

Attachment 1

REVISED TRAFFIC IMPACT ASSESSMENT

**(A/TP/706) Section 16 Planning
Application for Amendment to the
Operation Hours of Temporary Tai Po
Bus Maintenance Centre for a Period of 7
Years at the Junction of Dai Fuk Street
and Dai Wah Street, Area 33, Tai Po,
New Territories**

Revised Traffic Impact Assessment Report

September 2025

This report has been prepared in accordance with the terms and conditions of appointment for this project. RL Consultancy Limited cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 The existing MTR Tai Po Bus Maintenance Centre (TPBMC) is located at the junction of Dai Fuk Street and Dai Wah Street, Area 33, Tai Po, New Territories (hereinafter referred to as the Site). The TPBMC not only provides the daily servicing and maintenance to MTR buses, it also supports and backup the Transit Service Area's service bus maintenance as a contingency measure. The existing TPBMC has been in operation since July 2015 when it was relocated from its former site in Fo Tan to make way for public rental housing. The current site of the TPBMC was selected in 2012 in collaboration with various Government Departments and consultation with Tai Po District Council.
- 1.1.2 On 8 December 2017, a Section 16 (S16) Planning Application (TPB Ref No. A/TP/637) for TPBMC was approved by the Town Planning Board (TPB) for a period of 7 years (the Approved Application). The Approved Application was valid until 8.12.2024 with a Planning Condition (a) which states that "*no operation between 7:00 a.m. and 11:00 p.m. on Sundays, as proposed by the applicant, is allowed on the site during the planning approval period*" and was subsequently renewed under Planning Application No. A/TP/695 for a further 7 years on 16 August 2024 (the Approved Renewal Application). Both Applications were approved to operate 24 hours daily from Mondays to Saturdays, with no operation between 7am and 11 pm on Sundays. The MTR now intends to extend the TPBMC operating hours to 24 hours daily (i.e. Monday to Sunday) to enable additional bus maintenance services and enhance operational efficiency.
- 1.1.3 Transport Department was preliminary consulted and commented on 19 May 2025 that: "Considering the proposed operation period extends to include 7 am to 11 pm on Sundays, the applicant shall submit a traffic impact assessment in order to demonstrate the traffic impact due to the proposal amendment is acceptable."
- 1.1.4 In June 2025, RL Consultancy Limited were commissioned to conduct a Traffic Impact Assessment (TIA) in support of this S16 submission to enable the continued operation of the existing MTR TPBMC and address TD's comment.
- 1.1.5 Comments from TD received in September 2025 have been addressed and incorporated in this Revised TIA.

1.2 Scope of Study

- 1.2.1 The scope of study includes the following:
- Review relevant past documents.
 - Survey existing traffic conditions in the study area.
 - Project future traffic demands for the critical period.
 - Appraise the effect of the Site on the adjacent road network.
 - Review and address comments from TD.
 - Prepare this Revised TIA Report.

2.0 SITE CONTEXT

2.1 Location

2.1.1 With an area of about 4,180m², the Site is located at the southwest of the Dai Fuk Street/Dai Wah Street/Dai Hung Street Roundabout in Area 33, Tai Po. It is situated to the immediate west of the Tai Po Industrial Estate as shown on **Figure 2.1**.

2.1.2 The Site is well connected to the external road network including the strategic roads of Yuen Shin Road, Ting Kok Road and Tolo Highway for easy access to all other parts of the Territory. The bus routes for the TPBMC are Dai Fuk Street, Yuen Shin Road and Ting Kok Road.

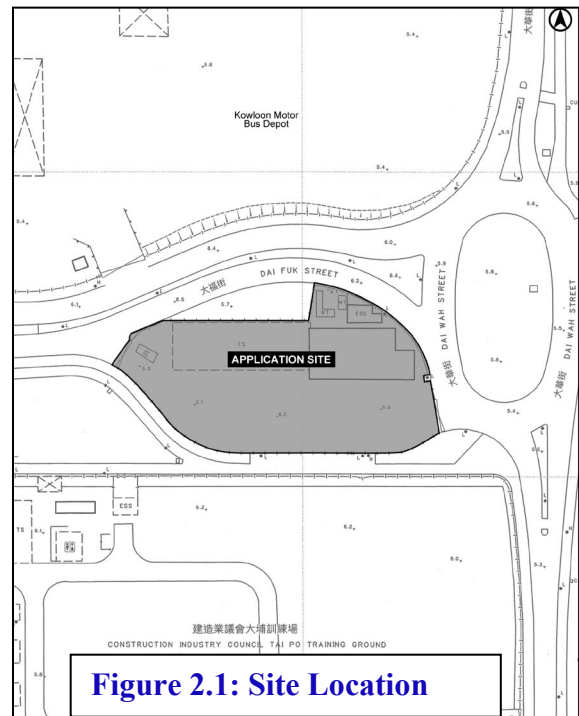


Figure 2.1: Site Location

2.2 Existing and Future Site Operation

- 2.2.1 Based on information from the MTR, the work nature of the TPBMC primarily involves preventive maintenance, corrective maintenance, incident bus repairs, component overhauls and bus annual overhauls (Certificate of Roadworthiness).
- 2.2.2 It must be emphasised that the TPBMC is NOT a bus depot and parking of buses are not permitted except those to be maintained as per the Short Term Tenancy (STT) condition.
- 2.2.3 Apart from extending the operating hours to include 7 am to 11 pm on Sundays, there is no change to the approved use and development parameters under this S16 Application. Hence, the existing TPBMC operation and vehicle trip generation are expected remain the same.
- 2.2.4 According to the MTR, future traffic generation for the Site will remain unchanged for Mondays to Saturdays, and proposed future Sundays will have the same number of buses as existing Saturdays.

2.3 Access Arrangement

- 2.3.1 Vehicles presently enter the Site from the Dai Fuk Street/Dai Wah Street/Dai Hung Street Roundabout and exit to Dai Fuk Street westbound. The departing Site vehicles will then disperse onto the surrounding areas after reaching the signalled crossroad of Ting Kok Road/Yuen Shin Road/Dai Fuk Street. This arrangement will remain unchanged in the future.

3.0 TRAFFIC FORECASTING

3.1 Existing Traffic Conditions

- 3.1.1 The Site is well connected to the external road network including the strategic roads of Yuen Shin Road, Ting Kok Road and Tolo Highway for easy access to all other parts of the Territory. The roads used by the TPBMC traffic are Dai Fuk Street, Yuen Shin Road and Ting Kok Road.
- 3.1.2 To establish the existing traffic conditions and pattern quantitatively and to provide data for traffic forecasting, comprehensive traffic surveys were carried out on Friday, 6 June 2025 and Sunday, 8 June 2025 at the key junctions given in **Table 3.1** and **Figure 3.1**. Based on comments received from TD, the AM Peak observed flows have been factored up by 12% and then rounded, for Junctions A and B for a conservative impact assessment.

Table 3.1 Surveyed Junctions

	Location	Junction Type
A	Ting Kok Road/Yuen Shin Road/Dai Fuk Street	Signalised Crossroad
B	Yuen Shin Road/Dai Fat Street	Signalised T-junction
C	Dai Fuk Street/Dai Wah Street/Dai Hung Street	Roundabout
D	Dai Fuk Street/Site Egress	Priority T-junction

