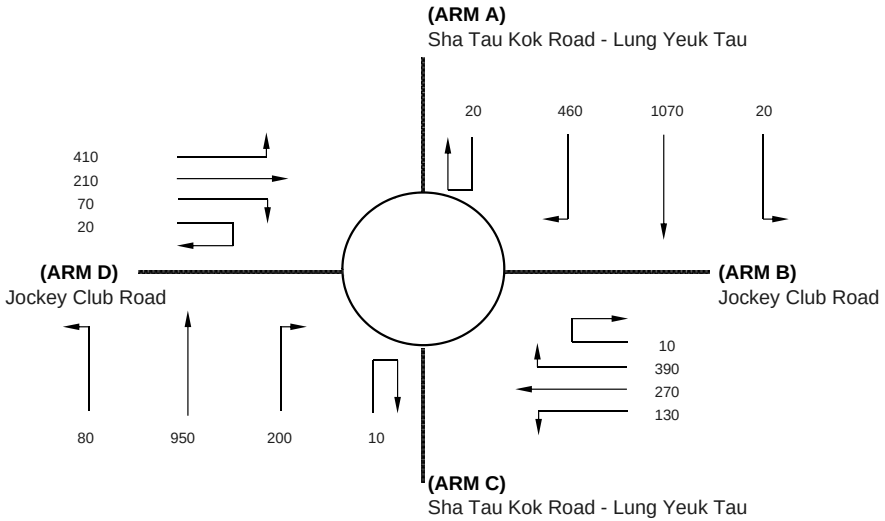
TOTAL ENTRY FLOWS = 3290 PCU

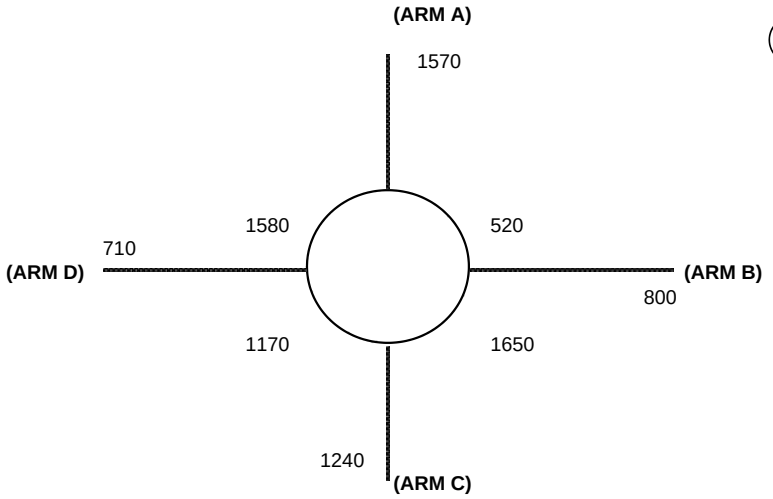
CRITICAL DFC = 0.72

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2031 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1570	800	1240	710
Qc= Circulating flow across entry (pcu/h)	520	1650	1170	1580
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2125	1257	1266	1465
DFC = Design flow/Capacity = Q/Qe	0.74	0.64	0.98	0.48

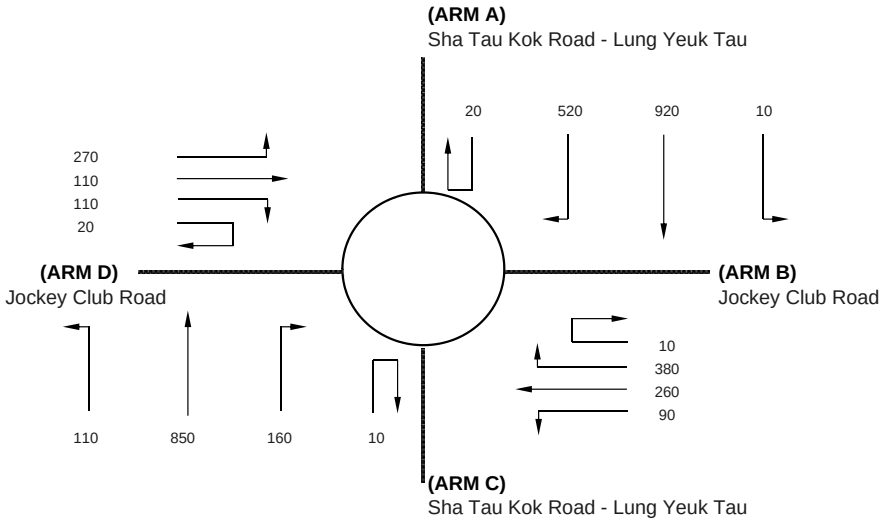
TOTAL ENTRY FLOWS = 4320 PCU

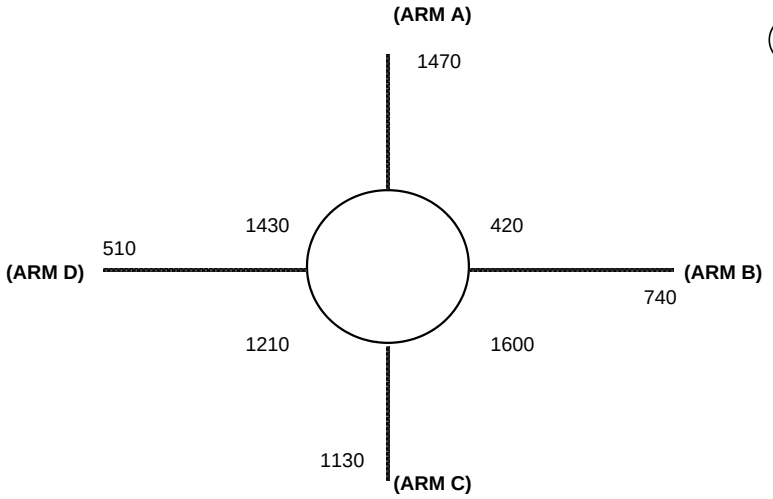
CRITICAL DFC = 0.98

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2031 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	5.10	7.80
E = Entry width (m)	8.50	7.00	6.50	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1470	740	1130	510
Qc= Circulating flow across entry (pcu/h)	420	1600	1210	1430
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.15	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	6.18	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	1872	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.56	0.65
Qe= K(F-Fc*Qc)	2191	1291	1243	1567
DFC = Design flow/Capacity = Q/Qe	0.67	0.57	0.91	0.33

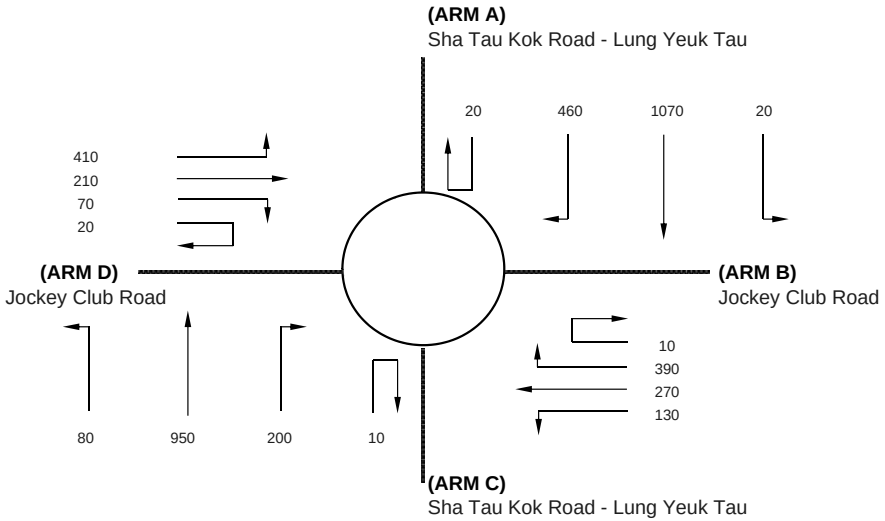
TOTAL ENTRY FLOWS = 3850 PCU

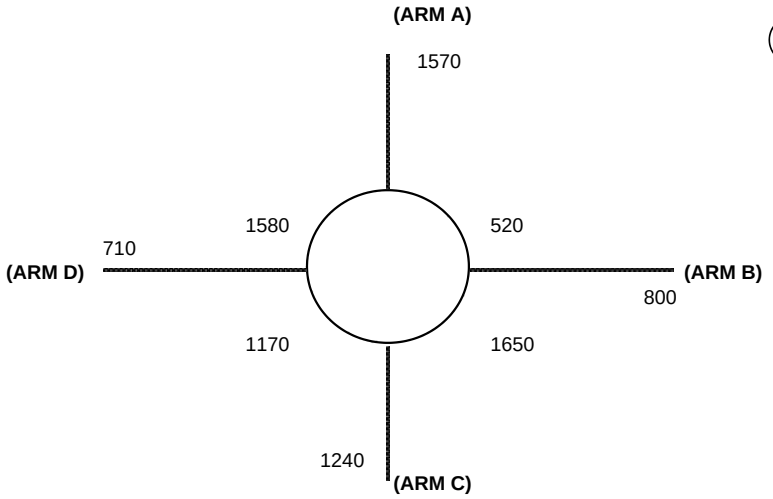
CRITICAL DFC = 0.91

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2031 AM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1570	800	1240	710
Qc= Circulating flow across entry (pcu/h)	520	1650	1170	1580
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2125	1257	1939	1465
DFC = Design flow/Capacity = Q/Qe	0.74	0.64	0.64	0.48

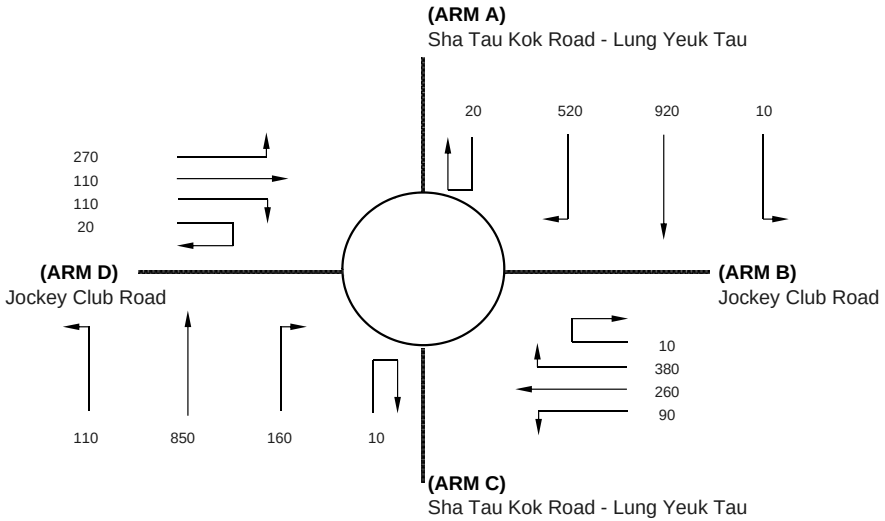
TOTAL ENTRY FLOWS = 4320 PCU

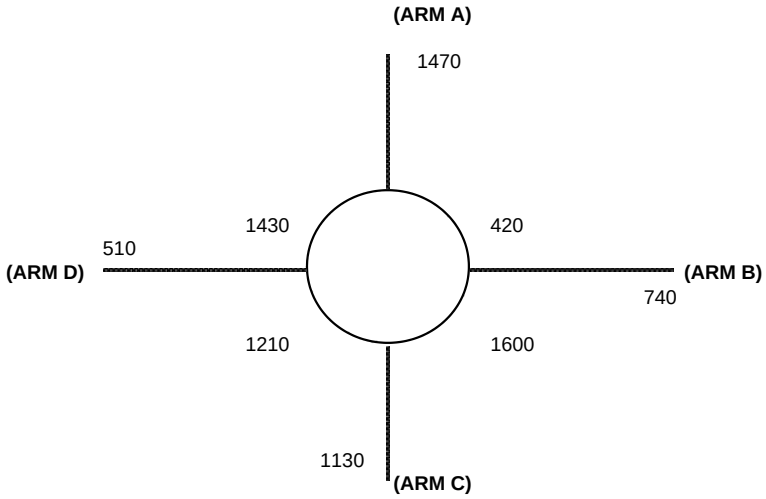
CRITICAL DFC = 0.74

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J8 - Sha Tau Kok Road / Jockey Club Road	2031 PM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	6.80	7.00	7.80
E = Entry width (m)	8.50	7.00	10.00	8.00
L = Effective length of flare (m)	9.50	4.00	15.00	6.00
R = Entry radius (m)	32.50	40.00	40.00	37.50
D = Inscribed circle diameter (m)	65.00	65.00	65.00	65.00
A = Entry angle (degree)	36.00	3.50	26.00	22.00
Q = Entry flow (pcu/h)	1470	740	1130	510
Qc= Circulating flow across entry (pcu/h)	420	1600	1210	1430
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.20	0.08	0.32	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.12	1.04	1.05
X2= V + ((E-V)/(1+2S))	8.15	6.97	8.83	7.98
M = EXP((D-60)/10)	1.65	1.65	1.65	1.65
F = 303*X2	2471	2113	2675	2418
Td= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.66	0.60	0.69	0.65
Qe= K(F-Fc*Qc)	2191	1291	1910	1567
DFC = Design flow/Capacity = Q/Qe	0.67	0.57	0.59	0.33

TOTAL ENTRY FLOWS = 3850 PCU

CRITICAL DFC = 0.67

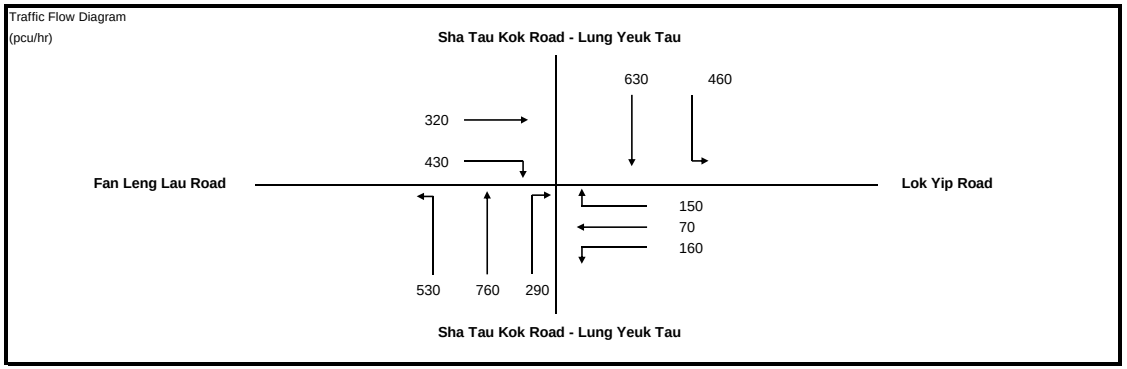
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

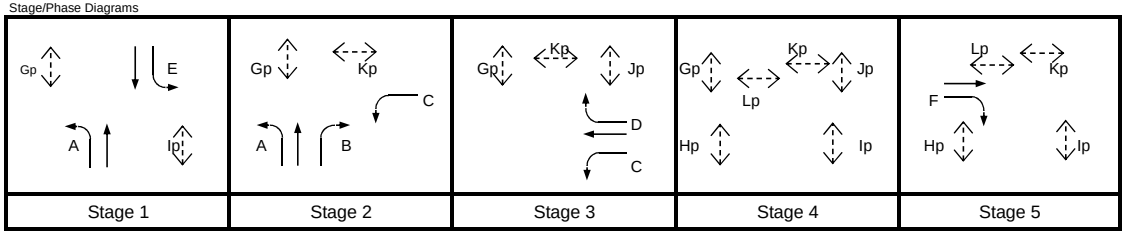
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.596	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	164	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	101	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	121	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	384			384	100%		1749	0.219	
	A	1,2	3.400	1	20					0		2095	146	303		449	33%		2045	0.219	
	A	1,2	3.300	1				0		0		2085		457		457			2085	0.219	
	B	2	3.300	1		20	0	0		0		2085			290	290		100%	1940	0.150	0.150
	F	5	3.650	1		35	0	1		0		1980		320	49	369		13%	1969	0.187	
	F	5	3.600	1		37.5	0	0		0		2115			381	381		100%	2034	0.187	0.187
	E	1	3.300	2				0		0		4170		630		630			4170	0.151	0.151
	E	1	3.300	2	20			1		0		4030	460			460	100%		3749	0.123	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		70	150	220		68%	2045	0.108	0.108

Pedestrian Crossing			GM		FGM				
Gp	1,2,3,4	min.	9	+	6	=	15	sec	
Hp1	4	min.	8	+	0	=	8	sec	*
Hp2	5	min.	0	+	8	=	8	sec	
Ip	1,2,4,5	min.	5	+	7	=	12	sec	
Jp	3,4	min.	5	+	7	=	12	sec	
Kp	1,2,3,4,5	min.	7	+	12	=	19	sec	
Lp	1,4,5	min.	5	+	8	=	13	sec	

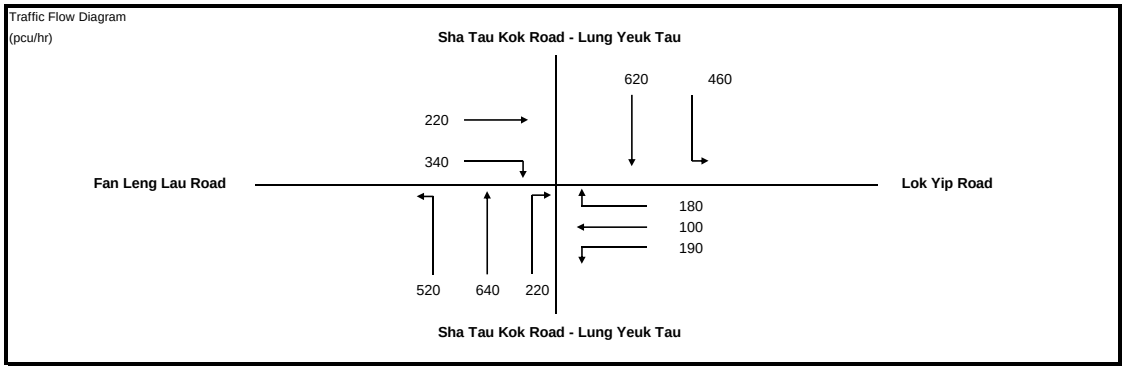
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

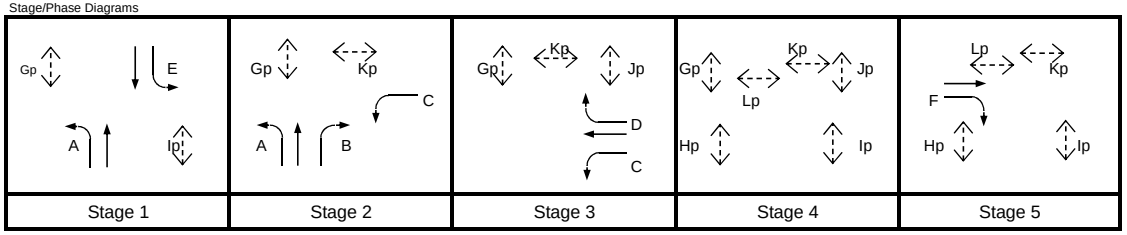
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.539	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	144	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	89	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	9.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	102	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	346			346	100%		1749	0.198	
	A	1,2	3.400	1	20					0		2095	174	228		401	43%		2029	0.198	
	A	1,2	3.300	1				0		0		2085		412		412			2085	0.198	
	B	2	3.300	1		20	0	0		0		2085			220	220		100%	1940	0.113	0.113
	F	5	3.650	1		35	0	1		0		1980		220	55	275		20%	1963	0.140	0.140
	F	5	3.600	1		37.5	0	0		0		2115			285	285		100%	2034	0.140	
	E	1	3.300	2				0		0		4170		620		620			4170	0.149	0.149
	E	1	3.300	2	20			1		0		4030	460			460	100%		3749	0.123	
	C	2,3	4.000	1	15			1		0		2015	190			190	100%		1832	0.104	
	D	3	3.500	1		35	0	0		0		2105		100	180	280		64%	2049	0.137	0.137
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

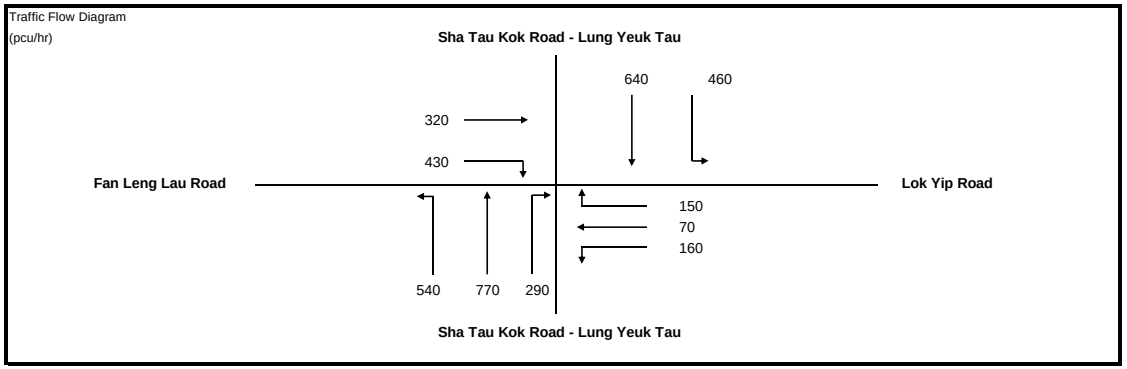
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2017 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

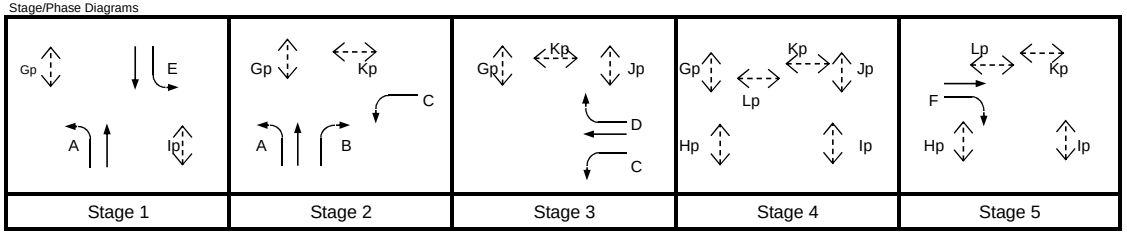
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.598	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	165	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	102	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	122	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	390			390	100%		1749	0.223	
	A	1,2	3.400	1	20					0		2095	150	305		456	33%		2044	0.223	
	A	1,2	3.300	1				0		0		2085		465		465			2085	0.223	
	B	2	3.300	1		20	0	0		0		2085			290	290		100%	1940	0.150	0.150
	F	5	3.650	1		35	0	1		0		1980		320	49	369		13%	1969	0.187	
	F	5	3.600	1		37.5	0	0		0		2115			381	381		100%	2034	0.187	0.187
	E	1	3.300	2				0		0		4170		640		640			4170	0.153	0.153
	E	1	3.300	2	20			1		0		4030	460			460	100%		3749	0.123	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		70	150	220		68%	2045	0.108	0.108
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

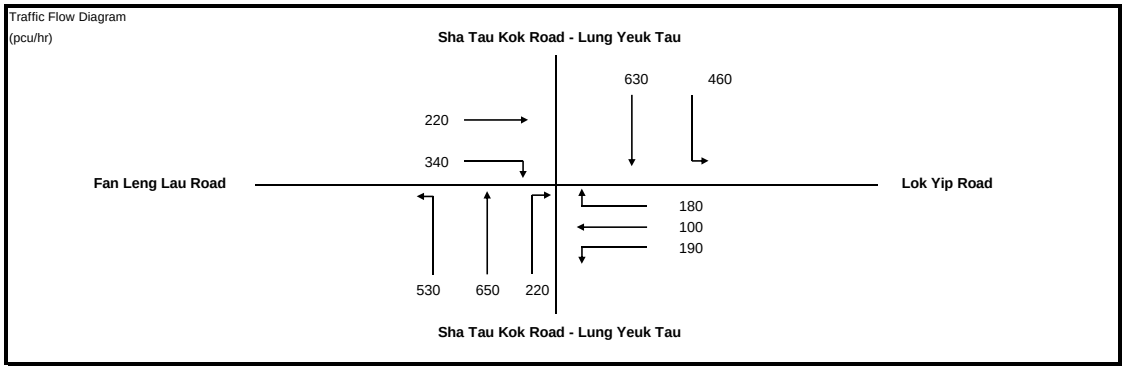
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2017 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

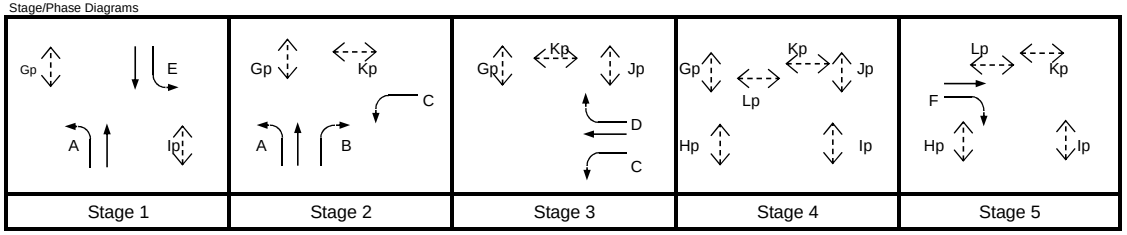
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.541	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	145	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	89	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	9.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	103	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,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*
	A	1,2	2.800	1	18			1		0		1895	352			352	100%		1749	0.201	
	A	1,2	3.400	1	20					0		2095	178	230		408	44%		2029	0.201	
	A	1,2	3.300	1				0		0		2085		420		420			2085	0.201	
	B	2	3.300	1		20	0	0		0		2085			220	220		100%	1940	0.113	0.113
	F	5	3.650	1		35	0	1		0		1980		220	55	275		20%	1963	0.140	0.140
	F	5	3.600	1		37.5	0	0		0		2115			285	285		100%	2034	0.140	
	E	1	3.300	2				0		0		4170		630		630			4170	0.151	0.151
	E	1	3.300	2	20			1		0		4030	460			460	100%		3749	0.123	
	C	2,3	4.000	1	15			1		0		2015	190			190	100%		1832	0.104	
	D	3	3.500	1		35	0	0		0		2105		100	180	280		64%	2049	0.137	0.137
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

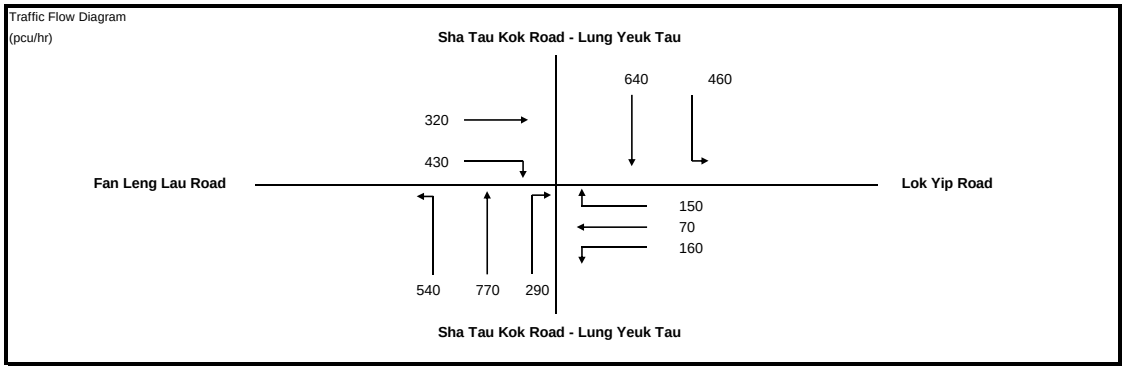
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2017 AM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J9

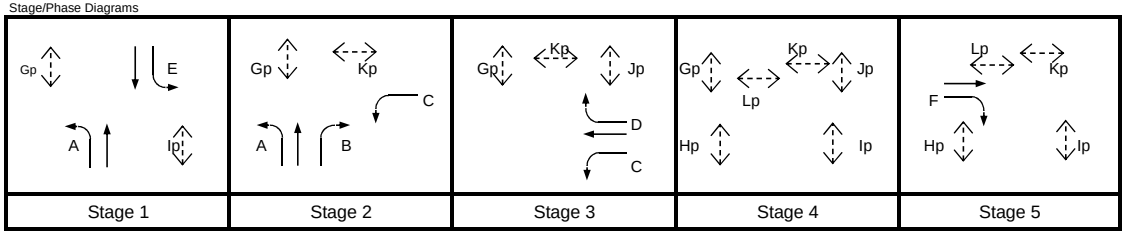
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.598	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	165	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	102	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	122	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	390			390	100%		1749	0.223	
	A	1,2	3.400	1	20					0		2095	150	305		456	33%		2044	0.223	
	A	1,2	3.300	1				0		0		2085		465		465			2085	0.223	
	B	2	3.300	1		20	0	0		0		2085			290	290		100%	1940	0.150	0.150
	F	5	3.650	1		35	0	1		0		1980		320	49	369		13%	1969	0.187	
	F	5	3.600	1		37.5	0	0		0		2115			381	381		100%	2034	0.187	0.187
	E	1	3.300	2				0		0		4170		640		640			4170	0.153	0.153
	E	1	3.300	2	20			1		0		4030	460			460	100%		3749	0.123	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		70	150	220		68%	2045	0.108	0.108
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

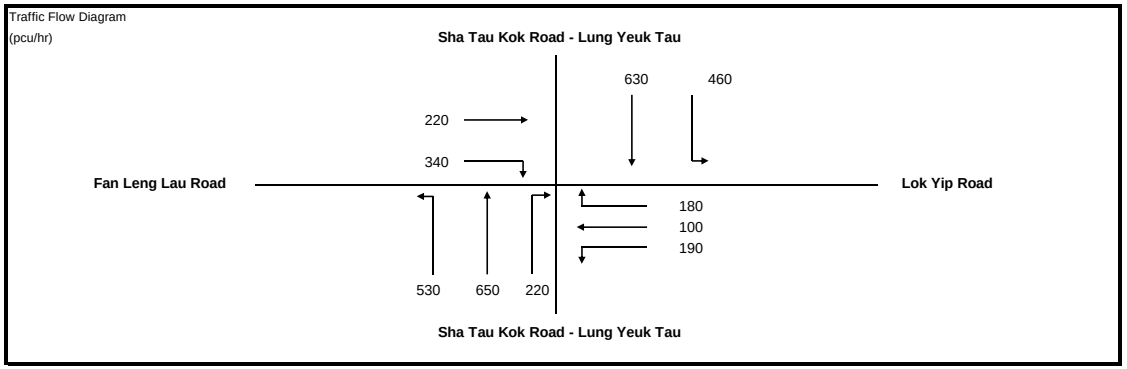
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2017 PM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J9

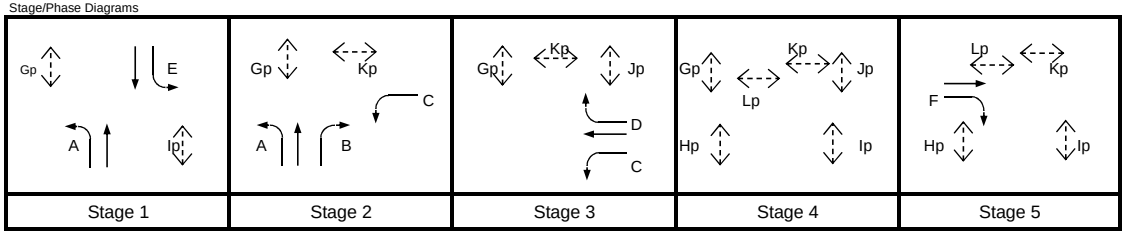
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.541	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	145	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	89	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	9.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	103	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,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*
	A	1,2	2.800	1	18			1		0		1895	352			352	100%		1749	0.201	
	A	1,2	3.400	1	20					0		2095	178	230		408	44%		2029	0.201	
	A	1,2	3.300	1				0		0		2085		420		420			2085	0.201	
	B	2	3.300	1		20	0	0		0		2085			220	220		100%	1940	0.113	0.113
	F	5	3.650	1		35	0	1		0		1980		220	55	275		20%	1963	0.140	0.140
	F	5	3.600	1		37.5	0	0		0		2115			285	285		100%	2034	0.140	
	E	1	3.300	2				0		0		4170		630		630			4170	0.151	0.151
	E	1	3.300	2	20			1		0		4030	460			460	100%		3749	0.123	
	C	2,3	4.000	1	15			1		0		2015	190			190	100%		1832	0.104	
	D	3	3.500	1		35	0	0		0		2105		100	180	280		64%	2049	0.137	0.137
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

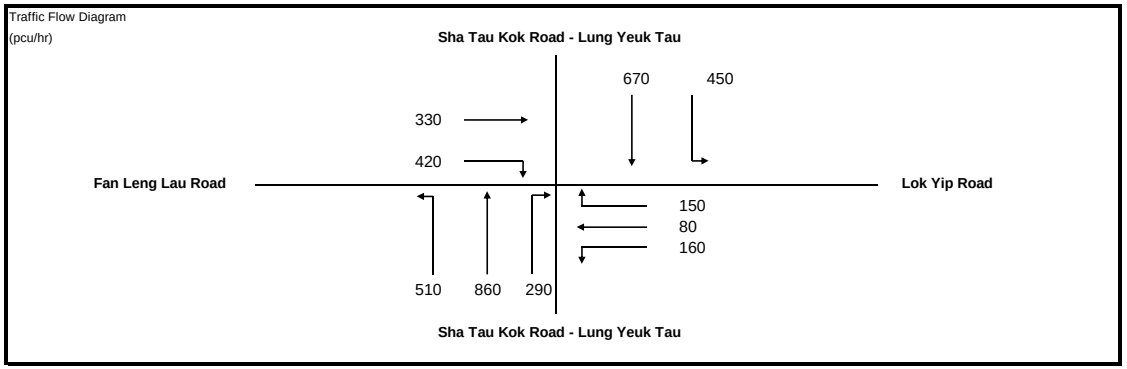
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

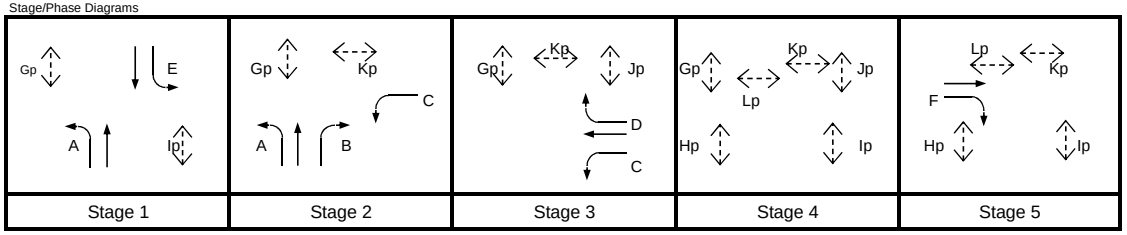
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.610	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	170	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	105	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-2.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	127	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	406			406	100%		1749	0.232	
	A	1,2	3.400	1	20					0		2095	104	376		479	22%		2062	0.232	
	A	1,2	3.300	1				0		0		2085		484		484			2085	0.232	
	B	2	3.300	1		20	0	0		0		2085			290	290		100%	1940	0.150	0.150
	F	5	3.650	1		35	0	1		0		1980		330	39	369		11%	1971	0.187	0.187
	F	5	3.600	1		37.5	0	0		0		2115			381	381		100%	2034	0.187	
	E	1	3.300	2				0		0		4170		670		670			4170	0.161	0.161
	E	1	3.300	2	20			1		0		4030	450			450	100%		3749	0.120	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		80	150	230		65%	2048	0.112	0.112
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

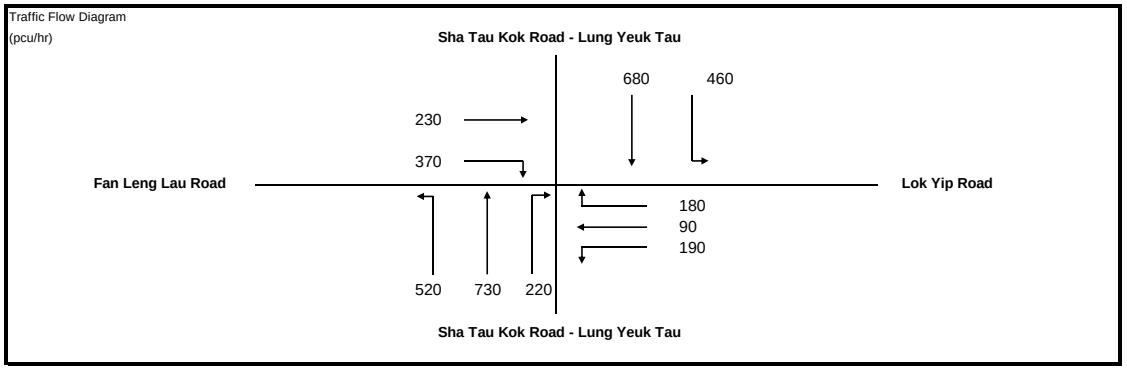
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

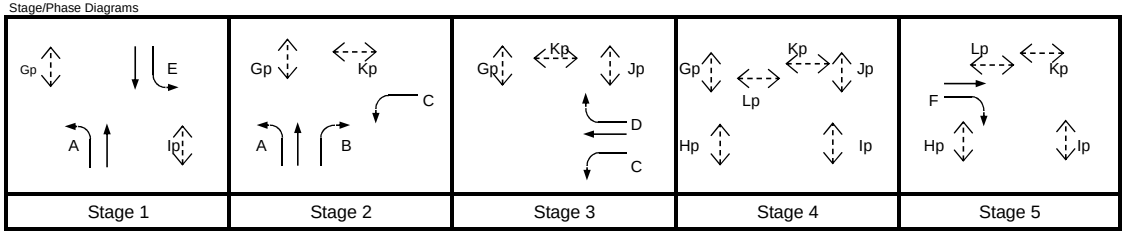
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.559	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	151	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	93	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	6.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	108	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	372			372	100%		1749	0.213	
	A	1,2	3.400	1	20					0		2095	148	287		434	34%		2043	0.213	
	A	1,2	3.300	1				0		0		2085		443		443			2085	0.213	
	B	2	3.300	1		20	0	0		0		2085			220	220		100%	1940	0.113	0.113
	F	5	3.650	1		35	0	1		0		1980		230	65	295		22%	1962	0.150	
	F	5	3.600	1		37.5	0	0		0		2115			305	305		100%	2034	0.150	0.150
	E	1	3.300	2				0		0		4170		680		680			4170	0.163	0.163
	E	1	3.300	2	20			1		0		4030	460			460	100%		3749	0.123	
	C	2,3	4.000	1	15			1		0		2015	190			190	100%		1832	0.104	
	D	3	3.500	1		35	0	0		0		2105		90	180	270		67%	2047	0.132	0.132
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

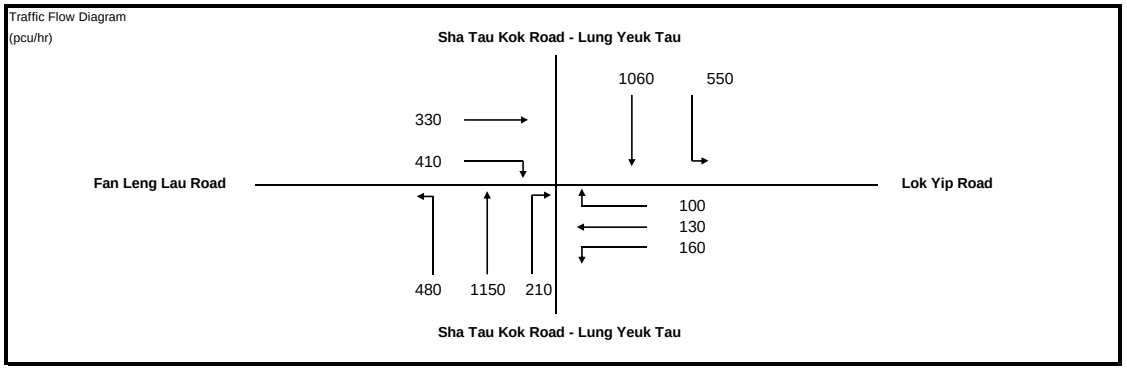
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

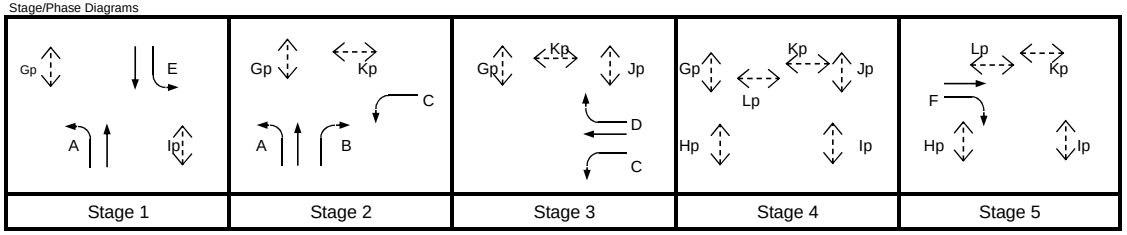
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.659	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	195	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	120	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-10.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	153	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	480			480	100%		1749	0.274	
	A	1,2	3.400	1	20					0		2095	0	576		576	0%		2095	0.275	
	A	1,2	3.300	1				0		0		2085		574		574			2085	0.275	
	B	2	3.300	1		20	0	0		0		2085			210	210		100%	1940	0.108	0.108
	F	5	3.650	1		35	0	1		0		1980		330	34	364		9%	1972	0.185	
	F	5	3.600	1		37.5	0	0		0		2115			376	376		100%	2034	0.185	0.185
	E	1	3.300	2				0		0		4170		1060		1060			4170	0.254	0.254
	E	1	3.300	2	20			1		0		4030	550			550	100%		3749	0.147	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		130	100	230		43%	2066	0.111	0.111
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

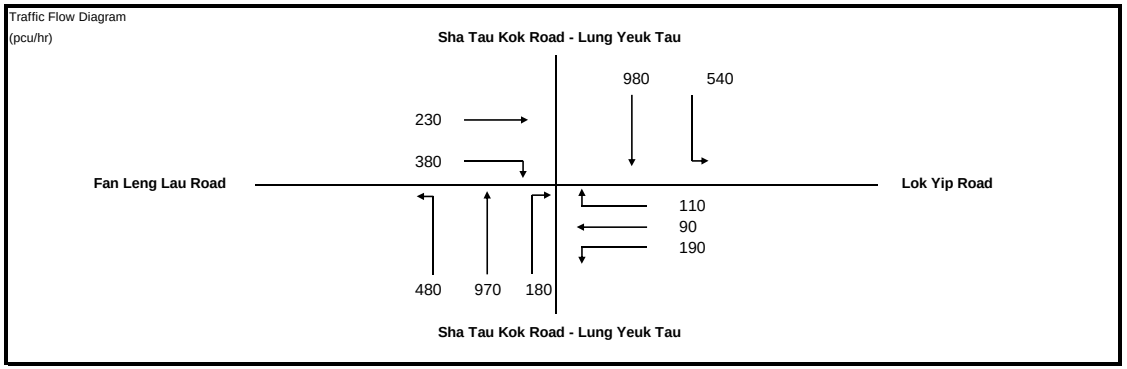
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

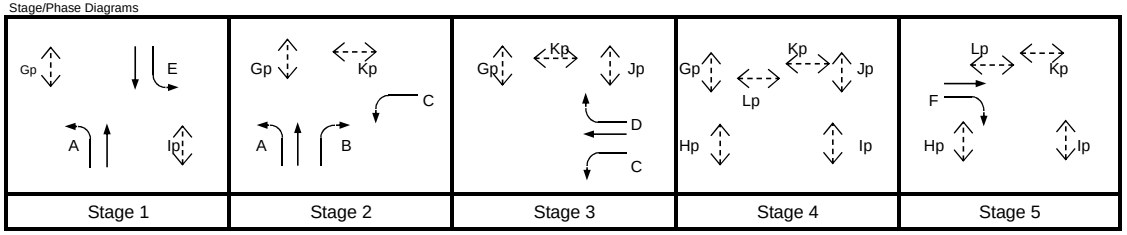
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.578	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	158	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	97	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	2.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	115	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 4%

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	2.800	1	18			1		0		1895	429			429	100%		1749	0.245	
	A	1,2	3.400	1	20					0		2095	51	459		510	10%		2079	0.245	
	A	1,2	3.300	1				0		0		2085		511		511			2085	0.245	
	B	2	3.300	1		20	0	0		0		2085			180	180		100%	1940	0.093	0.093
	F	5	3.650	1		35	0	1		0		1980		230	69	299		23%	1961	0.153	0.153
	F	5	3.600	1		37.5	0	0		0		2115			311	311		100%	2034	0.153	
	E	1	3.300	2				0		0		4170		980		980			4170	0.235	0.235
	E	1	3.300	2	20			1		0		4030	540			540	100%		3749	0.144	
	C	2,3	4.000	1	15			1		0		2015	190			190	100%		1832	0.104	
	D	3	3.500	1		35	0	0		0		2105		90	110	200		55%	2057	0.097	0.097
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

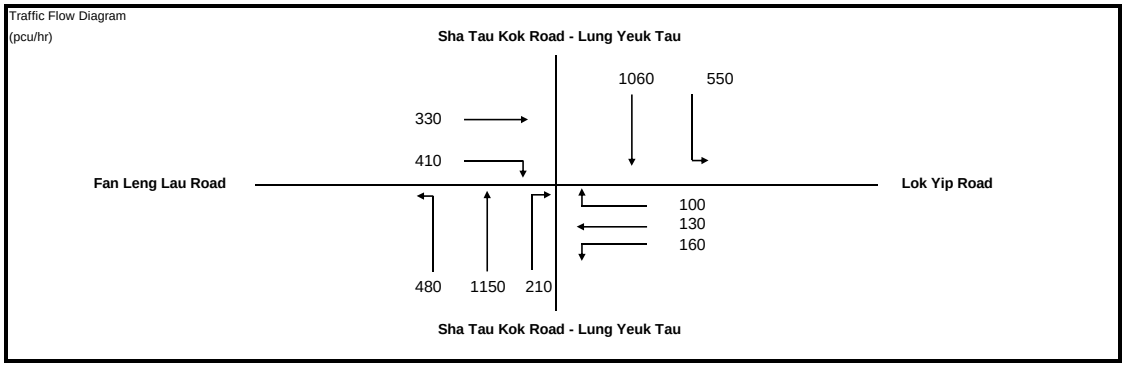
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 AM Design Case (Without Liantang/ HYW BCP)(With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

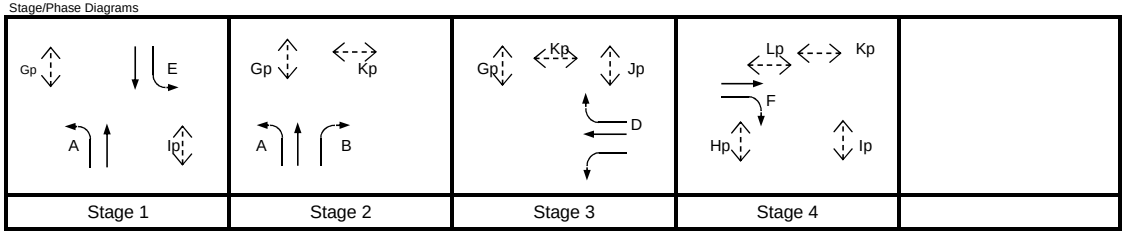
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	124	sec
Sum(y)	Y =	0.586	
Lost time	L =	21	sec
Total Flow	=	18,445	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	88	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	51	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.743	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	26.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	60	sec
Y_{max}	$= 1-L/C$	=	0.831	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 5	I/G = 5	I/G = 8	

Critical Case : E,B,D,F

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	2.800	1	18			1		0		1895	480			480	100%		1749	0.274	
	A	1,2	3.400	1	20					0		2095	0	576		576	0%		2095	0.275	
	A	1,2	3.300	1				0		0		2085		574		574			2085	0.275	
	B	2	3.300	1		20	0	1		0		1945			210	210		100%	1809	0.116	0.116
	F	4	3.400	1				1		0		1955		330		330			1955	0.169	0.169
	F	4	3.300	2		37.5	0	0		0		4170			410	410		100%	4010	0.102	
	E	1	3.300	1	17.5			1		0		1945	362			362	100%		1791	0.202	0.202
	E	1	3.300	1	20					0		2085	188	218		407	46%		2015	0.202	
	E	1	3.300	2				0		0		4170		842		842			4170	0.202	
	D	3	4.000	1	15			1		0		2015	160	25		185	87%		1854	0.100	0.100
	D	3	3.500	1		35	0	0		0		2105		105	100	205		49%	2062	0.100	

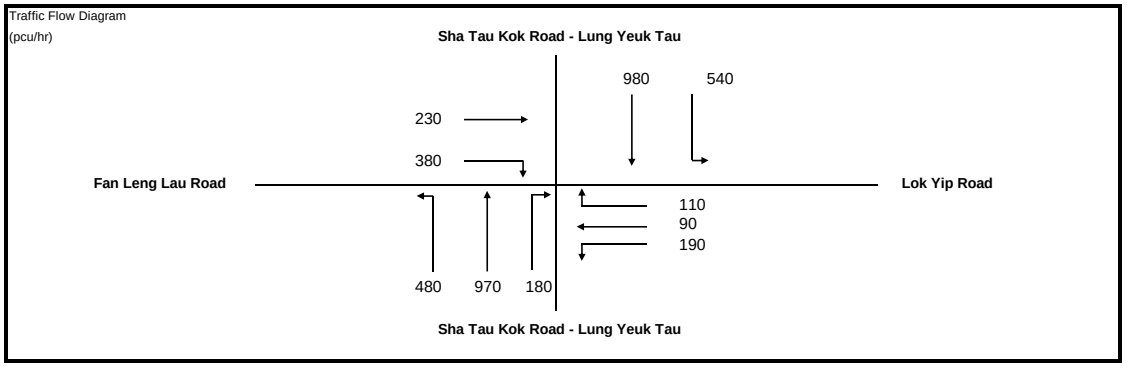
Pedestrian Crossing			GM		FGM				
Gp	1,2,3	min.	9	+	6	=	15	sec	
Hp	4	min.	8	+	8	=	16	sec	
Ip	1,4	min.	5	+	7	=	12	sec	
Jp	3	min.	5	+	7	=	12	sec	
Kp	2,3,4	min.	7	+	12	=	19	sec	
Lp	4	min.	5	+	8	=	13	sec	

JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 PM Design Case (Without Liantang/ HYW BCP)(With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

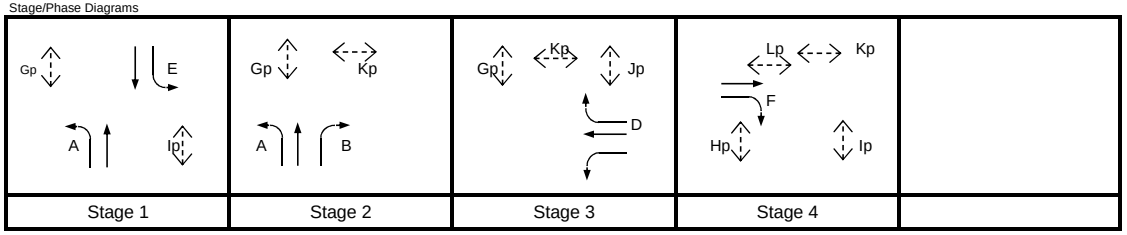
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	124	sec
Sum(y)	Y =	0.512	
Lost time	L =	21	sec
Total Flow	=	18,445	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	75	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	43	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.743	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	45.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	49	sec
Y_{max}	$= 1-L/C$	=	0.831	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 5	I/G = 5	I/G = 8	

Critical Case : E,B,D,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 46%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1,2	2.800	1	18			1		0		1895	429			429	100%		1749	0.245	
	A	1,2	3.400	1	20					0		2095	51	459		510	10%		2079	0.245	
	A	1,2	3.300	1				0		0		2085		511		511			2085	0.245	
	B	2	3.300	1		20	0	1		0		1945			180	180		100%	1809	0.099	0.099
	F	4	3.400	1				1		0		1955		230		230			1955	0.118	0.118
	F	4	3.300	2		37.5	0	0		0		4170			380	380		100%	4010	0.095	
	E	1	3.300	1	17.5			1		0		1945	342			342	100%		1791	0.191	0.191
	E	1	3.300	1	20					0		2085	198	185		383	52%		2007	0.191	
	E	1	3.300	2				0		0		4170		795		795			4170	0.191	
	D	3	4.000	1	15			1		0		2015	190	0		190	100%		1832	0.104	0.104
	D	3	3.500	1		35	0	0		0		2105		90	110	200		55%	2057	0.097	
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3	min.	9	+	6	=	15	sec												
	Hp	4	min.	8	+	8	=	16	sec												
	Ip	1,4	min.	5	+	7	=	12	sec												
	Jp	3	min.	5	+	7	=	12	sec												
	Kp	2,3,4	min.	7	+	12	=	19	sec												
	Lp	4	min.	5	+	8	=	13	sec												

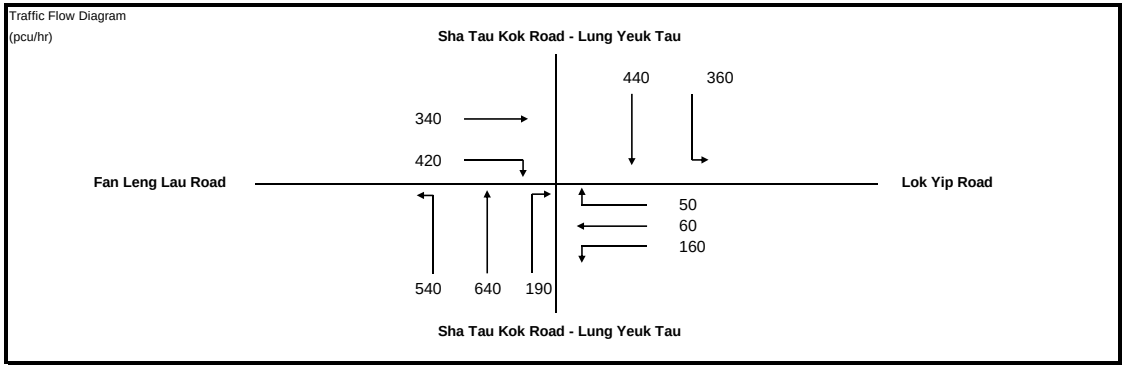
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

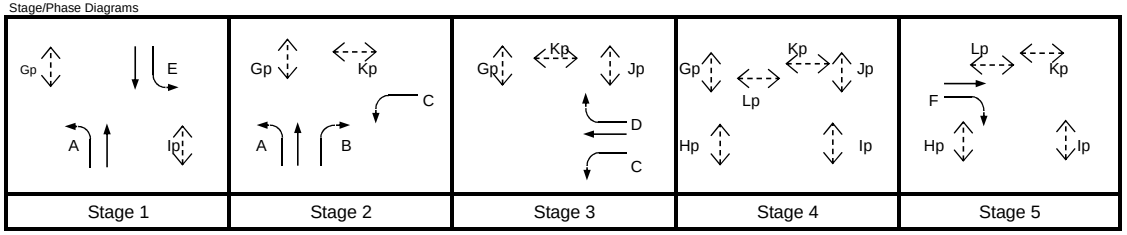
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.446	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	120	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	74	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	32.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	81	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	352			352	100%		1749	0.201	
	A	1,2	3.400	1	20					0		2095	188	220		408	46%		2025	0.201	
	A	1,2	3.300	1				0		0		2085		420		420			2085	0.201	
	B	2	3.300	1		20	0	0		0		2085			190	190		100%	1940	0.098	0.098
	F	5	3.650	1		35	0	1		0		1980		340	34	374		9%	1972	0.190	
	F	5	3.600	1		37.5	0	0		0		2115			386	386		100%	2034	0.190	0.190
	E	1	3.300	2				0		0		4170		440		440			4170	0.106	0.106
	E	1	3.300	2	20			1		0		4030	360			360	100%		3749	0.096	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		60	50	110		45%	2065	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

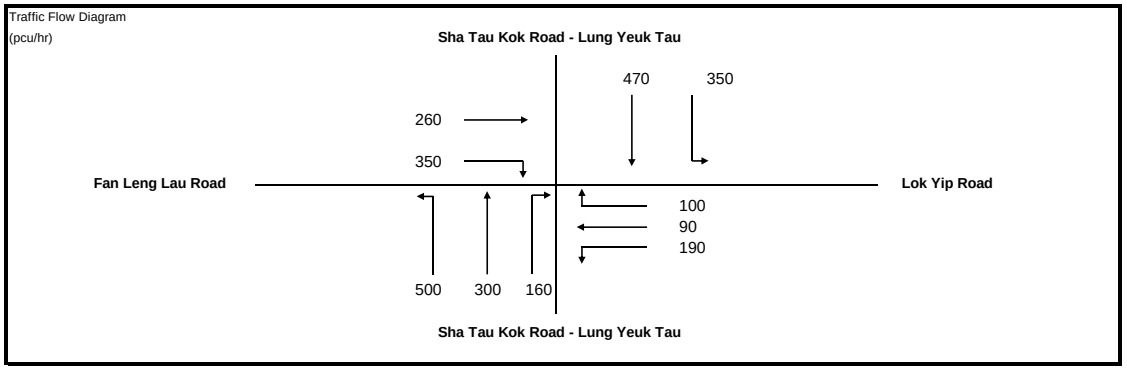
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

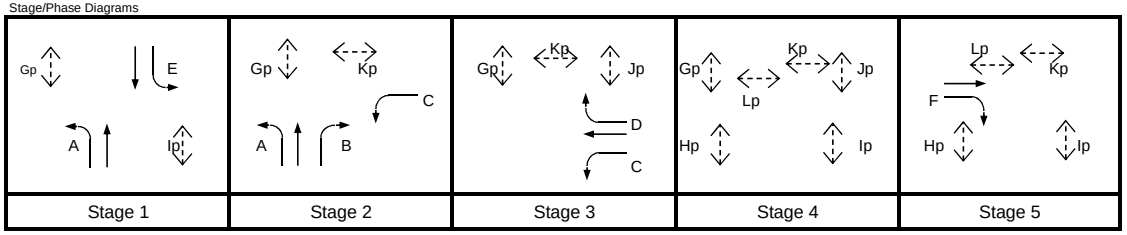
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.440	
Lost time		L =	41	sec
Total Flow		=	16,415	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}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	34.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	80	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 37%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1,2	2.800	1	18			1		0		1895	242			242	100%		1749	0.138	
	A	1,2	3.400	1	20					0		2095	258	12		270	96%		1955	0.138	
	A	1,2	3.300	1				0		0		2085		288		288			2085	0.138	
	B	2	3.300	1		20	0	0		0		2085			160	160		100%	1940	0.082	0.082
	F	5	3.650	1		35	0	1		0		1980		260	40	300		13%	1969	0.152	0.152
	F	5	3.600	1		37.5	0	0		0		2115			310	310		100%	2034	0.152	
	E	1	3.300	2				0		0		4170		470		470			4170	0.113	0.113
	E	1	3.300	2	20			1		0		4030	350			350	100%		3749	0.093	
	C	2,3	4.000	1	15			1		0		2015	190			190	100%		1832	0.104	
	D	3	3.500	1		35	0	0		0		2105		90	100	190		53%	2059	0.092	0.092
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

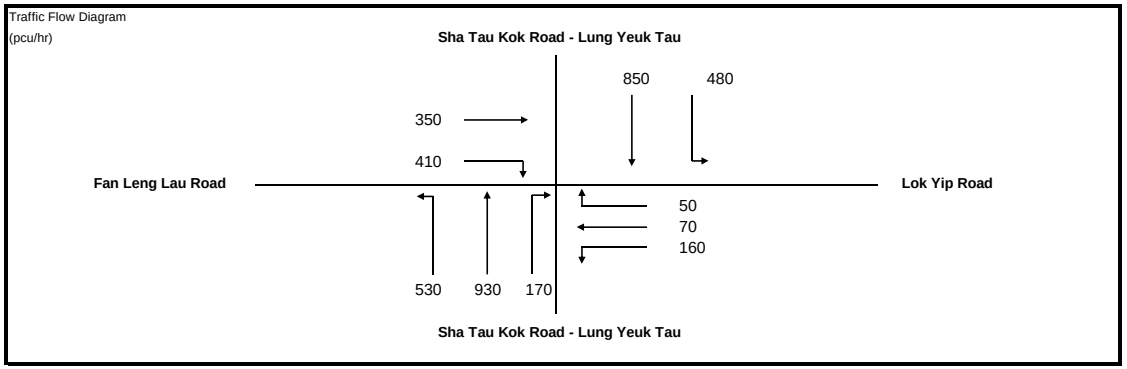
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

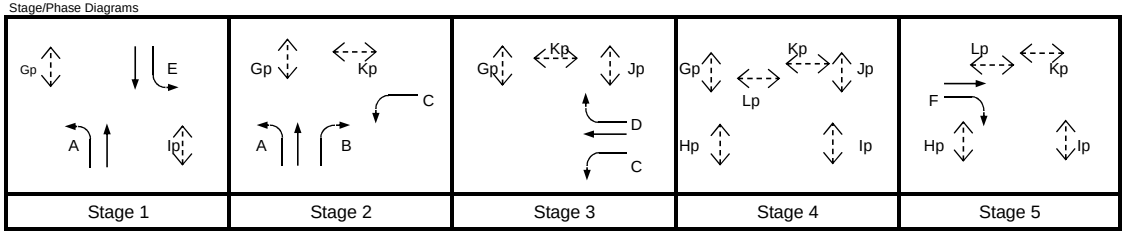
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.539	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	144	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	89	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	9.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	102	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	433			433	100%		1749	0.247	
	A	1,2	3.400	1	20					0		2095	97	414		511	19%		2066	0.247	
	A	1,2	3.300	1				0		0		2085		516		516			2085	0.247	
	B	2	3.300	1		20	0	0		0		2085			170	170		100%	1940	0.088	0.088
	F	5	3.650	1		35	0	1		0		1980		350	24	374		7%	1974	0.190	0.190
	F	5	3.600	1		37.5	0	0		0		2115			386	386		100%	2034	0.190	
	E	1	3.300	2				0		0		4170		850		850			4170	0.204	0.204
	E	1	3.300	2	20			1		0		4030	480			480	100%		3749	0.128	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		70	50	120		42%	2068	0.058	0.058
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

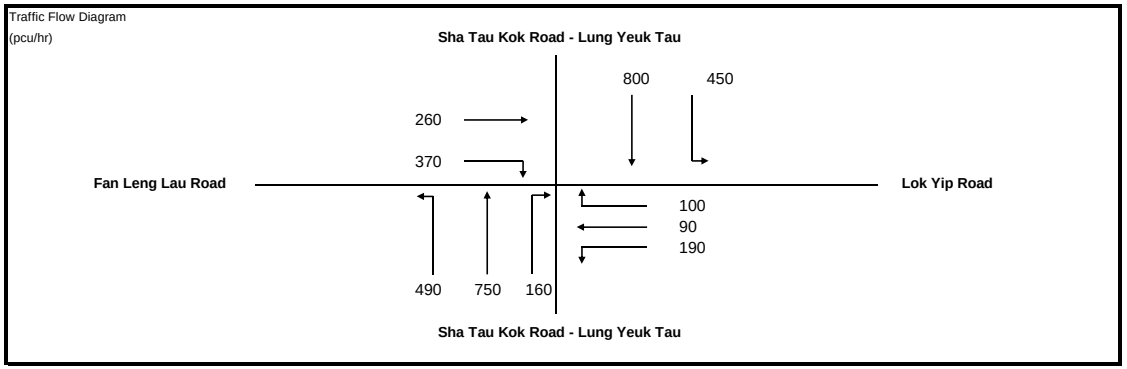
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

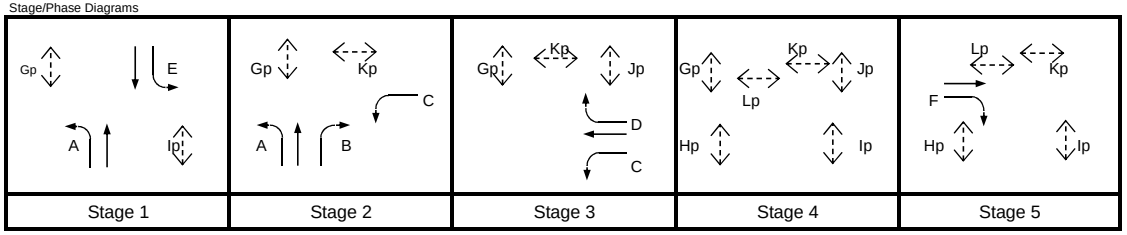
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.524	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	140	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	86	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	13.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	98	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 15%

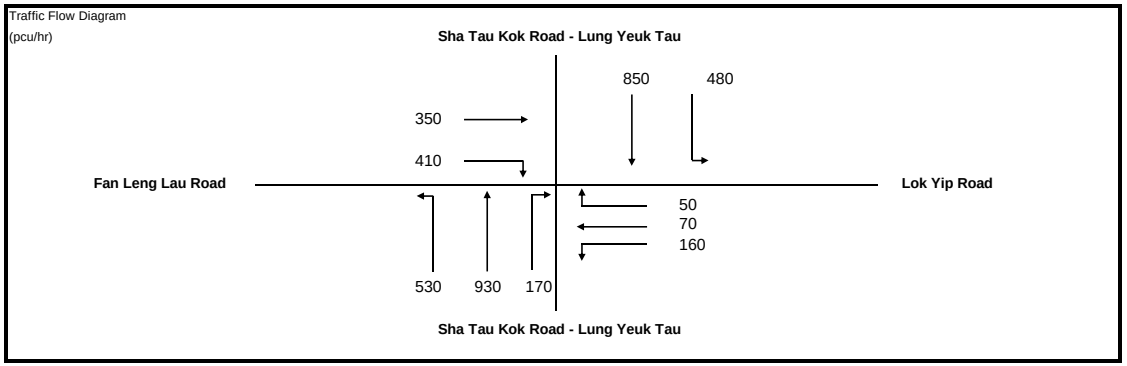
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1,2	2.800	1	18			1		0		1895	369			369	100%		1749	0.211	
	A	1,2	3.400	1	20					0		2095	121	311		432	28%		2052	0.211	
	A	1,2	3.300	1				0		0		2085		439		439			2085	0.211	
	B	2	3.300	1		20	0	0		0		2085			160	160		100%	1940	0.082	0.082
	F	5	3.650	1		35	0	1		0		1980		260	50	310		16%	1966	0.157	0.157
	F	5	3.600	1		37.5	0	0		0		2115			320	320		100%	2034	0.157	
	E	1	3.300	2				0		0		4170		800		800			4170	0.192	0.192
	E	1	3.300	2	20			1		0		4030	450			450	100%		3749	0.120	
	C	2,3	4.000	1	15			1		0		2015	190			190	100%		1832	0.104	
	D	3	3.500	1		35	0	0		0		2105		90	100	190		53%	2059	0.092	0.092
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 AM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

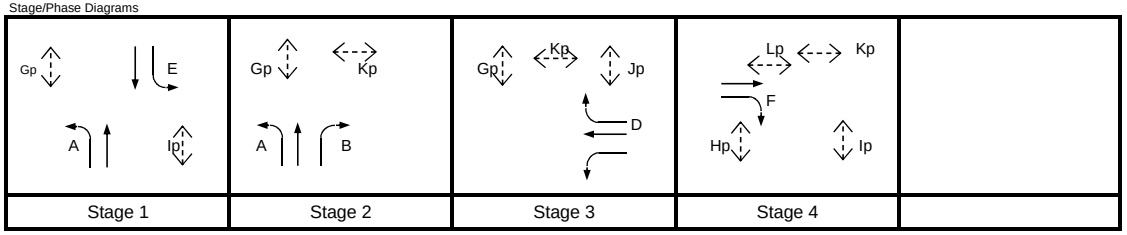
J9

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	124	sec
Sum(y)		Y =	0.527	
Lost time		L =	21	sec
Total Flow		=	18,445	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	77	sec
Min. Cycle Time C_m	= L/(1-Y)	=	44	sec
Y_{ult}	= 0.9-0.0075×L	=	0.743	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	40.8	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	51	sec
Y_{max}	= 1-L/C	=	0.831	

Stage/Phase Diagrams



Critical Case : E,B,D,F

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 42%

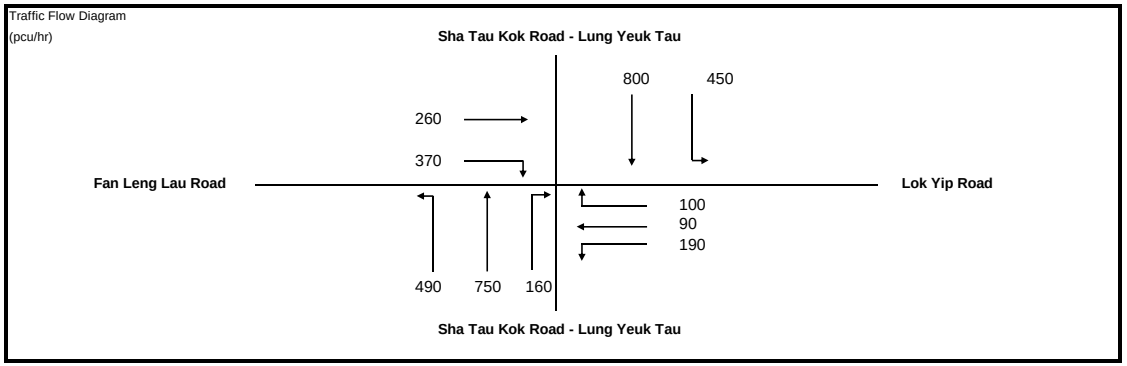
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	2.800	1	18			1		0		1895	433			433	100%		1749	0.247	
	A	1,2	3.400	1	20					0		2095	97	414		511	19%		2066	0.247	
	A	1,2	3.300	1				0		0		2085		516		516			2085	0.247	
	B	2	3.300	1		20	0	1		0		1945			170	170		100%	1809	0.094	0.094
	F	4	3.400	1				1		0		1955		350		350			1955	0.179	0.179
	F	4	3.300	2		37.5	0	0		0		4170			410	410		100%	4010	0.102	
	E	1	3.300	1	17.5			1		0		1945	299			299	100%		1791	0.167	
	E	1	3.300	1	20					0		2085	181	154		335	54%		2004	0.167	0.167
	E	1	3.300	2				0		0		4170		696		696			4170	0.167	
	D	3	4.000	1	15			1		0		2015	160	0		160	100%		1832	0.087	0.087
	D	3	3.500	1		35	0	0		0		2105		70	50	120		42%	2068	0.058	
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3	min.	9	+	6	=	15	sec												
	Hp	4	min.	8	+	8	=	16	sec												
	Ip	1,4	min.	5	+	7	=	12	sec												
	Jp	3	min.	5	+	7	=	12	sec												
	Kp	2,3,4	min.	7	+	12	=	19	sec												
	Lp	4	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2020 PM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J9

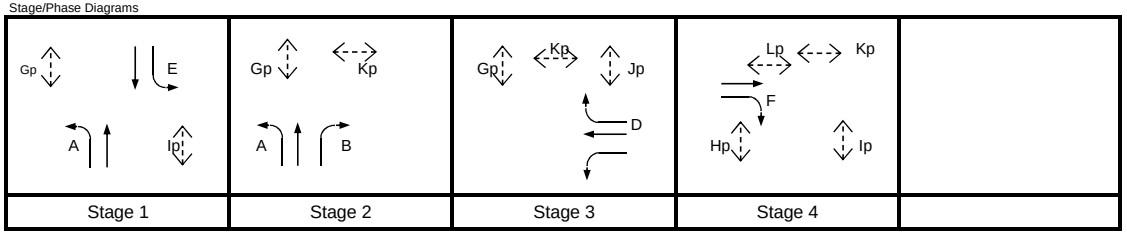
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	124	sec
Sum(y)	Y =	0.482	
Lost time	L =	21	sec
Total Flow	=	18,445	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}	$= 0.9-0.0075 \times L$	=	0.743	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	54.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	45	sec
Y_{max}	$= 1-L/C$	=	0.831	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 5	I/G = 5	I/G = 8	

Critical Case : E,B,D,F

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

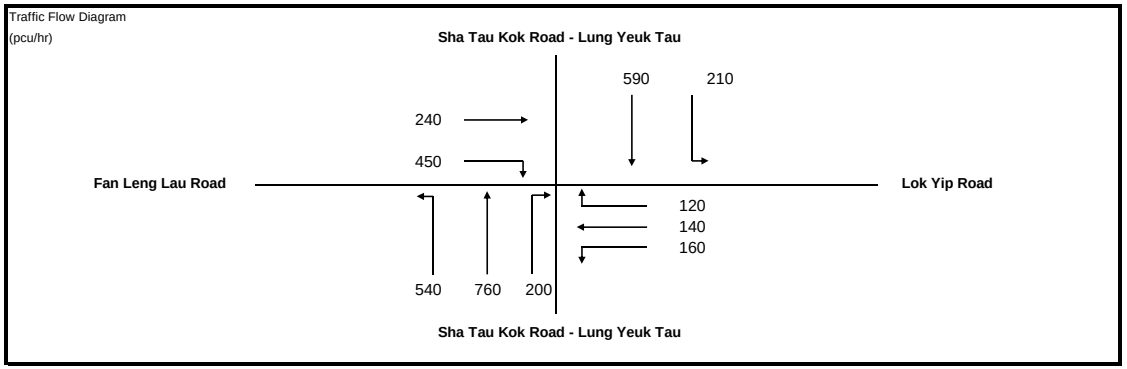
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	2.800	1	18			1		0		1895	369			369	100%		1749	0.211	
	A	1,2	3.400	1	20					0		2095	121	311		432	28%		2052	0.211	
	A	1,2	3.300	1				0		0		2085		439		439			2085	0.211	
	B	2	3.300	1		20	0	1		0		1945			160	160		100%	1809	0.088	0.088
	F	4	3.400	1				1		0		1955		260		260			1955	0.133	0.133
	F	4	3.300	2		37.5	0	0		0		4170			370	370		100%	4010	0.092	
	E	1	3.300	1	17.5			1		0		1945	281			281	100%		1791	0.157	0.157
	E	1	3.300	1	20					0		2085	169	146		315	54%		2004	0.157	
	E	1	3.300	2				0		0		4170		654		654			4170	0.157	
	D	3	4.000	1	15			1		0		2015	190	0		190	100%		1832	0.104	0.104
	D	3	3.500	1		35	0	0		0		2105		90	100	190		53%	2059	0.092	
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3	min.	9	+	6	=	15	sec												
	Hp	4	min.	8	+	8	=	16	sec												
	Ip	1,4	min.	5	+	7	=	12	sec												
	Jp	3	min.	5	+	7	=	12	sec												
	Kp	2,3,4	min.	7	+	12	=	19	sec												
	Lp	4	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

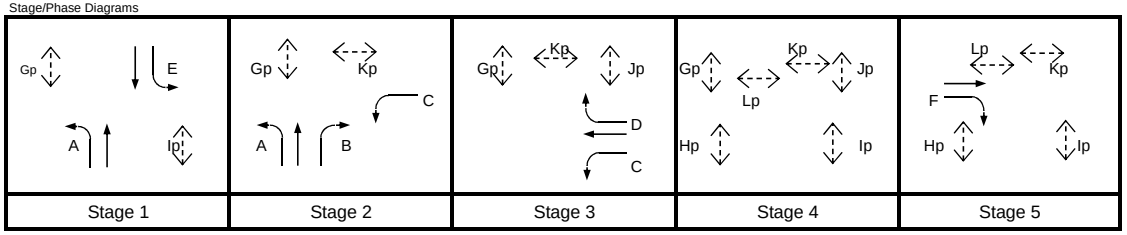
J9

Traffic Flow Diagram (pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.544	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	146	sec
Min. Cycle Time C_m = L/(1-Y)	=	90	sec
Y_{ult} = 0.9-0.0075×L	=	0.593	
$R.C._{ult}$ = (Y_{ult}-Y)/Yx100%	=	9.0	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	104	sec
Y_{max} = 1-L/C	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,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*
	A	1,2	2.800	1	18			1		0		1895	387			387	100%		1749	0.221	
	A	1,2	3.400	1	20					0		2095	153	299		452	34%		2043	0.221	
	A	1,2	3.300	1				0		0		2085		461		461			2085	0.221	
	B	2	3.300	1		20	0	0		0		2085			200	200		100%	1940	0.103	0.103
	F	5	3.650	1		35	0	1		0		1980		240	98	338		29%	1956	0.173	0.173
	F	5	3.600	1		37.5	0	0		0		2115			352	352		100%	2034	0.173	
	E	1	3.300	2				0		0		4170		590		590			4170	0.141	0.141
	E	1	3.300	2	20			1		0		4030	210			210	100%		3749	0.056	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		140	120	260		46%	2064	0.126	0.126
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

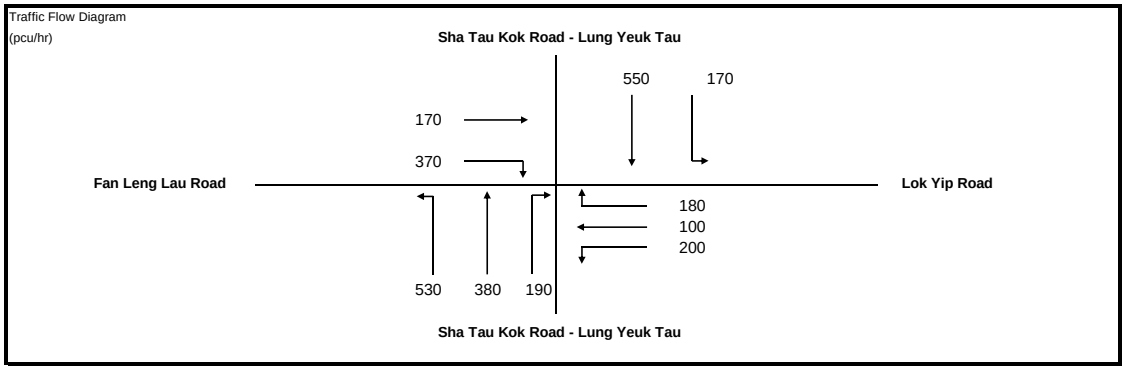
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

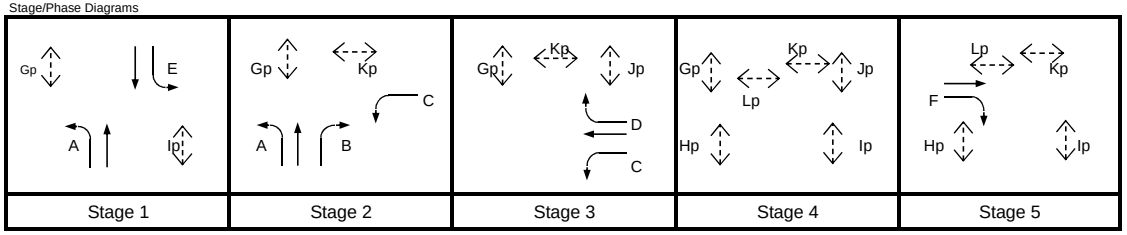
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.502	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	134	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	82	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	18.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	93	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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*
	A	1,2	2.800	1	18			1		0		1895	274			274	100%		1749	0.157	
	A	1,2	3.400	1	20					0		2095	256	53		309	83%		1973	0.157	
	A	1,2	3.300	1				0		0		2085		327		327			2085	0.157	
	B	2	3.300	1		20	0	0		0		2085			190	190		100%	1940	0.098	0.098
	F	5	3.650	1		35	0	1		0		1980		170	94	264		36%	1950	0.136	0.136
	F	5	3.600	1		37.5	0	0		0		2115			276	276		100%	2034	0.136	
	E	1	3.300	2				0		0		4170		550		550			4170	0.132	0.132
	E	1	3.300	2	20			1		0		4030	170			170	100%		3749	0.045	
	C	2,3	4.000	1	15			1		0		2015	200			200	100%		1832	0.109	
	D	3	3.500	1		35	0	0		0		2105		100	180	280		64%	2049	0.137	0.137

Pedestrian Crossing			GM		FGM				
Gp	1,2,3,4	min.	9	+	6	=	15	sec	
Hp1	4	min.	8	+	0	=	8	sec	*
Hp2	5	min.	0	+	8	=	8	sec	
Ip	1,2,4,5	min.	5	+	7	=	12	sec	
Jp	3,4	min.	5	+	7	=	12	sec	
Kp	1,2,3,4,5	min.	7	+	12	=	19	sec	
Lp	1,4,5	min.	5	+	8	=	13	sec	

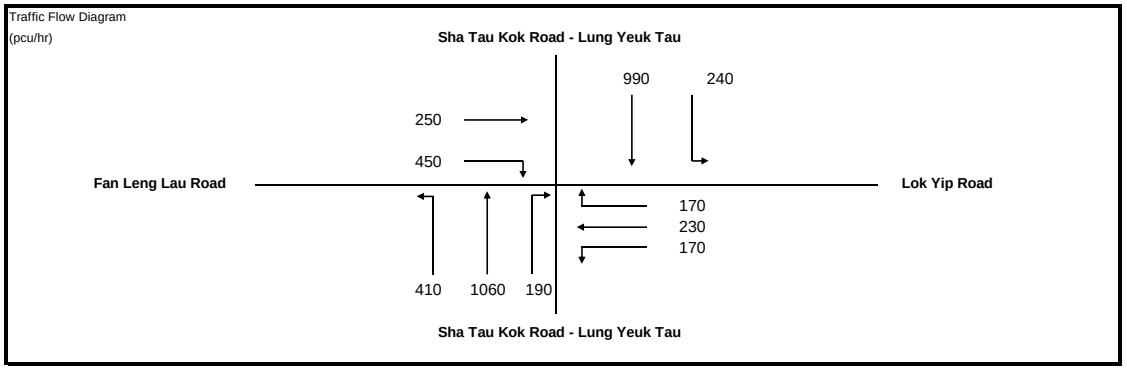
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

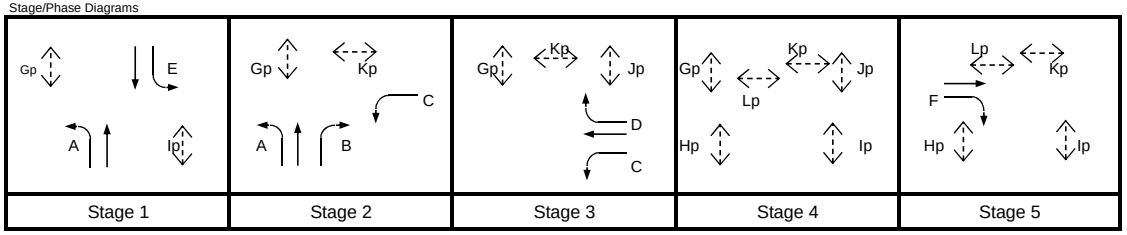
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.704	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	225	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	139	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-15.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	189	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = -14%

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	2.800	1	18			1		0		1895	410			410	100%		1749	0.234	
	A	1,2	3.400	1	20					0		2095	0	531		531	0%		2095	0.254	
	A	1,2	3.300	1				0		0		2085		529		529			2085	0.254	
	B	2	3.300	1		20	0	0		0		2085			190	190		100%	1940	0.098	0.098
	F	5	3.650	1		35	0	1		0		1980		250	93	343		27%	1957	0.175	0.175
	F	5	3.600	1		37.5	0	0		0		2115			357	357		100%	2034	0.175	
	E	1	3.300	2				0		0		4170		990		990			4170	0.237	0.237
	E	1	3.300	2	20			1		0		4030	240			240	100%		3749	0.064	
	C	2,3	4.000	1	15			1		0		2015	170			170	100%		1832	0.093	
	D	3	3.500	1		35	0	0		0		2105		230	170	400		43%	2067	0.193	0.193
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

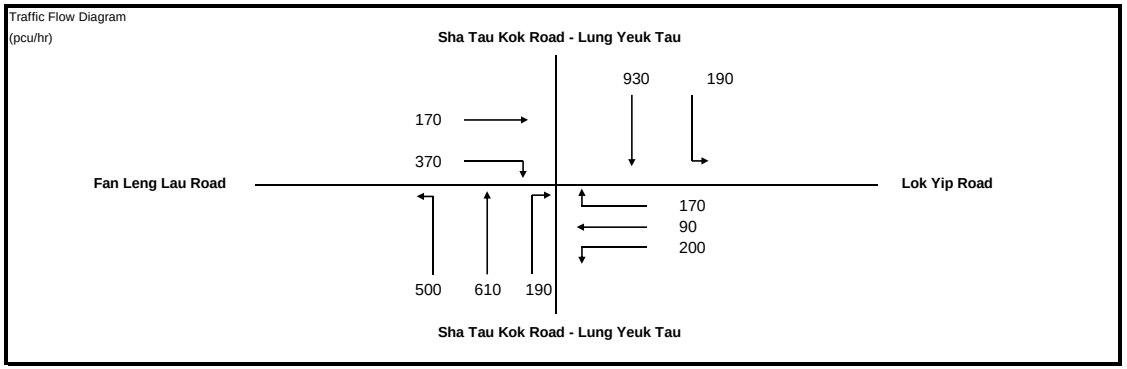
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

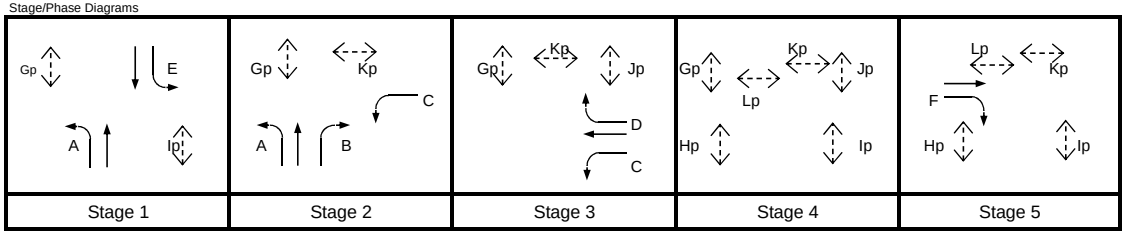
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.584	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	160	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	98	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	1.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	117	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 3%

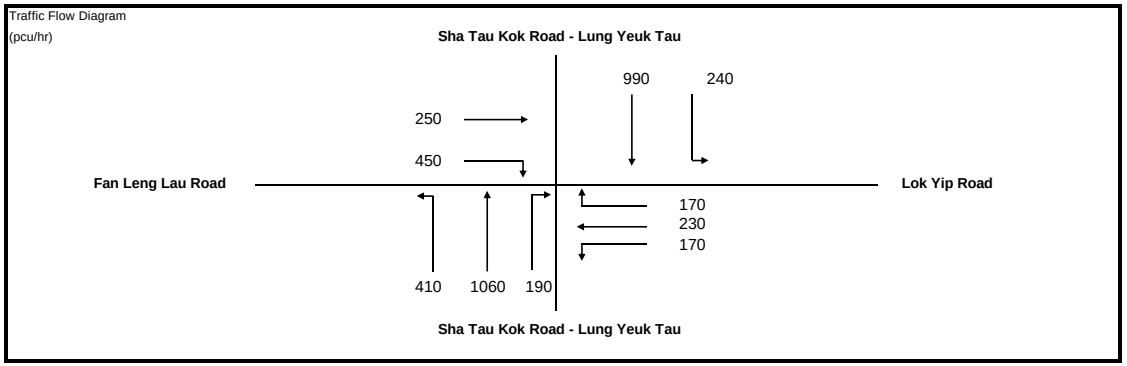
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	2.800	1	18			1		0		1895	331			331	100%		1749	0.189	
	A	1,2	3.400	1	20					0		2095	169	215		384	44%		2028	0.189	
	A	1,2	3.300	1				0		0		2085		395		395			2085	0.189	
	B	2	3.300	1		20	0	0		0		2085			190	190		100%	1940	0.098	0.098
	F	5	3.650	1		35	0	1		0		1980		170	94	264		36%	1950	0.136	0.136
	F	5	3.600	1		37.5	0	0		0		2115			276	276		100%	2034	0.136	
	E	1	3.300	2				0		0		4170		930		930			4170	0.223	0.223
	E	1	3.300	2	20			1		0		4030	190			190	100%		3749	0.051	
	C	2,3	4.000	1	15			1		0		2015	200			200	100%		1832	0.109	
	D	3	3.500	1		35	0	0		0		2105		90	170	260		65%	2048	0.127	0.127
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2026 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J9

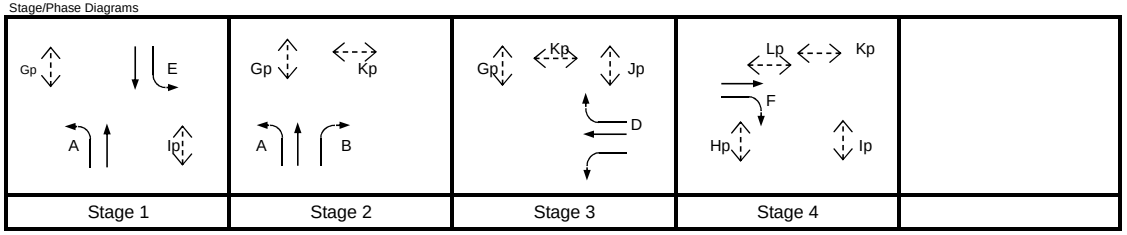
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	124	sec
Sum(y)	Y =	0.535	
Lost time	L =	21	sec
Total Flow	=	18,445	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	79	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	45	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.743	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	38.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	52	sec
Y_{max}	$= 1-L/C$	=	0.831	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 5	I/G = 5	I/G = 8	

Critical Case : E,B,D,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 40%

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	2.800	1	18			1		0		1895	410			410	100%		1749	0.234	
	A	1,2	3.400	1	20					0		2095	0	531		531	0%		2095	0.254	
	A	1,2	3.300	1				0		0		2085		529		529			2085	0.254	
	B	2	3.300	1		20	0	1		0		1945			190	190		100%	1809	0.105	0.105
	F	4	3.400	1				1		0		1955		250		250			1955	0.128	0.128
	F	4	3.300	2		37.5	0	0		0		4170			450	450		100%	4010	0.112	
	E	1	3.300	1	17.5			1		0		1945	240			240	100%		1791	0.134	
	E	1	3.300	1	20					0		2085	0	330		330	0%		2085	0.158	0.158
	E	1	3.300	2				0		0		4170		660		660			4170	0.158	
	D	3	4.000	1	15			1		0		2015	170	104		274	62%		1897	0.144	0.144
	D	3	3.500	1		35	0	0		0		2105		126	170	296		57%	2054	0.144	

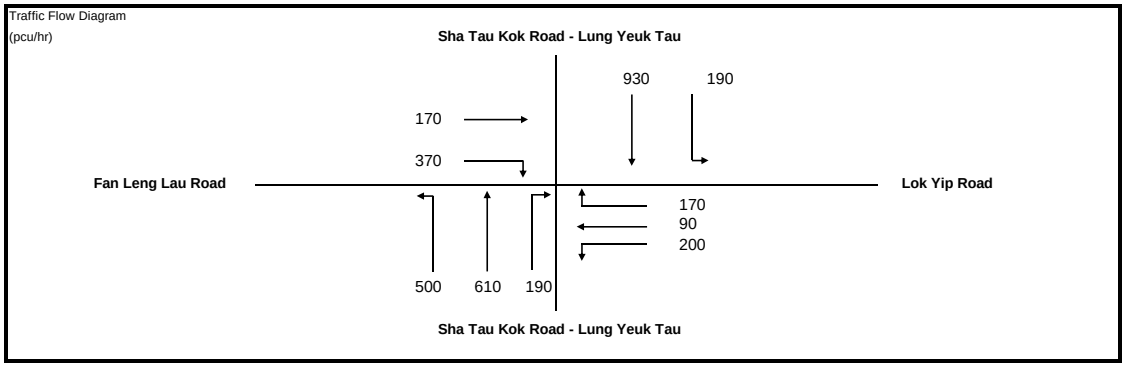
Pedestrian Crossing			GM		FGM				
Gp	1,2,3	min.	9	+	6	=	15	sec	
Hp	4	min.	8	+	8	=	16	sec	
Ip	1,4	min.	5	+	7	=	12	sec	
Jp	3	min.	5	+	7	=	12	sec	
Kp	2,3,4	min.	7	+	12	=	19	sec	
Lp	4	min.	5	+	8	=	13	sec	

JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2026 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J9

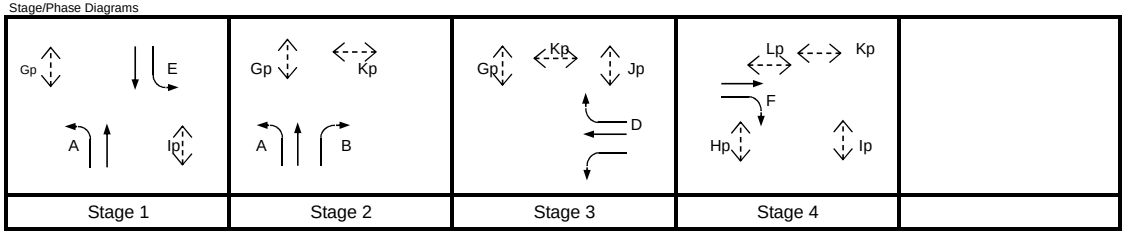
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	124	sec
Sum(y)	Y =	0.464	
Lost time	L =	21	sec
Total Flow	=	18,445	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	68	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	39	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.743	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	59.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	43	sec
Y_{max}	$= 1-L/C$	=	0.831	

Stage/Phase Diagrams



Critical Case : E,B,D,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 61%

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	2.800	1	18			1		0		1895	331			331	100%		1749	0.189	
	A	1,2	3.400	1	20					0		2095	169	215		384	44%		2028	0.189	
	A	1,2	3.300	1				0		0		2085		395		395			2085	0.189	
	B	2	3.300	1		20	0	1		0		1945			190	190		100%	1809	0.105	0.105
	F	4	3.400	1				1		0		1955		170		170			1955	0.087	
	F	4	3.300	2		37.5	0	0		0		4170			370	370		100%	4010	0.092	0.092
	E	1	3.300	1	17.5			1		0		1945	190			190	100%		1791	0.106	
	E	1	3.300	1	20					0		2085	0	310		310	0%		2085	0.149	
	E	1	3.300	2				0		0		4170		620		620			4170	0.149	0.149
	D	3	4.000	1	15			1		0		2015	200	18		218	92%		1846	0.118	0.118
	D	3	3.500	1		35	0	0		0		2105		72	170	242		70%	2043	0.118	
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3	min.	9	+	6	=	15	sec												
	Hp	4	min.	8	+	8	=	16	sec												
	Ip	1,4	min.	5	+	7	=	12	sec												
	Jp	3	min.	5	+	7	=	12	sec												
	Kp	2,3,4	min.	7	+	12	=	19	sec												
	Lp	4	min.	5	+	8	=	13	sec												

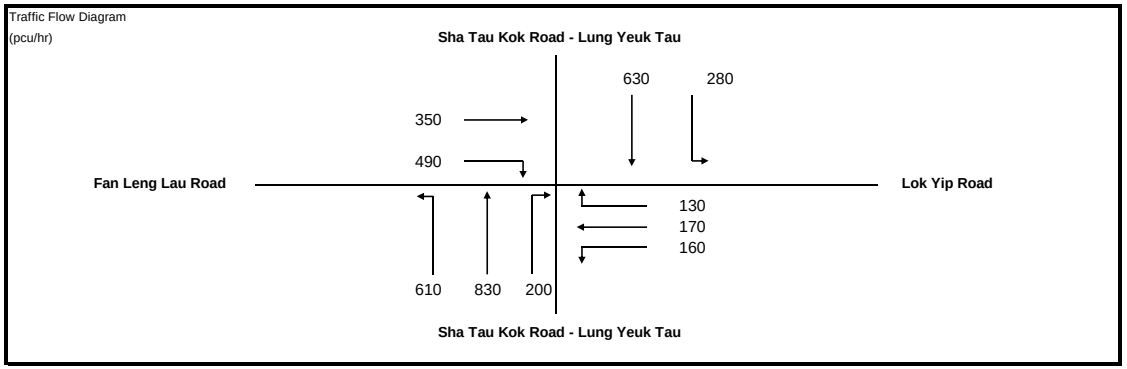
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

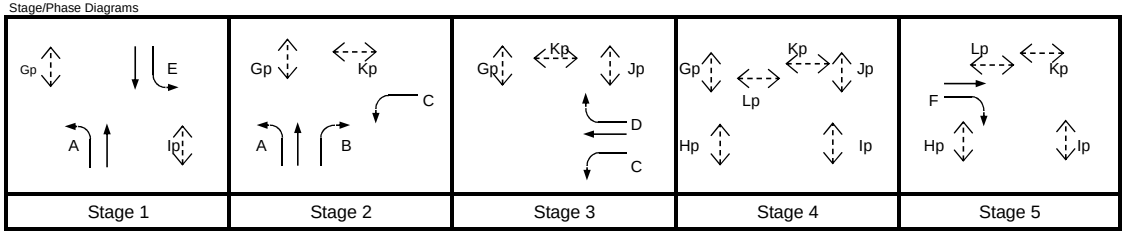
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.609	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	170	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	105	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-2.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	127	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	429			429	100%		1749	0.245	
	A	1,2	3.400	1	20					0		2095	181	319		500	36%		2040	0.245	
	A	1,2	3.300	1				0		0		2085		511		511			2085	0.245	
	B	2	3.300	1		20	0	0		0		2085			200	200		100%	1940	0.103	0.103
	F	5	3.650	1		35	0	1		0		1980		350	63	413		15%	1967	0.210	0.210
	F	5	3.600	1		37.5	0	0		0		2115			427	427		100%	2034	0.210	
	E	1	3.300	2				0		0		4170		630		630			4170	0.151	0.151
	E	1	3.300	2	20			1		0		4030	280			280	100%		3749	0.075	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		170	130	300		43%	2067	0.145	0.145
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

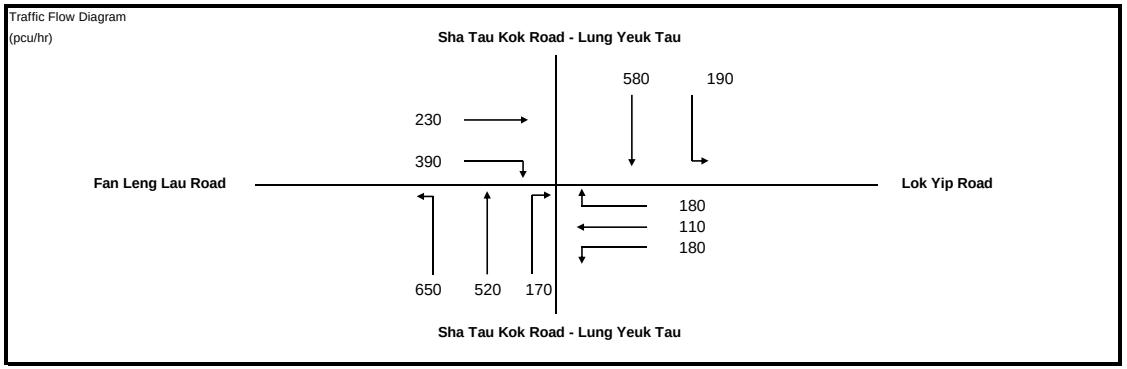
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

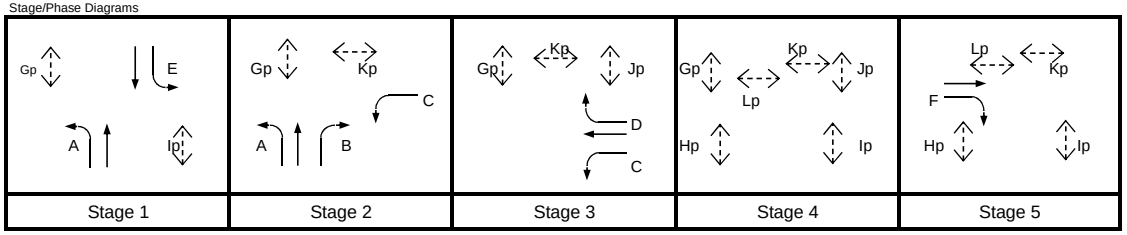
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.523	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	140	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	86	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	13.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	98	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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*
	A	1,2	2.800	1	18			1		0		1895	352			352	100%		1749	0.201	
	A	1,2	3.400	1	20					0		2095	298	101		399	75%		1984	0.201	
	A	1,2	3.300	1				0		0		2085		419		419			2085	0.201	
	B	2	3.300	1		20	0	0		0		2085			170	170		100%	1940	0.088	0.088
	F	5	3.650	1		35	0	1		0		1980		230	74	304		24%	1960	0.155	0.155
	F	5	3.600	1		37.5	0	0		0		2115			316	316		100%	2034	0.155	
	E	1	3.300	2				0		0		4170		580		580			4170	0.139	0.139
	E	1	3.300	2	20			1		0		4030	190			190	100%		3749	0.051	
	C	2,3	4.000	1	15			1		0		2015	180			180	100%		1832	0.098	
	D	3	3.500	1		35	0	0		0		2105		110	180	290		62%	2050	0.141	0.141
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

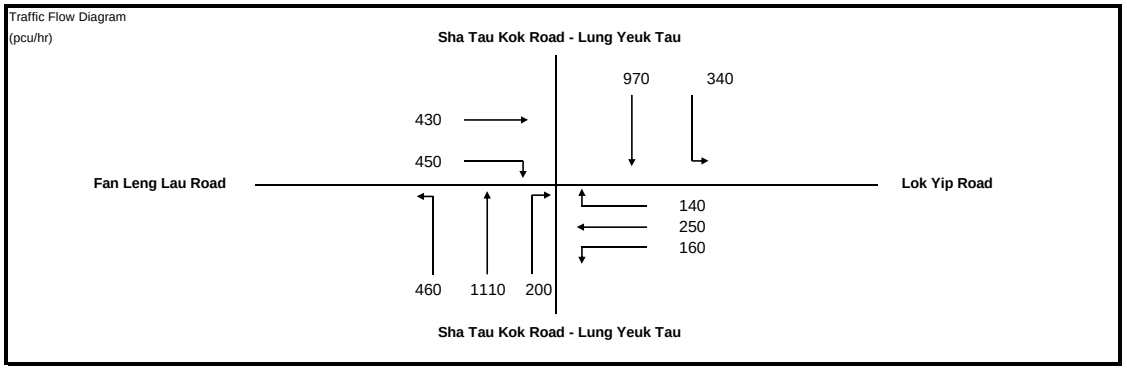
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

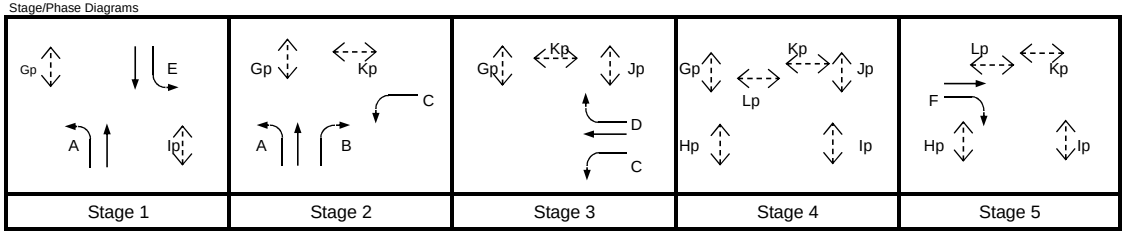
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	124	sec
Sum(y)		Y =	0.743	
Lost time		L =	41	sec
Total Flow		=	16,415	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	259	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	160	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-20.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	235	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

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	1,2	2.800	1	18			1		0		1895	460			460	100%		1749	0.263	
	A	1,2	3.400	1	20					0		2095	0	556		556	0%		2095	0.266	
	A	1,2	3.300	1				0		0		2085		554		554			2085	0.266	
	B	2	3.300	1		20	0	0		0		2085			200	200		100%	1940	0.103	0.103
	F	5	3.650	1		35	0	1		0		1980		430	4	434		1%	1979	0.219	0.219
	F	5	3.600	1		37.5	0	0		0		2115			446	446		100%	2034	0.219	
	E	1	3.300	2				0		0		4170		970		970			4170	0.233	0.233
	E	1	3.300	2	20			1		0		4030	340			340	100%		3749	0.091	
	C	2,3	4.000	1	15			1		0		2015	160			160	100%		1832	0.087	
	D	3	3.500	1		35	0	0		0		2105		250	140	390		36%	2073	0.188	0.188
Pedestrian Crossing				GM		FGM															
	Gp	1,2,3,4	min.	9	+	6	=	15	sec												
	Hp1	4	min.	8	+	0	=	8	sec												*
	Hp2	5	min.	0	+	8	=	8	sec												
	Ip	1,2,4,5	min.	5	+	7	=	12	sec												
	Jp	3,4	min.	5	+	7	=	12	sec												
	Kp	1,2,3,4,5	min.	7	+	12	=	19	sec												
	Lp	1,4,5	min.	5	+	8	=	13	sec												

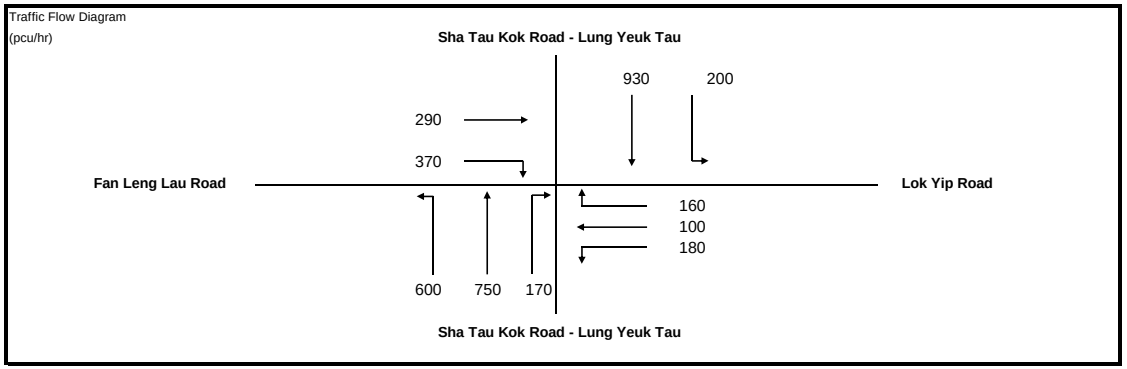
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

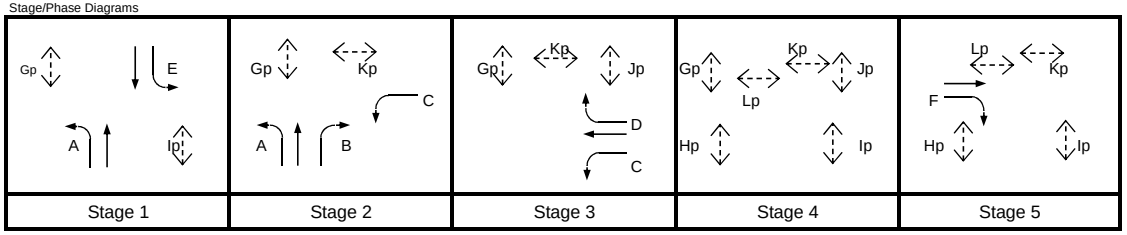
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	124	sec
Sum(y)	Y =	0.602	
Lost time	L =	41	sec
Total Flow	=	16,415	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	167	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	103	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.593	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-1.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	124	sec
Y_{max}	$= 1-L/C$	=	0.669	

Stage/Phase Diagrams



I/G = 7 I/G = 5 I/G = 9 G = 8 I/G = 10 I/G = 6

Critical Case : E,B,D,Hp1,F

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 0%

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	2.800	1	18			1		0		1895	403			403	100%		1749	0.230	
	A	1,2	3.400	1	20					0		2095	197	270		467	42%		2031	0.230	
	A	1,2	3.300	1				0		0		2085		480		480			2085	0.230	
	B	2	3.300	1		20	0	0		0		2085			170	170		100%	1940	0.088	0.088
	F	5	3.650	1		35	0	1		0		1980		290	35	325		11%	1971	0.165	0.165
	F	5	3.600	1		37.5	0	0		0		2115			335	335		100%	2034	0.165	
	E	1	3.300	2				0		0		4170		930		930			4170	0.223	0.223
	E	1	3.300	2	20			1		0		4030	200			200	100%		3749	0.053	
	C	2,3	4.000	1	15			1		0		2015	180			180	100%		1832	0.098	
	D	3	3.500	1		35	0	0		0		2105		100	160	260		62%	2051	0.127	0.127

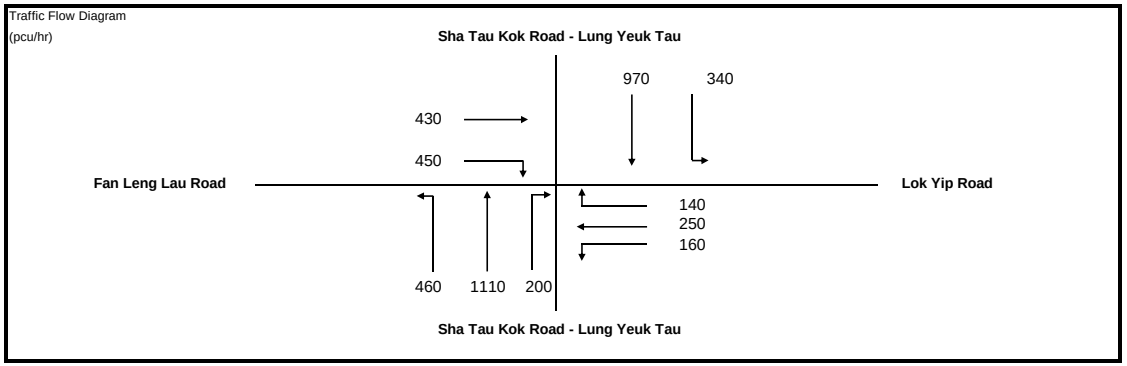
Pedestrian Crossing			GM		FGM				
Gp	1,2,3,4	min.	9	+	6	=	15	sec	
Hp1	4	min.	8	+	0	=	8	sec	*
Hp2	5	min.	0	+	8	=	8	sec	
Ip	1,2,4,5	min.	5	+	7	=	12	sec	
Jp	3,4	min.	5	+	7	=	12	sec	
Kp	1,2,3,4,5	min.	7	+	12	=	19	sec	
Lp	1,4,5	min.	5	+	8	=	13	sec	

JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2031 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

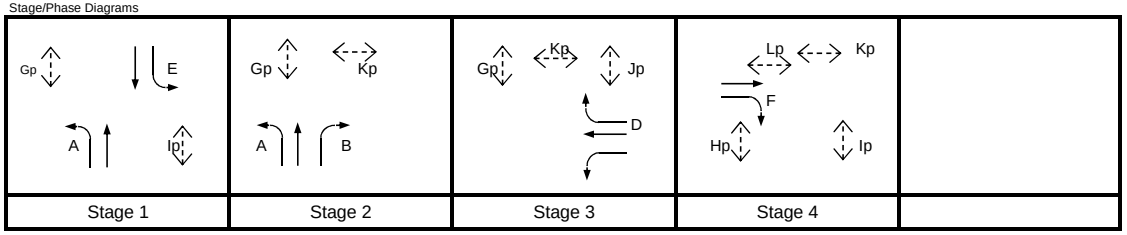
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	124	sec
Sum(y)	Y =	0.633	
Lost time	L =	21	sec
Total Flow	=	18,445	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	99	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	57	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.743	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	17.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	71	sec
Y_{max}	$= 1-L/C$	=	0.831	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 5	I/G = 5	I/G = 8	

Critical Case : E,B,D,F

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	1,2	2.800	1	18			1		0		1895	460			460	100%		1749	0.263	
	A	1,2	3.400	1	20					0		2095	0	556		556	0%		2095	0.266	
	A	1,2	3.300	1				0		0		2085		554		554			2085	0.266	
	B	2	3.300	1		20	0	1		0		1945			200	200		100%	1809	0.111	0.111
	F	4	3.400	1				1		0		1955		430		430			1955	0.220	0.220
	F	4	3.300	2		37.5	0	0		0		4170			450	450		100%	4010	0.112	
	E	1	3.300	1	17.5			1		0		1945	292			292	100%		1791	0.163	
	E	1	3.300	1	20					0		2085	48	289		337	14%		2063	0.163	0.163
	E	1	3.300	2				0		0		4170		681		681			4170	0.163	
	D	3	4.000	1	15			1		0		2015	160	104		264	61%		1900	0.139	0.139
	D	3	3.500	1		35	0	0		0		2105		146	140	286		49%	2062	0.139	

Pedestrian Crossing			GM		FGM				
Gp	1,2,3	min.	9	+	6	=	15	sec	
Hp	4	min.	8	+	8	=	16	sec	
Ip	1,4	min.	5	+	7	=	12	sec	
Jp	3	min.	5	+	7	=	12	sec	
Kp	2,3,4	min.	7	+	12	=	19	sec	
Lp	4	min.	5	+	8	=	13	sec	

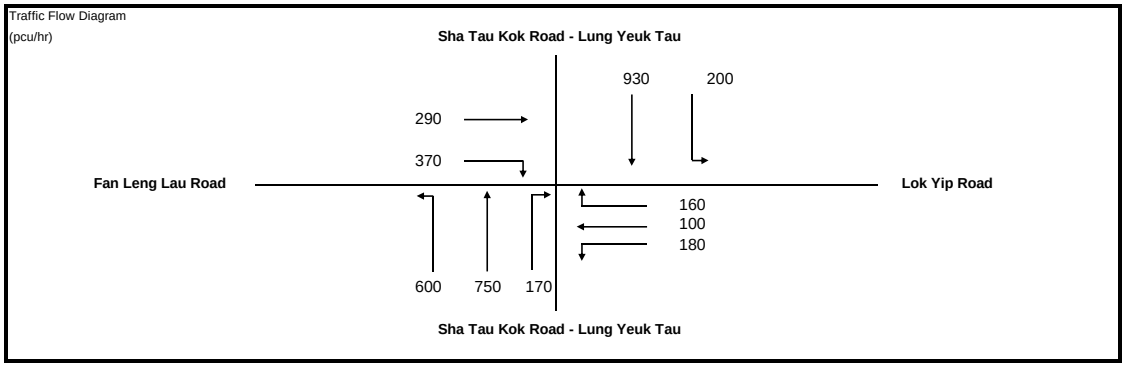
JUNCTION CAPACITY CALCULATION

Junction J9 - Sha Tau Kok Road / Lok Yip Road	2031 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J9

Traffic Flow Diagram

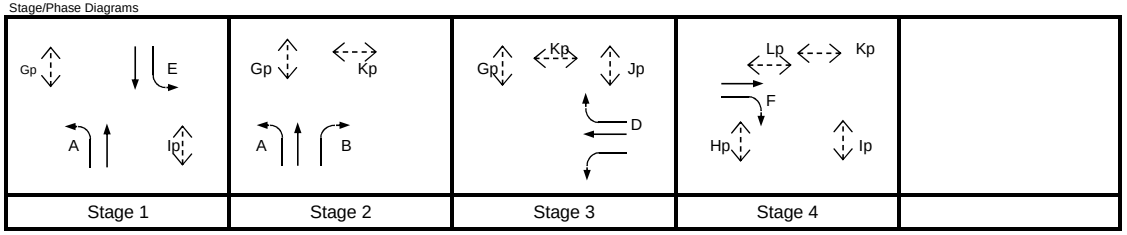
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	124	sec
Sum(y)	Y =	0.504	
Lost time	L =	21	sec
Total Flow	=	18,445	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	74	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	42	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.743	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	47.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	48	sec
Y_{max}	$= 1-L/C$	=	0.831	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 7	I/G = 5	I/G = 5	I/G = 8	

Critical Case : E,B,D,F

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	1,2	2.800	1	18			1		0		1895	403			403	100%		1749	0.230	
	A	1,2	3.400	1	20					0		2095	197	270		467	42%		2031	0.230	
	A	1,2	3.300	1				0		0		2085		480		480			2085	0.230	
	B	2	3.300	1		20	0	1		0		1945			170	170		100%	1809	0.094	0.094
	F	4	3.400	1				1		0		1955		290		290			1955	0.148	0.148
	F	4	3.300	2		37.5	0	0		0		4170			370	370		100%	4010	0.092	
	E	1	3.300	1	17.5			1		0		1945	200			200	100%		1791	0.112	
	E	1	3.300	1	20					0		2085	0	310		310	0%		2085	0.149	0.149
	E	1	3.300	2				0		0		4170		620		620			4170	0.149	
	D	3	4.000	1	15			1		0		2015	180	29		209	86%		1855	0.113	0.113
	D	3	3.500	1		35	0	0		0		2105		71	160	231		69%	2044	0.113	

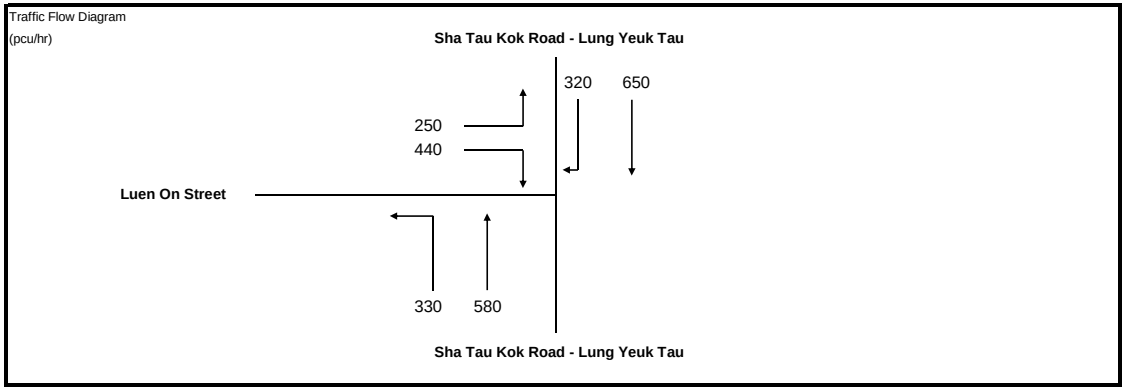
Pedestrian Crossing			GM		FGM				
Gp	1,2,3	min.	9	+	6	=	15	sec	
Hp	4	min.	8	+	8	=	16	sec	
Ip	1,4	min.	5	+	7	=	12	sec	
Jp	3	min.	5	+	7	=	12	sec	
Kp	2,3,4	min.	7	+	12	=	19	sec	
Lp	4	min.	5	+	8	=	13	sec	

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

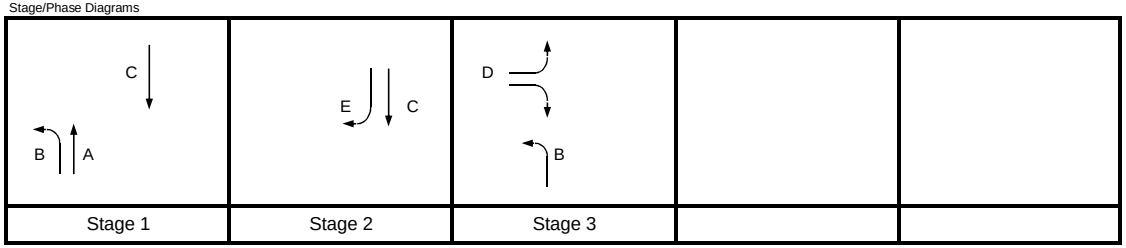
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.430	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	48	sec
Min. Cycle Time C_m	= L/(1-Y)	=	26	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	83.2	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	29	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 75%

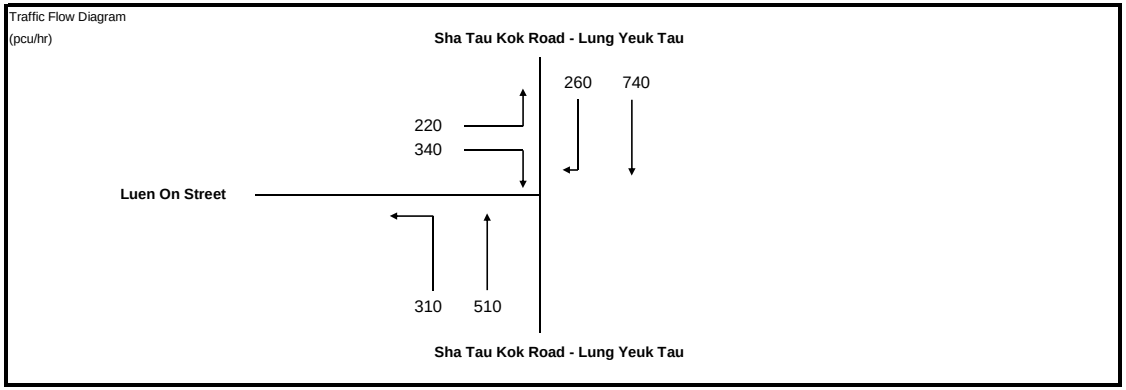
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		580		580			4070	0.143	0.143
↰	B	1,3	3.000	1	15			0		0		2055	330			330	100%		1868	0.177	
↰	D	3	3.000	1	12.5			1		0		1915	209			209	100%		1710	0.122	0.122
↑	D	3	3.300	1	17.5	25	0			0		2085	41		199	240	17%	83%	1959	0.122	
↱	D	3	3.500	1		22.5	0	0		0		2105			241	241		100%	1973	0.122	
↑	C	1,2	3.000	2				1		0		3970		650		650			3970	0.164	
↱	E	2	3.300	1		20	0	0		0		2085			320	320		100%	1940	0.165	0.165

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

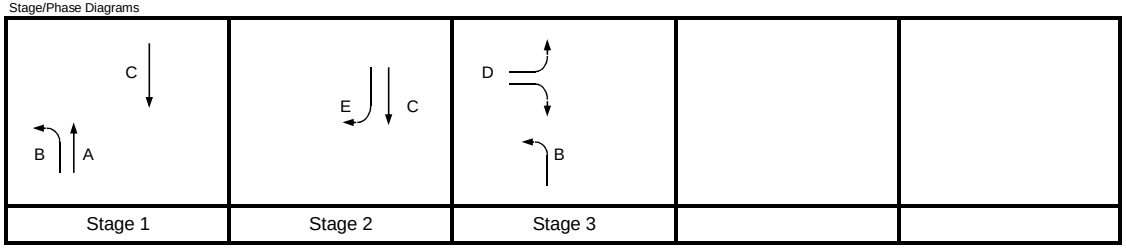
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.359	
Lost time		L =	15	sec
Total Flow		=	18,285	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	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	119.6	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	25	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

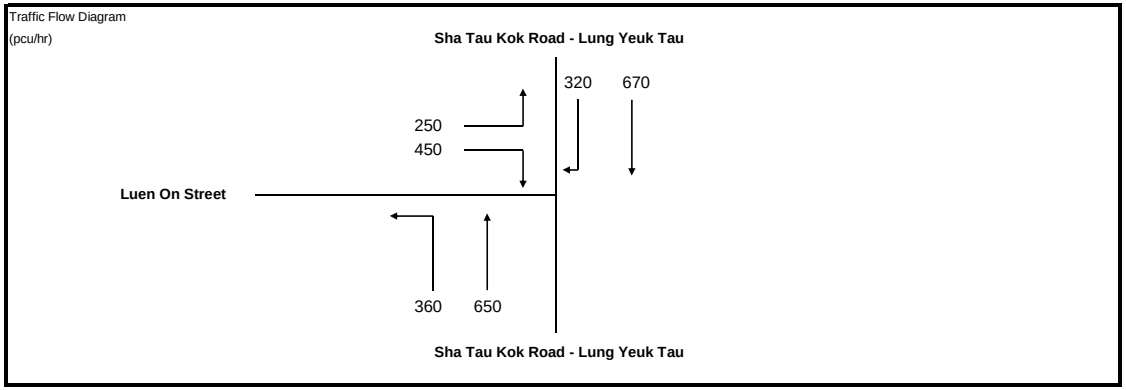
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		510		510			4070	0.125	0.125
↰	B	1,3	3.000	1	15			0		0		2055	310			310	100%		1868	0.166	
↰	D	3	3.000	1	12.5			1		0		1915	170			170	100%		1710	0.099	0.099
↑↱	D	3	3.300	1	17.5	25	0			0		2085	50		144	194	26%	74%	1955	0.099	
↱	D	3	3.500	1		22.5	0	0		0		2105			196	196		100%	1973	0.099	
↑	C	1,2	3.000	2				1		0		3970		740		740			3970	0.186	
↱	E	2	3.300	1		20	0	0		0		2085			260	260		100%	1940	0.134	0.134

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

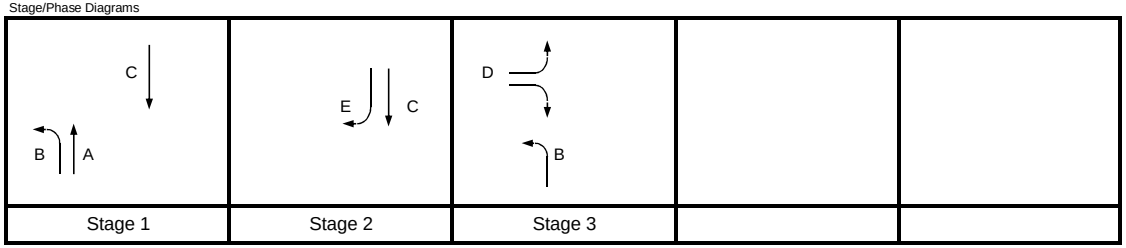
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.449	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	50	sec
Min. Cycle Time C_m	= L/(1-Y)	=	27	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	75.5	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	30	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 67%

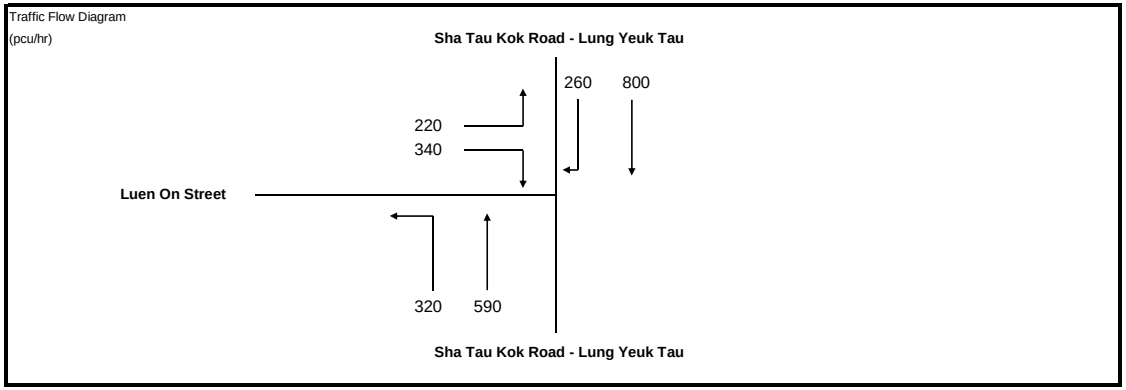
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		650		650			4070	0.160	0.160
↰	B	1,3	3.000	1	15			0		0		2055	360			360	100%		1868	0.193	
↰	D	3	3.000	1	12.5			1		0		1915	212			212	100%		1710	0.124	0.124
↰↑	D	3	3.300	1	17.5	25	0			0		2085	38		205	243	16%	84%	1960	0.124	
↱	D	3	3.500	1		22.5	0	0		0		2105			245	245		100%	1973	0.124	
↑	C	1,2	3.000	2				1		0		3970		670		670			3970	0.169	
↱	E	2	3.300	1		20	0	0		0		2085			320	320		100%	1940	0.165	0.165

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

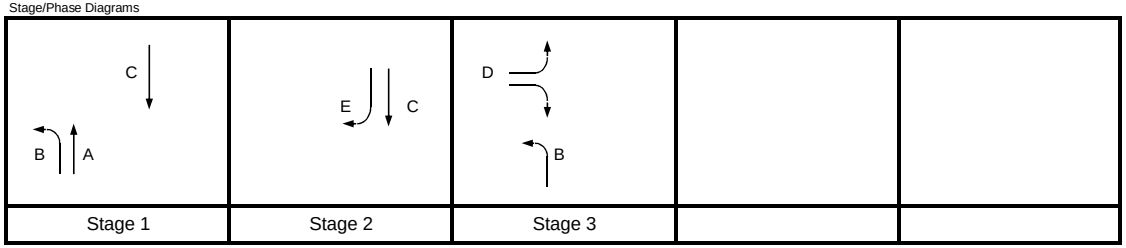
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.378	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	44	sec
Min. Cycle Time C_m	= L/(1-Y)	=	24	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	108.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	26	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

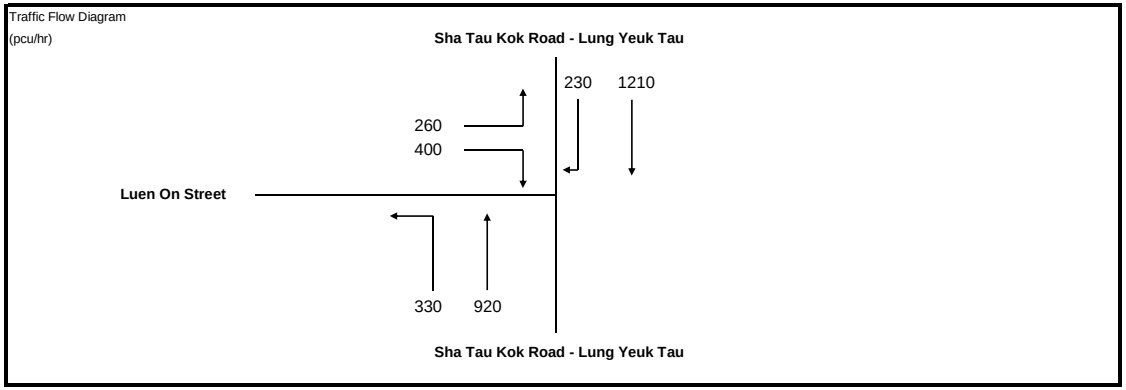
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		590		590			4070	0.145	0.145
↰	B	1,3	3.000	1	15			0		0		2055	320			320	100%		1868	0.171	
↰	D	3	3.000	1	12.5			1		0		1915	170			170	100%		1710	0.099	
↑	D	3	3.300	1	17.5	25	0			0		2085	50		144	194	26%	74%	1955	0.099	0.099
↱	D	3	3.500	1		22.5	0	0		0		2105			196	196		100%	1973	0.099	
↑	C	1,2	3.000	2				1		0		3970		800		800			3970	0.202	
↱	E	2	3.300	1		20	0	0		0		2085			260	260		100%	1940	0.134	0.134

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

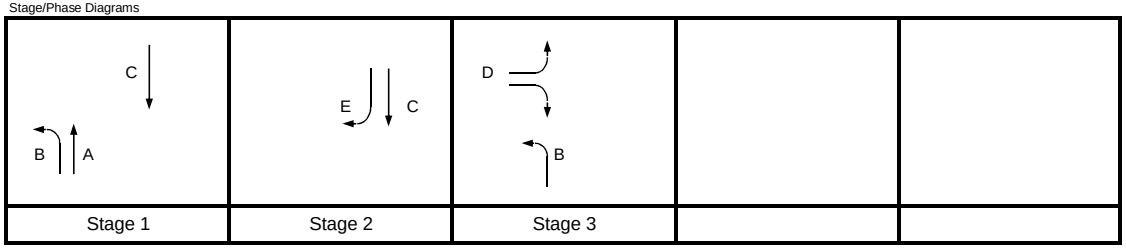
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.462	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	51	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	28	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.788	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	70.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	31	sec
Y_{max}	$= 1-L/C$	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

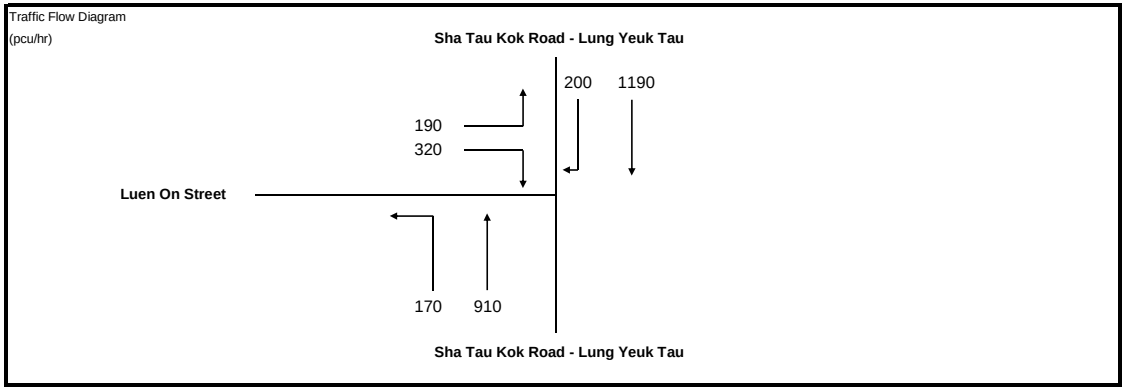
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		920		920			4070	0.226	0.226
↰	B	1,3	3.000	1	15			0		0		2055	330			330	100%		1868	0.177	
↰	D	3	3.000	1	12.5			1		0		1915	200			200	100%		1710	0.117	
↰↑	D	3	3.300	1	17.5	25	0			0		2085	60		169	229	26%	74%	1955	0.117	0.117
↱	D	3	3.500	1		22.5	0	0		0		2105			231	231		100%	1973	0.117	
↑	C	1,2	3.000	2				1		0		3970		1210		1210			3970	0.305	
↱	E	2	3.300	1		20	0	0		0		2085			230	230		100%	1940	0.119	0.119

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

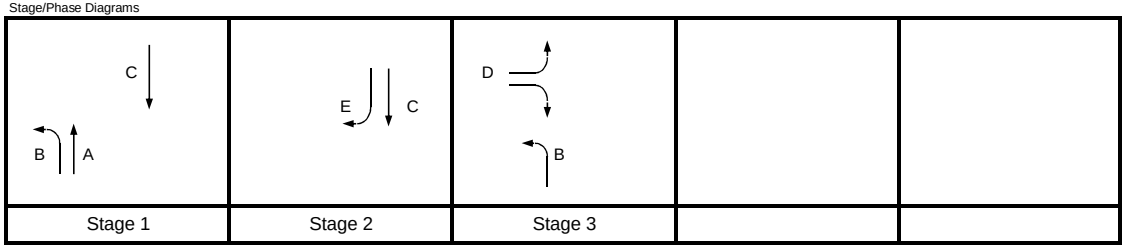
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.417	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	47	sec
Min. Cycle Time C_m	= L/(1-Y)	=	26	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	88.8	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	28	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = ($0.9xY_{max}$-Y)/Yx100% = 80%

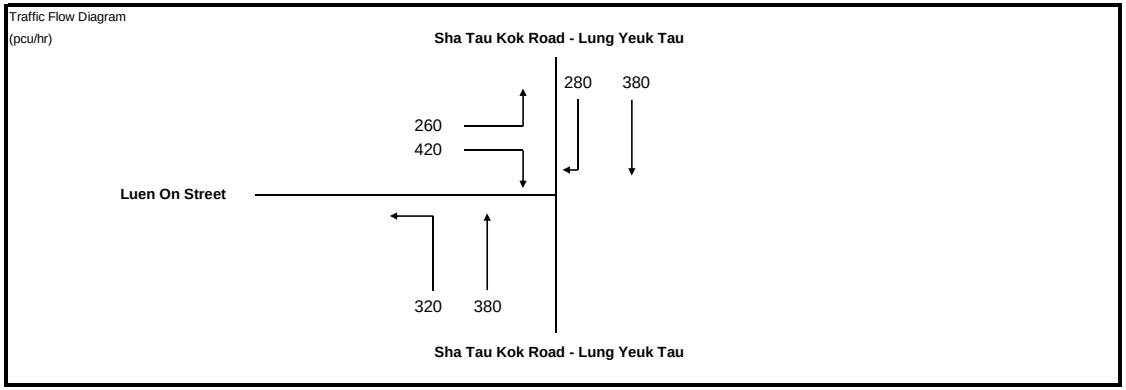
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	1	3.500	2				1		0		4070		910		910			4070	0.224	0.224
↰	B	1,3	3.000	1	15			0		0		2055	170			170	100%		1868	0.091	
↰	D	3	3.000	1	12.5			1		0		1915	155			155	100%		1710	0.090	
↑↱	D	3	3.300	1	17.5	25	0			0		2085	35		142	177	20%	80%	1957	0.090	0.090
↱	D	3	3.500	1		22.5	0	0		0		2105			178	178		100%	1973	0.090	
↑	C	1,2	3.000	2				1		0		3970		1190		1190			3970	0.300	
↱	E	2	3.300	1		20	0	0		0		2085			200	200		100%	1940	0.103	0.103

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

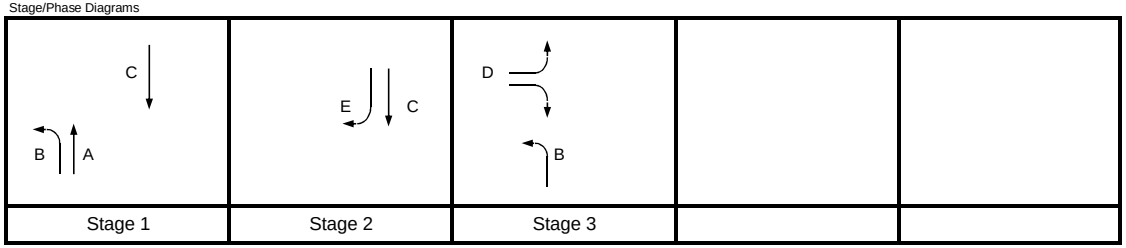
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.358	
Lost time		L =	15	sec
Total Flow		=	18,285	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	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	119.8	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	25	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

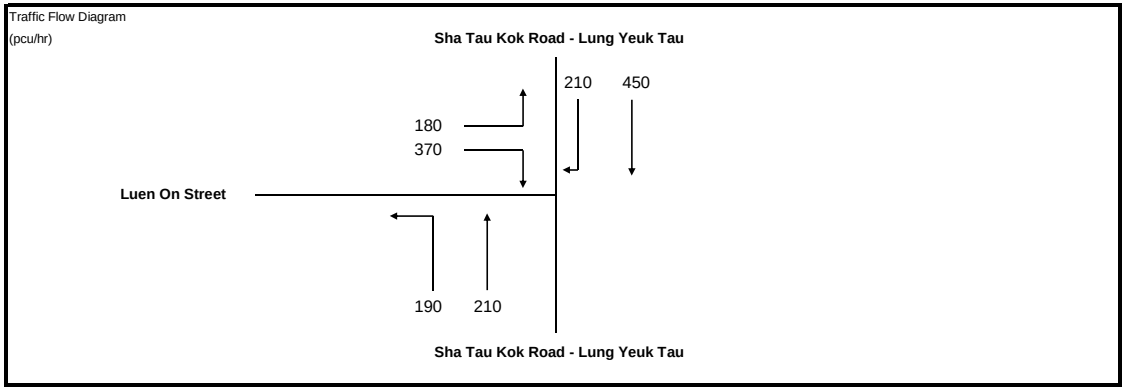
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		380		380			4070	0.093	0.093
↰	B	1,3	3.000	1	15			0		0		2055	320			320	100%		1868	0.171	
↰	D	3	3.000	1	12.5			1		0		1915	206			206	100%		1710	0.121	0.121
↰↑	D	3	3.300	1	17.5	25	0			0		2085	54		182	236	23%	77%	1956	0.121	
↱	D	3	3.500	1		22.5	0	0		0		2105			238	238		100%	1973	0.121	
↑	C	1,2	3.000	2				1		0		3970		380		380			3970	0.096	
↱	E	2	3.300	1		20	0	0		0		2085			280	280		100%	1940	0.144	0.144

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

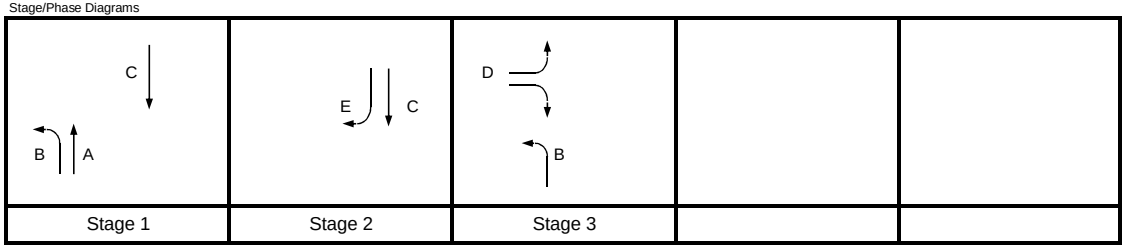
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.257	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	37	sec
Min. Cycle Time C_m	= L/(1-Y)	=	20	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	206.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	21	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 192%

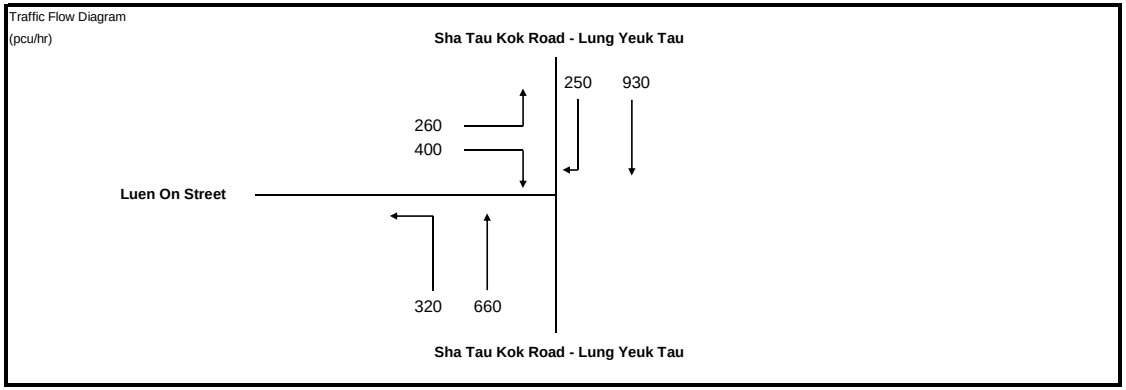
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		210		210			4070	0.052	0.052
↰	B	1,3	3.000	1	15			0		0		2055	190			190	100%		1868	0.102	
↰	D	3	3.000	1	12.5			1		0		1915	167			167	100%		1710	0.097	0.097
↰↑	D	3	3.300	1	17.5	25	0			0		2085	13		178	191	7%	93%	1964	0.097	
↱	D	3	3.500	1		22.5	0	0		0		2105			192	192		100%	1973	0.097	
↑	C	1,2	3.000	2				1		0		3970		450		450			3970	0.113	
↱	E	2	3.300	1		20	0	0		0		2085			210	210		100%	1940	0.108	0.108

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

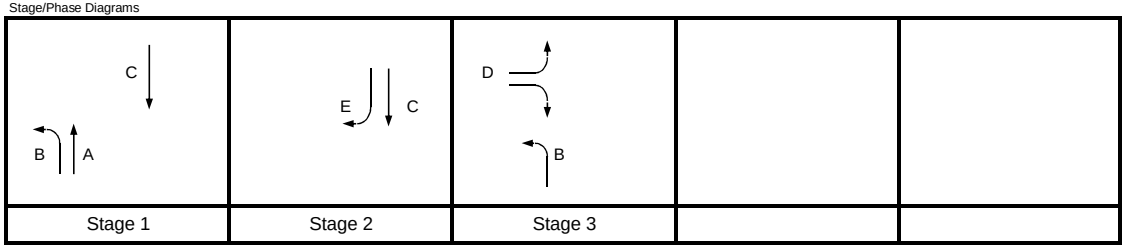
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.408	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	46	sec
Min. Cycle Time C_m	= L/(1-Y)	=	25	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	93.0	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	27	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

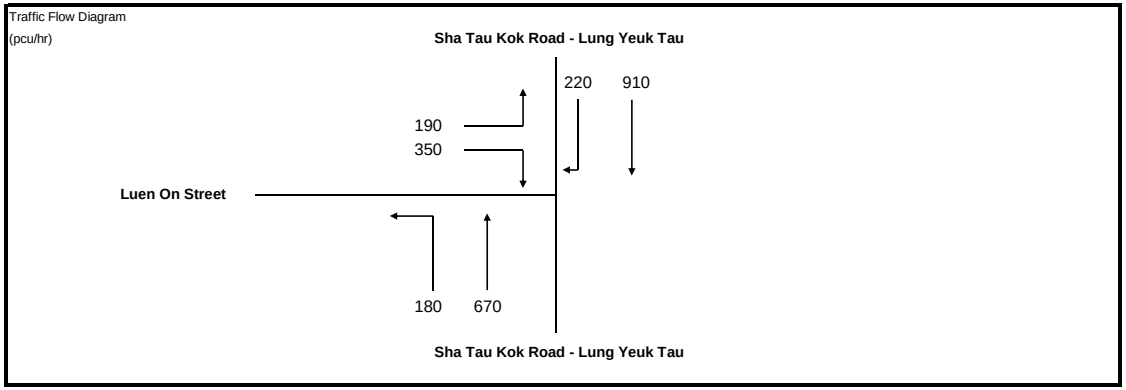
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		660		660			4070	0.162	0.162
↰	B	1,3	3.000	1	15			0		0		2055	320			320	100%		1868	0.171	
↰	D	3	3.000	1	12.5			1		0		1915	200			200	100%		1710	0.117	0.117
↑	D	3	3.300	1	17.5	25	0			0		2085	60		169	229	26%	74%	1955	0.117	
↱	D	3	3.500	1		22.5	0	0		0		2105			231	231		100%	1973	0.117	
↑	C	1,2	3.000	2				1		0		3970		930		930			3970	0.234	
↱	E	2	3.300	1		20	0	0		0		2085			250	250		100%	1940	0.129	0.129

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

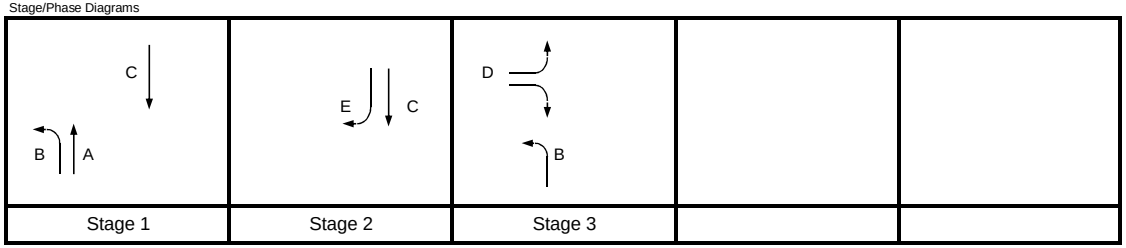
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.374	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	44	sec
Min. Cycle Time C_m	= L/(1-Y)	=	24	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	110.7	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	26	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 101%

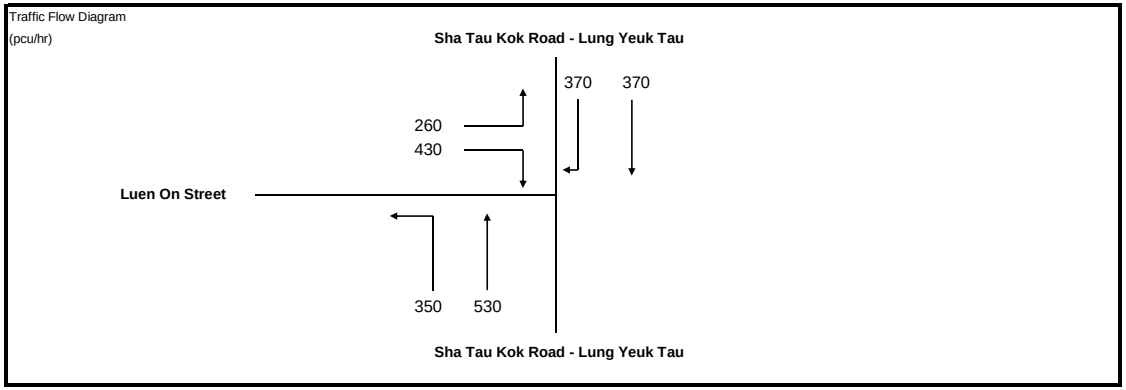
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		670		670			4070	0.165	0.165
↰	B	1,3	3.000	1	15			0		0		2055	180			180	100%		1868	0.096	
↰	D	3	3.000	1	12.5			1		0		1915	164			164	100%		1710	0.096	0.096
↰↑	D	3	3.300	1	17.5	25	0			0		2085	26		161	188	14%	86%	1960	0.096	
↱	D	3	3.500	1		22.5	0	0		0		2105			189	189		100%	1973	0.096	
↑	C	1,2	3.000	2				1		0		3970		910		910			3970	0.229	
↱	E	2	3.300	1		20	0	0		0		2085			220	220		100%	1940	0.113	0.113

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

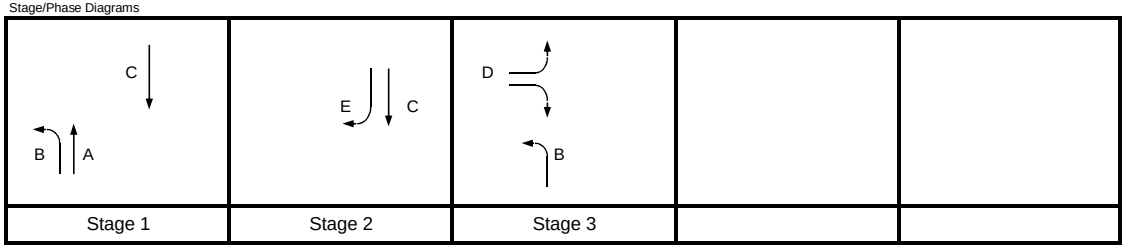
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.443	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	49	sec
Min. Cycle Time C_m	= L/(1-Y)	=	27	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	77.6	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	30	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 69%

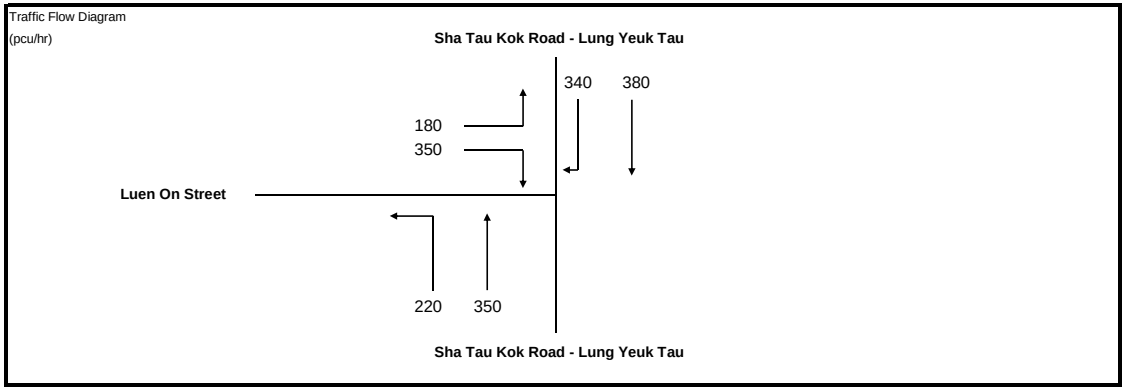
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		530		530			4070	0.130	0.130
↰	B	1,3	3.000	1	15			0		0		2055	350			350	100%		1868	0.187	
↰	D	3	3.000	1	12.5			1		0		1915	209			209	100%		1710	0.122	
↰↑	D	3	3.300	1	17.5	25	0			0		2085	51		189	239	21%	79%	1957	0.122	0.122
↱	D	3	3.500	1		22.5	0	0		0		2105			241	241		100%	1973	0.122	
↑	C	1,2	3.000	2				1		0		3970		370		370			3970	0.093	
↱	E	2	3.300	1		20	0	0		0		2085			370	370		100%	1940	0.191	0.191

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

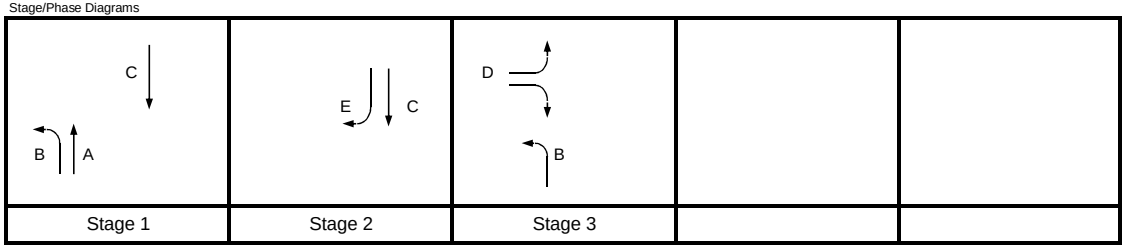
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.355	
Lost time		L =	15	sec
Total Flow		=	18,285	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	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	121.7	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	25	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 111%

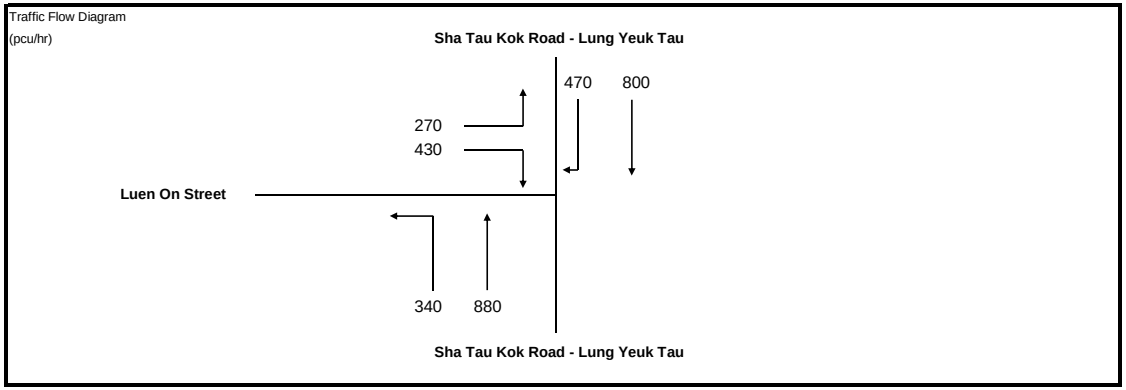
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		350		350			4070	0.086	0.086
↰	B	1,3	3.000	1	15			0		0		2055	220			220	100%		1868	0.118	
↰	D	3	3.000	1	12.5			1		0		1915	161			161	100%		1710	0.094	0.094
↑	D	3	3.300	1	17.5	25	0			0		2085	19		165	184	11%	89%	1962	0.094	
↱	D	3	3.500	1		22.5	0	0		0		2105			185	185		100%	1973	0.094	
↑	C	1,2	3.000	2				1		0		3970		380		380			3970	0.096	
↱	E	2	3.300	1		20	0	0		0		2085			340	340		100%	1940	0.175	0.175

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

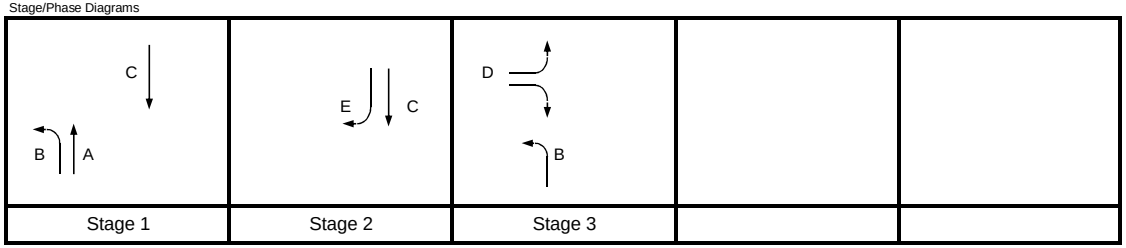
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.583	
Lost time		L =	15	sec
Total Flow		=	18,285	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.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	35.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	43	sec
Y_{max}	$= 1-L/C$	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

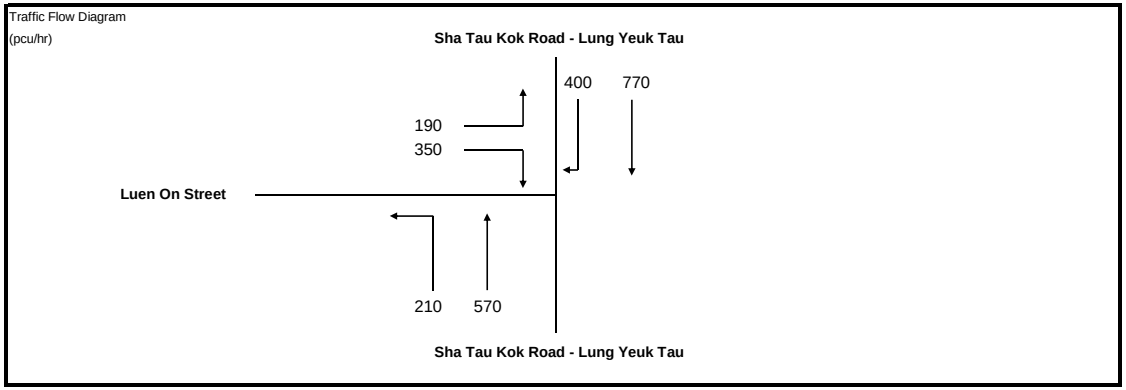
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		880		880			4070	0.216	0.216
↰	B	1,3	3.000	1	15			0		0		2055	340			340	100%		1868	0.182	
↰	D	3	3.000	1	12.5			1		0		1915	212			212	100%		1710	0.124	
↰↑	D	3	3.300	1	17.5	25	0			0		2085	58		185	243	24%	76%	1956	0.124	0.124
↱	D	3	3.500	1		22.5	0	0		0		2105			245	245		100%	1973	0.124	
↑	C	1,2	3.000	2				1		0		3970		800		800			3970	0.202	
↱	E	2	3.300	1		20	0	0		0		2085			470	470		100%	1940	0.242	0.242

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

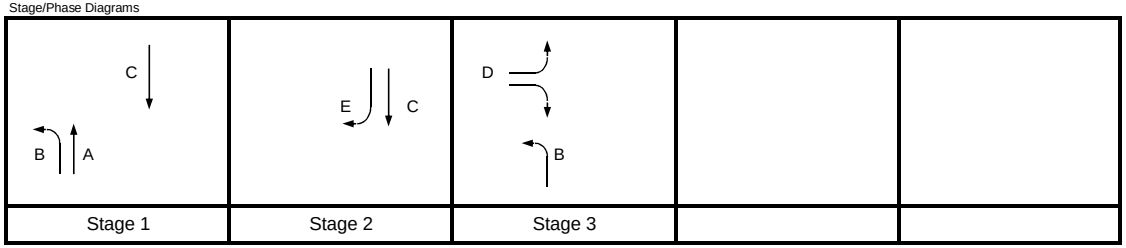
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.442	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	49	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	27	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.788	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	78.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	29	sec
Y_{max}	$= 1-L/C$	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

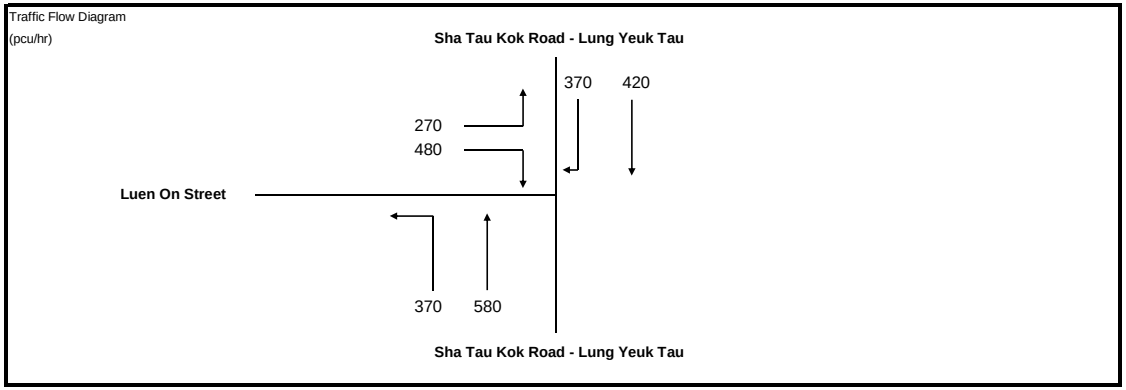
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		570		570			4070	0.140	0.140
↰	B	1,3	3.000	1	15			0		0		2055	210			210	100%		1868	0.112	
↰	D	3	3.000	1	12.5			1		0		1915	164			164	100%		1710	0.096	0.096
↑	D	3	3.300	1	17.5	25	0			0		2085	26		161	188	14%	86%	1960	0.096	
↱	D	3	3.500	1		22.5	0	0		0		2105			189	189		100%	1973	0.096	
↑	C	1,2	3.000	2				1		0		3970		770		770			3970	0.194	
↱	E	2	3.300	1		20	0	0		0		2085			400	400		100%	1940	0.206	0.206

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

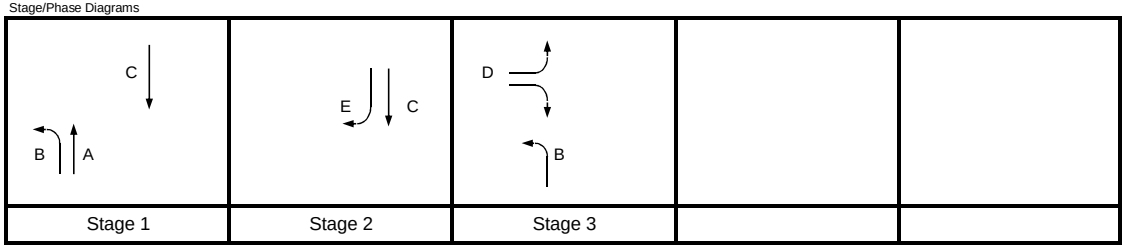
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.466	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	52	sec
Min. Cycle Time C_m	= L/(1-Y)	=	28	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	68.9	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	31	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 61%

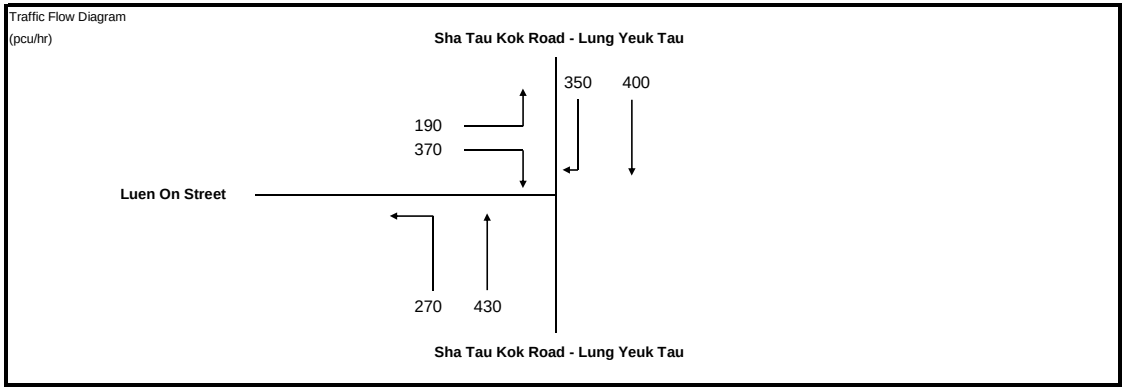
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		580		580			4070	0.143	0.143
↰	B	1,3	3.000	1	15			0		0		2055	370			370	100%		1868	0.198	
↰	D	3	3.000	1	12.5			1		0		1915	227			227	100%		1710	0.133	0.133
↑	D	3	3.300	1	17.5	25	0			0		2085	43		218	260	16%	84%	1959	0.133	
↱	D	3	3.500	1		22.5	0	0		0		2105			262	262		100%	1973	0.133	
↑	C	1,2	3.000	2				1		0		3970		420		420			3970	0.106	
↱	E	2	3.300	1		20	0	0		0		2085			370	370		100%	1940	0.191	0.191

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

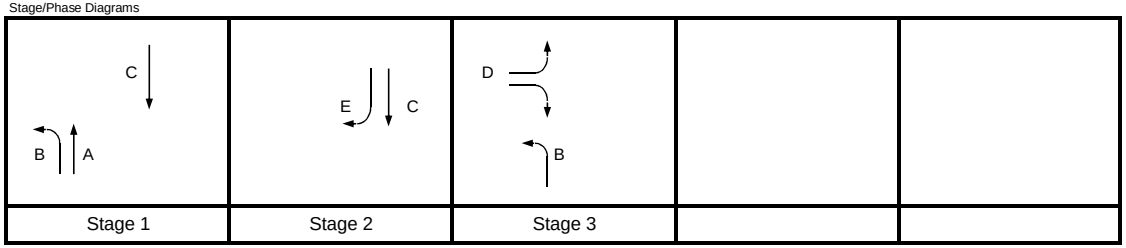
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.385	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	45	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	24	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.788	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	104.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	26	sec
Y_{max}	$= 1-L/C$	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 95%

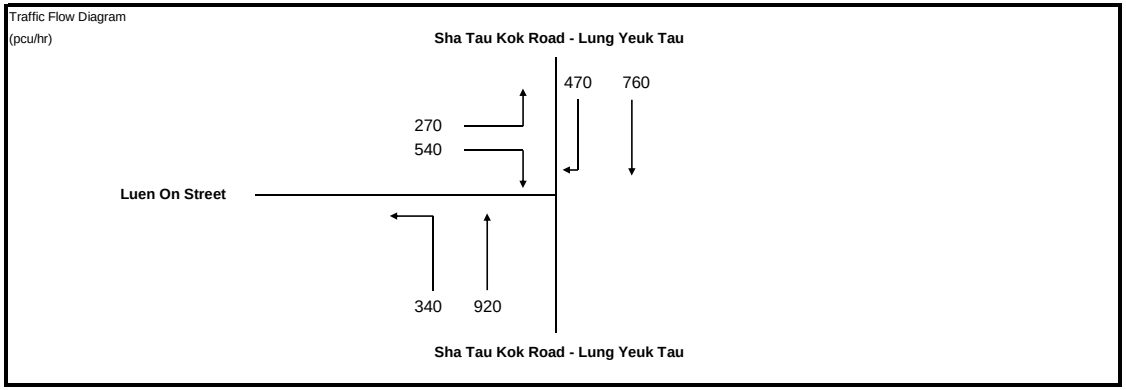
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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		430		430			4070	0.106	0.106
↰	B	1,3	3.000	1	15			0		0		2055	270			270	100%		1868	0.145	
↰	D	3	3.000	1	12.5			1		0		1915	170			170	100%		1710	0.099	
↑↱	D	3	3.300	1	17.5	25	0			0		2085	20		174	195	10%	90%	1962	0.099	
↱	D	3	3.500	1		22.5	0	0		0		2105			196	196		100%	1973	0.099	0.099
↑	C	1,2	3.000	2				1		0		3970		400		400			3970	0.101	
↱	E	2	3.300	1		20	0	0		0		2085			350	350		100%	1940	0.180	0.180

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

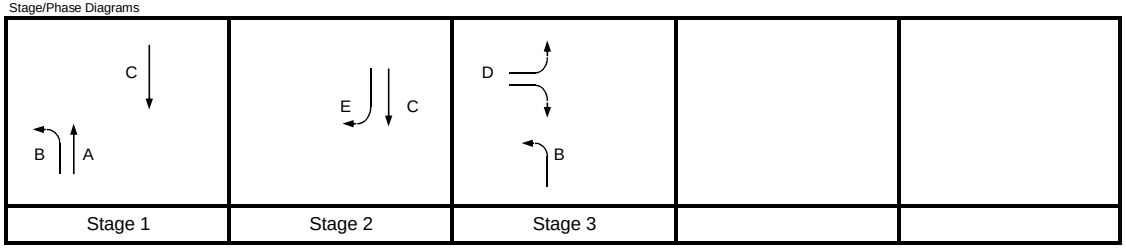
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.612	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	71	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	39	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.788	
R.C.$_{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	28.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	47	sec
Y_{max}	$= 1-L/C$	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

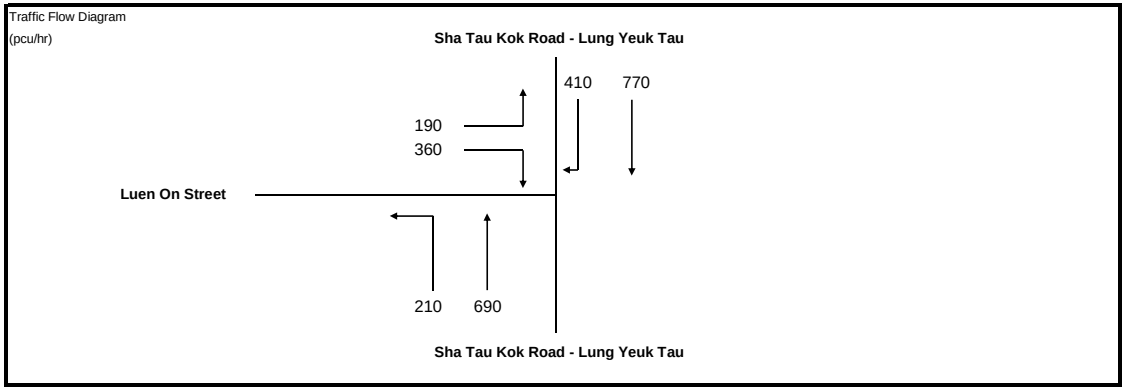
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		920		920			4070	0.226	0.226
↰	B	1,3	3.000	1	15			0		0		2055	340			340	100%		1868	0.182	
↰	D	3	3.000	1	12.5			1		0		1915	245			245	100%		1710	0.143	
↰↑	D	3	3.300	1	17.5	25	0			0		2085	25		257	282	9%	91%	1963	0.143	0.143
↱	D	3	3.500	1		22.5	0	0		0		2105			283	283		100%	1973	0.143	
↑	C	1,2	3.000	2				1		0		3970		760		760			3970	0.191	
↱	E	2	3.300	1		20	0	0		0		2085			470	470		100%	1940	0.242	0.242

JUNCTION CAPACITY CALCULATION

Junction J10 - Sha Tau Kok Road / Luen On Street	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

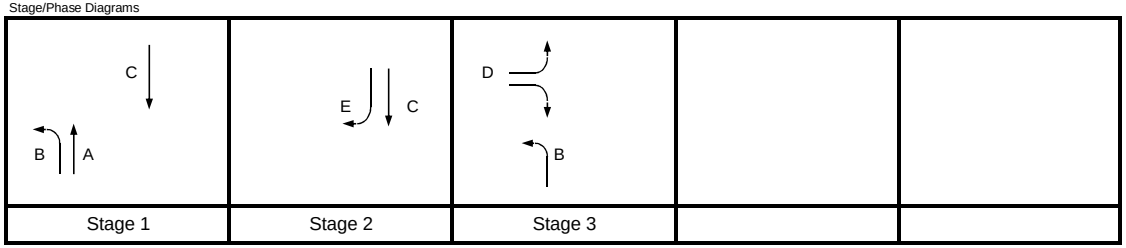
J10

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.478	
Lost time		L =	15	sec
Total Flow		=	18,285	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	53	sec
Min. Cycle Time C_m	= L/(1-Y)	=	29	sec
Y_{ult}	= 0.9-0.0075×L	=	0.788	
R.C.$_{ult}$	= (Y_{ult}-Y)/Yx100%	=	64.6	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	32	sec
Y_{max}	= 1-L/C	=	0.833	

Stage/Phase Diagrams



Critical Case : A,E,D

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

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m)		OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr)			TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%)		REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
					LEFT	RIGHT							LEFT	STRAIGHT AHEAD	RIGHT		LEFT	RIGHT			
↑	A	1	3.500	2				1		0		4070		690		690			4070	0.170	0.170
↰	B	1,3	3.000	1	15			0		0		2055	210			210	100%		1868	0.112	
↰	D	3	3.000	1	12.5			1		0		1915	167			167	100%		1710	0.097	0.097
↑↱	D	3	3.300	1	17.5	25	0			0		2085	23		168	191	12%	88%	1961	0.097	
↱	D	3	3.500	1		22.5	0	0		0		2105			192	192		100%	1973	0.097	
↑	C	1,2	3.000	2				1		0		3970		770		770			3970	0.194	
↱	E	2	3.300	1		20	0	0		0		2085			410	410		100%	1940	0.211	0.211

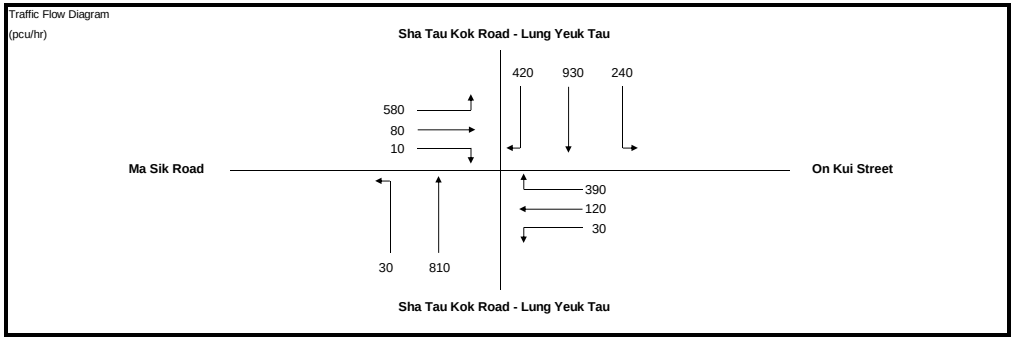
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

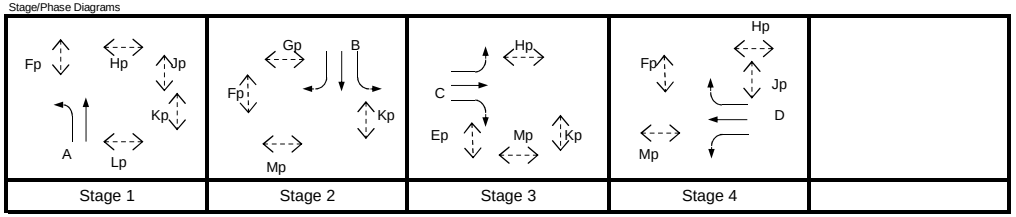
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.850	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	273	sec
Min. Cycle Time C_m	= L/(1-Y)	=	160	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-15.3	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	430	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,C,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	2.300	1	30			1		0		1845	30			30	100%		1757	0.017	
	A	1	3.300	2				0		0		4170		810		810			4170	0.194	0.194
	B	2	3.300	1	27.5			1		0		1945	240			240	100%		1844	0.130	
	B	2	3.200	2				0		0		4150		930		930			4150	0.224	
	B	2	3.200	0.6		52.5	0	0		0		1245			420	420		100%	1210	0.347	0.347
	C	3	3.000	1	30			1		0		1915	316			316	100%		1824	0.173	0.173
	C	3	3.500	1	35	52.5	0	0		0		2105	264	80	10	354	75%	3%	2038	0.173	
	D	4	3.600	1	30	55	0	1		0		1975	30	120	112	262	11%	43%	1941	0.135	0.135
	D	4	3.600	1		52.5	0	0		0		2115			278	278		100%	2056	0.135	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

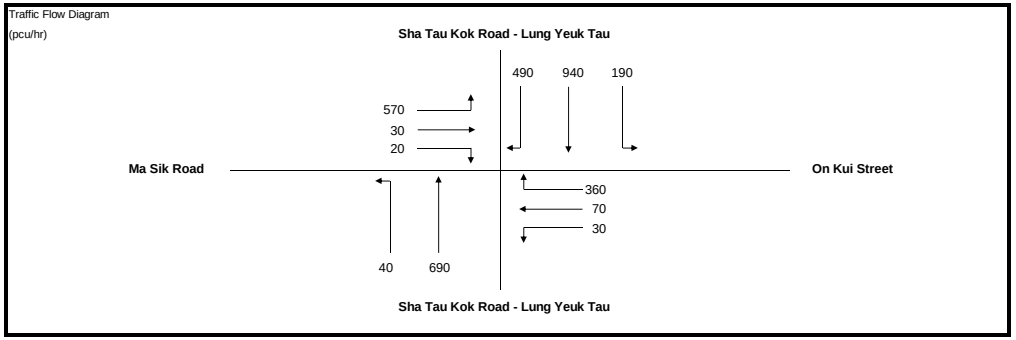
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

Traffic Flow Diagram

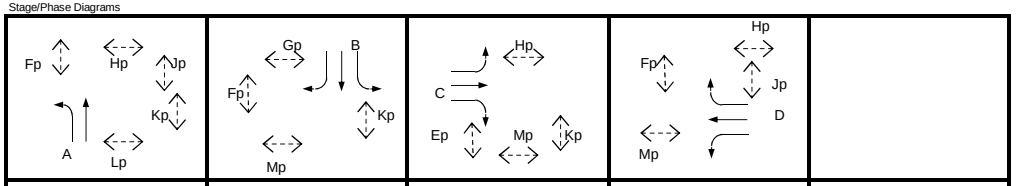
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.847	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	267	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	156	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-15.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	404	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,D

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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		690		690			4170	0.165	0.165
	B	2	3.300	1	27.5			1		0		1945	190			190	100%		1844	0.103	
	B	2	3.200	2				0		0		4150		940		940			4150	0.227	
	B	2	3.200	0.6		52.5	0	0		0		1245			490	490		100%	1210	0.405	0.405
	C	3	3.000	1	30			1		0		1915	294			294	100%		1824	0.161	0.161
	C	3	3.500	1	35	52.5	0	0		0		2105	276	30	20	326	85%	6%	2028	0.161	
	D	4	3.600	1	30	55	0	1		0		1975	30	70	123	223	13%	55%	1933	0.115	0.115
	D	4	3.600	1		52.5	0	0		0		2115			237	237		100%	2056	0.115	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

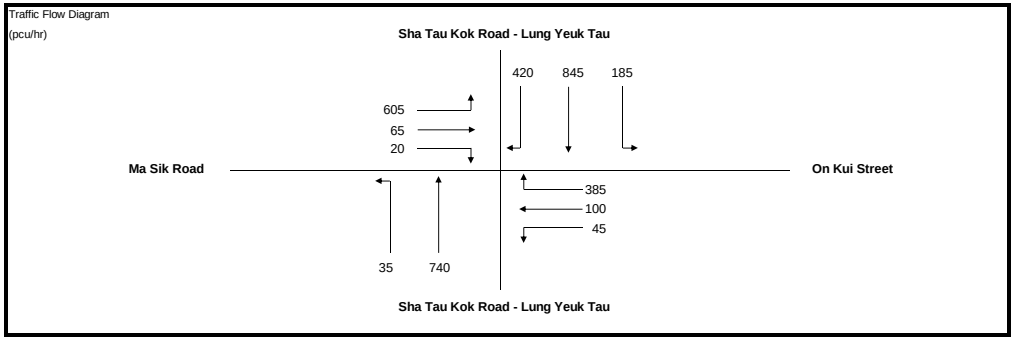
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 0900-1000 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

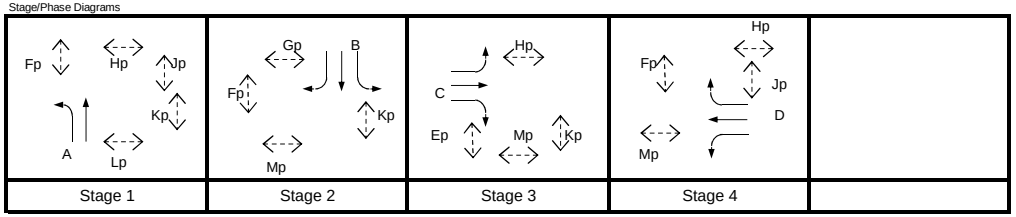
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.836	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	250	sec
Min. Cycle Time C_m	= L/(1-Y)	=	146	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-13.9	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	338	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,C,D

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	1	2.300	1	30			1		0		1845	35			35	100%		1757	0.020	
	A	1	3.300	2				0		0		4170		740		740			4170	0.177	0.177
	B	2	3.300	1	27.5			1		0		1945	185			185	100%		1844	0.100	
	B	2	3.200	2				0		0		4150		845		845			4150	0.204	
	B	2	3.200	0.6		52.5	0	0		0		1245			420	420		100%	1210	0.347	0.347
	C	3	3.000	1	30			1		0		1915	326			326	100%		1824	0.179	0.179
	C	3	3.500	1	35	52.5	0	0		0		2105	279	65	20	364	77%	5%	2035	0.179	
	D	4	3.600	1	30	55	0	1		0		1975	45	100	112	257	18%	44%	1935	0.133	0.133
	D	4	3.600	1		52.5	0	0		0		2115			273	273		100%	2056	0.133	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

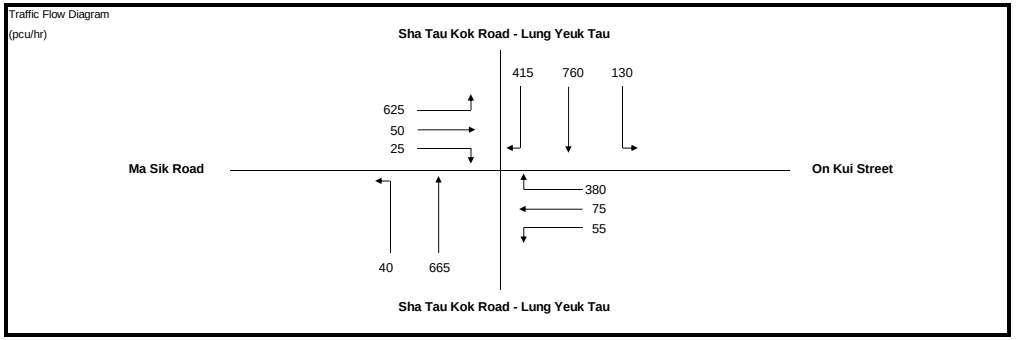
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 1000-1100 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

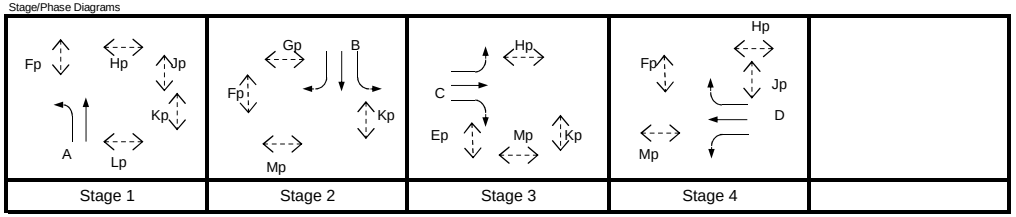
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.812	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	218	sec
Min. Cycle Time C_m	= L/(1-Y)	=	128	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-11.3	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	245	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		665		665			4170	0.159	0.159
	B	2	3.300	1	27.5			1		0		1945	130			130	100%		1844	0.070	
	B	2	3.200	2				0		0		4150		760		760			4150	0.183	
	B	2	3.200	0.6		52.5	0	0		0		1245			415	415		100%	1210	0.343	0.343
	C	3	3.000	1	30			1		0		1915	331			331	100%		1824	0.182	0.182
	C	3	3.500	1	35	52.5	0	0		0		2105	294	50	25	369	80%	7%	2032	0.182	
	D	4	3.600	1	30	55	0	1		0		1975	55	75	117	247	22%	47%	1929	0.128	0.128
	D	4	3.600	1		52.5	0	0		0		2115			263	263		100%	2056	0.128	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

