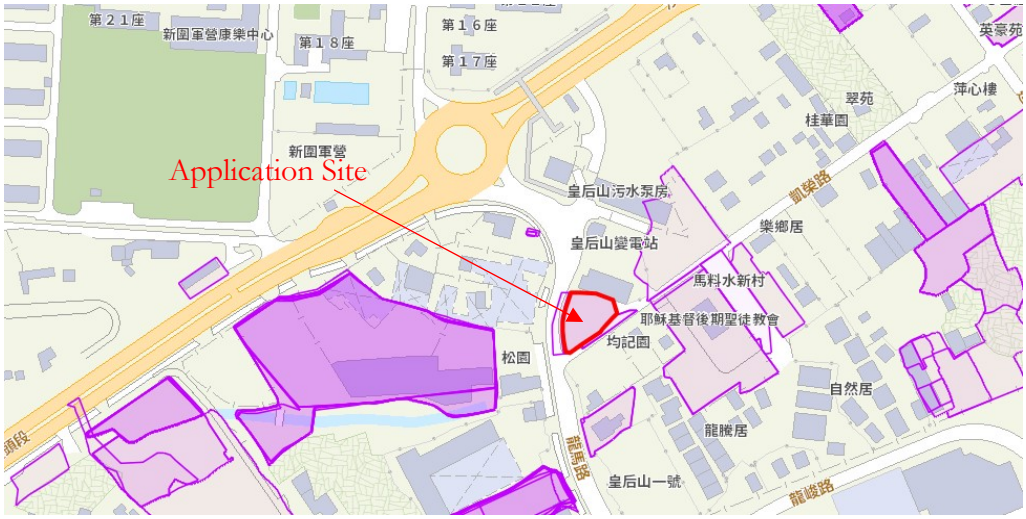
Technical Note

Project	Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsuen, Fanling	**Date**	09/07/2024
Note	Traffic Review		

1 Introduction

1.1 The Applicant proposes a temporary public vehicle park cum shop and services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsuen, Fanling, with location presented in **Figure 1**.

Figure 1 Site Location



1.2 To support the planning application (A/NE-LYT/825) while to address TD's comment, a traffic review covering junction capacity analysis at J/O Sha Tau Kok Road / Lung Ma Road (J1) and Lung Ma Road / Hai Wing Road (J2), as well as link capacity at Lung Ma Road (L1) is conducted, with findings summarized in this Technical Note.

2 Estimated Development Traffic Flows

2.1 Based on the latest information, the peak hour development traffic for the application site is summarized in **Table 2.1**.

Table 2.1 Peak Hour Development Traffic

	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Trip Generation (pcu/hr)	0	2	2	0

3 Existing Traffic Condition

Existing Traffic Flows

3.1 To evaluate the existing traffic condition, surveys at J/O Sha Tau Kok Road / Lung Ma Road (J1), Lung Ma Road / Hai Wing Road (J2) and Lung Ma Road (L1) were conducted on 3 July 2024 (with survey period of 07:00-09:00 and 16:30-18:30), with the AM and PM peak hours identified to occur at 07:00-08:00 and 17:30-18:30 respectively. Assessment results are indicated in **Table 3.1** and **Table 3.2** respectively. Detailed junction calculation sheets are also presented in **Appendix B**.

Table 3.1 2024 Peak Hour Junction Capacity Assessment

J/O	Location	Type	DFC(1) for AM Peak	DFC(1) for PM Peak
J1	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.47	0.56
J2	Lung Ma Road / Hai Wing Road	Priority	0.05	0.04

Notes: (1) DFC = Design Flow to Capacity for roundabout and priority junction.

Table 3.2 2024 Peak Hour Road Link Capacity Assessment

No.	Location	Dir	Design Capacity(1) (veh/hr)	AM Peak		PM Peak	
				Flows (veh/hr)	P/Df(2)	Flows (veh/hr)	P/Df(2)
L1	Lung Ma Road	NB	850	583	0.69	354	0.42
		SB	850	400	0.47	482	0.57

Notes: (1) TPDM Vol 2 Table 2.4.1.1
(2) Peak Hourly Flows/Design Flow Ratios (P/Df) for road links

3.2 The results reveal that the assessed junction and road link are currently operating satisfactorily during the peak hours.

4 Future Year Forecast

4.1 With the anticipated operation year of the Application Site is 2024 for operation of 3 years, the “Design Year” for this Traffic Review becomes 2027, i.e. the last operation year for the Application Site.

4.2 In forecasting the future traffic flows on the road network in the Study Area, due considerations are given to the following information and factors:

- Historical traffic data from Annual Traffic Census (ATC) published by Transport Department;

- The forecast population and employment from the 2019-based Territorial Population and Employment Data Matrices (TPEDM) planning data published by Planning Department;
- Committed and planned developments in the Study Area.