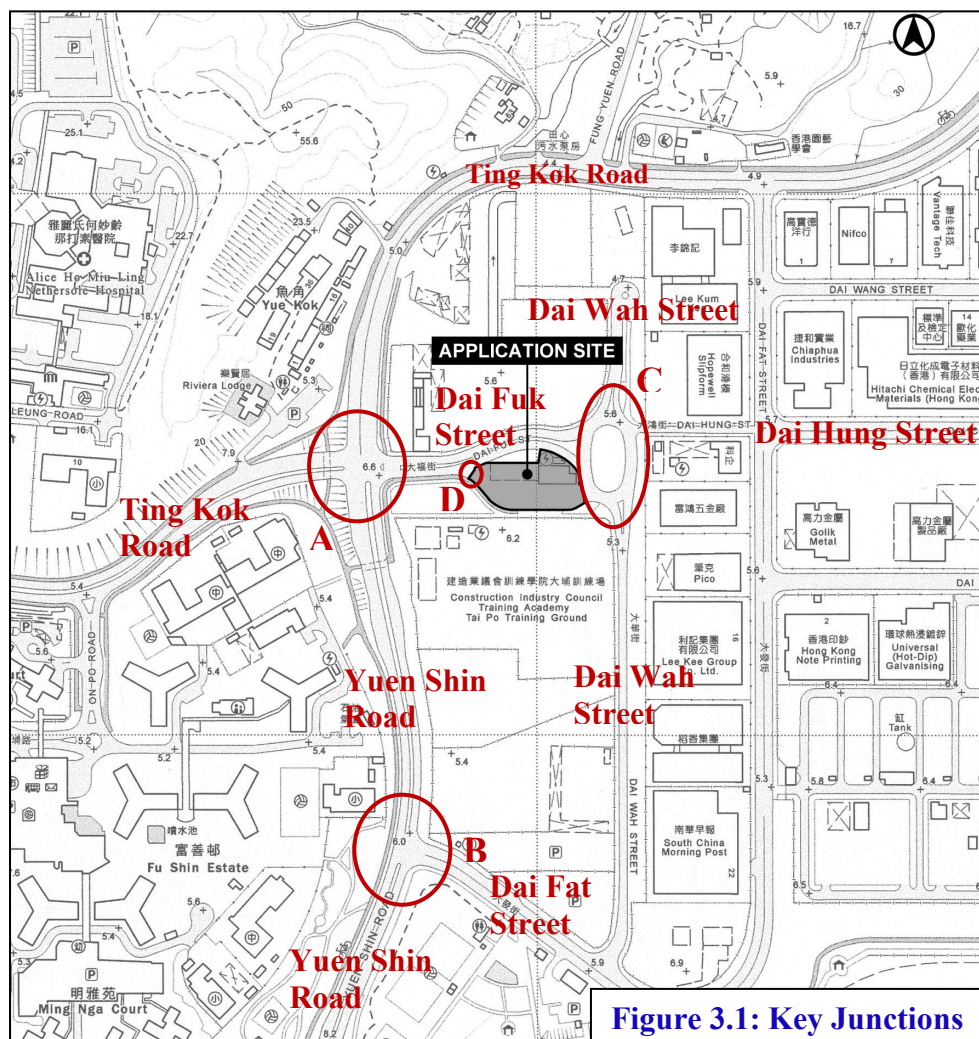


Figure 3.1: Key Junctions

3.2 Background Traffic Forecast

- 3.2.1 This application is to extend the TPBMC operating hours to 24 hours daily (i.e. Monday to Sunday) to enable additional bus maintenance services and enhance operational efficiency for a further 7 years from 2025. In this context, the design horizon year of 2032 has been adopted for assessment of traffic impact.
- 3.2.2 Background traffic flows for the future design year of 2032 were forecasted by applying an annual growth factor to the peak hour surveyed traffic flows from June 2025. Various sources were examined to determine the annual growth factor.

Growth Rate from Annual Traffic Census

- 3.2.3 Information from TD's Annual Traffic Census (ATC) reports was used to calculate the growth factor. Table 3.2 shows the Annual Average Daily Traffic (AADT) figures from 2019 to 2023.

Table 3.2 AADT from 2019 to 2023

Road Name	From	To	Station No.	AADT				
				2019	2020	2021	2022	2023
Ting Kok Road	Nam Wan Rd	Dai Kwai St	5006	30,840	29,430	32,240	30,440	29,190
Kwong Fuk Road	Nam Wan Rd	Wan Tau St	5009	19,720	18,230	19,010	17,830	17,840
Tolo Highway	North of Ma Liu Shui INT	Yuen Shin Rd INT	5013	151,780	147,640	156,330	147,630	156,010
Nam Wan Rd	Tai Po Tai Wo Rd	Ting Kok Road	5421	29,070	25,980	27,240*	26,040*	27,670*
Tat Wan Rd	Nam Wan Rd	Ma Wo Rd	5666	11,440*	10,700	11,210	10,870*	11,120*
Dai Kwai St	Ting Kok Road	Dai Chong St	6619	4,450	4,100	4,460	3,780	4,240

Note: Traffic flows are shown in vehicles/day.

- 3.2.4 Linear regression analysis was applied to the AADT volumes for each of the count stations to obtain an annual growth factor for the study area. The average annual growth rate, weighted by traffic volume, for the study area was calculated to be -0.1%.

Growth Rate from TPEDM

- 3.2.5 Another growth factor was established using the 2021-based Territorial Population and Employment Data Matrix (TPEDM) compiled by the Planning Department (PlanD) - Estimated/ Projected Distributions of Population and Employment in 2021, 2026 and 2031. The Site lies within Tai Po and its population and the relevant growth rates are summarised in Table 3.3.

Table 3.3 TPEDM Figures for Tai Po

Tai Po	Population	Employment	Population + Employment
2021	316,450	96,600	413,050
2025 (interpolated) ¹	342,410	95,160	437,570
2026	348,900	94,800	443,700
2031	343,250	89,800	433,050
2032 (extrapolated) ²	342,120	88,800	430,920
2025 to 2032			-0.2% p.a.

Source: www.pland.gov.hk/file/resources/population_data/tpedm/2021/2021-based TPEDM.pdf

Notes: 1. The 2025 population figure has been derived through interpolation between the 2021 and 2026 data.

2. The 2032 population figure has been derived by extrapolation from the 2026 and 2031 data.

- 3.2.6 The TPEDM population and employment data from 2021 and 2026 were used to interpolate the 2025 figures, whilst the 2026 and 2031 data were used to extrapolate the 2032 ones. A growth rate of -0.2% per annum was calculated for 2025 to 2032.

Growth Rate from Projections of Population Distribution

- 3.2.7 Another growth factor, +0.4% p.a., was established from PlanD's Projected Population by District Council District, 2023-2031. Data for the Tai Po District Council District are summarised in **Table 3.4**.

Table 3.4 Projected Population for Tai Po District Council

Year	2025	2026	2027	2028	2029	2030	2031
Population	335,900	348,900	350,400	346,500	341,200	340,600	343,200
2025 to 2031 growth rate = +0.4% p.a.							

Source: www.pland.gov.hk/pland_en/resources/population_data/pop_dist_proj/index.html?utm

Adopted Growth Rate

- 3.2.8 It can be seen that the Projected Population for Tai Po District Council in **Table 3.4** yielded the highest annual growth rate of +0.4%. To account for possible potential adjacent future developments, traffic flow fluctuations, uncertainties in land use and transport infrastructure changes, a conservative growth factor of 1% per annum (+7% total growth) was applied to the observed 2025 traffic demands to yield the 2032 design year traffic forecasts.

3.3 Site Trip Generation

- 3.3.1 MTR buses will be maintained, repaired, refuelled, cleaned and serviced at the TPBMC. It is NOT a bus depot and parking of buses are not permitted except those to be maintained. Given this work nature, the highest Site traffic generation is low even at the background traffic AM and PM peak hours. According to the MTR, future traffic generation for the Site will remain unchanged for Mondays to Saturdays, and proposed future Sundays will have the same number of buses as existing Saturdays.
- 3.3.2 To quantify the TPBMC traffic generation and attraction, MTR's log of all the vehicles travelling into and out of TPBMC from 2 to 7 June 2025 was examined. To cover the

traffic peak hours, data from 6 am to midnight have been extracted and are presented in **Table 3.5**.

Table 3.5 TPBMC Traffic Log from 2 to 7 June 2025

Time	Mon, 2 Jun 2025		Tue, 3 Jun 2025		Wed, 4 Jun 2025		Thu, 5 Jun 2025		Fri, 6 Jun 2025		Sat, 7 Jun 2025	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
06 - 07	1	6	1	5	1	5	1	4	1	5	1	2
07 - 08	0	0	0	0	0	0	1	1	0	0	0	0
08 - 09	2	0	1	2	2	1	1	1	2	1	0	1
09 - 10	0	0	2	0	1	0	0	0	0	0	1	1
10 - 11	2	2	5	1	0	1	1	0	1	1	1	1
11 - 12	1	0	0	0	1	0	0	0	3	2	0	0
12 - 13	0	1	1	1	0	0	1	1	0	1	1	1
13 - 14	1	1	0	0	0	0	1	0	0	0	0	0
14 - 15	1	0	0	0	0	0	1	1	1	1	0	0
15 - 16	1	2	0	0	0	0	0	0	0	0	0	0
16 - 17	0	0	0	0	0	0	0	0	0	0	0	0
17 - 18	0	0	1	0	0	0	0	0	0	0	0	0
18 - 19	2	0	0	0	0	0	1	0	0	0	1	0
19 - 20	3	4	3	3	4	3	0	0	3	2	2	1
20 - 21	6	5	3	2	4	3	3	1	5	5	0	0
21 - 22	6	5	5	4	7	6	3	2	6	5	6	6
22 - 23	10	9	12	11	12	12	3	3	14	12	14	11
23 - 00	7	9	8	9	9	9	2	3	7	8	9	11

Note: Traffic flows, mainly buses, are in vehicles.

- 3.3.3 Since the TPBMC is presently in operation except on Sundays, our weekday surveys will already have included its traffic generation. MTR advised that future Sundays will have the same number of buses as existing Saturdays. The highest Saturday hourly flow occurs between 2200 and 2300 hours which is outside the background traffic peaks. For a conservative assessment, however, this highest recorded Saturday hourly flows are adopted as the future Sunday Site traffic generation traversing at the background AM and PM peak hours. The estimated future Sunday Site traffic generation is summarised in **Table 3.6**.

Table 3.6 Future Site Traffic Generation - Sunday

TPBMC	AM		PM	
	Gen	Att	Gen	Att
<i>Observed Saturday Peak Trip Generation (buses/hr)</i>	<i>11</i>	<i>14</i>	<i>11</i>	<i>14</i>
Adopted Future Sunday Site Traffic (pcus/hr)	22	28	22	28

Note: pcus – passenger car units.

- 3.3.4 It can be seen from **Table 3.6** that the TPBMC will only produce a total 2-way traffic demand of 25 buses/hr (50 pcus/hr) in the peak hours even with a conservative estimate. Therefore, this proposal would have insignificant impact on traffic conditions when distributed to the surrounding road network. For a comprehensive assessment, however, traffic impact of the future TPBMC scheme has been assessed and the results are presented in Section 4.

4.0 TRAFFIC IMPACT ASSESSMENT

4.1 Road Network

- 4.1.1 Even with a conservative estimate, the TPBMC will only produce a total 2-way traffic demand of 50 pcus/hr in the Sunday AM and PM peak hours. With this small amount of additional Site traffic distributed onto various parts of the road network, the impact is very slight. After reviewing the study area road network, it was decided that the site generated traffic would have negligible effect on road link capacity.

