6.0 TRAFFIC IMPACT ASSESSMENT

6.1 Introduction

The proposed hotel developments would induce limited additional traffic to the surrounding road network. Nevertheless, in view of the nature of the developments, it is anticipated that the majority of these hotel trips would be tourism-based trips or leisure trips which would largely take place during off-peak hours on weekdays as well as on weekend and public holidays.

It is anticipated that only minimal additional traffic volume will be generated during the normal weekday morning and evening peak hours which are generally between 0800 to 0900 and 1730 to 1830. Nevertheless, traffic impact assessments were undertaken to identify potential traffic issues and the likely impact of the proposed three hotel developments on the surrounding road network.

6.2 Proposed Development Schedule

6.2.1 Target Completion Year

According to the latest planning framework, the proposed development size and targeted completion year for the three proposed hotel developments are summarized in Table 6.1.

Ocean Hotel which is adjacent to the Entry Plaza of Ocean Park is scheduled for completion in line with Ocean Park Redevelopment Plan which commenced construction work in November 2006.

Table 6.1 Target Completion Year of Proposed Hotels

Name of Hotel	No. of Guest Rooms	Target Completion Year
Ocean Hotel	660	2010 - 2011
Fisherman's Wharf Hotel	460	2012 - 2013
Spa Hotel	180	2012 - 2013

6.2.2 Vehicular Access Arrangement

The existing Ocean Park Road, via the Roundabout, will serve as the primary vehicular access for both Ocean Park and the Ocean Hotel. A new access road will branch off from Ocean Park Road which runs along the northern side of Ocean Park and Ocean Hotel. The new access road will further branch-off to provide separate accesses leading to the car parking area, loading/unloading area, taxi/private car drop-off lay-bys and the coach drop-off area of the Hotel.

Vehicular access to both the Fisherman's Wharf Hotel and Spa Hotel will be via the existing Shum Wan Road connecting from Nam Long Shan Road. The existing emergency vehicle access (EVA) at the Tai Shue Wan Entrance currently serving the Headland will be upgraded to serve as an EVA and private access to the Spa Hotel.

6.2.3 Emergency Vehicular Access

EVA will be provided in each hotel along the major façade of the hotel building. The alignment of the EVA is designed to ensure the horizontal distance from the EVA to the major facade would not exceed 10m and that the part of the EVA serving the major facade is not covered.

For access to the Spa Hotel, the existing EVA connecting from Tai Shue Wan roundabout to Ocean Park Headland is a substandard private access road. Currently, it is also a service road used by goods and servicing vehicles.

This access road currently does not satisfy the minimum requirement for EVA as stipulated in the "Code of Practice for Means of Access for Firefighting and Rescue" published by Building Department of HKSAR. It is therefore proposed to upgrade the access road to minimum 6.0 m wide and the radius of curvature will comply with the standard of minimum 6.1m for inner turning radius and an outer turning radius of minimum 11.0 m. Also, the existing minimum headroom clearance of 4.5 m along the EVA will be maintained.

6.2.4 Parking and Loading / Unloading Facilities

Parking, pick-up and drop-off lay-bys as well as loading and unloading areas will be provided within the hotel developments. The proposed parking spaces and loading/unloading bays to be provided in each hotel are given in Table 6.2 below.

Based on the design layout, Ocean Hotel and Ocean Park will be using a common parking area in which 23 parking spaces will be allocated to Ocean Hotel.

The provision of facilities for the Spa Hotel as indicated in Table 6.2 will be located within the hotel development site. Additional lay-bys and loading/unloading bays will be provided in the Tai Shue Wan area to meet HKPSG minimum requirements.

Visitors to the Spa Hotel arriving by private car or taxi will be dropped off at the hotel entrance. Private cars will be parked either within the hotel site or in the Tai Shue Wan parking area. Shuttle services will be provided to carry visitors to/from the Spa Hotel and Tai Shue Wan parking area.

Table 6.2 Provision of Parking and Loading/unloading facilities

<table>
<tr><th rowspan="2"></th><th colspan="2">Ocean Hotel</th><th colspan="2">Fisherman's Wharf Hotel</th><th colspan="2">Spa Hotel</th></tr>
<tr><th>HKPSG</th><th>Proposed Provision</th><th>HKPSG</th><th>Proposed Provision</th><th>HKPSG</th><th>Proposed Provision</th></tr>
<tr><td>Car Parking (guest room)</td><td>7</td><td rowspan="3">23</td><td>5</td><td rowspan="3">20</td><td>2</td><td rowspan="3">7</td></tr>
<tr><td>Car Parking (Banquet, Conference Room)</td><td>4</td><td>8</td><td>2</td></tr>
<tr><td>Car Parking (Food & Beverage)</td><td>5</td><td>7</td><td>3</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>L/UL Bay for Goods Vehicles</td><td>3</td><td>3</td><td>2 - 5</td><td>5</td><td>1</td><td>1</td></tr>
<tr><td>Lay-bys for Taxi / Private Car</td><td>4</td><td>3</td><td>3</td><td>-*</td><td>2</td><td>-*</td></tr>
<tr><td>Lay-by for Single-deck Tour Bus</td><td>2</td><td>2</td><td>2</td><td>-*</td><td>1</td><td>-*</td></tr>
</table>

Note:
1. Parking provision primarily based on hotel type (a) "Main Urban Areas & New Town" in HKPSG.
2. Numbers indicated under HKPSG refers to the HKPSG minimum requirement.
3. * Hotel pick-up/drop-off for taxi and private car are provided at the main entrance.

