Appendix VITraffic Junction Assessment

Residential Redevelopment at 8 Ka Shue Road, Sai Kung, Tseung Kwan O, New Territories, Hong Kong

Junction Assessment Report

December 2024

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1. INTRODUCTION

1.1 Background

- 1.1.1 The application site is located at Lot 1109 R.P. (part) in D.D. 253, 8 Ka Shue Road, Sai Kung as shown in **Figure 1.1**.
- 1.1.2 The application site is currently occupied by a residential building with 8-units (namely Block G and Block H) of Clear Water Bay Apartments. In 2018, a Traffic Impact Assessment (TIA) study was carried out to support a Section 16 planning application (No. A/SK-TLS/56) ("previous approved application") for 14 residential flats. That application was approved with conditions by the Town Planning Board (TPB) on 13 December 2019.
- 1.1.3 A fresh Section 16 planning application for proposed minor relaxation of site coverage and building height restrictions for 14 residential units. There is no increase in GFA/No. of flats compared to those in the previously approved application.
- 1.1.4 In September 2024, a junction assessment is being conducted to support this application. Ho Wang SPB Limited is commissioned by Brilliant Genius Limited (the Applicant) as the traffic consultant to undertake this Junction Assessment.
- 1.1.5 This report focuses on the presentation and elaboration of the followings:-
 - present the peak hour traffic survey result at 07:30-19:30 and 17:00-19:00 on a typical weekday;
 - forecast the future traffic flows;
 - presents the vehicular traffic generation/attraction of the proposed development; and
 - assess the traffic impact due to the development.

1.2 Structure of this Traffic Impact Assessment Report

1.2.1 Following this introductory chapter, this report comprises of the following chapters:

Chapter 2 - Existing Traffic Condition

Chapter 3 - Future Traffic Condition

Chapter 4 - Traffic Impact Assessment

Chapter 5 - Summary and Conclusion

2. EXISTING TRAFFIC CONDITION

2.1 Traffic Count Survey

2.1.1 A traffic survey was undertaken at the junction of Clear Water Bay Road / Ka Shue Road on a typical day during the AM and PM peak hours (07:30-19:30 and 17:00-19:00) in September 2024 (with fine weather condition) to collect the most up-to-date traffic data at this junction for the traffic analysis.

2.2 2024 Observed Traffic Flows

2.2.1 The surveyed traffic data have indicated that the AM peak hour and PM peak hour are from 08:15 to 09:15 and 18:00 to 19:00 respectively. The 2024 surveyed traffic flows for AM and PM peak hours at the junction of Clear Water Bay Road / Ka Shue Road are presented below.



2.3 2024 Existing Junction Capacity Assessment

2.3.1 The junction capacity analysis for the concerned junction during the critical AM and PM peak periods in 2024 has been assessed and the results of the junction capacity analysis are summarized in Table 2.1.

Table 2.1 2024 Existing J	Junction Performance
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Junction Location	Junction Type	AM Peak	PM Peak
Clear Water Bay Road / Ka Shue Road	Priority (DFC)	0.04	0.03

2.3.2 The results of the junction performance have concluded that the concerned junction is operating with adequate junction capacity during the AM and PM peak periods under the existing traffic condition.

3. FUTURE TRAFFIC CONDITION

3.1 Design Year for Traffic Impact Assessment

3.1.1 The tentative completion year of the redevelopment will be 2028. Hence, the design year 2031 is adopted for traffic assessment [i.e. 3 years upon redevelopment].

3.2 Forecast Methodology for Future Traffic Condition

- 3.2.1 Traffic Forecast can be developed by means of the following data:
 - Historical traffic flow growth factor derived from Annual Traffic Census data
 - 2019-based Territorial Population and Employment Data Matrix (TPEDM) extracted from publicly available planning data
- 3.2.2 These approaches are considered valid under the condition of no major highway infrastructure planned within close vicinity of the application site during the forecasting horizon of 2026. According to the latest highway infrastructure assumption, there are no highway improvements that are likely to affect the validity of using trend growth approach for traffic forecasting.

Historical trend growth trend from the Annual Traffic Census (ATC)

3.2.3 The relevant Annual Average Daily Traffic (AADT) data from 2017 to 2022 in the vicinity of the Site are summarized in Table 3.1.