4.2 Junction Capacity Assessment

- 4.2.1 Capacity analyses were carried out for the junctions that would be affected by the Site, the results are presented in **Table 4.1** for weekday and **Table 4.2** for Sunday. Detailed calculations, carried out in accordance with TD's Transport Planning and Design Manual, and traffic flows are attached in **Annex A**.

Table 4.1 Intersection Capacities in 2025 and 2032 - Weekday

	Location	Peak	2025	2032
			With TPBMC ⁽²⁾	With TPBMC
A	Ting Kok Rd/Yuen Shin Rd/ Dai Fuk St Signalled Crossroad	AM	48%	38%
		PM	84%	72%
B	Yuen Shin Rd/Dai Fat St Signalled T-junction	AM	28%	20%
		PM	88%	76%
C	Dai Fuk St/Dai Wah St/ Dai Hung St Roundabout	AM	0.26	0.28
		PM	0.24	0.26
D	Dai Fuk St/TPBMC Egress Priority T-junction	AM	< 0.01	< 0.01
		PM	< 0.01	< 0.01

Notes: 1. Capacity figures show the reserve capacity of the signalled junction, ratio of flow to capacity of the critical approach of the priority junction or roundabout.
2. TPBMC has already been approved to operate 24 hours daily from Mondays to Saturdays.

Table 4.2 Intersection Capacities in 2025 and 2032 - Sunday

	Location	Peak	2025	2032	
			Without TPBMC	Without TPBMC	With TPBMC
A	Ting Kok Rd/Yuen Shin Rd/ Dai Fuk St Signalled Crossroad	AM	105%	92%	86%
		PM	71%	60%	54%
B	Yuen Shin Rd/Dai Fat St Signalled T-junction	AM	108%	94%	88%
		PM	66%	55%	51%
C	Dai Fuk St/Dai Wah St/ Dai Hung St Roundabout	AM	0.13	0.14	0.14
		PM	0.10	0.10	0.11
D	Dai Fuk St/TPBMC Egress Priority T-junction	AM	-	-	0.03
		PM	-	-	0.03

Note: Capacity figures show the reserve capacity of the signalled junction, ratio of flow to capacity of the critical approach of the priority junction or roundabout.

- 4.2.2 It can be seen from **Table 4.1** and **Table 4.2** that the junction capacities, including the Site generated traffic, will operate satisfactorily in both the AM and PM peaks.

5.0 SUMMARY AND CONCLUSIONS

- 5.1 The purpose of this TIA is to support a S16 planning application to the TPB to extend the TPBMC operating hours to 24 hours daily (i.e. Monday to Sunday) to enable additional bus maintenance services and enhance operational efficiency.
- 5.2 The work nature of TPBMC primarily involves preventive maintenance, corrective maintenance, incident bus repair, component overhaul and bus annual overhaul. The TPBMC is NOT a bus depot and parking of buses are not permitted except those to be maintained. Given this work nature, the highest Site traffic generation is low even at the background traffic AM and PM peak hours. According to the MTR, future traffic generation for the Site will remain unchanged for Mondays to Saturdays, and proposed future Sundays will have the same number of buses as existing Saturdays.
- 5.3 This TIA has examined the existing traffic operations of the TPBMC, including MTR's log of all the vehicles travelling into and out of TPBMC. Conservatively adopting the highest recorded TPBMC Saturday flows as the future Sunday Site traffic generation, it will only produce a maximum 2-way traffic demand of 25 buses/hr (50 pcus/hr) in the future Sunday AM and PM peak hours.
- 5.4 Junction capacities of all the intersections that may be affected by the proposed development have been assessed. Even with a conservative traffic forecasting methodology, the small amount of Site generated traffic was found to have negligible effect on link and junction capacities which were all found to operate satisfactorily by year 2032 weekday and Sunday peaks.
- 5.5 To enable additional bus maintenance services and enhance operational efficiency, extension of the existing TPBMC operation is justified in view of a lack of alternative sites, its land use compatibility and suitability for TPBMC, and a practical location for serving the community need for Tai Po residents.
- 5.6 This study has demonstrated that the existing transport operation is practicable and the proposed operation of the TPBMC would not cause adverse traffic impact on the nearby road network. Therefore it is feasible from a traffic engineering point of view to extend the TPBMC operating hours to 24 hours daily (i.e. Monday to Sunday) for a further 7 years.
- 5.7 The nature of the work undertaken by the TPBMC primarily involves preventive maintenance, corrective maintenance, incident bus repairs, component overhauls and annual bus overhauls (Certificate of Roadworthiness). Extending TPBMC's operating hours would enable the provision of additional maintenance services, thereby enhancing operational efficiency and ultimately resulting in improved services for the public.

Annex A

Junction Capacity Assessments

Junction:	Ting Kok Road/Yuen Shin Road/Dai Fuk Street		
Description:	With TPBMC (Existing)	Date:	Sep 2025
Design Year:	2025 Weekday	File:	

Designed by: AL

Checked by: RL

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Stage / Phase Diagrams							Stages			Stages
1	2	3	4	5			1+2+3+4 Critical			1+2+3+4 Critical
I=7	I=5	I=7	I=6		Total Y		0.480	Total Y		0.387
					L (sec)		21	L (sec)		21
					C (sec)		100	C (sec)		100
					Y max		0.790	Y max		0.790
					R.C. (%)		48%	R.C. (%)		84%

A) Unopposed streams in individual lanes

$$S1 = (S0 - 140n) / (1 + 1.5 f/r)$$

where:

$$S0 = 2080 - 42gG + 100 (w - 3.25)$$

$g = 1$ for uphill, 0 otherwise

G = gradient

w = lane width in m

$$n = 1 \text{ for } n/s \text{ lane, } 0 \text{ otherwise}$$

f = proportion of turning traffic

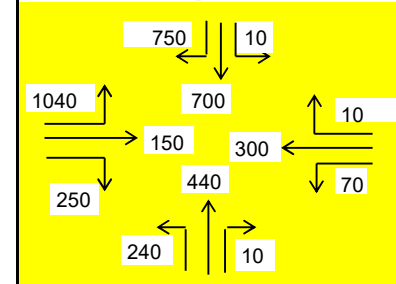
r = radius of turn

B) Opposed streams in individual lanes

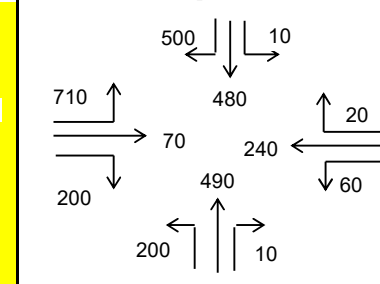
$$S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$$

Note: *=manually assigned flow

AM Traffic Flow (pcu's/hr)	PM Traffic Flow (pcu's/hr)	Peak Hour Traffic Flow (pcu's/hr)
100	120	120
120	150	150
150	180	180
180	200	200
200	220	220
220	240	240
240	260	260
260	280	280
280	300	300
300	320	320
320	340	340
340	360	360
360	380	380
380	400	400
400	420	420
420	440	440
440	460	460
460	480	480
480	500	500
500	520	520
520	540	540
540	560	560
560	580	580
580	600	600
600	620	620
620	640	640
640	660	660
660	680	680
680	700	700
700	720	720
720	740	740
740	760	760
760	780	780
780	800	800
800	820	820
820	840	840
840	860	860
860	880	880
880	900	900
900	920	920
920	940	940
940	960	960
960	980	980
980	1000	1000



PM Traffic Flow (pcu's/hr)



Junction:	Ting Kok Road/Yuen Shin Road/Dai Fuk Street		
Description:	With TPBMC (Existing)	Date:	Sep 2025
Design Year:	2032 Weekday	File:	

Designed by: AL

Checked by: RL

[illegible]

Stage / Phase Diagrams							Stages			Stages
1	2	3	4	5			1+2+3+4 Critical			1+2+3+4 Critical
							0.514	Total Y		0.414
							21	L (sec)		21
							100	C (sec)		100
							0.790	Y max		0.790
I=7	I=5	I=7	I=6				38%	R.C. (%)		72%

A) Unopposed streams in individual lanes

$$S1 = (S0 - 140n) / (1 + 1.5 f/r)$$

where:

$$S0 = 2080 - 42gG + 100 (w - 3.25)$$

$g = 1$ for uphill, 0 otherwise

G = gradient

w = lane width in m

$$n = 1 \text{ for } n/s \text{ lane, } 0 \text{ otherwise}$$

f = proportion of turning traffic

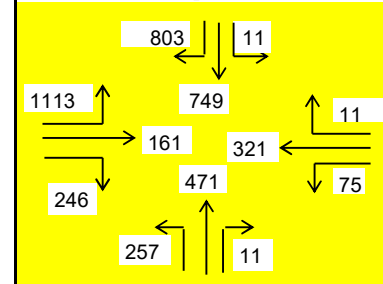
r = radius of turn

B) Opposed streams in individual lanes

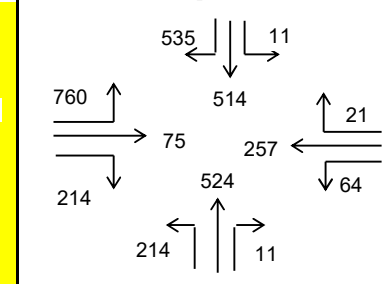
$$S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$$

Note: *=manually assigned flow

AM Traffic Flow (pcu's/hr)
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750
1800
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9250
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9950
10000



PM Traffic Flow (pcu's/hr)

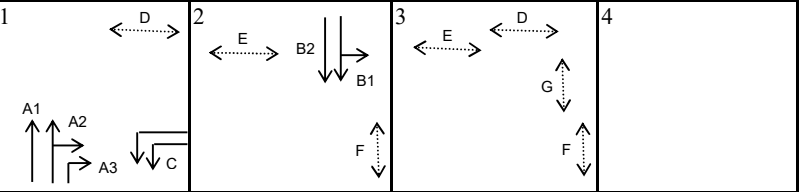


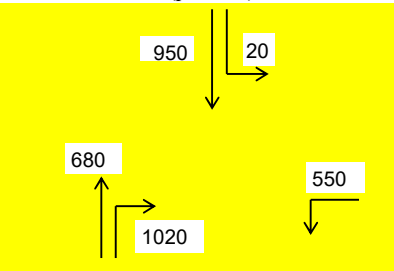
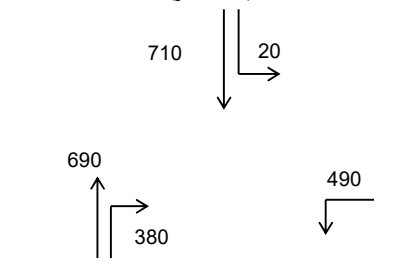
TRAFFIC SIGNAL CALCULATION

RL CONSULTANCY LTD.