6.3 Transportation

6.3.1 Existing Public Transport Services

Ocean Hotel is very conveniently located adjacent to the Wong Chuk Hang Road where a good mix of public transport services, including franchised buses, green minibus, red minibus and taxis, are available for hotel guests heading to different parts of Hong Kong.

Apart from taxis, public transport services, including bus route no. 629 and GMB route no.29A, are available on Shum Wan Road. Currently, shuttle bus service route no. 888 also provides additional transportation connection between Ocean Park main entrance and Tai Shue Wan entrance which is operating on an ad-hoc basis. As such, it is considered that the existing public transport services would have sufficient capacity to cater for the guests of the hotel developments.

6.3.2 Access to Ocean Park

In view of the location and nature of the three hotels, it is assumed that hotel guests would be visiting Ocean Park during their stay. In order to enhance accessibility and convenience for guests from Fisherman's Wharf Hotel and Spa Hotel visiting Ocean Park, consideration should be given to the provision of an alternative access to Ocean Park Headland/Summit to provide a direct connection between these two hotels and the Park.

6.4 Traffic Forecasting

6.4.1 Traffic Survey

Critical road links and junctions in the vicinity of the development sites which are likely to be affected by the proposed hotel developments were identified for traffic impact assessment and are summarized in Table 6.3 and Table 6.4. The locations of these junctions and road links are indicated in Figure 6.1.

Table 6.3 Identified Critical Junctions

	Junction Name	Type
J1	Wong Chuk Hang Road/ Nam Long Shan Road	Signal
J2	Heung Yip Road/ Nam Long Shan Road	Signal
J3	Heung Yip Road/ Ocean Park Road	Roundabout
J4	Ocean Park Road/ Hospital Access Road	Signal
J5	Police School Road / Ocean Park Road / Heung Yip Road	Priority
J6	Police School Road / Nam Long Shan Road	Priority
J7	Nam Long Shan Road / Shum Wan Road	Signal

Table 6.4 Identified Critical Links

	Road Name	Section	
		From	To
L1	Aberdeen Tunnel	Toll Plaza	Tunnel Portal
L2	Wong Chuk Hang Road	Nam Long Shan Road	Ap Lei Chau Bridge Road
L3	Wong Chuk Hang Road	Nam Fung Road	Ocean Park Interchange

Classified manual traffic surveys were conducted at the identified critical road links and junctions for both morning and evening peak periods in October 2006 in order to determine the existing traffic conditions in the Wong Chuk Hang and Nam Long Shan areas. The surveyed locations and the observed traffic flows in the morning and evening peak hours are shown in Figure 6.2.

6.4.2 Background Traffic Forecast

In developing the background traffic forecast for the current study, reference was made to the "Supplementary TIA for Repositioning and Long Term Operation Plan of Ocean Park (June 2005)" (hereinafter referred to as the "Previous TIA Study") issued by Maunsell Consultants Asia Ltd.

The Previous TIA Study provides important information on the volume of additional trips generated/attracted as a result of the Ocean Park Redevelopment Plan. Nevertheless, it is important to note that the three hotel developments were also assumed to be part of the Redevelopment Plan in the Previous TIA Study.

In order to assess the impact from the hotel developments, the previously assumed trips generated by the hotel development were taken out and the result then formed the design year "Reference Case" without the hotels for the current study. The latest trip generation based on the updated hotel development parameters were derived and added to the "Reference Case" totals to produce the "With Hotel Developments" scenario.

For the purposes of the current study, it is assumed that the MTRC South Island Line (SIL) will not be in place when the hotels become operational in view of the fact that SIL is still at the discussion stage and not as yet a committed project by the government. As such, the traffic assessment is based on forecasts assuming no SIL, which represents the worst scenario for the future background traffic conditions in the study area.

6.4.3 Traffic Forecast with Proposed Developments

The estimated trips generated from the proposed hotel developments were based on relevant trip rates from Transport Department's Data Record No. 439 as extracted in Table 6.5. The estimated numbers of trips generated by the three hotels are shown in Table 6.6. As shown, the three hotels altogether are estimated to generate a maximum of 79 pcus and 91 pcus per hour per direction during the weekday morning and evening peak hours respectively.

Table 6.5 Adopted Hotel Trip Generation/Attraction Rates from DR439

	AM Peak	PM Peak
Generation (pcus/hour/room)	**0.060**	**0.070**
Attraction (pcus/hour/room)	**0.060**	**0.070**

Table 6.6 Estimated Trip Generation of Proposed Hotels

	No. of Rooms	AM Peak		PM Peak	
		In	Out	In	Out
Ocean Hotel	660	40	40	46	46
Fisherman's Wharf Hotel	460	28	28	32	32
Spa Hotel	180	11	11	13	13
Total	**1,300**	**79**	**79**	**91**	**91**

Based on the location of the three hotels, it is anticipated that trips generated to/from Ocean Hotel will access via the roundabout on Ocean Park Road and then be distributed to the surrounding road network via the Ocean Park Road and Interchange.

Similarly, the trips generated to/from Fisherman's Wharf Hotel and Spa Hotel will utilise Shum Wan Road and the three signal junctions along Nam Long Shan Road for outbound trips, while inbound trips will be heading via Ocean Park Road and Police School Road.

According to the hotel design brief prepared by the hotel consultant for the current study, the hotels would achieve a stabilized occupancy level within 3 years.