4.3 The following steps are undertaken to derive the 2027 Peak Hour Reference Flows (i.e. without the Application Site) and Design Flows (i.e. with the Application Site):

- 2027 Background Flows = 2024 Flows x annual growth factors
- 2027 Reference Flows = 2027 Background Flows + additional traffic by planned and committed developments
- 2027 Design Flows = 2027 Reference Flows + Development traffic

4.4 The traffic impact to be induced by the Application Site is assessed by comparing the Peak Hour Reference Traffic Flows against the Design Traffic Flows for both Design Years.

Background Traffic Growth

4.5 To gain an understanding of the historical trends of traffic growth on the nearby road network, relevant traffic data over the 5-year period of 2017 to 2022 are extracted from the Annual Traffic Census (ATC) Reports for the ATC stations in the Study Area. **Table 4-1** describes the locations of the ATC stations and provides the corresponding traffic data.

Table 4.1 Average Annual Daily Traffic from Annual Traffic Census

Station	Road	Between		2017	2018	2019	2020	2021	2022	Average Growth Rate p.a.
5660	Sha Tau Kok Rd	On Kui St	Wu Shek Kok nr STK Sec School	33050	33870	33630	23740	22980	22280	-7.58%
				-	2.48%	-0.71%	-29.41%	-3.20%	-3.05%	
6653	Ping Che Rd	Sha Tau Kok Rd	Lin Ma Hang Rd	11360	11430	11820	11030	11870	11510	0.26%
				-	0.62%	3.41%	-6.68%	7.62%	-3.03%	
Total				**44410**	**45300**	**45450**	**34770**	**34850**	**33790**	**-5.32%**
				-	**2.00%**	**0.33%**	**-23.50%**	**0.23%**	**-3.04%**	

Source: 2017-2022 Annual Traffic Census (ATC) Reports published by Transport Department

4.6 **Table 4.2** also presents the population and employment data in NENT (Others) population and Employment Data Matrices (TPEDM) planning data provided by Planning Department.

Table 4.2 2019-Based TPEDM for NENT (Others)

Category	2019	2024(1)	2026	2027(1)	2031	2021-2031
						Average Growth (% p.a.)
Population	1,316,700	1,399,021	1,431,950	1,524,510	1,547,650	2.90%
Employment	421,000	414,214	411,500	432,700	438,000	1.47%
Total	1,737,700	1,813,236	1,843,450	1.957.210	1,985,650	2.58%

Source: 2019-based TPEDM published by Planned Department
Note: (1)2024 and 2027 population and employment places are calculated by interpolation

4.7 For conservative, an annual growth 2.58% (adopt TPEDM growth) is adopted for this Traffic Review.

Planned and Committed Developments

4.8 Based on the information obtained from TPB website, planned and committed developments with direct traffic impact to the vicinity of the Application Site are not identified in the close vicinity of the site.

5 Future Year Traffic Assessment

5.1 Based on the Reference Flows (i.e. without Application Site) and Design Flows (i.e. with Application Site) for the Design Years, junction and link capacity assessment are undertaken and the results shown in **Table 5.1** and **Table 5.2** with detailed calculation sheets provided in **Appendix B**.

Table 5.1 2027 Peak Hour Junction Capacity Assessment

J/O	Location	Type	DFC(1) for 2027 Reference Case		DFC(1) for 2027 Design Case	
			AM	PM	AM	PM
J1	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.51	0.60	0.51	0.60
J2	Lung Ma Road / Hai Wing Road	Priority	0.06	0.05	0.06	0.05

Notes: (1) DFC = Design Flow to Capacity for roundabout and priority junction.

Table 5.2 2027 Peak Hour Road Link Capacity Assessment

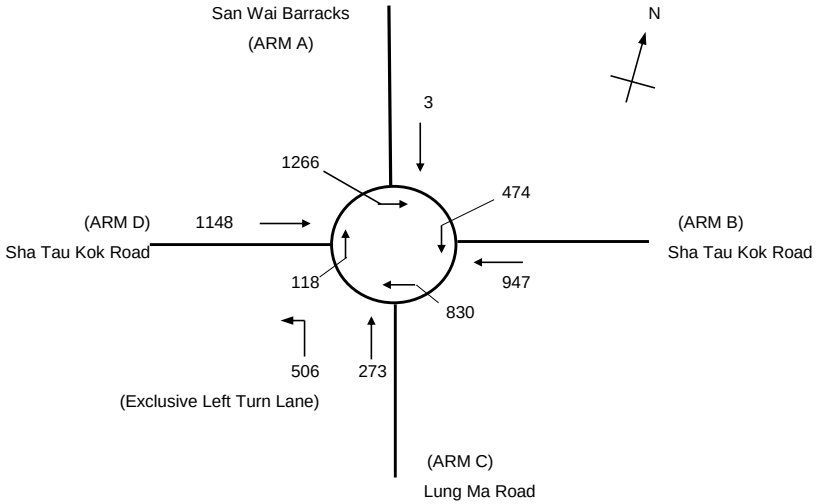
No.	Location	Dir	Design Capacity[1] (veh/hr)	2027 AM Peak		2027 PM Peak	
				Flows (veh/hr)	P/Df[2]	Flows (veh/hr)	P/Df[2]
Reference Scenario							
L1	Lung Ma Road	NB	850	630	0.74	382	0.45
		SB	850	432	0.51	520	0.61
Design Scenario							
L1	Lung Ma Road	NB	850	632	0.74	382	0.45
		SB	850	432	0.51	522	0.61