Junction: <u>Yuen Shin Road/Dai Fat Street</u>											
Description: <u>With TPBMC (Existing)</u>		Date: <u>Sep 2025</u>		Designed by: <u>AL</u>							
Design Year: <u>2025 Weekday</u>		File: _____		Checked by: <u>RL</u>							

Approach	Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
							Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1 Yuen Shin Road NB sa	A1	1	3.50		1		1965	567	0.289	0.289	1965	351	0.179	0.179
2 Yuen Shin Road NB sa+rt	A2	1	3.50	21.0	1		1991	575	0.289		2091	374	0.179	
3 Yuen Shin Road NB rt	A3	1	3.50	17.0	1		1934	558	0.288		1934	345	0.178	
4 Yuen Shin Road SB lt+sa	B1	2	3.50	12.0	1		1955	467	0.239	0.239	1951	352	0.180	0.180
5 Yuen Shin Road SB sa	B2	2	3.50		1		2105	503	0.239		2105	378	0.180	
6 Dai Fat Street WB lt	C	1	7.30		2		4100	550	0.134		4100	490	0.120	
7 Pedestrians	D	3,1	GM=5, FGM=8											
8 Pedestrians	E	2,3	GM=5, FGM=8											
9 Pedestrians	F	2,3	GM=5, FGM=8											
10 Pedestrians	G	3	GM=5, FGM=8											
11														
12														
13														
14														
15														

Stage / Phase Diagrams							Stages 1+2+3 Critical			Stages 1+2+3 Critical
										
I=10 I=7 I=10 GM=5							Total Y			0.527
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			28%
										0.359
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			88%

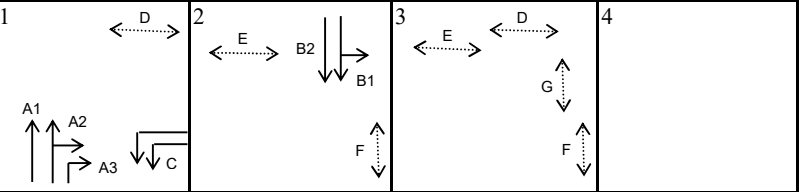
<p>A)Unopposed streams in individual lanes $S1 = (S0 - 140n) / (1 + 1.5 f/r)$</p> <p>B)Opposed streams in individual lanes $S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$</p> <p>where: $S0 = 2080 - 42gG + 100 (w - 3.25)$ $g = 1$ for uphill, 0 otherwise G = gradient w = lane width in m $n = 1$ for n/s lane, 0 otherwise f = proportion of turning traffic r = radius of turn</p> <p>Note: *=manually assigned flow</p>	<p>AM Traffic Flow (pcu's/hr)</p>  <p>PM Traffic Flow (pcu's/hr)</p> 
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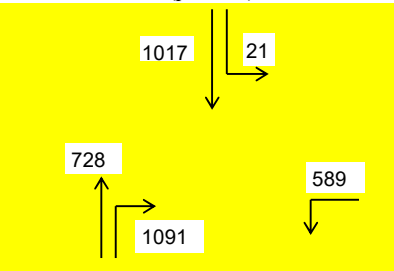
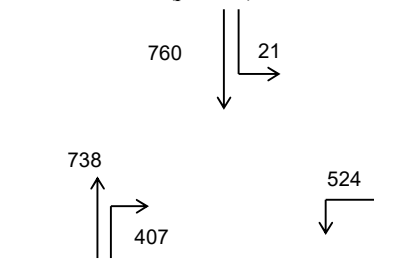
TRAFFIC SIGNAL CALCULATION

RL CONSULTANCY LTD.

Junction: <u>Yuen Shin Road/Dai Fat Street</u>											
Description: <u>With TPBMC (Existing)</u>		Date: <u>Sep 2025</u>		Designed by: <u>AL</u>							
Design Year: <u>2032 Weekday</u>		File: _____		Checked by: <u>RL</u>							

Approach	Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
							Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1 Yuen Shin Road NB sa	A1	1	3.50		1		1965	607	0.309	0.309	1965	375	0.191	0.191
2 Yuen Shin Road NB sa+rt	A2	1	3.50	21.0	1		1991	615	0.309		2091	400	0.191	
3 Yuen Shin Road NB rt	A3	1	3.50	17.0	1		1934	597	0.309		1934	370	0.191	
4 Yuen Shin Road SB lt+sa	B1	2	3.50	12.0	1		1955	500	0.256	0.256	1951	376	0.193	0.193
5 Yuen Shin Road SB sa	B2	2	3.50		1		2105	538	0.256		2105	405	0.192	
6 Dai Fat Street WB lt	C	1	7.30		2		4100	589	0.144		4100	524	0.128	
7 Pedestrians	D	3,1	GM=5, FGM=8											
8 Pedestrians	E	2,3	GM=5, FGM=8											
9 Pedestrians	F	2,3	GM=5, FGM=8											
10 Pedestrians	G	3	GM=5, FGM=8											
11														
12														
13														
14														
15														

Stage / Phase Diagrams							Stages 1+2+3 Critical			Stages 1+2+3 Critical
										
I=10 I=7 I=10 GM=5							Total Y			0.564
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			20%
										0.384
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			76%

<p>A)Unopposed streams in individual lanes $S1 = (S0 - 140n) / (1 + 1.5 f/r)$</p> <p>B)Opposed streams in individual lanes $S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$</p> <p>where: $S0 = 2080 - 42gG + 100 (w - 3.25)$ $g = 1$ for uphill, 0 otherwise G = gradient w = lane width in m $n = 1$ for n/s lane, 0 otherwise f = proportion of turning traffic r = radius of turn</p> <p>Note: *=manually assigned flow</p>	<p>AM Traffic Flow (pcu's/hr)</p>  <p>PM Traffic Flow (pcu's/hr)</p> 
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TRAFFIC SIGNAL CALCULATION

RL CONSULTANCY LTD.

Junction: Ting Kok Road/Yuen Shin Road/Dai Fuk Street
 Description: Without TPBMC (Existing) Date: Sep 2025
 Design Year: 2025 Sunday File: _____

Designed by: AL
 Checked by: RL

Approach	Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
							Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1 Yuen Shin Road NB lt	A1	4,1	3.50	12.0	1		1747	90	0.052		1747	160	0.092	
2 Yuen Shin Road NB sa	A2	1	10.50		3		6315	390	0.062	0.062	6315	560	0.089	0.089
3 Yuen Shin Road NB rt	A3	1	3.50	15.0	1		1914	20	0.010		1914	10	0.005	
4 Dai Fuk Street WB lt+sa	B1	2	3.70	13.0	1		1870	75	0.040	0.040	1888	90	0.048	0.048
5 Dai Fuk Street WB sa+rt	B2	2	3.70	15.0	1		2100	85	0.040		2125	100	0.047	
6 Ting Kok Road SB lt+sa	C1	3	3.70	12.0	1		1977	318	0.161	0.161	1978	348	0.176	
7 Ting Kok Road SB sa	C2	3	3.70		1		2125	342	0.161		2125	372	0.175	
8 Ting Kok Road SB rt	C3	3	7.30	14.0	2		3830	520	0.136		3830	710	0.185	0.185
9 Ting Kok Road EB lt	D1	3,4	7.30	12.0	2		3644	610	0.167		3644	880	0.241	
10 Ting Kok Road EB sa	D2	4	3.70		1		2125	50	0.024		2125	40	0.019	
11 Ting Kok Road EB rt	D3	4	3.70	14.0	1		1919	160	0.083	0.083	1919	180	0.094	0.094
12 Pedestrians	E	3,4,1	GM=5, FGM=7											
13 Pedestrians	F	2	GM=5, FGM=7											
14														
15														

Stage / Phase Diagrams							Stages 1+2+3+4 Critical			Stages 1+2+3+4 Critical
I=7 I=5 I=7 I=6							Total Y			Total Y
							L (sec)			L (sec)
							C (sec)			C (sec)
							Y max			Y max
							R.C. (%)			R.C. (%)

A) Unopposed streams in individual lanes

$$S1 = (S0 - 140n) / (1 + 1.5 f/r)$$

where:

$$S0 = 2080 - 42gG + 100 (w - 3.25)$$

g = 1 for uphill, 0 otherwise

G = gradient

w = lane width in m

n = 1 for n/s lane, 0 otherwise

f = proportion of turning traffic

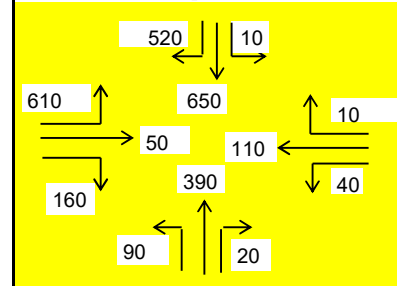
r = radius of turn

B) Opposed streams in individual lanes

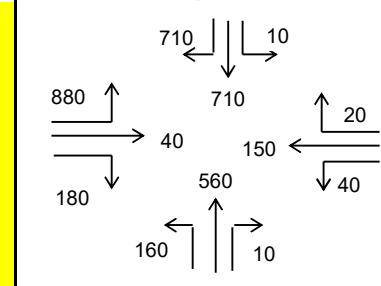
$$S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$$

Note: *=manually assigned flow

AM Traffic Flow (pcu's/hr)



PM Traffic Flow (pcu's/hr)



TRAFFIC SIGNAL CALCULATION

RL CONSULTANCY LTD.