6.5 Traffic Impact Assessment

6.5.1 Methodology

Junction capacity analysis was carried out for the existing year 2006, design years 2011, 2016 and 2022 for the critical junctions that are likely to be affected by the hotel developments. For assessment purposes, it is assumed that the three hotel developments will be in place by 2011. Capacity analysis was carried out in accordance with the procedures outlined in the Transport Planning and Design Manual (TPDM).

6.5.2 Junction and Link Assessment

The results of the road junctions and links capacity analysis for existing year 2006, design years 2011, 2016 and 2022 "Reference" and "With Hotel" cases are summarised in Table 6.7 to 6.12. The calculation sheets are attached in Appendix 6A.

Table 6.7 Existing Year and Opening Year Junction Performance

	Junction	Reserve Capacity (%) / Ratio of Flow to Capacity (RFC)					
		Existing Year 2006		Opening Year 2011			
				Reference		With Hotels	
		AM	PM	AM	PM	AM	PM
J1	Wong Chuk Hang Road/ Nam Long Shan Road (W14)	51%	45%	54%	70%	52%	67%
J2	Heung Yip Road/ Nam Long Shan Road (W15)	67%	41%	58%	97%	49%	84%
J3	Heung Yip Road/ Ocean Park Road Roundabout	0.40	0.38	0.28	0.61	0.30	0.65
J4	Ocean Park Road/ Hospital Access Road	192%	240%	252%	166%	241%	158%
J5	Heung Yip Road/ Police School Road	0.09	0.17	0.31	0.24	0.31	0.24
J6	Nam Long Shan Road/ Police School Road	0.25	0.08	0.03	0.14	0.03	0.14
J7	Nam Long Shan Road / Shum Wan Road (W17)	54%	**-16%**	62%	44%	50%	29%

Table 6.8 Design Years 2016 and 2022 Junction Performance

	Junction	Reserve Capacity (%) / Ratio of Flow to Capacity (RFC)							
		Design Year 2016				Design Year 2022			
		Reference		With Development		Reference		With Development	
		AM	PM	AM	PM	AM	PM	AM	PM
J1	Wong Chuk Hang Road/ Nam Long Shan Road (W14)	56%	62%	53%	59%	49%	52%	47%	49%
J2	Heung Yip Road/ Nam Long Shan Road (W15)	55%	107%	52%	100%	45%	84%	42%	78%
J3	Heung Yip Road/ Ocean Park Road Roundabout	0.41	0.68	0.43	0.72	0.42	0.82	0.44	0.86
J4	Ocean Park Road/ Hospital Access Road	260%	37%	248%	33%	237%	19%	227%	16%
J5	Heung Yip Road/ Police School Road	0.29	0.25	0.29	0.25	0.31	0.28	0.31	0.28
J6	Nam Long Shan Road/ Police School Road	0.03	0.14	0.03	0.14	0.03	0.14	0.03	0.14
J7	Nam Long Shan Road / Shum Wan Road (W17)	63%	53%	51%	38%	52%	33%	42%	20%

Table 6.9 Existing Year 2006 Road Links Performance

	Link	From	To	Dir.	Capacity (pcus/hr)	2006 Flows		V/C	
						AM	PM	AM	PM
L1	Aberdeen Tunnel	Toll Plaza	Tunnel Portal	NB	3,000	2,791	2,648	**0.93**	0.88
				SB	3,300	2,935	2,472	0.89	0.75
L2	Wong Chuk Hang Road	Nam Long Shan Road	Ap Lei Chau Bridge	EB	4,500	2,969	2,547	0.66	0.57
				WB	4,500	2,748	2,586	0.61	0.57
L3	Wong Chuk Hang Road	Ocean Park Interchange	Nam Fung Road	EB	4,500	3,267	3,141	0.73	0.70
				WB	4,500	3,342	3,001	0.74	0.67

Table 6.10 Design Year 2011 Road Links Performance

	Link	Dir.	2011 Reference		V/C		2011 With Hotels		V/C	
			AM	PM	AM	PM	AM	PM	AM	PM
L1	Aberdeen Tunnel	NB	3,349	2,915	**1.12**	**0.97**	3,387	2,961	**1.13**	**0.99**
		SB	2,817	2,074	0.85	0.63	2,855	2,120	0.87	0.64
L2	Wong Chuk Hang Road	EB	3,044	2,090	0.68	0.46	3,060	2,108	0.68	0.47
		WB	2,632	2,729	0.58	0.61	2,648	2,747	0.59	0.61
L3	Wong Chuk Hang Road	EB	3,249	3,145	0.72	0.70	3,310	3,218	0.74	0.72
		WB	3,317	2,484	0.74	0.55	3,378	2,557	0.75	0.57

Table 6.11 Design Year 2016 Road Links Performance

	Link	Dir.	2016 Reference		V/C		2016 With Hotels		V/C	
			AM	PM	AM	PM	AM	PM	AM	PM
L1	Aberdeen Tunnel	NB	3,669	3,655	**1.22**	**1.22**	3,707	3,701	**1.24**	**1.23**
		SB	3,367	2,474	**1.02**	0.75	3,405	2,520	**1.03**	0.76
L2	Wong Chuk Hang Road	EB	3,094	2,400	0.69	0.53	3,110	2,418	0.69	0.54
		WB	3,202	2,939	0.71	0.65	3,218	2,957	0.72	0.66
L3	Wong Chuk Hang Road	EB	3,309	3,605	0.74	0.80	3,370	3,678	0.75	0.82
		WB	3,907	2,784	0.87	0.62	3,968	2,857	0.88	0.63