Notes: (1) TPDM Vol 2 Table 2.4.1.1
(2) Peak Hourly Flows/Design Flow Ratios (P/Df) for road links

5.2 The results indicate a trivial development traffic impact onto the assessed junction and road link, while assessed junctions and road link will operating satisfactorily during the peak hours even with the Application Site in place.

Appendix A

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui S		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J1: Sha Tau Kok Road / Lung Ma Road	**2024_AM**	FILENAME :	CHECKED BY:	DP	Jul-24
2024 Observed AM Peak Hour Traffic Flows		Sha Tau Kok Road_Lung Ma Road_R.xls	REVIEWED BY:	SC	Jul-24

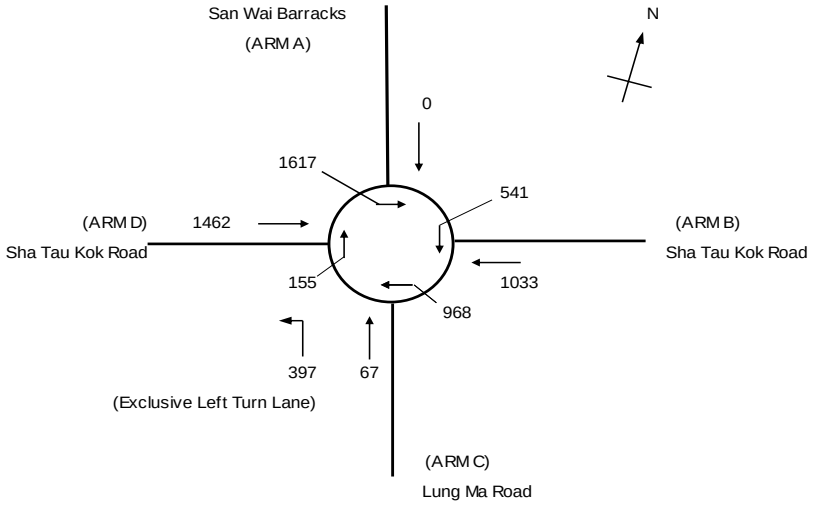


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	3.0	7.5	3.5	7.5
E	=	Entry width (m)	5.5	8.0	5.5	9.0
L	=	Effective length of flare (m)	25	30	15	25
R	=	Entry radius (m)	50	20	60	35
D	=	Inscribed circle diameter (m)	50	50	50	50
A	=	Entry angle (degree)	25	35	20	25
Q	=	Entry flow (pcu/h)	3	947	273	1148
Qc	=	Circulating flow across entry (pcu/h)	1266	474	830	118
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.16	0.03	0.21	0.10
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	0.98	1.07	1.04
X2	=	V + ((E-V)/(1+2S))	4.89	7.97	4.90	8.76
M	=	EXP((D-60)/10)	0	0	0	0
F	=	303*X2	1483	2416	1485	2654
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.57	0.74	0.57	0.79
Qe	=	K(F-Fc*Qc)	800	2028	1082	2659
DFC	=	Design flow/Capacity = Q/Qe	0.00	0.47	0.25	0.43

Total In Sum = 2368 PCU

DFC of Critical Approach = 0.47

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui S		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J1: Sha Tau Kok Road / Lung Ma Road	**2024_PM**	FILENAME :	CHECKED BY:	DP	Jul-24
2024 Observed PM Peak Hour Traffic Flows		Sha Tau Kok Road_Lung Ma Road_R.xls	REVIEWED BY:	SC	Jul-24