Junction: <u>Ting Kok Road/Yuen Shin Road/Dai Fuk Street</u>											
Description: <u>Without TPBMC (Existing)</u>		Date: <u>Sep 2025</u>		Designed by: <u>AL</u>							
Design Year: <u>2032 Sunday</u>		File: _____		Checked by: <u>RL</u>							

Approach		Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
								Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1	Yuen Shin Road NB lt	A1	4,1	3.50	12.0	1		1747	96	0.055		1747	171	0.098	
2	Yuen Shin Road NB sa	A2	1	10.50		3		6315	417	0.066	0.066	6315	599	0.095	0.095
3	Yuen Shin Road NB rt	A3	1	3.50	15.0	1		1914	21	0.011		1914	11	0.006	
4	Dai Fuk Street WB lt+sa	B1	2	3.70	13.0	1		1870	81	0.043	0.043	1888	96	0.051	0.051
5	Dai Fuk Street WB sa+rt	B2	2	3.70	15.0	1		2100	91	0.043		2125	107	0.050	
6	Ting Kok Road SB lt+sa	C1	3	3.70	12.0	1		1977	340	0.172	0.172	1978	371	0.188	
7	Ting Kok Road SB sa	C2	3	3.70		1		2125	366	0.172		2125	399	0.188	
8	Ting Kok Road SB rt	C3	3	7.30	14.0	2		3830	556	0.145		3830	760	0.198	0.198
9	Ting Kok Road EB lt	D1	3,4	7.30	12.0	2		3644	653	0.179		3644	942	0.258	
10	Ting Kok Road EB sa	D2	4	3.70		1		2125	54	0.025		2125	43	0.020	
11	Ting Kok Road EB rt	D3	4	3.70	14.0	1		1919	171	0.089	0.089	1919	193	0.100	0.100
12	Pedestrians	E	3,4,1	GM=5, FGM=7											
13	Pedestrians	F	2	GM=5, FGM=7											
14															
15															

Stage / Phase Diagrams							Stages 1+2+3+4 Critical			Stages 1+2+3+4 Critical
I=7 I=5 I=7 I=6										
					Total Y		0.370	Total Y		0.445
					L (sec)		21	L (sec)		21
					C (sec)		100	C (sec)		100
					Y max		0.790	Y max		0.790
					R.C. (%)		92%	R.C. (%)		60%

A) Unopposed streams in individual lanes
 $S1 = (S0 - 140n) / (1 + 1.5 f/r)$

B) Opposed streams in individual lanes
 $S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$

Note: *=manually assigned flow

where:

$S0 = 2080 - 42gG + 100 (w - 3.25)$

$g = 1$ for uphill, 0 otherwise

G = gradient

w = lane width in m

$n = 1$ for n/s lane, 0 otherwise

f = proportion of turning traffic

r = radius of turn

AM Traffic Flow (pcu's/hr)

PM Traffic Flow (pcu's/hr)

Junction:		Ting Kok Road/Yuen Shin Road/Dai Fuk Street								Designed by: AL	
Description:		With TPBMC		Date: Sep 2025						Checked by: RL	
Design Year:		2032 Sunday		File:							

Approach		Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
								Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1	Yuen Shin Road NB lt	A1	4,1	3.50	12.0	1		1747	96	0.055		1747	171	0.098	
2	Yuen Shin Road NB sa	A2	1	10.50		3		6315	417	0.066	0.066	6315	599	0.095	0.095
3	Yuen Shin Road NB rt	A3	1	3.50	15.0	1		1914	49	0.026		1914	39	0.020	
4	Dai Fuk Street WB lt+sa	B1	2	3.70	13.0	1		1848	101	0.054	0.054	1875	127	0.068	0.068
5	Dai Fuk Street WB sa+rt	B2	2	3.70	15.0	1		2105	115	0.054		2093	141	0.068	
6	Ting Kok Road SB lt+sa	C1	3	3.70	12.0	1		1977	340	0.172	0.172	1978	371	0.188	
7	Ting Kok Road SB sa	C2	3	3.70		1		2125	366	0.172		2125	399	0.188	
8	Ting Kok Road SB rt	C3	3	7.30	14.0	2		3830	556	0.145		3830	760	0.198	0.198
9	Ting Kok Road EB lt	D1	3,4	7.30	12.0	2		3644	653	0.179		3644	942	0.258	
10	Ting Kok Road EB sa	D2	4	3.70		1		2125	82	0.038		2125	71	0.033	
11	Ting Kok Road EB rt	D3	4	3.70	14.0	1		1919	171	0.089	0.089	1919	193	0.100	0.100
12	Pedestrians	E	3,4,1	GM=5, FGM=7											
13	Pedestrians	F	2	GM=5, FGM=7											
14															
15															

Stage / Phase Diagrams							Stages			Stages
							1+2+3+4 Critical			1+2+3+4 Critical
I=7					I=5	I=7	I=6			
Total Y							0.382	Total Y		0.462
L (sec)							21	L (sec)		21
C (sec)							100	C (sec)		100
Y max							0.790	Y max		0.790
R.C. (%)							86%	R.C. (%)		54%

A)Unopposed streams in individual lanes

$$S1 = (S0 - 140n) / (1 + 1.5 f/r)$$

B)Opposed streams in individual lanes

$$S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$$

Note: *=manually assigned flow

where:

S0 = 2080 - 42gG + 100 (w - 3.25)

g =1 for uphill, 0 otherwise

G = gradient

w = lane width in m

n =1 for n/s lane, 0 otherwise

f = proportion of turning traffic

r = radius of turn

AM Traffic Flow (pcu's/hr)

PM Traffic Flow (pcu's/hr)

TRAFFIC SIGNAL CALCULATION

RL CONSULTANCY LTD.

Junction: <u>Yuen Shin Road/Dai Fat Street</u>											
Description: <u>Without TPBMC (Existing)</u>		Date: <u>Sep 2025</u>		Designed by: <u>AL</u>							
Design Year: <u>2025 Sunday</u>		File: _____		Checked by: <u>RL</u>							

Approach	Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
							Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1 Yuen Shin Road NB sa	A1	1	3.50		1		1965	231	0.118	0.118	1965	348	0.177	0.177
2 Yuen Shin Road NB sa+rt	A2	1	3.50	21.0	1		2105	249	0.118		2105	372	0.177	
3 Yuen Shin Road NB rt	A3	1	3.50	17.0	1		1934	210	0.109		1934	220	0.114	
4 Yuen Shin Road SB lt+sa	B1	2	3.50	12.0	1		1959	405	0.207	0.207	1960	448	0.229	0.229
5 Yuen Shin Road SB sa	B2	2	3.50		1		2105	435	0.207		2105	482	0.229	
6 Dai Fat Street WB lt	C	1	7.30		2		4100	210	0.051		4100	250	0.061	
7 Pedestrians	D	3,1	GM=5, FGM=8											
8 Pedestrians	E	2,3	GM=5, FGM=8											
9 Pedestrians	F	2,3	GM=5, FGM=8											
10 Pedestrians	G	3	GM=5, FGM=8											
11														
12														
13														
14														
15														

Stage / Phase Diagrams							Stages 1+2+3 Critical			Stages 1+2+3 Critical
I=10 I=7 I=10 GM=5							Total Y			0.324
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			108%
										66%

<p>A)Unopposed streams in individual lanes $S1 = (S0 - 140n) / (1 + 1.5 f/r)$</p> <p>B)Opposed streams in individual lanes $S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$</p> <p>where: $S0 = 2080 - 42gG + 100 (w - 3.25)$ $g = 1$ for uphill, 0 otherwise $G =$ gradient $w =$ lane width in m $n = 1$ for n/s lane, 0 otherwise $f =$ proportion of turning traffic $r =$ radius of turn</p> <p>Note: *=manually assigned flow</p>	<p>AM Traffic Flow (pcu's/hr)</p> <p>PM Traffic Flow (pcu's/hr)</p>
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TRAFFIC SIGNAL CALCULATION

RL CONSULTANCY LTD.