Table 6.12 Design Year 2022 Road Links Performance

	Link	Dir.	2022 Reference		V/C		2022 With Hotels		V/C	
			AM	PM	AM	PM	AM	PM	AM	PM
L1	Aberdeen Tunnel	NB	3,869	3,985	**1.29**	**1.33**	3,907	4,031	**1.30**	**1.34**
		SB	3,597	2,614	**1.09**	0.79	3,635	2,660	**1.10**	0.81
L2	Wong Chuk Hang Road	EB	3,274	2,520	0.73	0.56	3,290	2,538	0.73	0.56
		WB	3,482	3,119	0.77	0.69	3,498	3,137	0.78	0.70
L3	Wong Chuk Hang Road	EB	3,489	3,925	0.78	0.87	3,550	3,998	0.79	0.89
		WB	4,187	2,944	**0.93**	0.65	4,248	3,017	**0.94**	0.67

6.6 Discussion

Congestion and tail back problems from the Cross Harbour Tunnel are commonly observed during the morning and evening peak hours at Aberdeen Tunnel. Moreover, manually controlled tidal flow traffic management is often required during peak hours to regulate traffic flow.

Based on the latest population forecast contained in a report entitled "Projections of Population Distribution, 2006-2015" published on 27 October 2006 by the Planning Department, the population in Hong Kong South District is expected to grow from 277, 500 in base year 2005 to 284,700 in 2010 and 287,400 in 2015. As such, the capacity problem of Aberdeen Tunnel will continue to get worse if additional capacity cannot be provided in the near future.

Implementation of the South Island Line (SIL) would likely help to relieve the heavy road traffic demand in the southern district as a result of the shift in the transport modes of commuters from road-based modes to rail-based mode.

6.7 Summary of Findings

The proposed three hotel developments altogether are estimated to generate a maximum of 79 pcus and 91 pcus per hour per direction during the weekday morning and evening peak hours respectively.

Parking and loading/unloading facilities will be provided in accordance to HKPSG minimum requirement.

Existing public transport facilities and services are considered adequate to cater for the guests of the hotel developments.

Vehicular access to both the Fisherman's Wharf Hotel and Spa Hotel will be via the existing Shum Wan Road connecting from Nam Long Shan Road. The existing EVA at the Tai Shue Wan Entrance currently serving the Headland will be upgraded to serve as an EVA and private access road to the Spa Hotel.

Altogether 7 critical junctions and 3 major road links were identified for capacity assessment. The assessment was based on traffic forecasts assuming no South Island Line (SIL) which represents the worst scenario for the future background traffic conditions in the study area.

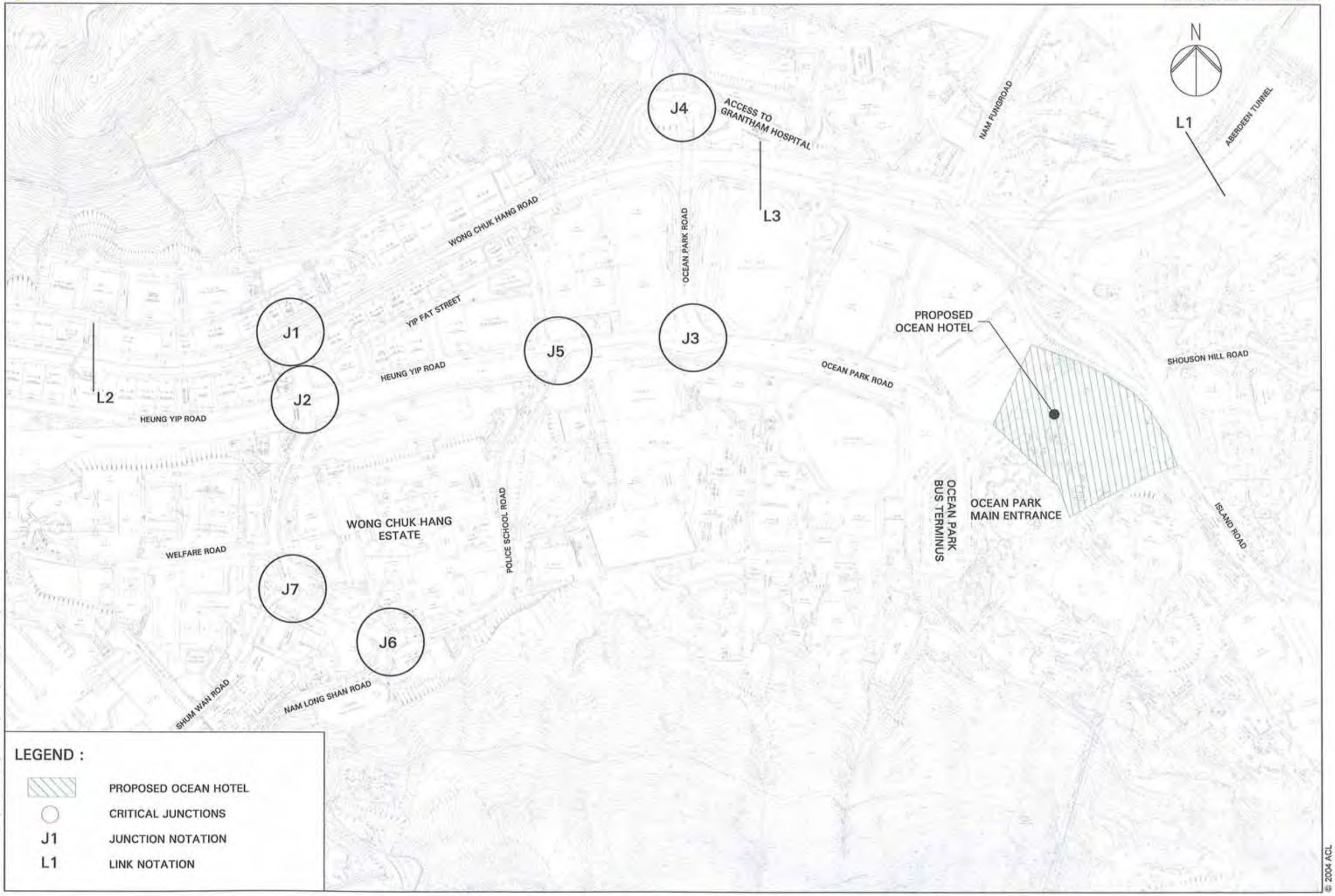
All the assessed junctions are found to operate within capacity in the three design years 2011, 2016 and 2022 in both the "Reference" scenario and "With Hotel" scenario where the proposed hotel developments are assumed in place. As such, the proposed hotel developments would not have significant impact to the surrounding road junctions.