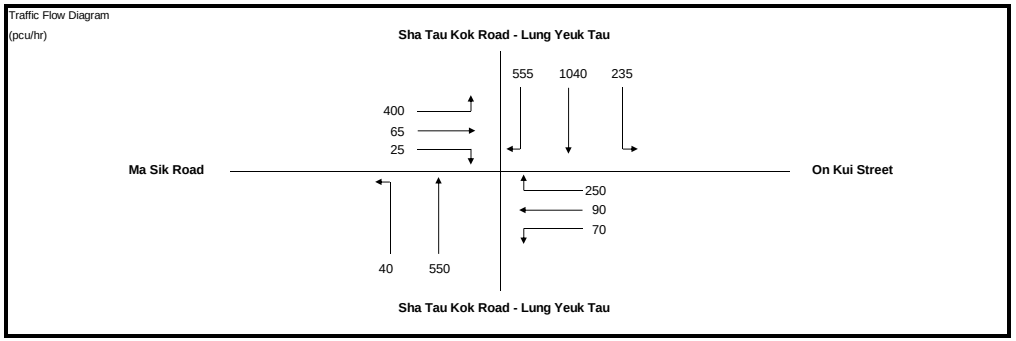
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 1100-1200 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

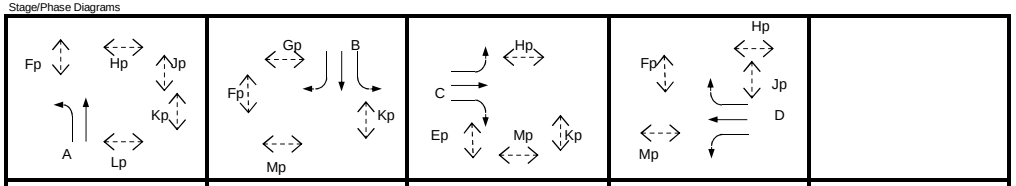
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.820	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	228	sec
Min. Cycle Time C_m	= L/(1-Y)	=	133	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-12.2	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	270	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		550		550			4170	0.132	0.132
	B	2	3.300	1	27.5			1		0		1945	235			235	100%		1844	0.127	
	B	2	3.200	2				0		0		4150		1040		1040			4150	0.251	
	B	2	3.200	0.6		52.5	0	0		0		1245			555	555		100%	1210	0.459	0.459
	C	3	3.000	1	30			1		0		1915	231			231	100%		1824	0.127	0.127
	C	3	3.500	1	35	52.5	0	0		0		2105	169	65	25	259	65%	10%	2042	0.127	
	D	4	3.600	1	30	55	0	1		0		1975	70	90	39	199	35%	19%	1931	0.103	0.103
	D	4	3.600	1		52.5	0	0		0		2115			211	211		100%	2056	0.103	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

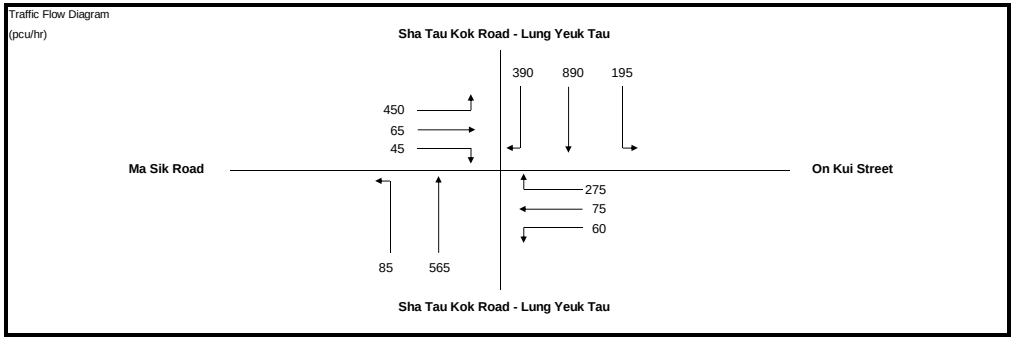
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 1200-1300 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

Traffic Flow Diagram

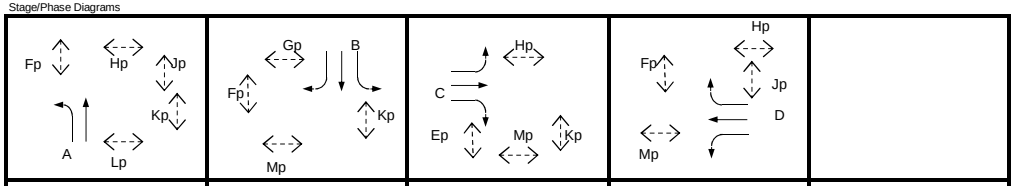
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.705	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =		139	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	81	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	2.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	111	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,D

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	2.300	1	30			1		0		1845	85			85	100%		1757	0.048	
	A	1	3.300	2				0		0		4170		565		565			4170	0.135	0.135
	B	2	3.300	1	27.5			1		0		1945	195			195	100%		1844	0.106	
	B	2	3.200	2				0		0		4150		890		890			4150	0.214	
	B	2	3.200	0.6		52.5	0	0		0		1245			390	390		100%	1210	0.322	0.322
	C	3	3.000	1	30			1		0		1915	264			264	100%		1824	0.145	
	C	3	3.500	1	35	52.5	0	0		0		2105	186	65	45	296	63%	15%	2041	0.145	0.145
	D	4	3.600	1	30	55	0	1		0		1975	60	75	63	198	30%	32%	1929	0.103	0.103
	D	4	3.600	1		52.5	0	0		0		2115			212	212		100%	2056	0.103	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

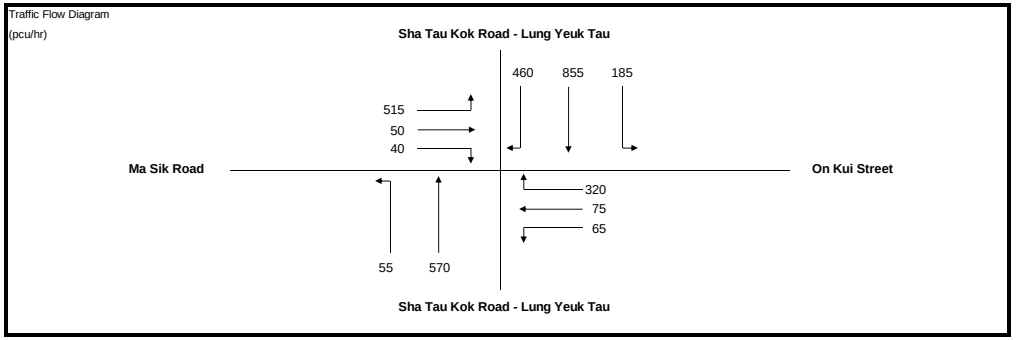
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 1300-1400 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

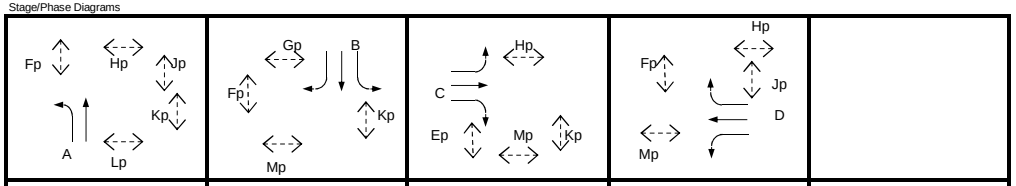
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.789	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	194	sec
Min. Cycle Time C_m	= L/(1-Y)	=	114	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-8.7	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	195	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = -3%

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	2.300	1	30			1		0		1845	55			55	100%		1757	0.031	
	A	1	3.300	2				0		0		4170		570		570			4170	0.137	0.137
	B	2	3.300	1	27.5			1		0		1945	185			185	100%		1844	0.100	
	B	2	3.200	2				0		0		4150		855		855			4150	0.206	
	B	2	3.200	0.6		52.5	0	0		0		1245			460	460		100%	1210	0.380	0.380
	C	3	3.000	1	30			1		0		1915	286			286	100%		1824	0.157	0.157
	C	3	3.500	1	35	52.5	0	0		0		2105	229	50	40	319	72%	13%	2035	0.157	
	D	4	3.600	1	30	55	0	1		0		1975	65	75	83	223	29%	37%	1927	0.115	
	D	4	3.600	1		52.5	0	0		0		2115			237	237		100%	2056	0.115	0.115

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

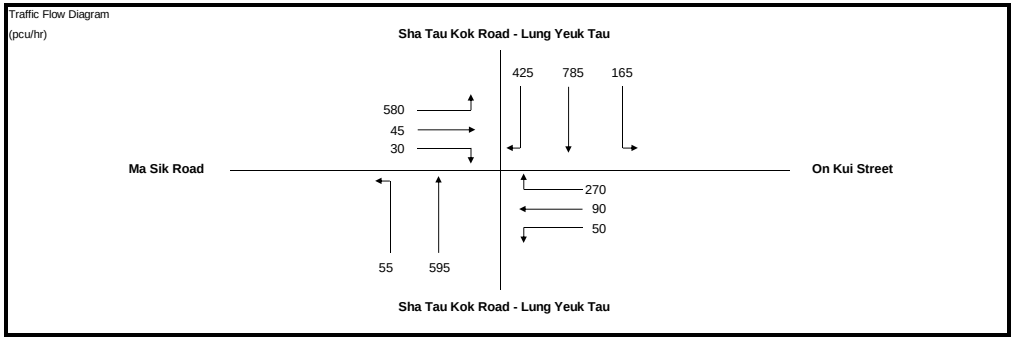
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 1400-1500 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

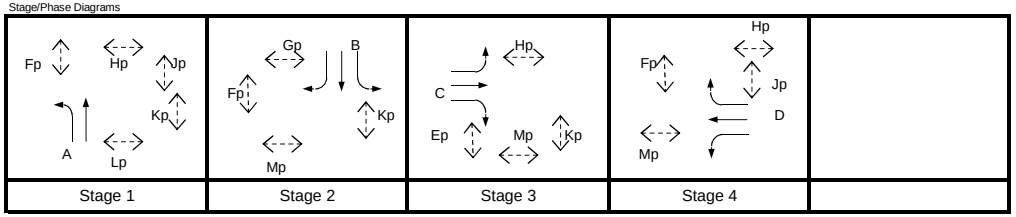
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.766	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	176	sec
Min. Cycle Time C_m	= L/(1-Y)	=	103	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-6.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	162	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 0%

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	2.300	1	30			1		0		1845	55			55	100%		1757	0.031	
	A	1	3.300	2				0		0		4170		595		595			4170	0.143	0.143
	B	2	3.300	1	27.5			1		0		1945	165			165	100%		1844	0.089	
	B	2	3.200	2				0		0		4150		785		785			4150	0.189	
	B	2	3.200	0.6		52.5	0	0		0		1245			425	425		100%	1210	0.351	0.351
	C	3	3.000	1	30			1		0		1915	310			310	100%		1824	0.170	0.170
	C	3	3.500	1	35	52.5	0	0		0		2105	270	45	30	345	78%	9%	2032	0.170	
	D	4	3.600	1	30	55	0	1		0		1975	50	90	59	199	25%	30%	1935	0.103	0.103
	D	4	3.600	1		52.5	0	0		0		2115			211	211		100%	2056	0.103	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

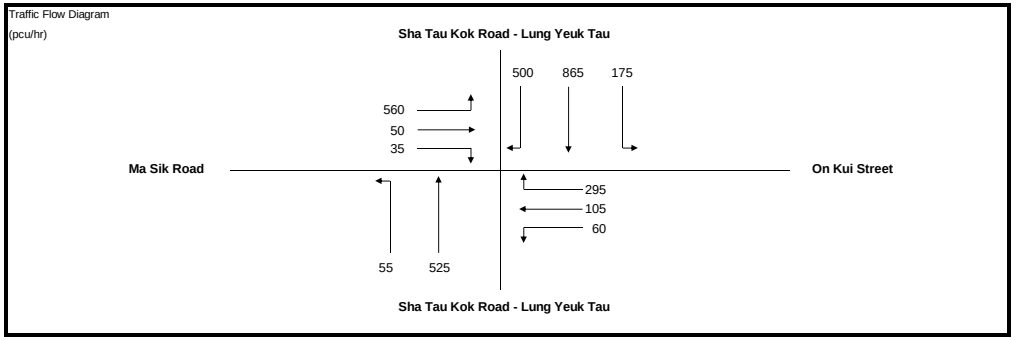
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 1500-1600 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

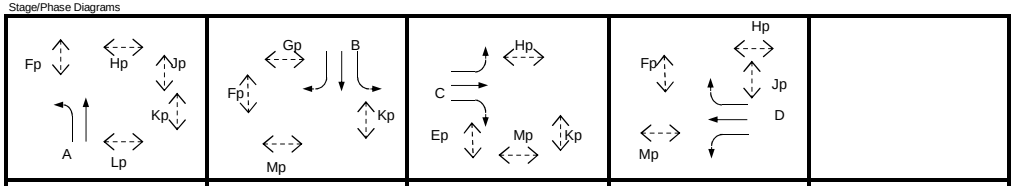
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.821	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	230	sec
Min. Cycle Time C_m	= L/(1-Y)	=	134	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-12.3	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	275	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,C,D

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	2.300	1	30			1		0		1845	55			55	100%		1757	0.031	
	A	1	3.300	2				0		0		4170		525		525			4170	0.126	0.126
	B	2	3.300	1	27.5			1		0		1945	175			175	100%		1844	0.095	
	B	2	3.200	2				0		0		4150		865		865			4150	0.208	
	B	2	3.200	0.6		52.5	0	0		0		1245			500	500		100%	1210	0.413	0.413
	C	3	3.000	1	30			1		0		1915	305			305	100%		1824	0.167	0.167
	C	3	3.500	1	35	52.5	0	0		0		2105	255	50	35	340	75%	10%	2034	0.167	
	D	4	3.600	1	30	55	0	1		0		1975	60	105	58	223	27%	26%	1935	0.115	
	D	4	3.600	1		52.5	0	0		0		2115			237	237		100%	2056	0.115	0.115

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

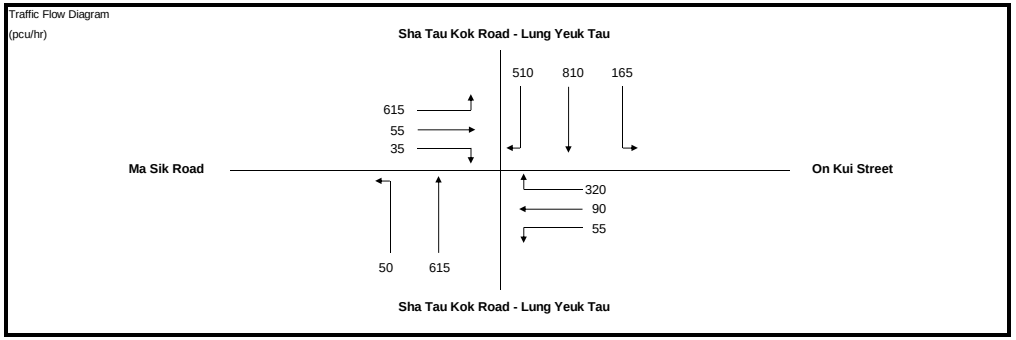
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2015 1600-1700 Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

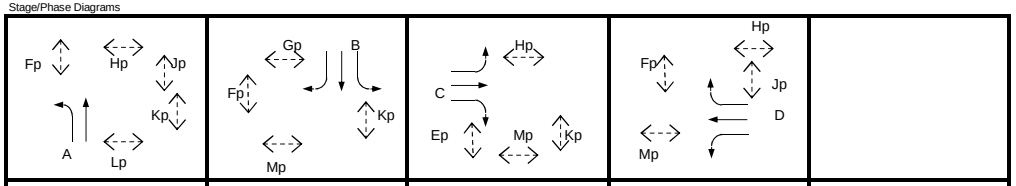
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.868	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =		311	sec
Min. Cycle Time C_m	= L/(1-Y)	=	182	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-17.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	679	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



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

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	2.300	1	30			1		0		1845	50			50	100%		1757	0.028	
	A	1	3.300	2				0		0		4170		615		615			4170	0.147	0.147
	B	2	3.300	1	27.5			1		0		1945	165			165	100%		1844	0.089	
	B	2	3.200	2				0		0		4150		810		810			4150	0.195	
	B	2	3.200	0.6		52.5	0	0		0		1245			510	510		100%	1210	0.421	0.421
	C	3	3.000	1	30			1		0		1915	333			333	100%		1824	0.183	0.183
	C	3	3.500	1	35	52.5	0	0		0		2105	282	55	35	372	76%	9%	2033	0.183	
	D	4	3.600	1	30	55	0	1		0		1975	55	90	80	225	24%	36%	1933	0.117	0.117
	D	4	3.600	1		52.5	0	0		0		2115			240	240		100%	2056	0.117	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

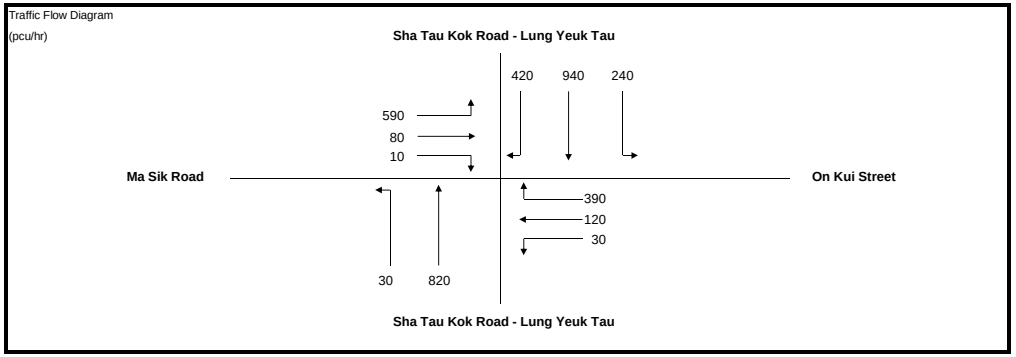
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2017 AM Reference Case (With Improvement during Construction)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

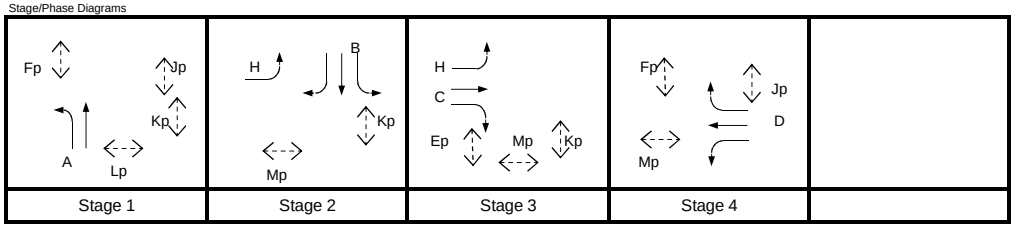
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.725	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	149	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	87	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	123	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,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	2.300	1	30			1		0		1845	30			30	100%		1757	0.017	
	A	1	3.300	2				0		0		4170		820		820			4170	0.197	0.197
	B	2	3.300	1	27.5			1		0		1945	240			240	100%		1844	0.130	
	B	2	3.200	2				0		0		4150		940		940			4150	0.227	
	B	2	3.200	0.6		52.5	0	0		0		1245			420	420		100%	1210	0.347	0.347
	H	2,3	3.000	1	30			1		0		1915	590			590	100%		1824	0.323	
	C	3	3.500	1		52.5	0	1		0		1965		80	10	90		11%	1959	0.046	0.046
	D	4	3.600	1	30	55	0	1		0		1975	30	120	112	262	11%	43%	1941	0.135	0.135
	D	4	3.600	1		52.5	0	0		0		2115			278	278		100%	2056	0.135	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

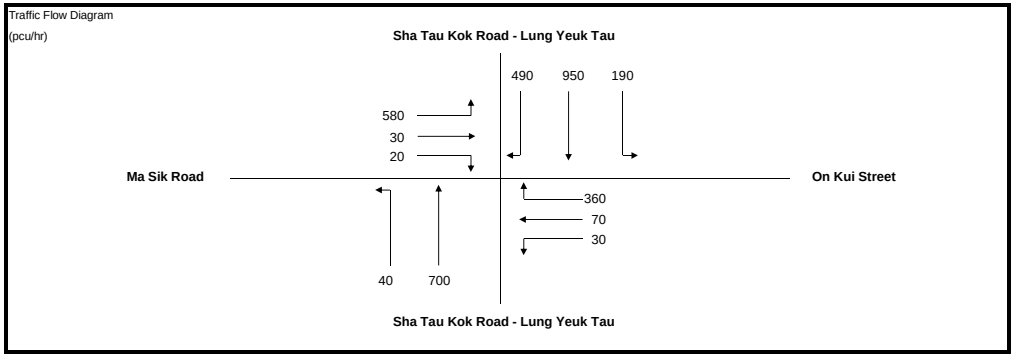
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2017 PM Reference Case (With Improvement during Construction)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

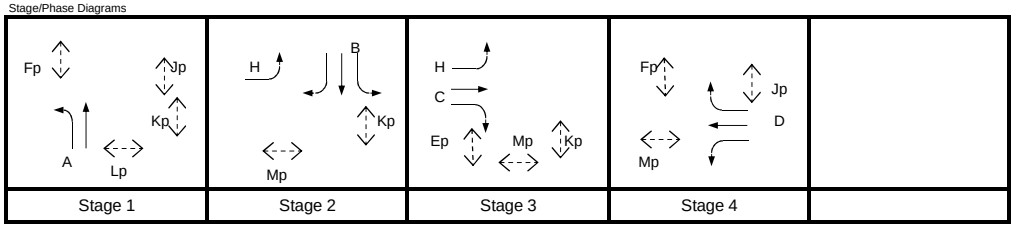
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.688	
Lost time		L =	29	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	155	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	93	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	123	sec
Y_{max}	$= 1-L/C$	=	0.809	

Stage/Phase Diagrams



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

Critical Case : A,B,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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		700		700			4170	0.168	0.168
	B	2	3.300	1	27.5			1		0		1945	190			190	100%		1844	0.103	
	B	2	3.200	2				0		0		4150		950		950			4150	0.229	
	B	2	3.200	0.6		52.5	0	0		0		1245			490	490		100%	1210	0.405	0.405
	H	2,3	3.000	1	30			1		0		1915	580			580	100%		1824	0.318	
	C	3	3.500	1		52.5	0	1		0		1965		30	20	50		40%	1943	0.026	
	D	4	3.600	1	30	55	0	1		0		1975	30	70	123	223	13%	55%	1933	0.115	0.115
	D	4	3.600	1		52.5	0	0		0		2115			237	237		100%	2056	0.115	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

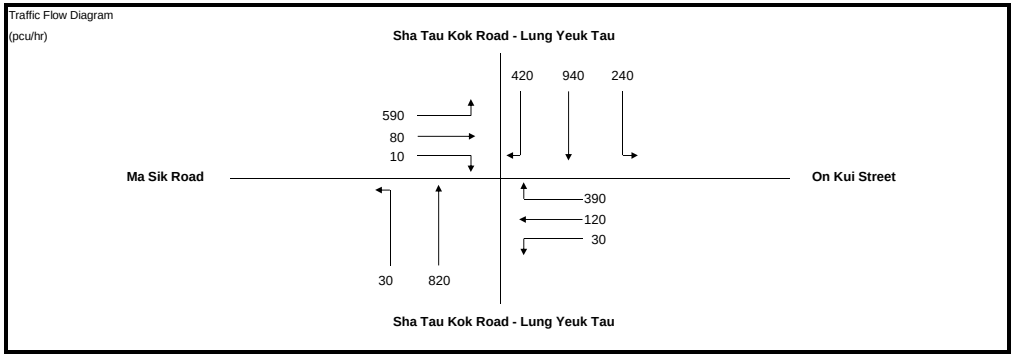
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2017 AM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

Traffic Flow Diagram

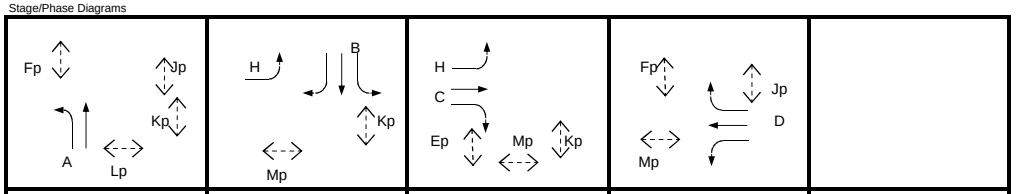
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.725	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =	149	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	87	sec
Y_{ult}	$= 0.9-0.0075 \times L$ =	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$ =	-0.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$ =	123	sec
Y_{max}	$= 1-L/C$ =	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,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	2.300	1	30			1		0		1845	30			30	100%		1757	0.017	
	A	1	3.300	2				0		0		4170		820		820			4170	0.197	0.197
	B	2	3.300	1	27.5			1		0		1945	240			240	100%		1844	0.130	
	B	2	3.200	2				0		0		4150		940		940			4150	0.227	
	B	2	3.200	0.6		52.5	0	0		0		1245			420	420		100%	1210	0.347	0.347
	H	2,3	3.000	1	30			1		0		1915	590			590	100%		1824	0.323	
	C	3	3.500	1		52.5	0	1		0		1965		80	10	90		11%	1959	0.046	0.046
	D	4	3.600	1	30	55	0	1		0		1975	30	120	112	262	11%	43%	1941	0.135	0.135
	D	4	3.600	1		52.5	0	0		0		2115			278	278		100%	2056	0.135	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

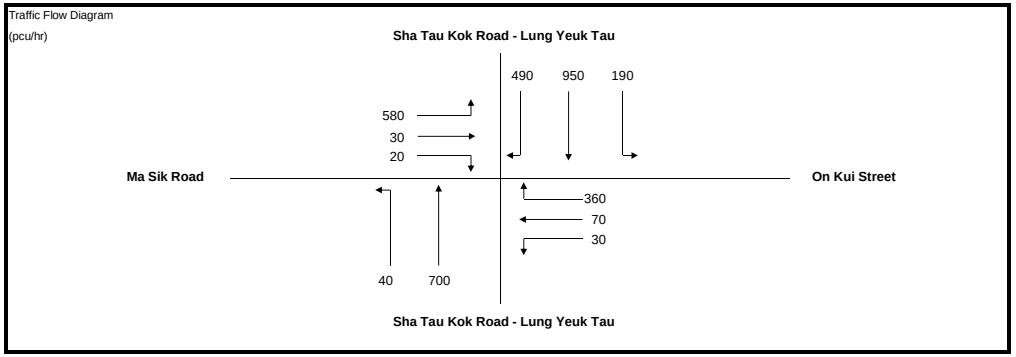
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2017 PM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jun 15

J11

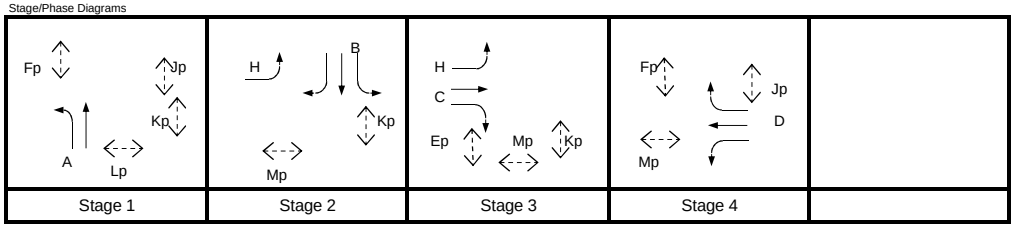
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.688	
Lost time		L =	29	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	155	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	93	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	123	sec
Y_{max}	$= 1-L/C$	=	0.809	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	G = 5	I/G = 6	I/G = 6

Critical Case : A,B,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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		700		700			4170	0.168	0.168
	B	2	3.300	1	27.5			1		0		1945	190			190	100%		1844	0.103	
	B	2	3.200	2				0		0		4150		950		950			4150	0.229	
	B	2	3.200	0.6		52.5	0	0		0		1245			490	490		100%	1210	0.405	0.405
	H	2,3	3.000	1	30			1		0		1915	580			580	100%		1824	0.318	
	C	3	3.500	1		52.5	0	1		0		1965		30	20	50		40%	1943	0.026	
	D	4	3.600	1	30	55	0	1		0		1975	30	70	123	223	13%	55%	1933	0.115	0.115
	D	4	3.600	1		52.5	0	0		0		2115			237	237		100%	2056	0.115	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

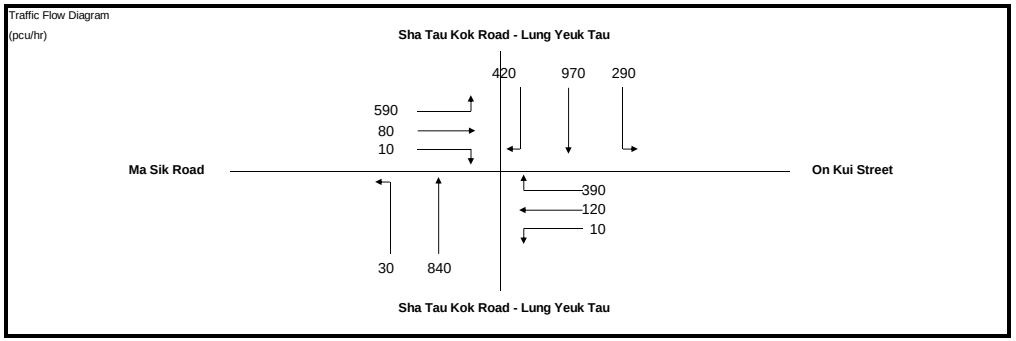
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

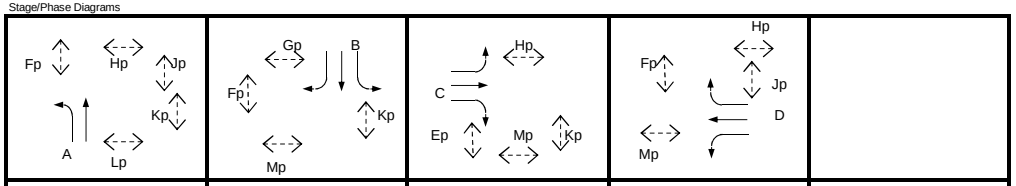
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.854	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	282	sec
Min. Cycle Time C_m	= L/(1-Y)	=	165	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-15.7	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	474	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,C,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	2.300	1	30			1		0		1845	30			30	100%		1757	0.017	
	A	1	3.300	2				0		0		4170		840		840			4170	0.201	0.201
	B	2	3.300	1	27.5			1		0		1945	290			290	100%		1844	0.157	
	B	2	3.200	2				0		0		4150		970		970			4150	0.234	
	B	2	3.200	0.6		52.5	0	0		0		1245			420	420		100%	1210	0.347	0.347
	C	3	3.000	1	30			1		0		1915	321			321	100%		1824	0.176	0.176
	C	3	3.500	1	35	52.5	0	0		0		2105	269	80	10	359	75%	3%	2038	0.176	
	D	4	3.600	1	30	55	0	1		0		1975	10	120	123	253	4%	49%	1945	0.130	0.130
	D	4	3.600	1		52.5	0	0		0		2115			267	267		100%	2056	0.130	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

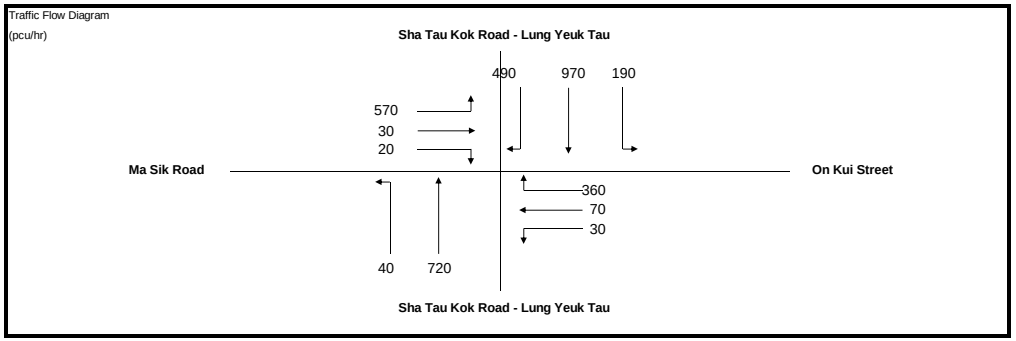
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

Traffic Flow Diagram

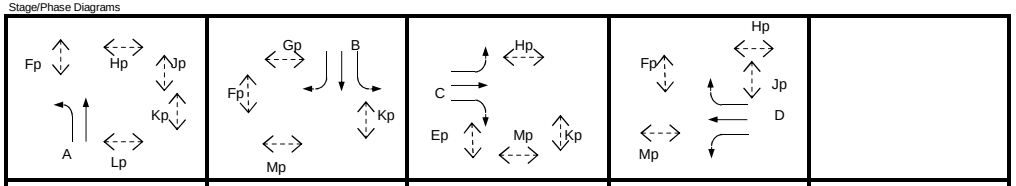
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.854	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	280	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	164	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-15.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	467	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



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

Critical Case : A,B,C,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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		720		720			4170	0.173	0.173
	B	2	3.300	1	27.5			1		0		1945	190			190	100%		1844	0.103	
	B	2	3.200	2				0		0		4150		970		970			4150	0.234	
	B	2	3.200	0.6		52.5	0	0		0		1245			490	490		100%	1210	0.405	0.405
	C	3	3.000	1	30			1		0		1915	294			294	100%		1824	0.161	0.161
	C	3	3.500	1	35	52.5	0	0		0		2105	276	30	20	326	85%	6%	2028	0.161	
	D	4	3.600	1	30	55	0	1		0		1975	30	70	123	223	13%	55%	1933	0.115	
	D	4	3.600	1		52.5	0	0		0		2115			237	237		100%	2056	0.115	0.115

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

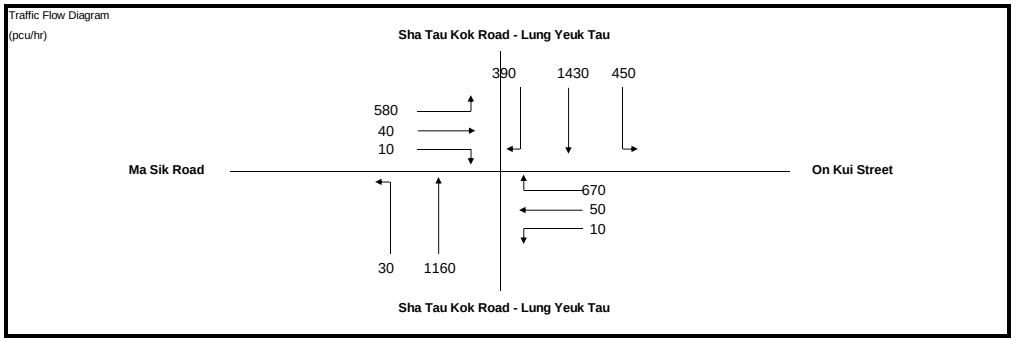
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

Traffic Flow Diagram

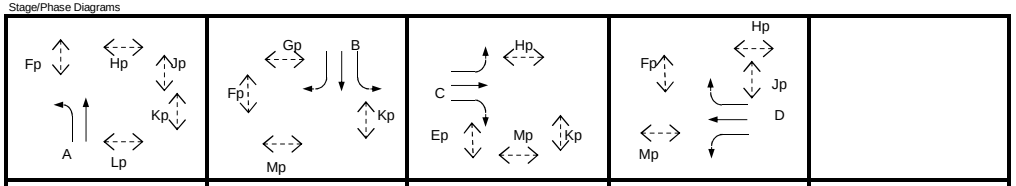
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.969	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =		1342	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	786	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-25.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	-311	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,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*
	A	1	2.300	1	30			1		0		1845	30			30	100%		1757	0.017	
	A	1	3.300	2				0		0		4170		1160		1160			4170	0.278	0.278
	B	2	3.300	1	27.5			1		0		1945	450			450	100%		1844	0.244	
	B	2	3.200	2				0		0		4150		1430		1430			4150	0.345	0.345
	B	2	3.200	0.6		52.5	0	0		0		1245			390	390		100%	1210	0.322	
	C	3	3.000	1	30			1		0		1915	298			298	100%		1824	0.164	0.164
	C	3	3.500	1	35	52.5	0	0		0		2105	282	40	10	332	85%	3%	2029	0.164	
	D	4	3.600	1	30	55	0	1		0		1975	10	50	293	353	3%	83%	1929	0.183	
	D	4	3.600	1		52.5	0	0		0		2115			377	377		100%	2056	0.183	0.183

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

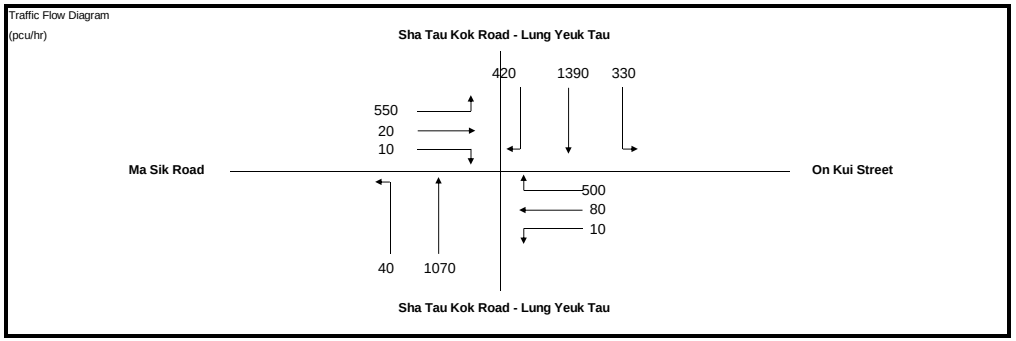
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

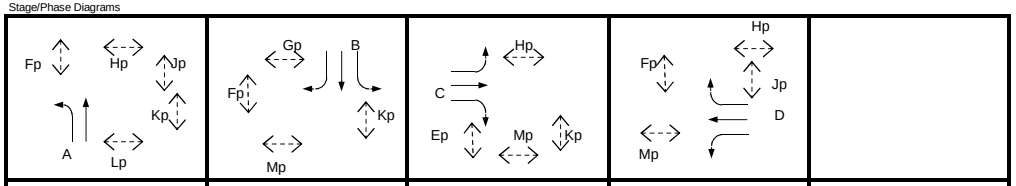
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.902	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y) =		419	sec
Min. Cycle Time C_m	= L/(1-Y)	=	245	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-20.2	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	-10328	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Critical Case : A,B,C,D

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*
	A	1	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		1070		1070			4170	0.257	0.257
	B	2	3.300	1	27.5			1		0		1945	330			330	100%		1844	0.179	
	B	2	3.200	2				0		0		4150		1390		1390			4150	0.335	
	B	2	3.200	0.6		52.5	0	0		0		1245			420	420		100%	1210	0.347	0.347
	C	3	3.000	1	30			1		0		1915	275			275	100%		1824	0.151	0.151
	C	3	3.500	1	35	52.5	0	0		0		2105	275	20	10	305	90%	3%	2025	0.151	
	D	4	3.600	1	30	55	0	1		0		1975	10	80	196	286	3%	69%	1935	0.148	0.148
	D	4	3.600	1		52.5	0	0		0		2115			304	304		100%	2056	0.148	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

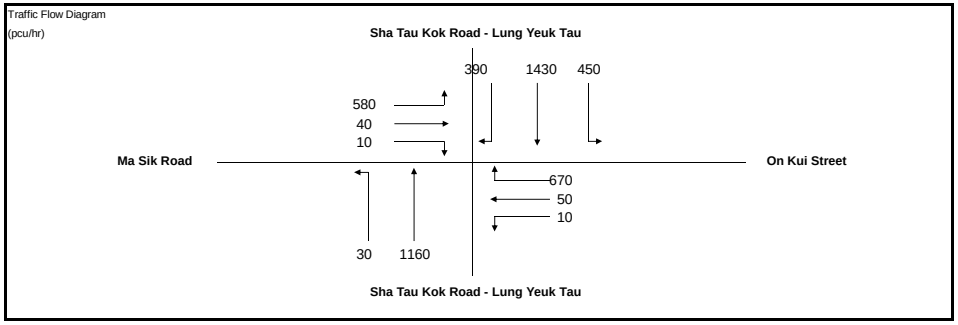
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 AM Design Case (Without Liantang/ HYW BCP)(With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

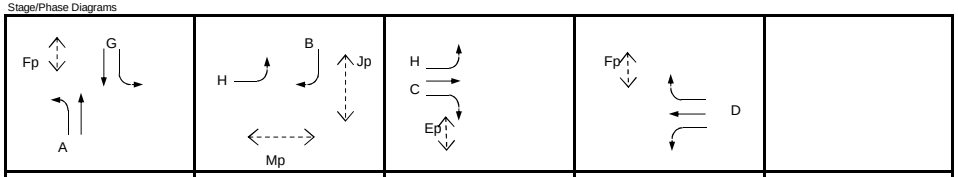
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	171	sec
Sum(y)		Y =	0.841	
Lost time		L =	12	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	145	sec
Min. Cycle Time C_m	= L/(1-Y)	=	75	sec
Y_{ult}	= 0.9-0.0075×L	=	0.810	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	-3.7	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	183	sec
Y_{max}	= 1-L/C	=	0.930	

Stage/Phase Diagrams



Critical Case : G,H,D

R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 0%

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	8.5			1		0		1965	30	345		375	8%		1938	0.194	
	A	1	3.500	2				0		0		4210		815		815			4210	0.194	
	B	2	3.300	1		52.2	0	0		0		2085			390	390		100%	2027	0.192	
	G	1	3.500	2				0		0		4210		1430		1430			4210	0.340	0.340
	G	1	3.500	1	27.5			1		0		1965	450			450	100%		1863	0.241	
	H	2,3	3.000	1	30			1		0		1915	580			580	100%		1824	0.318	0.318
	C	3	3.500	1		52.5	0	0		0		2105		40	10	50		20%	2093	0.024	
	D	4	3.600	1	30	55	0	1		0		1975	10	50	293	353	3%	83%	1929	0.183	
	D	4	3.600	1		52.5	0	0		0		2115			377	377		100%	2056	0.183	0.183

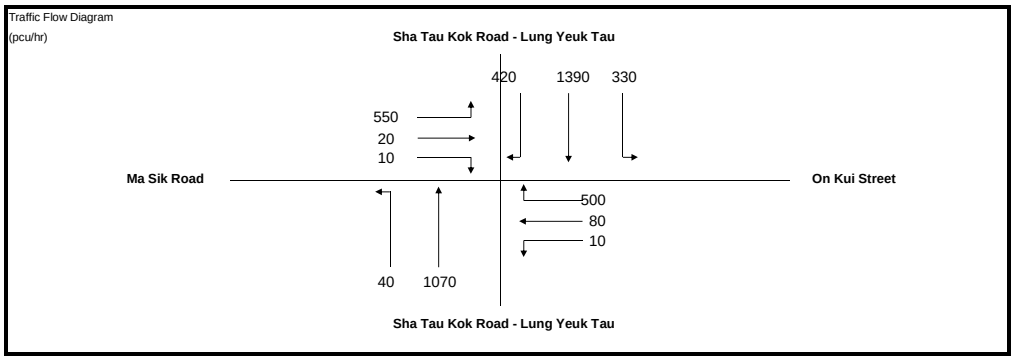
Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,4	min.	5	+	10	=	15	sec
Jp	2	min.	10	+	21	=	31	sec
Mp	2	min.	9	+	18	=	27	sec

JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 PM Design Case (Without Liantang/ HYW BCP)(With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

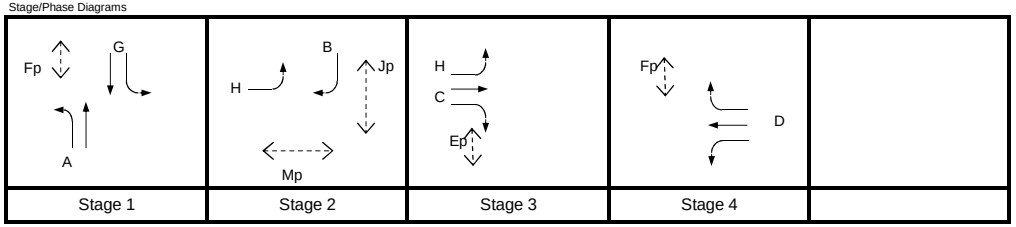
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.780	
Lost time	L =	12	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =	104	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	54	sec
Y_{ult}	$= 0.9-0.0075 \times L$ =	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$ =	3.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$ =	90	sec
Y_{max}	$= 1-L/C$ =	0.912	

Stage/Phase Diagrams



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

Critical Case : G,H,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	3.500	1	8.5			1		0		1965	40	308		348	11%		1926	0.181	
	A	1	3.500	2				0		0		4210		762		762			4210	0.181	
	B	2	3.300	1		52.2	0	0		0		2085			420	420		100%	2027	0.207	
	G	1	3.500	2				0		0		4210		1390		1390			4210	0.330	0.330
	G	1	3.500	1	27.5			1		0		1965	330			330	100%		1863	0.177	
	H	2,3	3.000	1	30			1		0		1915	550			550	100%		1824	0.302	0.302
	C	3	3.500	1		52.5	0	0		0		2105		20	10	30		33%	2085	0.014	
	D	4	3.600	1	30	55	0	1		0		1975	10	80	196	286	3%	69%	1935	0.148	0.148
	D	4	3.600	1		52.5	0	0		0		2115			304	304		100%	2056	0.148	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,4	min.	5	+	10	=	15	sec
Jp	2	min.	10	+	21	=	31	sec
Mp	2	min.	9	+	18	=	27	sec

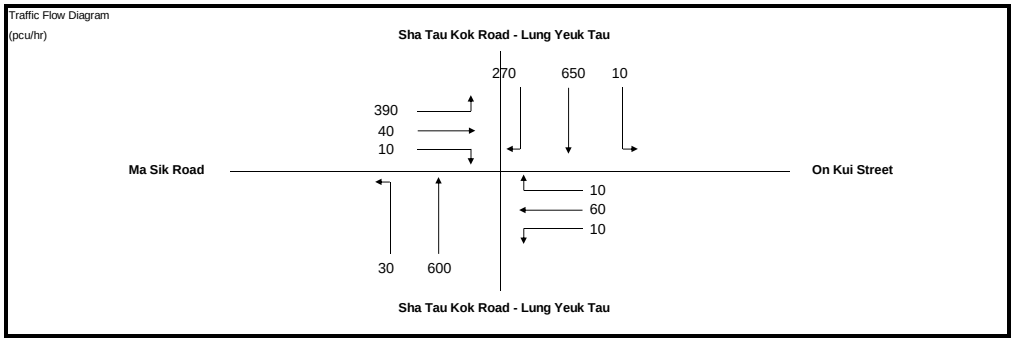
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

Traffic Flow Diagram

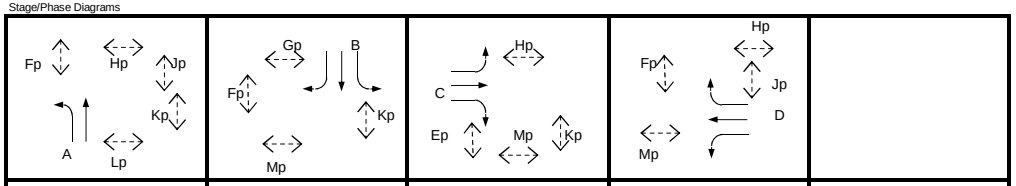
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.517	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	85	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	50	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	39.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	56	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,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	2.300	1	30			1		0		1845	30			30	100%		1757	0.017	
	A	1	3.300	2				0		0		4170		600		600			4170	0.144	0.144
	B	2	3.300	1	27.5			1		0		1945	10			10	100%		1844	0.005	
	B	2	3.200	2				0		0		4150		650		650			4150	0.157	
	B	2	3.200	0.6		52.5	0	0		0		1245			270	270		100%	1210	0.223	0.223
	C	3	3.000	1	30			1		0		1915	208			208	100%		1824	0.114	0.114
	C	3	3.500	1	35	52.5	0	0		0		2105	182	40	10	232	78%	4%	2034	0.114	
	D	4	3.600	1	30	55	0	1		0		1975	10	60	0	70	14%	0%	1961	0.036	0.036
	D	4	3.600	1		52.5	0	0		0		2115			10	10		100%	2056	0.005	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

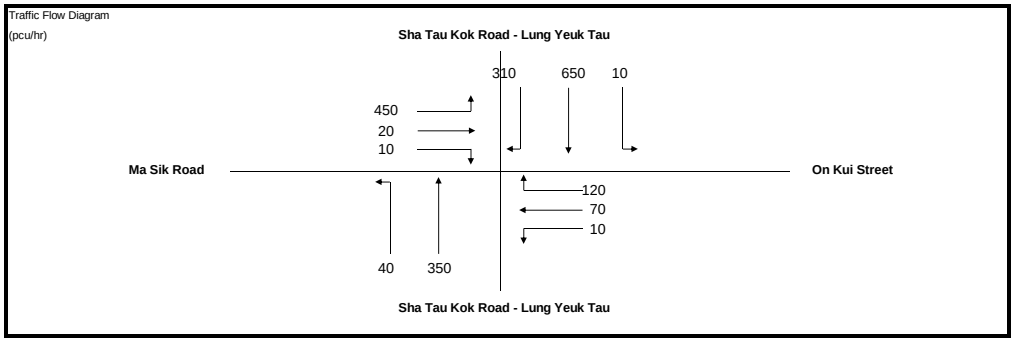
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

Traffic Flow Diagram

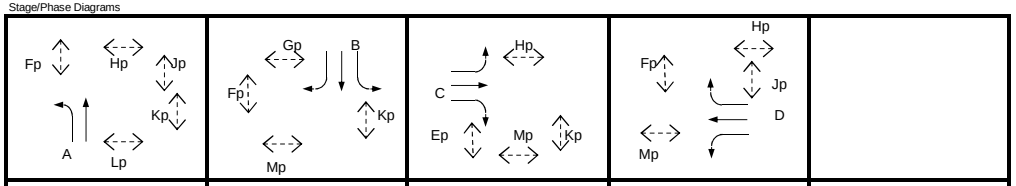
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.515	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =		84	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	49	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	39.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	56	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		350		350			4170	0.084	0.084
	B	2	3.300	1	27.5			1		0		1945	10			10	100%		1844	0.005	
	B	2	3.200	2				0		0		4150		650		650			4150	0.157	
	B	2	3.200	0.6		52.5	0	0		0		1245			310	310		100%	1210	0.256	0.256
	C	3	3.000	1	30			1		0		1915	227			227	100%		1824	0.125	0.125
	C	3	3.500	1	35	52.5	0	0		0		2105	223	20	10	253	88%	4%	2026	0.125	
	D	4	3.600	1	30	55	0	1		0		1975	10	70	17	97	10%	18%	1955	0.050	0.050
	D	4	3.600	1		52.5	0	0		0		2115			103	103		100%	2056	0.050	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

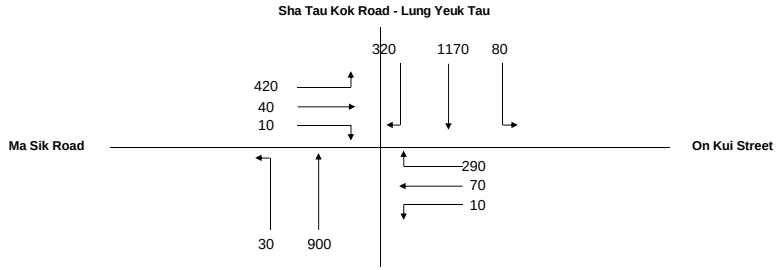
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J11

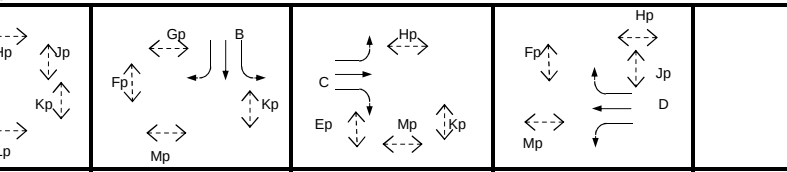
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	4	
Cycle time		C =	136	sec
Sum(y)		Y =	0.712	
Lost time		L =	24	sec
Total Flow		=	0	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	142	sec
Min. Cycle Time C_m	= L/(1-Y)	=	83	sec
Y_{ult}	= 0.9-0.0075×L	=	0.720	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	1.1	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	115	sec
Y_{max}	= 1-L/C	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

Critical Case : A,B,C,D

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	1	2.300	1	30			1		0		1845	30			30	100%		1757	0.017	
	A	1	3.300	2				0		0		4170		900		900			4170	0.216	0.216
	B	2	3.300	1	27.5			1		0		1945	80			80	100%		1844	0.043	
	B	2	3.200	2				0		0		4150		1170		1170			4150	0.282	0.282
	B	2	3.200	0.6		52.5	0	0		0		1245			320	320		100%	1210	0.264	
	C	3	3.000	1	30			1		0		1915	222			222	100%		1824	0.122	
	C	3	3.500	1	35	52.5	0	0		0		2105	198	40	10	248	80%	4%	2033	0.122	0.122
	D	4	3.600	1	30	55	0	1		0		1975	10	70	100	180	6%	55%	1940	0.093	
	D	4	3.600	1		52.5	0	0		0		2115			190	190		100%	2056	0.093	0.093

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

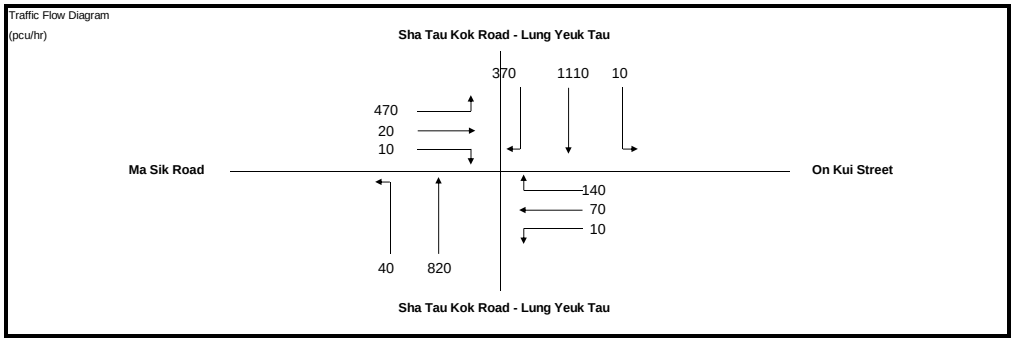
JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J11

Traffic Flow Diagram

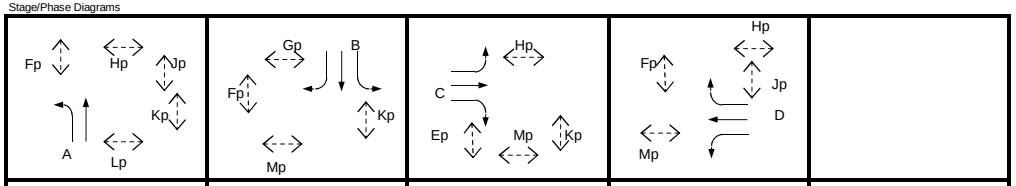
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.687	
Lost time	L =	24	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =		131	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	77	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	4.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	101	sec
Y_{max}	$= 1-L/C$	=	0.853	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	
I/G = 6	I/G = 6	I/G = 6	I/G = 6	

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	2.300	1	30			1		0		1845	40			40	100%		1757	0.023	
	A	1	3.300	2				0		0		4170		820		820			4170	0.197	0.197
	B	2	3.300	1	27.5			1		0		1945	10			10	100%		1844	0.005	
	B	2	3.200	2				0		0		4150		1110		1110			4150	0.267	
	B	2	3.200	0.6		52.5	0	0		0		1245			370	370		100%	1210	0.306	0.306
	C	3	3.000	1	30			1		0		1915	237			237	100%		1824	0.130	0.130
	C	3	3.500	1	35	52.5	0	0		0		2105	233	20	10	263	89%	4%	2026	0.130	
	D	4	3.600	1	30	55	0	1		0		1975	10	70	27	107	9%	25%	1952	0.055	0.055
	D	4	3.600	1		52.5	0	0		0		2115			113	113		100%	2056	0.055	

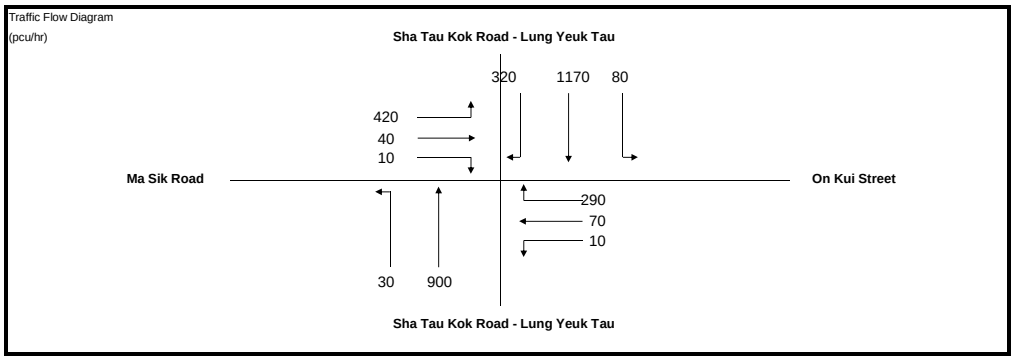
Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,2,4	min.	5	+	6	=	11	sec
Gp	2	min.	5	+	8	=	13	sec
Hp	1,3,4	min.	5	+	11	=	16	sec
Jp	1,4	min.	5	+	10	=	15	sec
Kp	1,2,3	min.	5	+	7	=	12	sec
Lp	1	min.	5	+	7	=	12	sec
Mp	2,3,4	min.	5	+	9	=	14	sec

JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 AM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J11

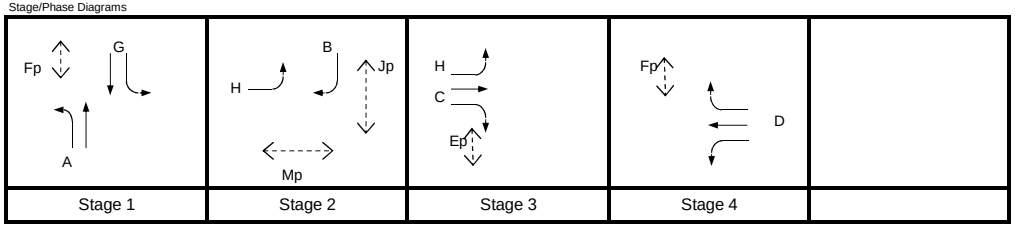
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.601	
Lost time	L =	12	sec
Total Flow	=	0	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =	58	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	30	sec
Y_{ult}	$= 0.9-0.0075 \times L$ =	0.810	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$ =	34.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$ =	36	sec
Y_{max}	$= 1-L/C$ =	0.912	

Stage/Phase Diagrams



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

Critical Case : G,H,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 37%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.500	1	8.5			1		0		1965	30	262		292	10%		1930	0.151	
	A	1	3.500	2				0		0		4210		638		638			4210	0.151	
	B	2	3.300	1		52.2	0	0		0		2085			320	320		100%	2027	0.158	
	G	1	3.500	2				0		0		4210		1170		1170			4210	0.278	0.278
	G	1	3.500	1	27.5			1		0		1965	80			80	100%		1863	0.043	
	H	2,3	3.000	1	30			1		0		1915	420			420	100%		1824	0.230	0.230
	C	3	3.500	1		52.5	0	0		0		2105		40	10	50		20%	2093	0.024	
	D	4	3.600	1	30	55	0	1		0		1975	10	70	100	180	6%	55%	1940	0.093	
	D	4	3.600	1		52.5	0	0		0		2115			190	190		100%	2056	0.093	0.093

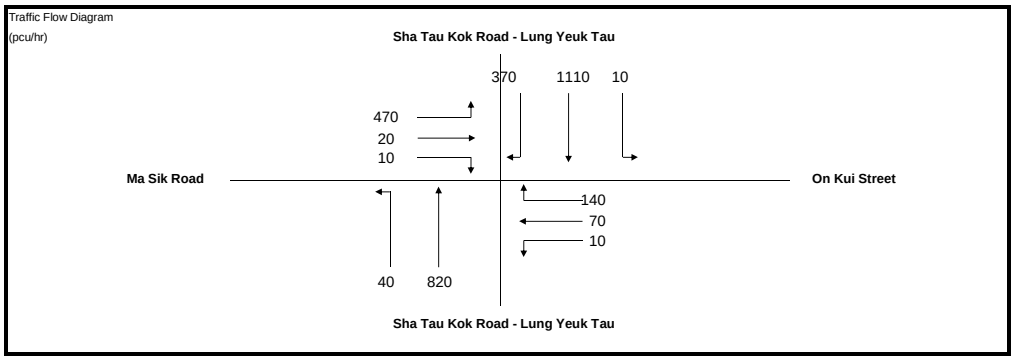
Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,4	min.	5	+	10	=	15	sec
Jp	2	min.	10	+	21	=	31	sec
Mp	2	min.	9	+	18	=	27	sec

JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2020 PM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

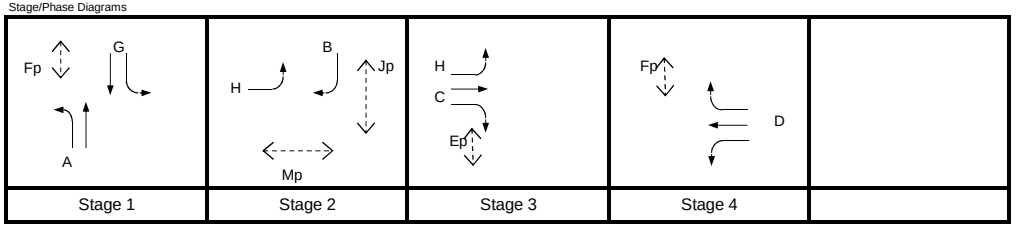
J11

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.576	
Lost time	L =	12	sec
Total Flow	=	0	pcu
Optimum Cycle C_o = (1.5×L+5)/(1-Y)	=	54	sec
Min. Cycle Time C_m = L/(1-Y)	=	28	sec
Y_{ult} = 0.9-0.0075×L	=	0.810	
$R.C._{ult}$ = $(Y_{ult}$-Y)/Yx100%	=	40.6	%
Practical Cycle Time C_p = 0.9×L/(0.9-Y)	=	33	sec
Y_{max} = 1-L/C	=	0.912	

Stage/Phase Diagrams



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

Critical Case : G,H,D

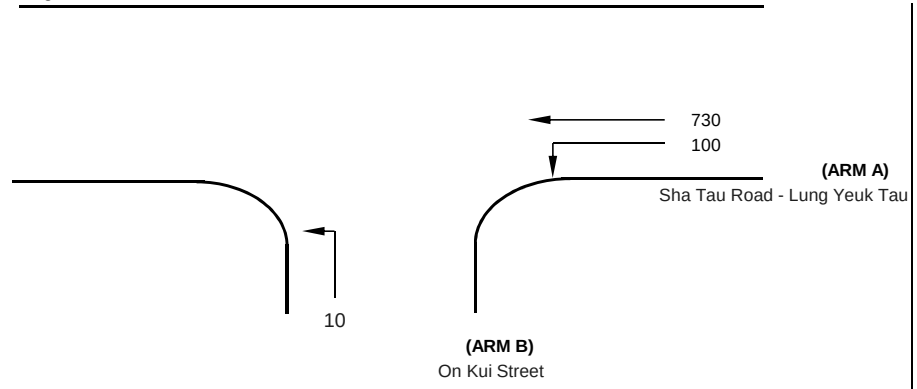
R.C.(C) = (0.9xY_{max}-Y)/Yx100% = 42%

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	8.5			1		0		1965	40	229		269	15%		1915	0.140	
	A	1	3.500	2				0		0		4210		591		591			4210	0.140	
	B	2	3.300	1		52.2	0	0		0		2085			370	370		100%	2027	0.183	
	G	1	3.500	2				0		0		4210		1110		1110			4210	0.264	0.264
	G	1	3.500	1	27.5			1		0		1965	10			10	100%		1863	0.005	
	H	2,3	3.000	1	30			1		0		1915	470			470	100%		1824	0.258	0.258
	C	3	3.500	1		52.5	0	0		0		2105		20	10	30		33%	2085	0.014	
	D	4	3.600	1	30	55	0	1		0		1975	10	70	27	107	9%	25%	1952	0.055	0.055
	D	4	3.600	1		52.5	0	0		0		2115			113	113		100%	2056	0.055	

Pedestrian Crossing			GM		FGM			
Ep	3	min.	5	+	8	=	13	sec
Fp	1,4	min.	5	+	10	=	15	sec
Jp	2	min.	10	+	21	=	31	sec
Mp	2	min.	9	+	18	=	27	sec

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



J11

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	=	10	(metres)
W cr	=	0	(metres)
q a-b	=	100	(pcu/hr)
q a-c	=	730	(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	=	2.3	(metres)
Vl b-a	=	0	(metres)
Vr b-a	=	0	(metres)
Vr b-c	=	45	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	236
Q b-c	=	457
Q c-b	=	321
Q b-ac	=	457

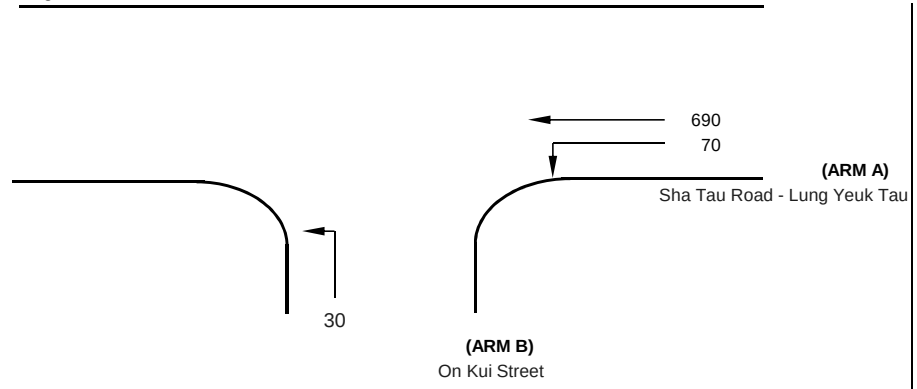
CRITICAL DFC = 0.02

COMPARISION OF DESIGN FLOW TO CAPACITY :

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

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2026 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



NOTES : (GEOMETRIC INPUT DATA)

J11

W	= Major Road Width (6.4 - 20.0)
W cr	= Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.07)
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	=	10 (metres)
W cr	=	0 (metres)
q a-b	=	70 (pcu/hr)
q a-c	=	690 (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	=	2.3 (metres)
Vl b-a	=	0 (metres)
Vr b-a	=	0 (metres)
Vr b-c	=	45 (metres)
q b-a	=	0 (pcu/hr)
q b-c	=	30 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	243
Q b-c	=	467
Q c-b	=	330
Q b-ac	=	467

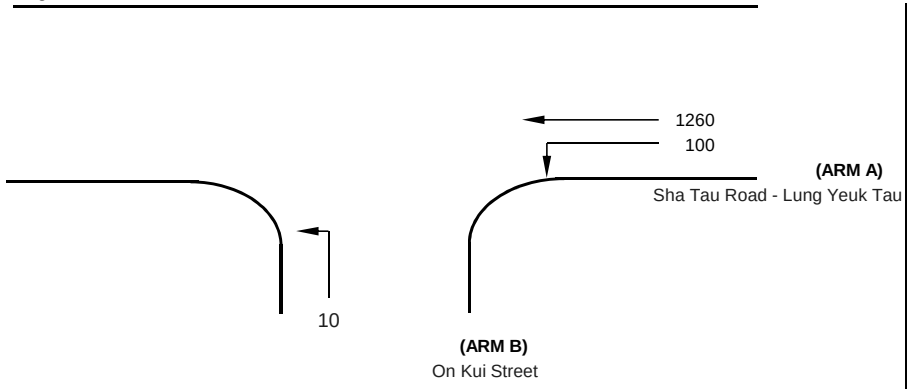
CRITICAL DFC = 0.06

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.00
DFC b-c	=	0.06
DFC c-b	=	0.00
DFC b-ac	=	0.06

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2026 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



NOTES : (GEOMETRIC INPUT DATA)

J11

W	= Major Road Width (6.4 - 20.0)
W cr	= Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.07)
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	=	10	(metres)
W cr	=	0	(metres)
q a-b	=	100	(pcu/hr)
q a-c	=	1260	(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	=	2.3	(metres)
Vl b-a	=	0	(metres)
Vr b-a	=	0	(metres)
Vr b-c	=	45	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	169
Q b-c	=	354
Q c-b	=	247
Q b-ac	=	354

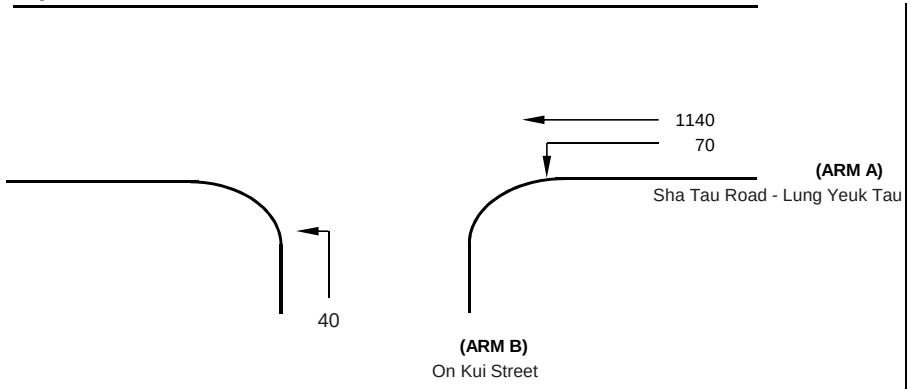
CRITICAL DFC = 0.03

COMPARISION OF DESIGN FLOW TO CAPACITY :

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

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2026 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



NOTES : (GEOMETRIC INPUT DATA)

J11

W	= Major Road Width (6.4 - 20.0)
W cr	= Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.07)
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	=	10	(metres)
W cr	=	0	(metres)
q a-b	=	70	(pcu/hr)
q a-c	=	1140	(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	=	2.3	(metres)
Vl b-a	=	0	(metres)
Vr b-a	=	0	(metres)
Vr b-c	=	45	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	40	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	186
Q b-c	=	380
Q c-b	=	267
Q b-ac	=	380

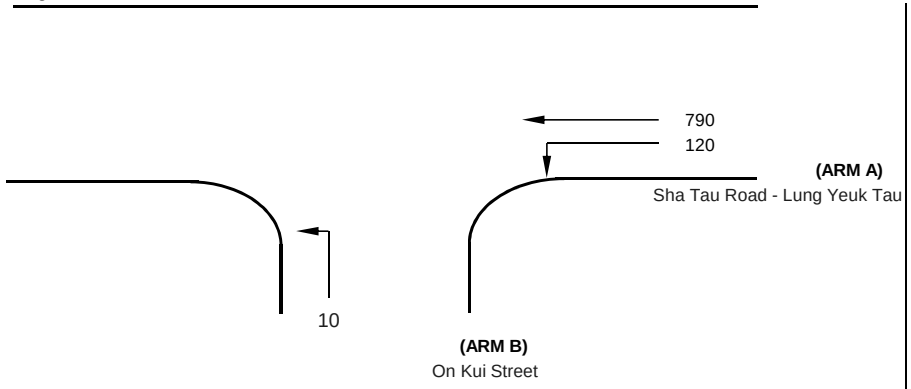
CRITICAL DFC = 0.11

COMPARISION OF DESIGN FLOW TO CAPACITY :

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

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2031 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



J11

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	=	10	(metres)
W cr	=	0	(metres)
q a-b	=	120	(pcu/hr)
q a-c	=	790	(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	=	2.3	(metres)
Vl b-a	=	0	(metres)
Vr b-a	=	0	(metres)
Vr b-c	=	45	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	228
Q b-c	=	444
Q c-b	=	309
Q b-ac	=	444

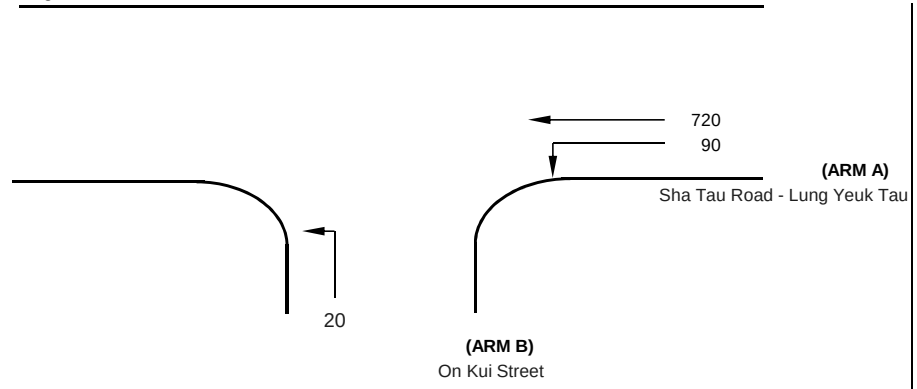
CRITICAL DFC = 0.02

COMPARISION OF DESIGN FLOW TO CAPACITY :

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

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2031 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



J11

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	=	10	(metres)
W cr	=	0	(metres)
q a-b	=	90	(pcu/hr)
q a-c	=	720	(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	=	2.3	(metres)
Vl b-a	=	0	(metres)
Vr b-a	=	0	(metres)
Vr b-c	=	45	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	238
Q b-c	=	460
Q c-b	=	323
Q b-ac	=	460

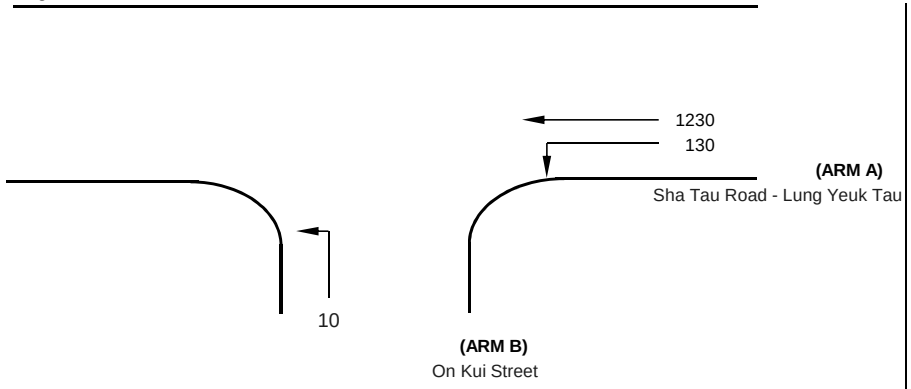
CRITICAL DFC = 0.04

COMPARISION OF DESIGN FLOW TO CAPACITY :

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

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2031 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



NOTES : (GEOMETRIC INPUT DATA)

J11

W	= Major Road Width (6.4 - 20.0)
W cr	= Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.07)
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	=	10	(metres)
W cr	=	0	(metres)
q a-b	=	130	(pcu/hr)
q a-c	=	1230	(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	=	2.3	(metres)
Vl b-a	=	0	(metres)
Vr b-a	=	0	(metres)
Vr b-c	=	45	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	171
Q b-c	=	358
Q c-b	=	247
Q b-ac	=	358

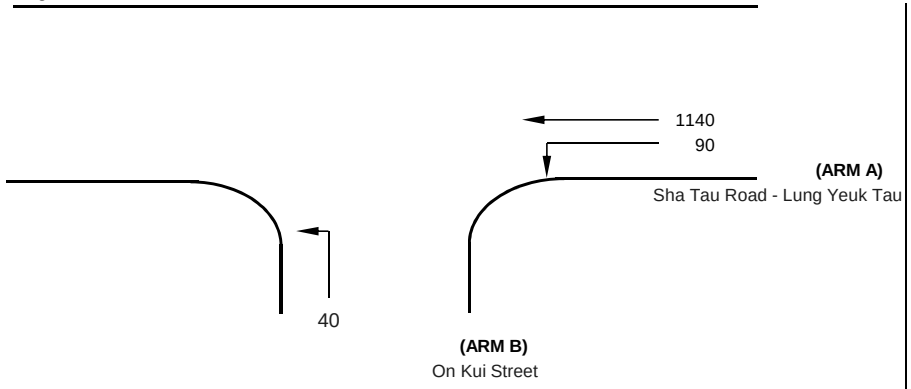
CRITICAL DFC = 0.03

COMPARISION OF DESIGN FLOW TO CAPACITY :

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

PRIORITY JUNCTION CAPACITY CALCULATION

Junction J11 - Sha Tau Kok Road / Ma Sik Road / On Kui Street	2031 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : May 15



NOTES : (GEOMETRIC INPUT DATA)

J11

W	= Major Road Width (6.4 - 20.0)
W cr	= Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.07)
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	=	10	(metres)
W cr	=	0	(metres)
q a-b	=	90	(pcu/hr)
q a-c	=	1140	(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	=	2.3	(metres)
Vl b-a	=	0	(metres)
Vr b-a	=	0	(metres)
Vr b-c	=	45	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	40	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.533219
E	=	0.814166
F	=	0.585955
Y	=	0.655000

THE CAPACITY OF MOVEMENT :

Q b-a	=	185
Q b-c	=	378
Q c-b	=	265
Q b-ac	=	378

CRITICAL DFC = 0.11

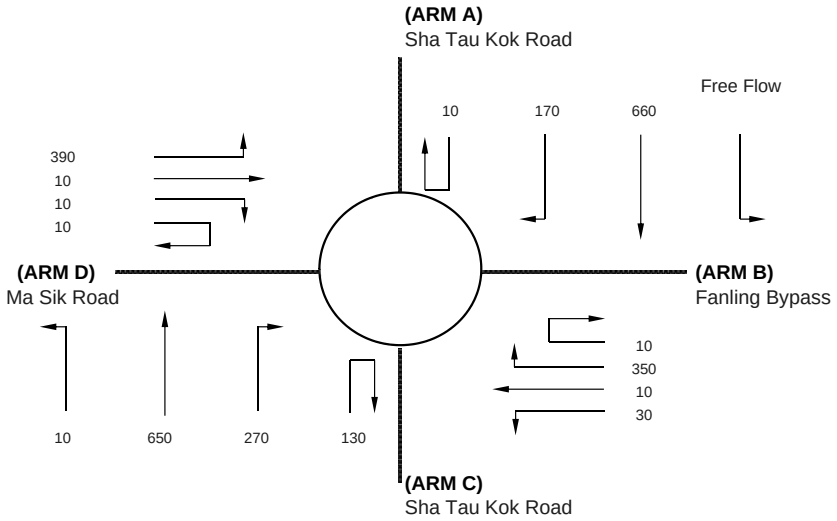
COMPARISION OF DESIGN FLOW TO CAPACITY :

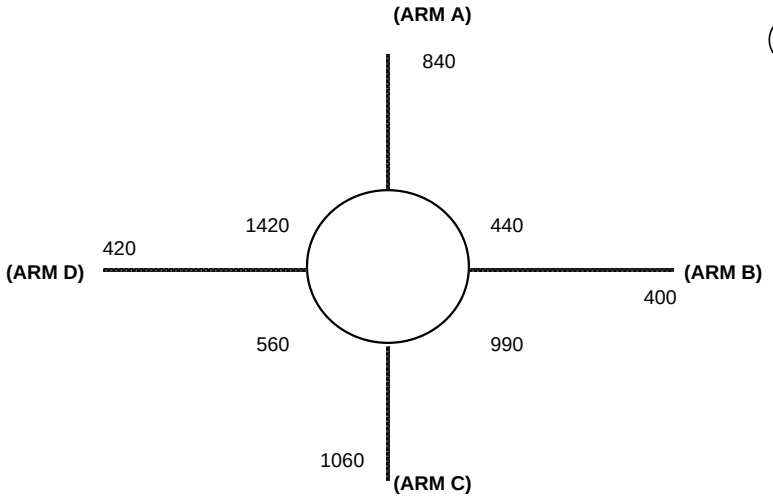
DFC b-a	=	0.00
DFC b-c	=	0.11
DFC c-b	=	0.00
DFC b-ac	=	0.11

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	840	400	1060	420
Qc= Circulating flow across entry (pcu/h)	440	990	560	1420
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2287	1773	2495	1169
DFC = Design flow/Capacity = Q/Qe	0.37	0.23	0.42	0.36

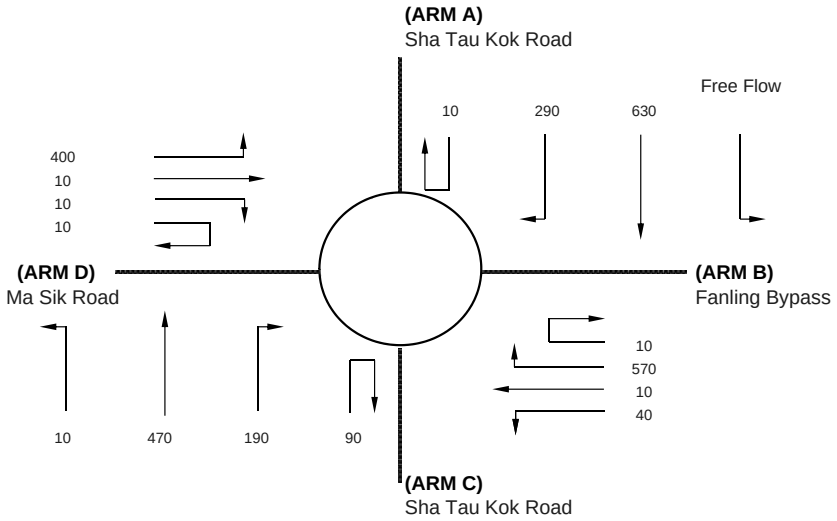
TOTAL ENTRY FLOWS = 2720 PCU

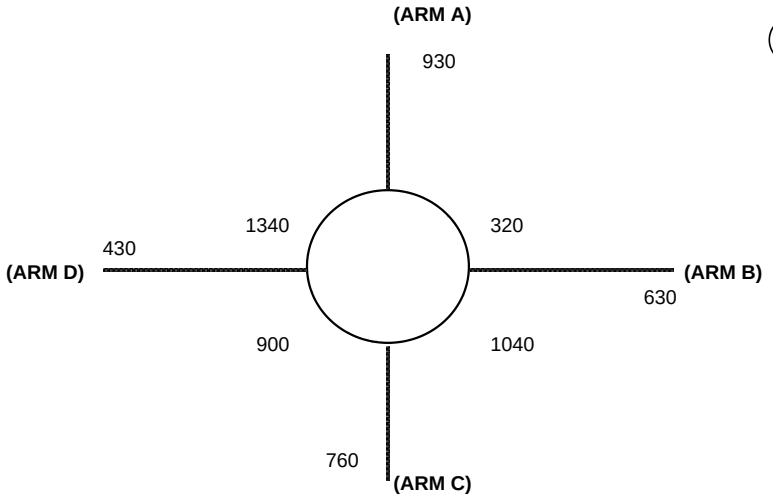
CRITICAL DFC = 0.42

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2026 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	930	630	760	430
Qc= Circulating flow across entry (pcu/h)	320	1040	900	1340
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2361	1744	2269	1210
DFC = Design flow/Capacity = Q/Qe	0.39	0.36	0.33	0.36

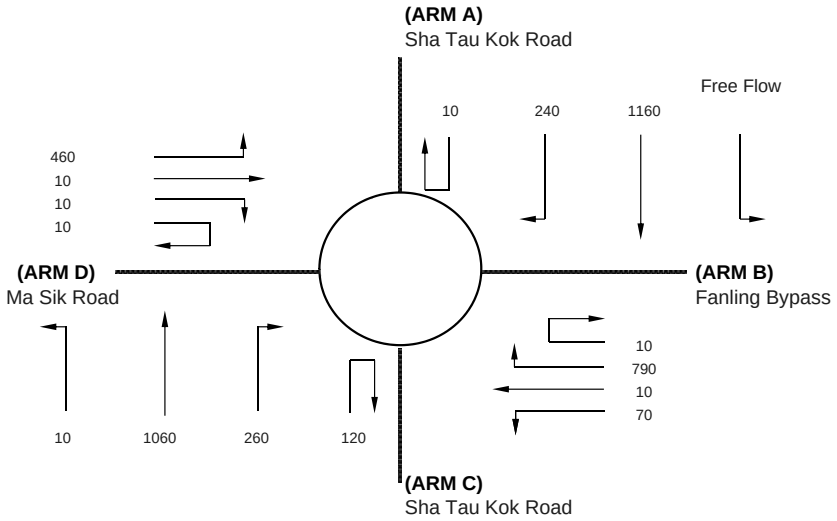
TOTAL ENTRY FLOWS = 2750 PCU

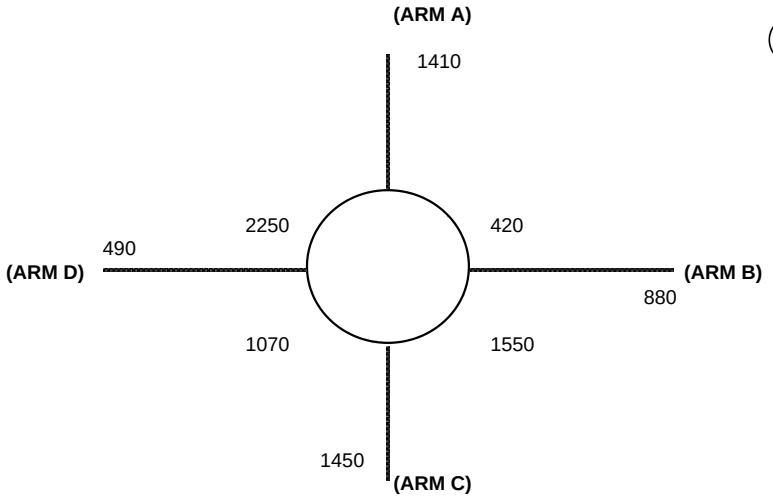
CRITICAL DFC = 0.39

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2026 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	1410	880	1450	490
Qc= Circulating flow across entry (pcu/h)	420	1550	1070	2250
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2300	1448	2157	738
DFC = Design flow/Capacity = Q/Qe	0.61	0.61	0.67	0.66

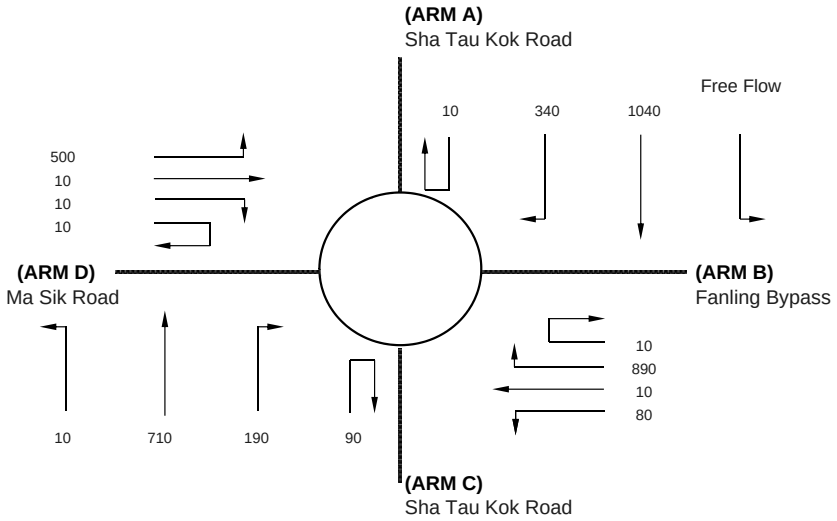
TOTAL ENTRY FLOWS = 4230 PCU

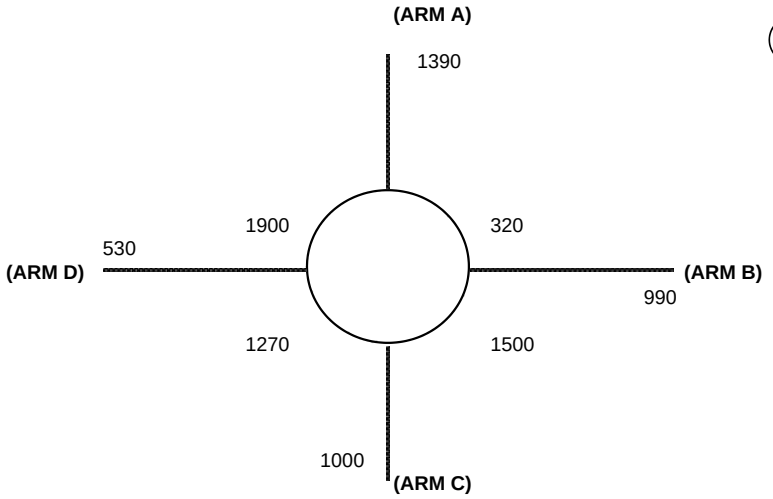
CRITICAL DFC = 0.67

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2026 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	1390	990	1000	530
Qc= Circulating flow across entry (pcu/h)	320	1500	1270	1900
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2361	1477	2025	920
DFC = Design flow/Capacity = Q/Qe	0.59	0.67	0.49	0.58

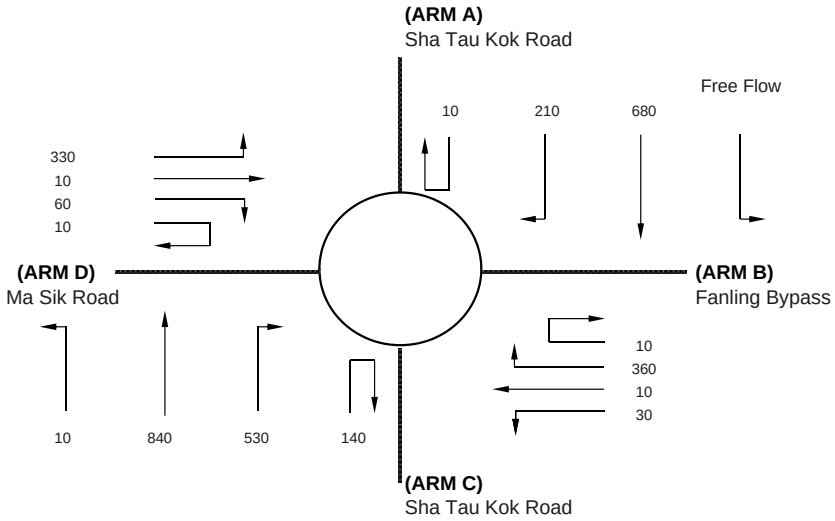
TOTAL ENTRY FLOWS = 3910 PCU

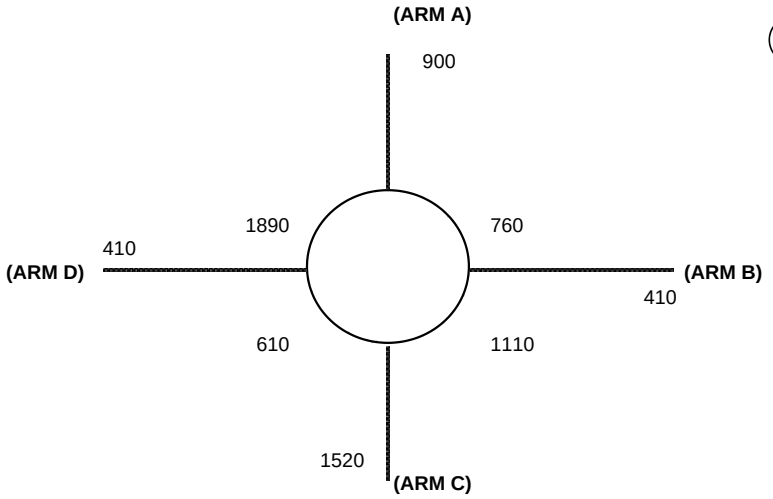
CRITICAL DFC = 0.67

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2031 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	900	410	1520	410
Qc= Circulating flow across entry (pcu/h)	760	1110	610	1890
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2091	1704	2461	925
DFC = Design flow/Capacity = Q/Qe	0.43	0.24	0.62	0.44