Junction: Yuen Shin Road/Dai Fat Street											
Description: Without TPBMC (Existing)		Date: Sep 2025		Designed by: AL							
Design Year: 2032 Sunday		File:		Checked by: RL							

Approach	Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
							Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1 Yuen Shin Road NB sa	A1	1	3.50		1		1965	248	0.126	0.126	1965	372	0.190	0.190
2 Yuen Shin Road NB sa+rt	A2	1	3.50	21.0	1		2105	266	0.126		2105	398	0.189	
3 Yuen Shin Road NB rt	A3	1	3.50	17.0	1		1934	225	0.116		1934	235	0.122	
4 Yuen Shin Road SB lt+sa	B1	2	3.50	12.0	1		1959	434	0.221	0.221	1960	480	0.245	0.245
5 Yuen Shin Road SB sa	B2	2	3.50		1		2105	465	0.221		2105	515	0.245	
6 Dai Fat Street WB lt	C	1	7.30		2		4100	225	0.055		4100	268	0.065	
7 Pedestrians	D	3,1	GM=5, FGM=8											
8 Pedestrians	E	2,3	GM=5, FGM=8											
9 Pedestrians	F	2,3	GM=5, FGM=8											
10 Pedestrians	G	3	GM=5, FGM=8											
11														
12														
13														
14														
15														

Stage / Phase Diagrams							Stages 1+2+3 Critical			Stages 1+2+3 Critical
I=10 I=7 I=10 GM=5							Total Y			0.347
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			94%
										0.435
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			55%

<p>A)Unopposed streams in individual lanes $S1 = (S0 - 140n) / (1 + 1.5 f/r)$</p> <p>B)Opposed streams in individual lanes $S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$</p> <p>where: $S0 = 2080 - 42gG + 100 (w - 3.25)$ $g = 1$ for uphill, 0 otherwise $G =$ gradient $w =$ lane width in m $n = 1$ for n/s lane, 0 otherwise $f =$ proportion of turning traffic $r =$ radius of turn</p>	<p>AM Traffic Flow (pcu's/hr)</p> <p>PM Traffic Flow (pcu's/hr)</p>
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Note: *=manually assigned flow

TRAFFIC SIGNAL CALCULATION

RL CONSULTANCY LTD.

Junction: Yuen Shin Road/Dai Fat Street											
Description: With TPBMC		Date: Sep 2025		Designed by: AL							
Design Year: 2032 Sunday		File:		Checked by: RL							

Approach	Phase	Stage	Width (m)	Radius (m)	No. of Lanes	Site Factor	AM Peak Hour				PM Peak Hour			
							Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y	Sat Flow (pcu/hr)	Design Flow (pcu/hr)	y value	Critical Y
1 Yuen Shin Road NB sa	A1	1	3.50		1		1965	262	0.133	0.133	1965	385	0.196	0.196
2 Yuen Shin Road NB sa+rt	A2	1	3.50	21.0	1		2105	280	0.133		2105	413	0.196	
3 Yuen Shin Road NB rt	A3	1	3.50	17.0	1		1934	225	0.116		1934	235	0.122	
4 Yuen Shin Road SB lt+sa	B1	2	3.50	12.0	1		1959	444	0.227	0.227	1960	490	0.250	0.250
5 Yuen Shin Road SB sa	B2	2	3.50		1		2105	477	0.227		2105	527	0.250	
6 Dai Fat Street WB lt	C	1	7.30		2		4100	225	0.055		4100	268	0.065	
7 Pedestrians	D	3,1	GM=5, FGM=8											
8 Pedestrians	E	2,3	GM=5, FGM=8											
9 Pedestrians	F	2,3	GM=5, FGM=8											
10 Pedestrians	G	3	GM=5, FGM=8											
11														
12														
13														
14														
15														

Stage / Phase Diagrams							Stages 1+2+3 Critical			Stages 1+2+3 Critical
I=10 I=7 I=10 GM=5							Total Y			0.360
							L (sec)			30
							C (sec)			120
							Y max			0.750
							R.C. (%)			88%
										51%

<p>A)Unopposed streams in individual lanes $S1 = (S0 - 140n) / (1 + 1.5 f/r)$</p> <p>B)Opposed streams in individual lanes $S1 = (S0 - 230 - 140n) / (1 + 1.5 f/r)$</p> <p>where: $S0 = 2080 - 42gG + 100 (w - 3.25)$ $g = 1$ for uphill, 0 otherwise G = gradient w = lane width in m $n = 1$ for n/s lane, 0 otherwise f = proportion of turning traffic r = radius of turn</p> <p>Note: *=manually assigned flow</p>	<p>AM Traffic Flow (pcu's/hr)</p> <p>PM Traffic Flow (pcu's/hr)</p>
---	---

ROUNABOUT CAPACITY CALCULATION

RL CONSULTANCY LTD.

Junction:	Dai Fuk Street/Dai Wah Street/Dai Hung Street RA				
Description:	With TPBMC (Existing)	Date:	June 2025	Designed by: AL	
Design Year:	2025 Weekday	File:		Checked by: RL	
Description:		Dai Wah St NB	Dai Fuk St EB	Dai Wah St SB	Dai Hung St WB
Input:					
V	= Approach half width (m)	3.6	7.3	3.5	3.0
E	= Entry width (m)	7.3	9.0	6.5	4.2
L	= Effective length of flare (m)	20.0	100.0	8.0	8.0
R	= Entry radius (m)	80.0	60.0	60.0	45.0
D	= Inscribed circle diameter (m)	65.0	65.0	65.0	65.0
A	= Entry angle (degree)	40	35	80	40
Q	= Entry flow (pcus/hr)	AM 110	170	30	300
		PM 100	100	50	270
Qc	= Circulating flow across entry (pcus/hr)	AM 300	90	90	30
		PM 290	80	70	50
Output:					
S	= Sharpness of flare = 1.6(E-V)/L	0.30	0.03	0.60	0.24
K	= 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.02	0.86	0.99
X2	= V + ((E-V)/(1+2S))	5.92	8.91	4.86	3.81
M	= EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	= 303*X2	1795	2700	1474	1155
Td	= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	= 0.21*Td(1+0.2*X2)	0.55	0.69	0.49	0.44
Qe	= K(F-Fc*Qc)	AM 1635	2678	1228	1133
		PM 1640	2685	1236	1124
DFC	= Design flow/Capacity = Q/Qe	AM 0.07	0.06	0.02	0.26
		PM 0.06	0.04	0.04	0.24

ROUNABOUT CAPACITY CALCULATION

RL CONSULTANCY LTD.

Junction:	Dai Fuk Street/Dai Wah Street/Dai Hung Street RA				
Description:	With TPBMC	Date:	June 2025	Designed by:	AL
Design Year:	2032 Weekday	File:		Checked by:	RL
Description:		Dai Wah St NB	Dai Fuk St EB	Dai Wah St SB	Dai Hung St WB
Input:					
V	= Approach half width (m)	3.6	7.3	3.5	3.0
E	= Entry width (m)	7.3	9.0	6.5	4.2
L	= Effective length of flare (m)	20.0	100.0	8.0	8.0
R	= Entry radius (m)	80.0	60.0	60.0	45.0
D	= Inscribed circle diameter (m)	65.0	65.0	65.0	65.0
A	= Entry angle (degree)	40	35	80	40
Q	= Entry flow (pcus/hr)	AM 118	182	32	321
		PM 107	107	54	289
Qc	= Circulating flow across entry (pcus/hr)	AM 321	96	96	32
		PM 310	86	75	54
Output:					
S	= Sharpness of flare = 1.6(E-V)/L	0.30	0.03	0.60	0.24
K	= 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.02	0.86	0.99
X2	= V + ((E-V)/(1+2S))	5.92	8.91	4.86	3.81
M	= EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	= 303*X2	1795	2700	1474	1155
Td	= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	= 0.21*Td(1+0.2*X2)	0.55	0.69	0.49	0.44
Qe	= K(F-Fc*Qc)	AM 1623	2674	1225	1132
		PM 1629	2681	1234	1123
DFC	= Design flow/Capacity = Q/Qe	AM 0.07	0.07	0.03	0.28
		PM 0.07	0.04	0.04	0.26

ROUNDAABOUT CAPACITY CALCULATION**RL CONSULTANCY LTD.**

Junction:	Dai Fuk Street/Dai Wah Street/Dai Hung Street RA				
Description:	Without TPBMC	Date:	June 2025		Designed by: AL
Design Year:	2025 Sunday	File:			Checked by: RL
Description:		Dai Wah St	Dai Fuk St	Dai Wah St	Dai Hung St
		NB	EB	SB	WB
Input:					
V	= Approach half width (m)	3.6	7.3	3.5	3.0
E	= Entry width (m)	7.3	9.0	6.5	4.2
L	= Effective length of flare (m)	20.0	100.0	8.0	8.0
R	= Entry radius (m)	80.0	60.0	60.0	45.0
D	= Inscribed circle diameter (m)	65.0	65.0	65.0	65.0
A	= Entry angle (degree)	40	35	80	40
Q	= Entry flow (pcus/hr)	AM 80	90	30	150
		PM 80	60	30	110
Qc	= Circulating flow across entry (pcus/hr)	AM 150	70	60	30
		PM 110	60	50	30
Output:					
S	= Sharpness of flare = 1.6(E-V)/L	0.30	0.03	0.60	0.24
K	= 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.02	0.86	0.99
X2	= V + ((E-V)/(1+2S))	5.92	8.91	4.86	3.81
M	= EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	= 303*X2	1795	2700	1474	1155
Td	= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	= 0.21*Td(1+0.2*X2)	0.55	0.69	0.49	0.44
Qc	= K(F-Fc*Qc)	AM 1717	2692	1241	1133
		PM 1738	2699	1245	1133
DFC	= Design flow/Capacity = Q/Qc	AM 0.05	0.03	0.02	0.13
		PM 0.05	0.02	0.02	0.10