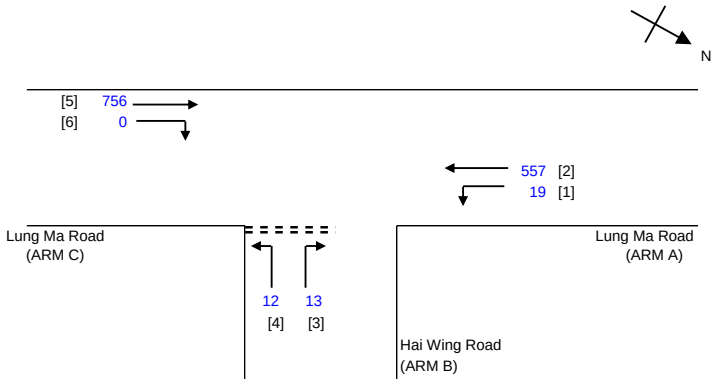


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	3.0	7.5	3.5	7.5
E	=	Entry width (m)	5.5	8.0	5.5	9.0
L	=	Effective length of flare (m)	25	30	15	25
R	=	Entry radius (m)	50	20	60	35
D	=	Inscribed circle diameter (m)	50	50	50	50
A	=	Entry angle (degree)	25	35	20	25
Q	=	Entry flow (pcu/h)	0	1033	67	1462
Qc	=	Circulating flow across entry (pcu/h)	1617	541	968	155
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.16	0.03	0.21	0.10
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	0.98	1.07	1.04
X2	=	V + ((E-V)/(1+2S))	4.89	7.97	4.90	8.76
M	=	EXP((D-60)/10)	0	0	0	0
F	=	303*X2	1483	2416	1485	2654
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.57	0.74	0.57	0.79
Qe	=	K(F-Fc*Qc)	592	1979	999	2628
DFC	=	Design flow/Capacity = Q/Qe	0.00	0.52	0.07	0.56

Total In Sum = 2562 PCU

DFC of Critical Approach = 0.56

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsu		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J2: Lung Ma Road / Hai Wing Road	**2024_AM**	FILENAME :	CHECKED BY:	DP	Jul-24
2024 Observed AM Peak Hour Traffic Flow		J2_Lung Ma Road_Hai Wing Road_P.xls	REVIEWED BY:	SC	Jul-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0.0	(metres)
q a-b	=	19	(pcu/hr)
q a-c	=	557	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	65	(metres)
q c-a	=	756	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.5	(metres)
W b-c	=	1.5	(metres)
Vl b-a	=	66	(metres)
Vr b-a	=	29	(metres)
Vr b-c	=	29	(metres)
q b-a	=	13	(pcu/hr)
q b-c	=	12	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6956314
E	=	0.732552
F	=	0.9460327
Y	=	0.750565
F for (Qb-ac)	=	0.48

THE CAPACITY OF MOVEMENT :

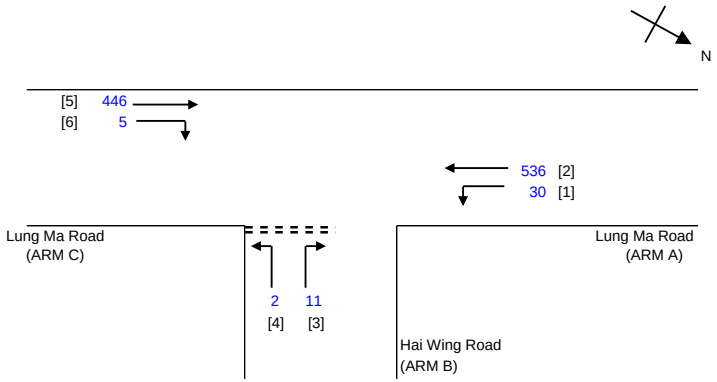
Q b-a	=	238		
Q b-c	=	433	Q b-c (O) =	427.1
Q c-b	=	556		
Q b-ac	=	303.6		
Q c-a	=	1800		
TOTAL FLOW	=	1357	(PCU/HR)	

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0546
DFC b-c	=	0.0277
DFC c-b	=	0.0000
DFC b-ac	=	0.0395

CRITICAL DFC = 0.05

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsu		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J2: Lung Ma Road / Hai Wing Road	**2024_PM**	FILENAME :	CHECKED BY:	DP	Jul-24
2024 Observed PM Peak Hour Traffic Flow		J2_Lung Ma Road_Hai Wing Road_P.xls	REVIEWED BY:	SC	Jul-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0.0	(metres)
q a-b	=	30	(pcu/hr)
q a-c	=	536	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	65	(metres)
q c-a	=	446	(pcu/hr)
q c-b	=	5	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.5	(metres)
W b-c	=	1.5	(metres)
Vl b-a	=	66	(metres)
Vr b-a	=	29	(metres)
Vr b-c	=	29	(metres)
q b-a	=	11	(pcu/hr)
q b-c	=	2	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6956314
E	=	0.732552
F	=	0.9460327
Y	=	0.750565
F for (Qb-ac)	=	0.1538462

THE CAPACITY OF MOVEMENT :

Q b-a	=	277		
Q b-c	=	436	Q b-c (O) =	431.7
Q c-b	=	559		
Q b-ac	=	293.5		
Q c-a	=	1784		
TOTAL FLOW	=	1030	(PCU/HR)	