As for the assessed road links, it is found that Aberdeen Tunnel will be operating beyond capacity in both the "Reference Case" and "With Hotel Developments" scenarios. However, the small amount of additional trips from the proposed hotel developments would only affect the performance of the Tunnel very slightly by 1% in both design years 2011 and 2022. Therefore, it is envisaged that the hotel developments would not generate significant traffic impact to the Aberdeen Tunnel during peak hours.

It is considered that the South Island Line (SIL) which is currently under consideration and discussion by the HKSAR government, MTRCL and various parties would likely help to improve the traffic condition of Aberdeen Tunnel and the surrounding area.

6.8 Conclusions

It is therefore concluded that the proposed hotel developments would not induce significant traffic I mpact and are therefore considered as feasible from a traffic point of view.



LOCATION OF CRITICAL JUNCTIONS AND MAJOR LINKS ASSESSED **FIGURE 6.1**

Feasibility Study for Ocean Park Hotel Development Project

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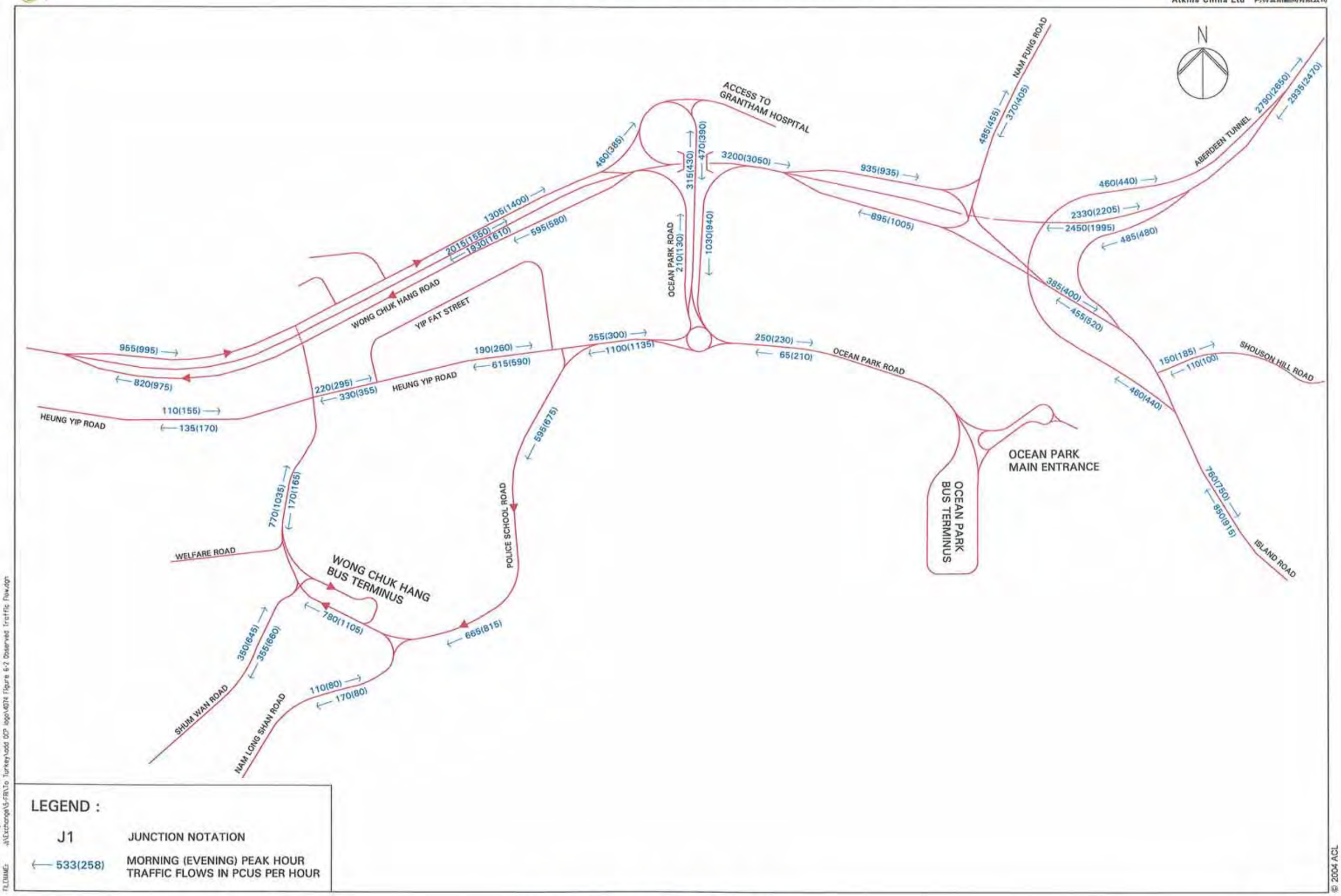