Table 3.1AADT at Counting Stations in the Vicinity of the Site [Extracted from ATC
(2017 to 2022)]

Stn No.	Road	Between		2017	2018	2019	2020	2021	2022
5017	Clear Water Bay Road	On Sau Rd	Hiram's Highway	26,910	28,450	28,980	28,900	29,100	27,720
Average Growth Rate (% p. a.)				5.72%	1.86%	-0.28%	0.69%	-4.74%	
Overall Growth Rate (% p.a.) from 2017 to 2022			+0.59%						
Overall Growth Rate (% p.a.) from 2017 to 2021					+1.	98%			

3.2.4 After reviewing the ATC from 2017-2022, there is an overall growth of +0.59% p.a. in Clear Water Bay Road. In view that 2022 affected by COVID19 has a dramatic negative annual growth of -4.74%, the overall annual growth rate of +1.98% p.a. from 2017 to 2021 is then adopted for traffic forecast as conservative.

2019-based Territorial Population and Employment Data Matrix (TPEDM) publicly available planning data

3.2.5 The population and employment data of the Planning Data District are extracted from the 2019-based TPEDM issued by the Planning Department's website. The estimation of the growth rates from 2019 to 2026 in Southeast New Territories are summarized in Table 3.2.

Table 3.2Growth Rate of Southeast New Territories by 2019-based TPEDM Planning
Data

District	2019	2026 2031		2019-2026 Growth Rate (%) p.a.	2026-2031 Growth Rate (%) p.a.
Southeast New Territories	96,150	93,550	87,850	-0.39%	-1.25%

- 3.2.6 According to the 2019-based TPEDM, the future population and employment will decrease between 2019 and 2031 in the Southeast New Territories.
- 3.2.7 After reviewing the above ATC AADT traffic data and future planning data forecast from TPEDM, a +1.98% p.a. growth is adopted for conservative.
- 3.3 Traffic Generated / Attracted by the Adjacent Committed Developments
- 3.3.1 In addition to the growth rate derived above, the committed and planned developments in the vicinity of the Site that are likely to be occupied with in-take by year 2031 will also be taken into consideration for the future traffic forecast.
- 3.3.2 The committed developments in the vicinity of the Site are summarized in Table 3.3.

Table 3.3Summary of Future Planned / Committed Developments in the Vicinity ofthe Site

	Planned Development						
1	Anderson Road Quarry Site (ARQ)						
2	Proposed Primary School at Site KT2a at On Sau Road						
3	Proposed Primary School at Site KT2c at On Yan Street						
4	Tai Sheung Tok Transfer Station						
5	Joint Cavern Development at Anderson Road Quarry Site						
6	Development of Community Health Centre Building at Anderson Road						
7	Fire Station Cum Ambulance Depot with Departmental Quarters at Anderson Road						

3.3.3 The resultant 2031 Reference traffic flows are derived as follows:

2024 Existing Traffic Flows x $(1+1.98\%)^{(2031-2024)}$ + Traffic Generations from Adjacent planned / committed developments.



3.3.4 The 2031 reference traffic flows for AM and PM peak periods are presented below.

4. TRAFFIC IMPACT ASSESSMENT

4.1 Proposed Development Traffic Generations

4.1.1 The estimated trip generations for the proposed Development Scheme based on the adopted trip rates are summarized in **Table 4.1**.

Table 4.1Estimated Vehicular Traffic Generations

	Component	AM I	Peak	PM Peak		
Component		Generation	Attraction	Generation	Attraction	
Existing (8 Flats)	Adopted Trip Rates ⁽¹⁾ (pcu/hr/flat)	0.2772	0.1769	0.1635	0.2394	
	Estimated Vehicular Trips (pcu/hr)	3	2	2	2	
Proposed (14 Flats)	Adopted Trip Rates ⁽¹⁾ (pcu/hr/flat)	0.2772	0.1769	0.1635	0.2394	
	Estimated Vehicular Trips (pcu/hr)	4	3	3	4	
Ne	et Difference	+1	+1	+1	+2	

Note (1): Mean trip rate for private housing: low-density / R(C) of average flat size 180m² in TPDM Vol. 1, Ch.3, Appendix, Table 1.

- 4.1.2 The proposed development will generate and attract with additional 2 (i.e. 1+1) pcus in the AM peak hour and 3 (i.e. 1+2) pcus in the PM peak hour respectively, which are considered minimal.
- 4.1.3 The 2031 design traffic flows are derived by adding the 2031 reference traffic flows onto the development traffic as shown below.



4.2 Junction Capacity Performance

4.2.1 The junction performance for Clear Water Bay Road / Ka Shue Road junction based on the 2031 reference and 2031 design scenarios are summarized in Table 4.1.