ROUNDAABOUT CAPACITY CALCULATION**RL CONSULTANCY LTD.**

Junction:	Dai Fuk Street/Dai Wah Street/Dai Hung Street RA				
Description:	Without TPBMC	Date:	June 2025		Designed by: AL
Design Year:	2032 Sunday	File:			Checked by: RL
Description:		Dai Wah St	Dai Fuk St	Dai Wah St	Dai Hung St
		NB	EB	SB	WB
Input:					
V	= Approach half width (m)	3.6	7.3	3.5	3.0
E	= Entry width (m)	7.3	9.0	6.5	4.2
L	= Effective length of flare (m)	20.0	100.0	8.0	8.0
R	= Entry radius (m)	80.0	60.0	60.0	45.0
D	= Inscribed circle diameter (m)	65.0	65.0	65.0	65.0
A	= Entry angle (degree)	40	35	80	40
Q	= Entry flow (pcus/hr)	AM 86	96	32	161
		PM 86	64	32	118
Qc	= Circulating flow across entry (pcus/hr)	AM 161	75	64	32
		PM 118	64	54	32
Output:					
S	= Sharpness of flare = 1.6(E-V)/L	0.30	0.03	0.60	0.24
K	= 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.02	0.86	0.99
X2	= $V + ((E-V)/(1+2S))$	5.92	8.91	4.86	3.81
M	= EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	= 303*X2	1795	2700	1474	1155
Td	= $1+(0.5/(1+M))$	1.19	1.19	1.19	1.19
Fc	= 0.21*Td(1+0.2*X2)	0.55	0.69	0.49	0.44
Qc	= K(F-Fc*Qc)	AM 1711	2689	1239	1132
		PM 1734	2696	1243	1132
DFC	= Design flow/Capacity = Q/Qc	AM 0.05	0.04	0.03	0.14
		PM 0.05	0.02	0.03	0.10

ROUNDAABOUT CAPACITY CALCULATION**RL CONSULTANCY LTD.**

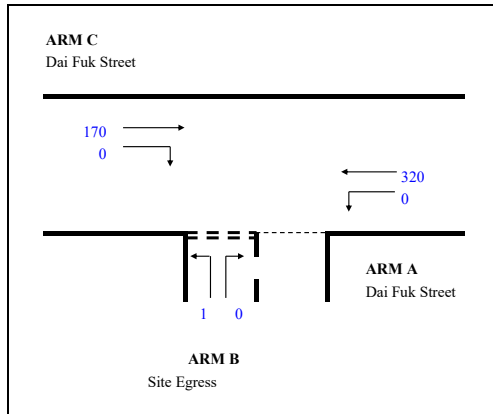
Junction:	Dai Fuk Street/Dai Wah Street/Dai Hung Street RA				
Description:	With TPBMC	Date:	June 2025		Designed by: AL
Design Year:	2032 Sunday	File:			Checked by: RL
Description:		Dai Wah St	Dai Fuk St	Dai Wah St	Dai Hung St
		NB	EB	SB	WB
Input:					
V	= Approach half width (m)	3.6	7.3	3.5	3.0
E	= Entry width (m)	7.3	9.0	6.5	4.2
L	= Effective length of flare (m)	20.0	100.0	8.0	8.0
R	= Entry radius (m)	80.0	60.0	60.0	45.0
D	= Inscribed circle diameter (m)	65.0	65.0	65.0	65.0
A	= Entry angle (degree)	40	35	80	40
Q	= Entry flow (pcus/hr)	AM 86	124	32	161
		PM 86	92	32	118
Qc	= Circulating flow across entry (pcus/hr)	AM 189	75	92	60
		PM 146	64	82	60
Output:					
S	= Sharpness of flare = 1.6(E-V)/L	0.30	0.03	0.60	0.24
K	= 1-0.00347(A-30)-0.978(1/R-0.05)	1.00	1.02	0.86	0.99
X2	= V + ((E-V)/(1+2S))	5.92	8.91	4.86	3.81
M	= EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	= 303*X2	1795	2700	1474	1155
Td	= 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	= 0.21*Td(1+0.2*X2)	0.55	0.69	0.49	0.44
Qc	= K(F-Fc*Qc)	AM 1696	2689	1227	1120
		PM 1719	2696	1232	1120
DFC	= Design flow/Capacity = Q/Qc	AM 0.05	0.05	0.03	0.14
		PM 0.05	0.03	0.03	0.11

PRIORITY JUNCTION CALCULATION

RL CONSULTANCY LTD.

Junction: Dai Fuk Street / Site Egress
 Description: Existing Layout: With TPBMC (Existing)
 Design Year: 2025 Weekday AM

Designed by: AL
 Checked by: RL



Notes:

W = Major road width
 W cr = Central reserve width
 W b-a = Lane width available to vehicle waiting in stream b-a
 W b-c = Lane width available to vehicle waiting in stream b-c
 W c-b = Lane width available to vehicle waiting in stream c-b
 V l b-a = Visibility to the left for vehicles waiting in stream b-a
 V r b-a = Visibility to the right for vehicles waiting in stream b-a
 V r b-c = Visibility to the right for vehicles waiting in stream b-c
 V r c-b = Visibility to the right for vehicles waiting in stream c-b
 D = Stream-specific b-a
 E = Stream-specific b-c
 F = Stream-specific c-b
 Y = (1-0.0345W)

GEOMETRIC DETAILS:

Road Widths

W = 7.3 m
 W cr = 0.0 m
 W b-a = 0.0 m
 W b-c = 4.0 m
 W c-b = 0.0 m

Visibility

r:B-A = 50 m
 r:B-C = 150 m
 l:B-C = 150 m
 s:C-B = 50 m

GEOMETRIC FACTORS :

Y = 0.7482
 D = 0.6155
 E = 1.0608
 F = 0.6155

TRAFFIC FLOWS:

ARM A
 q a-b = 0 pcus/hr
 q a-c = 320 pcus/hr
 ARM B
 q b-a = 0 pcus/hr
 q b-c = 1 pcus/hr
 F for (Qb-ac) = 1
 ARM C
 q c-a = 170 pcus/hr
 q c-b = 0 pcus/hr

THE CAPACITY OF MOVEMENT :

Q b-a = 314
 Q b-c = 698
 Q c-b = 405
 Q b-ac = 698
 Q b-c (O) = 698

DESIGN FLOW/CAPACITY:

DFC b-a = 0.0000
 DFC b-c = 0.0014
 DFC c-b = 0.0000

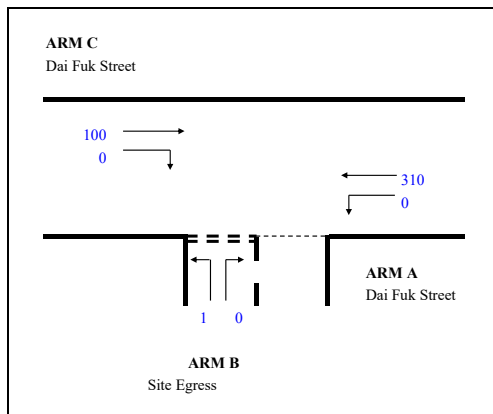
CRITICAL DFC = 0.00

PRIORITY JUNCTION CALCULATION

RL CONSULTANCY LTD.

Junction: Dai Fuk Street / Site Egress
 Description: Existing Layout: With TPBMC (Existing)
 Design Year: 2025 Weekday PM

Designed by: AL
 Checked by: RL



Notes:

W = Major road width
 W cr = Central reserve width
 W b-a = Lane width available to vehicle waiting in stream b-a
 W b-c = Lane width available to vehicle waiting in stream b-c
 W c-b = Lane width available to vehicle waiting in stream c-b
 V l b-a = Visibility to the left for vehicles waiting in stream b-a
 V r b-a = Visibility to the right for vehicles waiting in stream b-a
 V r b-c = Visibility to the right for vehicles waiting in stream b-c
 V r c-b = Visibility to the right for vehicles waiting in stream c-b
 D = Stream-specific b-a
 E = Stream-specific b-c
 F = Stream-specific c-b
 Y = (1-0.0345W)

GEOMETRIC DETAILS:

Road Widths

W = 7.3 m
 W cr = 0.0 m
 W b-a = 0.0 m
 W b-c = 4.0 m
 W c-b = 0.0 m

Visibility

r:B-A = 50 m
 r:B-C = 150 m
 l:B-C = 150 m
 s:C-B = 50 m

GEOMETRIC FACTORS :

Y = 0.7482
 D = 0.6155
 E = 1.0608
 F = 0.6155

TRAFFIC FLOWS:

ARM A
 q a-b = 0 pcus/hr
 q a-c = 310 pcus/hr
 ARM B
 q b-a = 0 pcus/hr
 q b-c = 1 pcus/hr
 F for (Qb-ac) = 1
 ARM C
 q c-a = 100 pcus/hr
 q c-b = 0 pcus/hr

THE CAPACITY OF MOVEMENT :

Q b-a = 323
 Q b-c = 701
 Q c-b = 407
 Q b-ac = 701
 Q b-c (O) = 701

DESIGN FLOW/CAPACITY:

DFC b-a = 0.0000
 DFC b-c = 0.0014
 DFC c-b = 0.0000

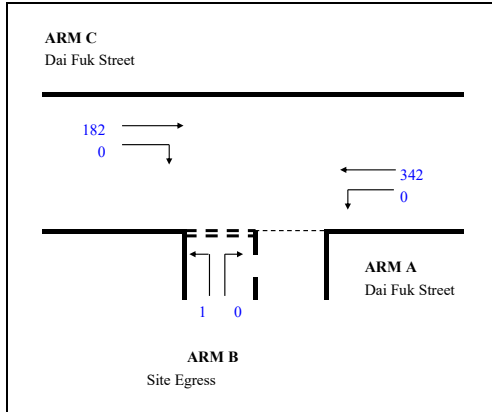
CRITICAL DFC = 0.00

PRIORITY JUNCTION CALCULATION

RL CONSULTANCY LTD.