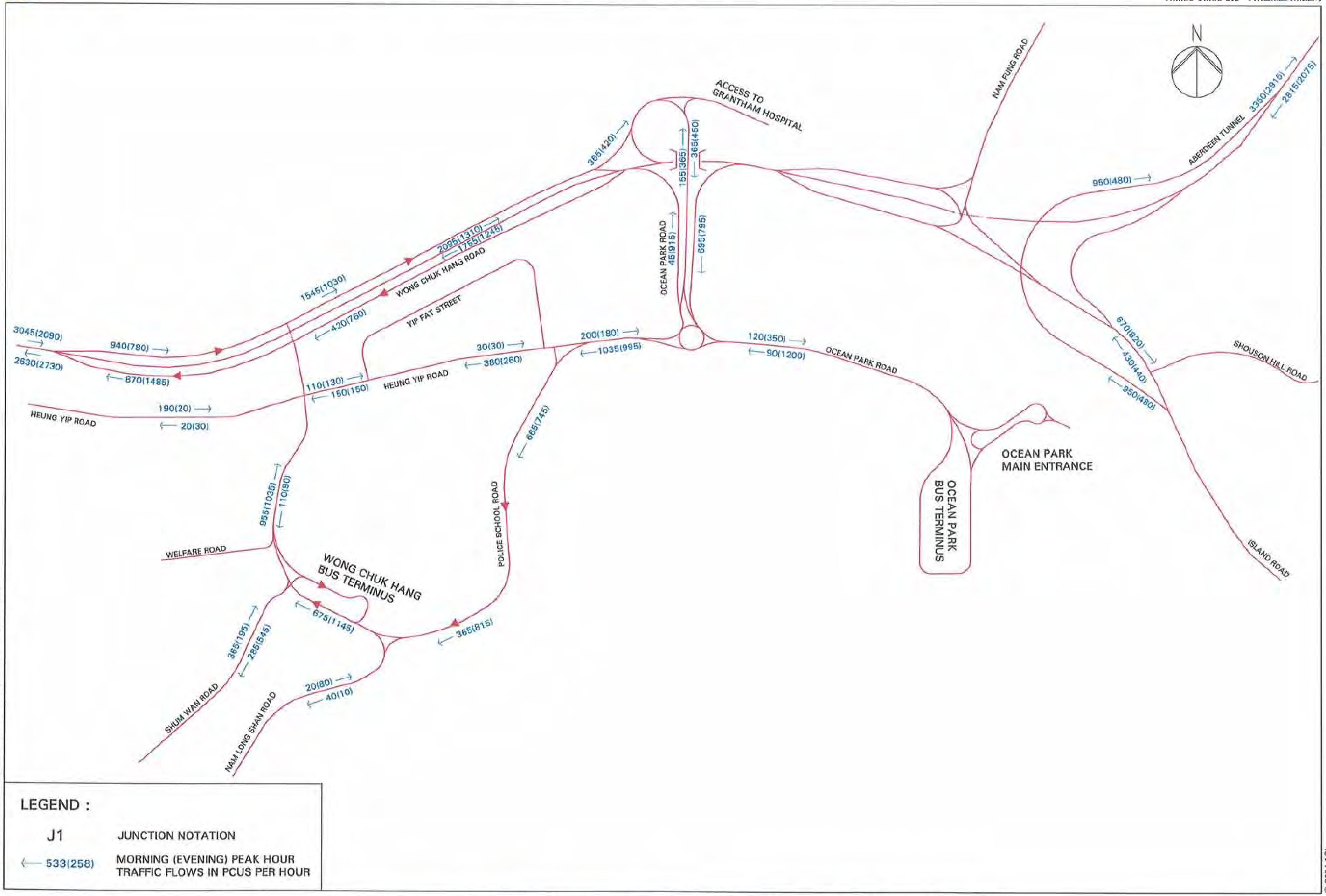
LEGEND :

J1	JUNCTION NOTATION
⟵ 533(258)	MORNING (EVENING) PEAK HOUR TRAFFIC FLOWS IN PCUS PER HOUR

PRINTED BY: turkey 1/26/2007 10:56:30 AM
FILENAME: a:\Exchange\5-FIN\To Turkey\odd OCP Jobs\4074 Figure 6-2 Observed Traffic Flow.dgn

OBSERVED 2006 TRAFFIC FLOWS

FIGURE 6.2


N
NAM FUNG ROAD
ACCESS TO GRANTHAM HOSPITAL
ABERDEEN TUNNEL
3350(2915) ⟶
⟵ 2815(2075)
950(480) ⟶
365(420) ⟶
155(365) ⟶
365(450) ⟵
OCEAN PARK ROAD
45(915) ⟶
695(795) ⟵
2095(1310) ⟶
⟵ 1755(1245)
WONG CHUK HANG ROAD
1545(1030) ⟶
⟵ 420(760)
YIP FAT STREET
3045(2090) ⟶
⟵ 2630(2730)
940(780) ⟶
⟵ 870(1485)
30(30) ⟶
⟵ 380(260)
200(180) ⟶
⟵ 1035(995)
120(350) ⟶
⟵ 90(1200)
OCEAN PARK ROAD
110(130) ⟶
⟵ 150(150)
HEUNG YIP ROAD
HEUNG YIP ROAD
190(20) ⟶
⟵ 20(30)
670(820) ⟶
⟵ 430(440)
⟵ 950(480)
SHOUSON HILL ROAD
OCEAN PARK MAIN ENTRANCE
OCEAN PARK BUS TERMINUS
ISLAND ROAD
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POLICE SCHOOL ROAD
955(1035) ⟶
⟵ 110(90)
WELFARE ROAD
WONG CHUK HANG BUS TERMINUS
⟵ 675(1145)
⟵ 365(815)
365(195) ⟶
⟵ 285(545)
SHUM WAN ROAD
20(80) ⟶
⟵ 40(10)
NAM LONG SHAN ROAD
LEGEND :
J1 JUNCTION NOTATION
⟵ 533(258) MORNING (EVENING) PEAK HOUR TRAFFIC FLOWS IN PCUS PER HOUR