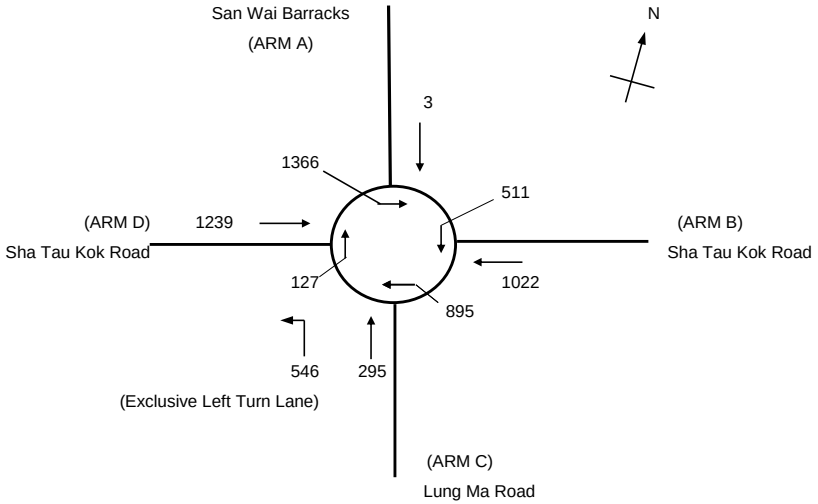
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0397
DFC b-c	=	0.0046
DFC c-b	=	0.0089
DFC b-ac	=	0.0068

CRITICAL DFC = 0.04

Appendix B

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui S		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J1: Sha Tau Kok Road / Lung Ma Road	**2027Ref_AM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Reference AM Peak Hour Traffic Flows		Sha Tau Kok Road_Lung Ma Road_R.xls	REVIEWED BY:	SC	Jul-24



ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	3.0	7.5	3.5	7.5			
E	=	Entry width (m)	5.5	8.0	5.5	9.0			
L	=	Effective length of flare (m)	25	30	15	25			
R	=	Entry radius (m)	50	20	60	35			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	25	35	20	25			
Q	=	Entry flow (pcu/h)	3	1022	295	1239			
Qc	=	Circulating flow across entry (pcu/h)	1366	511	895	127			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.16	0.03	0.21	0.10			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	0.98	1.07	1.04			
X2	=	V + ((E-V)/(1+2S))	4.89	7.97	4.90	8.76			
M	=	EXP((D-60)/10)	0	0	0	0			
F	=	303*X2	1483	2416	1485	2654			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.57	0.74	0.57	0.79			
Qe	=	K(F-Fc*Qc)	741	2001	1043	2651	Total In Sum =	2556	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.00	0.51	0.28	0.47	DFC of Critical Approach =	0.51	

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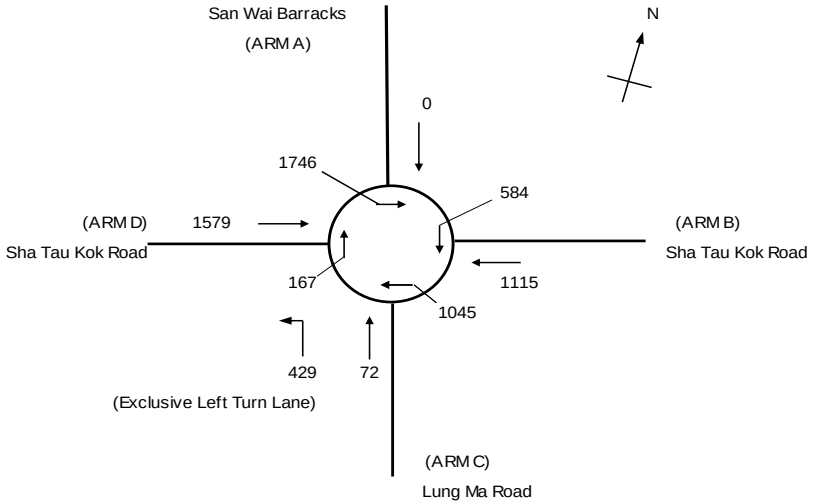
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui S		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J1: Sha Tau Kok Road / Lung Ma Road	**2027Ref_PM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Reference PM Peak Hour Traffic Flows		Sha Tau Kok Road_Lung Ma Road_R.xls	REVIEWED BY:	SC	Jul-24