Junction: Dai Fuk Street / Site Egress
 Description: Existing Layout With TPBMC (Existing)
 Design Year: 2032 Weekday AM

Designed by: AL
 Checked by: RL



Notes:

- W = Major road width
- W cr = Central reserve width
- W b-a = Lane width available to vehicle waiting in stream b-a
- W b-c = Lane width available to vehicle waiting in stream b-c
- W c-b = Lane width available to vehicle waiting in stream c-b
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a
- Vr b-c = Visibility to the right for vehicles waiting in stream b-c
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b
- D = Stream-specific b-a
- E = Stream-specific b-c
- F = Stream-specific c-b
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

Road Widths

W	=	7.3	m
W cr	=	0.0	m
W b-a	=	0.0	m
W b-c	=	4.0	m
W c-b	=	0.0	m

Visibility

r:B-A	=	50	m
r:B-C	=	150	m
l:B-C	=	150	m
s:C-B	=	50	m

GEOMETRIC FACTORS :

Y	=	0.7482
D	=	0.6155
E	=	1.0608
F	=	0.6155

THE CAPACITY OF MOVEMENT :

Q b-a	=	309
Q b-c	=	691
Q c-b	=	401
Q b-ac	=	691
Q b-c (O)	=	691

DESIGN FLOW/CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0015
DFC c-b	=	0.0000

CRITICAL DFC = 0.00

TRAFFIC FLOWS:

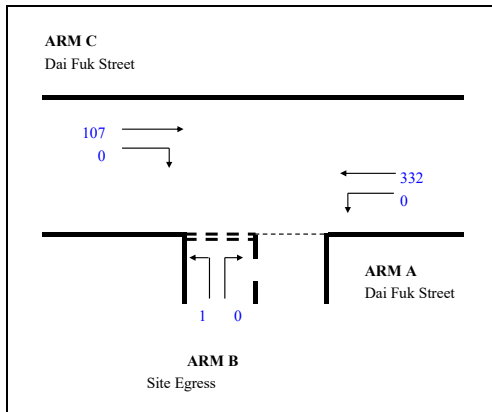
ARM A	
q a-b	= 0 pcus/hr
q a-c	= 342 pcus/hr
ARM B	
q b-a	= 0 pcus/hr
q b-c	= 1 pcus/hr
F for (Qb-ac)	= 1
ARM C	
q c-a	= 182 pcus/hr
q c-b	= 0 pcus/hr

PRIORITY JUNCTION CALCULATION

RL CONSULTANCY LTD.

Junction: Dai Fuk Street / Site Egress
 Description: Existing Layout With TPBMC (Existing)
 Design Year: 2032 Weekday PM

Designed by: AL
 Checked by: RL



Notes:

- W = Major road width
- W cr = Central reserve width
- W b-a = Lane width available to vehicle waiting in stream b-a
- W b-c = Lane width available to vehicle waiting in stream b-c
- W c-b = Lane width available to vehicle waiting in stream c-b
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a
- Vr b-c = Visibility to the right for vehicles waiting in stream b-c
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b
- D = Stream-specific b-a
- E = Stream-specific b-c
- F = Stream-specific c-b
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

Road Widths

W	=	7.3	m
W cr	=	0.0	m
W b-a	=	0.0	m
W b-c	=	4.0	m
W c-b	=	0.0	m

Visibility

r:B-A	=	50	m
r:B-C	=	150	m
l:B-C	=	150	m
s:C-B	=	50	m

GEOMETRIC FACTORS :

Y	=	0.7482
D	=	0.6155
E	=	1.0608
F	=	0.6155

THE CAPACITY OF MOVEMENT :

Q b-a	=	319
Q b-c	=	694
Q c-b	=	403
Q b-ac	=	694
Q b-c (O)	=	694

DESIGN FLOW/CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0015
DFC c-b	=	0.0000

CRITICAL DFC = 0.00

TRAFFIC FLOWS:

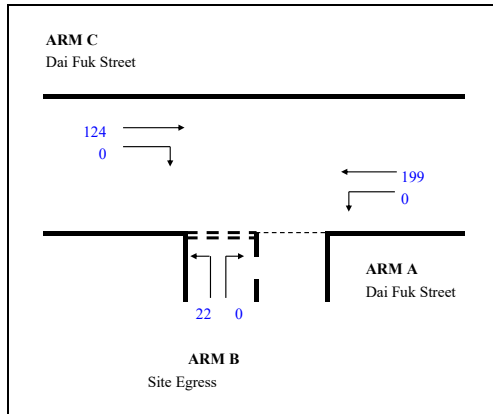
ARM A	
q a-b	= 0 pcus/hr
q a-c	= 332 pcus/hr
ARM B	
q b-a	= 0 pcus/hr
q b-c	= 1 pcus/hr
F for (Qb-ac)	= 1
ARM C	
q c-a	= 107 pcus/hr
q c-b	= 0 pcus/hr

PRIORITY JUNCTION CALCULATION

RL CONSULTANCY LTD.

Junction: Dai Fuk Street / Site Egress
 Description: Existing Layout With TPBMC
 Design Year: 2032 Sunday AM

Designed by: AL
 Checked by: RL



Notes:

- W = Major road width
- W cr = Central reserve width
- W b-a = Lane width available to vehicle waiting in stream b-a
- W b-c = Lane width available to vehicle waiting in stream b-c
- W c-b = Lane width available to vehicle waiting in stream c-b
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a
- Vr b-c = Visibility to the right for vehicles waiting in stream b-c
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b
- D = Stream-specific b-a
- E = Stream-specific b-c
- F = Stream-specific c-b
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

Road Widths

W	=	7.3 m
W cr	=	0.0 m
W b-a	=	0.0 m
W b-c	=	4.0 m
W c-b	=	0.0 m

Visibility

r:B-A	=	50 m
r:B-C	=	150 m
l:B-C	=	150 m
s:C-B	=	50 m

GEOMETRIC FACTORS :

Y	=	0.7482
D	=	0.6155
E	=	1.0608
F	=	0.6155

THE CAPACITY OF MOVEMENT :

Q b-a	=	339
Q b-c	=	733
Q c-b	=	425
Q b-ac	=	733
Q b-c (O)	=	733

DESIGN FLOW/CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0300
DFC c-b	=	0.0000

CRITICAL DFC = 0.03

TRAFFIC FLOWS:

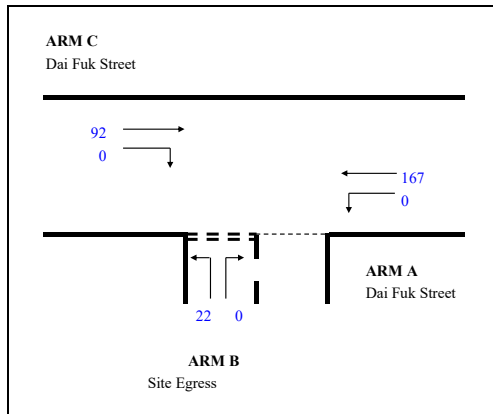
ARM A		
q a-b	=	0 pcus/hr
q a-c	=	199 pcus/hr
ARM B		
q b-a	=	0 pcus/hr
q b-c	=	22 pcus/hr
F for (Qb-ac)	=	1
ARM C		
q c-a	=	124 pcus/hr
q c-b	=	0 pcus/hr

PRIORITY JUNCTION CALCULATION

RL CONSULTANCY LTD.

Junction: Dai Fuk Street / Site Egress
 Description: Existing Layout With TPBMC
 Design Year: 2032 Sunday PM

Designed by: AL
 Checked by: RL



Notes:

- W = Major road width
- W cr = Central reserve width
- W b-a = Lane width available to vehicle waiting in stream b-a
- W b-c = Lane width available to vehicle waiting in stream b-c
- W c-b = Lane width available to vehicle waiting in stream c-b
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a
- Vr b-c = Visibility to the right for vehicles waiting in stream b-c
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b
- D = Stream-specific b-a
- E = Stream-specific b-c
- F = Stream-specific c-b
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

Road Widths

W	=	7.3 m
W cr	=	0.0 m
W b-a	=	0.0 m
W b-c	=	4.0 m
W c-b	=	0.0 m

Visibility

r:B-A	=	50 m
r:B-C	=	150 m
l:B-C	=	150 m
s:C-B	=	50 m

GEOMETRIC FACTORS :

Y	=	0.7482
D	=	0.6155
E	=	1.0608
F	=	0.6155

THE CAPACITY OF MOVEMENT :

Q b-a	=	348
Q b-c	=	742
Q c-b	=	431
Q b-ac	=	742
Q b-c (O)	=	742

DESIGN FLOW/CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0296
DFC c-b	=	0.0000

CRITICAL DFC = 0.03

TRAFFIC FLOWS:

ARM A		
q a-b	=	0 pcus/hr
q a-c	=	167 pcus/hr
ARM B		
q b-a	=	0 pcus/hr
q b-c	=	22 pcus/hr
F for (Qb-ac)	=	1
ARM C		
q c-a	=	92 pcus/hr
q c-b	=	0 pcus/hr