Table 4.22031 Reference and Design Junction Performance

lunction Location	2031 Re	ference	2031 Design		
JUNCTION LOCATION	AM Peak	PM Peak	AM Peak	PM Peak	
Clear Water Bay Road / Ka Shue Road	0.05	0.03	0.05	0.03	

4.2.2 The results of the junction performance have demonstrated that the concerned junction can operate with adequate junction capacity in both 2031 reference and 2031 design scenarios and no junction capacity problem is anticipated.

5. SUMMARY AND CONCLUSION

- 5.1 In September 2024, a junction assessment for Clear Water Bay Road / Ka Shue Road has been conducted to support the proposed minor relaxation of site coverage and building height restrictions for permitted residential development.
- 5.2 A traffic survey was undertaken on a normal weekday in September 2024 to collect the most up-to-date traffic data.
- 5.3 The results of the junction performance have demonstrated that the concerned junction is operating with adequate junction capacity during the AM and PM peak periods in 2024 (existing condition).
- 5.4 The tentative completion year of the redevelopment will be 2028. Hence, Year 2031 (Completion year + 3 years) is adopted for the junction assessment.
- 5.5 The proposed development will generate and attract with additional 2 pcus in the AM peak hour and 3 pcus in the PM peak hour respectively, which are considered minimal.
- 5.6 A +1.98% p.a. growth rate together with the planned / committed developments in the vicinity of the Site have been taken into consideration in the traffic forecast from 2024 to 2031.
- 5.7 The results of the junction performance have indicated that the concerned junction can operate with adequate junction capacity in both 2031 reference and 2031 design scenarios.
- 5.8 The proposed development will not cause any significant traffic impact onto the Clear Water Bay Road / Ka Shue Road junction and is therefore supported from the traffic engineering point of view.