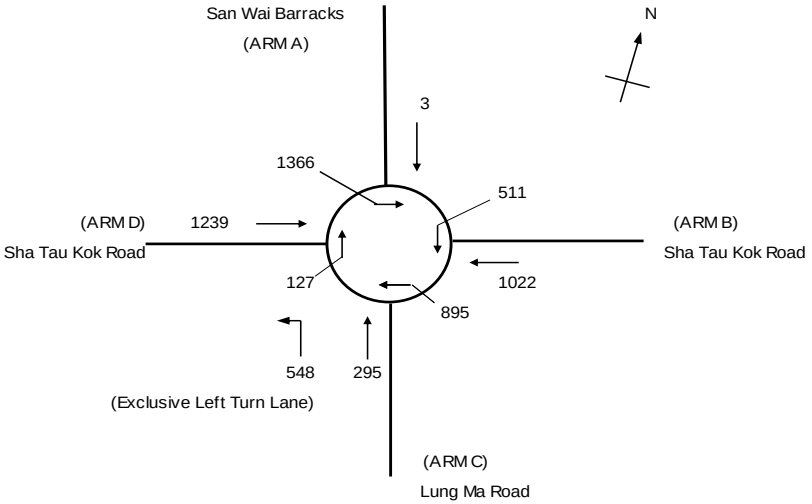


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	3.0	7.5	3.5	7.5
E	=	Entry width (m)	5.5	8.0	5.5	9.0
L	=	Effective length of flare (m)	25	30	15	25
R	=	Entry radius (m)	50	20	60	35
D	=	Inscribed circle diameter (m)	50	50	50	50
A	=	Entry angle (degree)	25	35	20	25
Q	=	Entry flow (pcu/h)	0	1115	72	1579
Qc	=	Circulating flow across entry (pcu/h)	1746	584	1045	167
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.16	0.03	0.21	0.10
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	0.98	1.07	1.04
X2	=	V + ((E-V)/(1+2S))	4.89	7.97	4.90	8.76
M	=	EXP((D-60)/10)	0	0	0	0
F	=	303*X2	1483	2416	1485	2654
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.57	0.74	0.57	0.79
Qe	=	K(F-Fc*Qc)	515	1947	952	2619
DFC	=	Design flow/Capacity = Q/Qe	0.00	0.57	0.08	0.60

Total In Sum = 2766 PCU

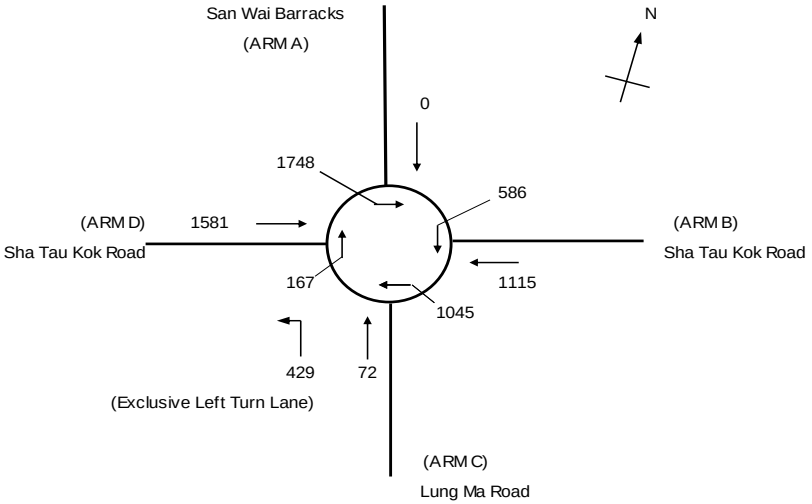
DFC of Critical Approach = 0.60

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui S		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J1: Sha Tau Kok Road / Lung Ma Road	**2027Des_AM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Design AM Peak Hour Traffic Flows		Sha Tau Kok Road_Lung Ma Road_R.xls	REVIEWED BY:	SC	Jul-24



ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	3.0	7.5	3.5	7.5			
E	=	Entry width (m)	5.5	8.0	5.5	9.0			
L	=	Effective length of flare (m)	25	30	15	25			
R	=	Entry radius (m)	50	20	60	35			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	25	35	20	25			
Q	=	Entry flow (pcu/h)	3	1022	295	1239			
Qc	=	Circulating flow across entry (pcu/h)	1366	511	895	127			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.16	0.03	0.21	0.10			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	0.98	1.07	1.04			
X2	=	V + ((E-V)/(1+2S))	4.89	7.97	4.90	8.76			
M	=	EXP((D-60)/10)	0	0	0	0			
F	=	303*X2	1483	2416	1485	2654			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.57	0.74	0.57	0.79			
Qe	=	K(F-Fc*Qc)	741	2001	1043	2651	Total In Sum =	2556	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.00	0.51	0.28	0.47	DFC of Critical Approach =	0.51	

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui S		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J1: Sha Tau Kok Road / Lung Ma Road	**2027Des_PM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Design PM Peak Hour Traffic Flows		Sha Tau Kok Road_Lung Ma Road_R.xls	REVIEWED BY:	SC	Jul-24