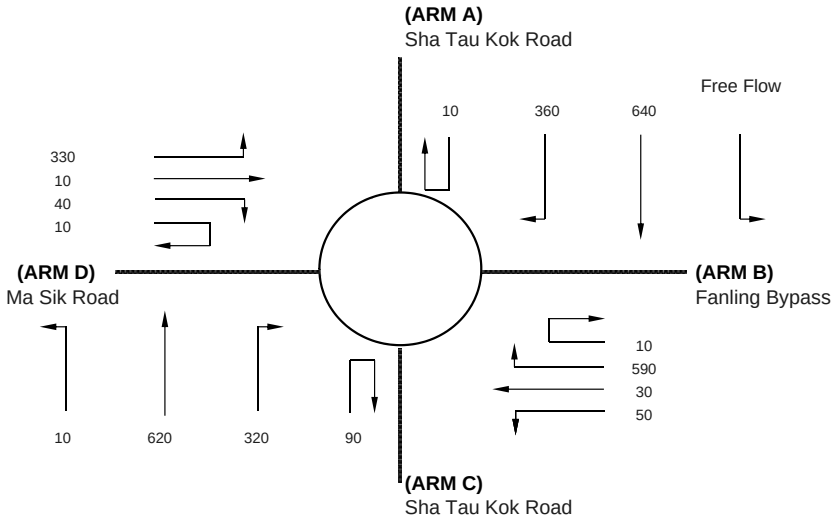
TOTAL ENTRY FLOWS = 3240 PCU

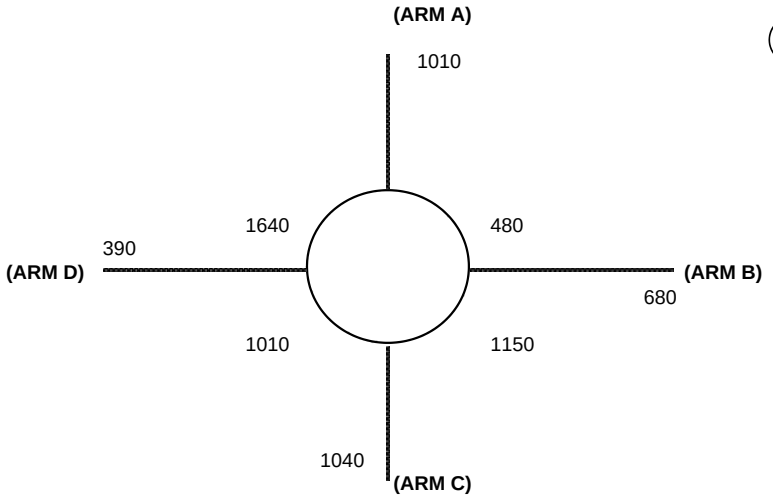
CRITICAL DFC = 0.62

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2031 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	1010	680	1040	390
Qc= Circulating flow across entry (pcu/h)	480	1150	1010	1640
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2263	1680	2197	1054
DFC = Design flow/Capacity = Q/Qe	0.45	0.40	0.47	0.37

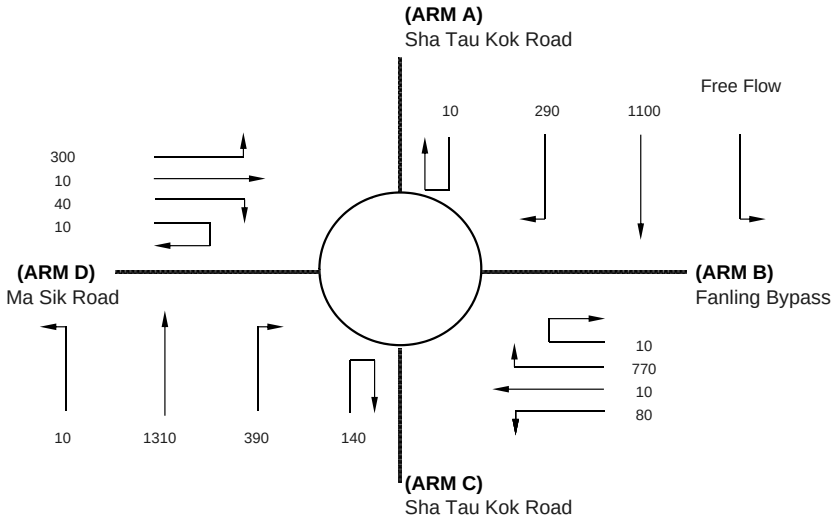
TOTAL ENTRY FLOWS = 3120 PCU

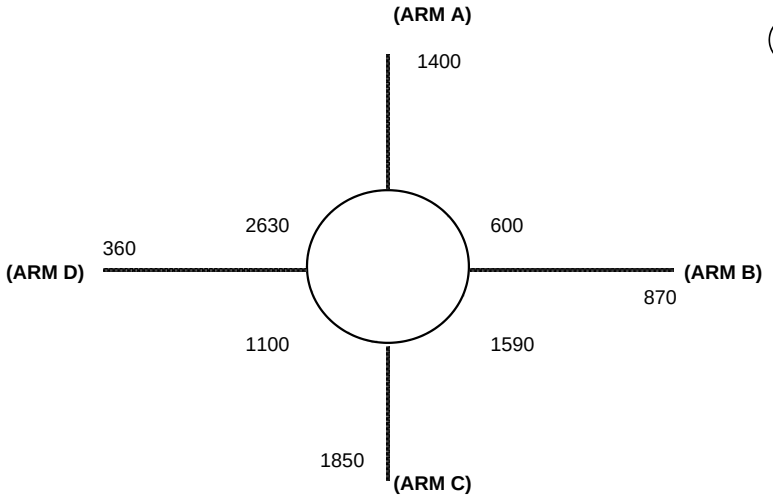
CRITICAL DFC = 0.47

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2031 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	1400	870	1850	360
Qc= Circulating flow across entry (pcu/h)	600	1590	1100	2630
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2189	1425	2137	541
DFC = Design flow/Capacity = Q/Qe	0.64	0.61	0.87	0.67

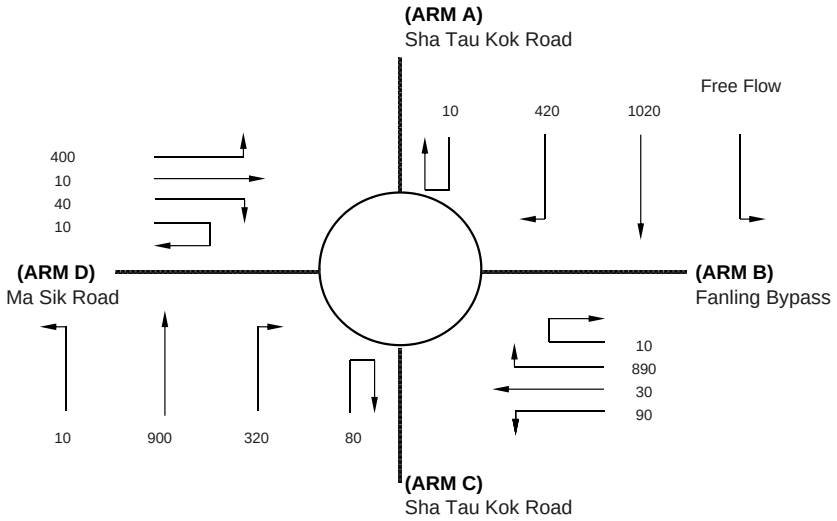
TOTAL ENTRY FLOWS = 4480 PCU

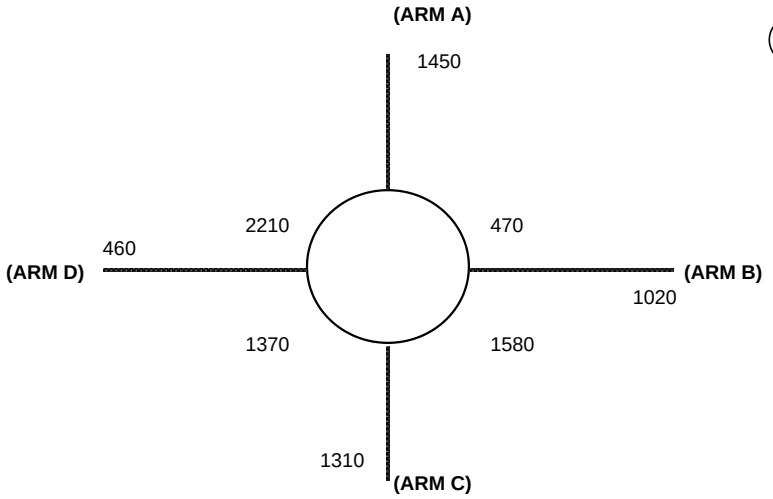
CRITICAL DFC = 0.87

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J12 - Sha Tau Kok Road / Fanling Bypass	2031 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	8.00	4.00
E = Entry width (m)	9.00	8.00	10.00	8.00
L = Effective length of flare (m)	9.00	4.00	12.00	15.00
R = Entry radius (m)	25.00	20.00	30.00	35.00
D = Inscribed circle diameter (m)	76.00	76.00	76.00	76.00
A = Entry angle (degree)	30.00	30.00	30.00	30.00
Q = Entry flow (pcu/h)	1450	1020	1310	460
Qc= Circulating flow across entry (pcu/h)	470	1580	1370	2210
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.30	0.28	0.27	0.43
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.00	1.02	1.02
X2= V + ((E-V)/(1+2S))	8.36	7.75	9.30	6.16
M = EXP((D-60)/10)	4.95	4.95	4.95	4.95
F = 303*X2	2533	2348	2819	1866
Td= 1+(0.5/(1+M))	1.08	1.08	1.08	1.08
Fc= 0.21*Td(1+0.2*X2)	0.61	0.58	0.65	0.51
Qe= K(F-Fc*Qc)	2269	1431	1958	759
DFC = Design flow/Capacity = Q/Qe	0.64	0.71	0.67	0.61

TOTAL ENTRY FLOWS = 4240 PCU

CRITICAL DFC = 0.71

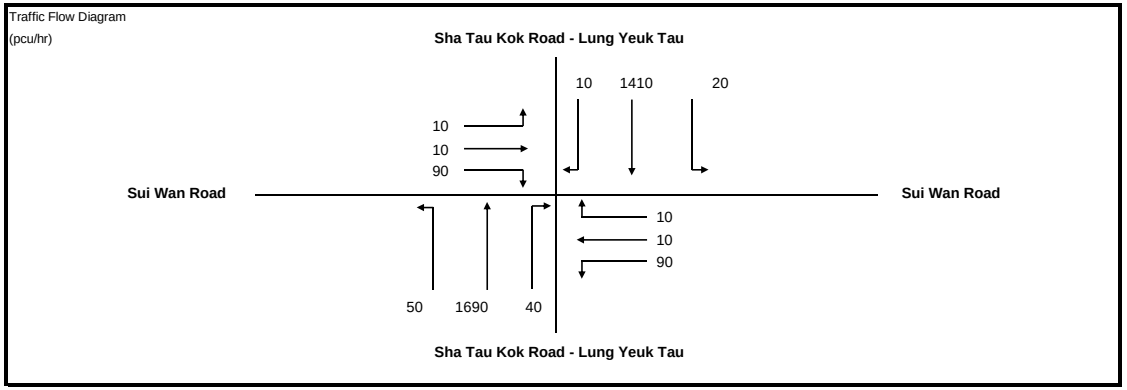
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

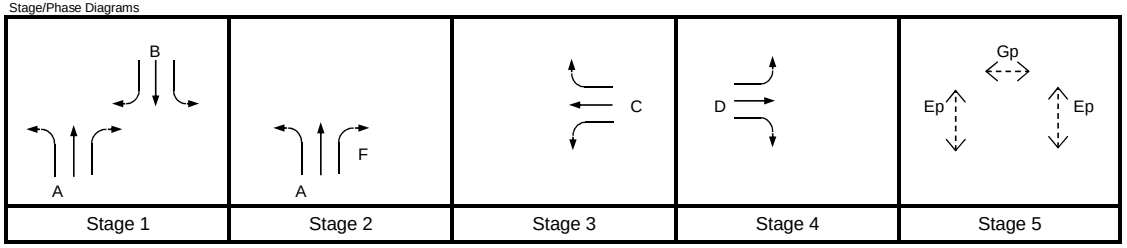
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.551	
Lost time	L =	50	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	178	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	111	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-4.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	129	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 3%

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	3.000	1	17.5			1		0		1915	50	777		827	6%		1905	0.434	0.434
	A	1,2	3.500	1				0		0		2105		913		913			2105	0.434	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	665		685	3%		1909	0.359	
	B	1	3.200	1				0		0		2075		745		745			2075	0.359	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	90	10	10	110	82%	9%	1855	0.059	0.059
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												*

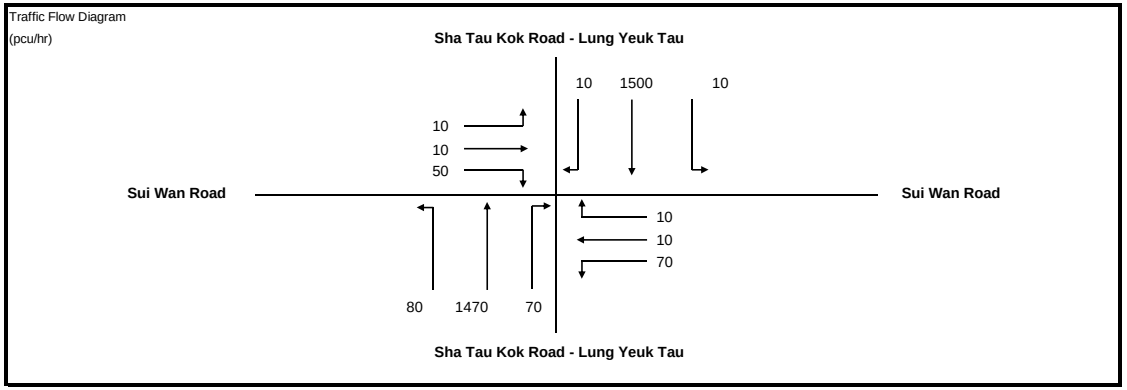
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

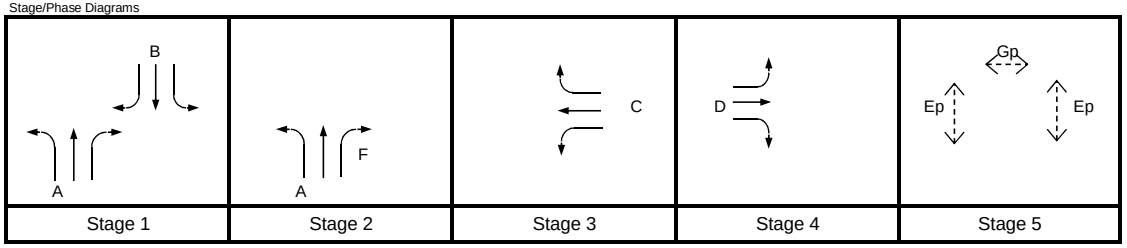
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.466	
Lost time	L =	61	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	181	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	114	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.443	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-5.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	126	sec
Y_{max}	$= 1-L/C$	=	0.551	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

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	1,2	3.000	1	17.5			1		0		1915	80	655		735	11%		1897	0.387	
	A	1,2	3.500	1				0		0		2105		815		815			2105	0.387	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	
	B	1	3.000	1	15			1		0		1915	10	714		724	1%		1912	0.379	0.379
	B	1	3.200	1				0		0		2075		786		786			2075	0.379	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	70	10	10	90	78%	11%	1860	0.048	0.048
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	0.039
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

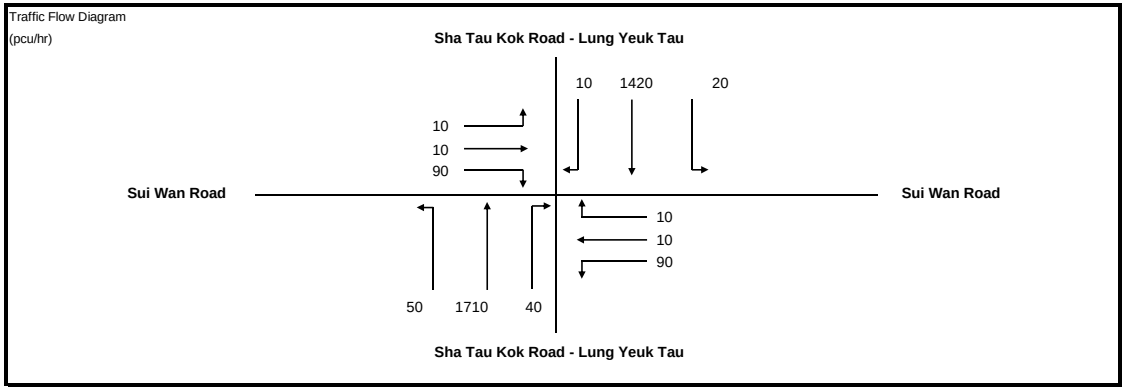
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2017 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J13

Traffic Flow Diagram

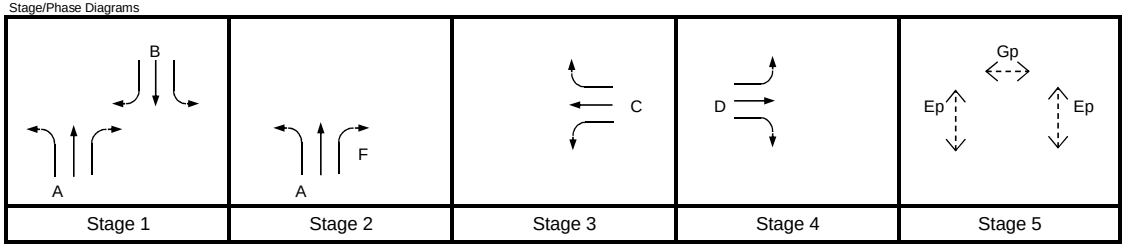
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.556	
Lost time	L =	50	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	180	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	113	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-5.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	131	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	1,2	3.000	1	17.5			1		0		1915	50	786		836	6%		1905	0.439	
	A	1,2	3.500	1				0		0		2105		924		924			2105	0.439	0.439
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	670		690	3%		1909	0.361	
	B	1	3.200	1				0		0		2075		750		750			2075	0.361	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	90	10	10	110	82%	9%	1855	0.059	0.059
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												*

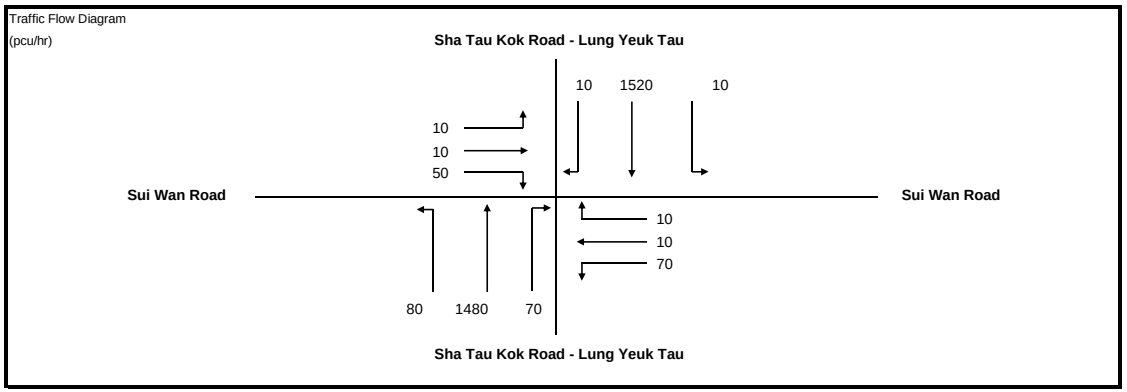
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2017 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

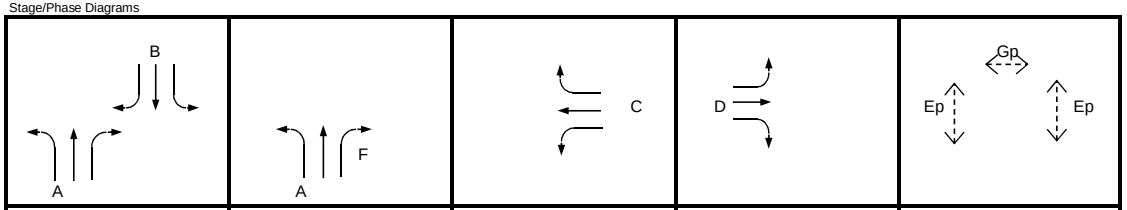
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.471	
Lost time	L =	61	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	182	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	115	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.443	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-6.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	128	sec
Y_{max}	$= 1-L/C$	=	0.551	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	1,2	3.000	1	17.5			1		0		1915	80	660		740	11%		1897	0.390	
	A	1,2	3.500	1				0		0		2105		820		820			2105	0.390	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	
	B	1	3.000	1	15			1		0		1915	10	724		734	1%		1912	0.384	0.384
	B	1	3.200	1				0		0		2075		796		796			2075	0.384	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	70	10	10	90	78%	11%	1860	0.048	0.048
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	0.039
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

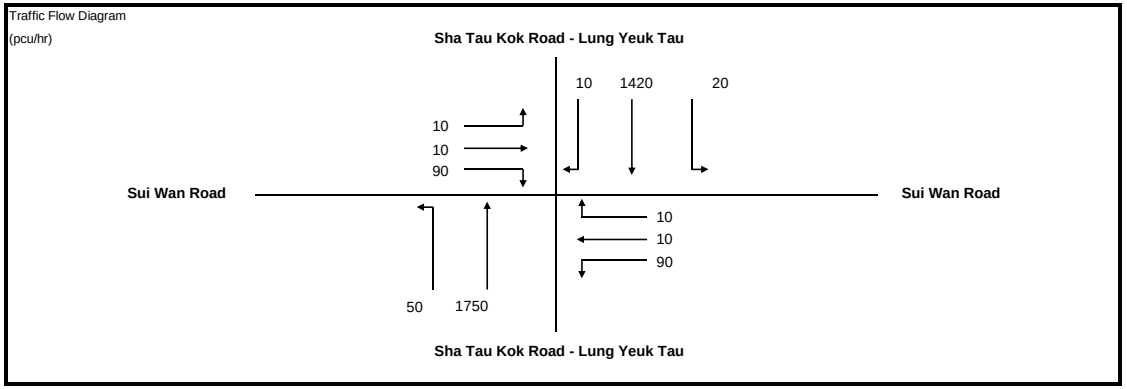
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2017 AM CTIA Case (Stage 1)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J13

Traffic Flow Diagram

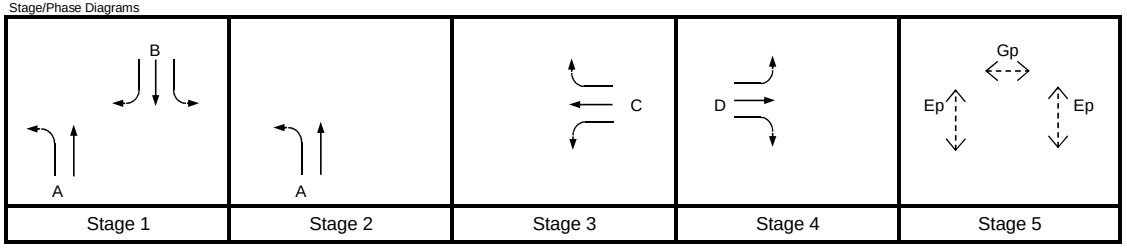
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.566	
Lost time	L =	50	sec
Total Flow	=	14,115	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	184	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	115	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-7.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	135	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

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	1,2	3.000	1	17.5			1		0		1915	50	805		855	6%		1905	0.449	
	A	1,2	3.500	1				0		0		2105		945		945			2105	0.449	0.449
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	670		690	3%		1909	0.361	
	B	1	3.200	1				0		0		2075		750		750			2075	0.361	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	90	10	10	110	82%	9%	1855	0.059	0.059
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												*

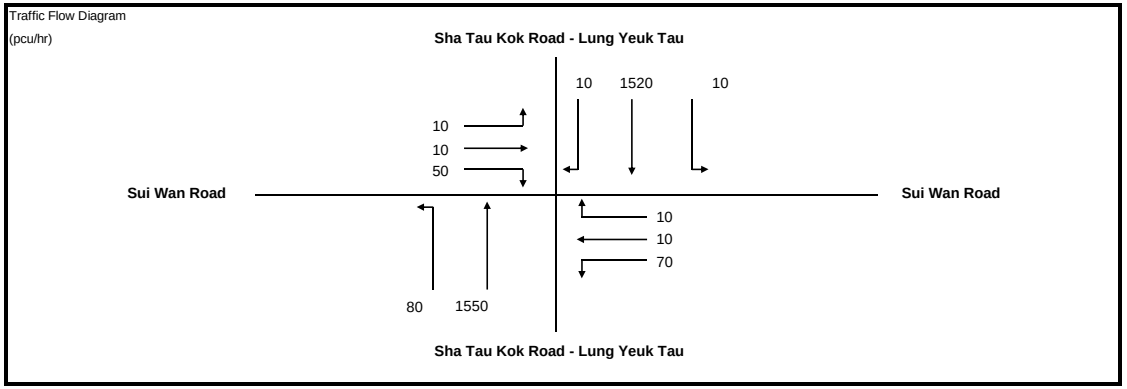
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2017 PM CTIA Case (Stage 1)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J13

Traffic Flow Diagram

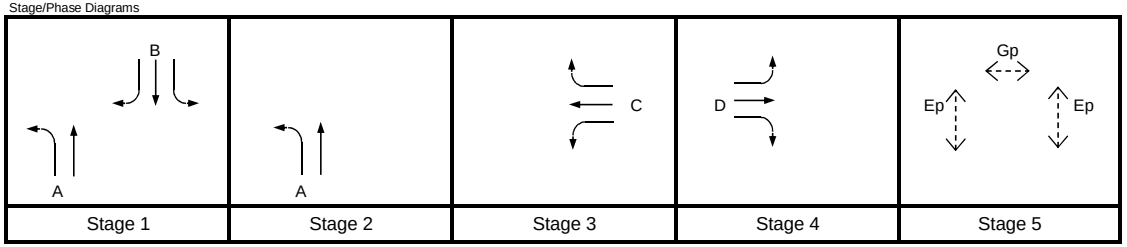
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.492	
Lost time	L =	50	sec
Total Flow	=	14,115	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	158	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	98	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	6.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	110	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

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	1,2	3.000	1	17.5			1		0		1915	80	693		773	10%		1898	0.407	
	A	1,2	3.500	1				0		0		2105		857		857			2105	0.407	0.407
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	0.037
	B	1	3.000	1	15			1		0		1915	10	724		734	1%		1912	0.384	
	B	1	3.200	1				0		0		2075		796		796			2075	0.384	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	70	10	10	90	78%	11%	1860	0.048	0.048
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												*

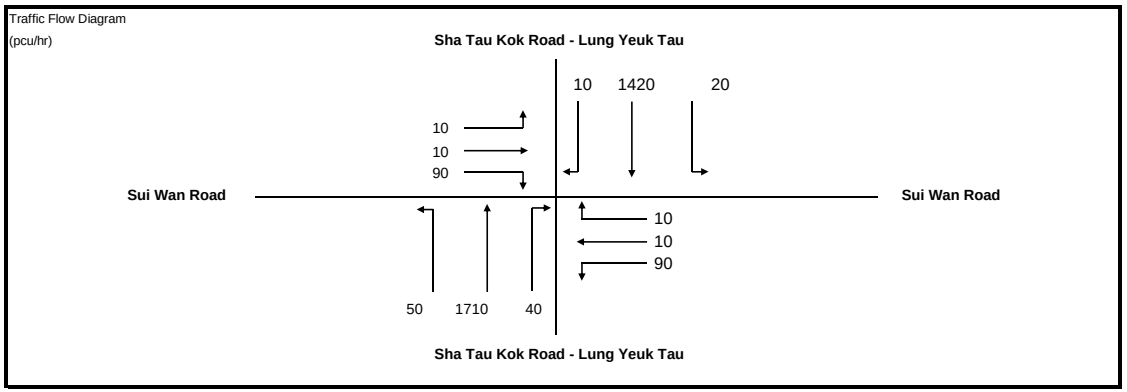
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J13

Traffic Flow Diagram

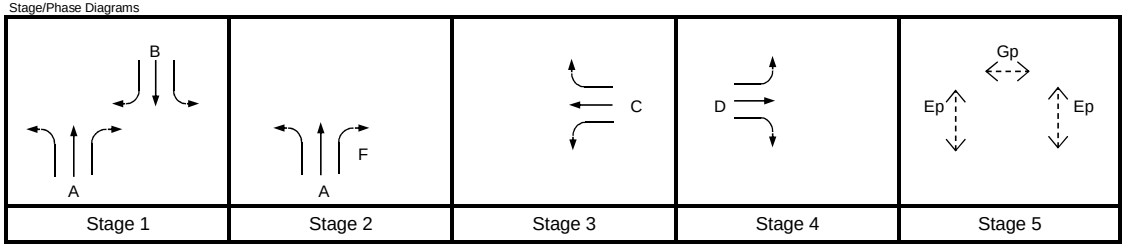
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.556	
Lost time	L =	50	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	180	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	113	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-5.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	131	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	1,2	3.000	1	17.5			1		0		1915	50	786		836	6%		1905	0.439	
	A	1,2	3.500	1				0		0		2105		924		924			2105	0.439	0.439
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	670		690	3%		1909	0.361	
	B	1	3.200	1				0		0		2075		750		750			2075	0.361	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	90	10	10	110	82%	9%	1855	0.059	0.059
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												

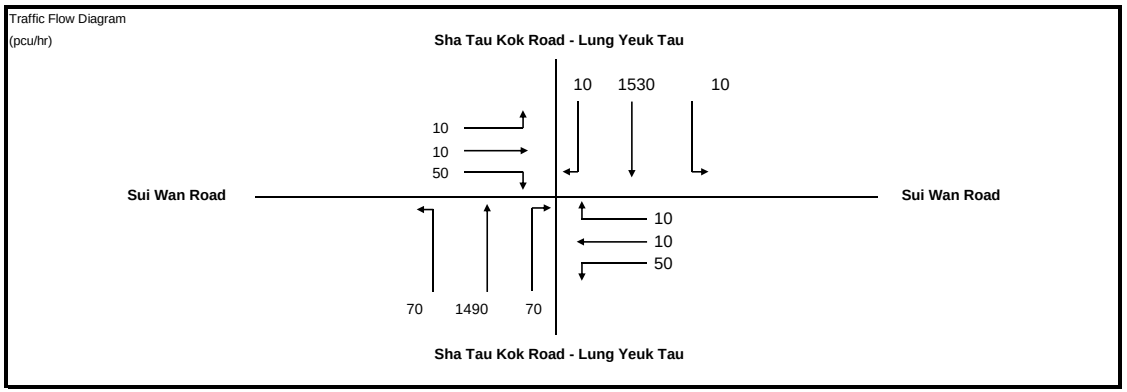
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

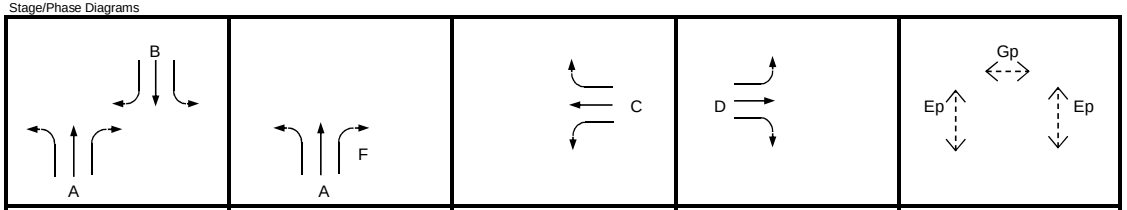
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.429	
Lost time	L =	67	sec
Total Flow	=	18,045	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	185	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	117	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.398	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-7.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	128	sec
Y_{max}	$= 1-L/C$	=	0.507	

Stage/Phase Diagrams



I/G = 6 G = 5 I/G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Y \times 100\%$ = 6%

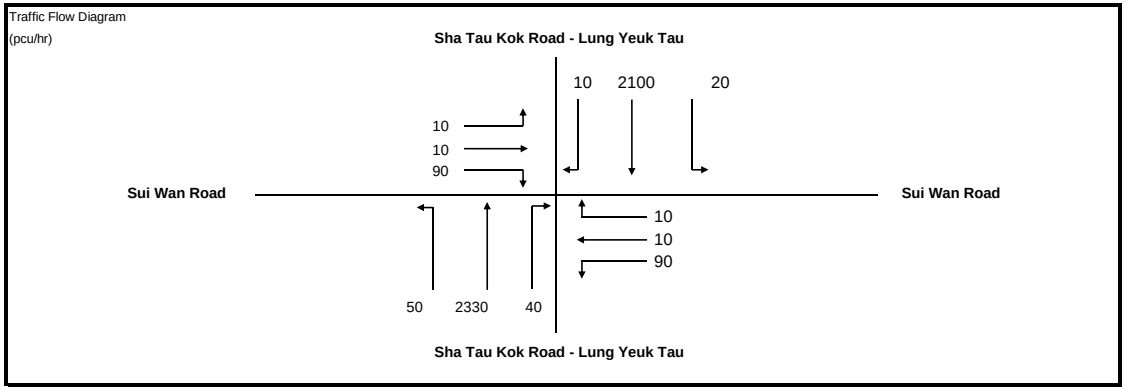
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (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	3.000	1	17.5			1		0		1915	70	670		740	9%		1900	0.390	
	A	1,2	3.500	1				0		0		2105		820		820			2105	0.390	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	
	B	1	3.000	1	15			1		0		1915	10	732		742	1%		1912	0.388	
	B	1	3.000	1				0		0		2055		798		798			2055	0.388	0.388
	B	1	3.000	1		20	0	0		0		2055			10	10		100%	1912	0.005	
	C	3	3.000	1	10	20	0	1		0		1915	50	10	10	70	71%	14%	1713	0.041	0.041
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

Traffic Flow Diagram

(pcu/hr)

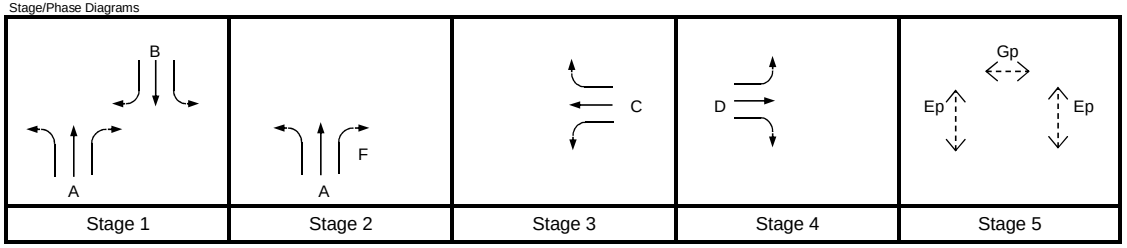


J13

No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.591	
Lost time	L =	67	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	258	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	164	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.398	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-32.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	195	sec
Y_{max}	$= 1-L/C$	=	0.507	

Stage/Phase Diagrams



Critical Case : B,F,C,D,Ep

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	1,2	3.000	1	17.5			1		0		1915	50	1082		1132	4%		1908	0.593	
	A	1,2	3.500	1				0		0		2105		1248		1248			2105	0.593	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	
	B	1	3.000	1	15			1		0		1915	20	996		1016	2%		1911	0.532	0.532
	B	1	3.200	1				0		0		2075		1104		1104			2075	0.532	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	90	10	10	110	82%	9%	1855	0.059	0.059
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

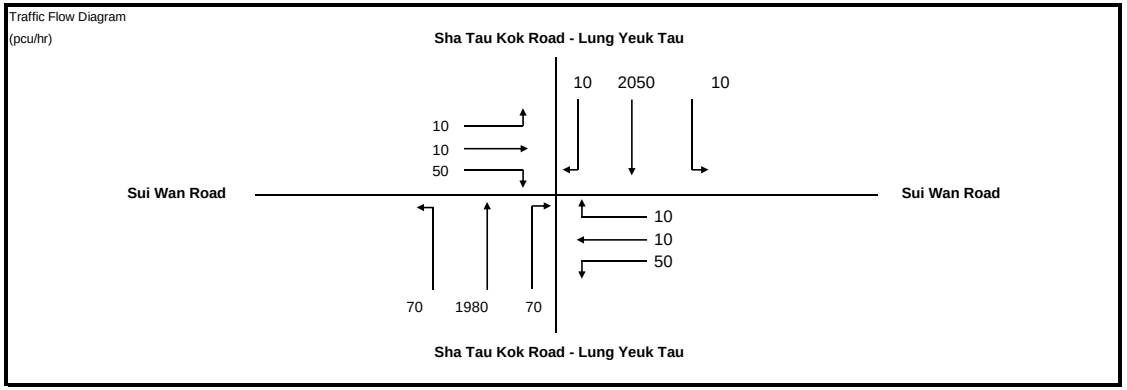
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

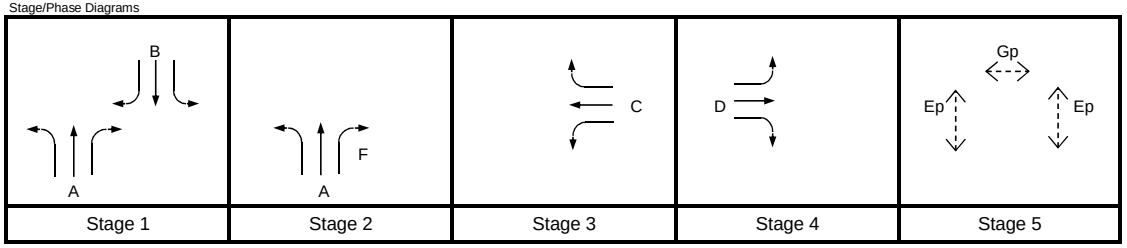
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.517	
Lost time	L =	73	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	237	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	151	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.353	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-31.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	171	sec
Y_{max}	$= 1-L/C$	=	0.463	

Stage/Phase Diagrams



I/G = 6 G = 5 I/G = 5 G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

R.C.(C) = $(0.9xY_{max}-Y)/Y \times 100\%$ = -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	1,2	3.000	1	17.5			1		0		1915	70	903		973	7%		1903	0.511	
	A	1,2	3.500	1				0		0		2105		1077		1077			2105	0.511	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	
	B	1	3.000	1	15			1		0		1915	10	978		988	1%		1913	0.517	0.517
	B	1	3.200	1				0		0		2075		1072		1072			2075	0.517	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	50	10	10	70	71%	14%	1868	0.037	
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

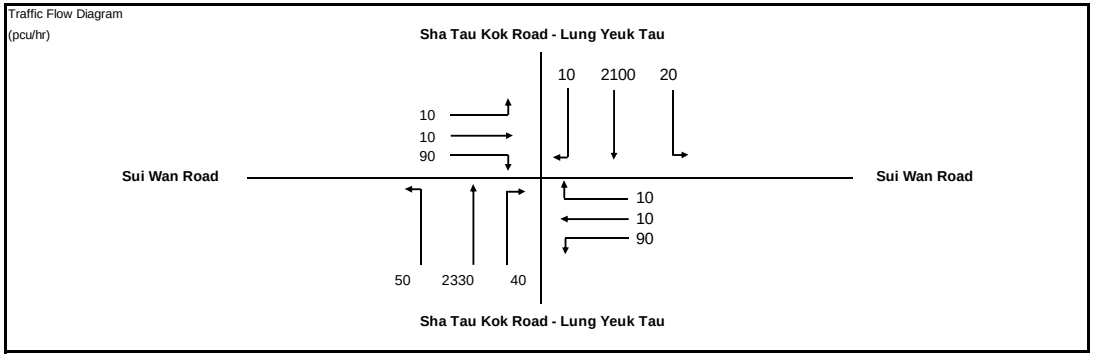
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 AM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Feb 16

J13

Traffic Flow Diagram

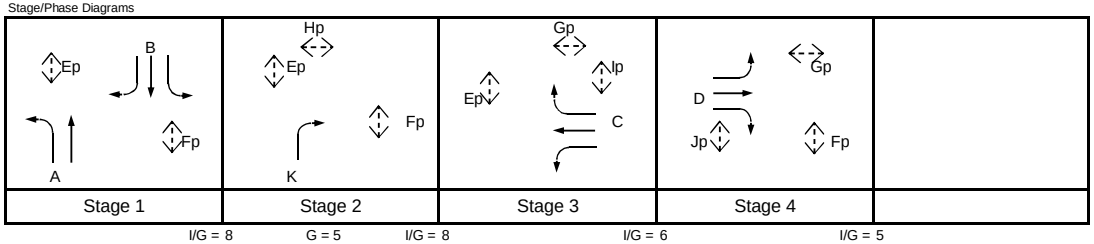
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.700	
Lost time	L =	29	sec
Total Flow	=	16,280	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =	162	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	97	sec
Y_{ult}	$= 0.9-0.0075 \times L$ =	0.683	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$ =	-2.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$ =	130	sec
Y_{max}	$= 1-L/C$ =	0.787	

Stage/Phase Diagrams



Critical Case : A,Hp,C,D

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	3.600	1	17.5			1		0		1975	50	1097		1147	4%		1968	0.583	0.583
	A	1	3.600	1				0		0		2115		1233		1233			2115	0.583	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	996		1016	2%		1911	0.532	
	B	1	3.200	1				0		0		2075		1104		1104			2075	0.532	
	B	1	3.200	1		25	1	0		0		2075			10	10		100%	1741	0.006	
	C	3	4.000	1	15	25	0	1		0		2015	90	10	10	110	82%	9%	1853	0.059	0.059
	K	2	3.400	1		35	0	0		0		2095			40	40		100%	2009	0.020	

Pedestrian Crossing		GM		FGM				
Ep	1,2,3	min.	5	+ 5	=	10	sec	
Fp	1,2,4	min.	5	+ 9	=	14	sec	
Gp	3,4	min.	5	+ 8	=	13	sec	
Hp	2	min.	5	+ 6	=	11	sec	*
Ip	3	min.	5	+ 5	=	10	sec	
Jp	4	min.	5	+ 6	=	11	sec	

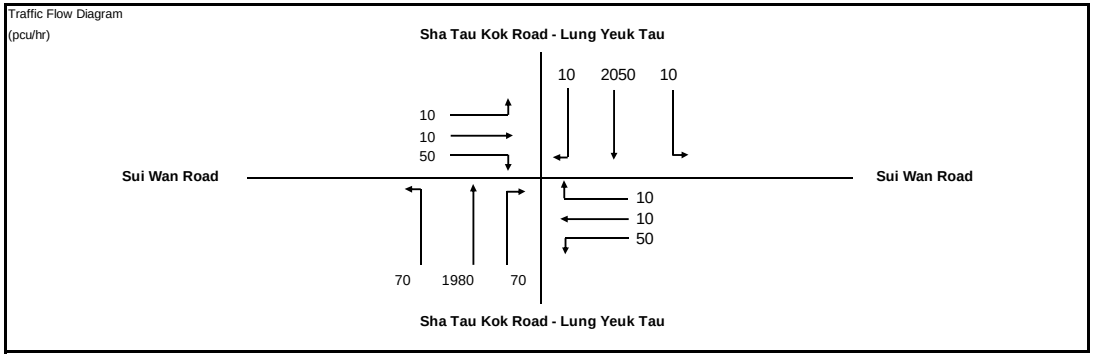
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 PM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Feb 16

J13

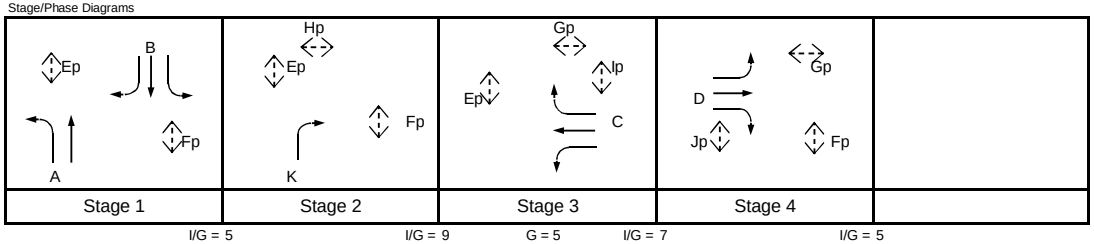
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.588	
Lost time	L =	28	sec
Total Flow	=	16,280	pcu
Optimum Cycle C_o = $(1.5 \times L+5)/(1-Y)$	=	114	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	68	sec
Y_{ult} = $0.9-0.0075 \times L$	=	0.690	
$R.C._{ult}$ = $(Y_{ult}-Y)/Yx100\%$	=	17.4	%
Practical Cycle Time C_p = $0.9 \times L/(0.9-Y)$	=	81	sec
Y_{max} = $1-L/C$	=	0.794	

Stage/Phase Diagrams



Critical Case : B,K,Ip,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*
	A	1	3.600	1	17.5			1		0		1975	70	917		987	7%		1963	0.503	
	A	1	3.600	1				0		0		2115		1063		1063			2115	0.503	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	0.037
	B	1	3.000	1	15			1		0		1915	10	978		988	1%		1913	0.517	0.517
	B	1	3.200	1				0		0		2075		1072		1072			2075	0.517	
	B	1	3.200	1		25	1	0		0		2075			10	10		100%	1741	0.006	
	C	3	4.000	1	15	25	0	1		0		2015	50	10	10	70	71%	14%	1866	0.038	
	K	2	3.400	1		35	0	0		0		2095			70	70		100%	2009	0.035	0.035
Pedestrian Crossing				GM		FGM															
	Ep	1,2,3	min.	5	+	5	=	10	sec												
	Fp	1,2,4	min.	5	+	9	=	14	sec												
	Gp	3,4	min.	5	+	8	=	13	sec												
	Hp	2	min.	5	+	6	=	11	sec												
	Ip	3	min.	5	+	5	=	10	sec												*
	Jp	4	min.	5	+	6	=	11	sec												

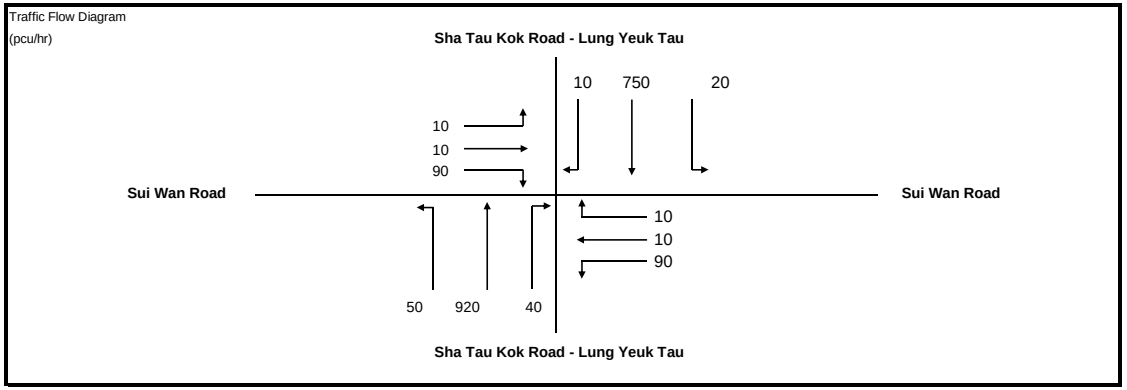
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

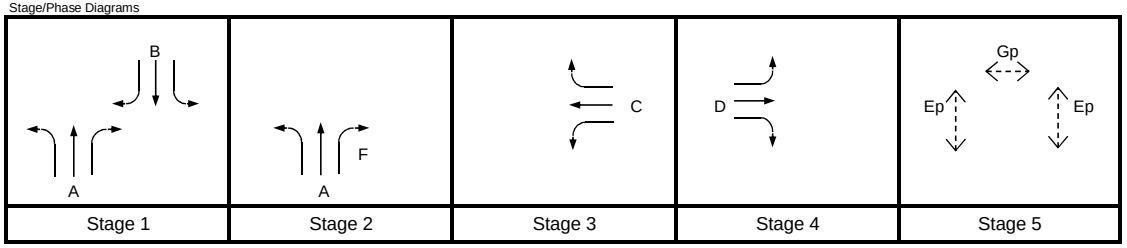
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.359	
Lost time	L =	50	sec
Total Flow	=	18,185	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}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	46.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	83	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 58%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1,2	3.000	1	17.5			1		0		1915	50	410		460	11%		1897	0.242	0.242
	A	1,2	3.500	1				0		0		2105		510		510			2105	0.242	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	349		369	5%		1905	0.193	
	B	1	3.200	1				0		0		2075		401		401			2075	0.193	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	90	10	10	110	82%	9%	1855	0.059	0.059
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												*

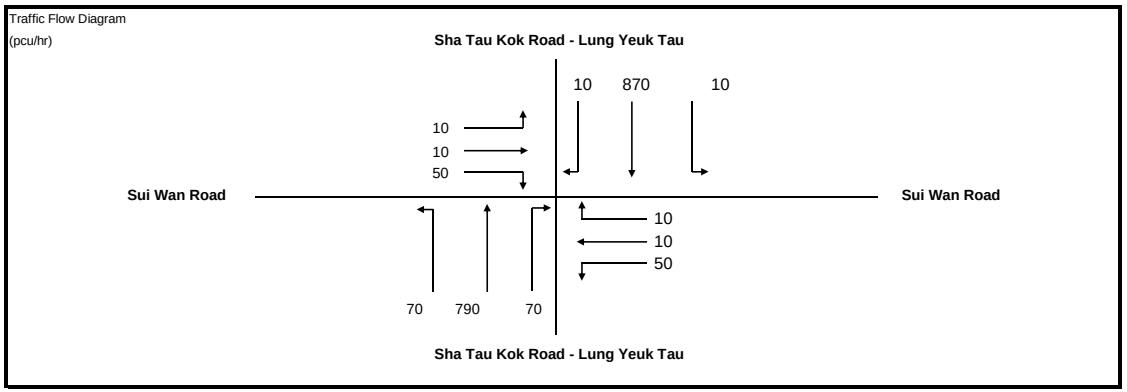
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

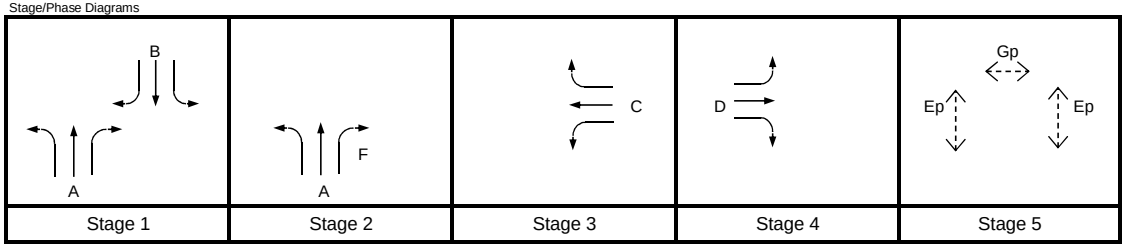
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.334	
Lost time	L =	55	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	131	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	83	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.488	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	46.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	87	sec
Y_{max}	$= 1-L/C$	=	0.596	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 61%

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	3.000	1	17.5			1		0		1915	70	337		407	17%		1887	0.215	
	A	1,2	3.500	1				0		0		2105		453		453			2105	0.215	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	0.037
	B	1	3.000	1	15			1		0		1915	10	412		422	2%		1910	0.221	
	B	1	3.200	1				0		0		2075		458		458			2075	0.221	0.221
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	50	10	10	70	71%	14%	1868	0.037	0.037
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	0.039
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

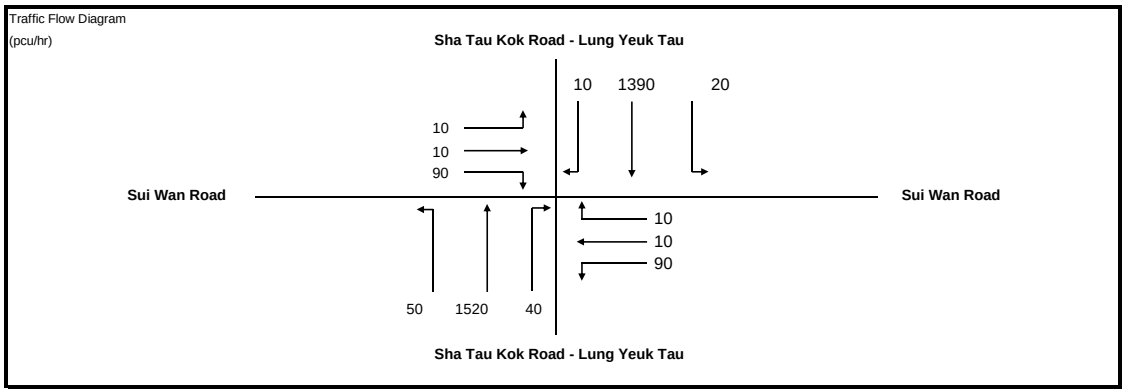
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

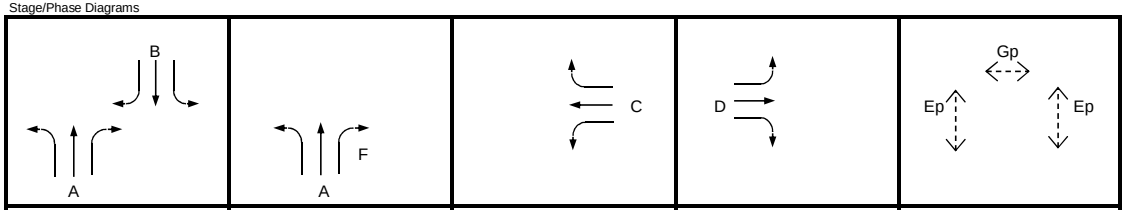
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.471	
Lost time	L =	61	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	182	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	115	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.443	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-6.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	128	sec
Y_{max}	$= 1-L/C$	=	0.551	

Stage/Phase Diagrams



I/G = 6 G = 5 I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

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	1,2	3.000	1	17.5			1		0		1915	50	696		746	7%		1904	0.392	
	A	1,2	3.500	1				0		0		2105		824		824			2105	0.392	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	656		676	3%		1909	0.354	0.354
	B	1	3.200	1				0		0		2075		734		734			2075	0.354	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	90	10	10	110	82%	9%	1855	0.059	0.059
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

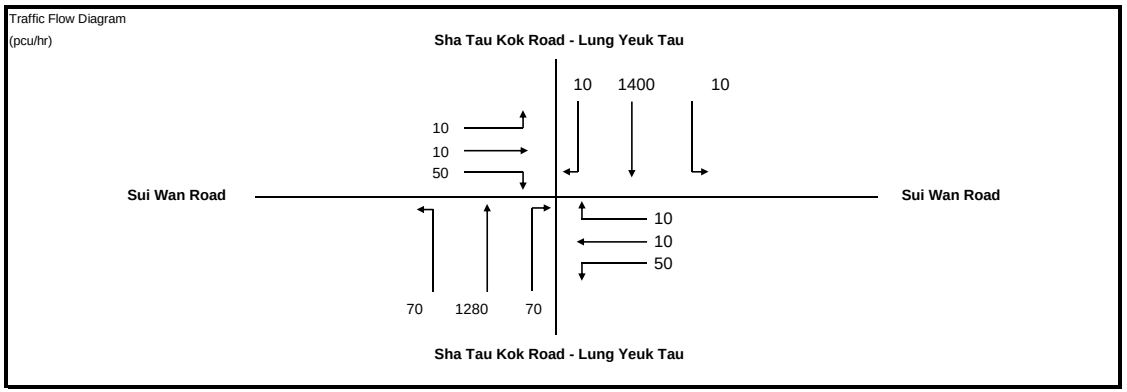
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J13

Traffic Flow Diagram

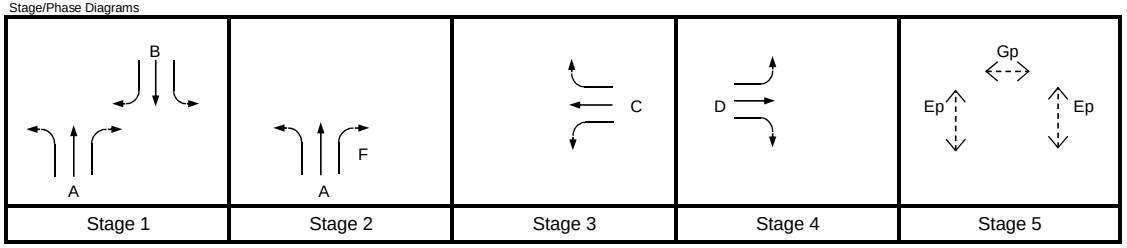
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.466	
Lost time	L =	55	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	164	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	103	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.488	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	4.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	114	sec
Y_{max}	$= 1-L/C$	=	0.596	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

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*
	A	1,2	3.000	1	17.5			1		0		1915	70	570		640	11%		1897	0.337	
	A	1,2	3.500	1				0		0		2105		710		710			2105	0.337	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	0.037
	B	1	3.000	1	15			1		0		1915	10	666		676	1%		1912	0.354	0.354
	B	1	3.200	1				0		0		2075		734		734			2075	0.354	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	50	10	10	70	71%	14%	1868	0.037	0.037
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	0.039
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

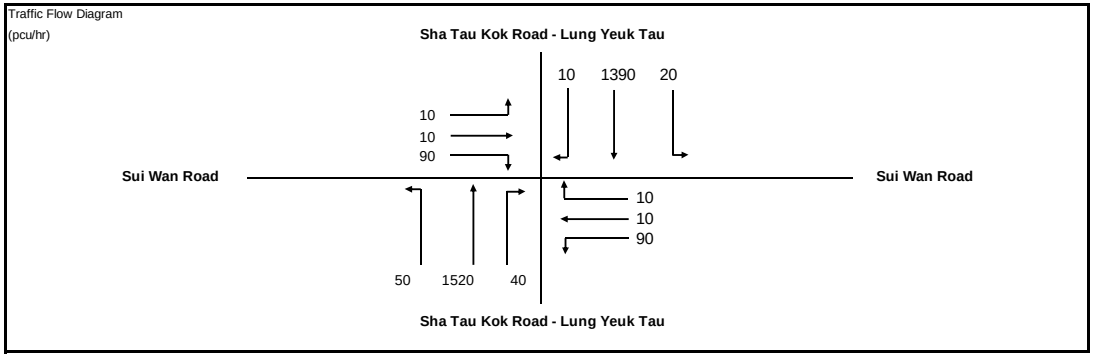
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 AM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Feb 16

J13

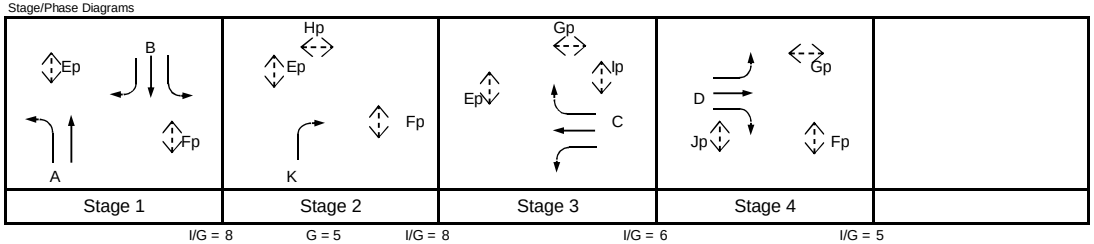
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.502	
Lost time	L =	29	sec
Total Flow	=	16,280	pcu
Optimum Cycle C_o = $(1.5 \times L+5)/(1-Y)$	=	97	sec
Min. Cycle Time C_m = $L/(1-Y)$	=	58	sec
Y_{ult} = $0.9-0.0075 \times L$	=	0.683	
$R.C._{ult}$ = $(Y_{ult}-Y)/Yx100\%$	=	36.0	%
Practical Cycle Time C_p = $0.9 \times L/(0.9-Y)$	=	66	sec
Y_{max} = $1-L/C$	=	0.787	

Stage/Phase Diagrams



Critical Case : A,Hp,C,D

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

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.600	1	17.5			1		0		1975	50	706		756	7%		1964	0.385	
	A	1	3.600	1				0		0		2115		814		814			2115	0.385	0.385
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	90	110	9%	82%	1916	0.057	0.057
	B	1	3.000	1	15			1		0		1915	20	656		676	3%		1909	0.354	
	B	1	3.200	1				0		0		2075		734		734			2075	0.354	
	B	1	3.200	1		25	1	0		0		2075			10	10		100%	1741	0.006	
	C	3	4.000	1	15	25	0	1		0		2015	90	10	10	110	82%	9%	1853	0.059	0.059
	K	2	3.400	1		35	0	0		0		2095			40	40		100%	2009	0.020	

Pedestrian Crossing		GM		FGM				
Ep	1,2,3	min.	5	+ 5	=	10	sec	
Fp	1,2,4	min.	5	+ 9	=	14	sec	
Gp	3,4	min.	5	+ 8	=	13	sec	
Hp	2	min.	5	+ 6	=	11	sec	*
Ip	3	min.	5	+ 5	=	10	sec	
Jp	4	min.	5	+ 6	=	11	sec	

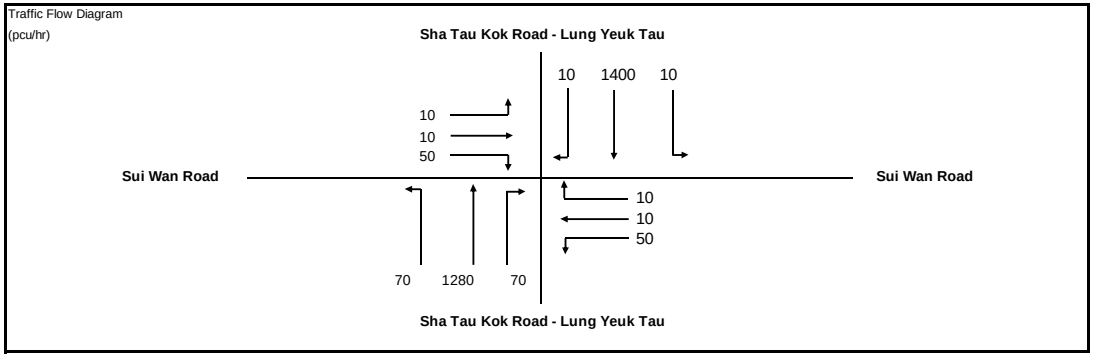
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2020 PM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Feb 16

J13

Traffic Flow Diagram

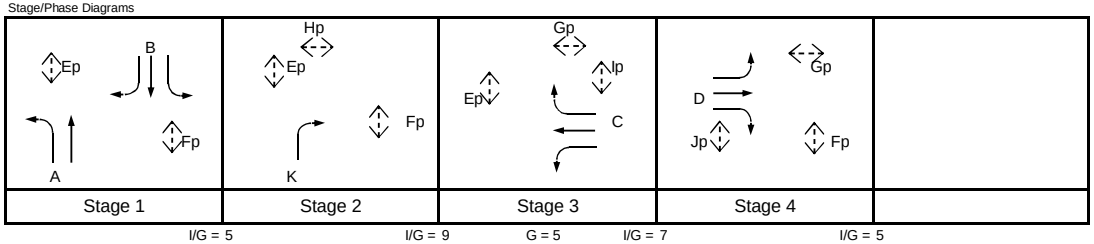
(pcu/hr)



No. of stages per cycle	N =	4	
Cycle time	C =	136	sec
Sum(y)	Y =	0.425	
Lost time	L =	28	sec
Total Flow	=	16,280	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$ =	82	sec
Min. Cycle Time C_m	$= L/(1-Y)$ =	49	sec
Y_{ult}	$= 0.9-0.0075 \times L$ =	0.690	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$ =	62.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$ =	53	sec
Y_{max}	$= 1-L/C$ =	0.794	

Stage/Phase Diagrams



Critical Case : B,K,Ip,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 68%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.600	1	17.5			1		0		1975	70	579		649	11%		1957	0.332	
	A	1	3.600	1				0		0		2115		701		701			2115	0.332	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	50	70	14%	71%	1914	0.037	0.037
	B	1	3.000	1	15			1		0		1915	10	666		676	1%		1912	0.354	0.354
	B	1	3.200	1				0		0		2075		734		734			2075	0.354	
	B	1	3.200	1		25	1	0		0		2075			10	10		100%	1741	0.006	
	C	3	4.000	1	15	25	0	1		0		2015	50	10	10	70	71%	14%	1866	0.038	
	K	2	3.400	1		35	0	0		0		2095			70	70		100%	2009	0.035	0.035
Pedestrian Crossing				GM		FGM															
	Ep	1,2,3	min.	5	+	5	=	10	sec												
	Fp	1,2,4	min.	5	+	9	=	14	sec												
	Gp	3,4	min.	5	+	8	=	13	sec												
	Hp	2	min.	5	+	6	=	11	sec												
	Ip	3	min.	5	+	5	=	10	sec												*
	Jp	4	min.	5	+	6	=	11	sec												

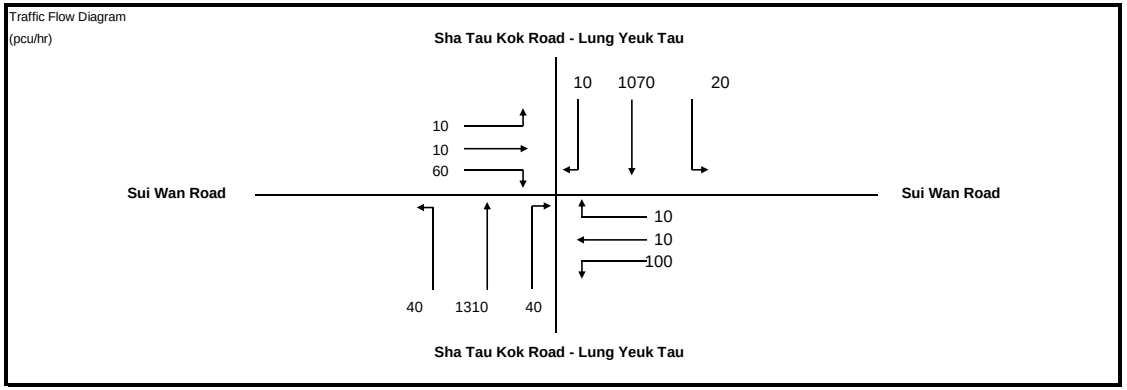
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

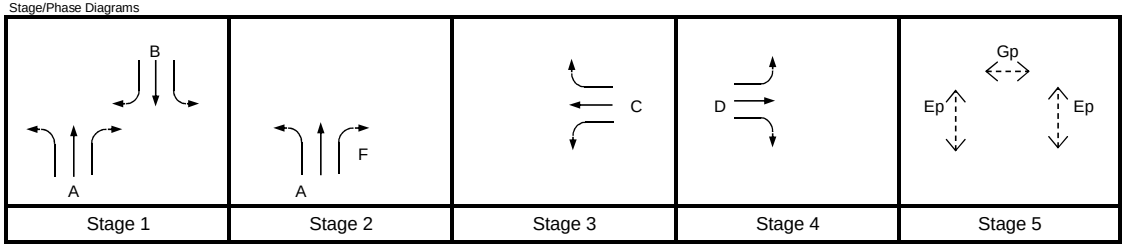
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.443	
Lost time	L =	50	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	144	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	90	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	18.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	99	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

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	3.000	1	17.5			1		0		1915	40	601		641	6%		1905	0.337	0.337
	A	1,2	3.500	1				0		0		2105		709		709			2105	0.337	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	60	80	13%	75%	1914	0.042	0.042
	B	1	3.000	1	15			1		0		1915	20	502		522	4%		1908	0.274	
	B	1	3.200	1				0		0		2075		568		568			2075	0.274	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	100	10	10	120	83%	8%	1853	0.065	0.065
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												*

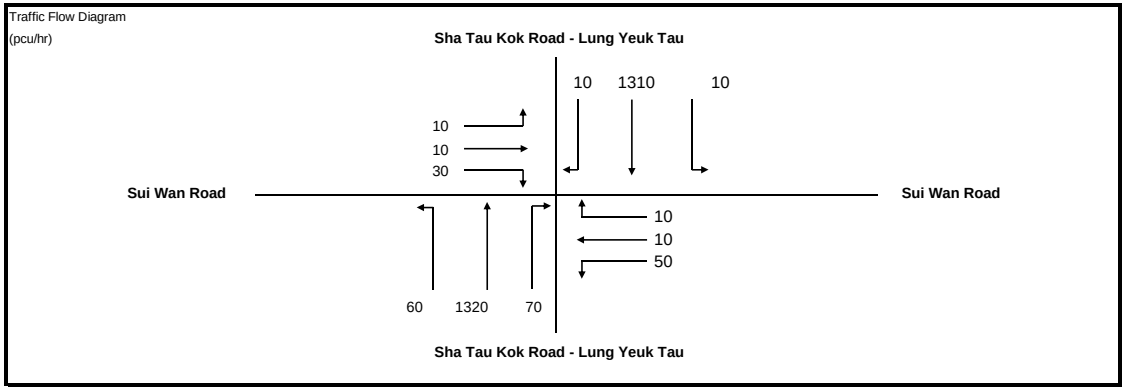
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

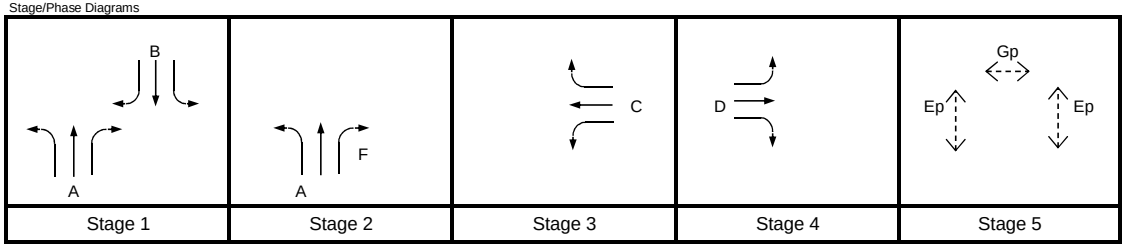
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.407	
Lost time	L =	61	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	163	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	103	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.443	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	8.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	111	sec
Y_{max}	$= 1-L/C$	=	0.551	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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*
	A	1,2	3.000	1	17.5			1		0		1915	60	595		655	9%		1900	0.345	
	A	1,2	3.500	1				0		0		2105		725		725			2105	0.345	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	30	50	20%	60%	1912	0.026	
	B	1	3.000	1	15			1		0		1915	10	623		633	2%		1912	0.331	0.331
	B	1	3.200	1				0		0		2075		687		687			2075	0.331	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	50	10	10	70	71%	14%	1868	0.037	0.037
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	0.039
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

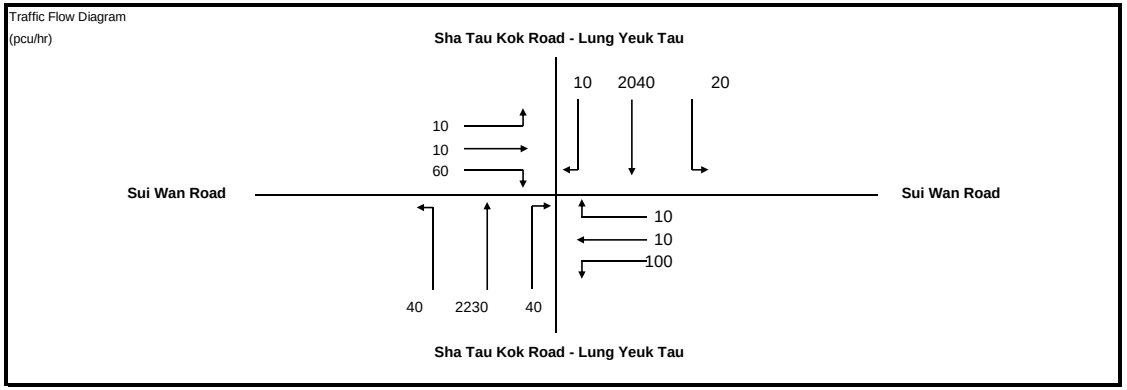
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

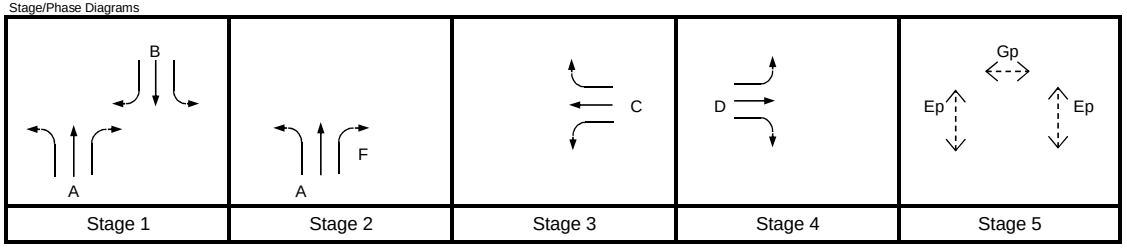
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.582	
Lost time	L =	67	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	252	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	160	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.398	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-31.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	189	sec
Y_{max}	$= 1-L/C$	=	0.507	

Stage/Phase Diagrams



Critical Case : B,F,C,D,Ep

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

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1,2	3.000	1	17.5			1		0		1915	40	1040		1080	4%		1909	0.566	
	A	1,2	3.500	1				0		0		2105		1190		1190			2105	0.566	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	60	80	13%	75%	1914	0.042	
	B	1	3.000	1	15			1		0		1915	20	968		988	2%		1911	0.517	
	B	1	3.200	1				0		0		2075		1072		1072			2075	0.517	0.517
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	100	10	10	120	83%	8%	1853	0.065	0.065
	F	2	3.500	1		17.5	0	1		0		1965			40	40		100%	1810	0.022	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

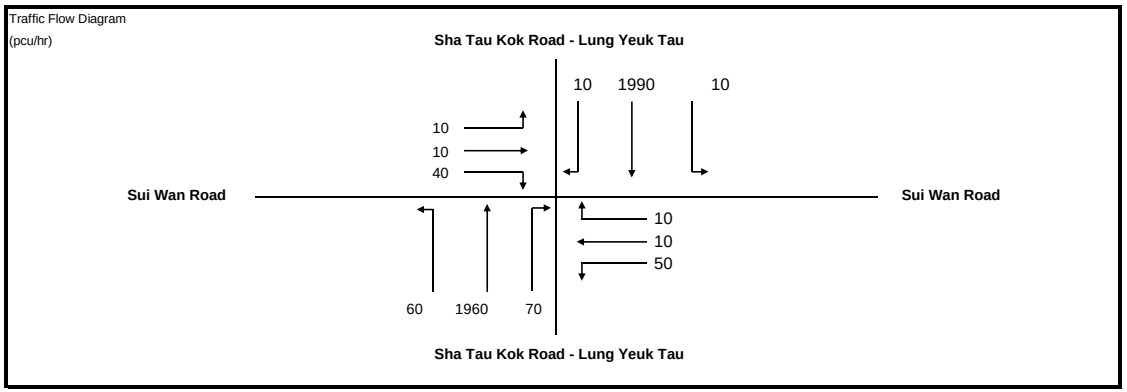
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Oct 15

J13

Traffic Flow Diagram

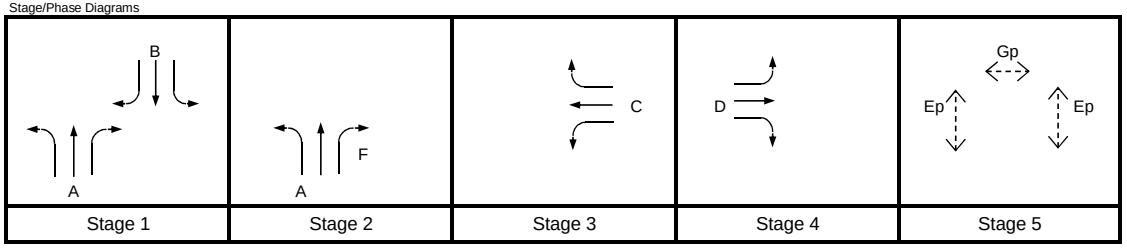
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.502	
Lost time	L =	73	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	230	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	146	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.353	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-29.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	165	sec
Y_{max}	$= 1-L/C$	=	0.463	

Stage/Phase Diagrams



I/G = 6 G = 5 I/G = 5 G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

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	1,2	3.000	1	17.5			1		0		1915	60	900		960	6%		1905	0.504	
	A	1,2	3.500	1				0		0		2105		1060		1060			2105	0.504	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	40	60	17%	67%	1913	0.031	
	B	1	3.000	1	15			1		0		1915	10	949		959	1%		1913	0.502	0.502
	B	1	3.200	1				0		0		2075		1041		1041			2075	0.502	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	50	10	10	70	71%	14%	1868	0.037	
	F	2	3.500	1		17.5	0	1		0		1965			70	70		100%	1810	0.039	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

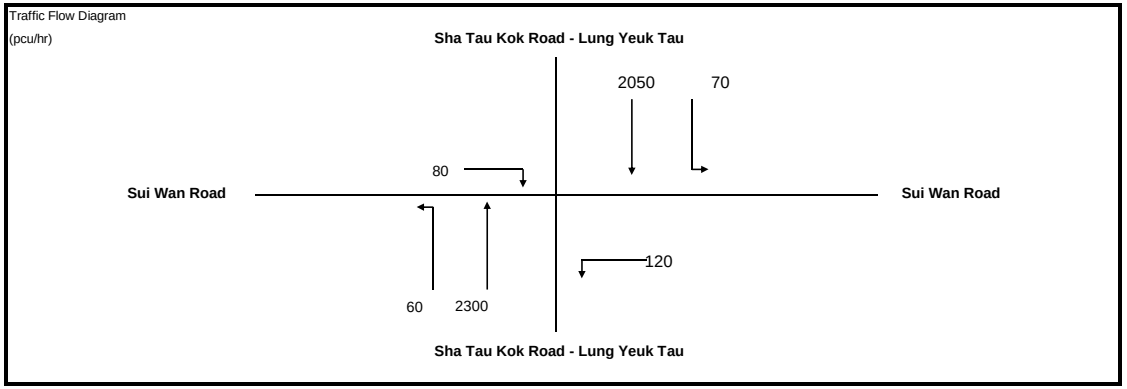
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2026 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

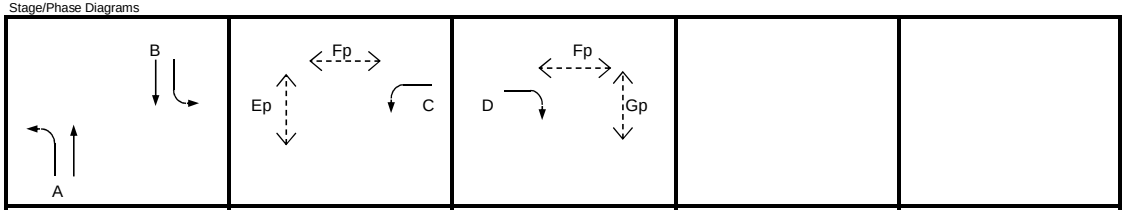
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	3
Cycle time		C =	136 sec
Sum(y)		Y =	0.569
Lost time		L =	35 sec
Total Flow		=	12,290 pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	133 sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	81 sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.638
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	12.1 %
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	95 sec
Y_{max}	$= 1-L/C$	=	0.743

Stage/Phase Diagrams



Critical Case : A,Fp

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	4.000	1	17.5			1		0		2015	60	1080		1140	5%		2006	0.569	0.569
	A	1	3.900	1				0		0		2145		1220		1220			2145	0.569	
	D	3	4.000	1		30	0	1		0		2015			80	80		100%	1919	0.042	
	B	1	3.650	1	15			1		0		1980	70	950		1020	7%		1967	0.519	
	B	1	3.650	1				0		0		2120		1100		1100			2120	0.519	
	C	2	4.000	1	15			1		0		2015	120			120	100%		1832	0.066	
Pedestrian Crossing				GM		FGM															
	Ep	2	min.	5	+	6	=	11	sec												
	Gp	3	min.	5	+	9	=	14	sec												
	Fp	2	min.	9	+	18	=	27	sec												*

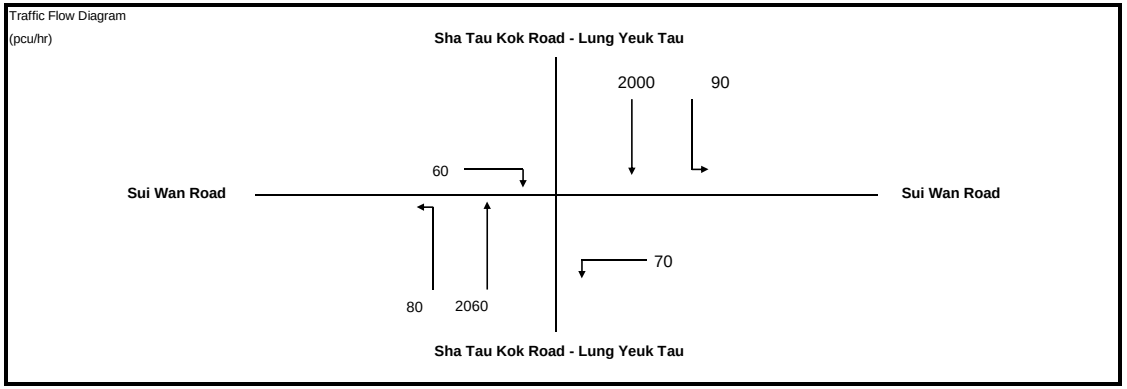
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2026 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

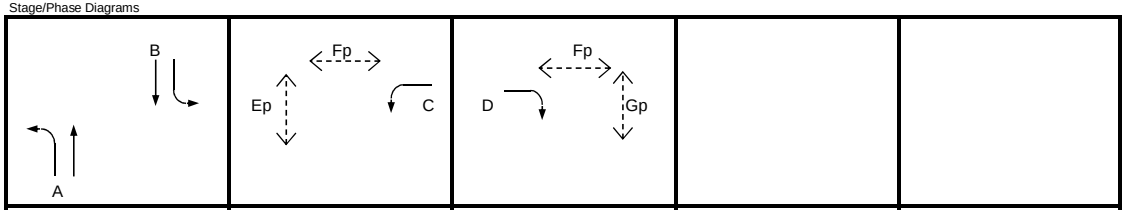
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	136	sec
Sum(y)	Y =	0.516	
Lost time	L =	35	sec
Total Flow	=	12,290	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	72	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.638	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	23.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	82	sec
Y_{max}	$= 1-L/C$	=	0.743	

Stage/Phase Diagrams



Critical Case : A,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\%$ = 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	4.000	1	17.5			1		0		2015	80	953		1033	8%		2002	0.516	0.516
	A	1	3.900	1				0		0		2145		1107		1107			2145	0.516	
	D	3	4.000	1		30	0	1		0		2015			60	60		100%	1919	0.031	
	B	1	3.650	1	15			1		0		1980	90	915		1005	9%		1962	0.512	
	B	1	3.650	1				0		0		2120		1085		1085			2120	0.512	
	C	2	4.000	1	15			1		0		2015	70			70	100%		1832	0.038	
Pedestrian Crossing				GM		FGM															
	Ep	2	min.	5	+	6	=	11	sec												
	Gp	3	min.	5	+	9	=	14	sec												
	Fp	2	min.	9	+	18	=	27	sec												*

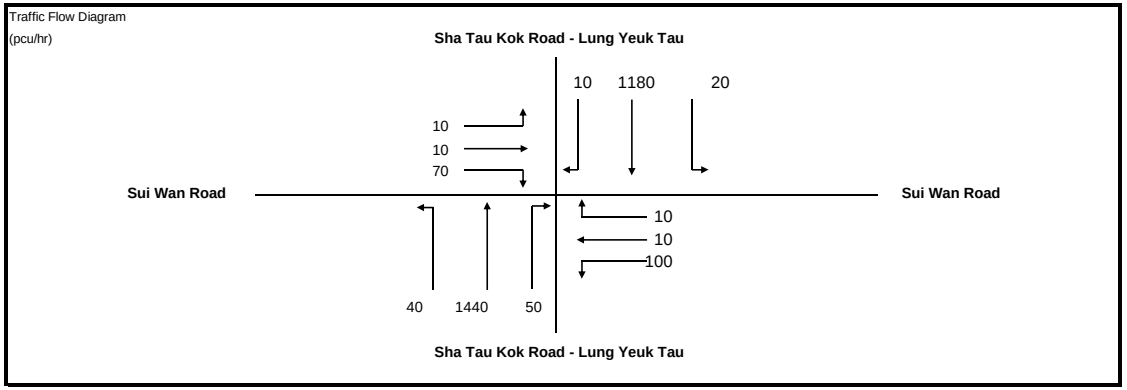
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

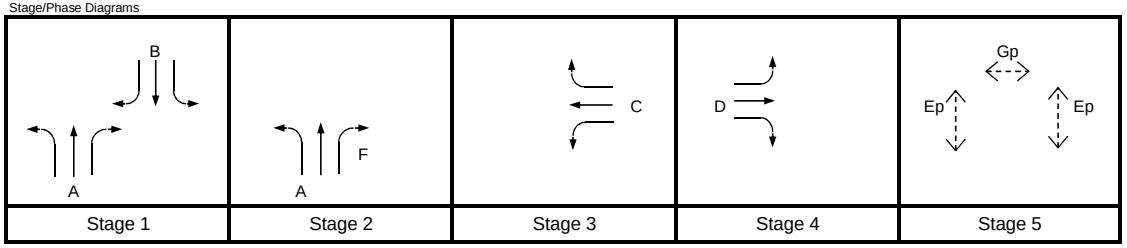
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.481	
Lost time	L =	50	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	154	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	96	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.525	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	9.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	107	sec
Y_{max}	$= 1-L/C$	=	0.632	

Stage/Phase Diagrams



I/G = I/G = 5 I/G = 7 I/G = 11 G = 9 I/G = 21

Critical Case : A,C,D,Gp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	1,2	3.000	1	17.5			1		0		1915	40	663		703	6%		1906	0.369	0.369
	A	1,2	3.500	1				0		0		2105		777		777			2105	0.369	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	70	90	11%	78%	1915	0.047	0.047
	B	1	3.000	1	15			1		0		1915	20	555		575	3%		1908	0.301	
	B	1	3.200	1				0		0		2075		625		625			2075	0.301	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	100	10	10	120	83%	8%	1853	0.065	0.065
	F	2	3.500	1		17.5	0	1		0		1965			50	50		100%	1810	0.028	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												
	Gp	5	min.	9	+	18	=	27	sec												*

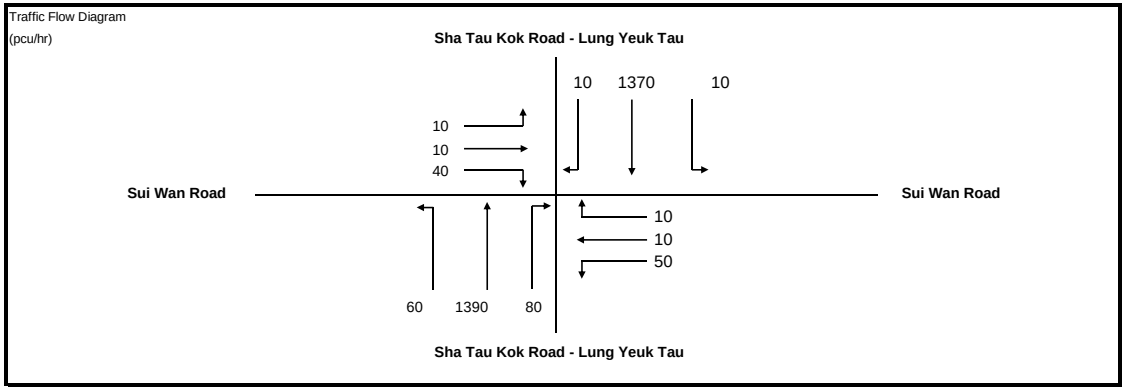
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

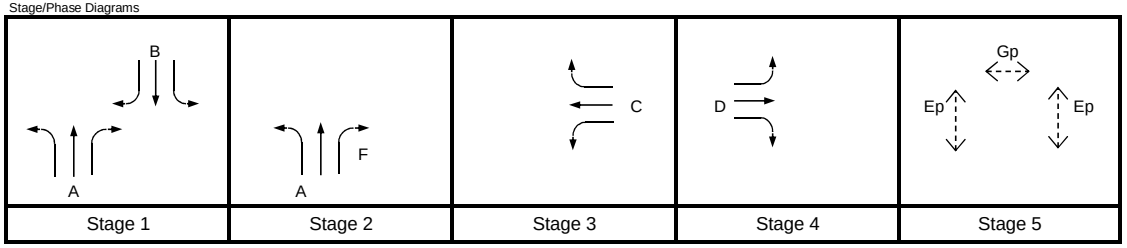
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.428	
Lost time	L =	61	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	169	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	107	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.443	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	3.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	116	sec
Y_{max}	$= 1-L/C$	=	0.551	

Stage/Phase Diagrams



I/G = 6 I/G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

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	1,2	3.000	1	17.5			1		0		1915	60	628		688	9%		1901	0.362	
	A	1,2	3.500	1				0		0		2105		762		762			2105	0.362	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	40	60	17%	67%	1913	0.031	
	B	1	3.000	1	15			1		0		1915	10	652		662	2%		1912	0.346	0.346
	B	1	3.200	1				0		0		2075		718		718			2075	0.346	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	50	10	10	70	71%	14%	1868	0.037	0.037
	F	2	3.500	1		17.5	0	1		0		1965			80	80		100%	1810	0.044	0.044
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

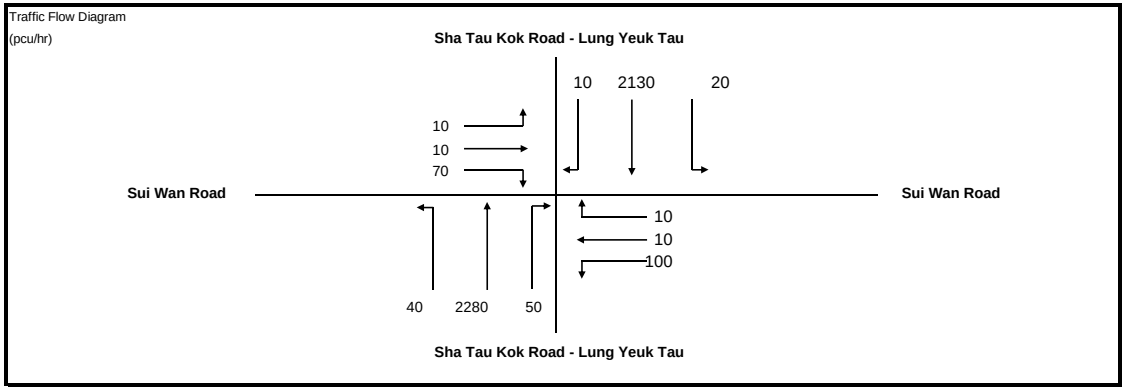
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Oct 15

J13

Traffic Flow Diagram

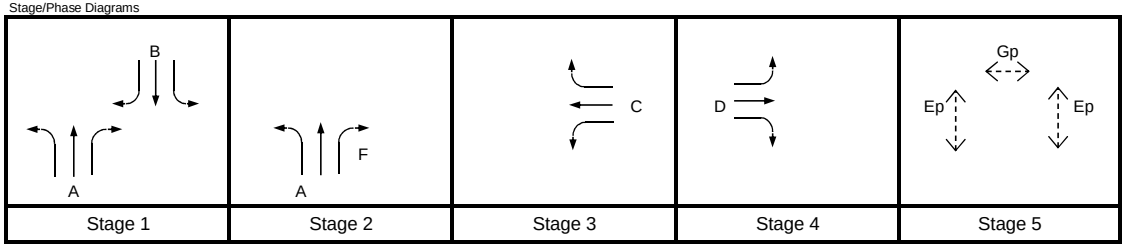
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.604	
Lost time	L =	67	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	266	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	169	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.398	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-34.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	204	sec
Y_{max}	$= 1-L/C$	=	0.507	

Stage/Phase Diagrams



Critical Case : B,F,C,D,Ep

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	1,2	3.000	1	17.5			1		0		1915	40	1063		1103	4%		1909	0.578	
	A	1,2	3.500	1				0		0		2105		1217		1217			2105	0.578	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	70	90	11%	78%	1915	0.047	
	B	1	3.000	1	15			1		0		1915	20	1011		1031	2%		1911	0.539	0.539
	B	1	3.200	1				0		0		2075		1119		1119			2075	0.539	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	100	10	10	120	83%	8%	1853	0.065	0.065
	F	2	3.500	1		17.5	0	1		0		1965			50	50		100%	1810	0.028	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