FIGURE



APPENDIX A

Junction Capacity Analysis

Simplified Priority Junction Capacity Calculation



Junction: Clear Water Bay Road Ref. No.: 2024 Esi Year: 2024 Esi Ref. No.: 2024 Esi Year: 2024 Water Bay Road Ref. No.: 2024 Esi ARM A: Clear Water Bay Road Ref. No.: - ARM A: Clear Water Bay Road Ref. No.: - ARM C:	Job Title:	Traffic Engineering Cons	ultancv Servi	es - Residenti	al Redevelop	ment at 8 Ka	Shue Road.	Sai Kung, Ts	uen Kwan O
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Viac Job No.: J1732 Rev.: - ARM A Clear Water Bay Road A	Scheme:	2024 Existing						Ref. No.:	202 : 2/4
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ARM B: Ka Shue Road ARM C: ARM C: ARM C: AM ARM C: ARM C: ARM C: ARM A: ARM A: ARM A: ARM A: Yellow: ARM A: Yelow: ARM A: <td< td=""><td>ARM A:</td><td>Clear Water Bay Road</td><td>ł</td><td></td><td></td><td></td><td></td><td>1</td><td></td></td<>	ARM A:	Clear Water Bay Road	ł					1	
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TRAFFIC FLOWS q(c-a) 0 0 q(c-b) 0 0 0 q(b-b) 18 30 q(a-c) 975 1175 q(b-a) 0 0 0 q(b-a) 0 0 0 q(b-c) 23 13 1 f 1.00 1.00 1.00 CAPACITIES Q(b-a) 1 545 510 Q(b-c) 1 331 309 Q(b-ac) 1 331 309 Q(b-ac) 1 545 510 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.002 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042 0.025 0.042							AM PEAK		(PM) PEAK
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	TRAFFIC FL	OWS	q(c-a)				0		0
q(a-b) 18 30 q(a-c) 975 1175 q(b-a) 0 0 q(b-c) 23 13 f 1.00 1.00 CAPACITIES Q(b-a) 1 240 220 Q(b-c) 1 545 510 Q(c-b) 1 331 309 Q(b-ac) 1 545 510 RFC's b-a 0.000 0.000 b-c 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 E (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vi(b-a)-150)) T.P.D.M.V.2.4 4ppendix 1 F = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120)) T.P.D.M.V.2.4 4ppendix 1 f = proportion of minor traffic turning left Capacity of combined streams - in accordance with TPDM V2.4 Q (b-a) = Q(b-c)^*Q(b-a)(1-1)*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 [Checked by: TA			q(c-b)				0		0
q(a-c) 975 1175 q(b-a) 0 0 q(b-c) 23 13 f 1.00 1.00 CAPACITIES Q(b-a) 1 240 220 Q(b-c) 1 545 510 Q(c-b) 1 331 309 Q(b-ac) 1 545 510 Q(b-ac) 1 545 510 RFC's b-a 0.000 0.000 b-c 0.042 0.025 c-b 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 U 0.094(w(c-b)-3.65))(1+0.009(Vr((b-c)-120))(1+0.0006(VI(b-a)-150))) T.P.D.M.V.2.4 Appendix 1 f = proportion of minor traffic turning left Qacity of combined streams - - Q (b-a) = Q(b-c)^2(Q(b-a)/(1-1)^*Q(b-a) + TQ(b-a) Capacity of combi			q(a-b)				18		30
q(b-a) 0 0 q(b-c) 23 13 f 1.00 1.00 CAPACITIES Q(b-a) 1 240 220 Q(b-c) 1 545 510 Q(c-b) 1 331 309 Q(b-ac) 1 545 510 RFC's b-a 0.000 0.000 b-c 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0 1 1 D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120)) T.P.D.M.V.2.4 Y 1 T = 1.0.0345W Appendix 1 T T 1 q = c)(q(a-c)				975		1175
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Factor Factor Q(b-a) 1 Q(b-c) 1 Q(c-b) 1 Q(b-ac) 1 1 545 331 309 Q(b-ac) 1 331 309 Q(b-ac) 1 545 510 RFC's b-a b-c 0.000 c-b 0.0042 0.042 0.025 c-b 0.042 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 1 1.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 1 1.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 1 1.042 0.025 Worst RFC 0.042 0.025 0.042 0.025 1.042 </td <td></td> <td></td> <td>f</td> <td></td> <td></td> <td></td> <td>1.00</td> <td></td> <td>1.00</td>			f				1.00		1.00
CAPACITIES Q(b-a) 1 240 220 Q(b-c) 1 545 510 Q(c-b) 1 331 309 Q(b-ac) 1 545 510 RFC's b-a 0.000 0.000 b-c 0.042 0.025 c-b 0.000 0.000 b-ac 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))) E = (1+0.094(w(b-c)-3.65))(1+0.009(Vr(b-c)-120)) F = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120)) T.P.D.M.V.2.4 Appendix 1 f = proportion of minor traffic turning left Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA				Factor]				
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			Q(b-c)	1			545		510
Q(b-ac) 1 545 510 RFC's b-a 0.000 0.000 b-c 0.042 0.025 c-b 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))) T.P.D.M.V.2.4 4ppendix 1 F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))) T.P.D.M.V.2.4 Appendix 1 f = proportion of minor traffic turning left Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA			Q(c-b)	1			331		309
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RFC's b-a 0.000 0.000 b-c 0.042 0.025 c-b 0.000 0.000 b-ac 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 De (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120)) T.P.D.M.V.2.4 Appendix 1 f = proportion of minor traffic turning left Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA			-()		1				
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c-b 0.000 0.000 b-ac 0.000 0.000 b-ac 0.042 0.025 Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 E = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(b-c)-120)) T.P.D.M.V.2.4 Appendix 1 f = proportion of minor traffic turning left Q Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA			b-c				0.042		0.025
b-ac 0.000 0.002 0.025 Worst RFC 0.042 0.025 0.042 0.025 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 D = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120)) T.P.D.M.V.2.4 TP.D.M.V.2.4 TP.D.M.V.2.4 Appendix 1 F F = proportion of minor traffic turning left Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: TA			c-b				0.000		0.000
Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0 0.042 0.025 Were VI and Vr are visibility distances to the left or right of the respective streams 0			b-ac				0.000		0.000
Worst RFC 0.042 0.025 Where VI and Vr are visibility distances to the left or right of the respective streams D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))) T.P.D.M.V.2.4 D = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120)) T.P.D.M.V.2.4 Appendix 1 F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120)) F.P.D.M.V.2.4 Appendix 1 f = proportion of minor traffic turning left Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA			5 40				0.0.12		01020
Where VI and Vr are visibility distances to the left or right of the respective streams D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))) E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))) F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))) T.P.D.M.V.2.4 Y = 1-0.0345W f = proportion of minor traffic turning left Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24	Worst RFC						0.042		0.025
Where VI and Vr are visibility distances to the left or right of the respective streams D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))) E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))) F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))) T.P.D.M.V.2.4 Y = 1-0.0345W f = proportion of minor traffic turning left Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24									
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Where VI an	d Vr are visibility distances t	o the left or rig	ght of the respe	ctive streams				
$ \begin{array}{c c} E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120)) \\ F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120)) \\ Y = 1-0.0345W \\ f = proportion of minor traffic turning left \\ Q (b-ac) = Q(b-c)^*Q(b-a)/(1-f)^*Q(b-c)+f^*Q(b-a) \\ \hline \\ Capacity of combined streams \\ - in accordance with TPDM V2.4 \\ \hline \\ \hline \\ Calculated by: SL \\ \hline \\ Date: Sep-24 \\ \hline \\ Checked by: TA \\ \hline \end{array} $	D = (1+0.094	4(w(b-a)-3.65))(1+0.0009(Vr	(b-a)-120))(1+	0.0006(Vl(b-a)-	·150))				
F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120)) T.P.D.M.V.2.4 Y = 1-0.0345W Appendix 1 f = proportion of minor traffic turning left Capacity of combined streams Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24	E = (1+0.094	4(w(b-c)-3.65))(1+0.0009(Vr	b-c)-120))						
Y = 1-0.0345W Appendix 1 f = proportion of minor traffic turning left Capacity of combined streams Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24	F = (1+0.094	4(w(c-b)-3.65))(1+0.0009(Vr	c-b)-120))					T.P.D.M.V.2.	4
f = proportion of minor traffic turning left Q (b-c) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA	Y = 1-0.0345	5W	., .=-//					Appendix 1	
Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) - in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA	f = proportio	n of minor traffic turning left							
- in accordance with TPDM V2.4 Calculated by: SL Date: Sep-24 Checked by: TA	Q (b-ac) = Q	(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*(Q(b-a)		Capacity of co	ombined strea	ms		
Calculated by: SL Date: Sep-24 Checked by: TA	,, ~				- in accordance	ce with TPDM	V2.4		
	Calculated	l by: SL		Date:	Ser	o-24	Checked b	V:	ТА