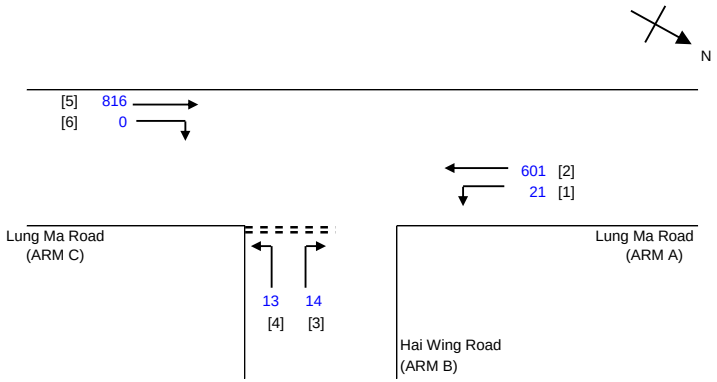


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	3.0	7.5	3.5	7.5
E	=	Entry width (m)	5.5	8.0	5.5	9.0
L	=	Effective length of flare (m)	25	30	15	25
R	=	Entry radius (m)	50	20	60	35
D	=	Inscribed circle diameter (m)	50	50	50	50
A	=	Entry angle (degree)	25	35	20	25
Q	=	Entry flow (pcu/h)	0	1115	72	1581
Qc	=	Circulating flow across entry (pcu/h)	1748	586	1045	167
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.16	0.03	0.21	0.10
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	0.98	1.07	1.04
X2	=	V + ((E-V)/(1+2S))	4.89	7.97	4.90	8.76
M	=	EXP((D-60)/10)	0	0	0	0
F	=	303*X2	1483	2416	1485	2654
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.57	0.74	0.57	0.79
Qe	=	K(F-Fc*Qc)	514	1946	952	2619
DFC	=	Design flow/Capacity = Q/Qe	0.00	0.57	0.08	0.60

Total In Sum = 2768 PCU

DFC of Critical Approach = 0.60

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsu		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J2: Lung Ma Road / Hai Wing Road	**2027Ref_AM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Reference AM Peak Hour Traffic Flow		J2_Lung Ma Road_Hai Wing Road_P.xls	REVIEWED BY:	SC	Jul-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0.0	(metres)
q a-b	=	21	(pcu/hr)
q a-c	=	601	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	65	(metres)
q c-a	=	816	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.5	(metres)
W b-c	=	1.5	(metres)
Vl b-a	=	66	(metres)
Vr b-a	=	29	(metres)
Vr b-c	=	29	(metres)
q b-a	=	14	(pcu/hr)
q b-c	=	13	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6956314
E	=	0.732552
F	=	0.9460327
Y	=	0.750565
F for (Qb-ac)	=	0.4814815

THE CAPACITY OF MOVEMENT :

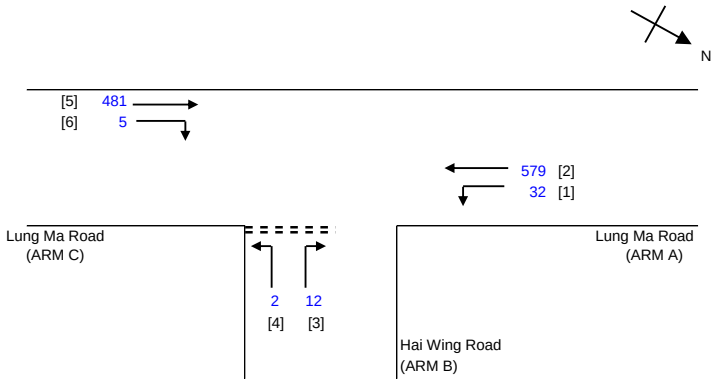
Q b-a	=	223		
Q b-c	=	424	Q b-c (O) =	417.3
Q c-b	=	544		
Q b-ac	=	289		
Q c-a	=	1800		
TOTAL FLOW	=	1465	(PCU/HR)	

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0628
DFC b-c	=	0.0307
DFC c-b	=	0.0000
DFC b-ac	=	0.0450

CRITICAL DFC = 0.06

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsu		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J2: Lung Ma Road / Hai Wing Road	**2027Ref_PM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Reference PM Peak Hour Traffic Flow		J2_Lung Ma Road_Hai Wing Road_P.xls	REVIEWED BY:	SC	Jul-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0.0	(metres)
q a-b	=	32	(pcu/hr)
q a-c	=	579	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	65	(metres)
q c-a	=	481	(pcu/hr)
q c-b	=	5	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.5	(metres)
W b-c	=	1.5	(metres)
Vl b-a	=	66	(metres)
Vr b-a	=	29	(metres)
Vr b-c	=	29	(metres)
q b-a	=	12	(pcu/hr)
q b-c	=	2	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6956314
E	=	0.732552
F	=	0.9460327
Y	=	0.750565
F for (Qb-ac)	=	0.1428571

THE CAPACITY OF MOVEMENT :