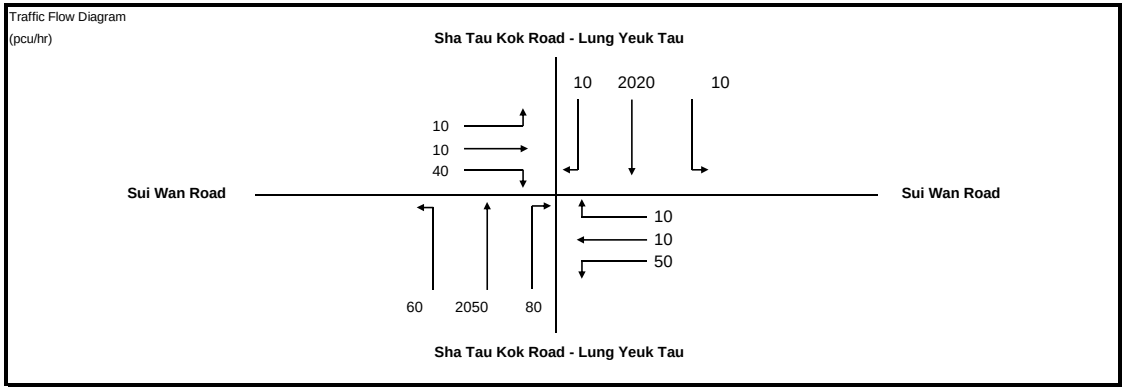
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

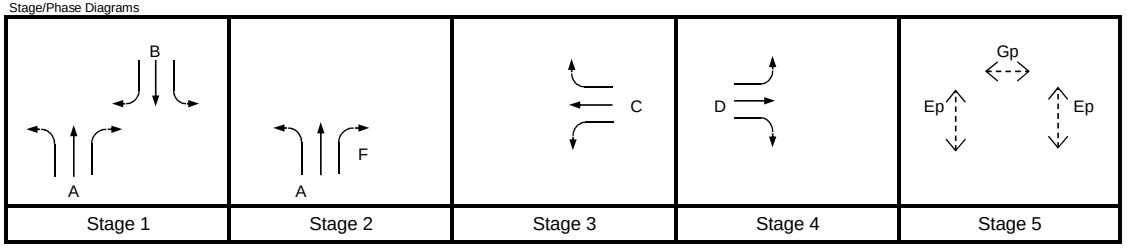
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.553	
Lost time	L =	67	sec
Total Flow	=	18,185	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	236	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	150	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.398	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-28.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	174	sec
Y_{max}	$= 1-L/C$	=	0.507	

Stage/Phase Diagrams



I/G = 6 I/G = 5 G = 5 I/G = 7 G = 5 I/G = 11 G = 9 I/G = 21

Critical Case : B,F,C,D,Ep

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	1,2	3.000	1	17.5			1		0		1915	60	942		1002	6%		1905	0.526	
	A	1,2	3.500	1				0		0		2105		1108		1108			2105	0.526	
	A	1,2	3.500	1		17.5	0	0		0		2105			0	0		100%	1939	0.000	
	D	4	4.000	1	12.5	30	0	1		0		2015	10	10	40	60	17%	67%	1913	0.031	
	B	1	3.000	1	15			1		0		1915	10	964		974	1%		1913	0.509	0.509
	B	1	3.200	1				0		0		2075		1056		1056			2075	0.509	
	B	1	3.200	1		20	0	0		0		2075			10	10		100%	1930	0.005	
	C	3	4.000	1	15	30	0	1		0		2015	50	10	10	70	71%	14%	1868	0.037	
	F	2	3.500	1		17.5	0	1		0		1965			80	80		100%	1810	0.044	0.044
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	18	=	27	sec												*
	Gp	5	min.	9	+	18	=	27	sec												

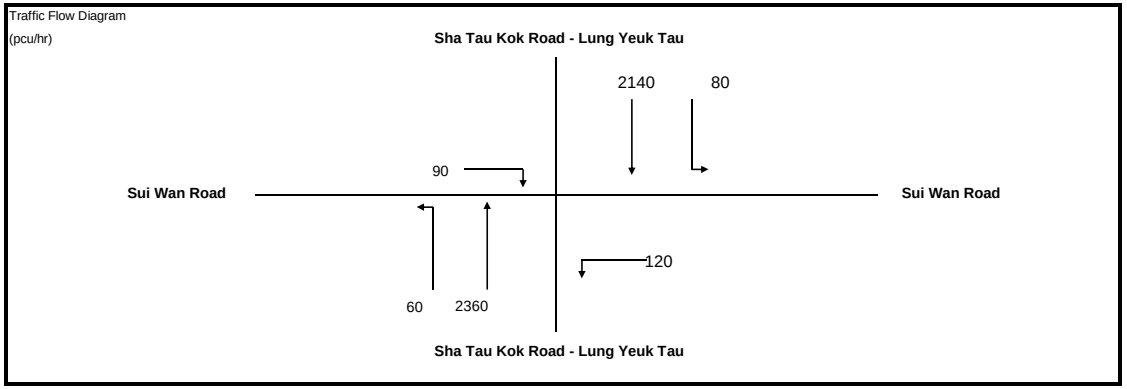
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2031 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

Traffic Flow Diagram

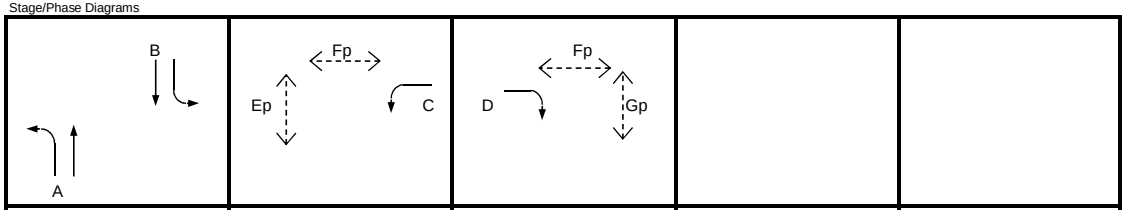
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	136	sec
Sum(y)	Y =	0.583	
Lost time	L =	35	sec
Total Flow	=	12,290	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	138	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	84	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.638	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	9.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	99	sec
Y_{max}	$= 1-L/C$	=	0.743	

Stage/Phase Diagrams



Critical Case : A,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\%$ = 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*
	A	1	4.000	1	17.5			1		0		2015	60	1110		1170	5%		2006	0.583	0.583
	A	1	3.900	1				0		0		2145		1250		1250			2145	0.583	
	D	3	4.000	1		30	0	1		0		2015			90	90		100%	1919	0.047	
	B	1	3.650	1	15			1		0		1980	80	988		1068	7%		1965	0.543	
	B	1	3.650	1				0		0		2120		1152		1152			2120	0.543	
	C	2	4.000	1	15			1		0		2015	120			120	100%		1832	0.066	
Pedestrian Crossing				GM		FGM															
	Ep	2	min.	5	+	6	=	11	sec												
	Gp	3	min.	5	+	9	=	14	sec												
	Fp	2	min.	9	+	18	=	27	sec												*

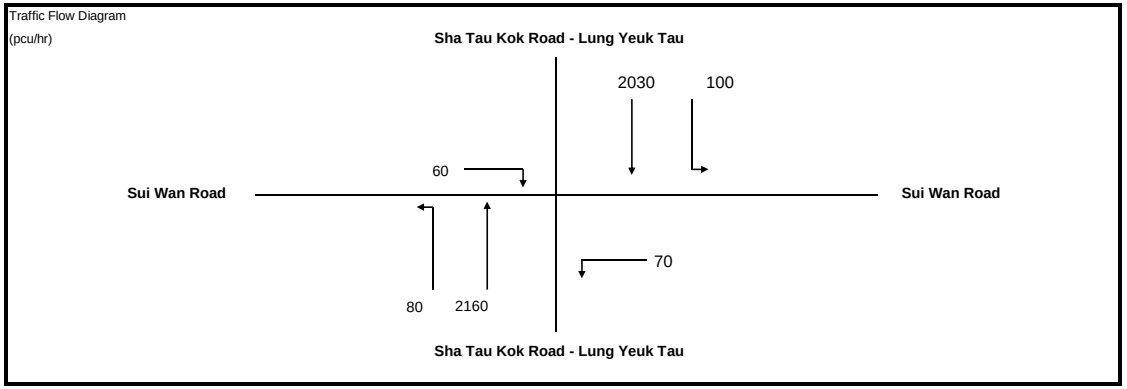
JUNCTION CAPACITY CALCULATION

Junction J13 - Sha Tau Kok Road / Sui Wan Road	2031 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J13

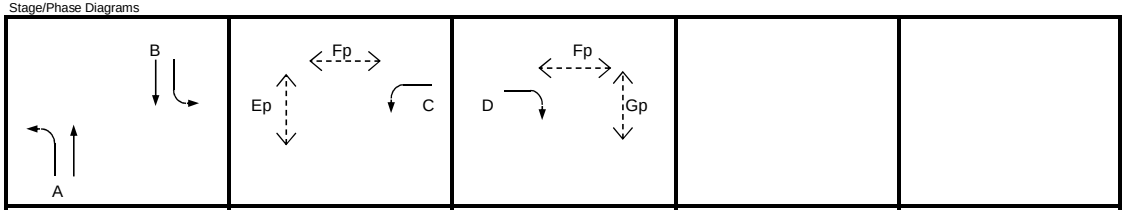
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	136	sec
Sum(y)		Y =	0.540	
Lost time		L =	35	sec
Total Flow		=	12,290	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	125	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	76	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.638	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	18.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	88	sec
Y_{max}	$= 1-L/C$	=	0.743	

Stage/Phase Diagrams



I/G = 7 G = 9 I/G = I/G = 20

Critical Case : A,Fp

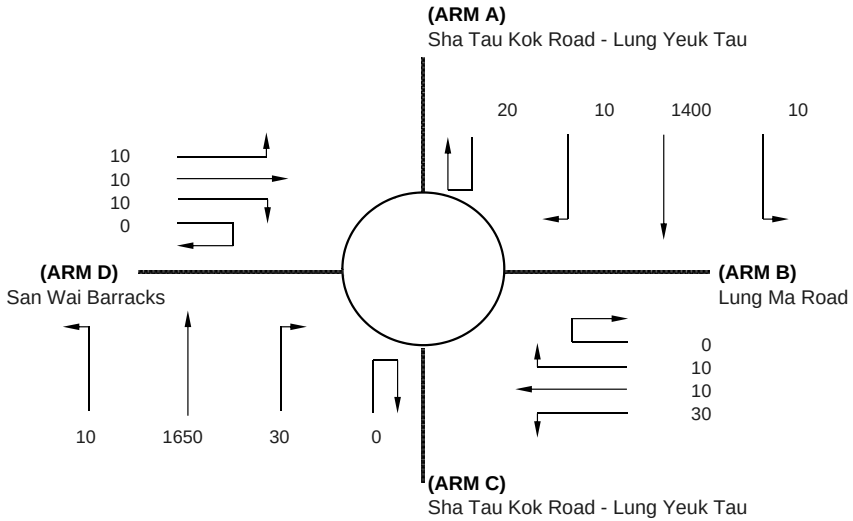
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 24%

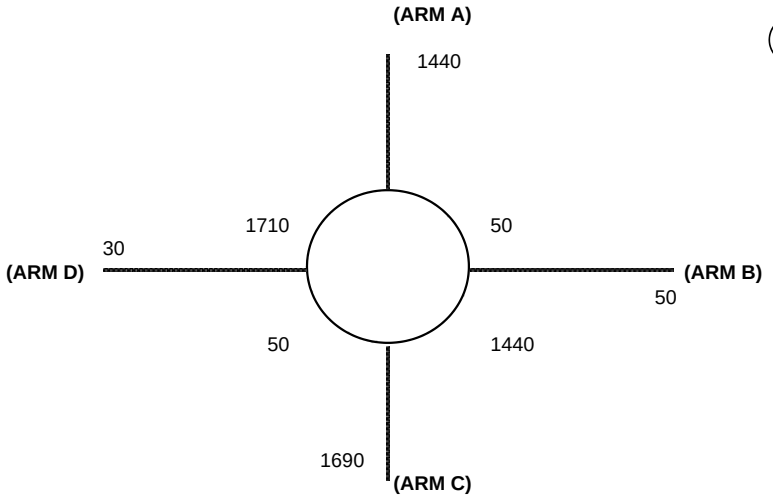
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	4.000	1	17.5			1		0		2015	80	1001		1081	7%		2002	0.540	0.540
	A	1	3.900	1				0		0		2145		1159		1159			2145	0.540	
	D	3	4.000	1		30	0	1		0		2015			60	60		100%	1919	0.031	
	B	1	3.650	1	15			1		0		1980	100	923		1023	10%		1961	0.522	
	B	1	3.650	1				0		0		2120		1107		1107			2120	0.522	
	C	2	4.000	1	15			1		0		2015	70			70	100%		1832	0.038	
Pedestrian Crossing				GM		FGM															
	Ep	2	min.	5	+	6	=	11	sec												
	Gp	3	min.	5	+	9	=	14	sec												
	Fp	2	min.	9	+	18	=	27	sec												*

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2015 AM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1440	50	1690	30
Qc= Circulating flow across entry (pcu/h)	50	1440	50	1710
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2313	721	2188	653
DFC = Design flow/Capacity = Q/Qe	0.62	0.07	0.77	0.05

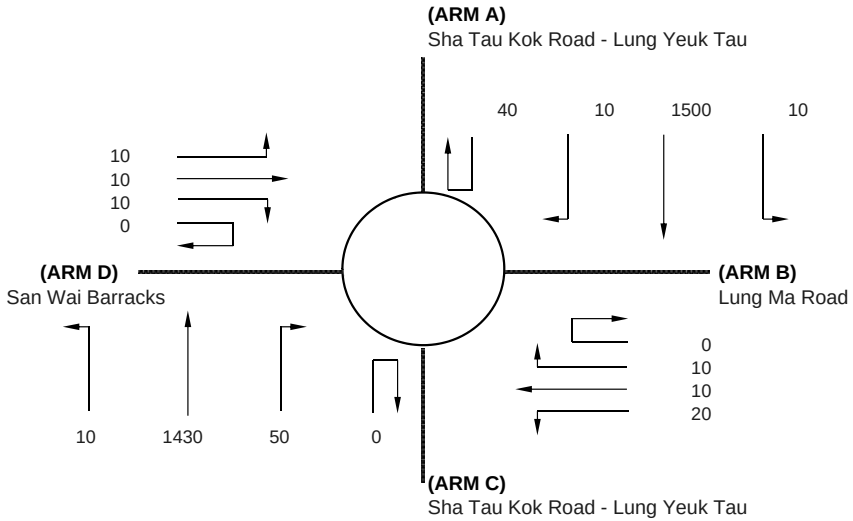
TOTAL ENTRY FLOWS = 3210 PCU

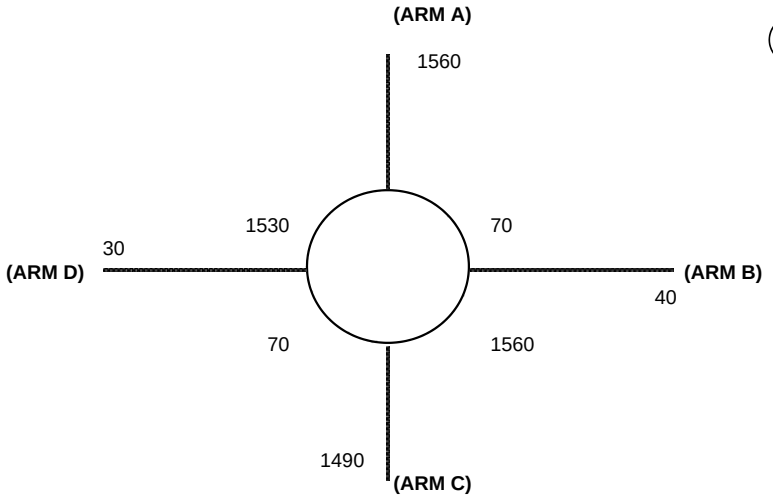
CRITICAL DFC = 0.77

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2015 PM Observed Flows	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1560	40	1490	30
Qc= Circulating flow across entry (pcu/h)	70	1560	70	1530
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2299	647	2173	763
DFC = Design flow/Capacity = Q/Qe	0.68	0.06	0.69	0.04

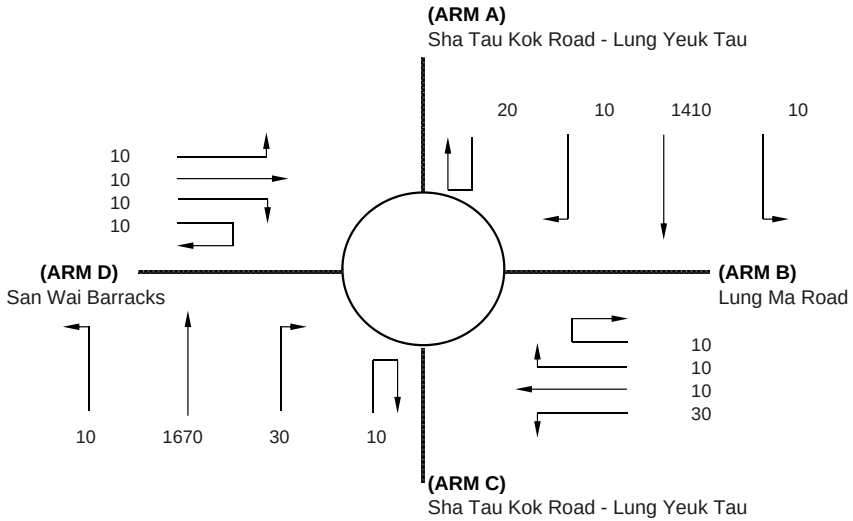
TOTAL ENTRY FLOWS = 3120 PCU

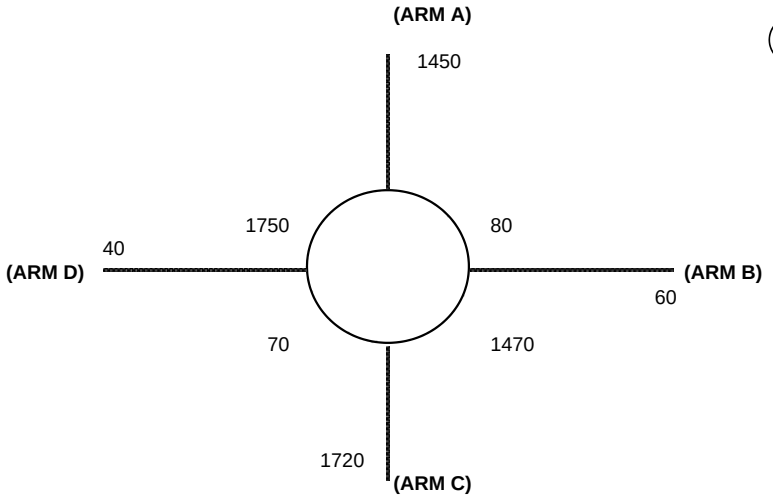
CRITICAL DFC = 0.69

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2017 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1450	60	1720	40
Qc= Circulating flow across entry (pcu/h)	80	1470	70	1750
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2292	703	2173	628
DFC = Design flow/Capacity = Q/Qe	0.63	0.09	0.79	0.06

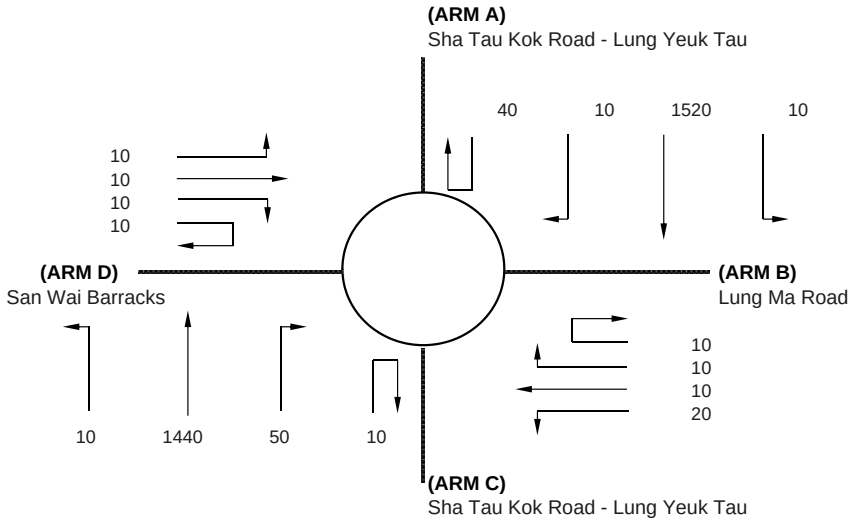
TOTAL ENTRY FLOWS = 3270 PCU

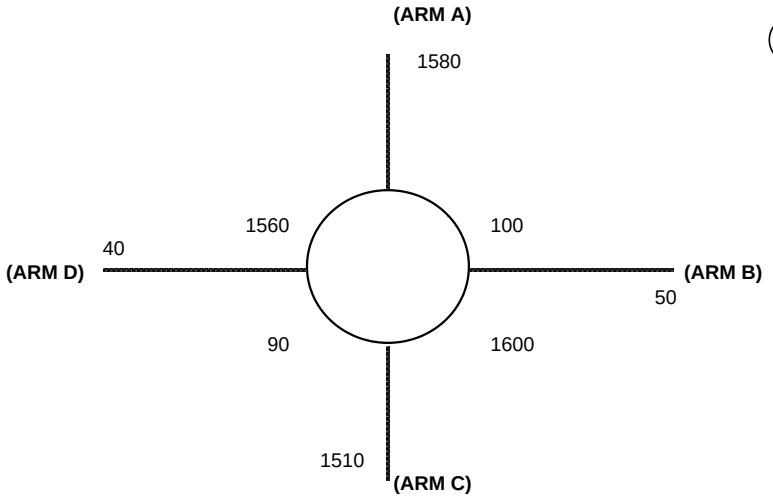
CRITICAL DFC = 0.79

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2017 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1580	50	1510	40
Qc= Circulating flow across entry (pcu/h)	100	1600	90	1560
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2277	623	2159	745
DFC = Design flow/Capacity = Q/Qe	0.69	0.08	0.70	0.05

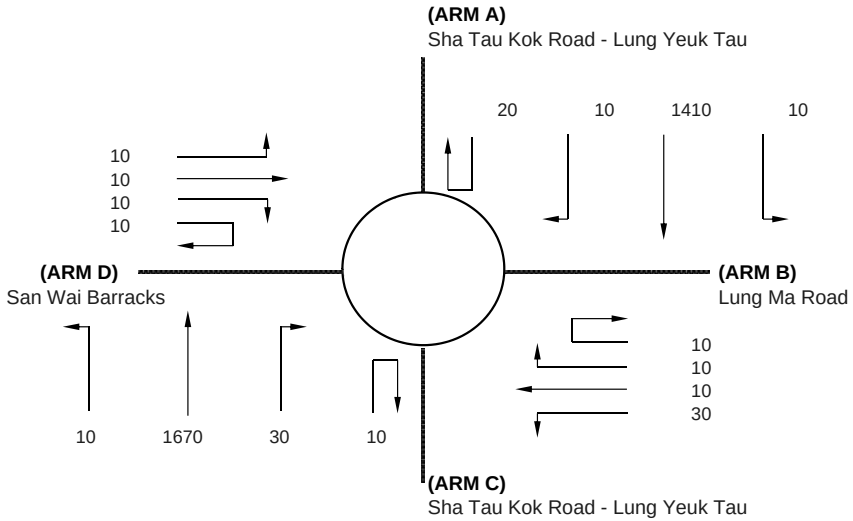
TOTAL ENTRY FLOWS = 3180 PCU

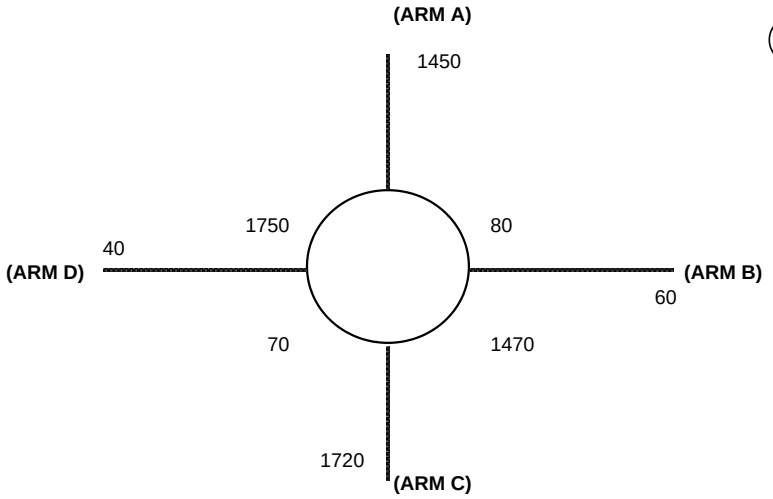
CRITICAL DFC = 0.70

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2017 AM CTIA Stage 1	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.30	4.50
E = Entry width (m)	7.50	5.10	6.50	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1450	60	1720	40
Qc= Circulating flow across entry (pcu/h)	80	1470	70	1750
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.47	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	1961	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.64	0.57
Qe= K(F-Fc*Qc)	2292	703	2016	628
DFC = Design flow/Capacity = Q/Qe	0.63	0.09	0.85	0.06

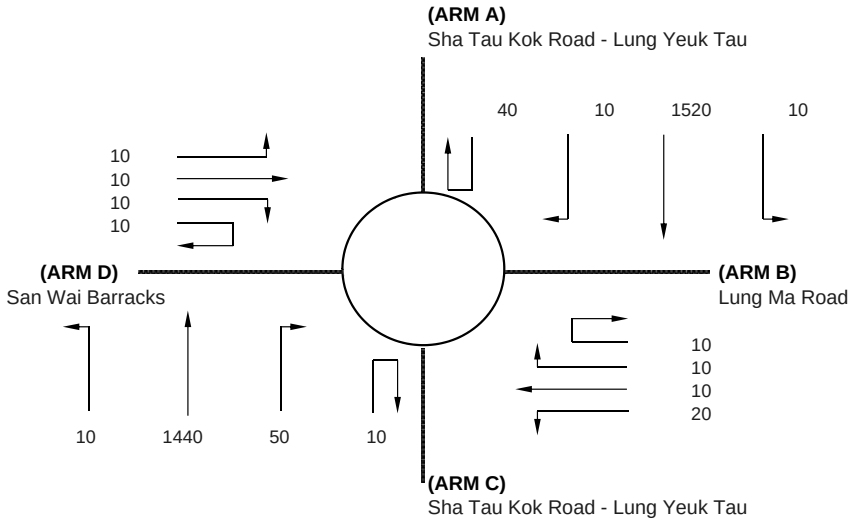
TOTAL ENTRY FLOWS = 3270 PCU

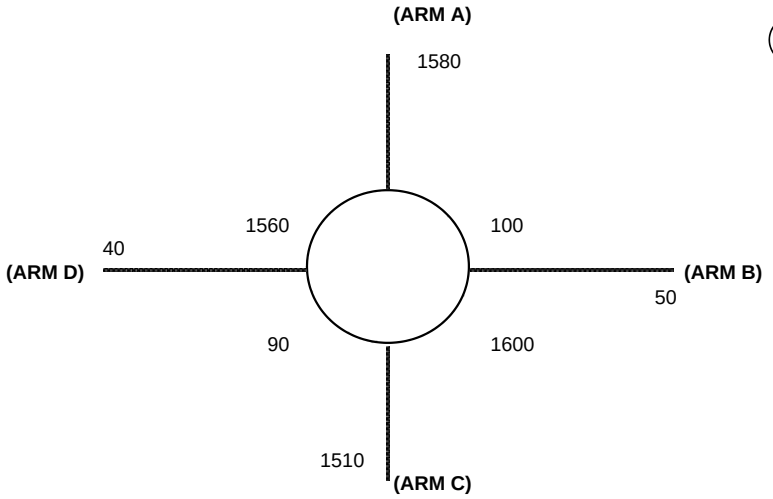
CRITICAL DFC = 0.85

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2017 PM CTIA Stage 1	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.30	4.50
E = Entry width (m)	7.50	5.10	6.50	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1580	50	1510	40
Qc= Circulating flow across entry (pcu/h)	100	1600	90	1560
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.47	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	1961	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.64	0.57
Qe= K(F-Fc*Qc)	2277	623	2003	745
DFC = Design flow/Capacity = Q/Qe	0.69	0.08	0.75	0.05

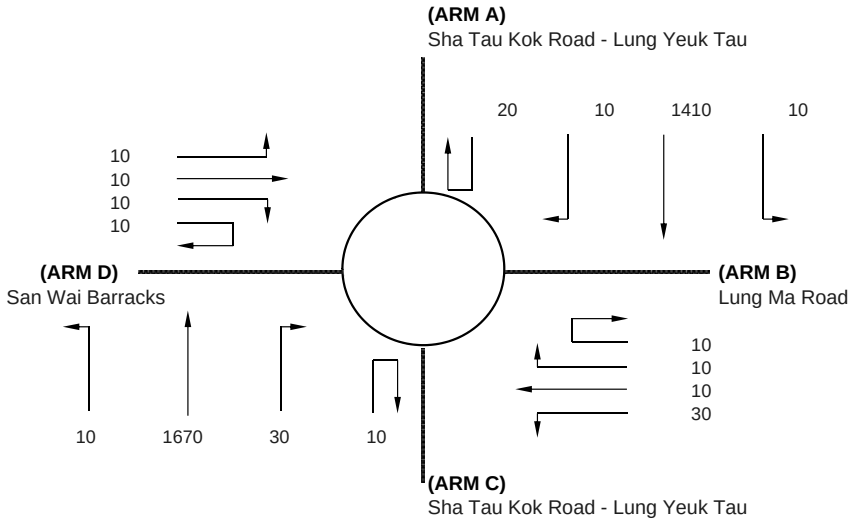
TOTAL ENTRY FLOWS = 3180 PCU

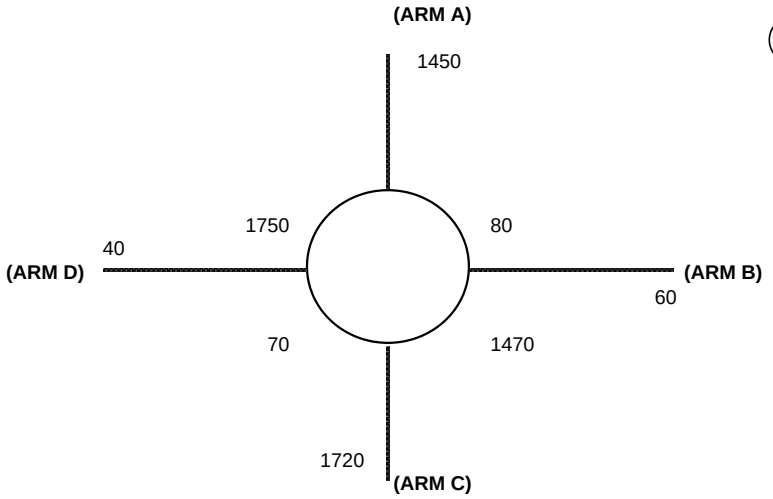
CRITICAL DFC = 0.75

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2017 AM CTIA Stage 2	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	4.00	6.80	4.50
E = Entry width (m)	7.50	5.00	7.00	5.50
L = Effective length of flare (m)	6.00	9.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1450	60	1720	40
Qc= Circulating flow across entry (pcu/h)	80	1470	70	1750
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.74	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1436	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.55	0.67	0.57
Qe= K(F-Fc*Qc)	2292	719	2173	628
DFC = Design flow/Capacity = Q/Qe	0.63	0.08	0.79	0.06

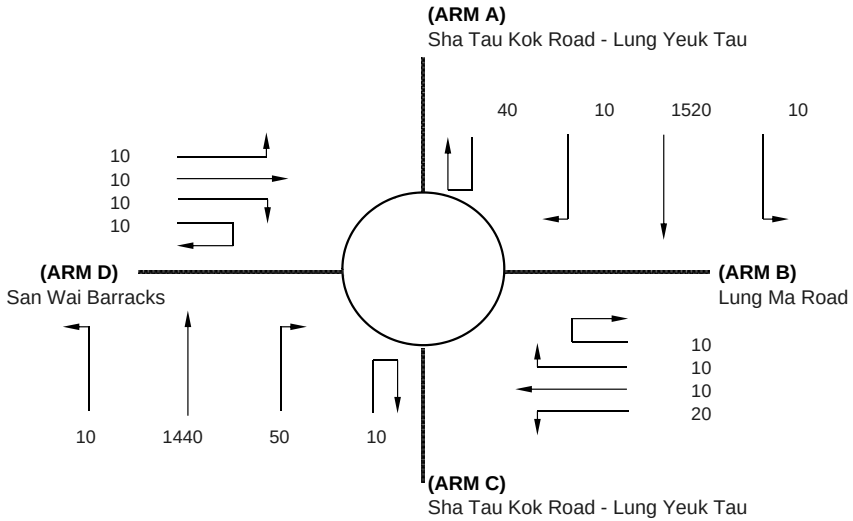
TOTAL ENTRY FLOWS = 3270 PCU

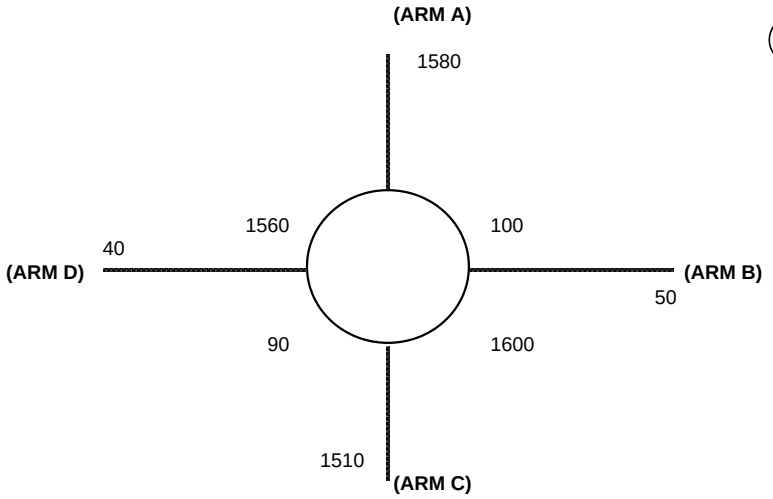
CRITICAL DFC = 0.79

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2017 PM CTIA Stage 2	Designed By : MCYC	Checked By : MCST	Job No. : 60340456 1.5	Date : Jul 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	4.00	6.80	4.50
E = Entry width (m)	7.50	5.00	7.00	5.50
L = Effective length of flare (m)	6.00	9.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1580	50	1510	40
Qc= Circulating flow across entry (pcu/h)	100	1600	90	1560
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.74	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1436	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.55	0.67	0.57
Qe= K(F-Fc*Qc)	2277	639	2159	745
DFC = Design flow/Capacity = Q/Qe	0.69	0.08	0.70	0.05

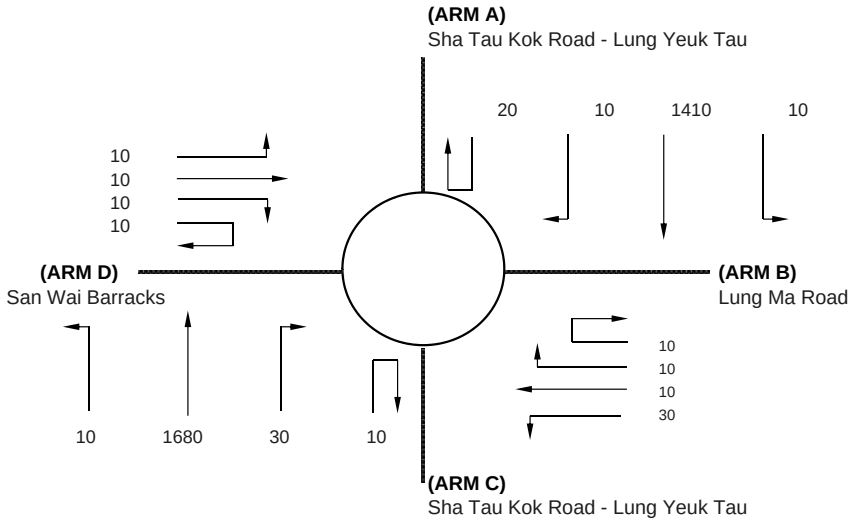
TOTAL ENTRY FLOWS = 3180 PCU

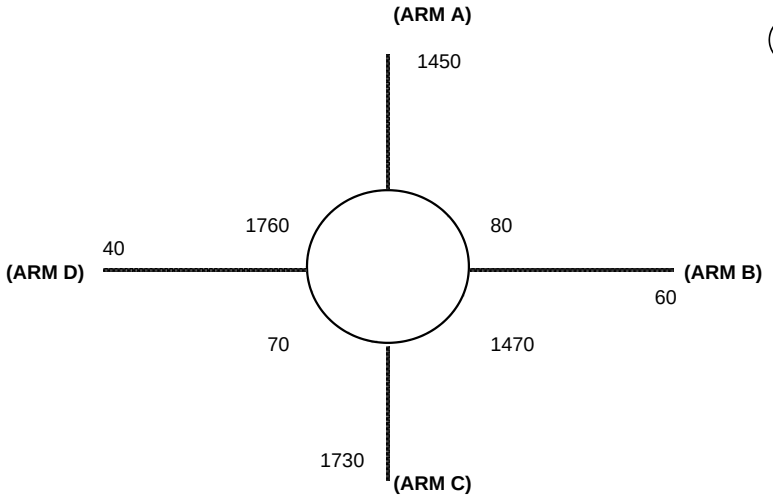
CRITICAL DFC = 0.70

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 AM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1450	60	1730	40
Qc= Circulating flow across entry (pcu/h)	80	1470	70	1760
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2292	703	2173	622
DFC = Design flow/Capacity = Q/Qe	0.63	0.09	0.80	0.06

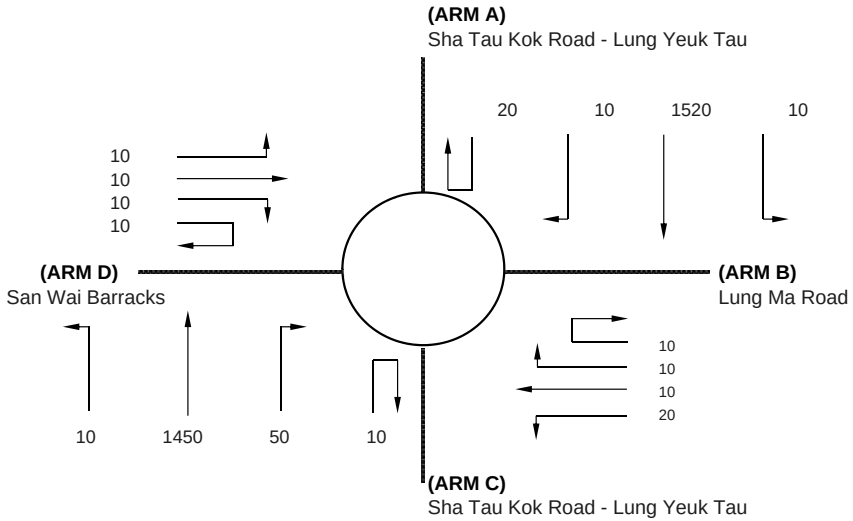
TOTAL ENTRY FLOWS = 3280 PCU

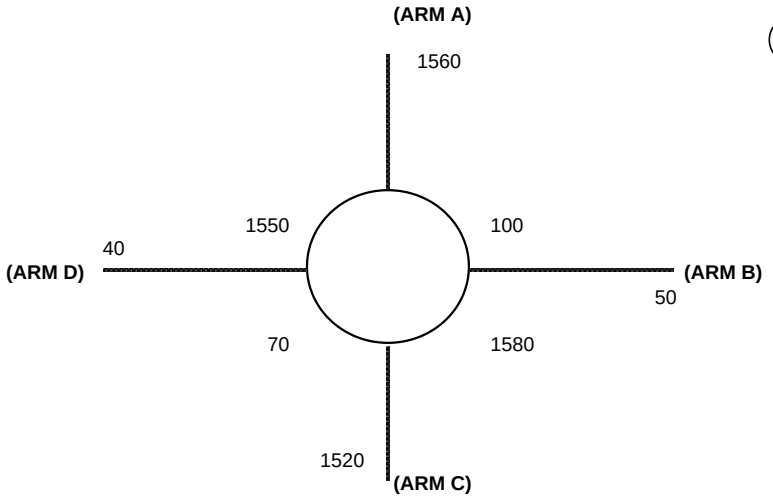
CRITICAL DFC = 0.80

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 PM Reference Case (Without Liantang/ HYW	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1560	50	1520	40
Qc= Circulating flow across entry (pcu/h)	100	1580	70	1550
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2277	635	2173	751
DFC = Design flow/Capacity = Q/Qe	0.69	0.08	0.70	0.05

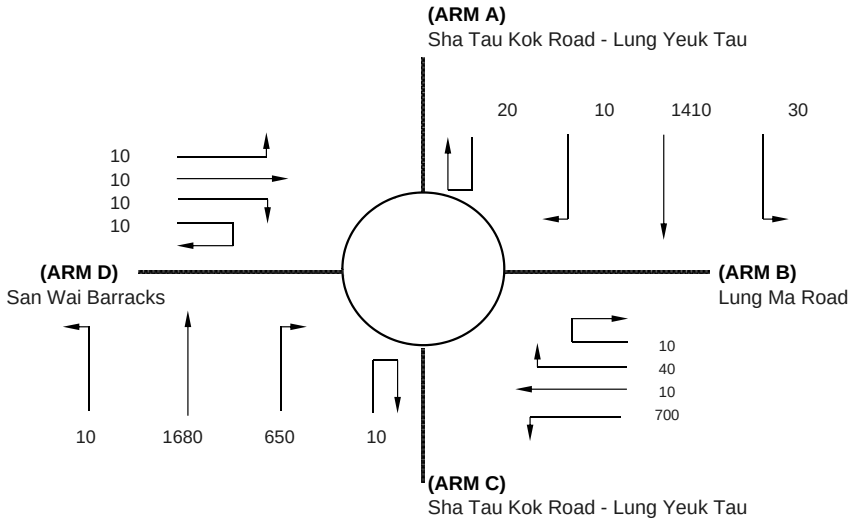
TOTAL ENTRY FLOWS = 3170 PCU

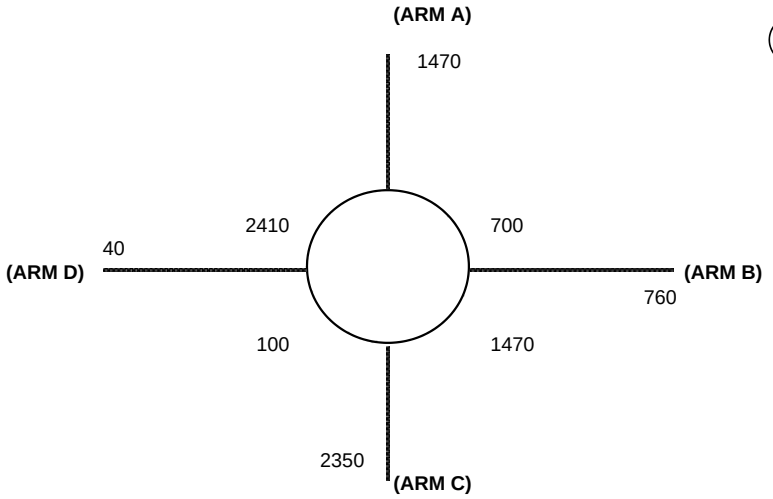
CRITICAL DFC = 0.70

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1470	760	2350	40
Qc= Circulating flow across entry (pcu/h)	700	1470	100	2410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1840	703	2152	222
DFC = Design flow/Capacity = Q/Qe	0.80	1.08	1.09	0.18

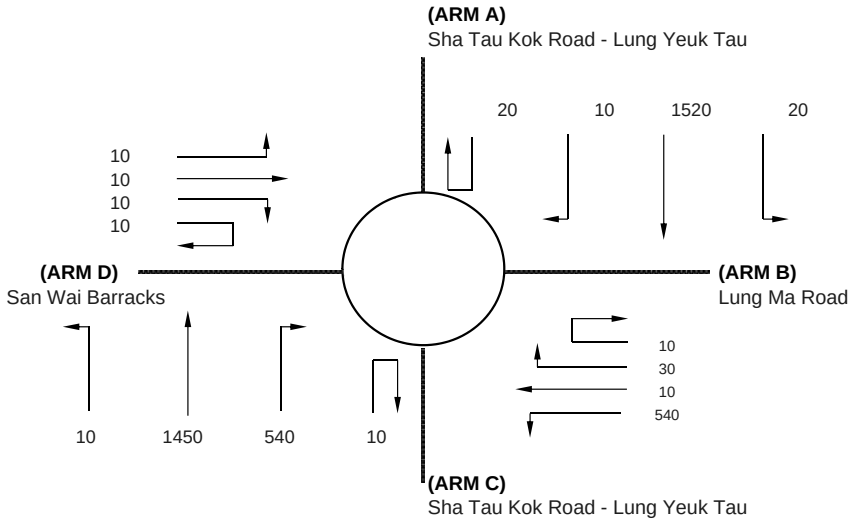
TOTAL ENTRY FLOWS = 4620 PCU

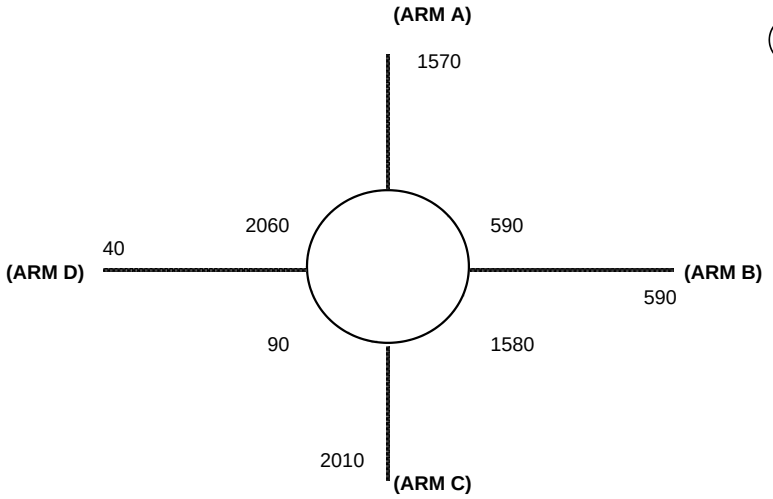
CRITICAL DFC = 1.09

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 PM Design Case (Without Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1570	590	2010	40
Qc= Circulating flow across entry (pcu/h)	590	1580	90	2060
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1920	635	2159	437
DFC = Design flow/Capacity = Q/Qe	0.82	0.93	0.93	0.09

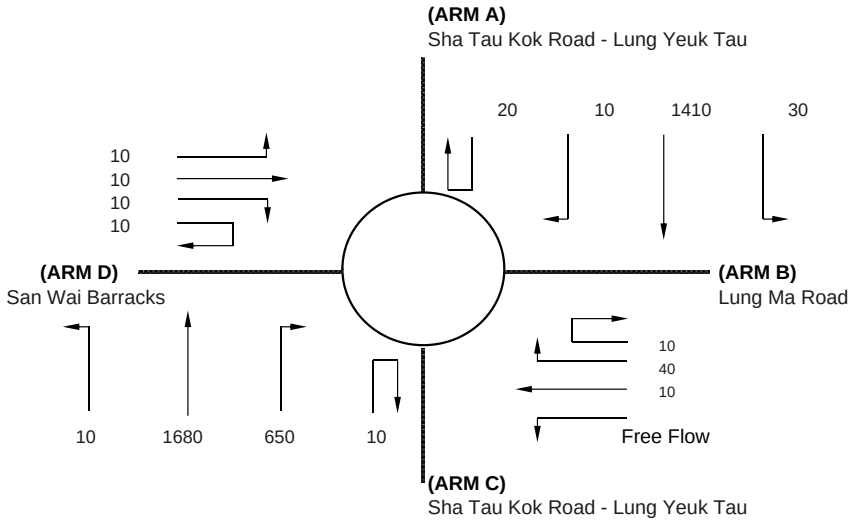
TOTAL ENTRY FLOWS = 4210 PCU

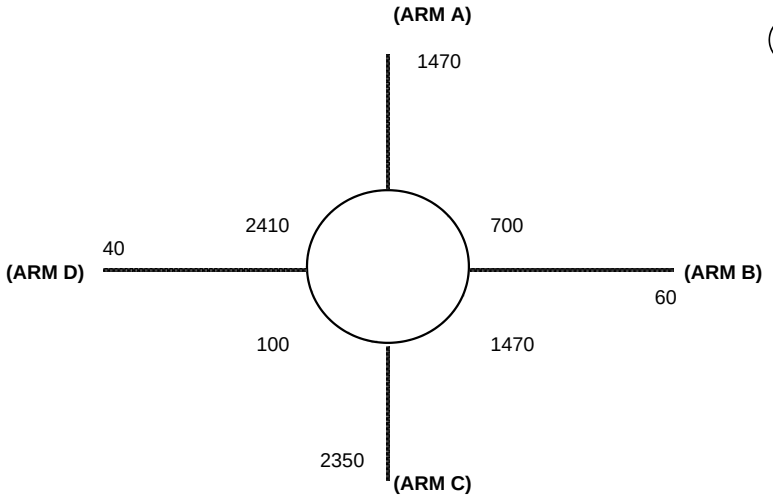
CRITICAL DFC = 0.93

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 AM Design Case (Without Liantang/ HYW B	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	1470	60	2350	40
Qc= Circulating flow across entry (pcu/h)	700	1470	100	2410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1883	522	2893	222
DFC = Design flow/Capacity = Q/Qe	0.78	0.12	0.81	0.18

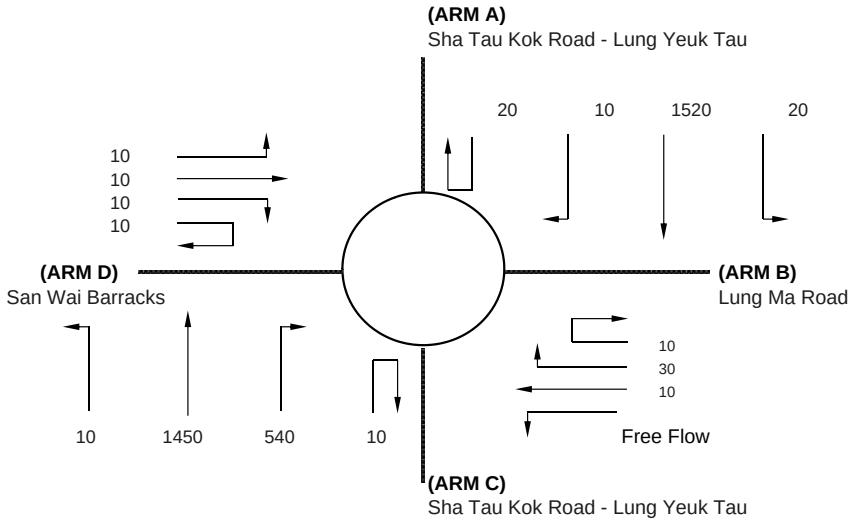
TOTAL ENTRY FLOWS = 3920 PCU

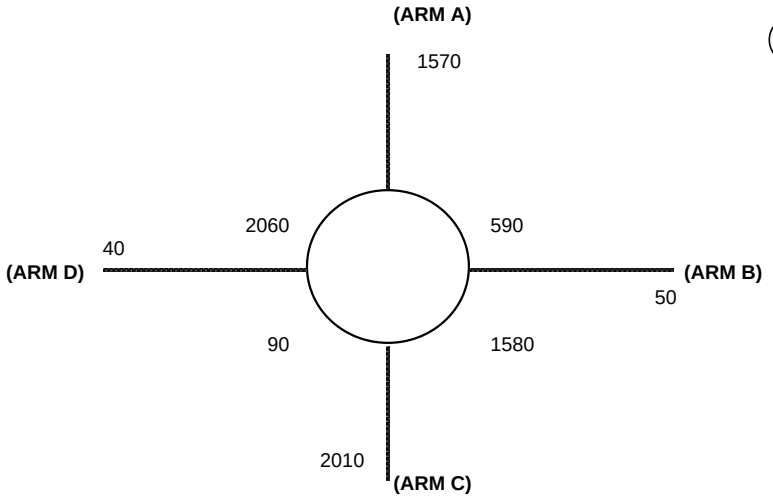
CRITICAL DFC = 0.81

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 PM Design Case (Without Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	1570	50	2010	40
Qc= Circulating flow across entry (pcu/h)	590	1580	90	2060
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1965	459	2902	437
DFC = Design flow/Capacity = Q/Qe	0.80	0.11	0.69	0.09

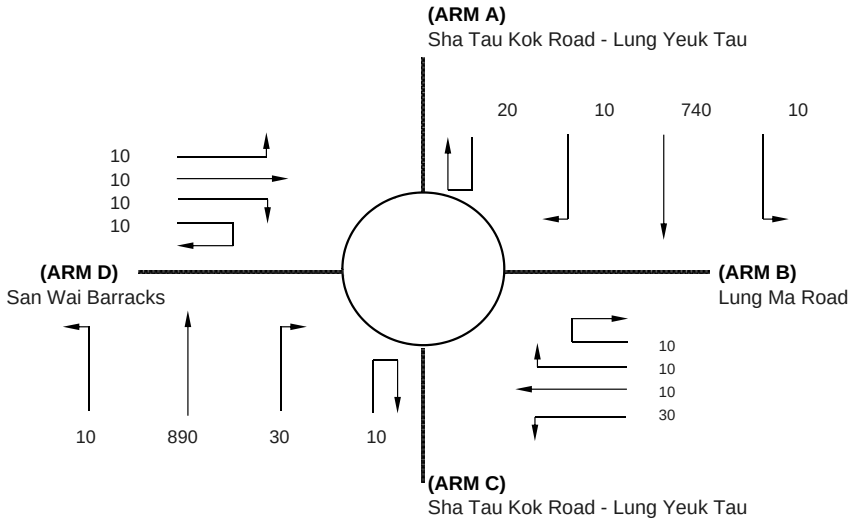
TOTAL ENTRY FLOWS = 3670 PCU

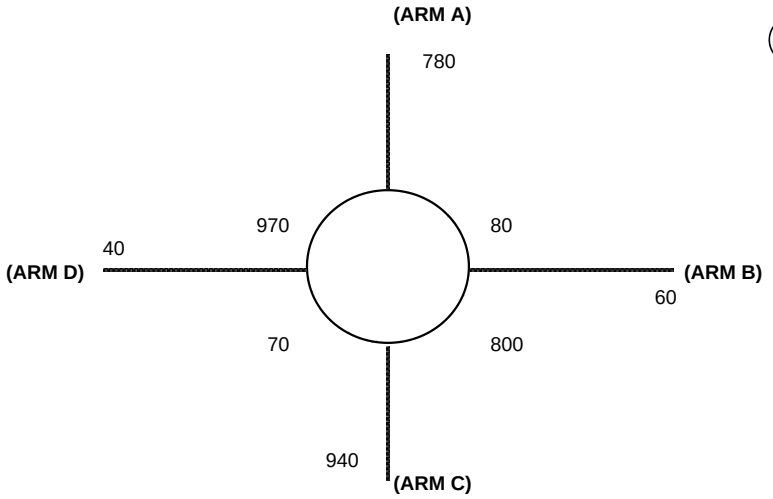
CRITICAL DFC = 0.80

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 AM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	780	60	940	40
Qc= Circulating flow across entry (pcu/h)	80	800	70	970
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2292	1115	2173	1107
DFC = Design flow/Capacity = Q/Qe	0.34	0.05	0.43	0.04

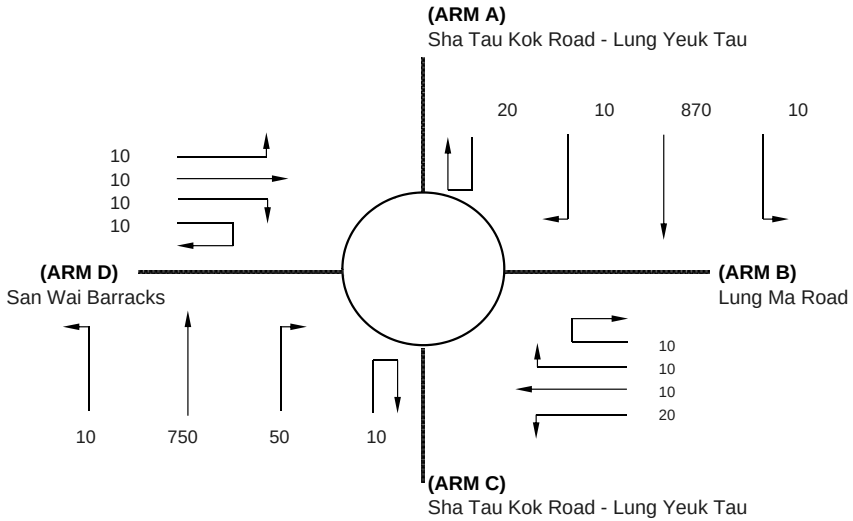
TOTAL ENTRY FLOWS = 1820 PCU

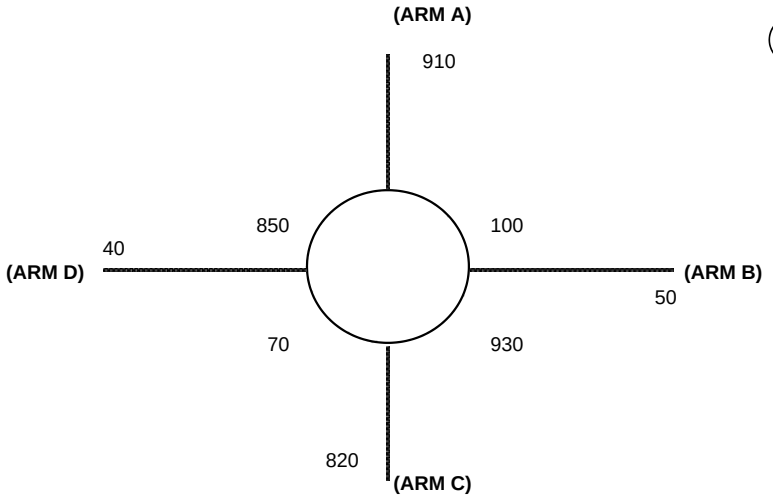
CRITICAL DFC = 0.43

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 PM Reference Case (With Liantang/ HYW B(	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	910	50	820	40
Qc= Circulating flow across entry (pcu/h)	100	930	70	850
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2277	1035	2173	1181
DFC = Design flow/Capacity = Q/Qe	0.40	0.05	0.38	0.03

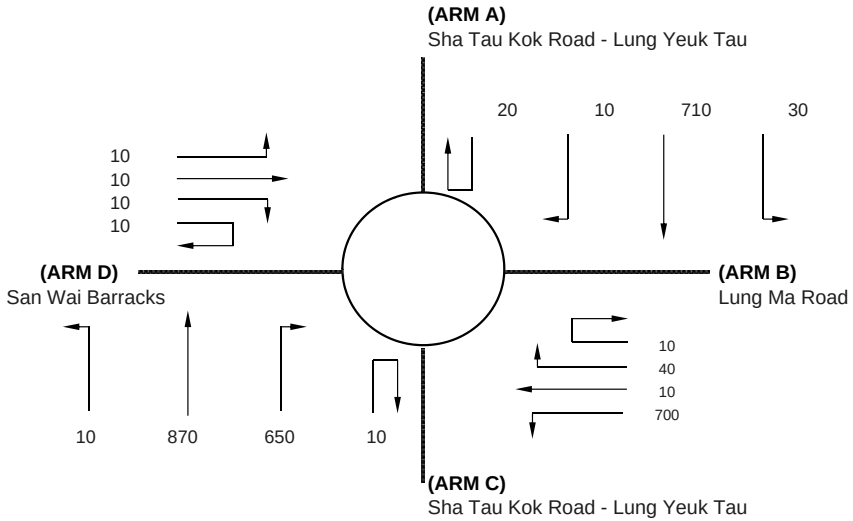
TOTAL ENTRY FLOWS = 1820 PCU

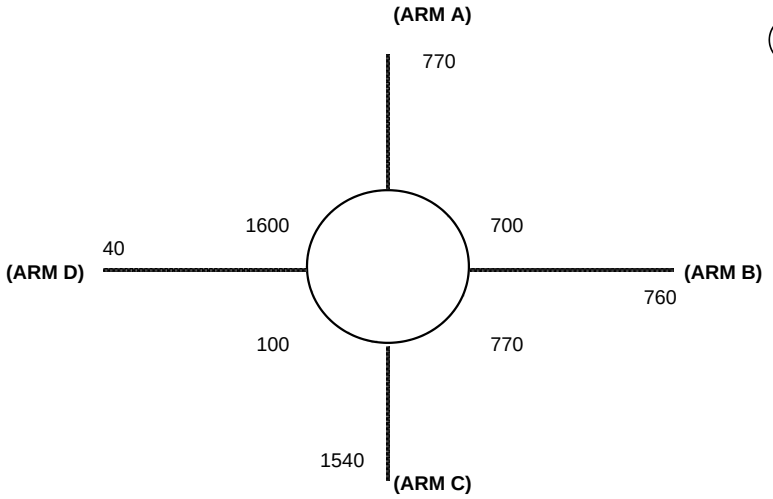
CRITICAL DFC = 0.40

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 AM Design Case (With Liantang/ HYW BCP	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	770	760	1540	40
Qc= Circulating flow across entry (pcu/h)	700	770	100	1600
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1840	1134	2152	720
DFC = Design flow/Capacity = Q/Qe	0.42	0.67	0.72	0.06

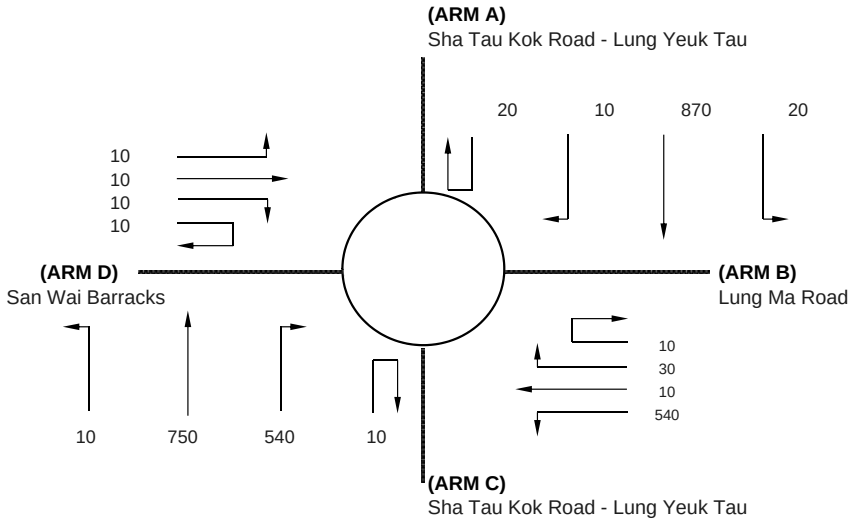
TOTAL ENTRY FLOWS = 3110 PCU

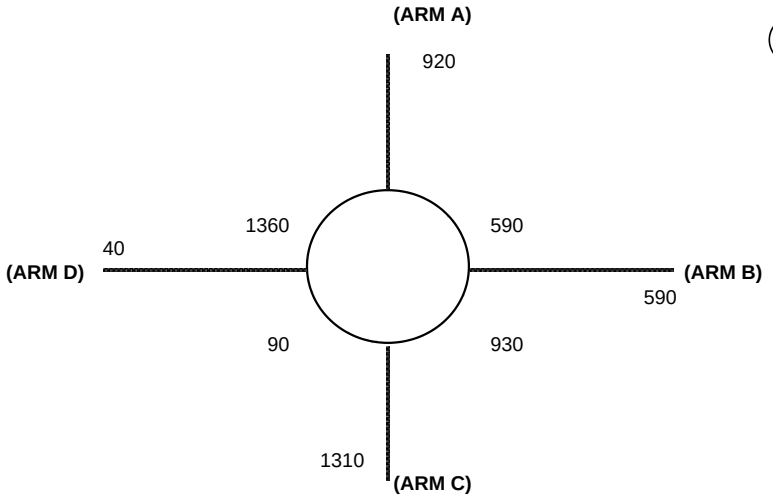
CRITICAL DFC = 0.72

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 PM Design Case (With Liantang/ HYW BCP	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	920	590	1310	40
Qc= Circulating flow across entry (pcu/h)	590	930	90	1360
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1920	1035	2159	868
DFC = Design flow/Capacity = Q/Qe	0.48	0.57	0.61	0.05

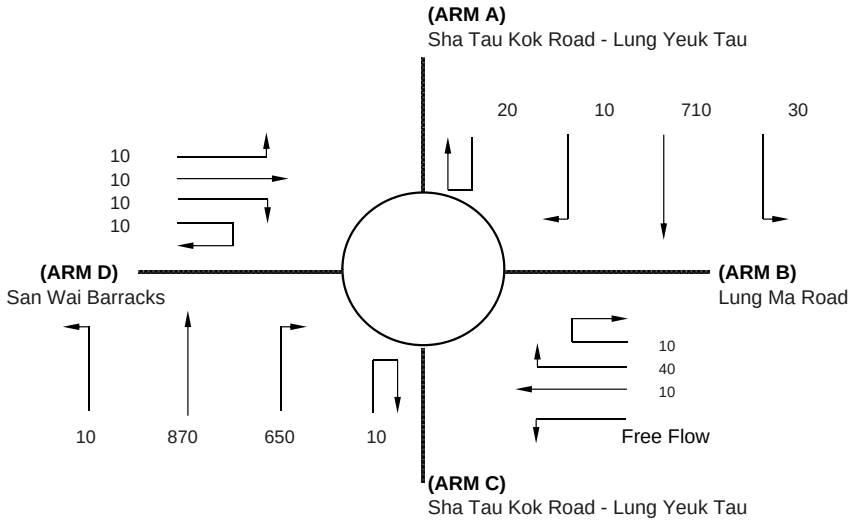
TOTAL ENTRY FLOWS = 2860 PCU

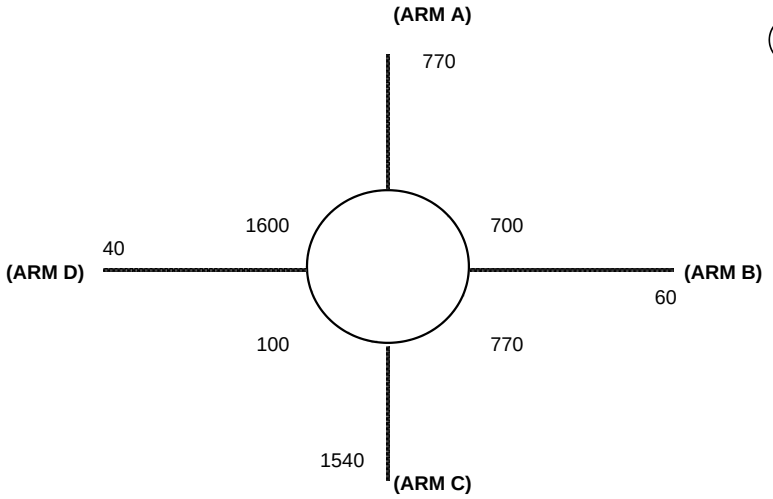
CRITICAL DFC = 0.61

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 AM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	770	60	1540	40
Qc= Circulating flow across entry (pcu/h)	700	770	100	1600
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1883	920	2893	720
DFC = Design flow/Capacity = Q/Qe	0.41	0.07	0.53	0.06

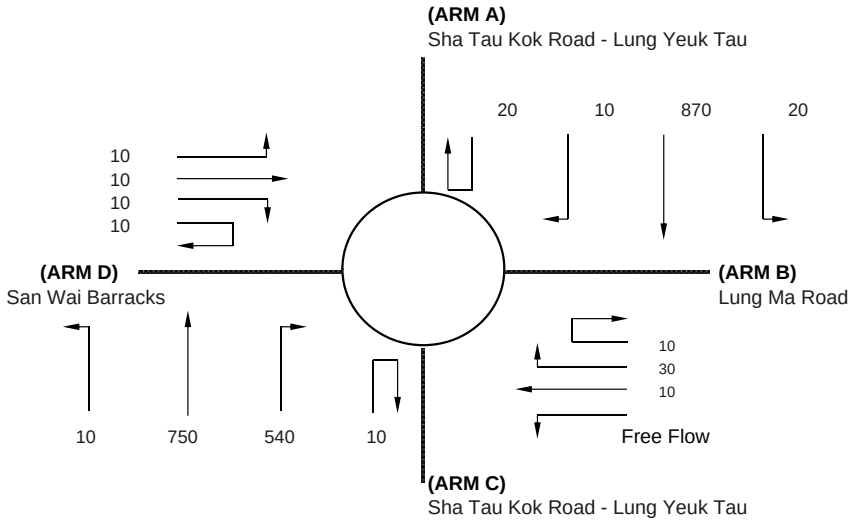
TOTAL ENTRY FLOWS = 2410 PCU

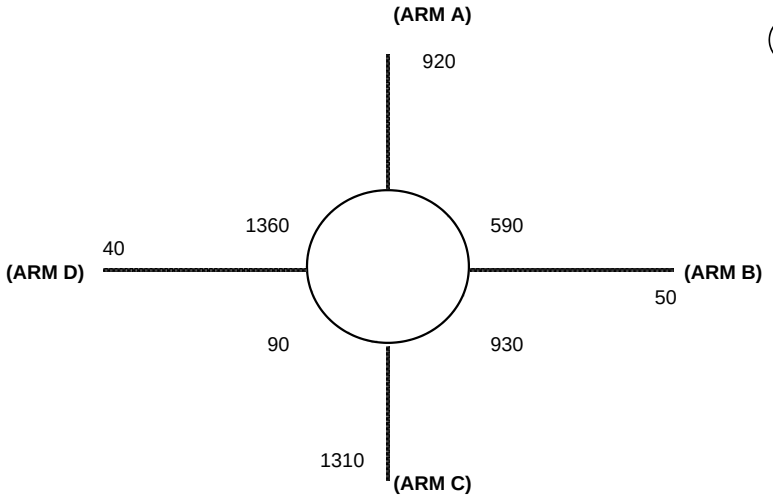
CRITICAL DFC = 0.53

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2020 PM Design Case (With Liantang/ HYW BCP)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	920	50	1310	40
Qc= Circulating flow across entry (pcu/h)	590	930	90	1360
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1965	829	2902	868
DFC = Design flow/Capacity = Q/Qe	0.47	0.06	0.45	0.05

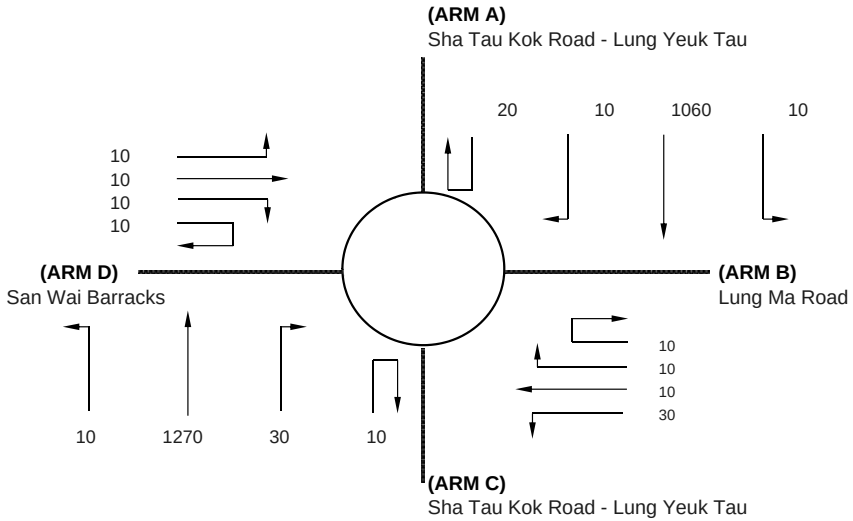
TOTAL ENTRY FLOWS = 2320 PCU

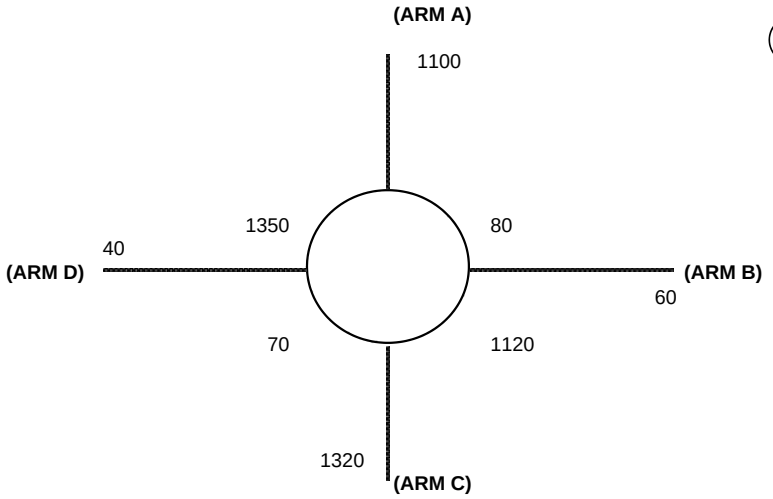
CRITICAL DFC = 0.47

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1100	60	1320	40
Qc= Circulating flow across entry (pcu/h)	80	1120	70	1350
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2292	918	2173	874
DFC = Design flow/Capacity = Q/Qe	0.48	0.07	0.61	0.05

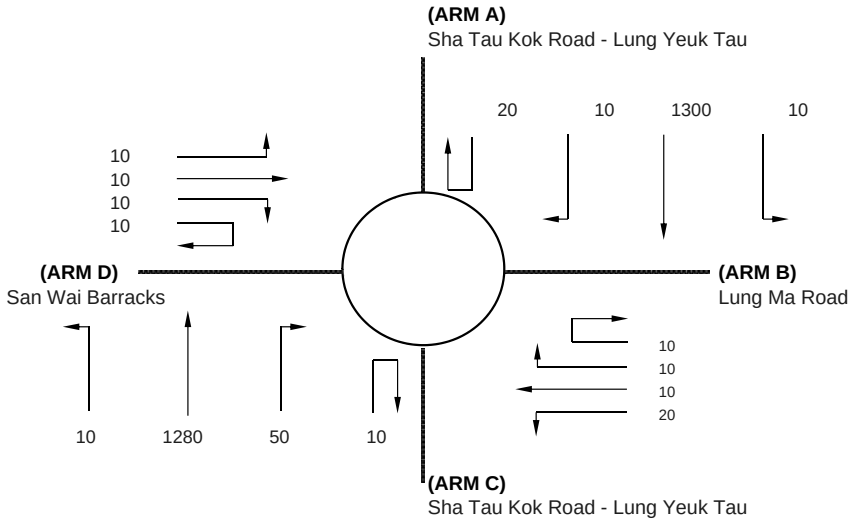
TOTAL ENTRY FLOWS = 2520 PCU

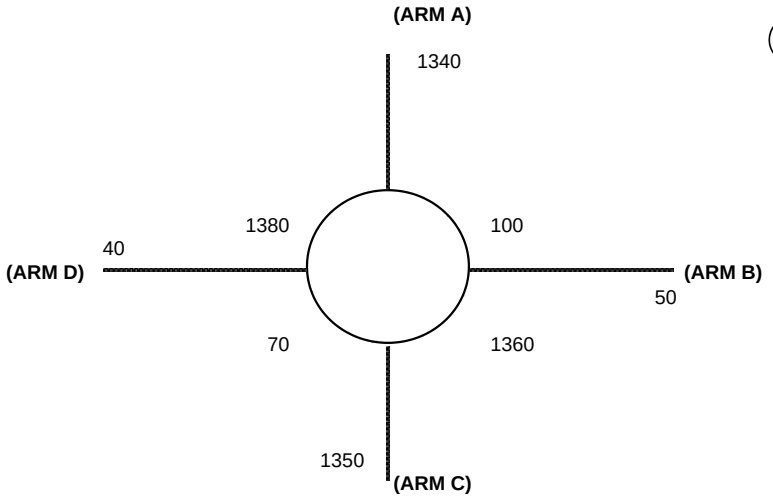
CRITICAL DFC = 0.61

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2026 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1340	50	1350	40
Qc= Circulating flow across entry (pcu/h)	100	1360	70	1380
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2277	770	2173	855
DFC = Design flow/Capacity = Q/Qe	0.59	0.06	0.62	0.05

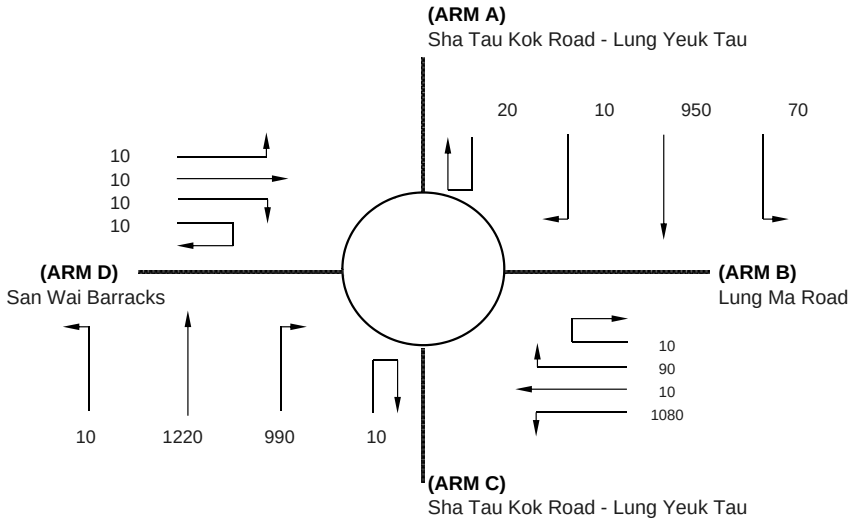
TOTAL ENTRY FLOWS = 2780 PCU

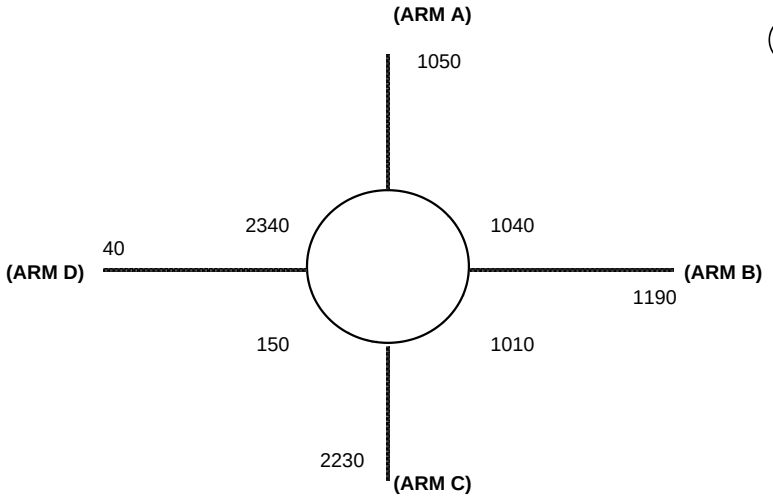
CRITICAL DFC = 0.62

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2026 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1050	1190	2230	40
Qc= Circulating flow across entry (pcu/h)	1040	1010	150	2340
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1592	986	2117	265
DFC = Design flow/Capacity = Q/Qe	0.66	1.21	1.05	0.15

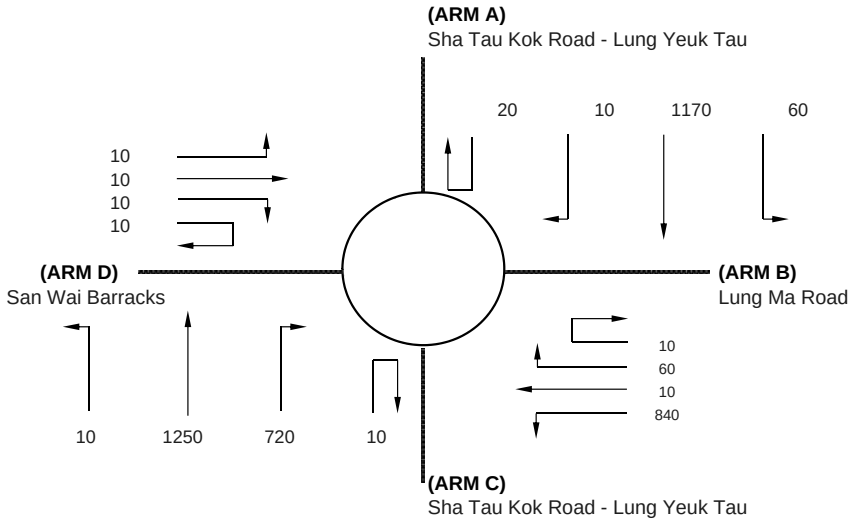
TOTAL ENTRY FLOWS = 4510 PCU

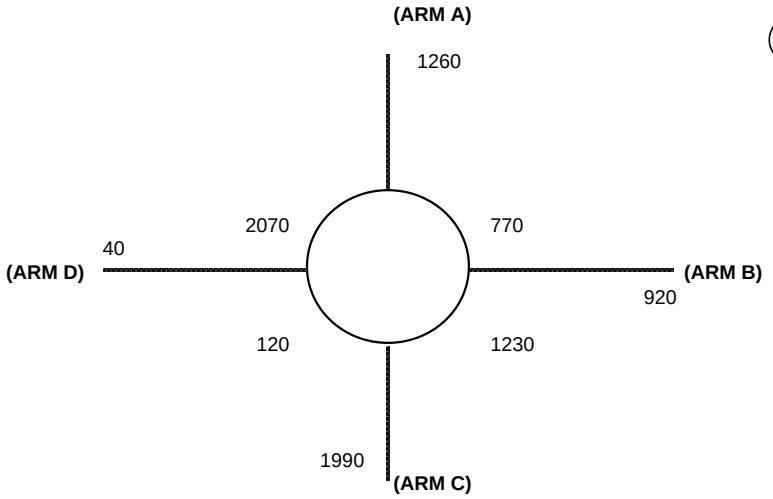
CRITICAL DFC = 1.21

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2026 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1260	920	1990	40
Qc= Circulating flow across entry (pcu/h)	770	1230	120	2070
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1789	850	2138	431
DFC = Design flow/Capacity = Q/Qe	0.70	1.08	0.93	0.09

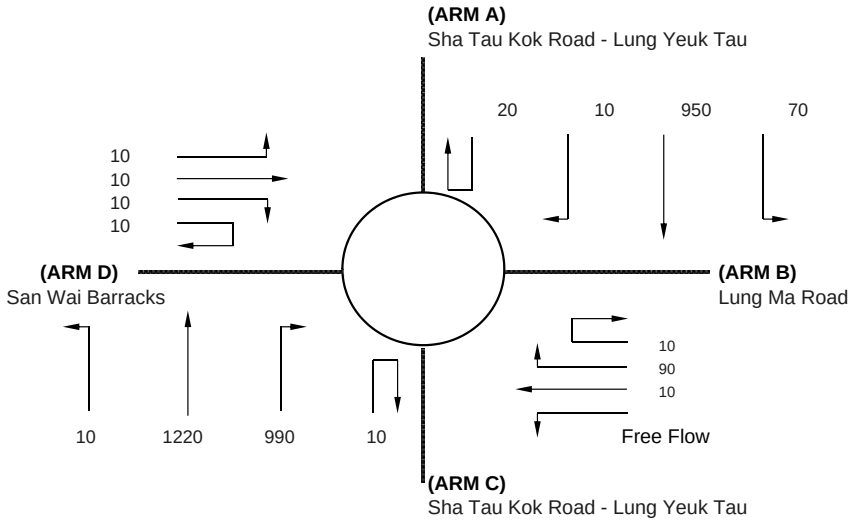
TOTAL ENTRY FLOWS = 4210 PCU

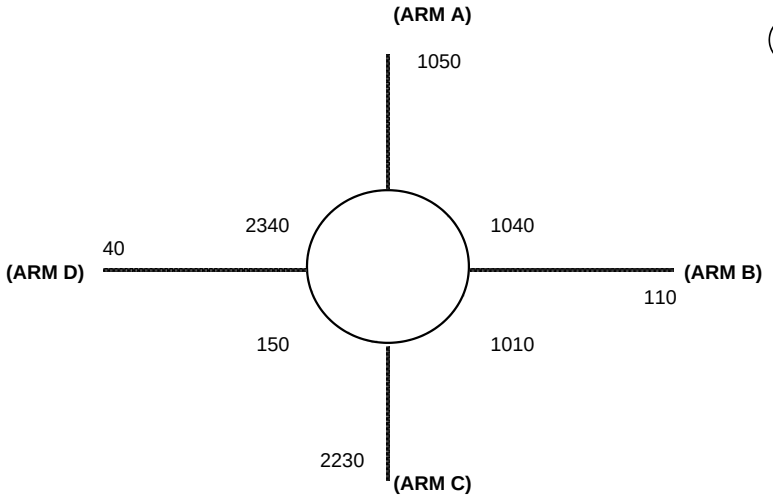
CRITICAL DFC = 1.08

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2026 AM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	1050	110	2230	40
Qc= Circulating flow across entry (pcu/h)	1040	1010	150	2340
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1629	784	2850	265
DFC = Design flow/Capacity = Q/Qe	0.64	0.14	0.78	0.15

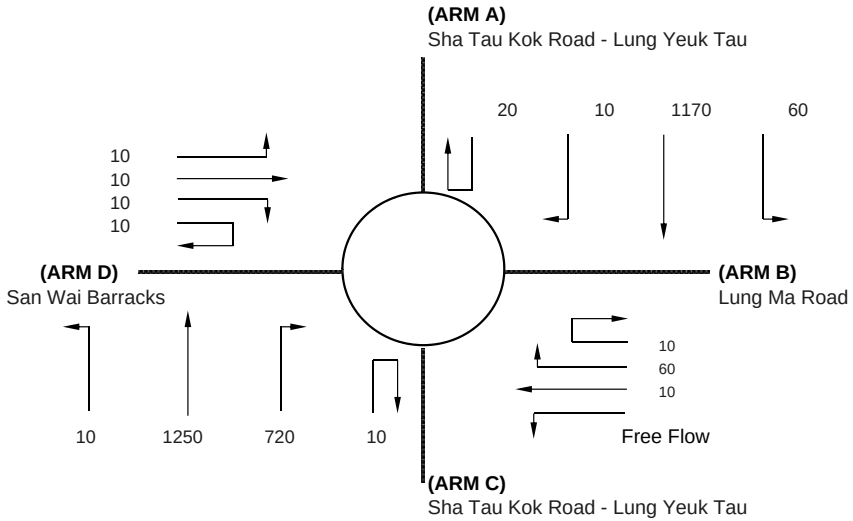
TOTAL ENTRY FLOWS = 3430 PCU

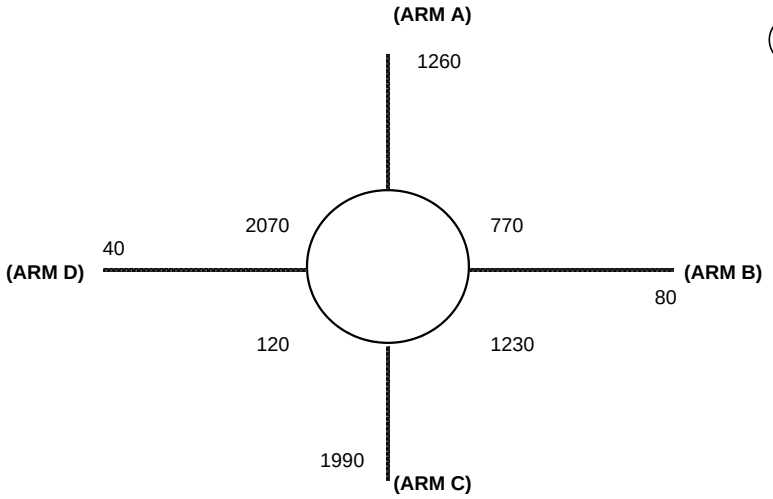
CRITICAL DFC = 0.78

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2026 PM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	1260	80	1990	40
Qc= Circulating flow across entry (pcu/h)	770	1230	120	2070
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1830	658	2876	431
DFC = Design flow/Capacity = Q/Qe	0.69	0.12	0.69	0.09

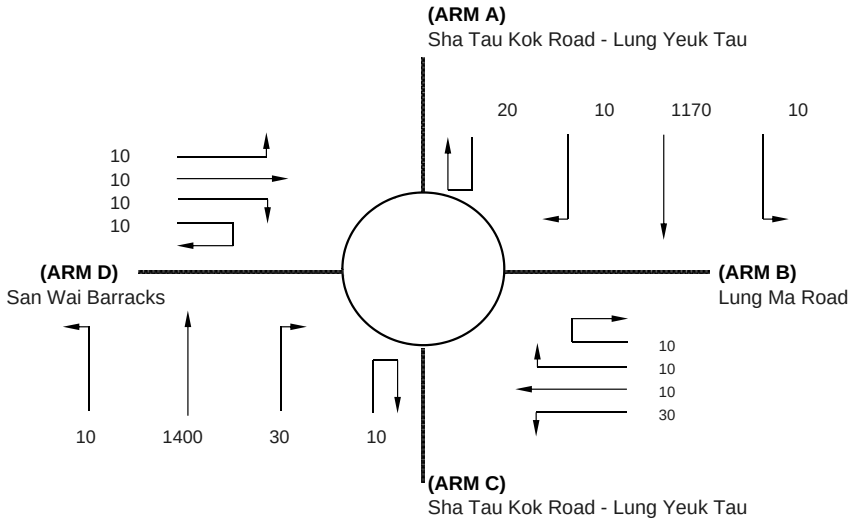
TOTAL ENTRY FLOWS = 3370 PCU

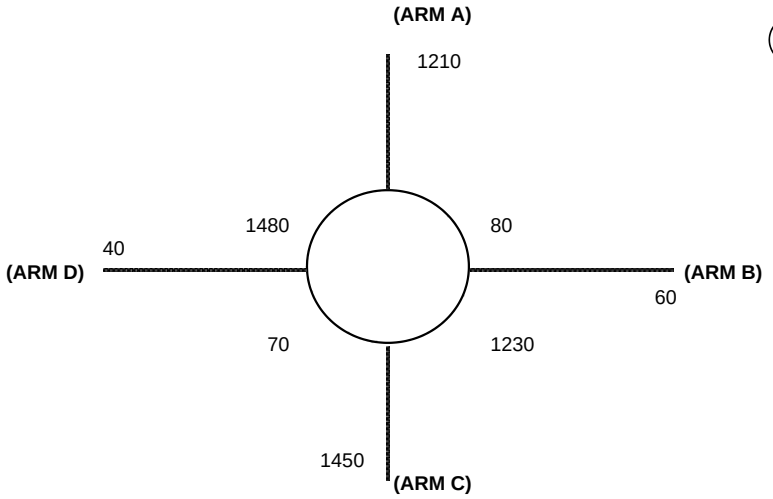
CRITICAL DFC = 0.69

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2031 AM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1210	60	1450	40
Qc= Circulating flow across entry (pcu/h)	80	1230	70	1480
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2292	850	2173	794
DFC = Design flow/Capacity = Q/Qe	0.53	0.07	0.67	0.05