2011 TRAFFIC FORECAST - REFERENCE CASE WITHOUT HOTEL DEVELOPMENTS

FIGURE 6.3

Feasibility Study for Ocean Park Hotel Development Project

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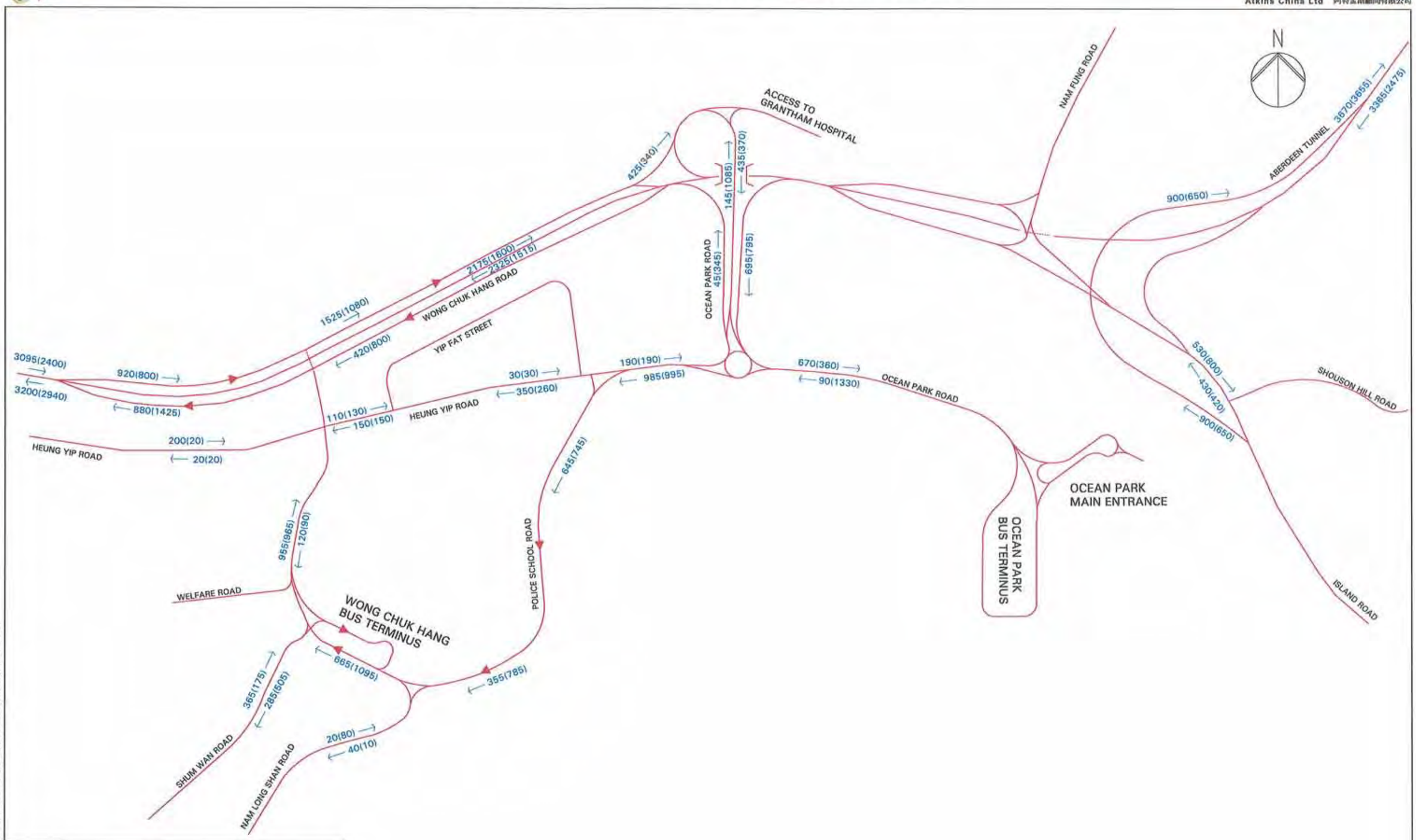

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⟵ 533(258)	MORNING (EVENING) PEAK HOUR TRAFFIC FLOWS IN PCUS PER HOUR