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Simplified Priority Junction Capacity Calculation



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Job Title:	Traffic Engir	neering Cons	ultancy Servie	es - Residentia	al Redevelopr	ment at 8 Ka	Shue Road,	Sai Kung, Ts	uen Kwan O
Junction:	Clear Wate	er Bay Road	d / Ka Shue F	Road				Ref. No.:	2031 Ref
Scheme:	2031 Refei	rence						Ref. No.:	
Year:	2031			Job No 1		.11732		Rev :	_
	Clear Wate		1	000 110		01102		1101.	
		and not	,						
	Ka Shue K	oau							
ARM C:									
									-
	AM	(PM)							
	0	(0)							
	0	(0)							
ARM C		(-)							
							:		-
							-		-
							AM	(PM)	-
					•		1226	(1417)	
							- 21	(34)	
		•						. · · ·	
			- 1						-
						+			
		A N 4	26	0	1		•		
		Aivi	20	0					
		(PM)	(15)	(0)					
			Minor ARM B	6					
GEOMETRY									
Maior road w	idth		W	14.60		Lane widths		w(b-a)	0.00
Central Rese	nve width		Wer	0.00				w(b-c)	4.00
Central Rese			WU	0.00				w(D-C)	4.00
2 Lane Minor	· Arm (Y/N)			N				w(c-b)	0.00
Visibilities			Vr(b-a)	0		Calculated		D	0.53
			VI(b-a)	0				E	0.96
			Vr(b-c)	42				F	0.59
			Vr(c-b)	0				v	0.50
			VI(C D)	0					0.00
ANALYSIS									(===) =====
							AM PEAK		(PM) PEAK
TRAFFIC FL	OWS		q(c-a)				0		0
			q(c-b)				0		0
			q(a-b)				21		34
			n(a-c)				1226		1417
			q(a b)				1220		0
			q(b-a)				0		0
			d(p-c)				26		15
			f				1.00		1.00
				Factor					
CAPACITIES	;		Q(b-a)	1			215		197
			Q(b-c)	1			501		467
			$\Box(a,b)$				305		107
							305		283
			Q(b-ac)	1			501		467
RFC's			b-a				0.000		0.000
			b-c				0.052		0.032
			c-b				0 000		0 000
			b ac				0.052		0.000
			D-ac				0.052		0.032
Worst RFC							0.052		0.032
Where VI and	d Vr are visibili	ity distances f	o the left or rig	ht of the respe	ctive streams				
D = (1+0.094	(w(b-a)-3.65))	(1+0.0009(Vr	(b-a)-120))(1+0).0006(VI(b-a)-	150))				
F = (1+0.094)	(w(b-c)-3 65))	、 (1 ±0 0009(\/r	(h-c)-120))	,	,,				
= -(1.0.034)	(w(c b) 2.00))	(1 10 0000() /	$(\sim 0, 120))$						4
$r^{-} = (1+0.094)$	(w(c-b)-3.65))((1+0.0009(Vľ)	0-0)-120))					1.F.D.WI.V.2.	
Y = 1-0.0345	VV							Appendix 1	
f = proportion	of minor traffi	ic turning left							
Q (b-ac) = Q	(b-c)*Q(b-a)/(1	-f)*Q(b-c)+f*C	Q(b-a)		Capacity of co	mbined strea	ims		
,					- in accordance	e with TPDM	V2.4		
Calculated	by:	SL		Date:	Ser	-24	Checked b	V	ТА
	j ·				236		_ 2	<u>ر</u>	