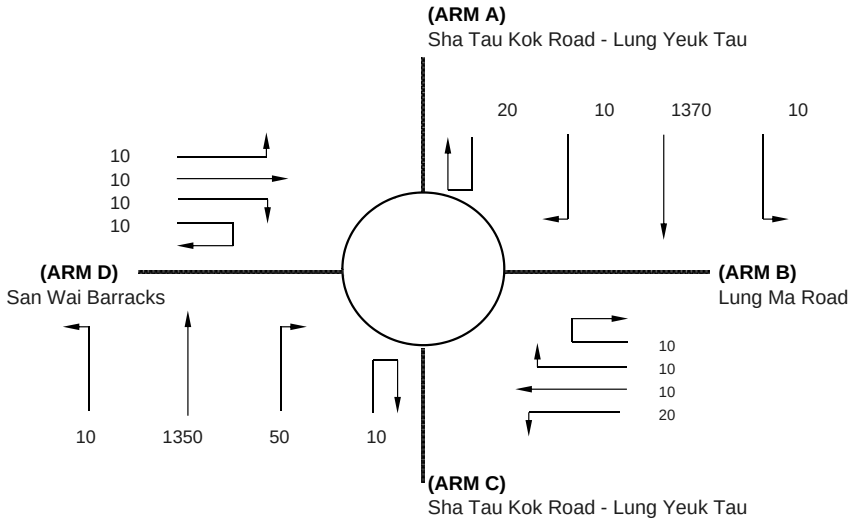
TOTAL ENTRY FLOWS = 2760 PCU

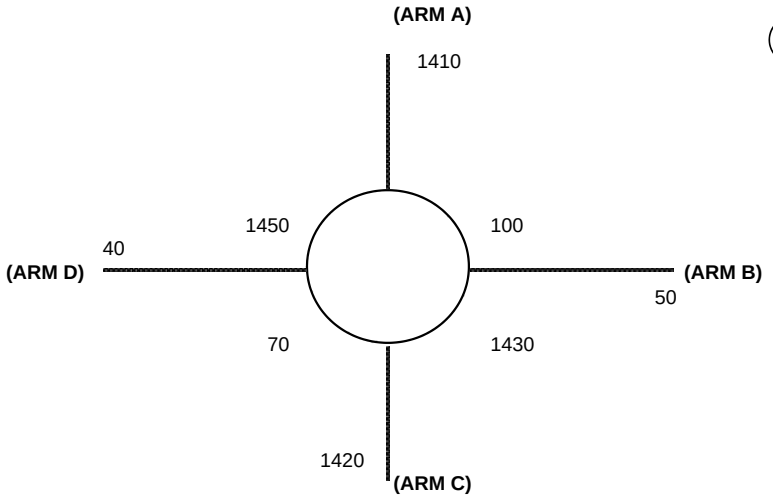
CRITICAL DFC = 0.67

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2031 PM Reference Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1410	50	1420	40
Qc= Circulating flow across entry (pcu/h)	100	1430	70	1450
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	2277	727	2173	812
DFC = Design flow/Capacity = Q/Qe	0.62	0.07	0.65	0.05

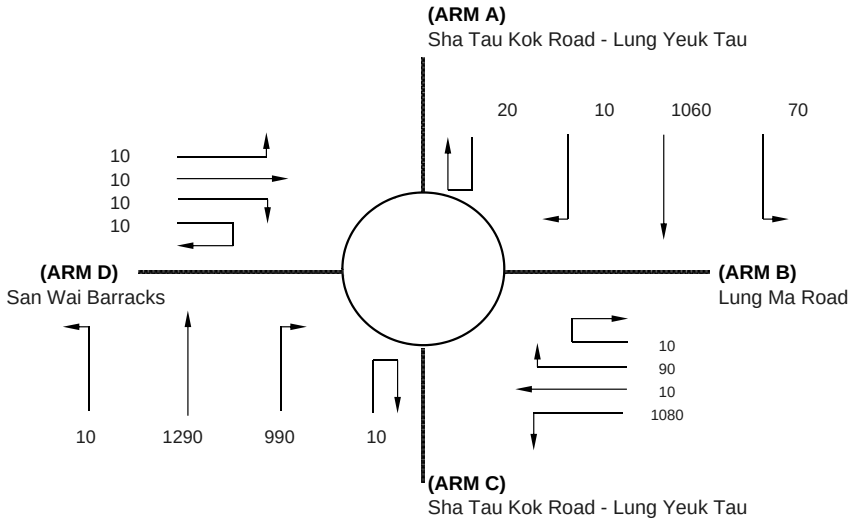
TOTAL ENTRY FLOWS = 2920 PCU

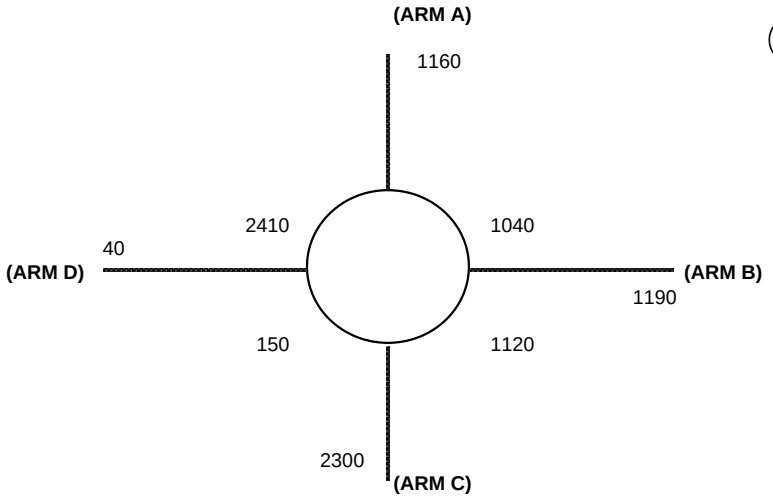
CRITICAL DFC = 0.65

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2031 AM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1160	1190	2300	40
Qc= Circulating flow across entry (pcu/h)	1040	1120	150	2410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1592	918	2117	222
DFC = Design flow/Capacity = Q/Qe	0.73	1.30	1.09	0.18

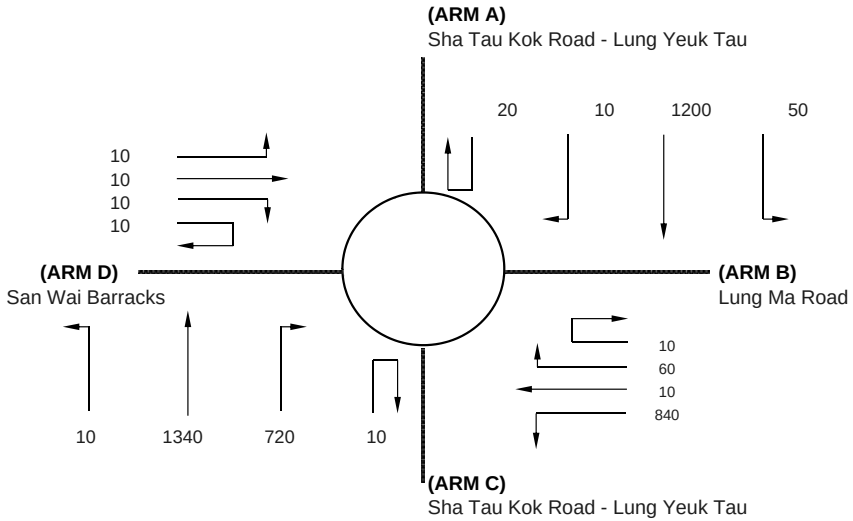
TOTAL ENTRY FLOWS = 4690 PCU

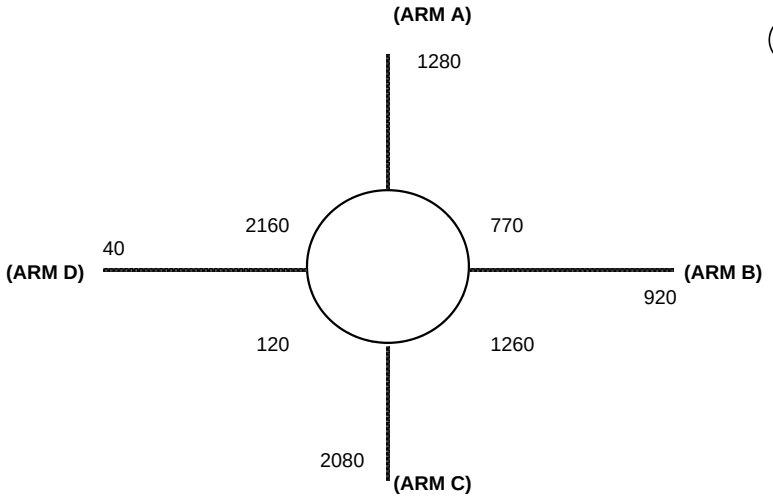
CRITICAL DFC = 1.30

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2031 PM Design Case	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	6.80	4.50
E = Entry width (m)	7.50	5.10	7.00	5.50
L = Effective length of flare (m)	6.00	14.00	4.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	23.00	1.00	21.00	10.00
Q = Entry flow (pcu/h)	1280	920	2080	40
Qc= Circulating flow across entry (pcu/h)	770	1260	120	2160
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.18	0.08	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.14	1.05	1.07
X2= V + ((E-V)/(1+2S))	7.39	4.67	6.97	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1415	2113	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.54	0.67	0.57
Qe= K(F-Fc*Qc)	1789	832	2138	376
DFC = Design flow/Capacity = Q/Qe	0.72	1.11	0.97	0.11

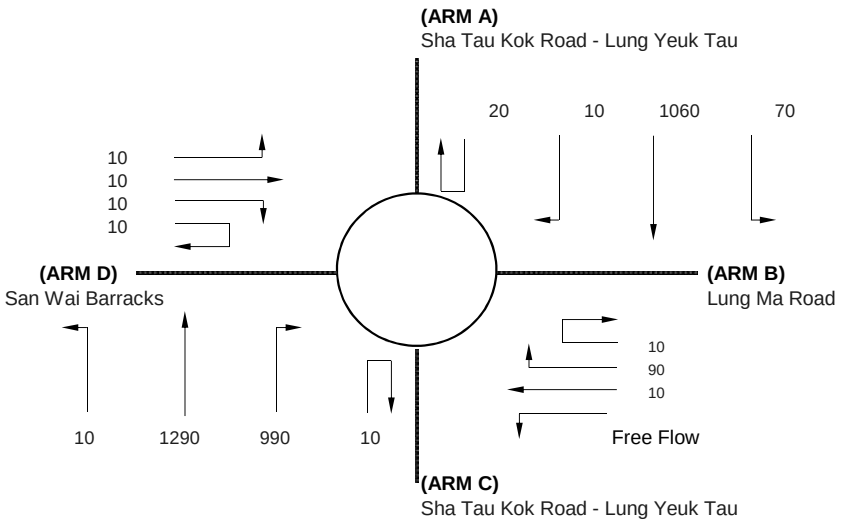
TOTAL ENTRY FLOWS = 4320 PCU

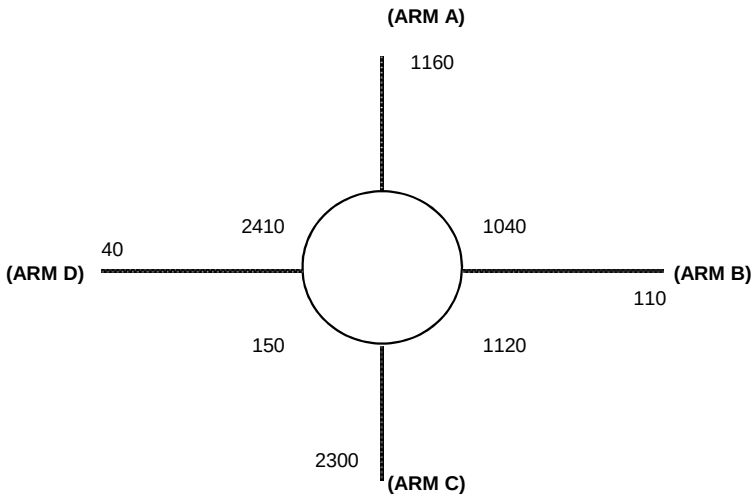
CRITICAL DFC = 1.11

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2031 AM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	1160	110	2300	40
Qc= Circulating flow across entry (pcu/h)	1040	1120	150	2410
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1629	721	2850	222
DFC = Design flow/Capacity = Q/Qe	0.71	0.15	0.81	0.18

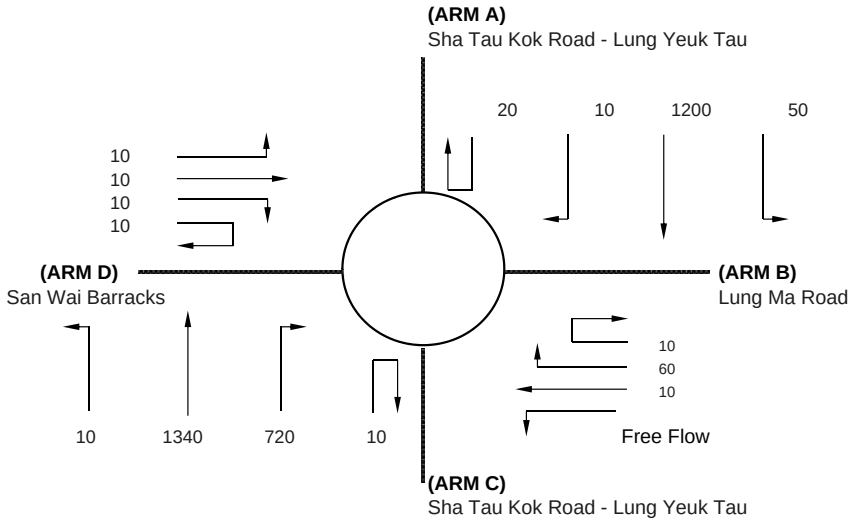
TOTAL ENTRY FLOWS = 3610 PCU

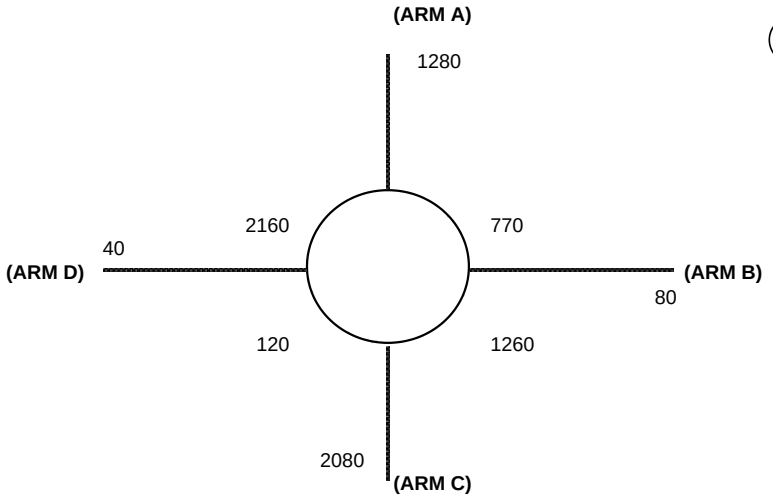
CRITICAL DFC = 0.81

ROUNDABOUT CAPACITY CALCULATION

AECOM Asia Co. Ltd.

Junction J14 - Sha Tau Kok Road / Lung Ma Road	2031 PM Design Case (With Improvement)	Designed By : JINYJ	Checked By : MCST	Job No. : 60340456 1.5	Date : Apr 15





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.00	3.50	7.30	4.50
E = Entry width (m)	7.50	4.00	9.50	5.50
L = Effective length of flare (m)	6.00	14.00	25.00	10.00
R = Entry radius (m)	40.00	70.00	35.00	20.00
D = Inscribed circle diameter (m)	53.00	53.00	53.00	53.00
A = Entry angle (degree)	16.00	1.00	10.00	10.00
Q = Entry flow (pcu/h)	1280	80	2080	40
Qc= Circulating flow across entry (pcu/h)	770	1260	120	2160
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.13	0.06	0.14	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.14	1.09	1.07
X2= V + ((E-V)/(1+2S))	7.39	3.95	9.02	5.26
M = EXP((D-60)/10)	0.50	0.50	0.50	0.50
F = 303*X2	2241	1196	2732	1593
Td= 1+(0.5/(1+M))	1.33	1.33	1.33	1.33
Fc= 0.21*Td(1+0.2*X2)	0.69	0.50	0.79	0.57
Qe= K(F-Fc*Qc)	1830	641	2876	376
DFC = Design flow/Capacity = Q/Qe	0.70	0.12	0.72	0.11

TOTAL ENTRY FLOWS = 3480 PCU

CRITICAL DFC = 0.72

JUNCTION CAPACITY CALCULATION

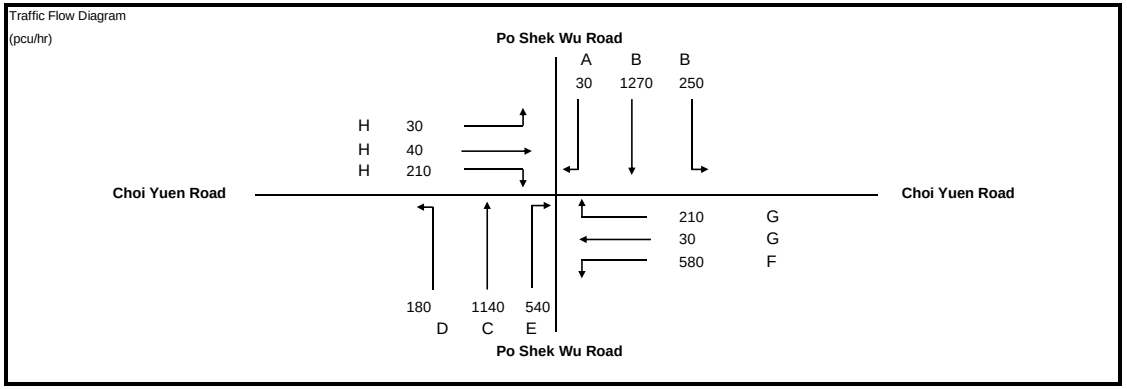
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

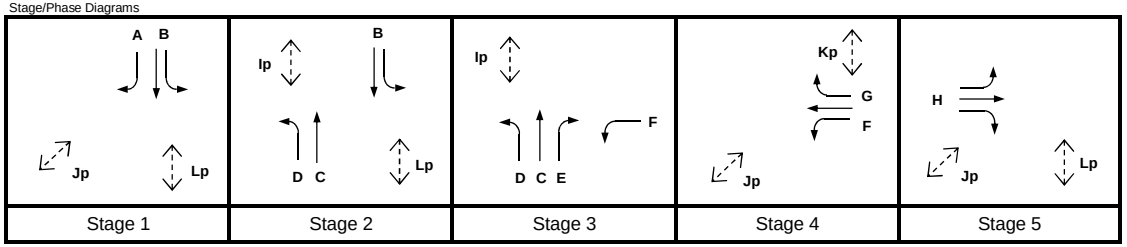
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.586	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	53	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	25.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	63	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1270		1270			6255	0.203	0.203
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	180			180	100%		1919	0.094	
	C	2,3	3.650	2				0		0		4240		1140		1140			4240	0.269	
	E	3	3.650	2		20	0	0		0		4240			540	540		100%	3944	0.137	
	F	3,4	3.800	1	11			1		0		1995	580			580	100%		1756	0.330	0.330
	G	4	3.800	1		26	0	0		0		2135		30	90	120		75%	2046	0.059	
	G	4	3.800	1		30	0	0		0		2135			120	120		100%	2033	0.059	
	H	5	3.500	1	11			1		0		1965	30	40		70	43%		1857	0.038	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	0.053
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

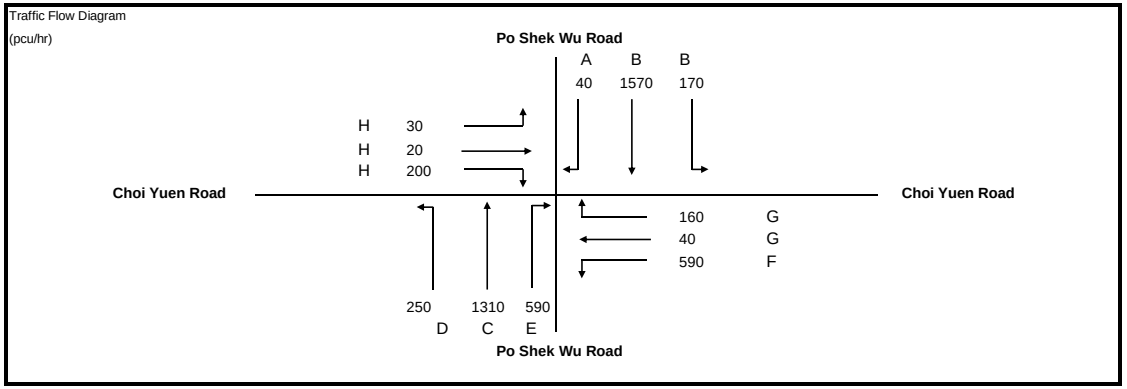
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

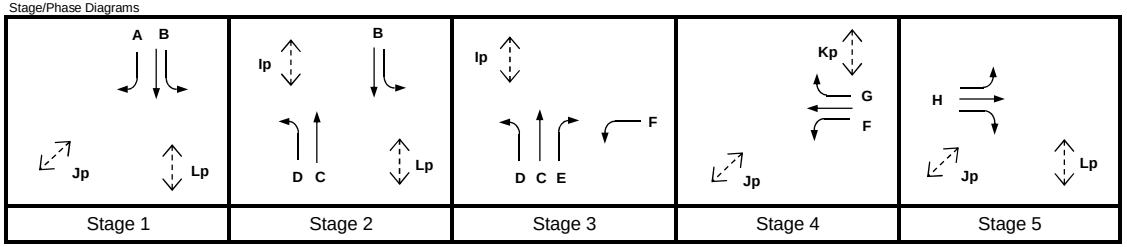
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.637	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	105	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	61	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	15.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	75	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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	1,2	3.300	1	12.5			1		0		1945	170			170	100%		1737	0.098	
	B	1,2	3.300	3				0		0		6255		1570		1570			6255	0.251	0.251
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1310		1310			4240	0.309	
	E	3	3.650	2		20	0	0		0		4240			590	590		100%	3944	0.150	
	F	3,4	3.800	1	11			1		0		1995	590			590	100%		1756	0.336	0.336
	G	4	3.800	1		26	0	0		0		2135		40	61	101		60%	2063	0.049	
	G	4	3.800	1		30	0	0		0		2135			99	99		100%	2033	0.049	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	100	100		100%	1998	0.050	0.050
	H	5	3.500	1		26	0	0		0		2105			100	100		100%	1990	0.050	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

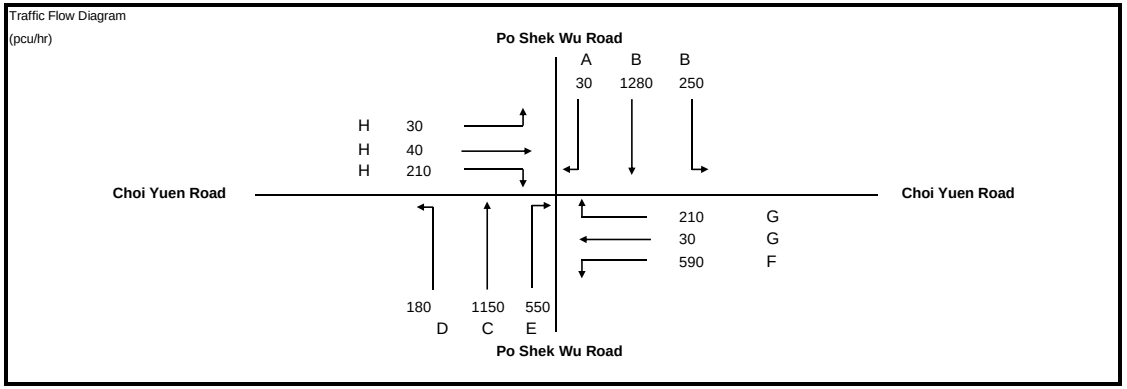
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2017 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J15

Traffic Flow Diagram

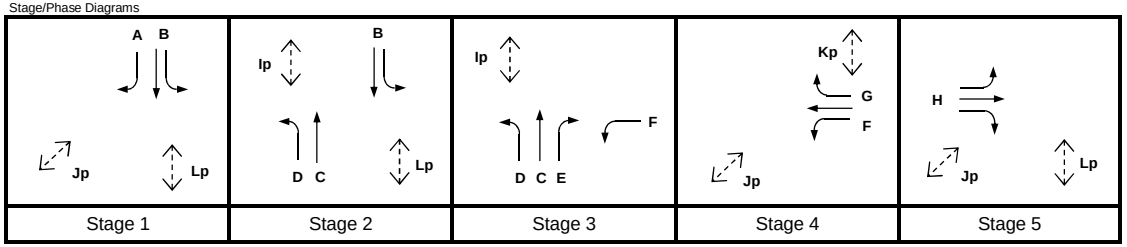
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.593	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	93	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	54	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	23.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	65	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1280		1280			6255	0.205	0.205
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	180			180	100%		1919	0.094	
	C	2,3	3.650	2				0		0		4240		1150		1150			4240	0.271	
	E	3	3.650	2		20	0	0		0		4240			550	550		100%	3944	0.139	
	F	3,4	3.800	1	11			1		0		1995	590			590	100%		1756	0.336	0.336
	G	4	3.800	1		26	0	0		0		2135		30	90	120		75%	2046	0.059	
	G	4	3.800	1		30	0	0		0		2135			120	120		100%	2033	0.059	
	H	5	3.500	1	11			1		0		1965	30	40		70	43%		1857	0.038	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	0.053
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

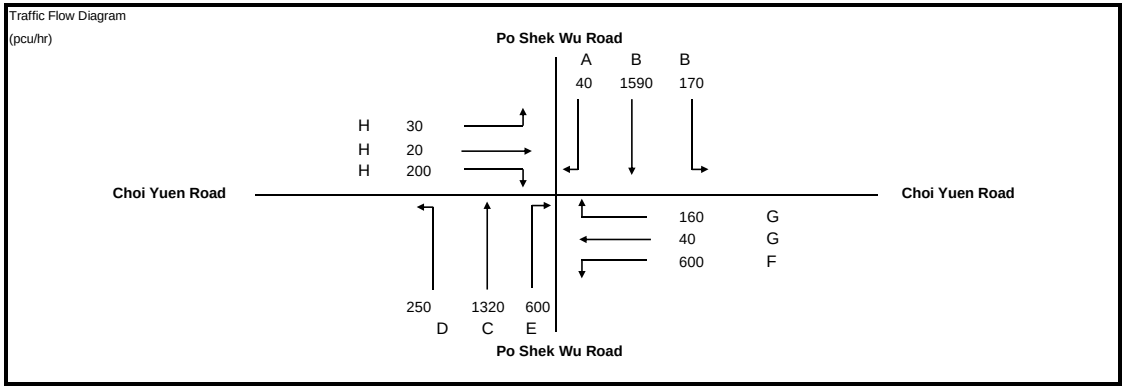
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2017 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J15

Traffic Flow Diagram

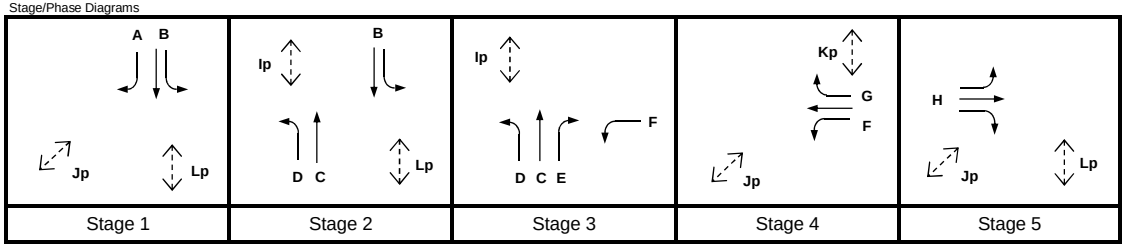
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.646	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	107	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	62	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	13.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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	1,2	3.300	1	12.5			1		0		1945	170			170	100%		1737	0.098	
	B	1,2	3.300	3				0		0		6255		1590		1590			6255	0.254	0.254
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1320		1320			4240	0.311	
	E	3	3.650	2		20	0	0		0		4240			600	600		100%	3944	0.152	
	F	3,4	3.800	1	11			1		0		1995	600			600	100%		1756	0.342	0.342
	G	4	3.800	1		26	0	0		0		2135		40	61	101		60%	2063	0.049	
	G	4	3.800	1		30	0	0		0		2135			99	99		100%	2033	0.049	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	100	100		100%	1998	0.050	0.050
	H	5	3.500	1		26	0	0		0		2105			100	100		100%	1990	0.050	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

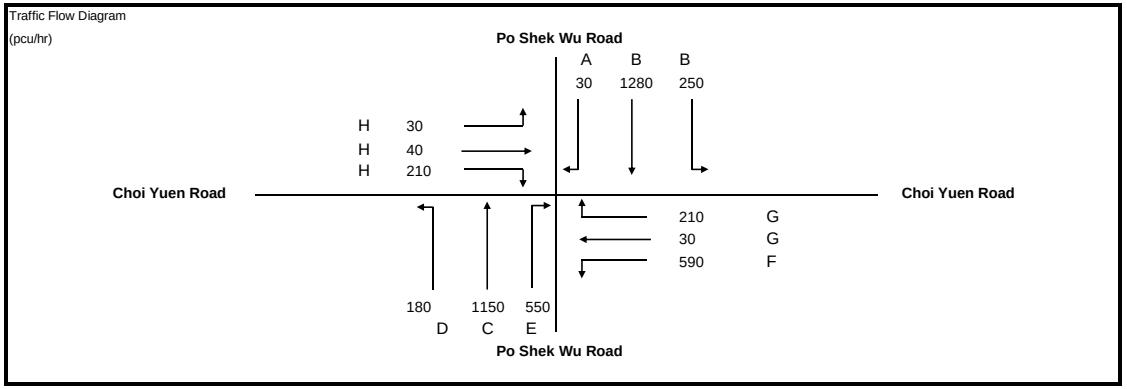
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2017 AM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J15

Traffic Flow Diagram

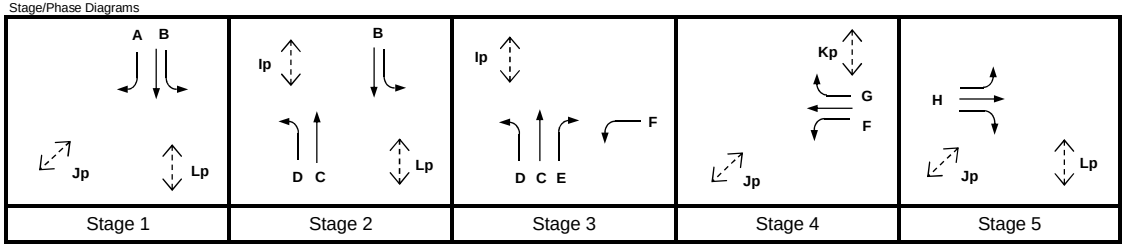
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.593	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	93	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	54	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	23.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	65	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1280		1280			6255	0.205	0.205
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	180			180	100%		1919	0.094	
	C	2,3	3.650	2				0		0		4240		1150		1150			4240	0.271	
	E	3	3.650	2		20	0	0		0		4240			550	550		100%	3944	0.139	
	F	3,4	3.800	1	11			1		0		1995	590			590	100%		1756	0.336	0.336
	G	4	3.800	1		26	0	0		0		2135		30	90	120		75%	2046	0.059	
	G	4	3.800	1		30	0	0		0		2135			120	120		100%	2033	0.059	
	H	5	3.500	1	11			1		0		1965	30	40		70	43%		1857	0.038	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	0.053
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

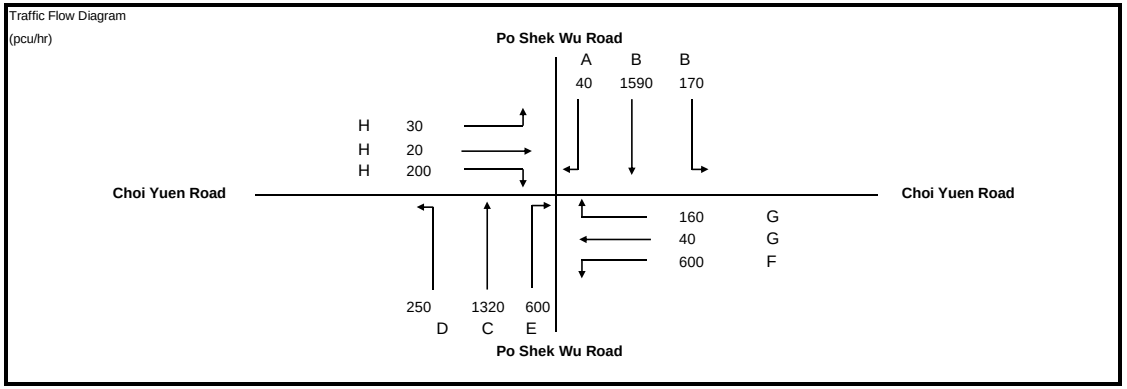
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2017 PM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J15

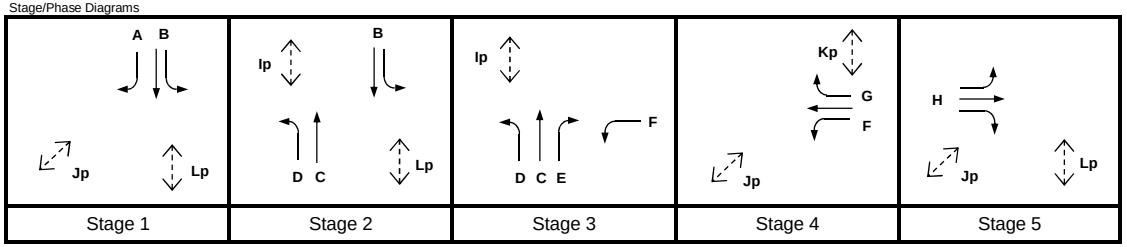
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	128	sec
Sum(y)		Y =	0.646	
Lost time		L =	22	sec
Total Flow		=	33,220	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	107	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	62	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	13.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	78	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Critical Case : B,F,H

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	1,2	3.300	1	12.5			1		0		1945	170			170	100%		1737	0.098	
	B	1,2	3.300	3				0		0		6255		1590		1590			6255	0.254	0.254
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1320		1320			4240	0.311	
	E	3	3.650	2		20	0	0		0		4240			600	600		100%	3944	0.152	
	F	3,4	3.800	1	11			1		0		1995	600			600	100%		1756	0.342	0.342
	G	4	3.800	1		26	0	0		0		2135		40	61	101		60%	2063	0.049	
	G	4	3.800	1		30	0	0		0		2135			99	99		100%	2033	0.049	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	100	100		100%	1998	0.050	0.050
	H	5	3.500	1		26	0	0		0		2105			100	100		100%	1990	0.050	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

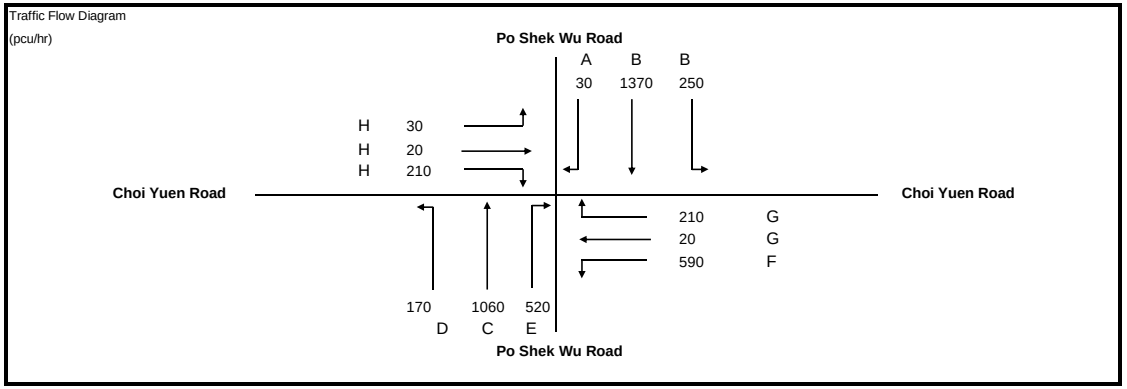
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

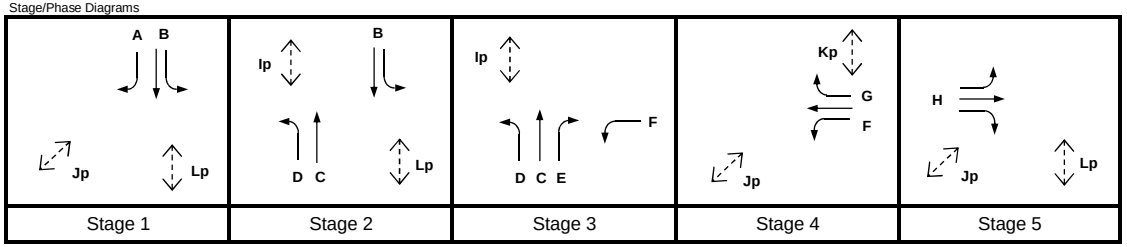
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.608	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	97	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	56	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	20.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	68	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1370		1370			6255	0.219	0.219
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	170			170	100%		1919	0.089	
	C	2,3	3.650	2				0		0		4240		1060		1060			4240	0.250	
	E	3	3.650	2		20	0	0		0		4240			520	520		100%	3944	0.132	
	F	3,4	3.800	1	11			1		0		1995	590			590	100%		1756	0.336	0.336
	G	4	3.800	1		26	0	0		0		2135		20	95	115		83%	2038	0.056	
	G	4	3.800	1		30	0	0		0		2135			115	115		100%	2033	0.056	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

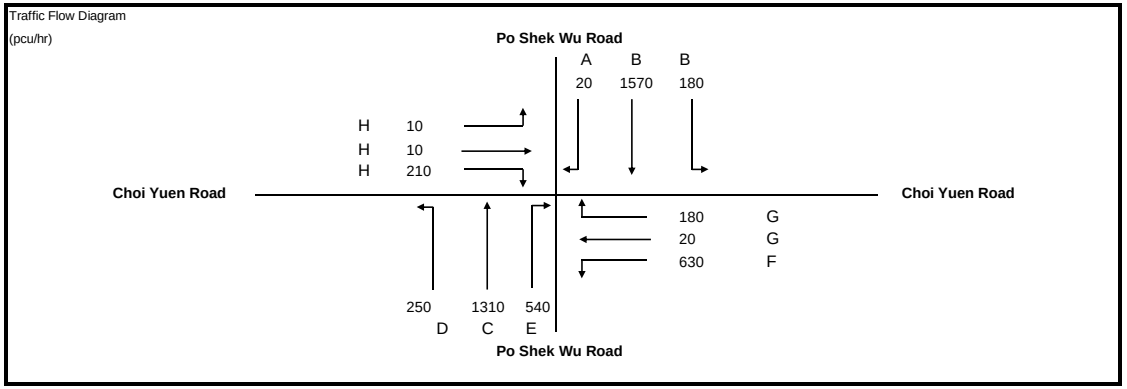
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

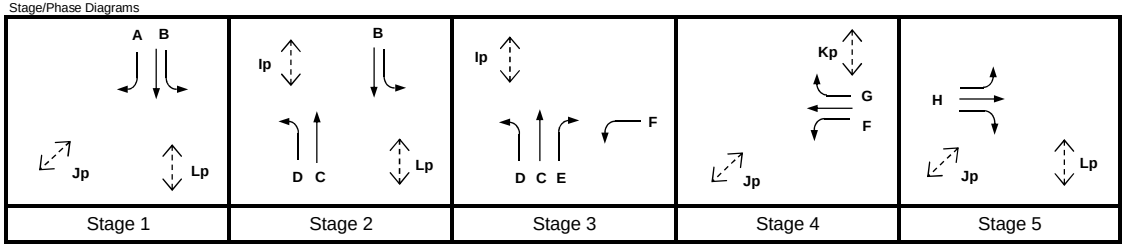
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.663	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	113	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	65	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	10.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	83	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1570		1570			6255	0.251	0.251
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1310		1310			4240	0.309	
	E	3	3.650	2		20	0	0		0		4240			540	540		100%	3944	0.137	
	F	3,4	3.800	1	11			1		0		1995	630			630	100%		1756	0.359	0.359
	G	4	3.800	1		26	0	0		0		2135		20	80	100		80%	2041	0.049	
	G	4	3.800	1		30	0	0		0		2135			100	100		100%	2033	0.049	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

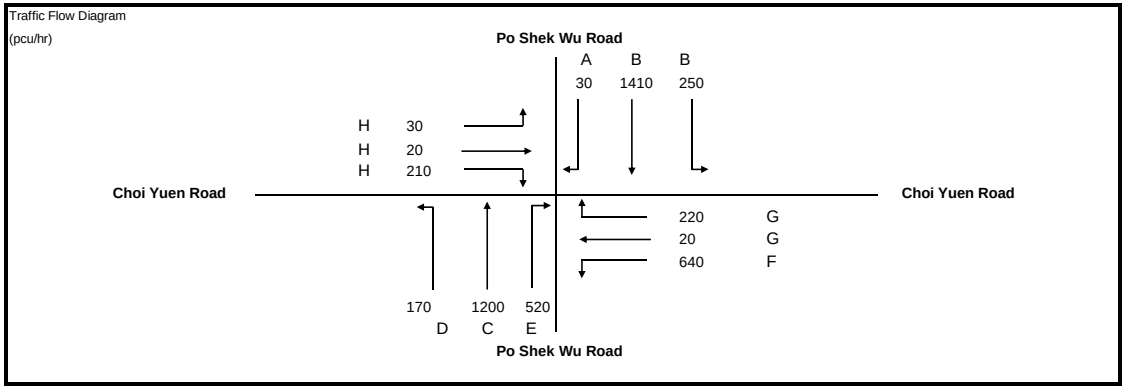
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

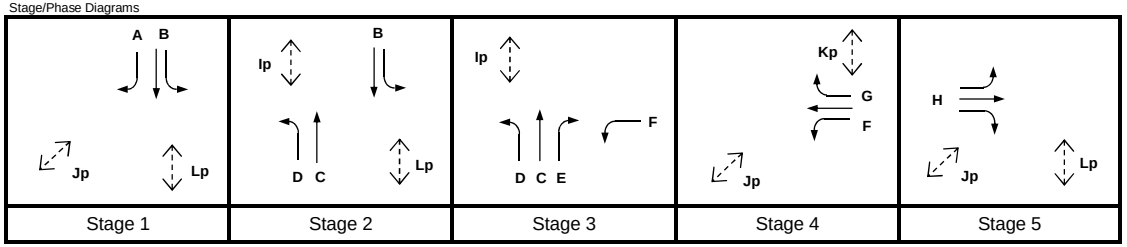
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.643	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	106	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	62	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	14.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	77	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1410		1410			6255	0.225	0.225
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	170			170	100%		1919	0.089	
	C	2,3	3.650	2				0		0		4240		1200		1200			4240	0.283	
	E	3	3.650	2		20	0	0		0		4240			520	520		100%	3944	0.132	
	F	3,4	3.800	1	11			1		0		1995	640			640	100%		1756	0.365	0.365
	G	4	3.800	1		26	0	0		0		2135		20	100	120		83%	2037	0.059	
	G	4	3.800	1		30	0	0		0		2135			120	120		100%	2033	0.059	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

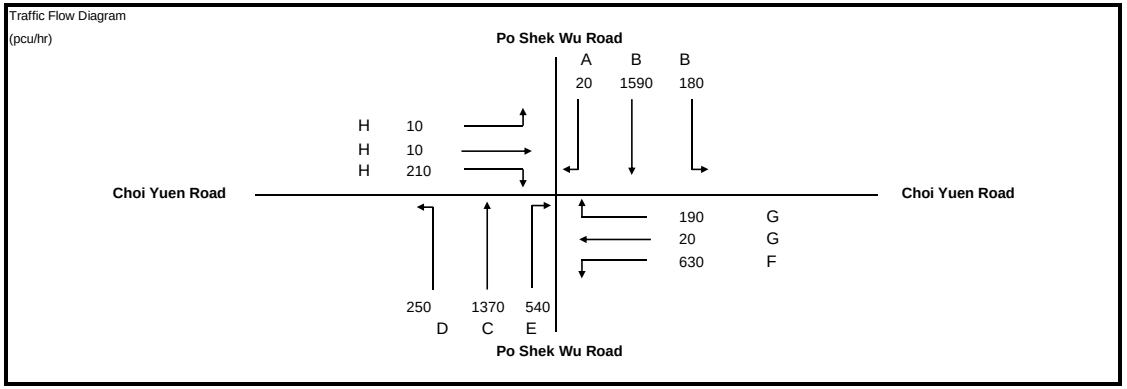
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

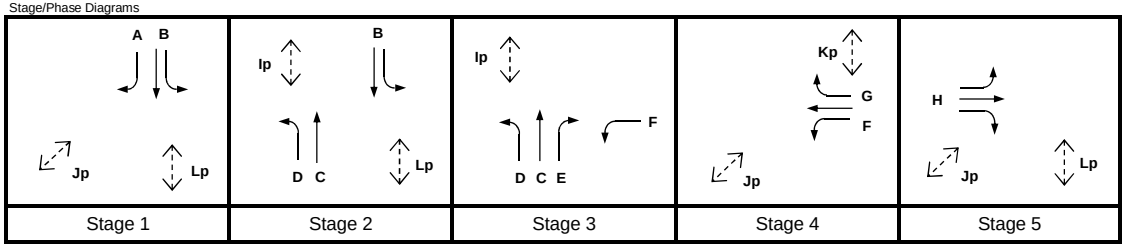
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.666	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	114	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	66	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	10.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	85	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1590		1590			6255	0.254	0.254
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1370		1370			4240	0.323	
	E	3	3.650	2		20	0	0		0		4240			540	540		100%	3944	0.137	
	F	3,4	3.800	1	11			1		0		1995	630			630	100%		1756	0.359	0.359
	G	4	3.800	1		26	0	0		0		2135		20	85	105		81%	2040	0.052	
	G	4	3.800	1		30	0	0		0		2135			105	105		100%	2033	0.052	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

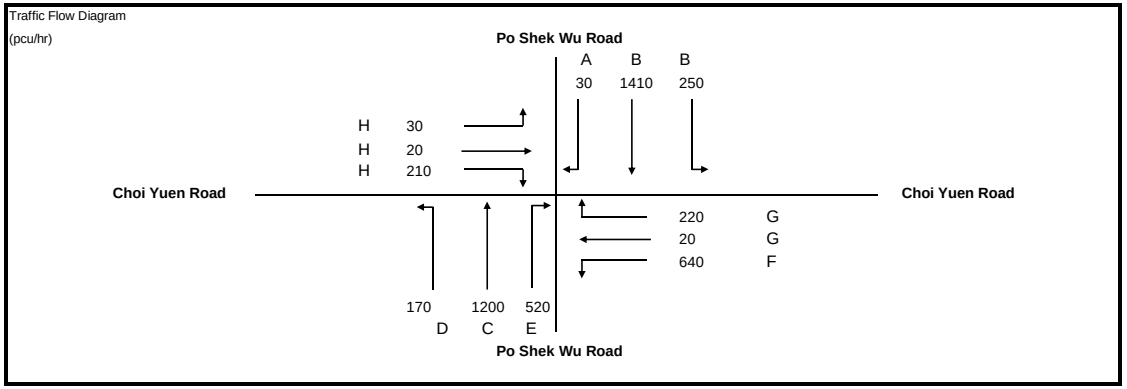
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 AM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

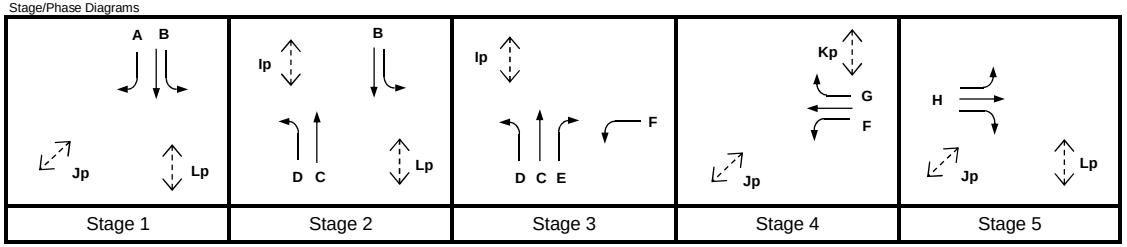
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.536	
Lost time	L =	24	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	88	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	52	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	34.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	59	sec
Y_{max}	$= 1-L/C$	=	0.813	

Stage/Phase Diagrams



I/G = I/G = 6 I/G = 5 I/G = 9 I/G = 8

Critical Case : B,E,G,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1410		1410			6255	0.225	0.225
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	170			170	100%		1919	0.089	
	C	2,3	3.650	2				0		0		4240		1200		1200			4240	0.283	
	E	3	3.650	2		20	0	0		0		4240			520	520		100%	3944	0.132	0.132
	G	4	3.800	1		30	0	1		0		1995		20	220	240		92%	1908	0.126	0.126
	F	3,4	3.800	2	11			1		0		4130	640			640	100%		3634	0.176	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	0.053
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

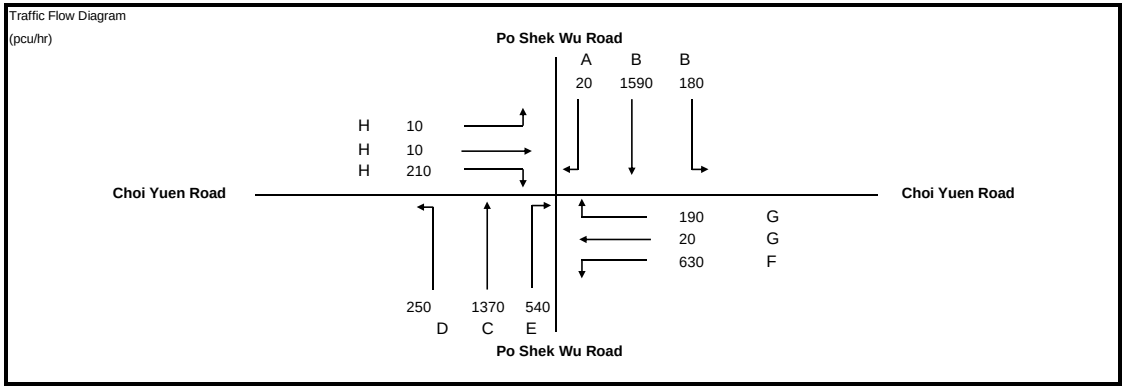
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 PM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

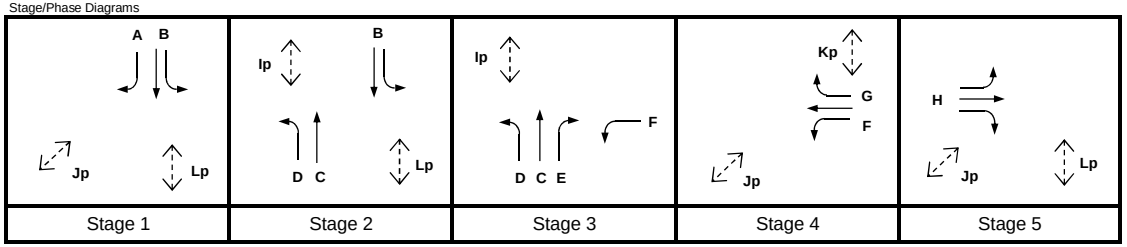
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.554	
Lost time	L =	24	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	54	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	30.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	62	sec
Y_{max}	$= 1-L/C$	=	0.813	

Stage/Phase Diagrams



Critical Case : B,E,G,H

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	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1590		1590			6255	0.254	0.254
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1370		1370			4240	0.323	
	E	3	3.650	2		20	0	0		0		4240			540	540		100%	3944	0.137	0.137
	G	4	3.800	1		30	0	1		0		1995		20	190	210		90%	1909	0.110	0.110
	F	3,4	3.800	2	11			1		0		4130	630			630	100%		3634	0.173	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	0.053
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

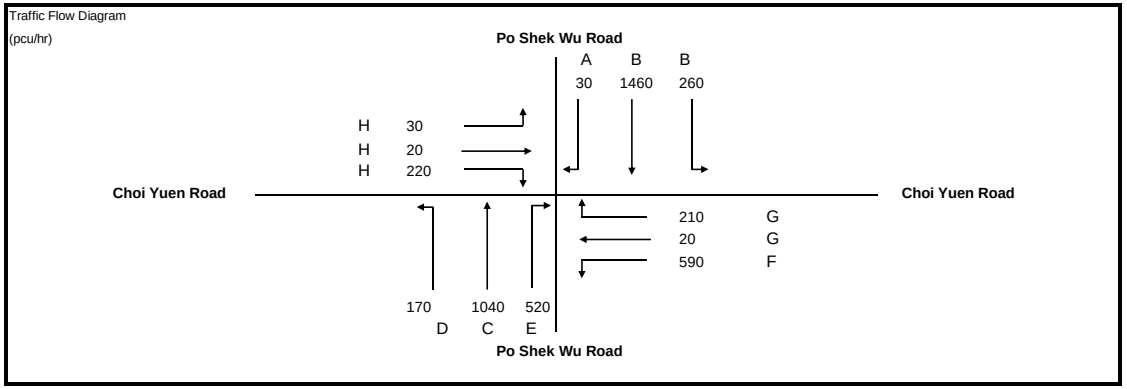
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

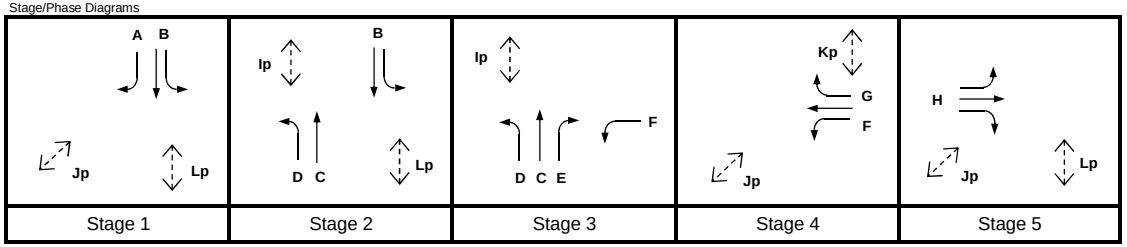
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.625	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	101	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	59	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	17.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	72	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	260			260	100%		1737	0.150	
	B	1,2	3.300	3				0		0		6255		1460		1460			6255	0.233	0.233
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	170			170	100%		1919	0.089	
	C	2,3	3.650	2				0		0		4240		1040		1040			4240	0.245	
	E	3	3.650	2		20	0	0		0		4240			520	520		100%	3944	0.132	
	F	3,4	3.800	1	11			1		0		1995	590			590	100%		1756	0.336	0.336
	G	4	3.800	1		26	0	0		0		2135		20	95	115		83%	2038	0.056	
	G	4	3.800	1		30	0	0		0		2135			115	115		100%	2033	0.056	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	110	110		100%	1998	0.055	
	H	5	3.500	1		26	0	0		0		2105			110	110		100%	1990	0.055	0.055
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

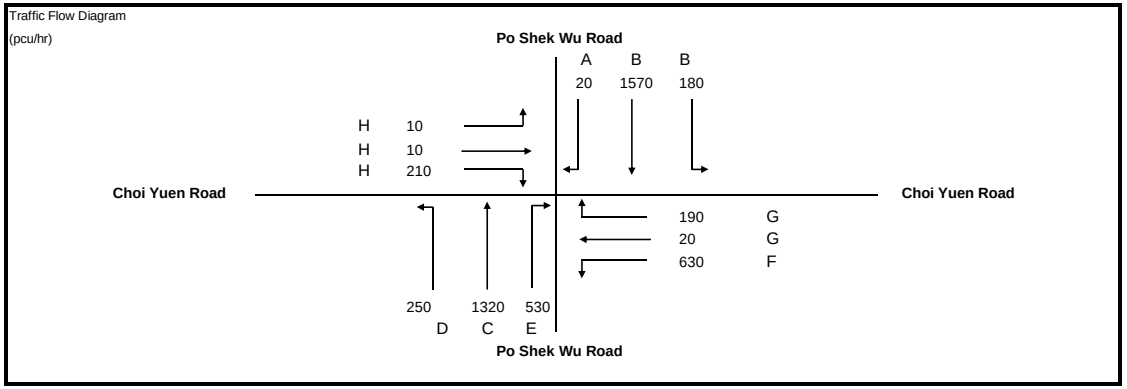
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

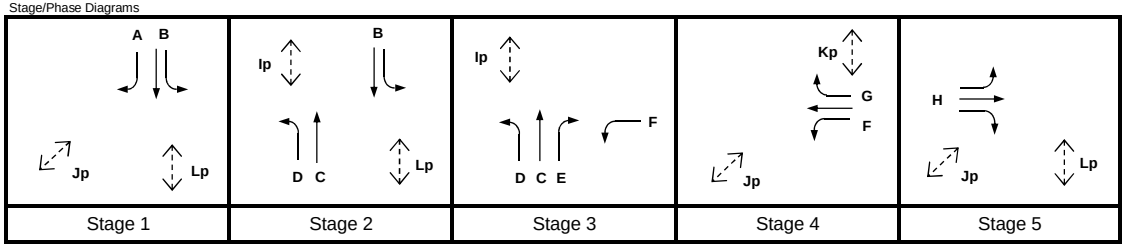
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.663	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	113	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	65	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	10.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	83	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1570		1570			6255	0.251	0.251
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1320		1320			4240	0.311	
	E	3	3.650	2		20	0	0		0		4240			530	530		100%	3944	0.134	
	F	3,4	3.800	1	11			1		0		1995	630			630	100%		1756	0.359	0.359
	G	4	3.800	1		26	0	0		0		2135		20	85	105		81%	2040	0.052	
	G	4	3.800	1		30	0	0		0		2135			105	105		100%	2033	0.052	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

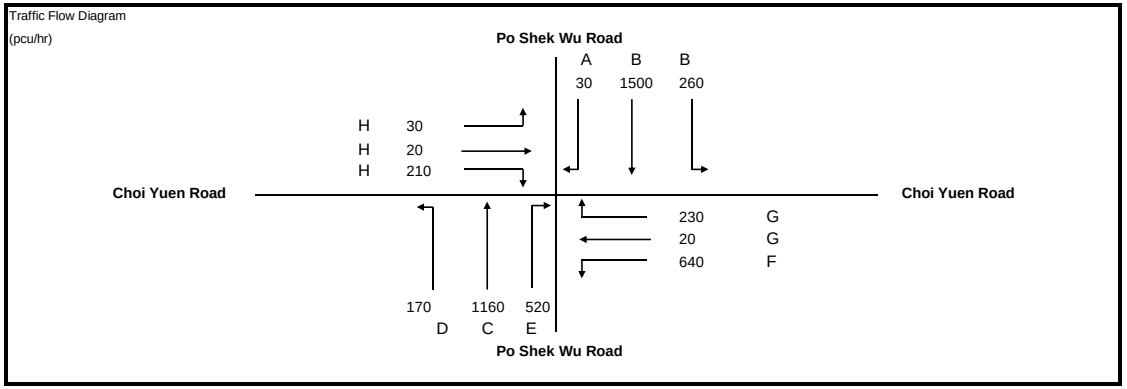
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

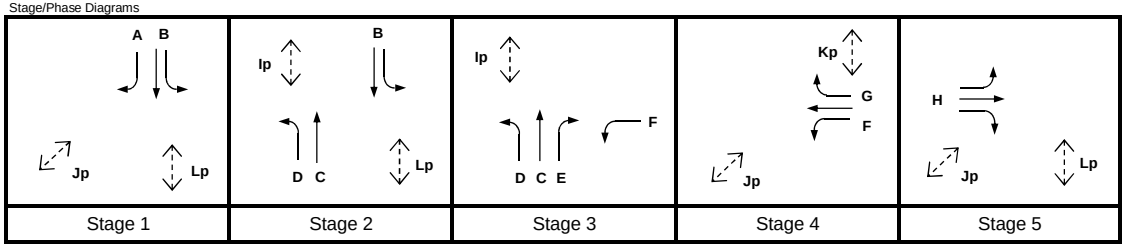
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.657	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	111	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	64	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	11.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	81	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	260			260	100%		1737	0.150	
	B	1,2	3.300	3				0		0		6255		1500		1500			6255	0.240	0.240
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	170			170	100%		1919	0.089	
	C	2,3	3.650	2				0		0		4240		1160		1160			4240	0.274	
	E	3	3.650	2		20	0	0		0		4240			520	520		100%	3944	0.132	
	F	3,4	3.800	1	11			1		0		1995	640			640	100%		1756	0.365	0.365
	G	4	3.800	1		26	0	0		0		2135		20	105	125		84%	2036	0.061	
	G	4	3.800	1		30	0	0		0		2135			125	125		100%	2033	0.061	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

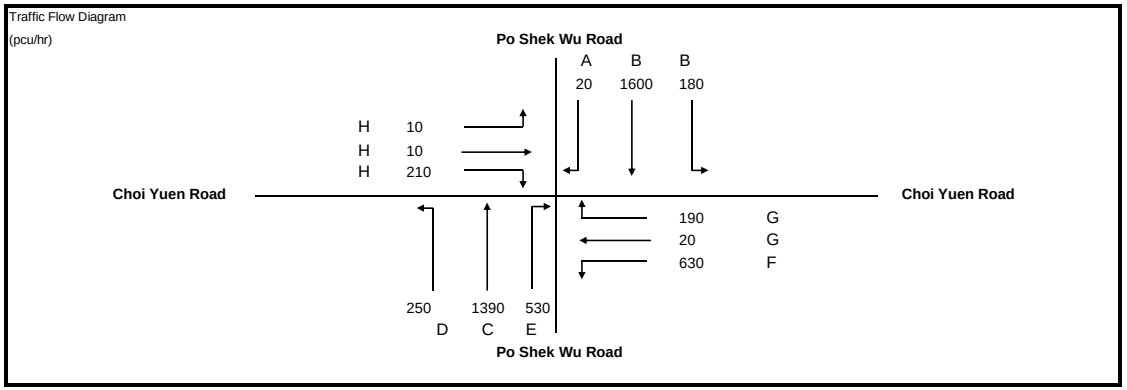
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

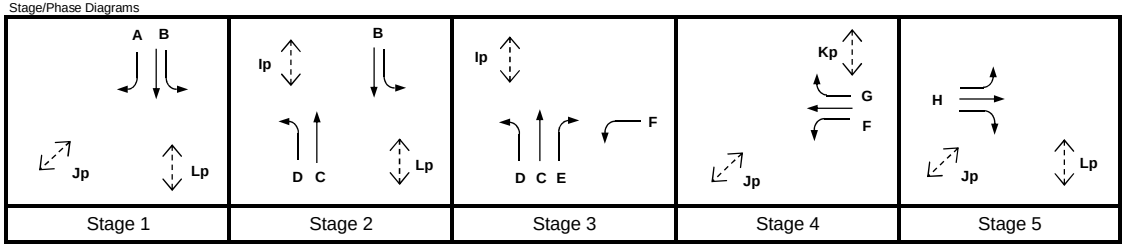
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.667	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	114	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	66	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	10.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	85	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1600		1600			6255	0.256	0.256
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1390		1390			4240	0.328	
	E	3	3.650	2		20	0	0		0		4240			530	530		100%	3944	0.134	
	F	3,4	3.800	1	11			1		0		1995	630			630	100%		1756	0.359	0.359
	G	4	3.800	1		26	0	0		0		2135		20	85	105		81%	2040	0.052	
	G	4	3.800	1		30	0	0		0		2135			105	105		100%	2033	0.052	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	0.053
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

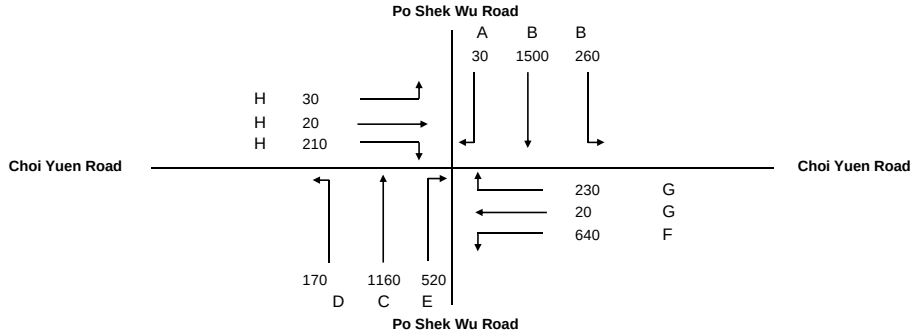
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 AM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

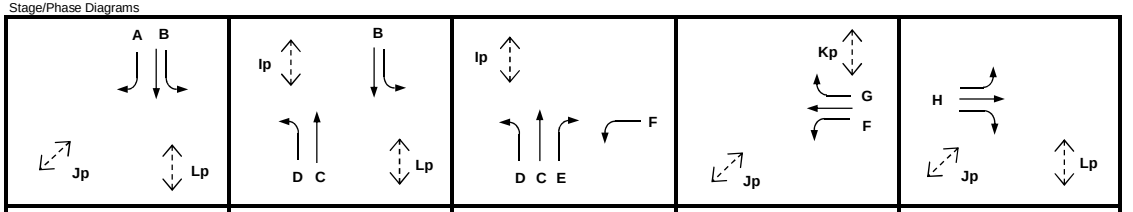
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.555	
Lost time	L =	24	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	54	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	29.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	63	sec
Y_{max}	$= 1-L/C$	=	0.813	

Stage/Phase Diagrams



Critical Case : B,E,G,H

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	1,2	3.300	1	12.5			1		0		1945	260			260	100%		1737	0.150	
	B	1,2	3.300	3				0		0		6255		1500		1500			6255	0.240	0.240
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	170			170	100%		1919	0.089	
	C	2,3	3.650	2				0		0		4240		1160		1160			4240	0.274	
	E	3	3.650	2		20	0	0		0		4240			520	520		100%	3944	0.132	0.132
	G	4	3.800	1		30	0	1		0		1995		20	230	250		92%	1907	0.131	0.131
	F	3,4	3.800	2	11			1		0		4130	640			640	100%		3634	0.176	
	H	5	3.500	1	11			1		0		1965	30	20		50	60%		1816	0.028	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	0.053
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

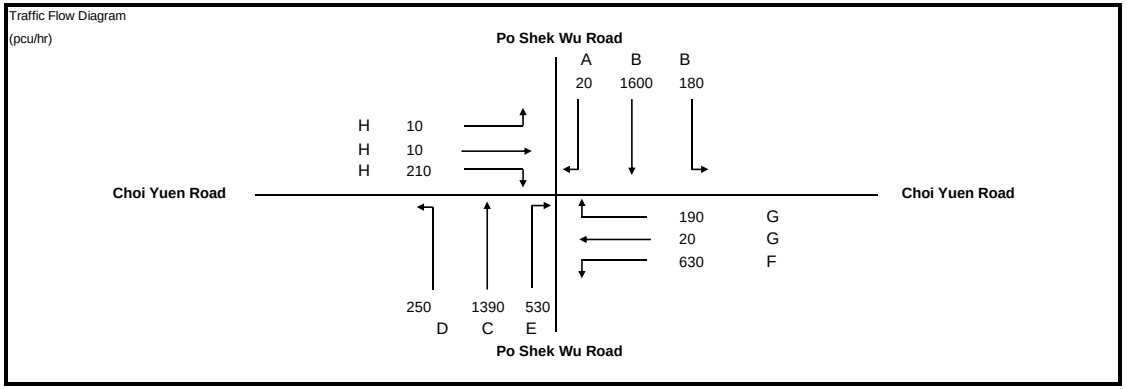
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2020 PM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

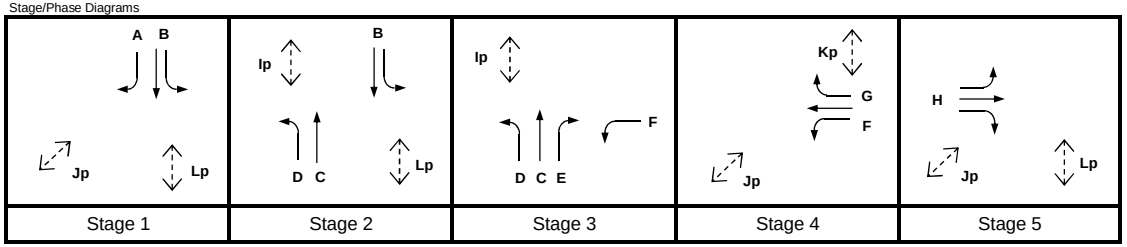
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.553	
Lost time	L =	24	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	92	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	54	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	30.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	62	sec
Y_{max}	$= 1-L/C$	=	0.813	

Stage/Phase Diagrams



Critical Case : B,E,G,H

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	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1600		1600			6255	0.256	0.256
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	250			250	100%		1919	0.130	
	C	2,3	3.650	2				0		0		4240		1390		1390			4240	0.328	
	E	3	3.650	2		20	0	0		0		4240			530	530		100%	3944	0.134	0.134
	G	4	3.800	1		30	0	1		0		1995		20	190	210		90%	1909	0.110	0.110
	F	3,4	3.800	2	11			1		0		4130	630			630	100%		3634	0.173	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	105	105		100%	1998	0.053	0.053
	H	5	3.500	1		26	0	0		0		2105			105	105		100%	1990	0.053	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

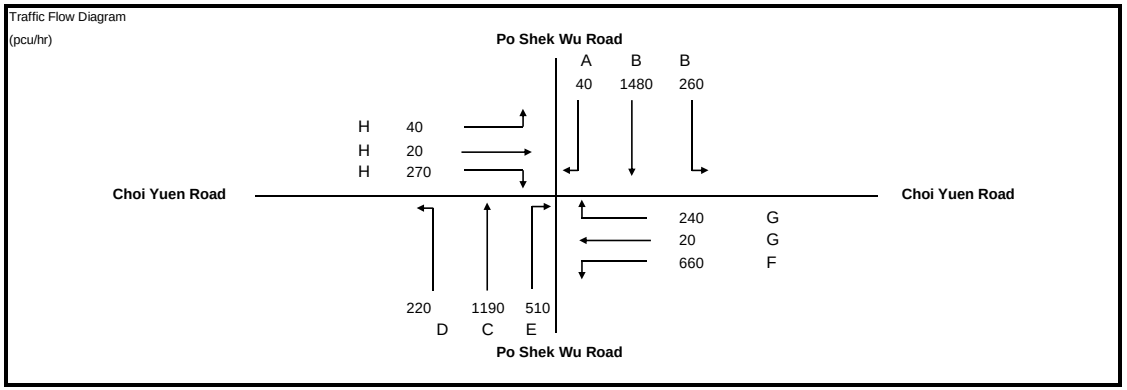
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

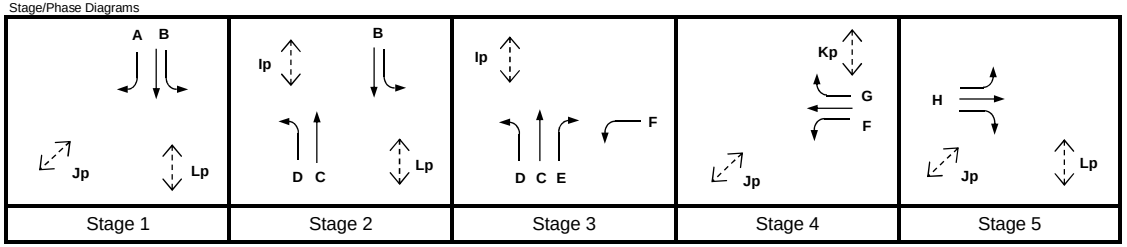
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.680	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	119	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	69	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	8.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	90	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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	1,2	3.300	1	12.5			1		0		1945	260			260	100%		1737	0.150	
	B	1,2	3.300	3				0		0		6255		1480		1480			6255	0.237	0.237
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	220			220	100%		1919	0.115	
	C	2,3	3.650	2				0		0		4240		1190		1190			4240	0.281	
	E	3	3.650	2		20	0	0		0		4240			510	510		100%	3944	0.129	
	F	3,4	3.800	1	11			1		0		1995	660			660	100%		1756	0.376	0.376
	G	4	3.800	1		26	0	0		0		2135		20	110	130		85%	2036	0.064	
	G	4	3.800	1		30	0	0		0		2135			130	130		100%	2033	0.064	
	H	5	3.500	1	11			1		0		1965	40	20		60	67%		1801	0.033	
	H	5	3.500	1		28	0			0		2105		0	135	135		100%	1998	0.068	
	H	5	3.500	1		26	0	0		0		2105			135	135		100%	1990	0.068	0.068
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

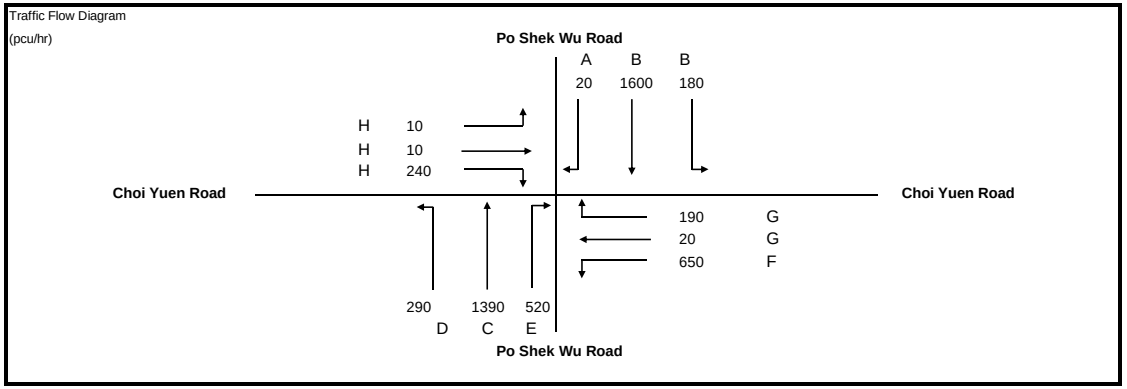
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

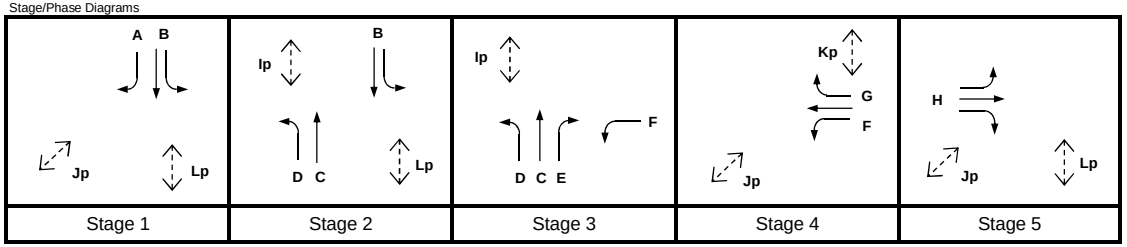
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.686	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	121	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	70	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	7.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	93	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1600		1600			6255	0.256	0.256
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	290			290	100%		1919	0.151	
	C	2,3	3.650	2				0		0		4240		1390		1390			4240	0.328	
	E	3	3.650	2		20	0	0		0		4240			520	520		100%	3944	0.132	
	F	3,4	3.800	1	11			1		0		1995	650			650	100%		1756	0.370	0.370
	G	4	3.800	1		26	0	0		0		2135		20	85	105		81%	2040	0.052	
	G	4	3.800	1		30	0	0		0		2135			105	105		100%	2033	0.052	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	120	120		100%	1998	0.060	
	H	5	3.500	1		26	0	0		0		2105			120	120		100%	1990	0.060	0.060
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

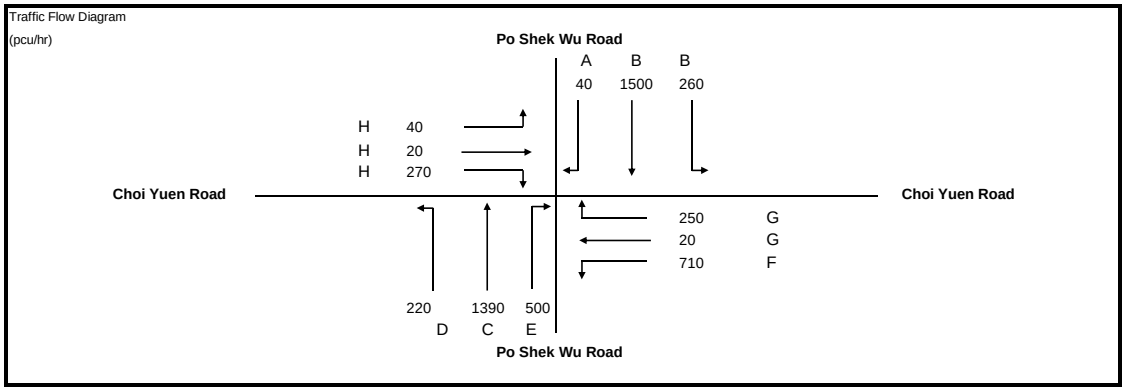
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

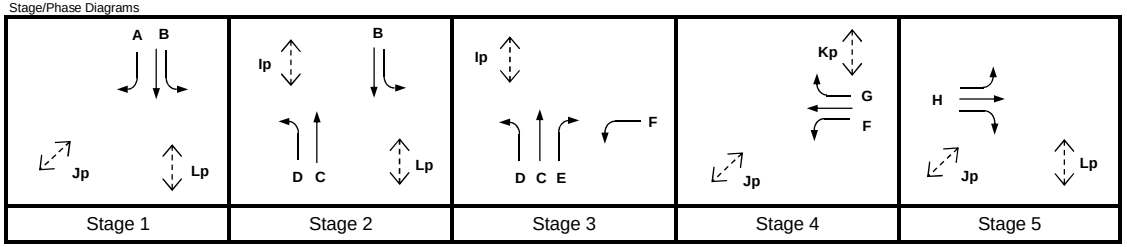
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.712	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	132	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	76	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	3.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	105	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	260			260	100%		1737	0.150	
	B	1,2	3.300	3				0		0		6255		1500		1500			6255	0.240	0.240
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	220			220	100%		1919	0.115	
	C	2,3	3.650	2				0		0		4240		1390		1390			4240	0.328	
	E	3	3.650	2		20	0	0		0		4240			500	500		100%	3944	0.127	
	F	3,4	3.800	1	11			1		0		1995	710			710	100%		1756	0.404	0.404
	G	4	3.800	1		26	0	0		0		2135		20	115	135		85%	2035	0.066	
	G	4	3.800	1		30	0	0		0		2135			135	135		100%	2033	0.066	
	H	5	3.500	1	11			1		0		1965	40	20		60	67%		1801	0.033	
	H	5	3.500	1		28	0			0		2105		0	135	135		100%	1998	0.068	
	H	5	3.500	1		26	0	0		0		2105			135	135		100%	1990	0.068	0.068
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

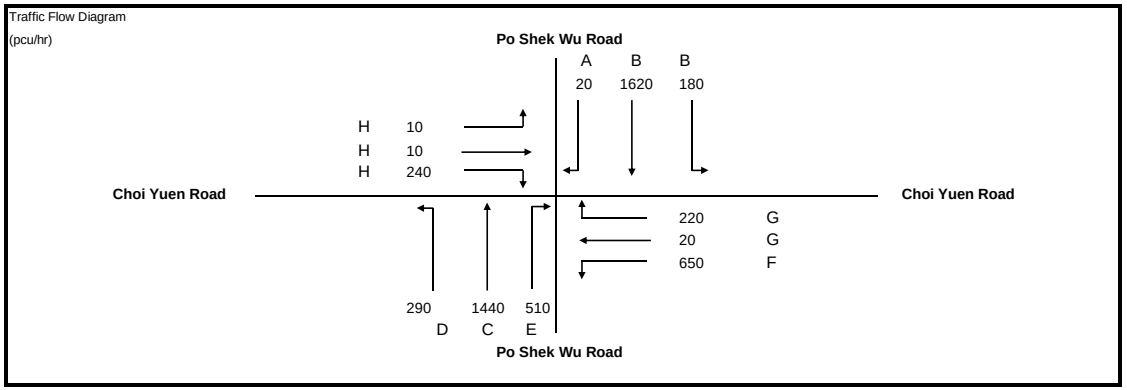
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

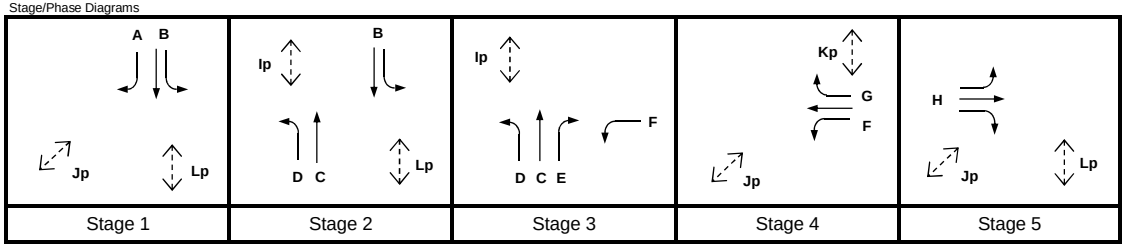
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.689	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	122	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	71	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	6.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	94	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1620		1620			6255	0.259	0.259
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	290			290	100%		1919	0.151	
	C	2,3	3.650	2				0		0		4240		1440		1440			4240	0.340	
	E	3	3.650	2		20	0	0		0		4240			510	510		100%	3944	0.129	
	F	3,4	3.800	1	11			1		0		1995	650			650	100%		1756	0.370	0.370
	G	4	3.800	1		26	0	0		0		2135		20	100	120		83%	2037	0.059	
	G	4	3.800	1		30	0	0		0		2135			120	120		100%	2033	0.059	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	120	120		100%	1998	0.060	
	H	5	3.500	1		26	0	0		0		2105			120	120		100%	1990	0.060	0.060
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

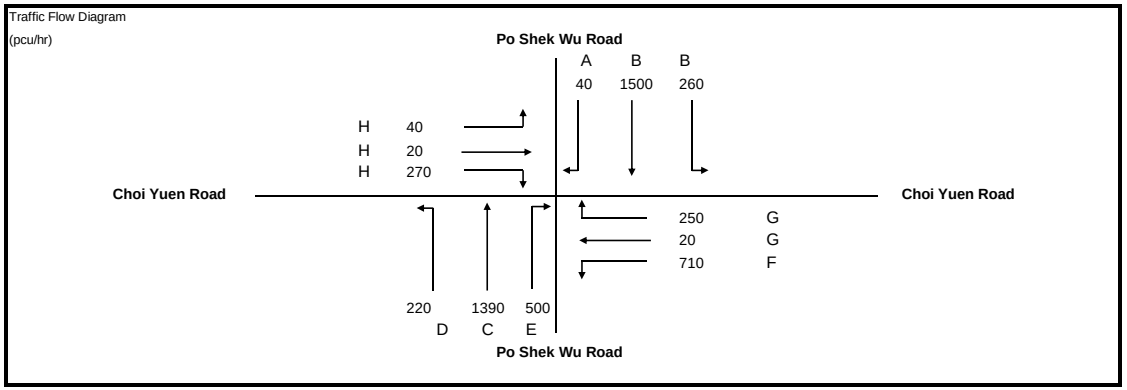
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2026 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

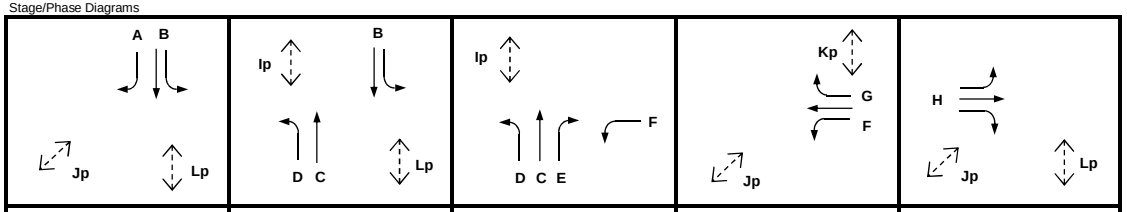
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.537	
Lost time	L =	31	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	111	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	67	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.668	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	24.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	77	sec
Y_{max}	$= 1-L/C$	=	0.758	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
G = 5	I/G = 7	I/G =	I/G = 5	I/G = 9	I/G = 8

Critical Case : A,C,G,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	260			260	100%		1737	0.150	
	B	1,2	3.300	3				0		0		6255		1500		1500			6255	0.240	
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	220			220	100%		1919	0.115	
	C	2,3	3.650	2				0		0		4240		1390		1390			4240	0.328	0.328
	E	3	3.650	2		20	0	0		0		4240			500	500		100%	3944	0.127	
	G	4	3.800	1		30	0	1		0		1995		20	250	270		93%	1907	0.142	0.142
	F	3,4	3.800	2	11			1		0		4130	710			710	100%		3634	0.195	
	H	5	3.500	1	11			1		0		1965	40	20		60	67%		1801	0.033	
	H	5	3.500	1		28	0			0		2105		0	135	135		100%	1998	0.068	
	H	5	3.500	1		26	0	0		0		2105			135	135		100%	1990	0.068	0.068
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

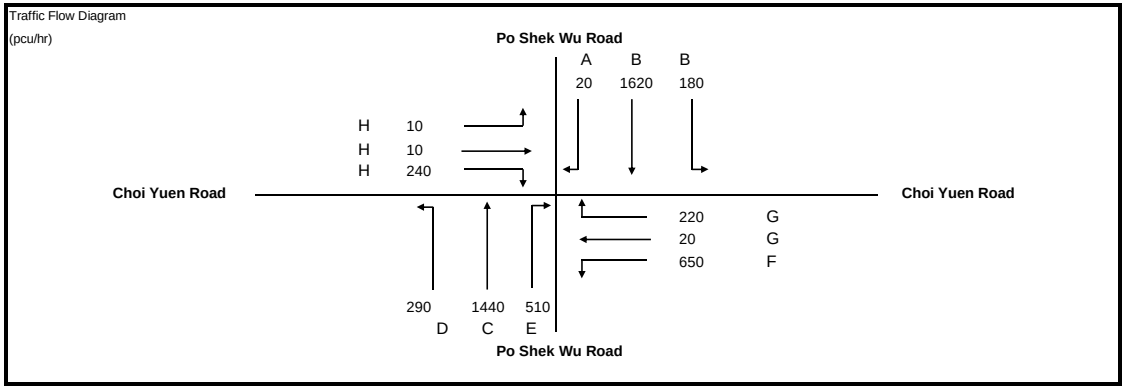
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2026 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: May 15

J15

Traffic Flow Diagram

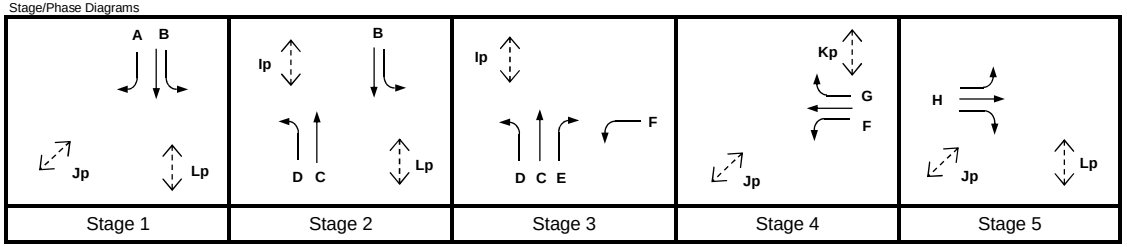
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.574	
Lost time	L =	24	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	96	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	56	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.720	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	25.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	66	sec
Y_{max}	$= 1-L/C$	=	0.813	

Stage/Phase Diagrams



Critical Case : B,E,G,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	180			180	100%		1737	0.104	
	B	1,2	3.300	3				0		0		6255		1620		1620			6255	0.259	0.259
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	290			290	100%		1919	0.151	
	C	2,3	3.650	2				0		0		4240		1440		1440			4240	0.340	
	E	3	3.650	2		20	0	0		0		4240			510	510		100%	3944	0.129	0.129
	G	4	3.800	1		30	0	1		0		1995		20	220	240		92%	1908	0.126	0.126
	F	3,4	3.800	2	11			1		0		4130	650			650	100%		3634	0.179	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	120	120		100%	1998	0.060	0.060
	H	5	3.500	1		26	0	0		0		2105			120	120		100%	1990	0.060	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

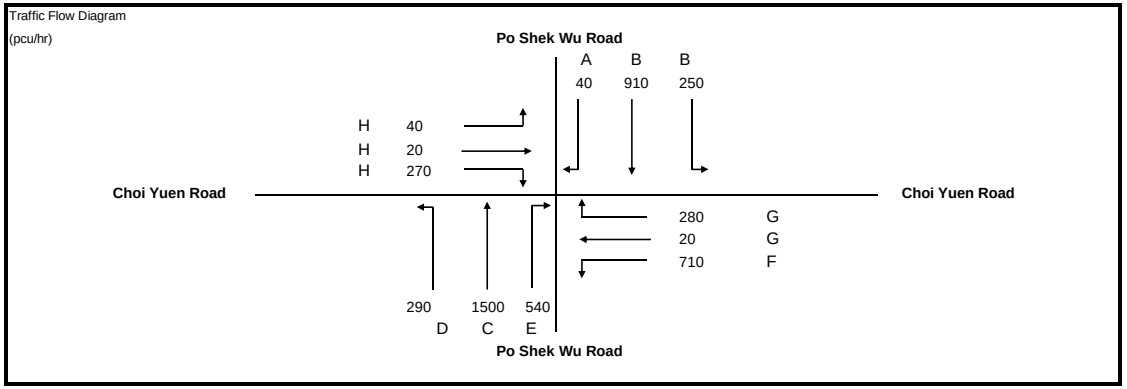
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

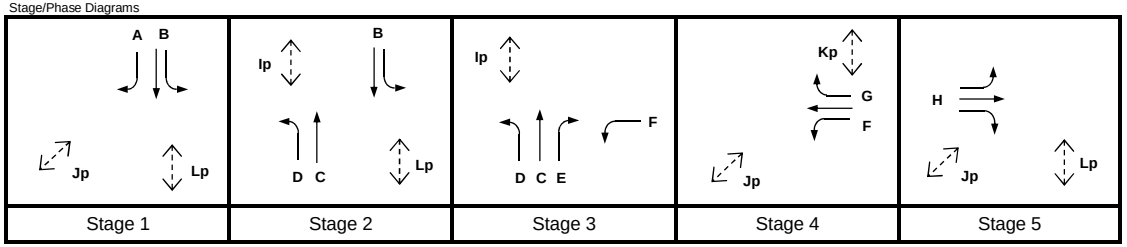
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.618	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	99	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	58	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	19.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	70	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		910		910			6255	0.145	0.145
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	290			290	100%		1919	0.151	
	C	2,3	3.650	2				0		0		4240		1500		1500			4240	0.354	
	E	3	3.650	2		20	0	0		0		4240			540	540		100%	3944	0.137	
	F	3,4	3.800	1	11			1		0		1995	710			710	100%		1756	0.404	0.404
	G	4	3.800	1		26	0	0		0		2135		20	130	150		87%	2033	0.074	
	G	4	3.800	1		30	0	0		0		2135			150	150		100%	2033	0.074	
	H	5	3.500	1	11			1		0		1965	40	20		60	67%		1801	0.033	
	H	5	3.500	1		28	0			0		2105		0	135	135		100%	1998	0.068	
	H	5	3.500	1		26	0	0		0		2105			135	135		100%	1990	0.068	0.068
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

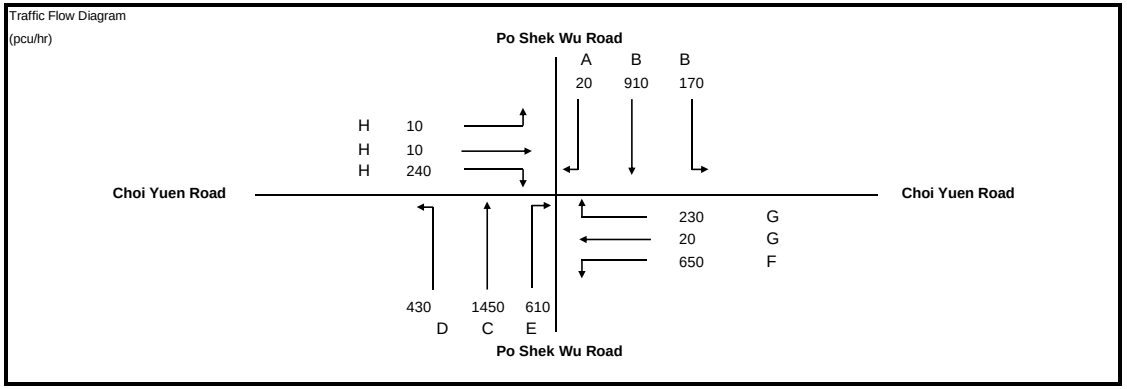
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