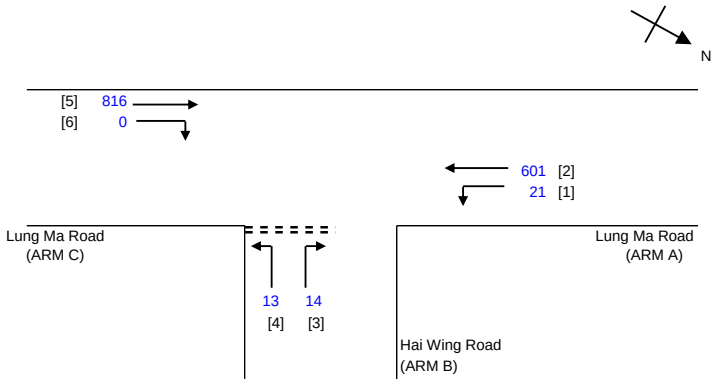
Q b-a	=	265		
Q b-c	=	427	Q b-c (O) =	422.2
Q c-b	=	547		
Q b-ac	=	280.2		
Q c-a	=	1784		
TOTAL FLOW	=	1111	(PCU/HR)	

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0453
DFC b-c	=	0.0047
DFC c-b	=	0.0091
DFC b-ac	=	0.0071

CRITICAL DFC = 0.05

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsu		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J2: Lung Ma Road / Hai Wing Road	**2027Des_AM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Design AM Peak Hour Traffic Flow		J2_Lung Ma Road_Hai Wing Road_P.xls	REVIEWED BY:	SC	Jul-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
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W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0.0	(metres)
q a-b	=	21	(pcu/hr)
q a-c	=	601	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	65	(metres)
q c-a	=	816	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.5	(metres)
W b-c	=	1.5	(metres)
Vl b-a	=	66	(metres)
Vr b-a	=	29	(metres)
Vr b-c	=	29	(metres)
q b-a	=	14	(pcu/hr)
q b-c	=	13	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6956314
E	=	0.732552
F	=	0.9460327
Y	=	0.750565
F for (Qb-ac)	=	0.4814815

THE CAPACITY OF MOVEMENT :

Q b-a	=	223		
Q b-c	=	424	Q b-c (O) =	417.3
Q c-b	=	544		
Q b-ac	=	289		
Q c-a	=	1800		
TOTAL FLOW	=	1465	(PCU/HR)	

COMPARISION OF DESIGN FLOW TO CAPACITY:

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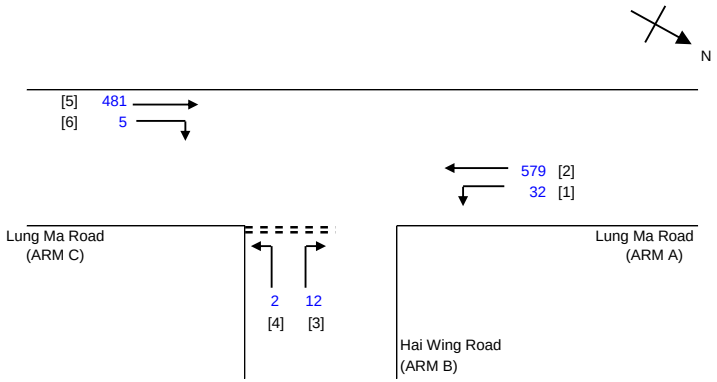
DFC b-c	=	0.0307
DFC c-b	=	0.0000
DFC b-ac	=	0.0450

CRITICAL DFC = 0.06

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Proposed Temporary Public Vehicle Park and Shop and Services at Lot 896 RP (Part) in DD 83, Ma Liu Shui San Tsu		PROJECT NO.: 83007	PREPARED BY:	CW	Jul-24
J2: Lung Ma Road / Hai Wing Road	**2027Des_PM**	FILENAME :	CHECKED BY:	DP	Jul-24
2027 Design PM Peak Hour Traffic Flow		J2_Lung Ma Road_Hai Wing Road_P.xls	REVIEWED BY:	SC	Jul-24



NOTES : (GEOMETRIC INPUT DATA)

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W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.2	(metres)
W cr	=	0.0	(metres)
q a-b	=	32	(pcu/hr)
q a-c	=	579	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.6	(metres)
Vr c-b	=	65	(metres)
q c-a	=	481	(pcu/hr)
q c-b	=	5	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	1.5	(metres)
W b-c	=	1.5	(metres)
Vl b-a	=	66	(metres)
Vr b-a	=	29	(metres)
Vr b-c	=	29	(metres)
q b-a	=	12	(pcu/hr)
q b-c	=	2	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6956314
E	=	0.732552
F	=	0.9460327
Y	=	0.750565
F for (Qb-ac)	=	0.1428571

THE CAPACITY OF MOVEMENT :

Q b-a	=	265		
Q b-c	=	427	Q b-c (O) =	422.2
Q c-b	=	547		
Q b-ac	=	280.2		
Q c-a	=	1784		
TOTAL FLOW	=	1111	(PCU/HR)	

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0453
DFC b-c	=	0.0047
DFC c-b	=	0.0091
DFC b-ac	=	0.0071

CRITICAL DFC = 0.05