Y:\Job\J1732 Ka Shue Road\04-Working\TIA\[J1732 - SigCal.xls]2031 Ref

Simplified Priority Junction Capacity Calculation



Job Title:	Traffic Engineering Con	sultancy Servi	ies - Residenti	al Redevelopr	nent at 8 Ka	Shue Road.	Sai Kung, Tsi	uen Kwan O
Junction:	Clear Water Bay Roa	d / Ka Shue	Road			0	Ref. No.:	2031 Des
Scheme:	2031 Design						Ref. No.:	
Year:	2031		Job No.:		J1732		Rev.:	
ARM A:	Clear Water Bay Road	d						
ARM B:	Ka Shue Road							
ARM C:								
	AM (PM)	_						
	0 (0)							
	0 (0)							
ARM C	_	_						
	_	_	_			AM	(PM)	_
				•		1226	(1417)]
	◀				[22	(36)]
								ARM A
		_						_
		1						
					↓			
					•			
	AM	27	0]				
	(PM)	(16)	(0)					
	(,	Minor ARM [R (~/	1				
		Willion Faxon -	2					
GEOMETRY	1							
Major road w	vidth	١٨/	14 60		I and widths		w/h-a)	0.00
Central Rese	nuun onvo width	W/or	0.00				w(b-c)	4.00
		VVCi	0.00 N				W(D-0)	
Z Lane mino	r Afm (Y/N)	\/-/h a)	<u> </u>		Calculated		(u-u)	0.00
VISIDIIIIIes		Vr(b-a)	0		Calculated		D -	0.00
		VI(b-a)	U				E -	0.96
		Vr(b-c)	42				F	0.59
		Vr(c-b)	U	l			Y	0.50
ANALYSIS								
						AM PEAK		(PM) PEAK
TRAFFIC FL	.OWS	q(c-a)				U		0
		q(c-b)				0		0
		q(a-b)				22		36
		q(a-c)				1226		1417
		q(b-a)				0		0
		q(b-c)				27		16
		f				1.00		1.00
			Factor]				
CAPACITIES	3	Q(b-a)	1			215		196
		Q(b-c)	1			501		467
		Q(c-b)	1			304		283
		Q(b-ac)	1			501		467
		· ·		J				
RFC's		b-a				0.000		0.000
		h-c				0,054		0.034
		c-h				0.000		0.000
		h-ac				0.054		0.034
		D-00				0.00 .		0.00 .
Worst RFC						0 054		0.034
WUISCIALO				I		0.004		0.00-
Whore VI an	d Vr aro visibility distances	to the left or riv	abt of the respe	otivo etroame				
D = (1+0.094)	4(W(b-a)-3.65))(1+0.0009(V)	(b-a)-120))(1+	-0.0006(Vi(b-a)-	150))				
E = (1+0.094)	ł(w(b-c)-3.65))(1+0.0009(Vr	(b-c)-120))						
F = (1+0.094	ł(w(c-b)-3.65))(1+0.0009(Vr	(c-b)-120))					T.P.D.M.V.2.	4
Y = 1-0.0345	śW						Appendix 1	
f = proportio	n of minor traffic turning left							
Q (b-ac) = Q	(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*0	ຸລ(b-a)		Capacity of co	mbined strea	ms		
				- in accordance	e with TPDM	V2.4		
Calculated	i by: SL		Date:	Sep	-24	Checked b	y:	TA

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