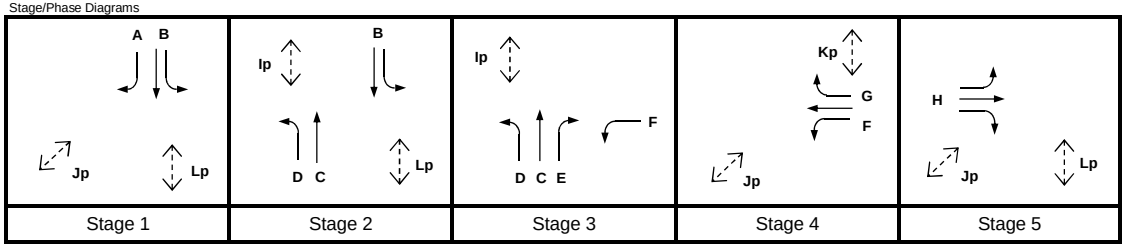
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.576	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	90	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	52	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	27.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	61	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	170			170	100%		1737	0.098	
	B	1,2	3.300	3				0		0		6255		910		910			6255	0.145	0.145
	A	1	3.300	1		24	0	0		0		2085			20	20		100%	1962	0.010	
	D	2,3	4.000	1	30			1		0		2015	430			430	100%		1919	0.224	
	C	2,3	3.650	2				0		0		4240		1450		1450			4240	0.342	
	E	3	3.650	2		20	0	0		0		4240			610	610		100%	3944	0.155	
	F	3,4	3.800	1	11			1		0		1995	650			650	100%		1756	0.370	0.370
	G	4	3.800	1		26	0	0		0		2135		20	105	125		84%	2036	0.061	
	G	4	3.800	1		30	0	0		0		2135			125	125		100%	2033	0.061	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	120	120		100%	1998	0.060	0.060
	H	5	3.500	1		26	0	0		0		2105			120	120		100%	1990	0.060	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

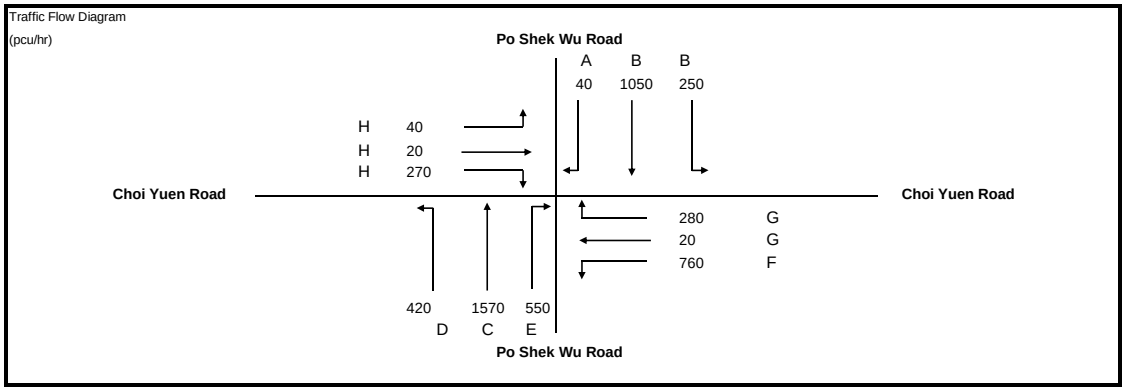
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

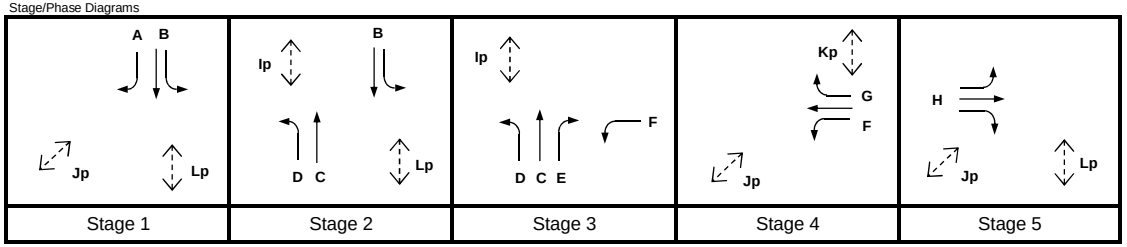
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.668	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	115	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	66	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	10.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	86	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G =	I/G = 8	I/G =	I/G = 9	I/G = 8

Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1050		1050			6255	0.168	0.168
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	420			420	100%		1919	0.219	
	C	2,3	3.650	2				0		0		4240		1570		1570			4240	0.370	
	E	3	3.650	2		20	0	0		0		4240			550	550		100%	3944	0.139	
	F	3,4	3.800	1	11			1		0		1995	760			760	100%		1756	0.433	0.433
	G	4	3.800	1		26	0	0		0		2135		20	130	150		87%	2033	0.074	
	G	4	3.800	1		30	0	0		0		2135			150	150		100%	2033	0.074	
	H	5	3.500	1	11			1		0		1965	40	20		60	67%		1801	0.033	
	H	5	3.500	1		28	0			0		2105		0	135	135		100%	1998	0.068	
	H	5	3.500	1		26	0	0		0		2105			135	135		100%	1990	0.068	0.068
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

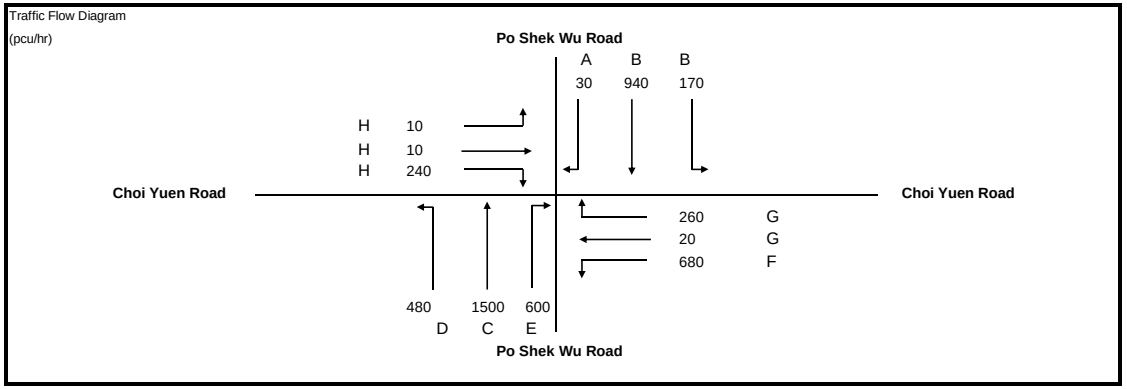
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

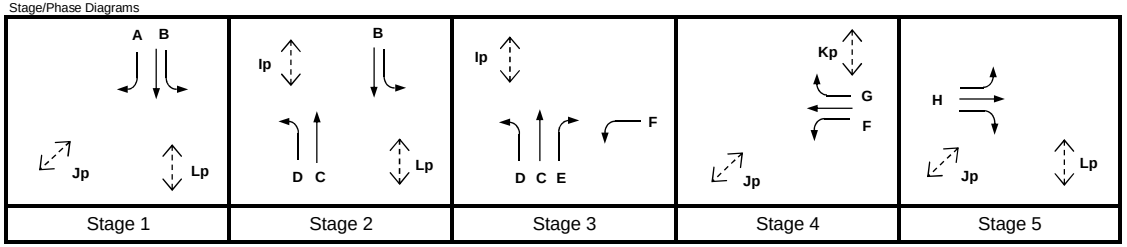
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.598	
Lost time	L =	22	sec
Total Flow	=	33,220	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	94	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	55	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	23.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	66	sec
Y_{max}	$= 1-L/C$	=	0.828	

Stage/Phase Diagrams



Critical Case : B,F,H

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*
	B	1,2	3.300	1	12.5			1		0		1945	170			170	100%		1737	0.098	
	B	1,2	3.300	3				0		0		6255		940		940			6255	0.150	0.150
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	480			480	100%		1919	0.250	
	C	2,3	3.650	2				0		0		4240		1500		1500			4240	0.354	
	E	3	3.650	2		20	0	0		0		4240			600	600		100%	3944	0.152	
	F	3,4	3.800	1	11			1		0		1995	680			680	100%		1756	0.387	0.387
	G	4	3.800	1		26	0	0		0		2135		20	120	140		86%	2034	0.069	
	G	4	3.800	1		30	0	0		0		2135			140	140		100%	2033	0.069	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	120	120		100%	1998	0.060	0.060
	H	5	3.500	1		26	0	0		0		2105			120	120		100%	1990	0.060	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

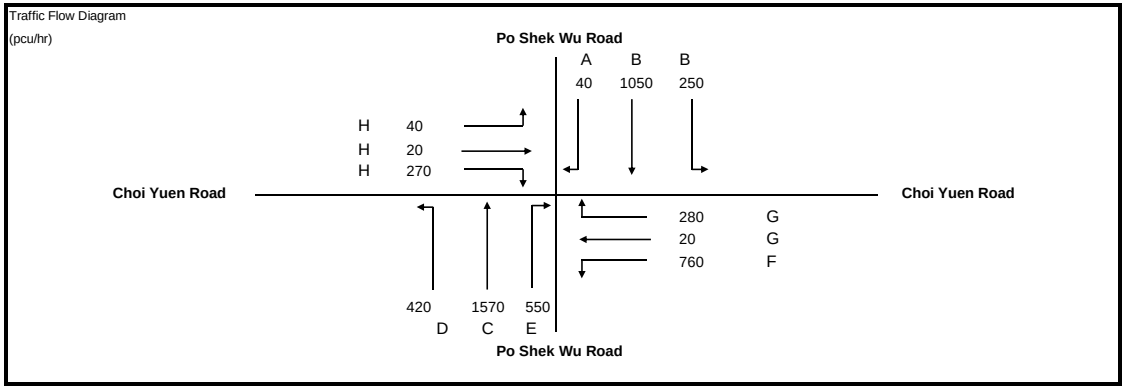
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2031 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

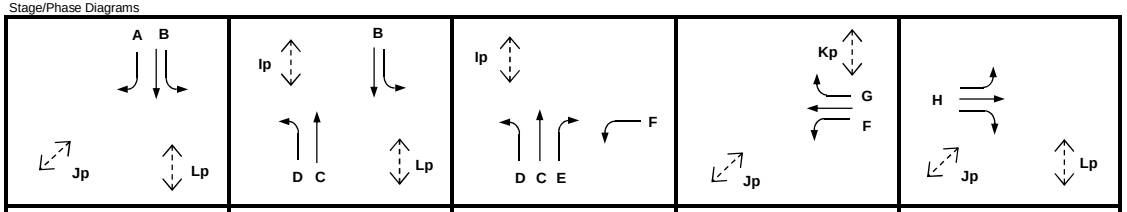
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.595	
Lost time	L =	31	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	127	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	77	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.668	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	12.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	92	sec
Y_{max}	$= 1-L/C$	=	0.758	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
G = 5 I/G = 7	I/G =	I/G = 5	I/G = 9	I/G = 8

Critical Case : A,C,G,H

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	1,2	3.300	1	12.5			1		0		1945	250			250	100%		1737	0.144	
	B	1,2	3.300	3				0		0		6255		1050		1050			6255	0.168	
	A	1	3.300	1		24	0	0		0		2085			40	40		100%	1962	0.020	
	D	2,3	4.000	1	30			1		0		2015	420			420	100%		1919	0.219	
	C	2,3	3.650	2				0		0		4240		1570		1570			4240	0.370	0.370
	E	3	3.650	2		20	0	0		0		4240			550	550		100%	3944	0.139	
	G	4	3.800	1		30	0	1		0		1995		20	280	300		93%	1906	0.157	0.157
	F	3,4	3.800	2	11			1		0		4130	760			760	100%		3634	0.209	
	H	5	3.500	1	11			1		0		1965	40	20		60	67%		1801	0.033	
	H	5	3.500	1		28	0			0		2105		0	135	135		100%	1998	0.068	
	H	5	3.500	1		26	0	0		0		2105			135	135		100%	1990	0.068	0.068
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

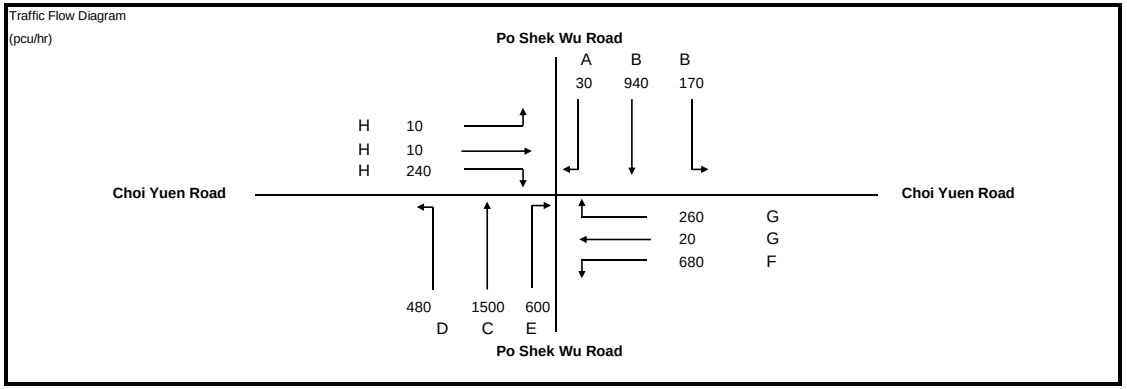
AECOM

Junction J15 - Po Shek Wu Road / Choi Yuen Road	2031 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J15

Traffic Flow Diagram

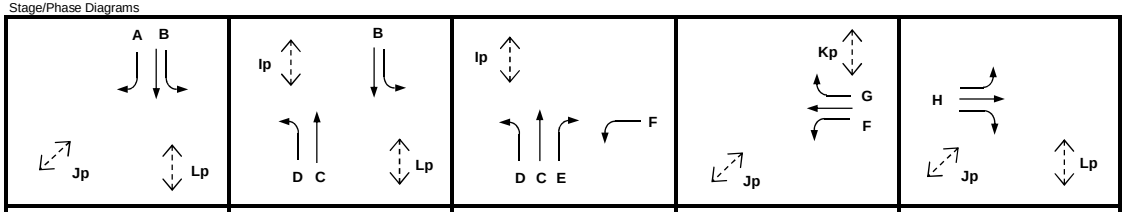
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.561	
Lost time	L =	31	sec
Total Flow	=	33,080	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	117	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	71	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.668	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	19.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	82	sec
Y_{max}	$= 1-L/C$	=	0.758	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
G = 5	I/G = 7	I/G =	I/G = 5	I/G = 9	I/G = 8

Critical Case : A,C,G,H

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	1,2	3.300	1	12.5			1		0		1945	170			170	100%		1737	0.098	
	B	1,2	3.300	3				0		0		6255		940		940			6255	0.150	
	A	1	3.300	1		24	0	0		0		2085			30	30		100%	1962	0.015	
	D	2,3	4.000	1	30			1		0		2015	480			480	100%		1919	0.250	
	C	2,3	3.650	2				0		0		4240		1500		1500			4240	0.354	0.354
	E	3	3.650	2		20	0	0		0		4240			600	600		100%	3944	0.152	
	G	4	3.800	1		30	0	1		0		1995		20	260	280		93%	1906	0.147	0.147
	F	3,4	3.800	2	11			1		0		4130	680			680	100%		3634	0.187	
	H	5	3.500	1	11			1		0		1965	10	10		20	50%		1840	0.011	
	H	5	3.500	1		28	0			0		2105		0	120	120		100%	1998	0.060	0.060
	H	5	3.500	1		26	0	0		0		2105			120	120		100%	1990	0.060	
Pedestrian Crossing				GM		FGM															
	Ip	2,3	min.	5	+	19	=	24	sec												
	Jp	1,4,5	min.	5	+	5	=	10	sec												
	Kp	4	min.	5	+	9	=	14	sec												
	Lp	1,2,4	min.	6	+	12	=	18	sec												

JUNCTION CAPACITY CALCULATION

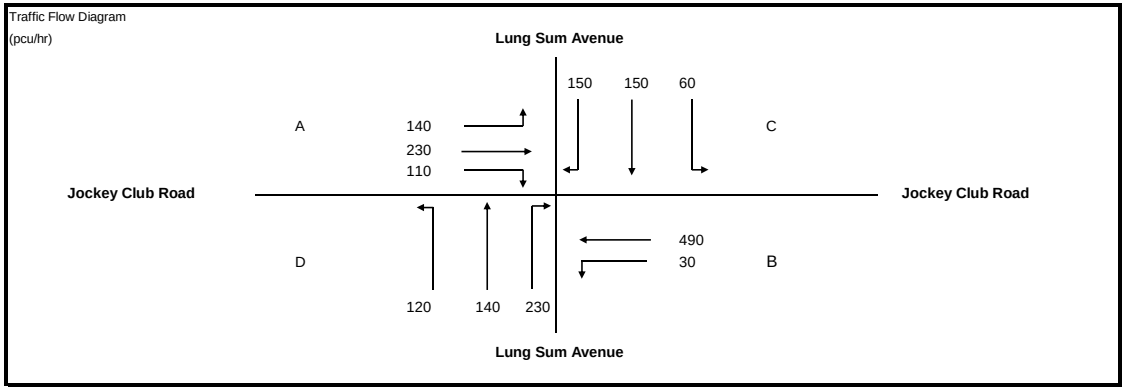
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2015 AM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

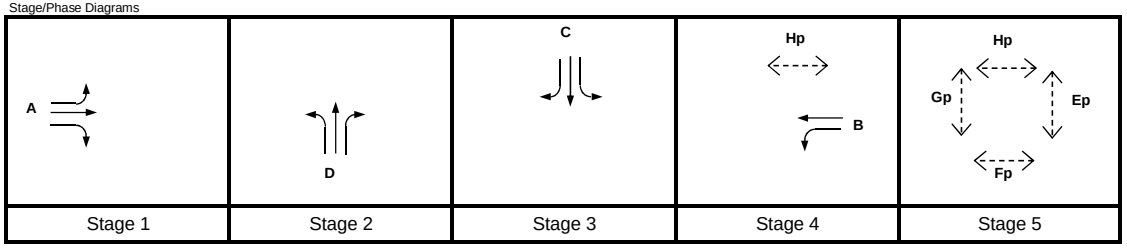
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.496	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	165	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	103	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	2.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	116	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	14			1		0		2015	140	88		228	61%		1891	0.121	
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	0.121
	D	2	3.650	1	14			1		0		1980	120	140		260	46%		1887	0.138	0.138
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	60	150		210	29%		1921	0.109	0.109
	B	4	3.500	1	14			1		0		1965	30	219		249	12%		1940	0.129	0.129
	B	4	3.500	1				0		0		2105		271		271			2105	0.129	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

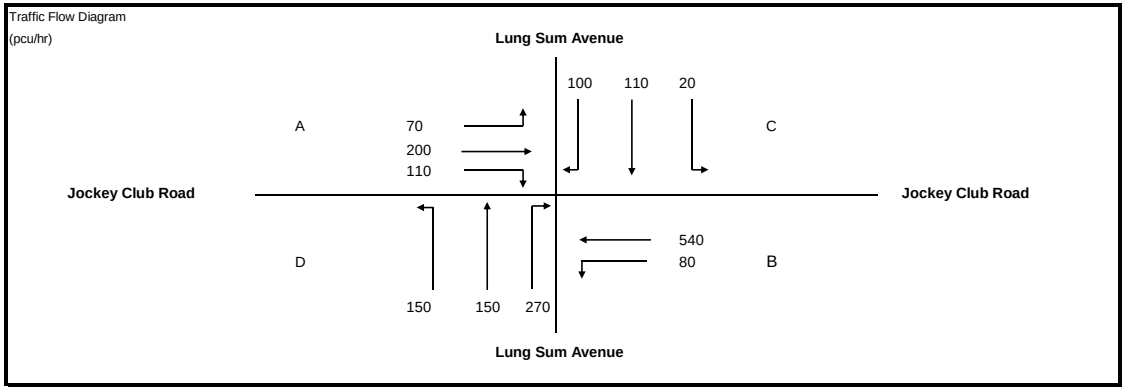
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2015 PM Observed Flow	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

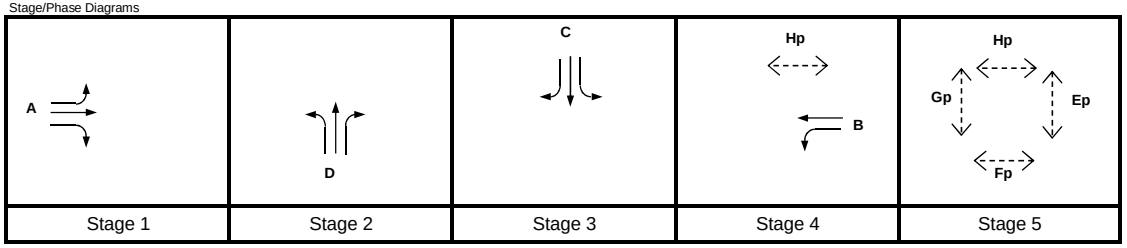
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.476	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	158	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	99	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	7.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	110	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	14			1		0		2015	70	114		184	38%		1936	0.095	
	A	1	4.000	1		20	0	0		0		2155		86	110	196		56%	2068	0.095	0.095
	D	2	3.650	1	14			1		0		1980	150	150		300	50%		1879	0.160	0.160
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	215		295	27%		1910	0.154	0.154
	B	4	3.500	1				0		0		2105		325		325			2105	0.154	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

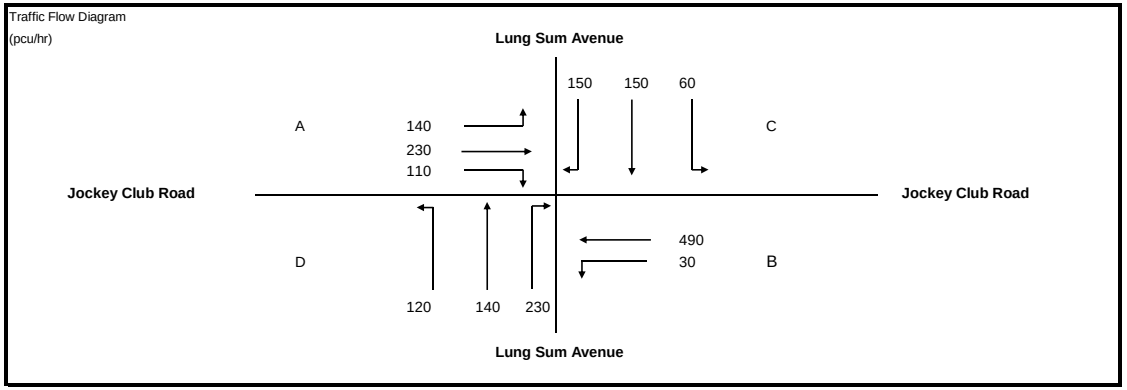
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2017 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

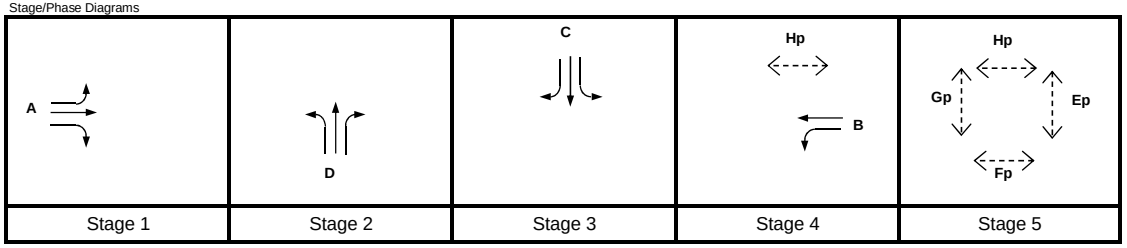
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.496	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	165	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	103	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	2.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	116	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9	I/G = 19

Critical Case : A,D,C,B,Fp

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	14			1		0		2015	140	88		228	61%		1891	0.121	
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	0.121
	D	2	3.650	1	14			1		0		1980	120	140		260	46%		1887	0.138	0.138
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	60	150		210	29%		1921	0.109	0.109
	B	4	3.500	1	14			1		0		1965	30	219		249	12%		1940	0.129	0.129
	B	4	3.500	1				0		0		2105		271		271			2105	0.129	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

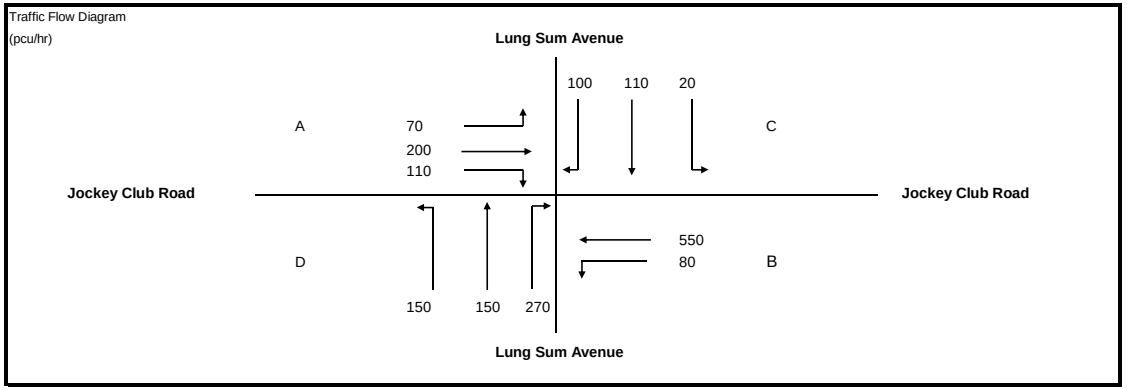
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2017 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J16

Traffic Flow Diagram

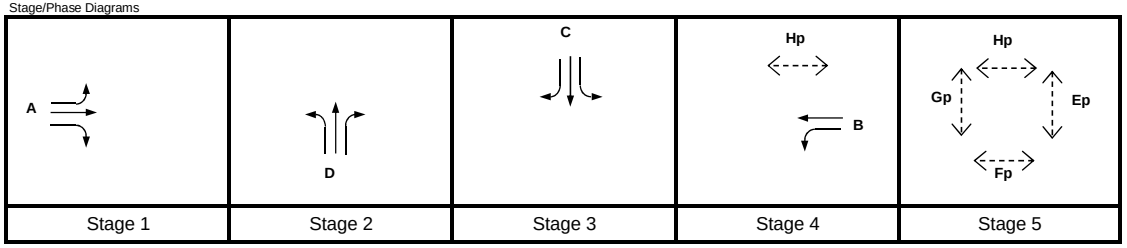
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.478	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	159	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	100	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	6.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	111	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



I/G = 6 I/G = 7 I/G = 7 I/G = 8 G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	14			1		0		2015	70	114		184	38%		1936	0.095	
	A	1	4.000	1		20	0	0		0		2155		86	110	196		56%	2068	0.095	0.095
	D	2	3.650	1	14			1		0		1980	150	150		300	50%		1879	0.160	0.160
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	220		300	27%		1910	0.157	0.157
	B	4	3.500	1				0		0		2105		330		330			2105	0.157	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

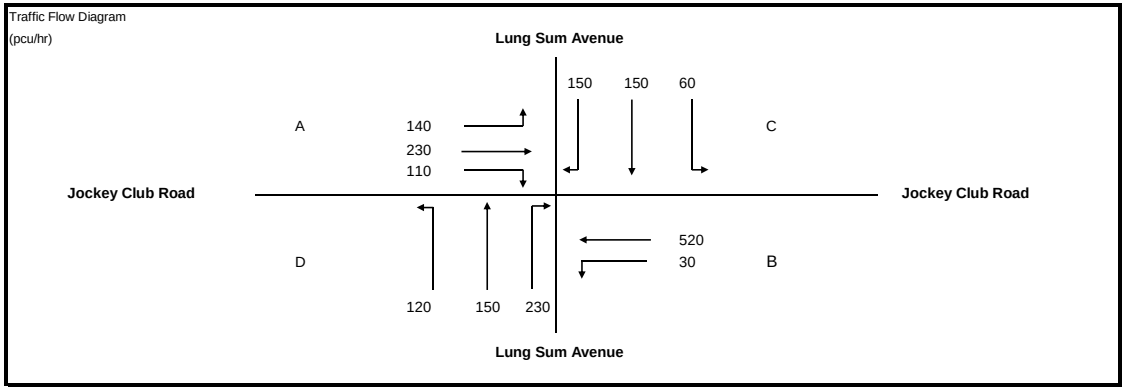
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2019 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

Traffic Flow Diagram

(pcu/hr)

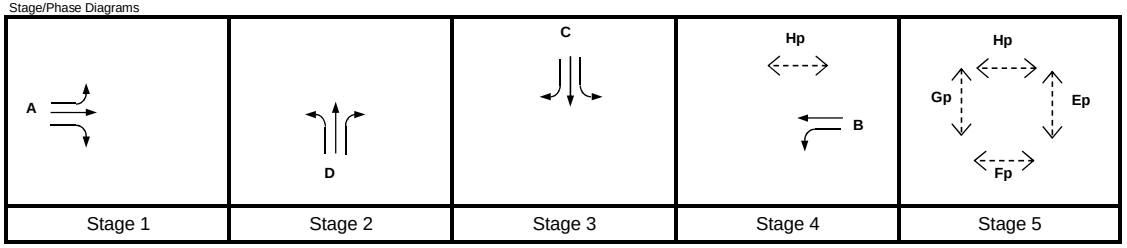


J16

No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.509	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	169	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	106	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	0.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	120	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	4.000	1	14			1		0		2015	140	88		228	61%		1891	0.121	0.121
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	
	D	2	3.650	1	14			1		0		1980	120	150		270	44%		1890	0.143	0.143
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	60	150		210	29%		1921	0.109	0.109
	B	4	3.500	1	14			1		0		1965	30	234		264	11%		1941	0.136	0.136
	B	4	3.500	1				0		0		2105		286		286			2105	0.136	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

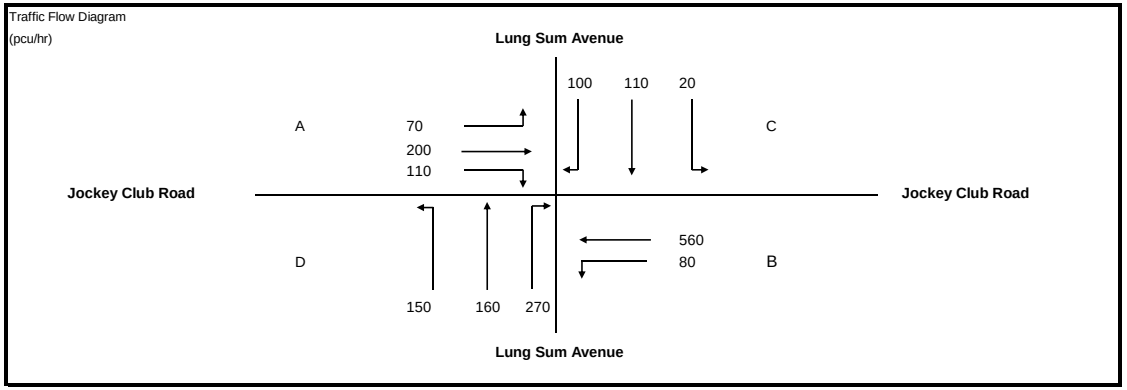
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2019 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

Traffic Flow Diagram

(pcu/hr)

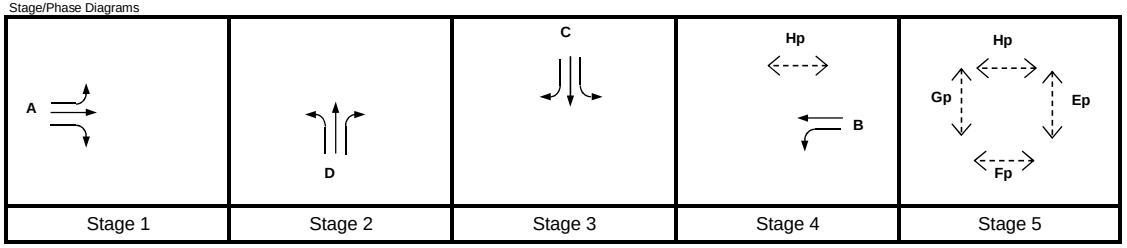


J16

No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.486	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	161	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	101	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	5.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	113	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	4.000	1	14			1		0		2015	70	114		184	38%		1936	0.095	
	A	1	4.000	1		20	0	0		0		2155		86	110	196		56%	2068	0.095	0.095
	D	2	3.650	1	14			1		0		1980	150	160		310	48%		1882	0.165	0.165
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	225		305	26%		1911	0.159	0.159
	B	4	3.500	1				0		0		2105		335		335			2105	0.159	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

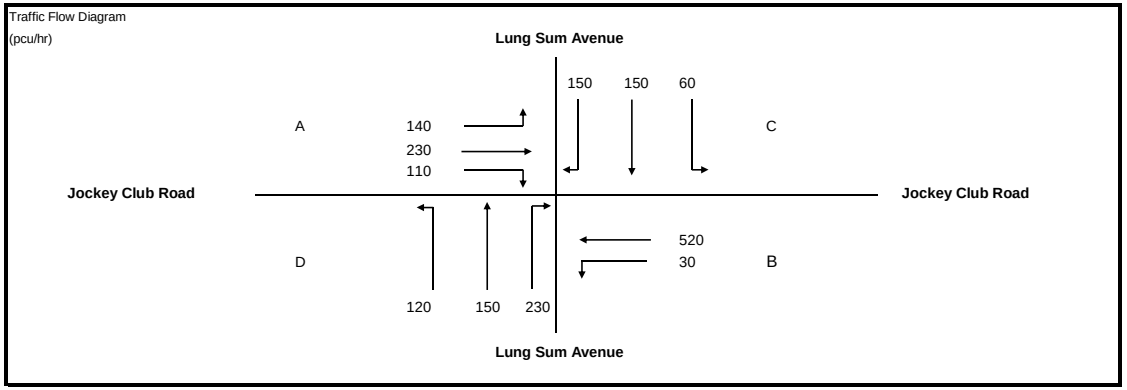
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2019 AM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J16

Traffic Flow Diagram

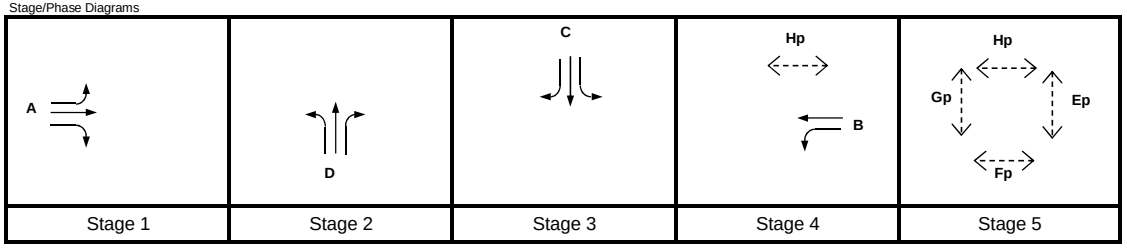
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.509	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	169	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	106	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	0.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	120	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	4.000	1	14			1		0		2015	140	88		228	61%		1891	0.121	0.121
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	
	D	2	3.650	1	14			1		0		1980	120	150		270	44%		1890	0.143	0.143
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	60	150		210	29%		1921	0.109	0.109
	B	4	3.500	1	14			1		0		1965	30	234		264	11%		1941	0.136	0.136
	B	4	3.500	1				0		0		2105		286		286			2105	0.136	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

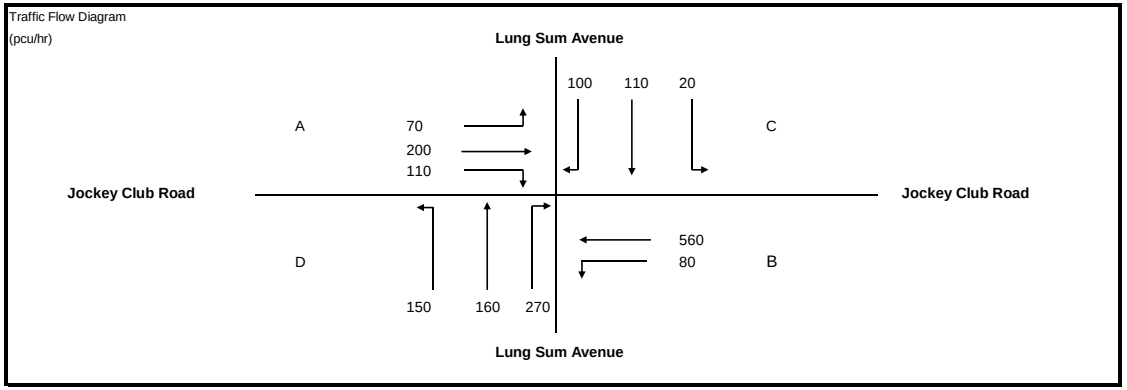
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2019 PM CTIA Critical Stage	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jul 15

J16

Traffic Flow Diagram

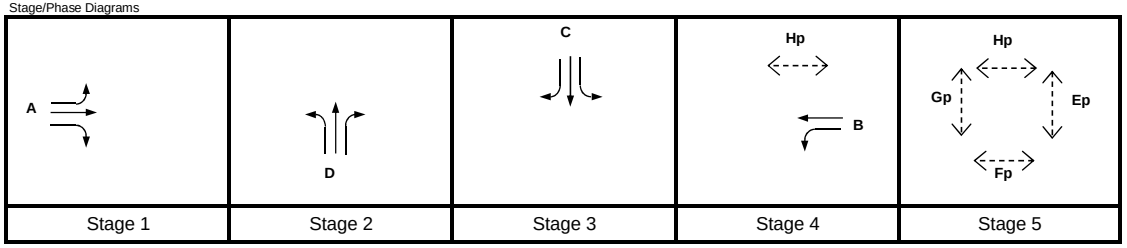
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.486	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	161	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	101	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	5.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	113	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\%$ = 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	4.000	1	14			1		0		2015	70	114		184	38%		1936	0.095	
	A	1	4.000	1		20	0	0		0		2155		86	110	196		56%	2068	0.095	0.095
	D	2	3.650	1	14			1		0		1980	150	160		310	48%		1882	0.165	0.165
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	225		305	26%		1911	0.159	0.159
	B	4	3.500	1				0		0		2105		335		335			2105	0.159	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

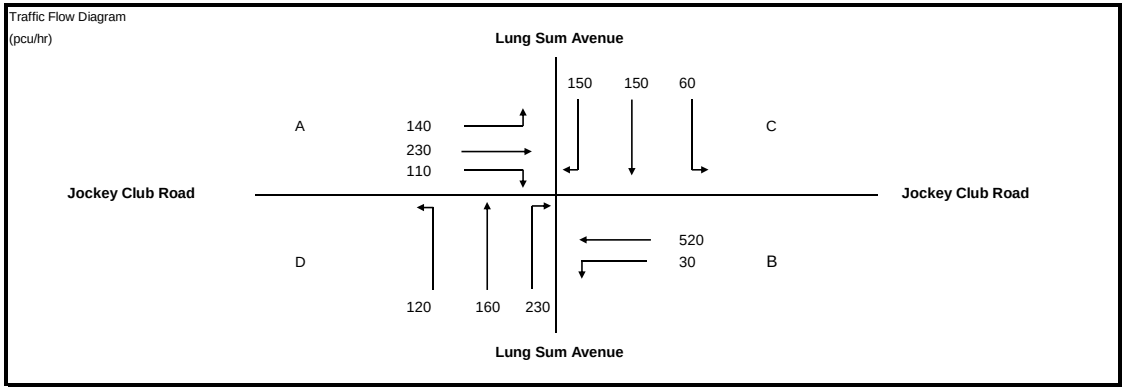
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 AM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

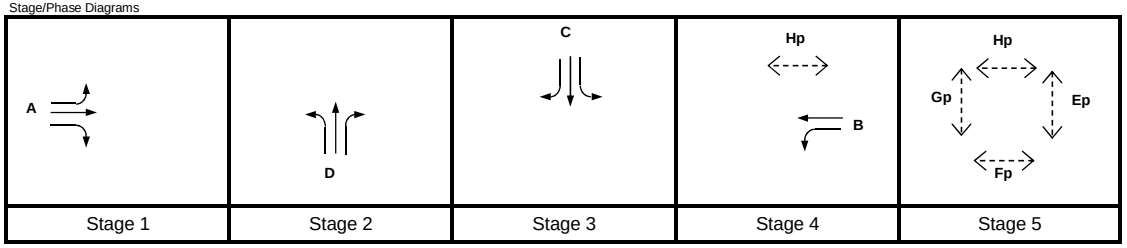
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.514	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	171	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	107	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-0.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	121	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

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	1	4.000	1	14			1		0		2015	140	88		228	61%		1891	0.121	0.121
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	
	D	2	3.650	1	14			1		0		1980	120	160		280	43%		1893	0.148	0.148
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	60	150		210	29%		1921	0.109	0.109
	B	4	3.500	1	14			1		0		1965	30	234		264	11%		1941	0.136	
	B	4	3.500	1				0		0		2105		286		286			2105	0.136	0.136
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

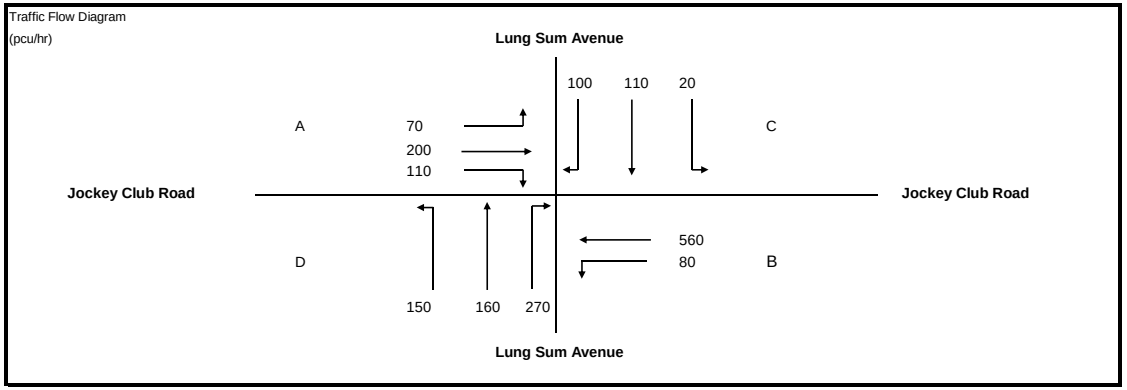
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 PM Reference Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

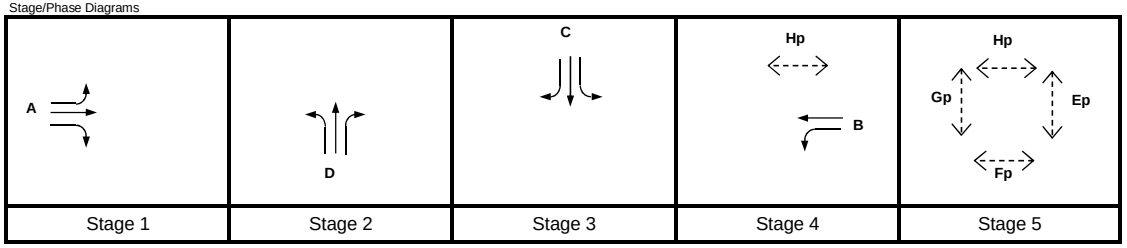
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.486	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	161	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	101	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	5.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	113	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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*
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	D	2	3.650	1	14			1		0		1980	150	160		310	48%		1882	0.165	0.165
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	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	225		305	26%		1911	0.159	0.159
	B	4	3.500	1				0		0		2105		335		335			2105	0.159	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

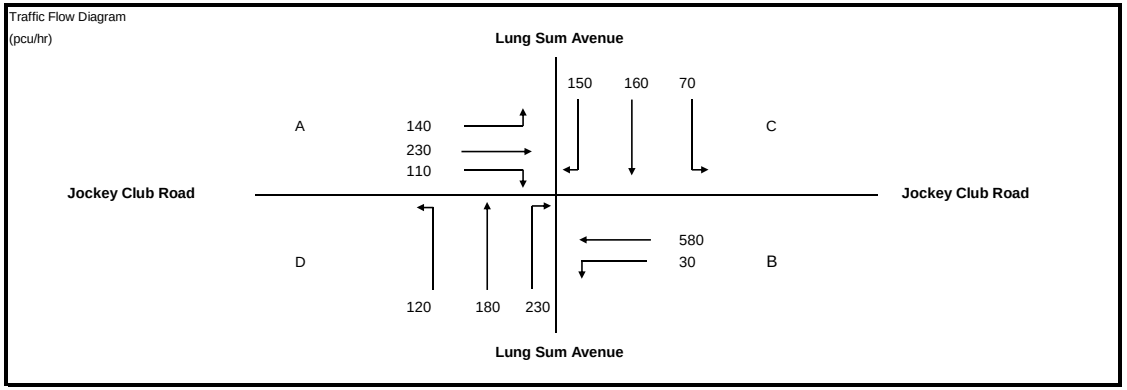
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 AM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

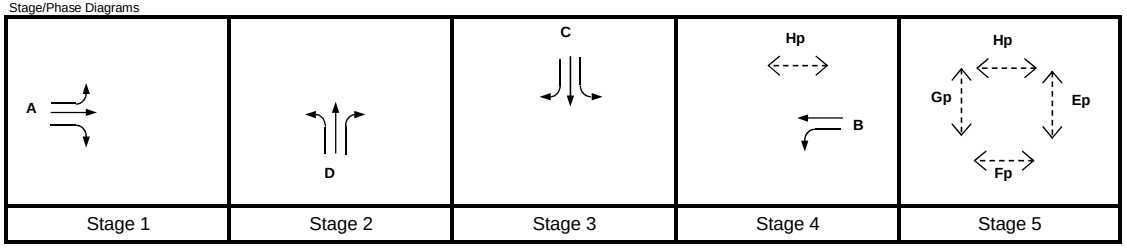
(pcu/hr)



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Sum(y)	Y =	0.549	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	184	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	115	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-7.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	133	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	4.000	1	14			1		0		2015	140	88		228	61%		1891	0.121	
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	0.121
	D	2	3.650	1	14			1		0		1980	120	180		300	40%		1899	0.158	0.158
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	70	160		230	30%		1917	0.120	0.120
	B	4	3.500	1	14			1		0		1965	30	263		293	10%		1944	0.151	0.151
	B	4	3.500	1				0		0		2105		317		317			2105	0.151	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

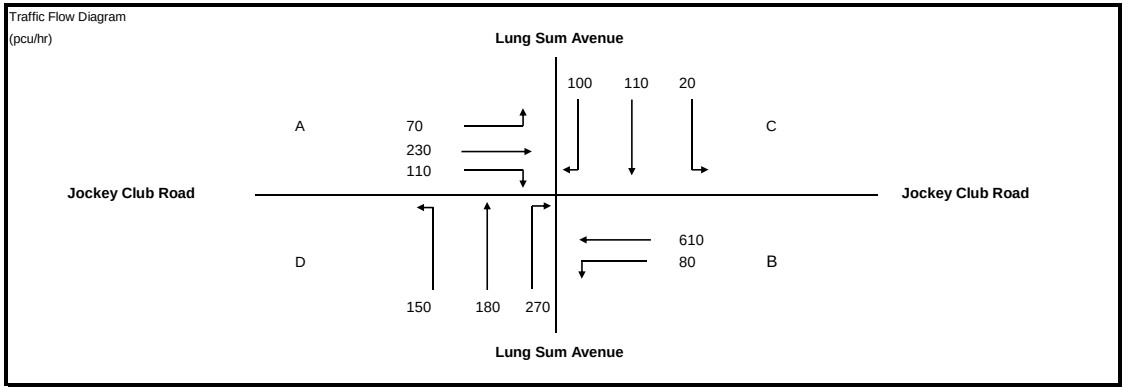
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 PM Design Case (Without Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

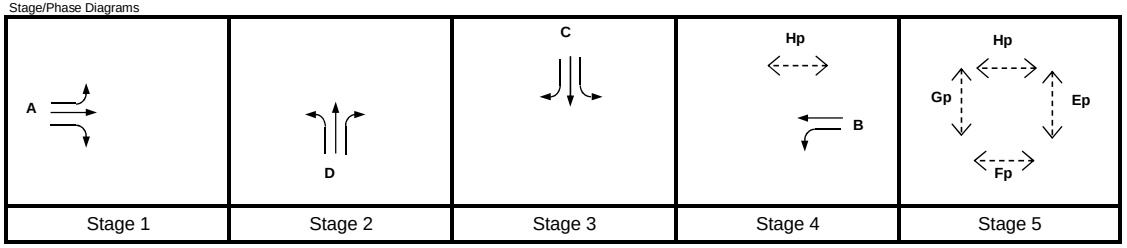
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.515	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	171	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	107	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-1.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	122	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 / I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 4%

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	14			1		0		2015	70	128		198	35%		1942	0.102	
	A	1	4.000	1		20	0	0		0		2155		102	110	212		52%	2074	0.102	0.102
	D	2	3.650	1	14			1		0		1980	150	180		330	45%		1888	0.175	0.175
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	249		329	24%		1915	0.172	0.172
	B	4	3.500	1				0		0		2105		361		361			2105	0.172	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

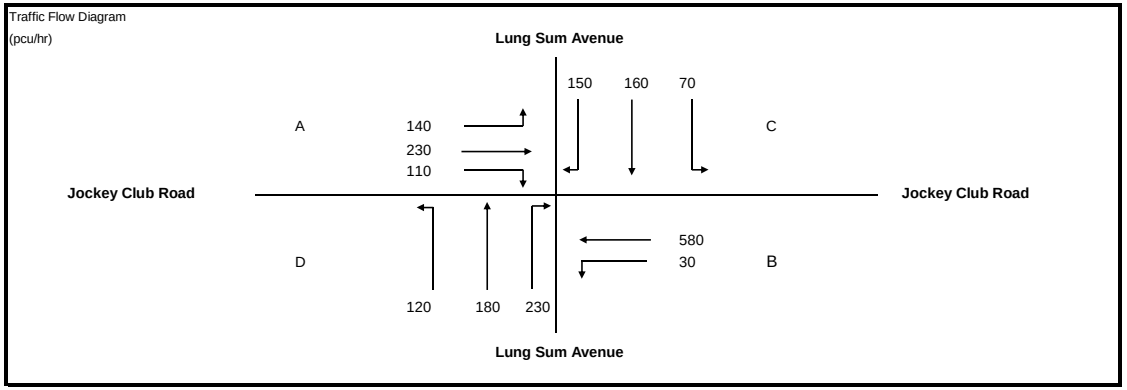
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 AM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

Traffic Flow Diagram

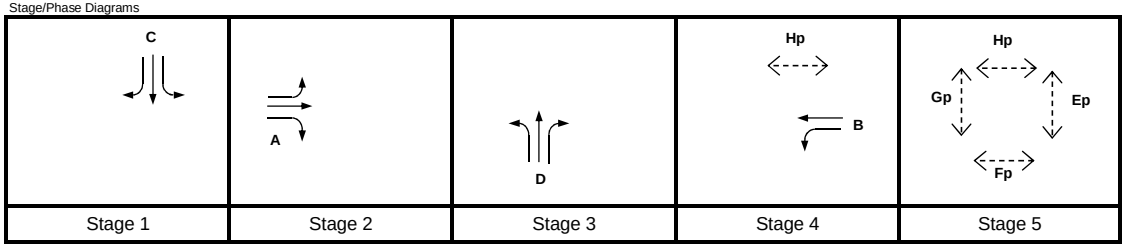
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.504	
Lost time	L =	48	sec
Total Flow	=	16,470	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	155	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	97	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	7.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	109	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 5 I/G = 8 G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	4.000	1	15			1		0		2015	140	89		229	61%		1899	0.120	0.120
	A	2	4.000	1		20	0	0		0		2155		141	110	251		44%	2087	0.120	
	D	3	3.650	1	15			1		0		1980	120	138		258	46%		1892	0.136	0.136
	D	3	3.650	1		20	0	0		0		2120		42	230	272		85%	1994	0.136	
	C	1	3.650	1	14			1		0		1980	70	115		185	38%		1903	0.097	0.097
	C	1	3.650	1		20	0	0		0		2120		45	150	195		77%	2004	0.097	
	B	4	3.650	1	14			1		0		1980	30	263		293	10%		1959	0.150	0.150
	B	4	3.650	1				0		0		2120		317		317			2120	0.150	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

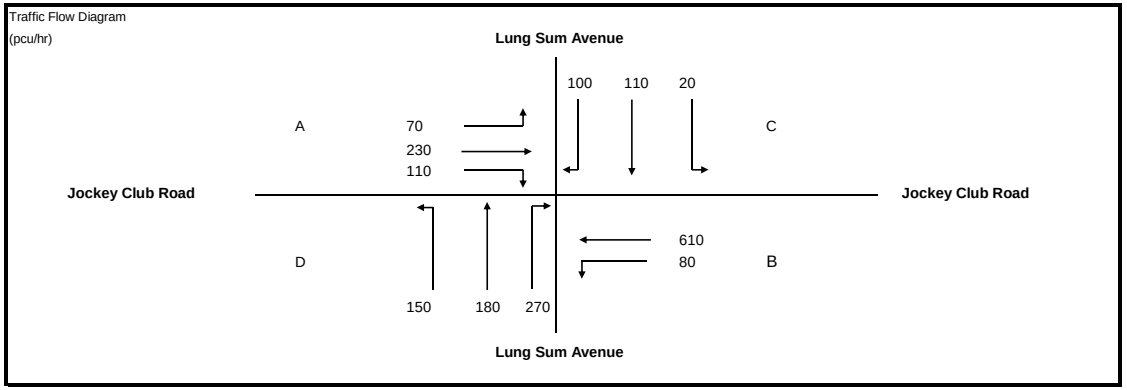
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 PM Design Case (Without Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

Traffic Flow Diagram

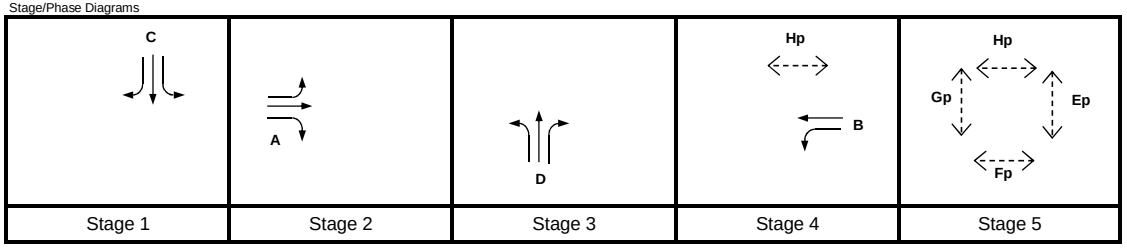
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.486	
Lost time	L =	48	sec
Total Flow	=	16,470	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	150	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	93	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	11.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	104	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 6	I/G = 5	I/G = 8	G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

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*
	A	2	4.000	1	15			1		0		2015	70	128		198	35%		1946	0.102	0.102
	A	2	4.000	1		20	0	0		0		2155		102	110	212		52%	2074	0.102	
	D	3	3.650	1	15			1		0		1980	150	142		292	51%		1883	0.155	
	D	3	3.650	1		20	0	0		0		2120		38	270	308		88%	1989	0.155	0.155
	C	1	3.650	1	14			1		0		1980	20	94		114	18%		1943	0.058	0.058
	C	1	3.650	1		20	0	0		0		2120		16	100	116		86%	1992	0.058	
	B	4	3.650	1	14			1		0		1980	80	249		329	24%		1930	0.170	0.170
	B	4	3.650	1				0		0		2120		361		361			2120	0.170	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

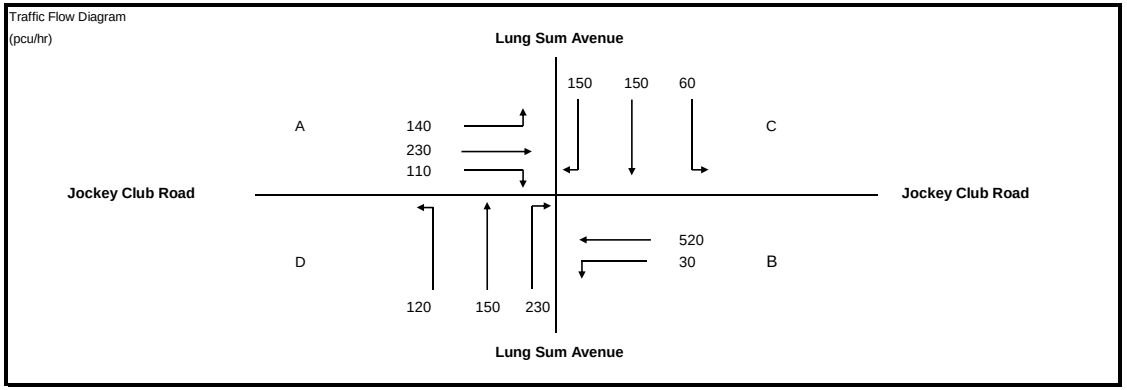
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 AM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

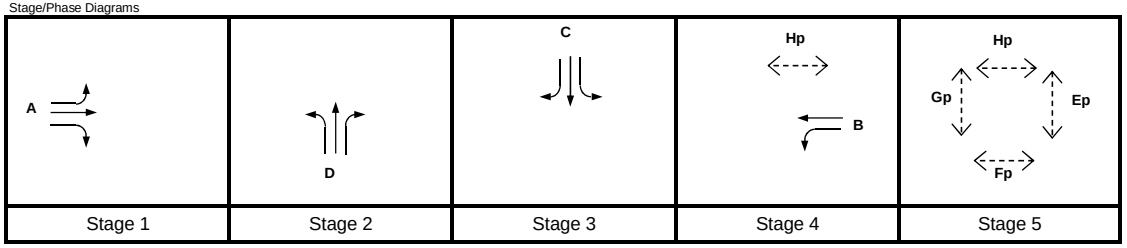
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.509	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	169	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	106	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	0.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	120	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

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	4.000	1	14			1		0		2015	140	88		228	61%		1891	0.121	
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	0.121
	D	2	3.650	1	14			1		0		1980	120	150		270	44%		1890	0.143	0.143
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	60	150		210	29%		1921	0.109	0.109
	B	4	3.500	1	14			1		0		1965	30	234		264	11%		1941	0.136	0.136
	B	4	3.500	1				0		0		2105		286		286			2105	0.136	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

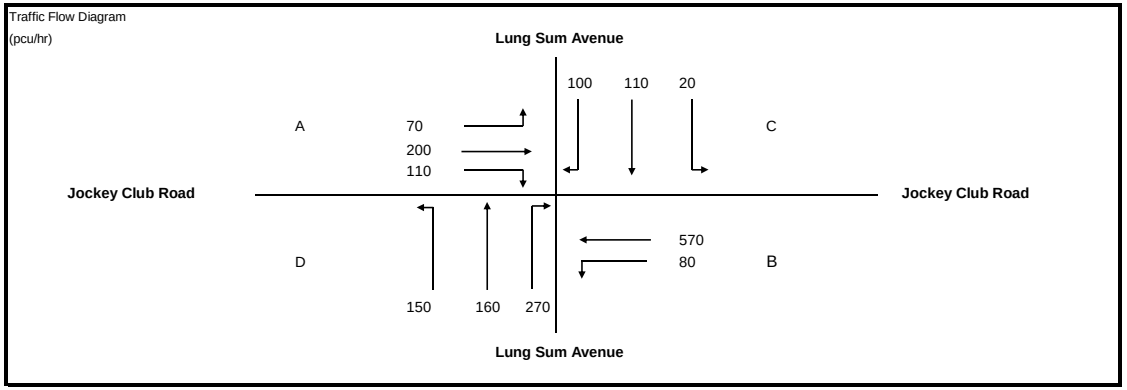
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 PM Reference Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

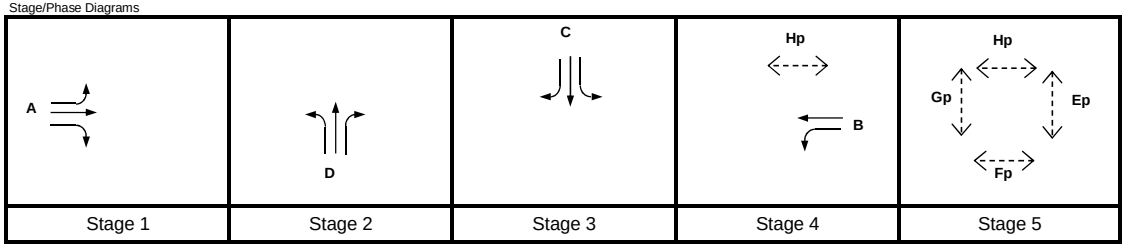
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.488	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	162	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	102	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	4.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	114	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

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	4.000	1	14			1		0		2015	70	114		184	38%		1936	0.095	
	A	1	4.000	1		20	0	0		0		2155		86	110	196		56%	2068	0.095	0.095
	D	2	3.650	1	14			1		0		1980	150	160		310	48%		1882	0.165	0.165
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	229		309	26%		1912	0.162	0.162
	B	4	3.500	1				0		0		2105		341		341			2105	0.162	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

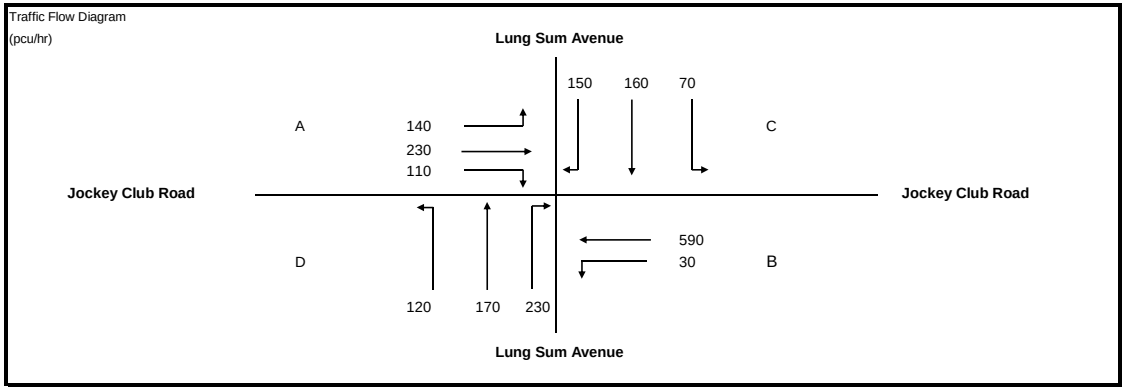
JUNCTION CAPACITY CALCULATION

AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 AM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

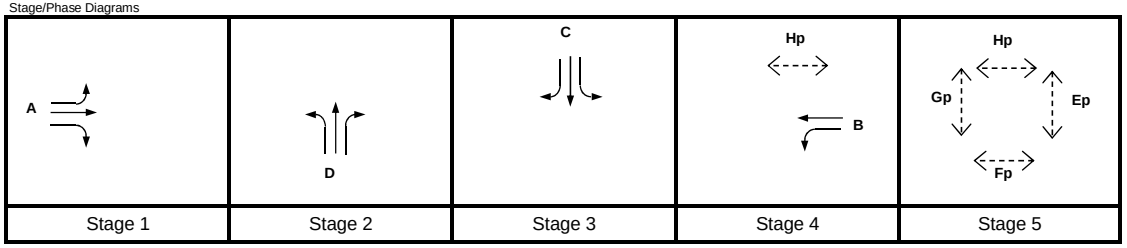
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.547	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	183	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	115	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-6.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	132	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

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	1	4.000	1	14			1		0		2015	140	88		228	61%		1891	0.121	
	A	1	4.000	1		20	0	0		0		2155		142	110	252		44%	2087	0.121	0.121
	D	2	3.650	1	14			1		0		1980	120	170		290	41%		1896	0.153	0.153
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	70	160		230	30%		1917	0.120	0.120
	B	4	3.500	1	14			1		0		1965	30	268		298	10%		1944	0.153	0.153
	B	4	3.500	1				0		0		2105		322		322			2105	0.153	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

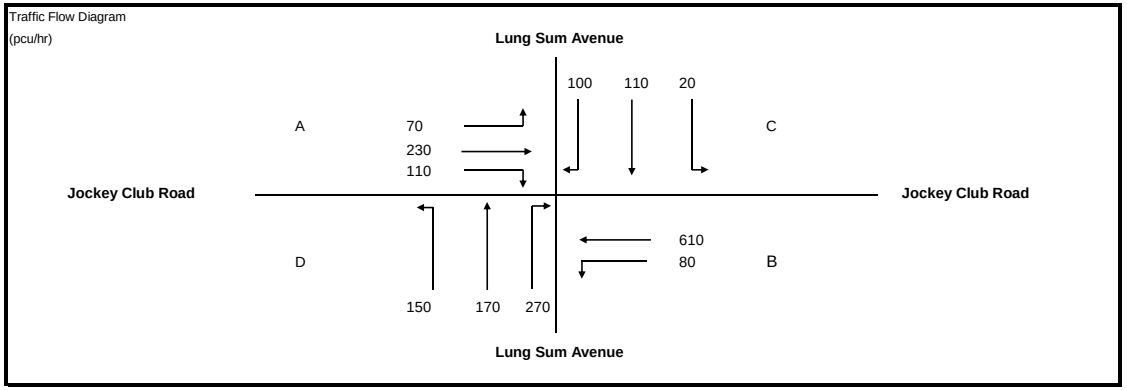
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 PM Design Case (With Liantang/ HYW BCP)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

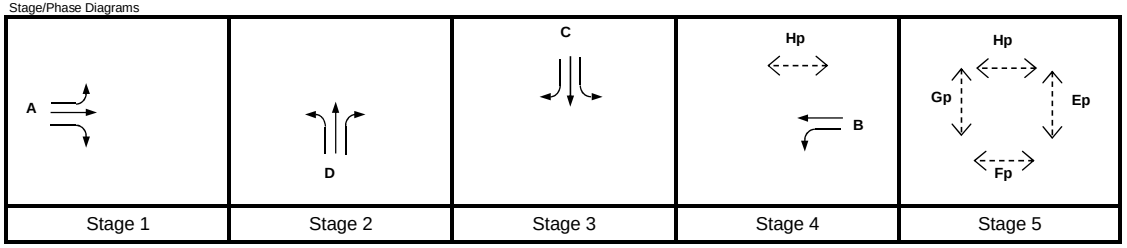
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.510	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	169	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	106	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	0.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	120	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	14			1		0		2015	70	128		198	35%		1942	0.102	
	A	1	4.000	1		20	0	0		0		2155		102	110	212		52%	2074	0.102	0.102
	D	2	3.650	1	14			1		0		1980	150	170		320	47%		1885	0.170	0.170
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	249		329	24%		1915	0.172	0.172
	B	4	3.500	1				0		0		2105		361		361			2105	0.172	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

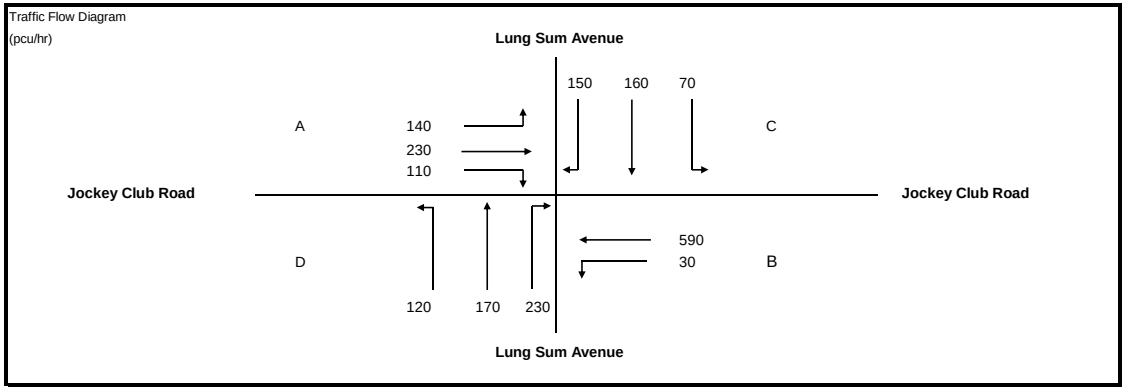
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 AM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

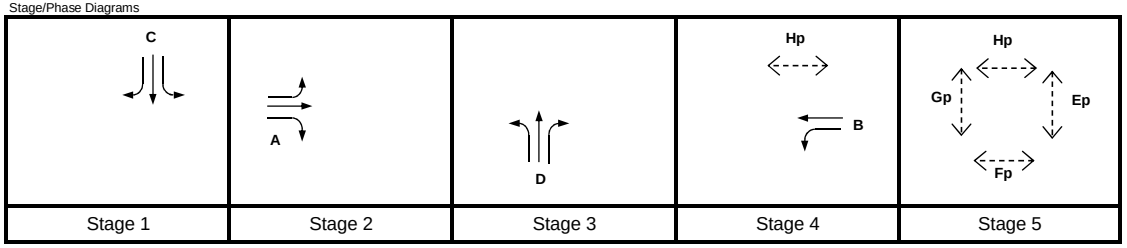
Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	5	
Cycle time		C =	136	sec
Sum(y)		Y =	0.504	
Lost time		L =	48	sec
Total Flow		=	16,470	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	155	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	97	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	7.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	109	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 6	I/G = 5	I/G = 8	G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

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	4.000	1	15			1		0		2015	140	89		229	61%		1899	0.120	0.120
	A	2	4.000	1		20	0	0		0		2155		141	110	251		44%	2087	0.120	
	D	3	3.650	1	15			1		0		1980	120	133		253	47%		1890	0.134	0.134
	D	3	3.650	1		20	0	0		0		2120		37	230	267		86%	1991	0.134	
	C	1	3.650	1	14			1		0		1980	70	115		185	38%		1903	0.097	0.097
	C	1	3.650	1		20	0	0		0		2120		45	150	195		77%	2004	0.097	
	B	4	3.650	1	14			1		0		1980	30	268		298	10%		1959	0.152	0.152
	B	4	3.650	1				0		0		2120		322		322			2120	0.152	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

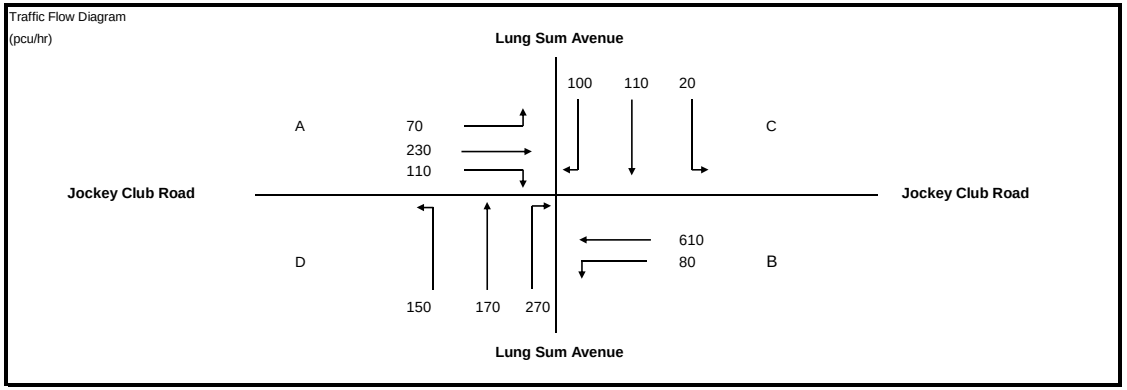
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2020 PM Design Case (With Liantang/ HYW BCP) (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

Traffic Flow Diagram

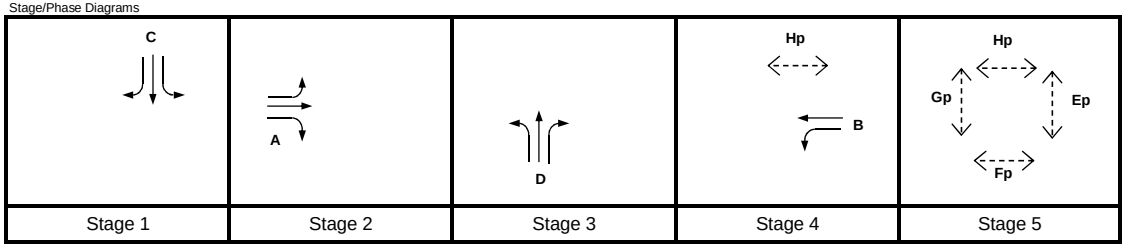
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.483	
Lost time	L =	48	sec
Total Flow	=	16,470	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	149	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	93	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	11.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	104	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 6	I/G = 5	I/G = 8	G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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*
	A	2	4.000	1	15			1		0		2015	70	128		198	35%		1946	0.102	0.102
	A	2	4.000	1		20	0	0		0		2155		102	110	212		52%	2074	0.102	
	D	3	3.650	1	15			1		0		1980	150	137		287	52%		1882	0.153	
	D	3	3.650	1		20	0	0		0		2120		33	270	303		89%	1987	0.153	0.153
	C	1	3.650	1	14			1		0		1980	20	94		114	18%		1943	0.058	0.058
	C	1	3.650	1		20	0	0		0		2120		16	100	116		86%	1992	0.058	
	B	4	3.650	1	14			1		0		1980	80	249		329	24%		1930	0.170	0.170
	B	4	3.650	1				0		0		2120		361		361			2120	0.170	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

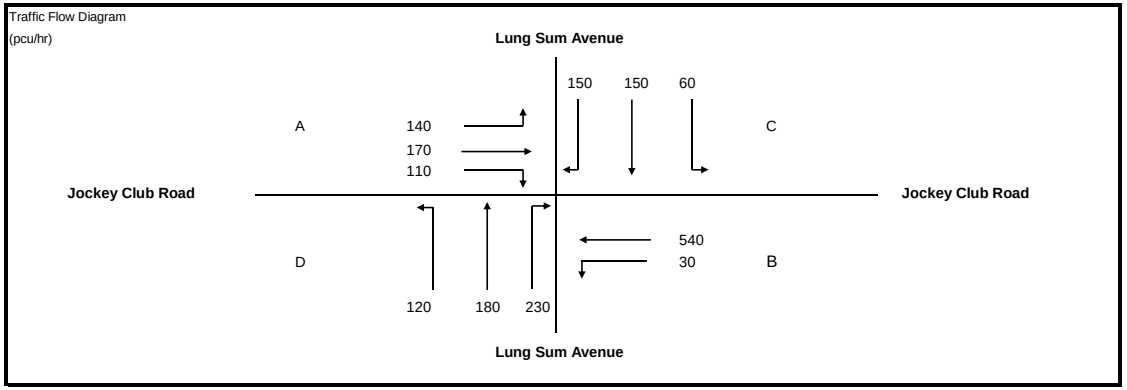
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2026 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

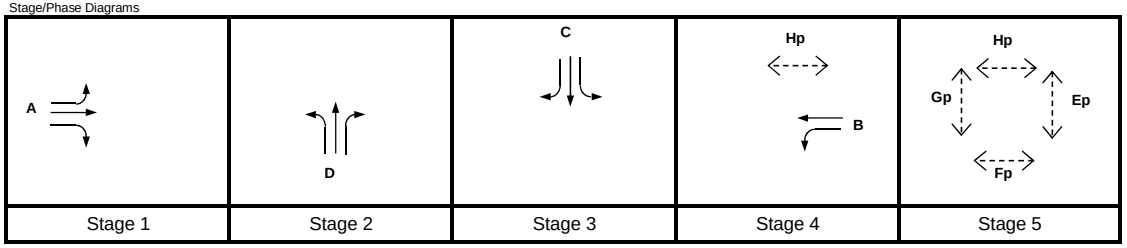
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.514	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	171	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	107	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-0.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	121	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

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	1	4.000	1	14			1		0		2015	140	59		199	70%		1874	0.106	
	A	1	4.000	1		20	0	0		0		2155		111	110	221		50%	2077	0.106	0.106
	D	2	3.650	1	14			1		0		1980	120	180		300	40%		1899	0.158	0.158
	D	2	3.650	1		20	0	0		0		2120			230	230		100%	1972	0.117	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	60	150		210	29%		1921	0.109	0.109
	B	4	3.500	1	14			1		0		1965	30	244		274	11%		1942	0.141	0.141
	B	4	3.500	1				0		0		2105		296		296			2105	0.141	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

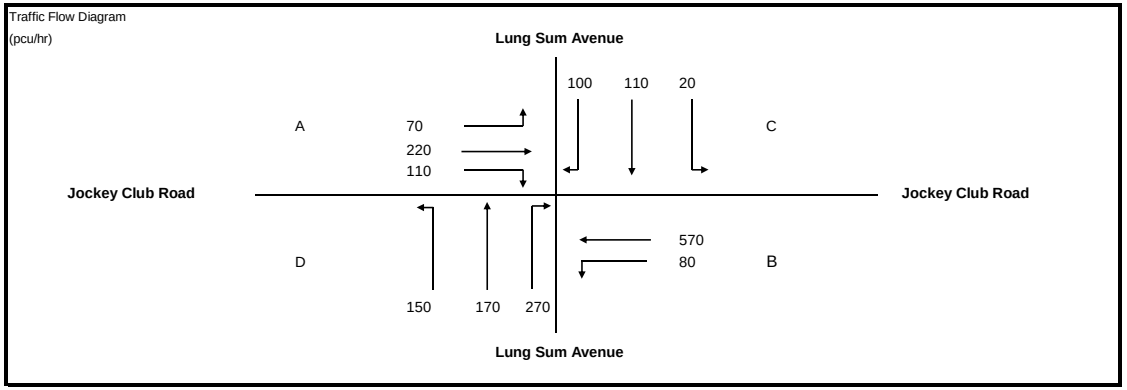
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2026 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

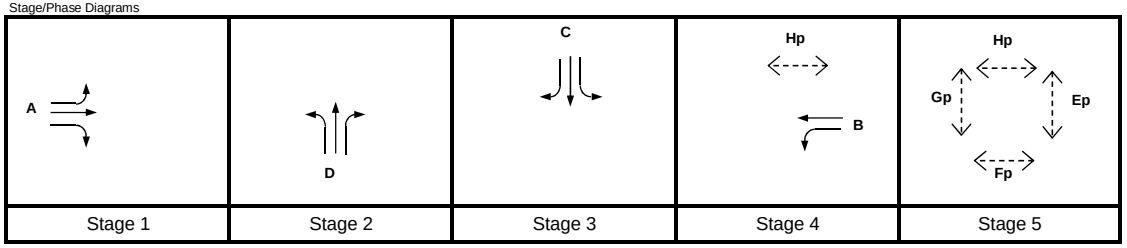
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.498	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	165	sec
Min. Cycle Time C_m	= L/(1-Y)	=	104	sec
Y_{ult}	= 0.9-0.0075×L	=	0.510	
$R.C._{ult}$	= (Y_{ult}-Y)/Yx100%	=	2.4	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	116	sec
Y_{max}	= 1-L/C	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

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	4.000	1	14			1		0		2015	70	123		193	36%		1940	0.100	
	A	1	4.000	1		20	0	0		0		2155		97	110	207		53%	2072	0.100	0.100
	D	2	3.650	1	14			1		0		1980	150	170		320	47%		1885	0.170	0.170
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	229		309	26%		1912	0.162	0.162
	B	4	3.500	1				0		0		2105		341		341			2105	0.162	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

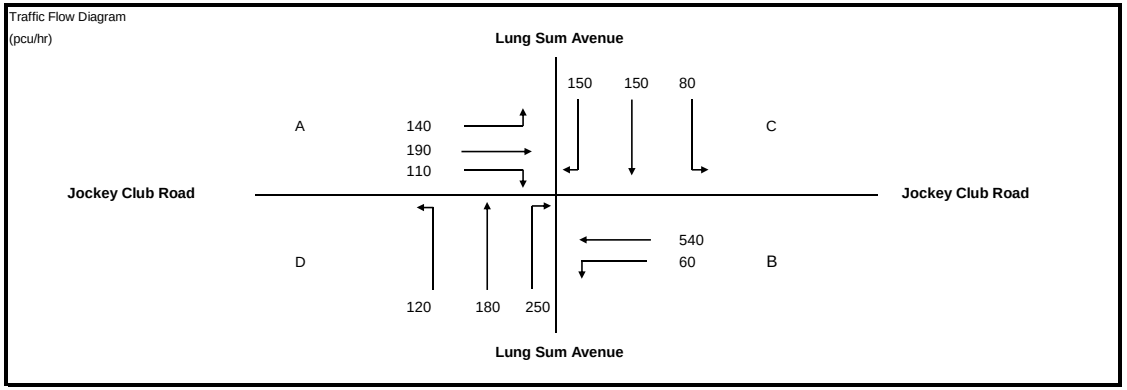
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2026 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

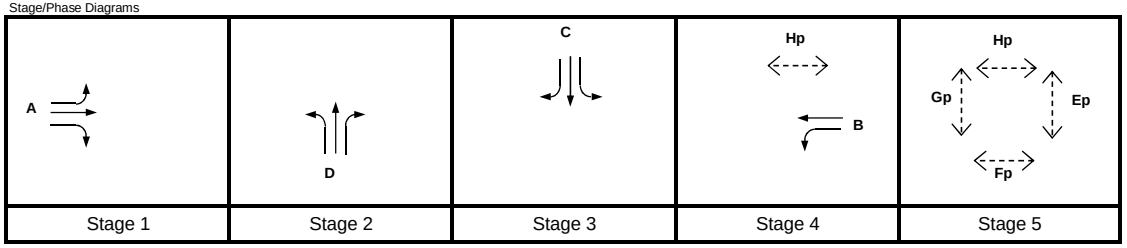
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.539	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	180	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	113	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-5.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	129	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 3%

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	14			1		0		2015	140	69		209	67%		1880	0.111	
	A	1	4.000	1		20	0	0		0		2155		121	110	231		48%	2081	0.111	0.111
	D	2	3.650	1	14			1		0		1980	120	180		300	40%		1899	0.158	0.158
	D	2	3.650	1		20	0	0		0		2120			250	250		100%	1972	0.127	
	C	3	3.650	1		20	0	0		0		2120			150	150		100%	1972	0.076	
	C	3	3.650	1	14			1		0		1980	80	150		230	35%		1909	0.120	0.120
	B	4	3.500	1	14			1		0		1965	60	226		286	21%		1922	0.149	0.149
	B	4	3.500	1				0		0		2105		314		314			2105	0.149	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

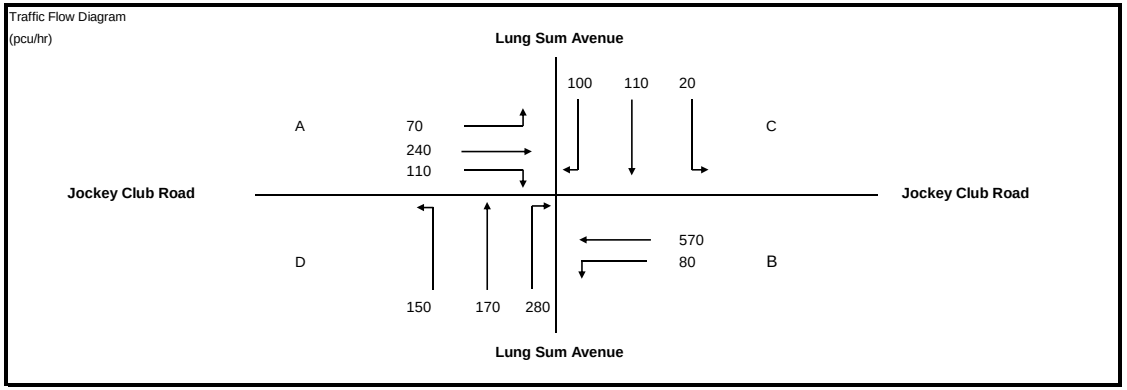
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2026 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

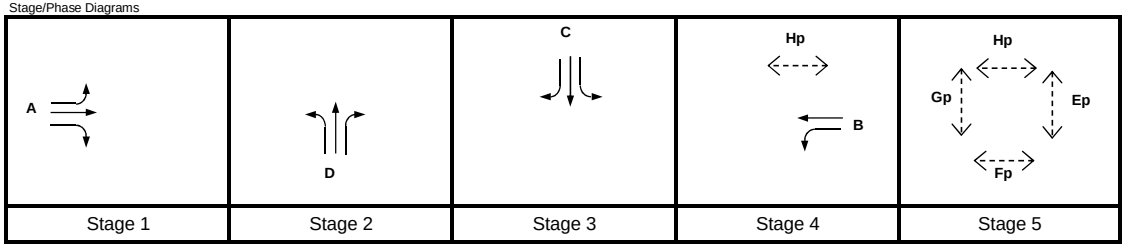
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.503	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	167	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	105	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	1.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	118	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 / I/G = 19

Critical Case : A,D,C,B,Fp

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	4.000	1	14			1		0		2015	70	133		203	34%		1943	0.104	
	A	1	4.000	1		20	0	0		0		2155		107	110	217		51%	2076	0.104	0.104
	D	2	3.650	1	14			1		0		1980	150	170		320	47%		1885	0.170	0.170
	D	2	3.650	1		20	0	0		0		2120			280	280		100%	1972	0.142	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	110		130	15%		1948	0.067	0.067
	B	4	3.500	1	14			1		0		1965	80	229		309	26%		1912	0.162	0.162
	B	4	3.500	1				0		0		2105		341		341			2105	0.162	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

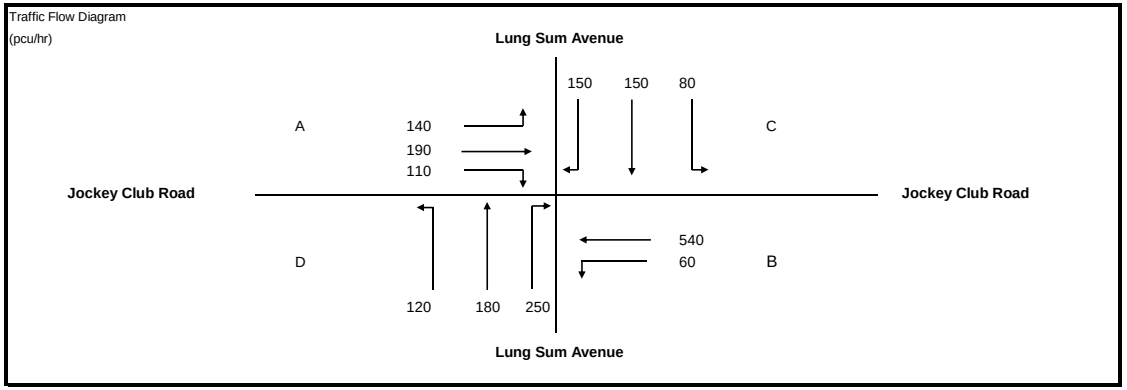
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2026 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

Traffic Flow Diagram

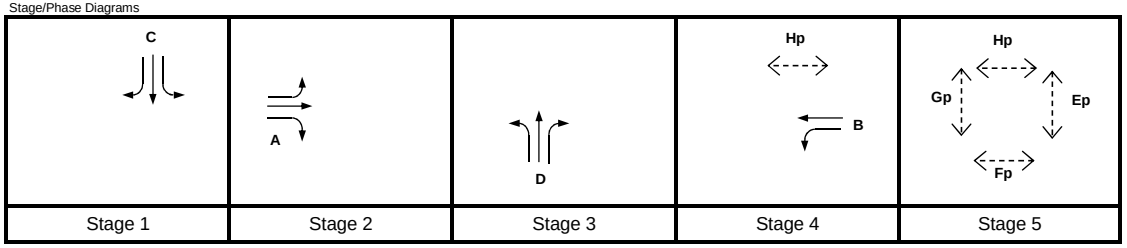
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.498	
Lost time	L =	48	sec
Total Flow	=	16,470	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	153	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	96	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	8.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	107	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 6	I/G = 5	I/G = 8	G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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	2	4.000	1	15			1		0		2015	140	69		209	67%		1889	0.111	0.111
	A	2	4.000	1		20	0	0		0		2155		121	110	231		48%	2081	0.111	
	D	3	3.650	1	15			1		0		1980	120	148		268	45%		1895	0.142	0.142
	D	3	3.650	1		20	0	0		0		2120		32	250	282		89%	1988	0.142	
	C	1	3.650	1	14			1		0		1980	80	105		185	43%		1892	0.098	0.098
	C	1	3.650	1		20	0	0		0		2120		45	150	195		77%	2005	0.098	
	B	4	3.650	1	14			1		0		1980	60	226		286	21%		1937	0.148	0.148
	B	4	3.650	1				0		0		2120		314		314			2120	0.148	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

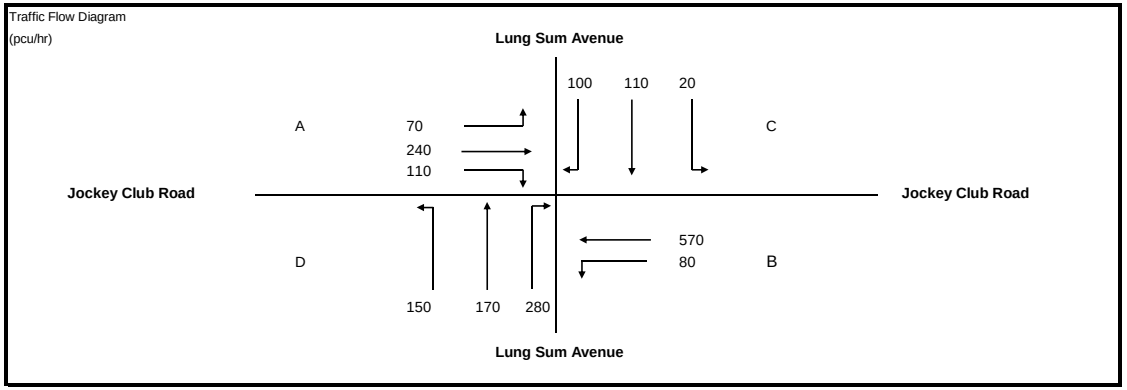
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2026 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

Traffic Flow Diagram

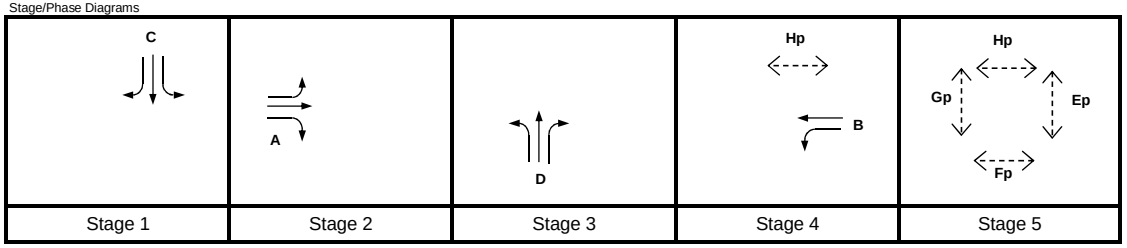
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.479	
Lost time	L =	48	sec
Total Flow	=	16,470	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	148	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	92	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	12.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	103	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 6	I/G = 5	I/G = 8	G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

R.C.(C) $= (0.9xY_{max}-Y)/Y \times 100\% =$ 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*
	A	2	4.000	1	15			1		0		2015	70	133		203	34%		1948	0.104	0.104
	A	2	4.000	1		20	0	0		0		2155		107	110	217		51%	2076	0.104	
	D	3	3.650	1	15			1		0		1980	150	142		292	51%		1883	0.155	
	D	3	3.650	1		20	0	0		0		2120		28	280	308		91%	1985	0.155	0.155
	C	1	3.650	1	14			1		0		1980	20	94		114	18%		1943	0.058	0.058
	C	1	3.650	1		20	0	0		0		2120		16	100	116		86%	1992	0.058	
	B	4	3.650	1	14			1		0		1980	80	229		309	26%		1927	0.161	0.161
	B	4	3.650	1				0		0		2120		341		341			2120	0.161	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

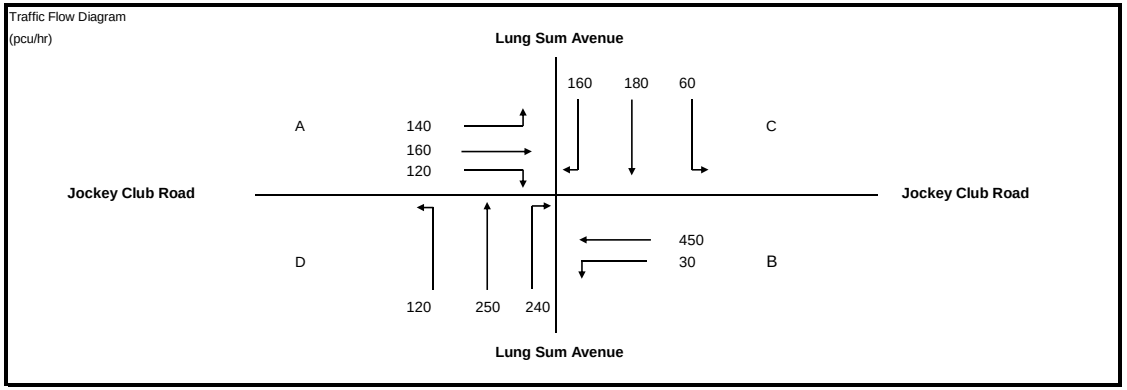
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2031 AM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

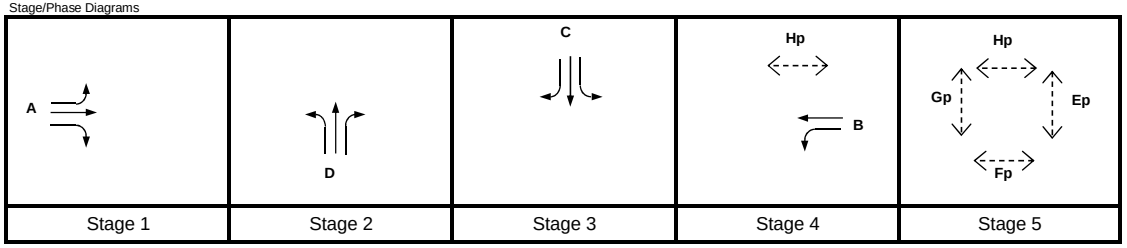
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.543	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	182	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	114	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-6.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	131	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

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	1	4.000	1	14			1		0		2015	140	60		200	70%		1874	0.106	
	A	1	4.000	1		20	0	0		0		2155		100	120	220		54%	2070	0.106	0.106
	D	2	3.650	1	14			1		0		1980	120	250		370	32%		1914	0.193	0.193
	D	2	3.650	1		20	0	0		0		2120			240	240		100%	1972	0.122	
	C	3	3.650	1		20	0	0		0		2120			160	160		100%	1972	0.081	
	C	3	3.650	1	14			1		0		1980	60	180		240	25%		1928	0.124	0.124
	B	4	3.500	1	14			1		0		1965	30	200		230	13%		1938	0.119	0.119
	B	4	3.500	1				0		0		2105		250		250			2105	0.119	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

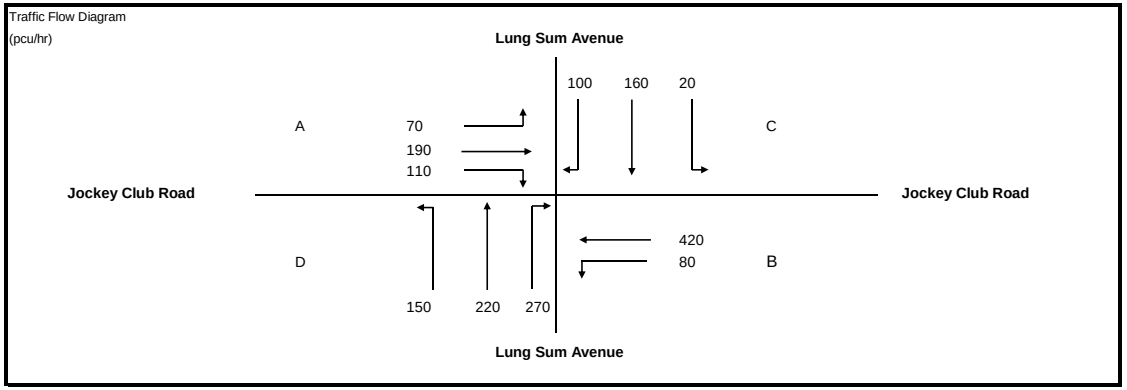
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2031 PM Reference Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

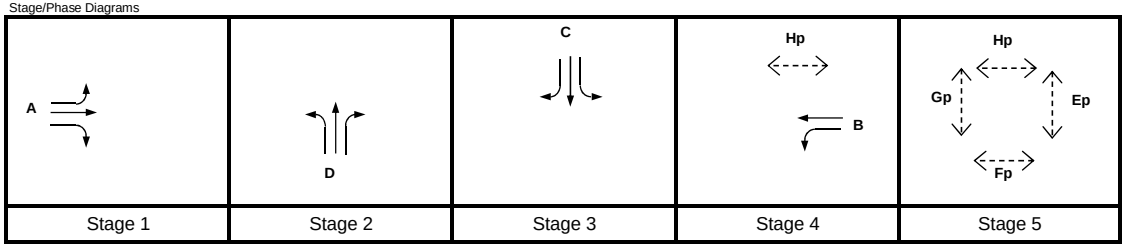
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.504	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	167	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	105	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	1.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	118	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	4.000	1	14			1		0		2015	70	109		179	39%		1934	0.093	
	A	1	4.000	1		20	0	0		0		2155		81	110	191		58%	2066	0.093	0.093
	D	2	3.650	1	14			1		0		1980	150	220		370	41%		1898	0.195	0.195
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	20	160		180	11%		1957	0.092	0.092
	B	4	3.500	1	14			1		0		1965	80	157		237	34%		1896	0.125	0.125
	B	4	3.500	1				0		0		2105		263		263			2105	0.125	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

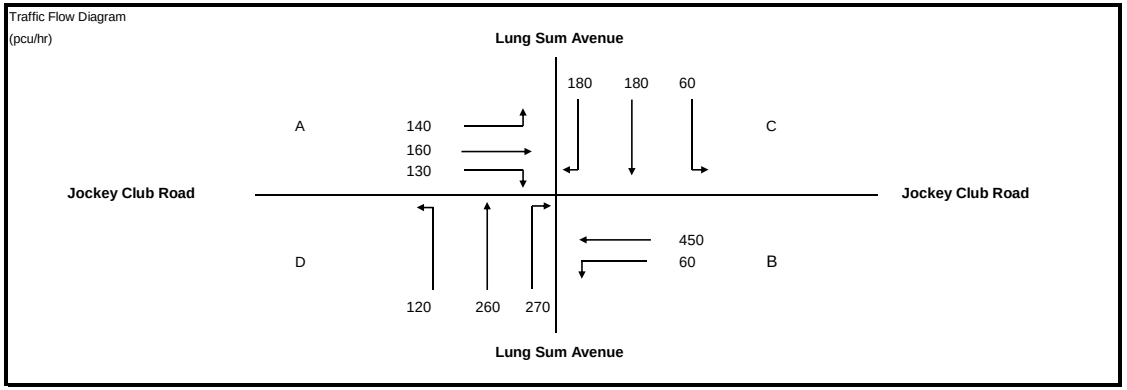
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2031 AM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

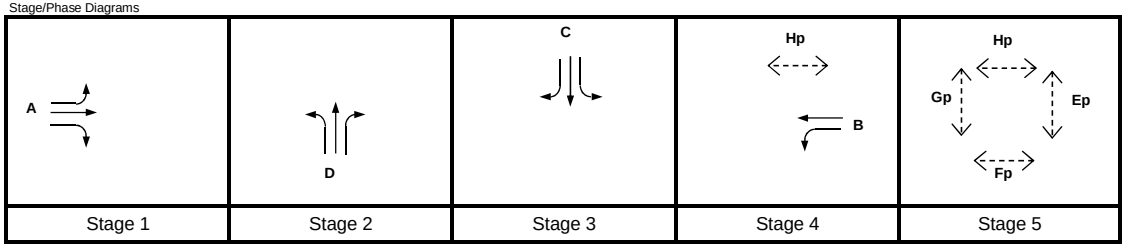
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.559	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	188	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	118	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	-8.7	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	137	sec
Y_{max}	$= 1-L/C$	=	0.618	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 / I/G = 19

Critical Case : A,D,C,B,Fp

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	4.000	1	14			1		0		2015	140	65		205	68%		1877	0.109	
	A	1	4.000	1		20	0	0		0		2155		95	130	225		58%	2066	0.109	0.109
	D	2	3.650	1	14			1		0		1980	120	260		380	32%		1915	0.198	0.198
	D	2	3.650	1		20	0	0		0		2120			270	270		100%	1972	0.137	
	C	3	3.650	1		20	0	0		0		2120			180	180		100%	1972	0.091	
	C	3	3.650	1	14			1		0		1980	60	180		240	25%		1928	0.124	0.124
	B	4	3.500	1	14			1		0		1965	60	183		243	25%		1914	0.127	0.127
	B	4	3.500	1				0		0		2105		267		267			2105	0.127	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												
	Fp	5	min.	9	+	17	=	26	sec												*
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

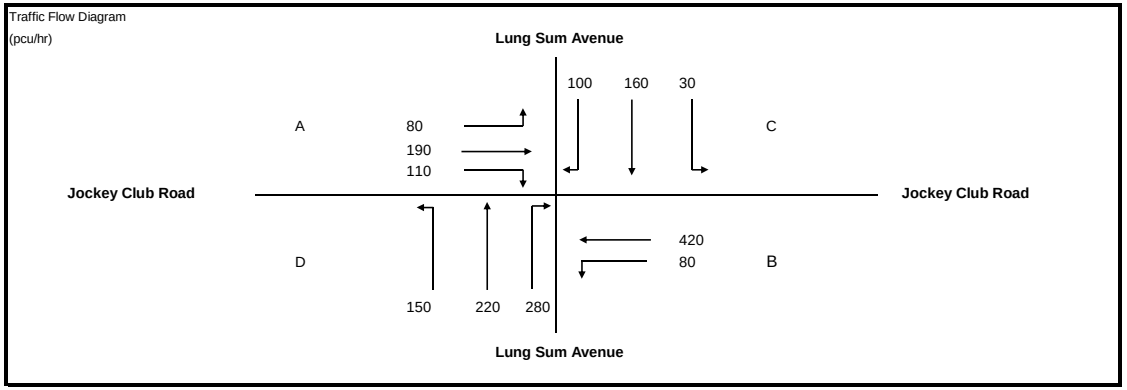
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2031 PM Design Case	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Apr 15

J16

Traffic Flow Diagram

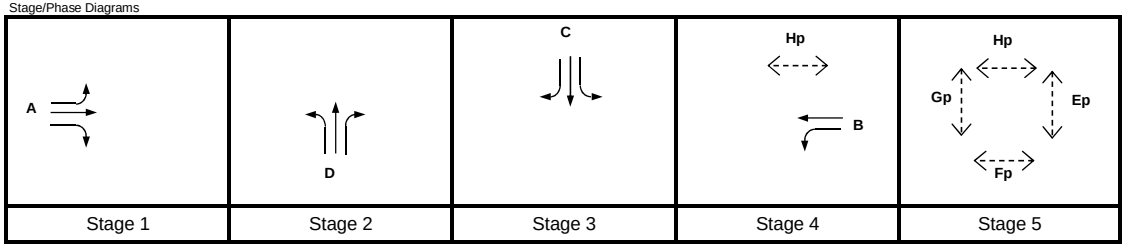
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	128	sec
Sum(y)	Y =	0.513	
Lost time	L =	52	sec
Total Flow	=	16,440	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	170	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	107	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.510	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	-0.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	121	sec
Y_{max}	$= 1-L/C$	=	0.594	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 6	I/G = 7	I/G = 7	I/G = 8	G = 9 I/G = 19

Critical Case : A,D,C,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 4%

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	14			1		0		2015	80	103		183	44%		1925	0.095	
	A	1	4.000	1		20	0	0		0		2155		87	110	197		56%	2068	0.095	0.095
	D	2	3.650	1	14			1		0		1980	150	220		370	41%		1898	0.195	0.195
	D	2	3.650	1		20	0	0		0		2120			280	280		100%	1972	0.142	
	C	3	3.650	1		20	0	0		0		2120			100	100		100%	1972	0.051	
	C	3	3.650	1	14			1		0		1980	30	160		190	16%		1947	0.098	0.098
	B	4	3.500	1	14			1		0		1965	80	157		237	34%		1896	0.125	0.125
	B	4	3.500	1				0		0		2105		263		263			2105	0.125	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

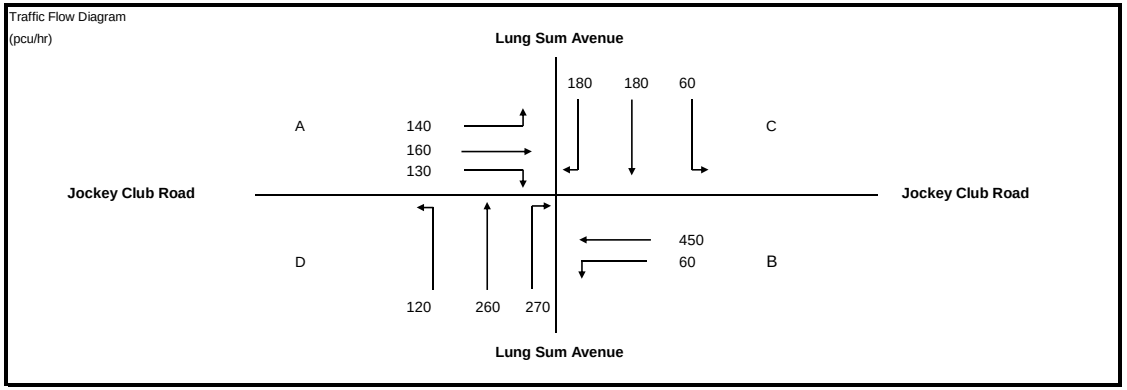
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2031 AM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

Traffic Flow Diagram

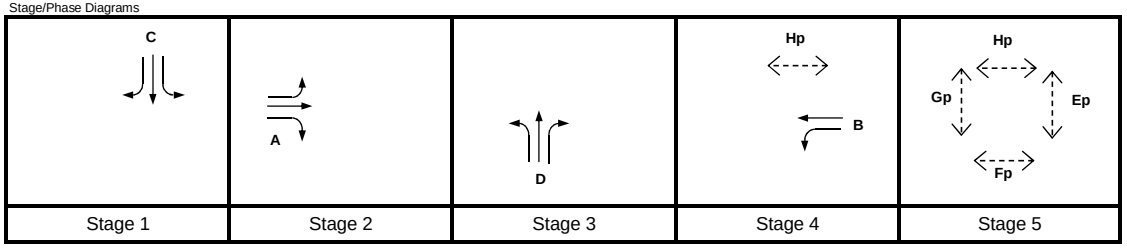
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.508	
Lost time	L =	48	sec
Total Flow	=	16,470	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	157	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	98	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	6.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	110	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 6	I/G = 5	I/G = 8	G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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*
	A	2	4.000	1	15			1		0		2015	140	65		205	68%		1886	0.109	0.109
	A	2	4.000	1		20	0	0		0		2155		95	130	225		58%	2065	0.109	
	D	3	3.650	1	15			1		0		1980	120	197		317	38%		1908	0.166	0.166
	D	3	3.650	1		20	0	0		0		2120		63	270	333		81%	1998	0.166	
	C	1	3.650	1	14			1		0		1980	60	146		206	29%		1920	0.107	0.107
	C	1	3.650	1		20	0	0		0		2120		34	180	214		84%	1994	0.107	
	B	4	3.650	1	14			1		0		1980	60	183		243	25%		1929	0.126	0.126
	B	4	3.650	1				0		0		2120		267		267			2120	0.126	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

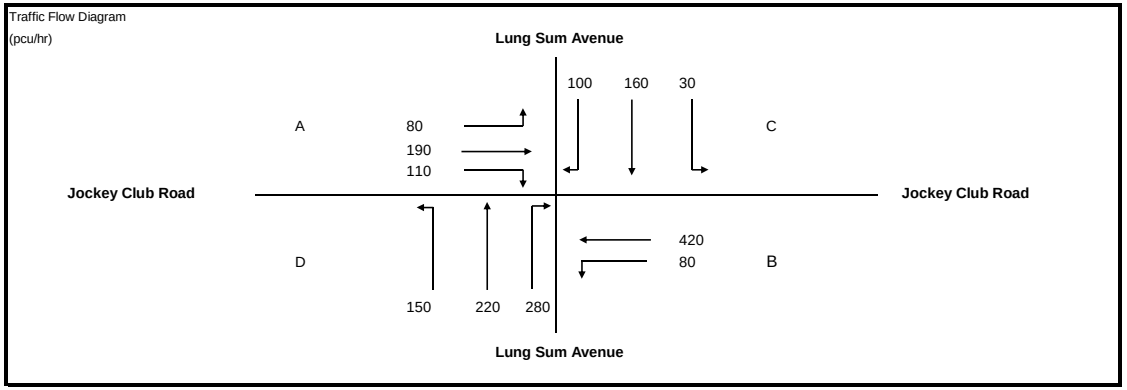
AECOM

Junction J16 - Jockey Club Road / Lung Sum Avenue	2031 PM Design Case (With Improvement)	DESIGN: JINYJ	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Jan 16

J16

Traffic Flow Diagram

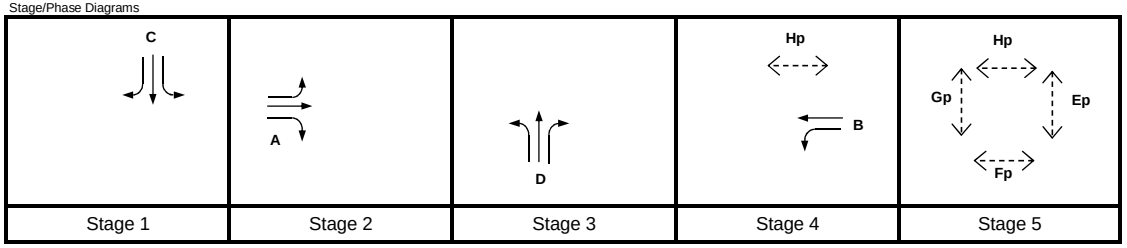
(pcu/hr)



No. of stages per cycle	N =	5	
Cycle time	C =	136	sec
Sum(y)	Y =	0.460	
Lost time	L =	48	sec
Total Flow	=	16,470	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	143	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	89	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.540	
$R.C._{ult}$	$= (Y_{ult}-Y)/Y \times 100\%$	=	17.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	98	sec
Y_{max}	$= 1-L/C$	=	0.647	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
I/G = 5	I/G = 6	I/G = 5	I/G = 8	G = 9 I/G = 19

Critical Case : C,A,D,B,Fp

R.C.(C) $= (0.9 \times Y_{max}-Y)/Y \times 100\% =$ 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	2	4.000	1	15			1		0		2015	80	103		183	44%		1931	0.095	0.095
	A	2	4.000	1		20	0	0		0		2155		87	110	197		56%	2068	0.095	
	D	3	3.650	1	15			1		0		1980	150	166		316	47%		1890	0.167	
	D	3	3.650	1		20	0	0		0		2120		54	280	334		84%	1994	0.167	0.167
	C	1	3.650	1	14			1		0		1980	30	112		142	21%		1936	0.073	0.073
	C	1	3.650	1		20	0	0		0		2120		48	100	148		68%	2018	0.073	
	B	4	3.650	1	14			1		0		1980	80	157		237	34%		1911	0.124	0.124
	B	4	3.650	1				0		0		2120		263		263			2120	0.124	
Pedestrian Crossing				GM		FGM															
	Ep	5	min.	9	+	17	=	26	sec												*
	Fp	5	min.	9	+	17	=	26	sec												
	Gp	5	min.	8	+	15	=	23	sec												
	Hp	4,5	min.	9	+	17	=	26	sec												

JUNCTION CAPACITY CALCULATION

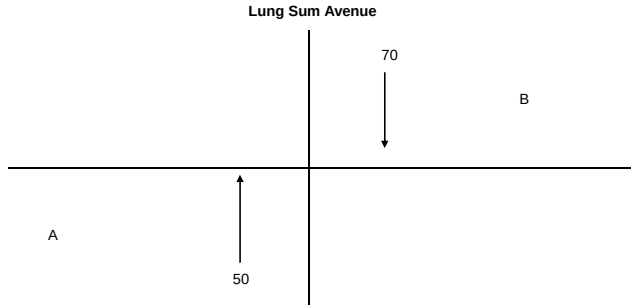
AECOM

Junction J17 - Lung Sum Avenue near Ng Tung River	2019 AM Rising Main Construction Case (Stage 1 &2)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Aug 15

J17

Traffic Flow Diagram

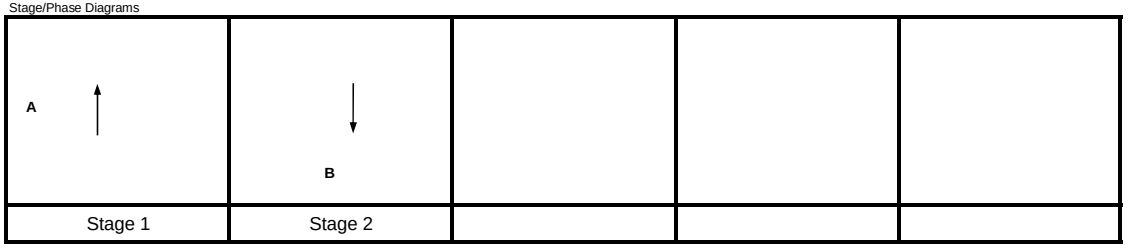
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	45	sec
Sum(y)	Y =	0.061	
Lost time	L =	26	sec
Total Flow	=	3,930	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	47	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	28	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.705	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	1054.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	28	sec
Y_{max}	= 1-L/C	=	0.422	

Stage/Phase Diagrams



I/G = 14 I/G = 14

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 522%

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		50		50			1965	0.025	0.025
↑	B	2	3.500	1				1		0		1965		70		70			1965	0.036	0.036

JUNCTION CAPACITY CALCULATION

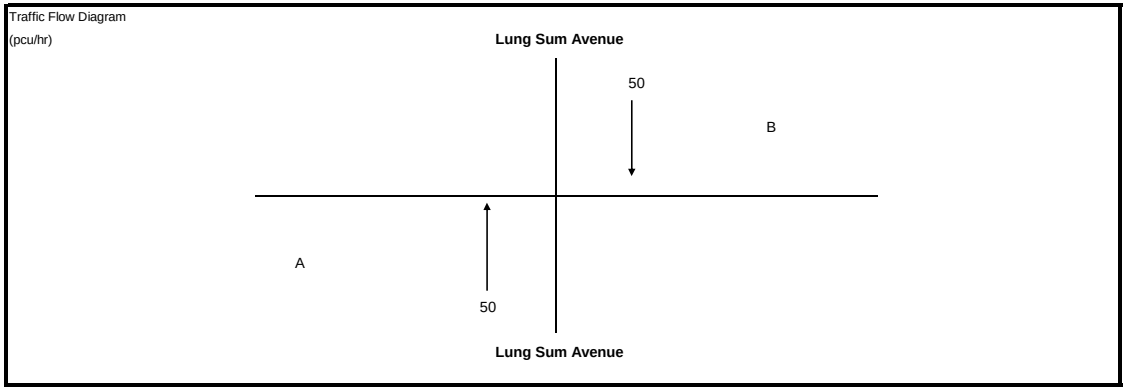
AECOM

Junction J17 - Lung Sum Avenue near Ng Tung River	2019 PM Rising Main Construction Case (Stage 1&2)	DESIGN: MCYC	CHECK: MCST	JOB NO: 60340456 1.5	DATE: Aug 15

J17

Traffic Flow Diagram

(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	45	sec
Sum(y)		Y =	0.051	
Lost time		L =	26	sec
Total Flow		=	3,930	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	46	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	27	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.705	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	1285.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	28	sec
Y_{max}	$= 1-L/C$	=	0.422	

Stage/Phase Diagrams

A ↑	↓ B			
Stage 1	Stage 2			
I/G = 14	I/G = 14			

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 647%

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		50		50			1965	0.025	0.025
↑	B	2	3.500	1				1		0		1965		50		50			1965	0.025	0.025

Appendix E

Responses to Comments on Draft TIA and CTIA Reports

Agreement No. CE 63/2014 (CE)
Infrastructural Works for Proposed Developments at Queen's Hill, Fanling – Investigation, Design and Construction

Submission of Draft Traffic Impact Assessment Report

Responses to Comments

No.	Comments Received	Date Received	Reference
1	Civil Engineering and Development Department Civil Engineering Office Housing Projects Division, Section 4	14 August 2015	(Received by email)
2	Housing Department Development and Construction Division Project Sub-division 3, Civil Engineering Section 2	16 June 2015	(Received by email)
3	Transport Department NT Regional Office, Traffic Engineering (NTE) Division	2 July 2015 7 July 2015	( ) NR 171/200-308 (Received by email)
4	Transport Department Planning Branch, Transport Planning Division	19 June 2015	TD TP 171-70/12-1
5	Highways Department New Territories Region, New Territories East District and Maintenance Division, NE New Territories	23 June 2015	(VD2P) in HyD NT/13-13/1/8-N
6	Planning Department District Planning Branch, New Territories District Planning Division, Sha Tin, Tai Po and North District Planning Office	25 June 2015	(Received by email)
7	Civil Engineering and Development Department New Territories East Development Office Branch 2 Project Division (4)	12 June 2015	() in NTE-NTN 5/3/164
8	Civil Engineering and Development Department New Territories East Development Office Branch 1 Project Division (3)		

Agreement No. CE 63/2014 (CE)
Infrastructural Works for Proposed Developments at Queen's Hill, Fanling – Investigation, Design and Construction

Submission of Draft Traffic Impact Assessment Report

Responses to Comments

Item	Comments	Responses
1	**Civil Engineering and Development Department** **Civil Engineering Office** **Housing Projects Division, Section 4**	
	As discussed in various occasions since Jun 2015, the subject submission cannot be considered as a complete TIA report as per Clause 6.2.9 of the Brief as it only covers the TIA for the operation stage. Your attention is drawn to Clause 6.2.9.6 of the Brief for the contents required for a TIA report.	
	With the recent understanding that you will circulate a separate submission on TIA for the construction stage for comments and combine both submissions to form the final TIA report, please find my comments on the subject submission as follows:	Please be advised that the draft Construction Traffic Impact Assessment Report was prepared and circulated to relevant Project Stakeholders for comments in August 2015. All comments were received, and the revised traffic impact assessment for construction stage have been subsumed into section 6 of the draft final TIA report under the heading of "Construction Traffic Impact Assessment".
	1. Para. 3.2.2 - The proposed road works along Lung Ma Road and at its junction with Sha Tau Kok Road as shown in Figure 3.1 are different from the final gazette plans. Please update the figure as appropriate.	Noted. Figure 3.1 has been updated accordingly.
	2. Table 5.4 - The footnote (2) for junction J11 is missing. In addition, please consider adding a note to mention that J11 would no longer be a signal junction in year 2026 and 2031 scenarios for clarity.	Noted. Footnote (2) has been added Table 5.4, which mentions that J11 would no longer be a signal junction in year 2026 and 2031 scenarios, and be changed to priority junction after Year 2023.
	3. Section 5.2 - Please advise why there is no discussion on junction J7 in this section.	Noted. A discussion explaining no improvement works is required for junction J7 has been provided in section 5.2.10 of the revised report.

Item	Comments	Responses
	4. Paras. 5.2.2 and 5.2.4 - In view of DC members' concerns on the junctions J1 and J2, please be reminded that effectiveness of the interim measures in year 2020 scenario should be well demonstrated in the upcoming DC consultation to secure their support. Close liaison with the project team of FLN NDA should also be maintained for working out the long term improvement measures for these junctions.	Noted. The effectiveness of the interim measures in year 2020 scenario would be well demonstrated in the upcoming DC consultation to secure their support. Close liaison with the project team of FLN NDA is continued to be maintained for working out the long term improvement measures for these junctions.
	5. Para. 5.2.18 - Please note that the proposal of banning right-turn movement of Sha Tau Kok northbound at junction J13 is subject to further consultation with the locals. Further justification is required to support why such proposal is necessary.	Noted. The proposal has been consulted with the locals and no adverse comments have been received. The proposed improvement is required to maintain sufficient junction capacity (see paragraph 5.2.16 of the revised report).
	6. Section 5.5 - Regarding the upgrading of the existing cycle track along Sha Tau Kok Road, please pack up all the relevant information and arrange to seek TD's views on your proposals.	Noted. The proposed upgrading of the cycle track has been discussed in paragraph 3.3 of the revised report.
	7. Section 6 and Para. 7.1.6 - Please check the cross reference of table numbers and amend as appropriate.	Noted. The table numbers have been updated in paragraph 8.1.6 of the revised report accordingly.
	8. Table 7.3 - For junction J4, please check and include all proposed works (e.g. local widening) in the column of "Improvement Works".	Noted. All proposed improvement works have been included in the table.
2	**Housing Department** **Development and Construction Division** **Project Sub-division 3,** **Civil Engineering Section 2**	
	Below AECOM's email of 28.5.2015 refers. Please find the below HD's comments for your review:	
	<u>General comments</u>	

Item	Comments	Responses
	(i) **Construction Traffic (Table 2.1, Para. 2.2.5 and Para. 1.1.4)** - The existing road networks (Junctions J1 (Po Shek Wu Road Interchange) and J11 (Sha Tau Kok Road/Ma Sik Road)) have already been operating over their capacity at peak hours. As discussed in the meeting HD/CEDD(LTHYW BCP, KTN & FLN NDA and QH)/AECOM held on last Friday (12.6.2015), it comes to HD's attention that the existing traffic network will be very tight to accommodate construction traffic of multiple government projects being implemented/ to be implemented in the region, including the Queen's Hill project. Please review the following items in the Construction Traffic Impact Assessment Report:	Please refer to the construction traffic impact assessment in section 6 of the revised report.
	• For the period from 9/2015 to 10/2016 prior to CEDD's implementation of road improvement works, please assess whether the existing road network could accommodate HD's estimation of construction traffic under Advance Works stage and Site Formation Works stage (HD's email of 30.4.2015 refers), including the traffic condition in peak hours and non-peak hours with HD's construction traffic considered.	Please refer to the Traffic Study Report on Alternative Route for Site Formation and Housing Development at Queen's Hill circulated under separate cover.
	• Please advise when will the CEDD's road improvement works be completed and whether the improved road network could accommodate HD's construction traffic demand under Site Formation and Building Works stages.	Ditto
	• If restrictions of HD's construction traffic under non-peak hours are required, please advise what is the period of non-peak hours and the respective junction/traffic condition with HD's construction traffic considered.	Ditto
	• If the concerned road junctions are not adequate to accommodate HD's construction traffic, please advise feasible	Ditto

Item	Comments	Responses
	alternative routes for HD's consideration.	
	(ii) **Proposed Major Public Transport Facilities in Queen's Hill site (Section 6)**- By making reference to CEDD's PTIA report (July 2014), the proposed public transport facilities at Queen's Hill site (under planning) will include a Public Transport Terminus (PTT) to accommodate 5 bus routes, and laybys for 3 GMB routes, urban and NT taxi. Exact arrangement are subject to development layout of Site 1 being reviewed by HD.	Noted.
	(iii) **Table 3.1** - For the **development parameters of 2 primary schools at Site 1**, please consult with EDB/ArchSD.	Noted.
	(iv) **Para.3.2.2, Para. 5.4.1 and Figure 3.1** - In the inter-department meeting of 12.2.2015, EDB confirmed to include the land resumption of a strip of private lands under their separate primary schools development project. HD's memo of 24.4.2015 and email of 7.5.2015 refers. **CEDD will review with relevant parties for the proposed road works at Lung Ma Road to cope with EDB's schools development and its associated road connection to HA site, for implementation at an appropriate stage before population intake of Queen's Hill development by Year 2020/21**. This should be stipulated in the report as appropriate.	Please note that the following paragraph has been added to section 3.2.6 of the revised report:- "*3.2.6. Meanwhile, it is noted that EDB will include the land resumption of a strip of private lands between Lung Ma Road and the QH Development under their separate primary schools development project. CEDD will review with relevant parties for the proposed road works at LMR to cope with EDB's schools development and its associated road connection to Site 1, for implementation at an appropriate stage before the scheduled population intake at the Site.*"
	(v) **Para. 5.1.1 and Figure 1.1** - Based on the proposed preliminary road layout of Site 1 (Scheme 65), there will be a **new road junction at Lung Ma Road for connecting of the HA's access** road along the northern site boundary of Site 1, upon EDB's land resumption of a strip of private lands under their separate primary schools development project. Please review whether it should be incorporated in your TIA at this stage for assessment or to be incorporated in the TIA at later state.	It is noted that EDB is working on a proposal for the school developments at the southern end of Lung Ma Road. However, detailed information is not available and status of the school development proposal has yet been confirmed. Therefore, the project proponent of the school development should be responsible to review and amend the road layout in front of the site to suit their development needs especially those related to lands resumption.

Item	Comments	Responses
	(vi) **Para. 4.3.3** - In the meeting of 12.6.2015, **CEDD (KTN and FLN NDAs) advised that the Fanling Bypass would be completed by 2023 tentatively** (instead of year 2026 mentioned in this TIA report). Please confirm with CEDD (KTN and FLN NDAs).	Please be advised that the planned completion year for Fanling Bypass has been updated in section 4.2.9 of the revised report. Section 4.3.3. has also been updated accordingly.
	Specific comments	
	(i) Please revise all HOS to Subsidized Sale Flats (SSF).	Noted. HOS has been revised to Subsidized Sale Flats (SSF) accordingly.
	(ii) Table 3.1 - For School, it should be One 7-classroom (instead of 6-classroom). Please revise.	Noted. Table 3.1 has been updated accordingly.
	(iii) Para. 3.1.2 - Please supplement the capped total ceiling of no. of flat as 12,100 (PRH: 8,840, SSF: 3,260) and take note for assessment.	Noted. Please note that the following paragraph has been added to section 3.1.4 of the revised report:- "*3.1.4. For Site 1, in view of the identified district-wide infrastructural constraints, it has been agreed with HD that the maximum number of flats and population of public housing development at Site 1 will be capped respectively at 12,100 and 37,290 for infrastructural works planning and design purpose.*"
	(iv) Table 3.1 - Please supplement the below development parameters for Site 1 and take note for assessment:	Table 3.1 has been updated accordingly.
	• Community and Welfare Facilities (GFA): about 8,140 sq.m	Noted. The development parameters have been taken into account for assessment.
	• Retail Facilities (GFA): about 12,500 sq.m	Noted. The development parameters have been taken into account for assessment.
	(v) Table 4.3, Table 6.3 - Please adopt below update development parameters for assessment:	Please be advised that Table 4.3 and Table 7.3 (Table 6.3 of draft report) of the revised report have been updated accordingly.
	• Please revise HOS (3,160) as SSF (3,260 Flats)	Noted. The development parameters have been taken into account for assessment
	• Please revise Retail (5,839 sq.m GFA) as Retail (12,500 sq.m GFA)	Noted. The development parameters have been taken into account for assessment.
	• Please revise Community Facilities (4,149 sq.m GFA) as Community and Welfare Facilities	Noted. The development parameters have been taken into account for assessment.

Item	Comments	Responses
	(8,140 sq.m GFA)	
	• Please revise 3 nos. of Kindergarten as 3 nos. of Kindergarten (Two 8-Classrooms and One 7-classrooms)	Noted. The development parameters have been taken into account for assessment.
3	**Transport Department** **NT Regional Office,** **Traffic Engineering (NTE) Division**	
	TD's Letter ref.: ( ) NR 171/200-308 dated 2 July 2015	
	I refer to your captioned submission dated 28 May 2014 for the captioned development.	
2.	Please note my comment as below:	
	(i) Para 3.2.2 and Figure 3.1 – (a) The existing cycle track between Lung Ma Road and Sui Wan Road is required to be upgraded to standard cycle track. (b) Please also advise if any pedestrian crossing facility will be provided along future Lung Ma Road. (c) Please justify the proposed road width and footpath width of 7.3m and 2m based on the anticipated traffic flow and pedestrian flow.	(a) Please be advised that the existing cycle track between Lung Ma Road and Sui Wan Road will be upgraded to a standard cycle track as far as possible. Please refer to section 3.3 of the revised report. (b) Please be advised that pedestrian crossing facility will be provided along future Lung Ma Road (see 60340456/TIA/ Figure 3.1B). (c) The proposed road width of 7.3m with the anticipated traffic flow was justified in section 5.3 of the draft report while the pedestrian walkway assessment has been provided in section 7.3 of the revised report.
	(ii) Para 3.2.3 – the proposed peak hour "No Stopping Restriction" might affect the loading and unloading activity along future Lung Ma Road. You are required to consult the locals for the proposal.	Noted. The locals will be consulted on the proposed peak hour "No Stopping Restriction" in detailed design stage.
	(iii) Para 5.2 – please check the project proponent for the latest programme of the planned new roads under FLN NDA and review if the assessment of junction performance at Year 2026 and 2031 should include the planned new roads under FLN NDA or not.	Noted. The planned new roads under FLN NDA had been taken into account for the assessment of junction performance at Year 2026 and 2031 within the AOI.
	(iv) Para 5.2.13 – For Junction J9 of Sha Tau Kok Road/Lok Yip Road, the proposed method of control will delete the existing MOC at Stage 4 which is a full pedestrian stage to	Noted. The refuge island at Fan Leng Lau Road has been increased accordingly. Please refer to section 5.2.12 of the revised report.

Item	Comments	Responses
	be implemented during the AM peak to cater for the pedestrian flow. Please increase the existing refuge island at Fan Leng Lau Road to cater for the AM peak pedestrian flow if you proposed to revise the MOC for this junction.	
	(v) Para 5.2.16 – For Junction J11 of Sha Tau Kok Road/Ma Sik Road/ On Kui Street, the proposal involve removal of a pedestrian crossing across Sha Tau Kok Road. You are required to consult the locals for the proposal.	Noted. The proposal has been consulted with the locals (i.e. DC members) and no adverse comments have been received. Please refer to section 5.2.14 of the revised report.
	(vi) Para 5.2.18 – For Junction J13 of Sha Tau Kok Road/Sui Wan Road, the proposal involve banning the right-turn movement of Sha Tau Kok Road northbound to Wing Ning Wai and vehicles are required to making u-turn at Sha Tau Kok Road/Lung Ma Road roundabout. You are required to consult the locals for the proposal.	Noted. The proposal has been consulted with the locals (i.e. DC members) and no adverse comments have been received. Please refer to section 5.2.16 of the revised report.
	(vii) Para 5.4.1 – the proposed lay-by along future Lung Ma Road should be for general use instead of designated for use of emergency. Please consider to delete the wording of "emergency".	Noted. The wording of "emergency" has been deleted.
	(viii) Para 5.4.2 – please note my comment in (ii) above.	Noted. The locals will be consulted proposed peak hour "No Stopping Restriction" in detailed design stage.
	(ix) Please ensure that no new split phase and staggered crossing should be implemented for the proposed junction improvement work under captioned project.	Noted. The proposed staggered crossing is an interim improvement and no staggered crossing will be implemented for the ultimate scheme. The proposed new split phase was designed according to TPDM and the proposed split phase is also an interim improvement measure, no new split phase will be implemented for the ultimate scheme.
	(x) Please provide traffic impact assessment for construction stage.	Noted. Traffic impact assessment for construction stage has been provided in section 6 of the revised report.
	(xi) In view of the DC members' request for incorporate a public car park into the captioned development, please include a parking demand study in the traffic impact assessment to determine if public car parking is	Parking demand study for the development site is outside the scope of this Project and should be carried out by others.

Item	Comments	Responses
	required to be incorporated into the proposed development.	
	(xii) Refer to Chapter 6 regarding the provision of public transport, please advise if the existing public transport services are sufficient to cater for the captioned development and whether enhancement of public transport services are required. Please address in the report if a transport terminus is required to support the captioned development.	The provision of public transport services within the development site is outside the scope of this study and should be carried out by others.
	(xiii) Further to above item (xii), as the developments and programmes for Site 2 and Site 3 are uncertain, please also address in the report with scenario that the required public transport services and facilities with and without Site 2 and Site 3.	The provision of public transport services within the development site is outside the scope of this study and should be carried out by others.
	(xiv) This is a coordinated reply from Traffic Engineering (NTE) Division, Traffic Control Division and Transport Operation Division.	Noted.
	TD's Email dated 7 July 2015	
	Further to my comment on the draft TIA report dated 2 July 2015, please be advised that we have further comments as below for your follow up action.	
	(i) Para 5.1.2 - In view of the public rental housing development at Choi Yuen Road is currently under construction, please advise if this project has been taken into account in the TIA.	Noted. Public rental housing development at Choi Yuen Road had been taken into account in the TIA.
	(ii) Figure 5.18 - For the proposed junction improvement work of Junction J15 Choi Yuen Road / Po Shek Wu Road, please provide the swept path analysis for turning of vehicles from Choi Yuen Road to Po Shek Wu Road simultaneously.	Noted. Swept path analysis for turning of vehicles from Choi Yuen Road to Po Shek Wu Road simultaneously has been provided in Figure 5.18A.
	(iii) Figure 5.19 - For the proposed junction improvement work of Junction J16 Lung Sum Avenue / Jockey Club Road, please advise if the existing width of the carriageway from Lung Sum	Noted. The existing width of the carriageway from Lung Sum Avenue southbound is adequate for traffic flow in forward direction at the same time.

Item	Comments	Responses
	Avenue southbound is adequate for traffic flow in forward direction at the same time.	
4	**Transport Department** **Planning Branch,** **Transport Planning Division**	
	We refer to your letter dated 28 May 2015 enclosing the captioned draft traffic impact assessment (TIA) report.	
	(i) Our previous comments on transport modeling have been addressed in the Final Inception Report. As the TIA focuses on performance of local road links and junctions with associated proposal of improvement, out Transport Planning Division has no comment on the draft TIA report from transport planning point of view.	Noted.
	(ii) Our Traffic Engineering (NTE) Division will provide their comment separately. Should you have queries, please feel free to contact the undersigned.	Noted.
5	**Highways Department** **New Territories Region, New Territories East District and Maintenance Division, NE New Territories**	
	I refer to your quoted letter dated 28.5.2015 and our comments from highways viewpoint are as below for your review please:	
	(i) Figure 3.1 – Preliminary Roadworks Layout Plan of Lung Ma Road: Please ensure that the layout is consistent with the latest gazette plan;	Noted.
	(ii) Paragraph 5.1.1, last sentence: Please delete the work “improved”	Noted.

Item	Comments	Responses
	as appropriate;	
	(iii) Figures 5.1 – 5.19: • The proposed junction improvement layouts as shown in these figures, e.g. that of J4, are not consistent with those updated in the latest Final Report of the Feasibility Study (FS) under Agreement No. CE 1/2014 (CE). Please clarify and ensure that the figures included in the captioned report are up-to-date;	Noted. The junction improvement layouts proposed in the FS stage have been reviewed and updated according to the latest assessment results of the current IDC stage as presented in the report.
	• Out comments on the deliverable "Report on Recommended Scope of Infrastructural Works" given at FS Stage via letter ref. (U4F4) in HyD NT/13-13/1/8-N dated 20.11.2014 have not been fully addressed yet and it is understood form your subsequent responses that further details will be developed in the IDC Stage. Please clarify whether details of the proposed improvement works for the road junctions involved will be developed under a separate deliverable of the captioned IDC Assignment for comment; and	Noted. Details of the proposed improvement works for the road junctions involved will be developed under separate submission.
	• Please note that Highways Department does not have the resources to implement the proposed improvement works for the road junctions involved.	Noted.
6	**Planning Department** **District Planning Branch,** **New Territories District Planning Division,** **Sha Tin, Tai Po and North District Planning Office**	
	I refer to your letter dated 28.5.2015 enclosing a copy of the draft TIA report for comments. My comments on the draft	

Item	Comments	Responses
	report is appended below: General (i) D of H has advised that the "Home Ownership Scheme" should be revised to "Subsidized Sale Flat". Please revise the text in relevant part of the report for consistency.	Noted. All the term "HOS" was revised as "SSF".
	Specific (ii) Table 3.1 on P.7 • According to the latest development parameters provide by Housing Department, there will be two 8-classroom and one 7-classroom kindergartens to be incorporated in the public housing development. Please rectify.	Noted. Table 3.1 has been revised in the revised report.
	• Please also clarify whether the GFA of 5 000 m sq. and a 24-classroom school are assumed to be incorporated in the private housing development at Site 2 or somewhere else. If they are intended to provide somewhere else, please indicate the broad location for clarity. The type of community facilities for the 5 000 m sq. should also be explained for easy reference.	The GFA of 5 000 m sq. and a 24-classroom school are assumed to be incorporated in the private housing development at Site 2. The type of community facilities is not available at this stage.
7 & 8	**Civil Engineering and Development Department** **New Territories East Development Office**	
	With reference to your letter dated 28 May 2015, I have no comment on the draft traffic impact assessment report from project interface point of view.	Noted.

Agreement No. CE 63/2014 (CE)
Infrastructural Works for Proposed Developments at Queen's Hill, Fanling – Investigation, Design and Construction

Submission of Draft Construction Traffic Impact Assessment Report

Response to comment

No.	Department	Date received	Reference
1	Dep Head (Project & Env Mgt) Civil Engineering and Development Department Civil Engineering Office Housing Projects Division, Section 4 3/F, Civil Engineering and Development Building, 101 Princess Margaret Rd, Homantin, Kowloon Attn: Ms. Fiona H Y FONG	August 28, 2015	(Received by email)
2	Housing Department Development and Construction Division Project Sub-division 3, Civil Engineering Section 2 6/F, Housing Authority Headquarters, 33 Fat Kwong Street, Ho Man Tin, Kowloon Attn: Mr. FUNG Chin Wing	Sep 16, 2015	(Received by email)
3	Transport Department NT Regional Office, Traffic Engineering (NTE) Division 9/F, Mongkok Government Offices, 30 Luen Wan Street, Mongkok, Kowloon. Attn : Mr. YAU Kwok Ting	September 2, 2015	( ) NR 171/200-308
4.	Transport Department Planning Branch, Transport Planning Division 39/F, Immigration Tower, 7 Gloucester Road, Wan Chai, Kowloon Attn : Mr. WU Kwok Keung, Tony	August 18th, 2015	(Received by email)

No.	Department	Date received	Reference
5	Highways Department New Territories Region, New Territories East District and Maintenance Division, NE New Territories 2nd Floor, Ho Man Tin Government Offices, 88 Chung Hau Street, Ho Man Tin, Kowloon Attn : Ms. FUNG Tse Hing, Winnie	10 September, 2015	(VWJY) in HyD NT/13-13/1/8-N
6	Planning Department District Planning Branch, New Territories District Planning Division, Sha Tin, Tai Po and North District Planning Office, 13/F, Sha Tin Government Offices, 1 Sheung Wo Che Road, Sha Tin, N.T. Attn: Mr. Wallace W K TANG	25 August, 2015	(Received by email)
7	Civil Engineering and Development Department New Territories East Development Office Branch 2 Project Division (4) Unit 1501, Level 15, Tower I, Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T. Attn: Mr. KO Wai Ching, Rick	7 September, 2015	() in NTE-NTN 5/3/164
8	Civil Engineering and Development Department New Territories East Development Office Branch 1 Project Division (3) Suite 1213 Chinachem Golden Plaza, 77 Mody Road, Tsim Sha Tsui East, Kowloon Attn: Mr. CHENG Kin Ming, Stanley		
9	Hong Kong Police Force Regions New Territories North Regional Headquarters Tai Po District, Sheung Shui Division 8, Sha Tau Kok Road, Lung Yeuk Tau, Fanling, New Territories	8 September, 2015	(2) in CP NTN SSDIV 1-150/24

Agreement No. CE 63/2014 (CE)
Infrastructural Works for Proposed Developments at Queen's Hill, Fanling – Investigation, Design and Construction

Submission of Draft Construction Traffic Impact Assessment Report

Responses to Comments

Item	Comments	Responses
1	**Dep Head (Project & Env Mgt)** **Civil Engineering and Development Department** **Civil Engineering Office** **Housing Projects Division, Section 4**	
	Please find our comments as listed below to the subject report for your necessary action. (i) Tables 5.2 & 5.3 - Suggest to indicate the construction traffic routings of infrastructure works under this project and other interfacing projects on a drawing.	Noted. The construction traffic routings of infrastructure works under this project and other interfacing projects have been indicated in 60340456/TIA/Figure 6.7 of the revised report.
	(ii) Please indicate if junction improvement works are assumed completed for some of the road junctions listed in the Table 5.6	Junction improvement works are assumed not completed for the road junctions listed in the Table 5.6 (i.e. Table 6.5 of the revised report).
	(iii) Table 5.7 - It appears that the junction performance of J16 becomes worse in 2019 after the completion of improvement works. Please explain.	The figures shown in Table 5.7 are the performance of reference and during construction scenario, not after the completion of improvement works (i.e. Table 6.6 of the revised report).
	(iv) Tables 5.8 and 5.9 - The reason why 2019 was chosen as the critical design year for the traffic assessment at Lung Ma Road and Lung Sum Avenue should be further elaborated in the report.	The proposed works are scheduled to complete in 2019 therefore 2019 was chosen as the critical design year which would be the highest traffic flow.
	(v) Sections 6.1.5 and 6.1.7 - Please state clearly in the text whether any construction traffic under this project should pass through J11 after its improvement works.	Noted. The text has been revised to state clearly the construction traffic under this project could pass through J11 after its improvement works. Please refer to sections 8.1.9 & 8.1.10 of the revised report.
2	**Housing Department** **Development and Construction Division** **Project Sub-division 3,** **Civil Engineering Section 2**	

Item	Comments	Responses
	Below AECOM's email of 14.8.2015 refers. Please find the below HD's comments for your review:	
	Para.5.2.8 - It is recommended that the QH Housing Development's construction traffic **should use an alternative route** via Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Po Shek Wu Road and Fanling Highway. **Grateful if CEDD/AECOM could provide the construction traffic impact assessment by end Sep for review** whether the concerned roads and junctions could accommodate the estimated QH Housing Development's construction traffic under different stages (Item 6 of Table 5.3 refers).	Please refer to the Traffic Study Report on Alternative Route for Site Formation and Housing Development at Queen's Hill circulated under separate cover.
	Para. 5.2.8 - The proposed alternative route will travel within the Closed Area at the border and relevant permit application from HKPF and approval from TD will be required. It shall subject to liaison with relevant departments.	Noted.
	Para. 5.2.7 and Para.5.3.13 - It is advised that the QH Housing Development's construction traffic **should not use the normal route** Sha Tau Kok Road, Ma Sik Road and So Kwun Po Road to Fanling Highway, until implementing the proposed improvement works at the road junction (J11) of Sha Tau Kok Road/Ma Sik Road. **HD raised serious concerns on this arrangement** as it will impose unfavourable construction traffic constraint affecting the tight implementation programme of QH Housing Development. In view of significant construction traffic (around 270 vehicles/day for site formation and 600 vehicles/day for building construction) will be arising upon the commencement of our site formation works in mid 2016, **please consider to advance the completion of road improvement works at J11 by mid 2016** as far as possible to allow QH Housing Development's construction traffic to use this normal route during our site formation and building construction stages.	Please refer to the Traffic Study Report on Alternative Route for Site Formation and Housing Development at Queen's Hill circulated under separate cover.
	Paras.5.3.5, 5.3.6, Figures 5.2 to 5.14 (Lung Ma Road) - It is noted that proper temporary traffic management will be implemented at Lung Ma Road during its widening works to maintain Single 2 2-way traffic at all times. Please confirm the capacity of Lung Ma Road under different TTM stages could accommodate the estimated QH Housing Development's construction traffic (Item 6 of Table 5.3	Noted. The capacity of Lung Ma Road under different TTM stages could accommodate the estimated QH Housing Development's construction traffic as presented in Section 6.7 of the revised report.

Item	Comments	Responses
	refers).	
3	**Transport Department NT Regional Office, Traffic Engineering (NTE) Division**	
	I refer to your captioned submission dated 14 August 2014.	
2.	Please note my comment as below:	
	(i) Para.5.2.2 – the off-peak periods should be assessment and determine for individual roads, which might not be restricted to 10am to 4pm.	Noted. The Contractor should provide updated traffic data to determine the off-peak periods for individual roads before the actual construction works during construction stage.
	(ii) Para. 5.2.3 – please provide a figure indicate the proposed vehicles routing for the construction works of Lung Ma Road and Queen's Hill housing development. Regarding your proposal of detouring arrangement of construction vehicles to Ping Che Road away from Junction J11 (Sha Tau Kok Road/ Ma Sik Road), please advise your traffic management plan and the practicability of such detouring arrangement.	Noted. A figure (60340456/TIA/Figure 6.7) has been provided to indicate the proposed vehicles routing. The proposed arrangement will be included in the tender document.
	(iii) I noted that you proposed to detour traffic routing through Sha Tau Kok Road, Ping Che Road, Lin Ma Hang Road, Man Kam To Road, Po Shek Wu Road and Fanling Highway. Junction capacity assessment for the critical road junctions should be provided in the report with sensitivity test and contingency measures.	Noted. Junction capacity assessment for the critical road junctions of alternative assesses has been provided in the Traffic Study Report circulated under separate cover.
	(iv) Para 5.3.1 – The Junction J2 (So Kwun Po Road Interchange) is currently operating close to its capacity. Please consider to carry out the improvement works at early stage. Recently, we also receive request for the modification of So Kwun Po Road northbound. Please consider the request such that the overall junction performance for this junction can be further improved.	Noted. The improvement works will be carried out at early stage of the contract (i.e. Late 2016-2018).
	(v) Para 5.3.13 – The Junction J11 (Sha Tau Kok Road/ Ma Sik Road) proposed to remove a pedestrian crossing across Sha Tau Kok Road and revise the MOC. Please conduct local consultation for the removal of the pedestrian crossing and provide the revised MOC at different stages.	Noted. DC members was consulted on the removal of the pedestrian crossing and no adverse comment was received.

Item	Comments	Responses
	(vi) Para. 5.3.15 – The junction J13 (Sha Tau Kok Road / Siu Wan Road) proposed to ban right-turn movement for both Sha Tau Kok Road northbound and southbound. Please advise the detour route after banning the right–turn movement for Sha Tau Kok southbound. Please conduct local consultation for the proposal.	Noted. Only the right-turn movement of Sha Tau Kok Road northbound will be banned. DC members was consulted on banning the right–turn movement and no adverse comment was received.
	(vii) Temporary traffic management schemes for the proposed cycle track widening between Lung Ma Road and Sui Wan Road are missing in the report.	Noted. Temporary traffic management schemes for the proposed cycle track widening between Lung Ma Road and Sui Wan Road has been provided in the revised report (60340456/TIA/Figure 6.18_1 to Figure 6.18_7 refer).
	(viii) Figure 1.2 - Please indicate the width of the 2-lane carriageway of Po Shek Wu Road northbound that can be maintained after the proposed modification of the central divider. Please review the existing road marking at Po Shek Wu Road Northbound. Please also update the traffic aids for Po Shek Wu Road Southbound with reference to the existing site conditions.	Noted. The width of the 2-lane carriageway of Po Shek Wu Road northbound has been indicated in 60340456/TIA/Figure 5.1A. The existing road marking at Po Shek Wu Road Northbound will be reviewed. The traffic aids for Po Shek Wu Road Southbound will be updated.
	(ix) Figure 1.3 - Please indicate the width of the 2-lane carriageway of So Kwun Po Road northbound that can be maintained after the proposed modification of the central divider.	Noted. The width of the 2-lane carriageway of So Kwun Po Road northbound has been indicated in 60340456/TIA/Figure 5.2A.
	(x) Figure 1.4 - For the proposed junction improvement work of Junction J4 Fan Leung Lau Road / Ma Sik Road, please provide the swept path analysis for turning of vehicles from Fan Leung Lau Road to Ma Sik Road simultaneously.	Noted. The swept path analysis for turning of vehicles from Fan Leung Lau Road to Ma Sik Road simultaneously has been provided in 60340456/TIA/Figure 5.4A.
	(xi) Figure 1.12 - For the proposed junction improvement work of Junction J15 Choi Yuen Road / Po Shek Wu Road, please provide the swept path analysis for turning of vehicles from Choi Yuen Road to Po Shek Wu Road simultaneously.	Noted. The swept path analysis for turning of vehicles from Choi Yuen Road to Po Shek Wu Road simultaneously has been provided in 60340456/TIA/Figure 5.18A.
	(xii) Figure 1.13 - For the proposed junction improvement work of Junction J16 Lung Sum Avenue / Jockey Club Road, please review if a 7.3m wide 2-lane carriageway at Lung Sum Avenue Northbound can be provided.	Noted. 7.3m wide 2-lane carriageway at Lung Sum Avenue Northbound can be provided (see 60340456/TIA/Figure 5.19A).
	(xiii) Figure 5.17 - Please note that that road is an unnamed road, which is not Lung Sum Avenue. Please review if the proposed works area can avoid affecting the unnamed road, in view of the existing drainage maintenance access across the unnamed road.	Noted. The report and figure (see 60340456/TIA/Figure 6.25) have been updated. For the drainage maintenance road, there are entrance gates at both ends for this stretch of maintenance road, so vehicles could access the maintenance road from either ends for normal maintenance (eastern entrance at Sha Tau Kok Road and western entrance at Man Kam To Road). DSD had no comment on the proposed

Item	Comments	Responses
		works.
	(xiv) Figure 5.18 and 5.19 - Please clarify the proposed access of the construction vehicles to the works areas.	Noted. The proposed access of the construction vehicles to the works areas has been indicated 60340456/TIA/Figure 6.26 and Figure 6.27.
	(xv) Table 5.3 - Please check with relevant departments for the relevant construction traffic information or provide a reasonable assumption for the construction traffic in terms of the project scale.	Noted. Relevant departments had been consulted and available construction traffic information had been provided in the report.
4	**Transport Department** **Planning Branch, Transport Planning Division**	
	(i) Our Transport Planning Division has no comment on the draft construction traffic impact assessment report from transport planning point of view.	Noted.
	(ii) Our Traffic Engineering (NTE) Division might have separate comment, especially on the practicability of the detouring arrangement of construction vehicles to Ping Che Road away from junction J11 (Sha Tau Kok Rd / Ma Sik Rd) as mentioned in para 5.2.3 and 5.2.8.	Noted.
5	**Highways Department** **New Territories Region, New Territories East District and Maintenance Division, NE New Territories**	
	I refer to your above letter dated 14.8.2015. We have the following comments on the captioned report from highways viewpoint: <u>General Comments</u> (i) Excavation Permit shall be obtained from this Regional Office prior to any proposed excavation works on public roads or slope under HyD's jurisdiction.	Noted.
	(ii) You should seek LandsD's consent for any works on Government Land other than public roads.	Noted.
	(iii) If any existing traffic signs/lighting are affected by your roadworks, you are required that there	Noted.

Item	Comments	Responses
	would be adequate clearance.	
	Specific Comments (iv) Distribution List – Please change the contact of HyD NT Region to Mr. Windsor Cheng.	Noted.
	(v) Item 5.3.9 Junction J2 So Kwun Po Road Interchange – Further details of proposed modification at So Kwun Po Road shall be submitted for review and comments in detailed design stage.	Noted. Further details of proposed modification at So Kwun Po Road shall be submitted for review and comments under separate submission.
	(vi) Item 5.4.5 Sha Tau Kok Road – Further details of proposed trenchless method shall be submitted for review and comments in detailed design stage.	Noted. Further details of proposed trenchless method shall be submitted for review and comments under separate submission.
6	**Planning Department** **District Planning Branch,** **New Territories District Planning Division**	
	I refer to your letter dated 14.8.2015 enclosing the captioned report for comments. As the report relates to the traffic impact assessment during the construction period for the proposed Queen's Hill development, I therefore, have no comments from land use planning point of view.	Noted.
7&8	**Civil Engineering and Development Department** **New Territories East Development Office** **Branch 2** **Project Division (4)** **&** **Civil Engineering and Development Department** **New Territories East Development Office** **Branch 1** **Project Division (3)**	
	With reference to your letter dated 14 August 2015, we have the following comment on the report from the interface point of view of CEDD's project within North District Area: General comment (i) BCP project's major construction works under various civil contracts is on-going and is anticipated to substantially complete in 2018. Construction traffic of various stages of the BCP project should be taken into account in the TIA study.	Noted. Construction traffic of BCP project had been obtained from the Consultants of BCP project and taken into account in the TIA study.
	Specific comments: (ii) Table 5.1 – please clarify whether the	The figures refer to observed AM and PM

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	RC/DFC figures refer to what peak hours in AM/PM. Moreover, the junction improvement works at J11 have been carried out and completed in 2014 by the project developer, associated with their works next to the junction. AECOM BCP project team have previously reviewed and advised in 2012, based on the traffic data available at that time, that the forecast junction capacity of J11 during peak hours would be 5% in mid 2014, with the construction traffic arising from the Liangtang project passing through this junction during peak hours restricted to no more than 30 construction vehicles per hour (two way).	peak hours.
	(iii) Section 5.2.3 – BCP project construction works is not considered the main source of traffic implication on the capacity of J11 as the traffic congestion at the junction was noted before the BCP project works commenced, and with the completion of junction improvement in 2014, the traffic condition have been improve as stated in the comment on Table 5.1 above. Moreover, with project logistic arrangements, the C&D materials generated from the Liangtang project in the past years (2014 and 2015) have been mostly re-used within the Liangtang site and at the nearby NENT landfill site without disposal off site via this junction. Hence, the construction traffic impact from Liangtang project to J11 has been kept to minimal.	Noted. The construction traffic information of BCP project obtained from the Consultants of BCP project has been included in the section 6 of the revised report.
	(iv) Please substantiate the statement "the construction traffic of QH is less than 5% of Liangtang project and …". Please note that there are various PS clauses in the BCP project civil works contracts to control and minimize the construction traffic impacts to the public roads at peak and off-peak hours and along various routes. It is thus suggested not to relate the construction traffic of these two projects to avoid any misinterpretation.	Noted. The statement has been deleted.
	Section 5.2.4, Table 5.3 (v) Item No.1 – please update the construction traffic information for KTN and FTN NDAs Development, Phase 1 as "2018-2023".	Noted. Report has been updated accordingly (see Table 6.2 of the revised report).
	(vi) Item No. 2 – the "300" vehicle per day" and "500 vehicle per day" are maximum figures anticipated at the design stage of BCP project. Based on the records in 2015, the average construction traffic from Liangtang project was about 100 to 200 vehicles per day, and most of these trips were for the off peak transportation of C&D materials within	Noted. The construction traffic information of BCP project obtained from the Consultants of BCP project has been included in section 6 of the revised report.

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	Liangtang site and to the nearby NENT landfill site via Ping Che Road and Wong Keng Shan Road.	
	(vii) Item No. 4 – please updated the construction traffic information for KTN and FLN NDAs Development, Remaining Package as "To be Review".	Noted. Report has been updated accordingly (see Table 6.2 of the revised report).
	(viii) Item No. 5 – the construction traffic generated by CEDD's Police Facilities in Kong Nga Po (KNP) was not included. As there are programme interface between these two projects, please take into account the construction traffic under KNP project in your assessment. Please liaise with our Consultants, Mr. Leo Lo of Mott MacDonald Hong Kong Limited, at 2828 5781 for the details of the proposed works and its interface.	Noted. The details of the proposed works and its interface of KNP project had been obtained from Mott MacDonald and has been included in section 6 of the revised report..
	(ix) Section 5.3.13 and 6.1.7 – with regard to the proposed revision of MOC, the feasibility of using split phase arrangement should be considered.	Noted. The proposed revision is an interim improvement scheme and TD had no adverse comment on the proposed scheme.
9	**Hong Kong Police Force** **Regions** **New Territories North Regional Headquarters** **Tai Po District, Sheung Shui Division** **8, Sha Tau Kok Road, Lung Yeuk Tau,** **Fanling, New Territories**	
	Your letter dated 28th August 2015 refers.	
	Please be informed that we have no comments on technical report.	Noted.

Appendix F

Responses to Comments on Draft Final TIA Reports

Agreement No. CE 63/2014 (CE)
Infrastructural Works for Proposed Developments at Queen's Hill, Fanling – Investigation, Design and Construction

Submission of Draft Final Traffic Impact Assessment Report

Responses to Comments

No.	Comments Received	Date Received	Reference
1	Civil Engineering and Development Department Civil Engineering Office Housing Projects Division, Section 4	14 December 2015	(Received by email)
2	Housing Department Development and Construction Division Project Sub-division 3, Civil Engineering Section 2	11 December 2015	(Received by email)
3	Transport Department NT Regional Office, Traffic Engineering (NTE) Division	3 December 2015 & 15 January 2016	( ) NR 171/200-308
4	Transport Department Planning Branch, Transport Planning Division	1 January 2016	TD TP 171-170 / 12-001
5	Highways Department New Territories Region, New Territories East District and Maintenance Division, NE New Territories	11 December 2015	(OWGAB) in HyD NT/13-13/1/8-N
6	Planning Department District Planning Branch, New Territories District Planning Division, Sha Tin, Tai Po and North District Planning Office	24 November 2015	(Received by email)
7	Civil Engineering and Development Department New Territories East Development Office Branch 2 Project Division (4)	14 December 2015	( ) in NTE-NTN 5/3/164
8	Civil Engineering and Development Department New Territories East Development Office Branch 1 Project Division (3)		
9	Hong Kong Police Force Regions New Territories North Regional Headquarters Tai Po District, Sheung Shui Division 8, Sha Tau Kok Road, Lung Yeuk Tau, Fanling, New Territories	11 December 2015	(Received by email)

Agreement No. CE 63/2014 (CE)
Infrastructural Works for Proposed Developments at Queen's Hill, Fanling – Investigation, Design and Construction

Submission of Draft Final Traffic Impact Assessment Report

Responses to Comments

Item	Comments	Responses
1	**Civil Engineering and Development Department** **Civil Engineering Office** **Housing Projects Division, Section 4**	
	Please find my comments on the subject report as follows:	
	1) Paras. 3.1.1 and 3.2.1 - Paragraph 1.1.1 has mentioned 4 sites of the Queen's Hill development whereas only Sites 1 to 3 are mentioned in these two paragraphs. Please advise if Site 4 is included as "other developments" in the analysis.	In view of the nature of Site 4 development (i.e. District Open Space), traffic flow attract and generate from this Site is anticipated insignificant. As there is no design information at this stage, such insignificant traffic flow is assumed to be absorbed in the above mentioned allowance of the other sites in Queen's Hill. New Para. 3.1.6 was added to clarify this issue.
	2) Table 4.3 - Please advise if the trip generation of Site 1 tallies with that estimated in HD's relevant reports as per the recent discussions with HD and their consultants.	The trip generation of Site 1 tallies with that estimated in HD's relevant reports as per the recent discussions with HD and their consultants.
	3) Table 5.3 - Note (2) of this table should be the same as Note (2) of Table 5.4. Please rectify as appropriate.	Noted. Note (2) of Table 5.3 was revised accordingly in the Final TIA report.
	4) Para. 5.2.7 - Please clarify whether only the further improvement to be carried out in 2031 should be reviewed and undertaken by the FLN NDA project. Please consider elaborating why two stages of improvement works are needed.	Only the further improvement to be carried out in 2031 should be reviewed and undertaken by the FLN NDA project because there will be no change on the junction layout in 2023. The junction will be changed from 3-arm to 4-arm after completion of FLN NDA in year 2031 as stated in para 5.2.7, however, the future road alignment of the additional arm has not been designed at this stage; therefore the improvement should be reviewed and undertaken by the FLN NDA. Para. 5.2.7 was revised to explain the reason for implement improvement works in two stages.
	5) Para. 5.2.12 - The word "refugee" (4th line and last line) should read "refuge".	Noted. Typos were corrected accordingly in the Final TIA report.
	6) Para. 5.2.14, line 3 - It appears in Figure 5.11 that only queuing lane at junction J11 is extended and no section of Sha Tau Kok Road northbound would be provided with 3 lanes. Please advise.	After the improvement, the existing left turn lane will be changed to a left-turn and straight-ahead lane. Therefore, the total no. of straight-ahead traffic lanes along Sha Tau Kok Road northbound will be increased to 3. Para. 5.2.14 was revised to clarify this.

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	7) Para. 5.2.16 and R-to-C (5) - Please be reminded that a North DC member expressed reservation on the proposed improvement scheme at J13 and further consultation would be needed before finalising the scheme.	Noted. The design scheme was revised to incorporated comments from NDC member provided on 15.12.2015. Further consultation with NDC would be conducted in Jan / Feb 2016.
	8) Section 6 - Please note that my comments on the draft Report on Traffic Management Scheme also apply to this section.	Noted. Section 6 was updated in line with the Report on TMS.
	9) Table 6.1 - There is no description of the locations of L1 and L2 in the text above. Please add.	Noted. Remarks were added at Table 6.1 to describe the location of L1 and L2.
	10) Paras. 6.6.8 and 8.1.9 - Please update the last sentence of these two paragraphs as per the findings of the Traffic Study Report on Alternative Route for Development at Queen's Hill.	Noted. The report was revised accordingly
	11) Tables 6.5 and 6.6 - It is not understood why only some junctions are chosen to be assessed in the 2017 and 2019 scenarios. For example, J2 is proposed to be improved at the earlier stage (late 2016 to 2018) but only its performance in 2019 is assessed. On the other hand, please advise if the construction traffic would pass through Sha Tau Kok Road in 2019 (last sentence of para. 8.1.12 refers) and any assessment on its junctions (such as J11, J13 and J14) is required for the 2019 scenario.	The construction traffic is much less than the QHD traffic, so those junctions assessed with sufficient capacity to cater for future QHD traffic could also cater for construction traffic such as J3, J5. Therefore, only those junctions or link proposed with improvement works for future QHD traffic are assessed in CTIA. The junction improvements that are proposed to carry out at earlier stage were assessed in 2017 scenario such as J2. As mentioned above, the QHD traffic flow would be much higher than construction traffic; the junctions will have sufficient capacity to cater for the construction traffic after the proposed junction improvements works completed in March 2019. Therefore all junctions including J11, J13 and J14 should have sufficient capacity to cater for the construction traffic in 2019 after the improvement works. Table 6.5 and 6.6 were revised correspond to the construction period of each road junction.
	12) Table 7.6 - Please advise if the effective width of the footpath of 1 m is acceptable to TD.	The effective width of the footpath should be 2m and typo was corrected in Table 7.6.
	13) Tables 8.2 and 8.3 - For clarity, please indicate what improvement works are further modifications to be carried out by the NDA project after 2020.	Noted. The report was revised accordingly
	14) Table 8.3, Note (2) - Please advise whether this note is for J9 in the 2031 scenario only. There is no such description in the previous tables.	Noted. Table 8.3 Note (2) was deleted from Final TIA report.
	15) Para. 8.1.10 - Please advise if the cross-reference of para. 6.7.13 should be para. 5.2.14 for permanent works instead.	This para. is related to construction traffic impact, the proposed improvement mentioned refers to the temporary improvement proposed in para. 6.7.13.

Item	Comments	Responses
	16) Figures 5.2, 5.9, 5.12, 5.15 and 5.17 - Please advise the meaning of hatched areas in these drawings.	The hatched areas are road marking.
	17) Figure 5.4 - The drawings for proposed junction improvement works in 2020 and 2031 look almost the same. Please consider indicating further improvement works in 2031 on top of the proposed works for 2020 using another colour.	Noted. Figure 5.4 was revised to show further improvement works in 2031 in another colour.
	18) Figure 5.12: (i) There is no demarcation of the proposed footpath and cycle track in the drawing. Please add. (ii) For the dash line marked between the existing carriageway and footpath of Sha Tau Kok Road near junction J13, please advise what it refers to and why it is terminated at the middle of this road section.	Noted. Figure 5.12 was revised to show the demarcation of the proposed footpath and cycle track. The dash line is road marking and was extended to J11 in the revised figure.
	19) Figure 5.16 - Similar to Figure 5.4, please indicate clearly the improvement works to be carried out under the NDA project after 2020.	Noted. Figure 5.16 was revised to show further improvement works in 2026 in another colour.
2	**Housing Department** **Development and Construction Division** **Project Sub-division 3,** **Civil Engineering Section 2**	
	Below AECOM's email of 4.11.2015 refers. It is noted that the update development parameters of Site 1 stipulated in the endorsed HD's planning brief has been incorporated. **HD has in-principle no adverse comments** to your Traffic Impact Assessment Report (Draft Final).	Noted.
	For paragraphs relating to **temporary traffic arrangement** mentioned under Section 6 (Construction Traffic Impact Assessment), it is our understanding that it should be read in conjunction with your separate "Report on Traffic Management Scheme (Draft)". Grateful if you could take note of the below HD's comments provided via emails of 20.11.2015 and 30.11.2015:	
	• TTM of Lung Ma Road will cater for **HD's frequent long vehicles (e.g. 16m long truck/tractor)** during mid 2016 to 2021.	The proposed TTM could cater for the long vehicles.
	• Proper TTM will be implemented at Lung Ma Road during its widening works to **maintain Single 2 2-way traffic for access to Queen's Hill site at all times**.	Single 2 2-way traffic will be maintained for access to Queen's Hill site at all times according to our proposed TTM.
	• Confirming the **capacity of Lung Ma Road under different TTM stages** during CEDD's road works between late 2016 to 2019, could **accommodate the estimated QH Housing Development's construction traffic** stated in Tables 6.2 and 6.3**.**	The assessment and TTM designs have already taken account QH Housing Development's construction traffic, and confirmed adequate during CEDD's road works between late 2016 and 2019.

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3	**Transport Department** **NT Regional Office,** **Traffic Engineering (NTE) Division**	
	I refer to your captioned submission dated 4 November 2015 for the captioned development. 2. Please note our comments as follows:	
	(i) Refer to your R to C items (v) and (vi) – You advised that the proposed removal of pedestrian crossing at Junction J11 of Sha Tau Kok Road / Ma Sik Road / On Kui Road and the proposal of banning right-turn movements at junction J13 of Sha Tau Kok road / Sui Wan Road has consulted the locals, including DC members. Please let me have the relevant supporting information and notes of meetings.	The removal of pedestrian crossing at J11 was accepted by DC member; while the proposed banning of right-turn movements at J13 was deleted as per discussion with DC member. The updated improvement scheme for J13 is attached. The relevant supporting information and notes of meetings will be provided to you by CEDD separately.
	(ii) Refer to your R to C item (viii) – You advised that the proposal of peak hour "No Stopping Restriction" at Lung Ma Road will consult the locals at detailed design stage. As such, please add "subject to local consultation" in the last sentence of para. 3.2.3.	Noted. Para. 3.2.3 was revised accordingly in Final TIA report.
	(iii) I understand from other reports that vertical noise barrier of 2m to 4m high will be installed within the footpath which will inevitably further reduce the width of footpath. Taking into account the installation of street furniture and utility facilities along the footpath, please advise the effective width of the footpath to be provided. You are reminded that the minimum effective width of footpath is 2m in accordance with TPDM.	Due to space constraint, the proposed noise barrier will be located within cycle track in order to keep the minimum effective width for footpath of 1.5m. However, the width of the adjoining cycle track would be inevitably reduced. Please be advised that some sections of noise barriers will be deleted due to public requests. The Section Amendment Gazette of roadworks was published on 18th December 2015. Therefore, only a short section of cycle track would be affected in the ultimate scheme.
	(iv) Further to the above comment (iii), the proposed 2m high vertical noise barrier located between the cycle track and footpath is undesirable. Please relocate it near the western side of the proposed cycle track. For the proposed 4m high vertical noise barrier, please relocate it outside the footpath.	For effective design, proposed noise barrier should be located as close to the noise sources as possible. However, due to the constraint of road width, it was proposed to locate in between cycle track and footpath to allow for sufficient clearance between carriageway and structure. Further shifting of the noise barrier to the western side of proposed cycle track is not recommended as it needs to further increase the barrier height which is constrained by space for accommodating the footing of the barrier and impact to the stability of existing private boundary wall during construction. Based on the current design (i.e. noise barrier locate in between cycle track), the effective width of footpath could be maintained at 1.5m. However, the width of the adjoining cycle

Item	Comments	Responses
		track would be inevitably reduced. Please be advised that some sections of noise barriers will be deleted (including the whole section of 4m high vertical noise barriers) due to public requests. The Section Amendment Gazette of roadworks was published on 18th December 2015. Therefore, only a short section of cycle track would be affected in the ultimate scheme.
	(v) Fig. 3.1B – Please ensure sufficient road width to be provided at the location of refuge island and the visibility of the proposed cautionary crossing in compliance with TPDM's requirement. I note that a section of cycle track is proposed to be ended. Details to be provided in detailed design stage. It is undesirable that the proposed cycle track is discontinuous.	Noted. Sufficient road width will be provided at the location of refuge island. The visibility of the proposed cautionary crossing is in compliance with TPDM's requirement. Due to constraint of private lands, the width of section of proposed cycle track will be less than 3m which need to be discontinued in order to provide standard road and footpath width. This arrangement has been discussed in the EFS stage in 2014 and accepted by TD.
	(vi) Para. 3.3.1, Figures 3.2 to 3.4 – I note that some cycle track sections are unable to upgrade to standard cycle track width due to site constraints. Please consider traffic management measures for those sections at detailed design stage.	Noted. Traffic management measures will be considered at detailed design stage.
	(vii) Fig. 5.4A – Please check the swept path from Fan Leng Lau Road to Ma Sik Road and ensure the proposed road layout modification has sufficient maneuvering space for long vehicles.	Please be confirmed that the proposed design could provide sufficient manoeuvring space for long vehicles.
	(viii) Fig. 5.12A – The proposed modification works might conflict with the existing run-in/out of an open storage area. Please review and liaise with the affected parties.	Noted. The necessity of keeping the run-in/out would be reviewed subject to the further liaison with affected parties in detailed design stage.
	(ix) Fig. 5.18A – Please check the swept path from Po Shek Wu Road to Choi Yuen Road and ensure there is sufficient maneuvering spaces for long vehicles. The swept path seems too close to the existing kerb.	Please be confirmed that the proposed design could provide sufficient manoeuvring space for long vehicles.
	(x) Para. 5.1.2 – Public Rental housing development at Choi Yuen Road has not been taken into account in this TIA report. Please clarify.	Noted. Public Rental housing development at Choi Yuen Road has been taken into account in this TIA report. Para. 5.1.2 was updated in Final TIA report.
	(xi) Fig. 5.19a – for the proposed junction improvement work for J16 of Lung Sum Avenue / Jockey Club Road, please advise if the existing carriageway width is sufficient to cater for the 2 lane traffic flow from Lung Sum Avenue southbound at the same time. Pleas provide swept path to demonstrate its feasibility.	Noted. Existing carriageway width is sufficient to cater for the 2 lane traffic flow from Lung Sum Avenue southbound at the same time. The proposed improvement is to narrow the central divider for further increase the lane width. Swept path analysis for long vehicles was provided in the revised Figure 5.19a in Final TIA report.

Item	Comments	Responses
	(xii) Fig 6.26 – the proposed access for the construction vehicles to the works area at the Man Kam To Road east is unclear. Please clarify.	Noted. Figure 6.26 was revised to show clearly the proposed access for construction vehicles to the works area.
	(xiii) Table 6.2 – Please check with WSD again for item no. 11 regarding the construction traffic information.	Noted. Construction traffic information obtained from WSD has been taken into account in Final TIA report.
	(xiv) Paras. 6.7.10, 6.7.11, 6.7.12, 6.7.13, 6.7.14, 6.7.15 – I note that the width of traffic lane will be reduced during the implementation of TTM Schemes. Please clarify if the existing no. of traffic lane at the respective locations can still be maintained.	Noted. Existing no. of traffic lane at the respective locations can still be maintained during the implementation of TTM Schemes.
	(xv) Figures 6.18_1 to 6.18_7 – Please review if TTM signage is required to be shown in these drawings while the signage for other TTM drawings are omitted.	Noted. Detailed TTM schemes with signage will be provided by the Contractor during construction stage. The signage will be removed from these figures.
	(xvi) Table 7.6 – Please review the width and effective width of the footpath taking into consideration of the proposed noise barrier and street furniture to be installed at the footpath.	The proposed noise barrier will be located within cycle track in order to keep the minimum effective width for footpath. While the cycle track could be maintained of 1.5m. However, the width of the adjoining cycle track would be inevitably reduced. Please be advised that some sections of noise barriers will be deleted (including the whole section of 4m high vertical noise barriers) due to public requests. The Section Amendment Gazette of roadworks was published on 18th December 2015. Therefore, only a short section of cycle track would be affected in the ultimate scheme.
	(xvii) For those proposed junctions improvement works that require modifications to the existing MOC, please submit details to our Traffic Control Division for comments.	Noted. Traffic signal details will be submitted to the Traffic Control Division for comments in detailed design stage.
	(xviii) DC members' request to incorporate a public car park into the captioned development is not yet addressed in the report.	This subject is outside the ambit of this project, and it should be responded by HD separately.
	(xix) Our request for your advice if the existing public transport services are sufficient to cater for the captioned development and whether enhancement of public transport services are required are not yet addressed in the report. Please also advise if a transport terminus is required to support the captioned development.	This subject is outside the ambit of this project, and it should be responded by HD separately.
	(xx) As the developments and programmes for Site 2 and Site 3 are uncertain, our request for your advice for the scenarios that the public transport services with and without Site 2 and Site 3 are not yet addressed in the report.	This subject is outside the ambit of this project, and it should be responded by HD separately.

Item	Comments	Responses
	(xxi) We do not agree that public transport services within the development site is outside the scope of the study. The consultants need to address our comments (xii) & (ciii) about PT in the Section "Provision on Public Transport and Pedestrian Assessment".	This subject is outside the ambit of this project, and it should be responded by HD separately.
	(xxii) Regarding the Construction Traffic Impact Assessment (CTIA) under Chapter 6, I note that you have submitted a separated CTIA assessment to assess the affected junctions performances based on the proposed alternative route. Our comments had been provided in memo ref. NR 171/200-308 dated 6 November 2015. Please follow up.	Noted.
	(xxiii) Our Traffic Control Division's comments on the report are as follows:	
	a) Table 5.1-5.4 refer – It is desirable to maintain the RC for the existing signalized junctions at least 15%. Please review the effectiveness of the proposed improvement schemes as necessary.	Noted. The proposed improvement schemes are further reviewed and the RC of all signalized junctions can be maintained at least 15% except J3 in year 2031 scenario. As the planning data for year 2031 of the developments within the study area (such as NENT) is uncertain at this stage, the performance of this junction can be further reviewed by other studies when the planning data is more certain.
	b) No new split phase arrangement should be implemented.	Noted. The proposed new split phase arrangement is an interim improvement scheme. It should be considered /approved in case-by-case basis by TD as agreed in EFS stage.
	c) Para. 5.2.19 – For Junction 16 of Jockey Club Road / Lung Sum Avenue, despite the junction capacity calculation appended in the report shows that the junction is currently operating with reserved capacity at 12% in year 2015, traffic congestion still occurs during peak hours according to our observation. Please review situation and the effectiveness of the proposed improvement schemes as necessary.	Noted. The junction performance can be maintained at least 15% with proposed revision of MOC.
	d) Para. 5.2.14 – For Junction 11 of Sha Tau Kok Road / Ma Sik Road / On Kiu Street, it is observed that traffic at junction consist of a high percentage of heavy goods vehicles. Please advise the adopted pcu factors for assessment of the junction performance.	Pcu is adopted instead of vehicle in junction assessment. Hence, pcu factor is not required.
	e) Para. 2.2.3 – It is noted that the peak traffic flow increase significantly from 2014 to 2015 by 20%-25%. Please advise the growth factor used in the traffic forecast for different design years / study scenarios.	According to the traffic forecast on the concerned Sha Tau Kok Road, the growth per annum from 2015 to 2020, 2020 to 2026 and 2026 to 2031 are about 7%, 6% and 1% respectively. The relatively high traffic growth from 2015 to 2026 is mainly contributed by the intake of Queen's Hill

Item	Comments	Responses
		development. The lower growth from 2026 to 2031 is due to the saturation of developments along Sha Tau Kok Road.
	(xxiv) This is a coordinated reply from Traffic Engineering (NTE) Division, Traffic Operation Division and Traffic Control Division.	Noted.
	Further Comments on 15 Jan 2016	
	I refer to your above submission by e-mail dated 12 January 2015 for the captioned development. 2. Please note my comment as below:	
	(i) Please provide relevant supporting information and notes of meetings for the proposed removal of pedestrian crossing at junction J11 of Sha Tau Kok Road / Ma Sik Road / On Kiu Road and proposal of banning right-turn movements at junction J13 of Sha Tau Kok Road / Sui Wan Road.	CEDD had copied records of consultation with DC member – Mr. Tang Kun Nin via e-mail on 22 Jan 2016. Moreover, the proposed removal of pedestrian crossing at junction J11 was agreed by NDC during the joint site visit on 16 Feb 2016 and during the NDC meeting on 17 Feb. 2016. The original proposal of banning right-turn movements at J13 was cancel and the revised scheme was circulated for comment via e-mail on 3 Feb 2016 and accepted by to TD and TCD. The revised scheme and respective junction calculation were incorporated into the Final TIA report.
	(ii) The proposed cycle rack width shall meet the minimum standard requirement as stipulated in the TPDM and the discontinued cycle track is not acceptable. Please review the cycle track design.	Due to the limited available space within government lands, standard 3.5m wide cycle track could not be provided at some of the sections without resumption and clearance of private lands and structures. Moreover, provision of underground type cycle track is also not feasible due to the number of run-in/out along Lung Ma Road and also congested underground drainage, sewerage, watermains and utilities.
	(iii) Please provide swept path analysis from Fan Leng Lau Road to Ma Sik Road to ensure the proposed road layout modification has sufficient maneuvering space for long vehicles in the detailed layout design.	As there are not many bus routes turning from Fan Leng Lau Road to Ma Sik Road, two buses turning simultaneously is not expected as agreed in the meeting on 27 Jan 2016, therefore the analysis for one 12m bus and one 11m HGV was conducted. Noted. Please refer to the revised swept path analysis was shown in in Figure 5.4C.
	(iv) Table 5.1 to 5.4 – I note that the junction performances for J11, J13 and J16 are revised. Please let me have the relevant junction calculations.	Noted. Relevant junction calculations were provided.
	(v) Fig. 5.18A – Please verify the swept path at J/O Po Shek Wu Road / Choi Yuen Road as the swept path seems too close to the existing kerb.	As there are not many bus routes turning from Choi Yuen Road to Po Shek Wu Road, two buses turning simultaneously is not expected as agreed in the meeting on 27 Jan 2016, therefore the analysis for one 12m bus and one 11m HGV was conducted. Please refer to the revised swept path

Item	Comments	Responses
		analysis was shown in Figure 5.18B.
	(vi) DC members' request to incorporate a public car park into the captioned development is still not yet addressed in the report.	This item is out of the scope of this Study. As advised by HD, they would response to your TO on this issue separately.
	(vii) Our request for your advice if the existing public transport services are sufficient to cater for the captioned development and whether enhancement of public transport services are required are still not yet addressed in the report. Please also advise if a transport terminus is required to support the captioned development.	This report is to assess the effect of additional traffic flow due to the development on the road network. As we have already stated in the report that whether to adjust and enhance the schedules / frequencies / routings of the public transport services or introduce new routes to meet the additional demand in the area should subject to the acceptance of the Transport Department and the operators of the proposed public transport services, and it is outside the ambit of this project which had been discussed and agreed in TIA study under EFS Stage. The provision of transport terminus or just bus stop inside the QH site would not affect the number of public transport that we estimated in the report; therefore, the necessity of the transport terminus is outside the ambit of this report as well as this project. It should be advised by HD instead.
	(viii) As the developments and programmes for Site 2 and Site 3 are uncertain, our request for your advice for the scenarios that the public transport services with and without Site 2 and Site 3 are not still yet addressed in the report.	Noted. Table 7.4 was revised to show the public transport demand for different development scenarios (i.e. only Site 1 and Site 1 to 3).
	(ix) We do not agree that public transport services within the development site is outside the scope of the study. The consultants need to address our comments about PT in the Section "Provision of Public Transport and Pedestrian Assessment".	Please refer to responses to (vii) and (viii) above.
	(x) Please provide revised text for the Construction Traffic Impact Assessment (CTIA) under Chapter 6, in which our comments had been provided in memo ref. NR 171/200-308 dated 6 November 2015.	Noted. The text under Chapter 6 had been updated according to your comments item (i), (v) and (vi) for which are relevant to this TIA report.
	3. This is a coordinated reply from Traffic Engineering (NTE) Division and Transport Operation Division. 4. Comments from our Traffic Control Division will be provided to you separately.	Noted.
4	**Transport Department** **Planning Branch,** **Transport Planning Division**	
	Your letter dated 4 November 2015 enclosing the captioned report is referred.	

Item	Comments	Responses
	Para. 2.2.2, Table 3.1, Para. 4.4.1, Table 4.2 and appendix B In general the traffic generation rates of schools, especially for primary schools, do not attain the maximum during the PM Peak (17:15 to 18:15) stated in para. 2.2.2. Please clarify if the PM Peak traffic generation rates for primary schools shown in appendix B was directly applied for estimating the PM Peak traffic flow and review its appropriateness. Besides is Table 3.1, the usage of Site 3 was assumed to be with an international school, if which the configuration Harrow International School was adopted (i.e. with student accommodation). However, as shown in appendix B, the traffic generation rates adopted in the captioned table was obtained from surveys conducted at International Schools without student accommodation. Please specify whether there will be student accommodation of the proposed International School and review the traffic generation rates for both AM and PM Peaks, if necessary. In view of the aforesaid comment, please also review the junction performance, especially Junctions J1 and J2 in future years. Please note that our relevant regional offices might have separate comment.	The adopted traffic generation rates of schools are the maximum rates obtained in the PM peak. It was adopted for conservative assessment. There is no information of the planned International School from government departments, for conservative assessment approach, we adopt traffic generation of international without accommodation which would be higher than that with accommodation.
5	**Highways Department** **New Territories Region, New Territories East District and Maintenance Division, NE New Territories**	
	I refer to your above letter dated 4.11.2015. We have the following comments on the captioned report from highways viewpoint:	
	• Item 8.1.4 – Your Study should also take into account our CE 51/2013(HY) – "Widening of Western Section and Eastern Section of Lin Ma Hang Road – Design and Construction" implemented by our Major Works Office.	Noted. The project has been taken into account in Final TIA report.
6	**Planning Department** **District Planning Branch,** **New Territories District Planning Division,** **Sha Tin, Tai Po and North District Planning Office**	
	I refer to your letter dated 4.11.2015 enclosing the Traffic Impact Assessment Report (Draft Final) and the response to comments of the captioned study for consideration. As our comments has been addressed or incorporated in the report, we, therefore, have no further comments on the enclosed TIA Report.	Noted.

Item	Comments	Responses
7 & 8	**Civil Engineering and Development Department** **New Territories East Development Office** **Branch 2** **Project Division (4) and** **Branch 1** **Project Division (3)**	
	With reference to your letter dated 4 November 2015 and CEDD's e-mail dated 11 December 2015, we have the following comments on the captioned report from the project interface point of view:	
	The captioned report has taken into account the construction traffic to be generated under the Kong Nga Po project in assessing the traffic impact. However, the traffic to be generated from the proposed development in Kong Nga Po is not found in the captioned report. Moreover, as the Kong Nga Po study is still in the feasibility stage, please closely liaise with our consultants, Mr. Leo LO of Mott MacDonald Hong Kong Limited, at 2828 5781 for obtaining the latest information of the Kong Nga Po Study.	Noted. The traffic to be generated from the proposed development in Kong Nga Po is shown in Table 6.2 of the report. We shall closely liaise with the consultants of this project to obtain the latest information.
	It is noted that reports with similar title are being circulated for comments recently. Please consider to assign reports with unique report no. for ease reference. Should you have any query, please contact the undersigned at 2116 3741.	
9	**Hong Kong Police Force** **Regions** **New Territories North Regional Headquarters** **Tai Po District, Sheung Shui Division** **8, Sha Tau Kok Road, Lung Yeuk Tau,** **Fanling, New Territories**	
	Please be informed that I have no comment on the captioned issue. Thanks for your attention.	Noted.

Annex 2 附件二

Queen's Hill Public Transport Terminus
皇后山公共運輸總站



COVERED PTT
覆蓋式公共運輸總站

PTT'S SIDE WALL WITH NO VENTILATION OPENINGS
公共運輸總站的側牆，不設任何通風口

PTT'S VENTILATION OPENINGS
公共運輸總站的通風口

DIRECTION OF AIR VENTILATION
通風方向