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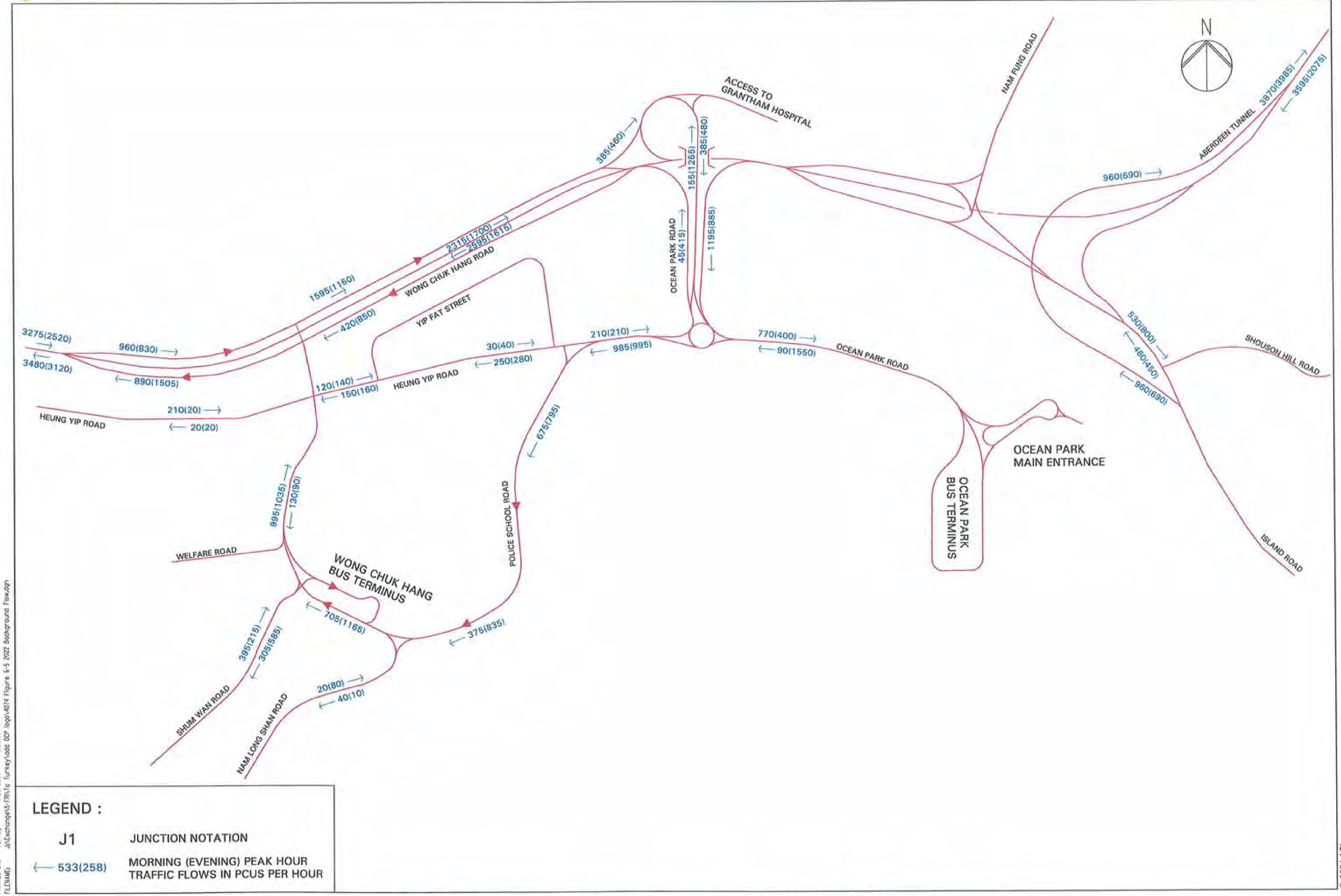
FILENAME: J:\Exchange\15-TRN\To Turkey\odd OCP logo\4071 Figure 6-4 2016 Background Flow.dgn

2016 TRAFFIC FORECAST - REFERENCE CASE WITHOUT HOTEL DEVELOPMENTS

FIGURE 6.4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ACCESS TO GRANTHAM HOSPITAL
NAM FUNG ROAD
ABERDEEN TUNNEL
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⟵ 3595(2075)
960(690) ⟶
385(460) ⟶
155(1255) ⟶
⟵ 385(480)
OCEAN PARK ROAD
45(415) ⟶
⟵ 1195(885)
2315(1700) ⟶
⟵ 2595(1615)
WONG CHUK HANG ROAD
1595(1150) ⟶
⟵ 420(850)
YIP FAT STREET
3275(2520) ⟶
⟵ 3480(3120)
960(830) ⟶
⟵ 890(1505)
30(40) ⟶
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770(400) ⟶
⟵ 90(1550)
OCEAN PARK ROAD
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⟵ 150(160)
HEUNG YIP ROAD
210(20) ⟶
⟵ 20(20)
HEUNG YIP ROAD
530(800) ⟶
⟵ 460(450)
⟵ 960(690)
SHOUSON HILL ROAD
⟵ 675(795)
OCEAN PARK MAIN ENTRANCE
OCEAN PARK BUS TERMINUS
995(1035) ⟶
⟵ 130(90)
POLICE SCHOOL ROAD
WELFARE ROAD
WONG CHUK HANG BUS TERMINUS
ISLAND ROAD
⟵ 705(1165)
⟵ 375(835)
385(215) ⟶
⟵ 305(585)
20(80) ⟶
⟵ 40(10)
SHUM WAN ROAD
NAM LONG SHAN ROAD
LEGEND :
J1 JUNCTION NOTATION
⟵ 533(258) MORNING (EVENING) PEAK HOUR TRAFFIC FLOWS IN PCUS PER HOUR
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2022 TRAFFIC FORECAST - REFERENCE CASE WITHOUT HOTEL DEVELOPMENTS

FIGURE 6.5

Feasibility Study for Ocean Park Hotel Development Project

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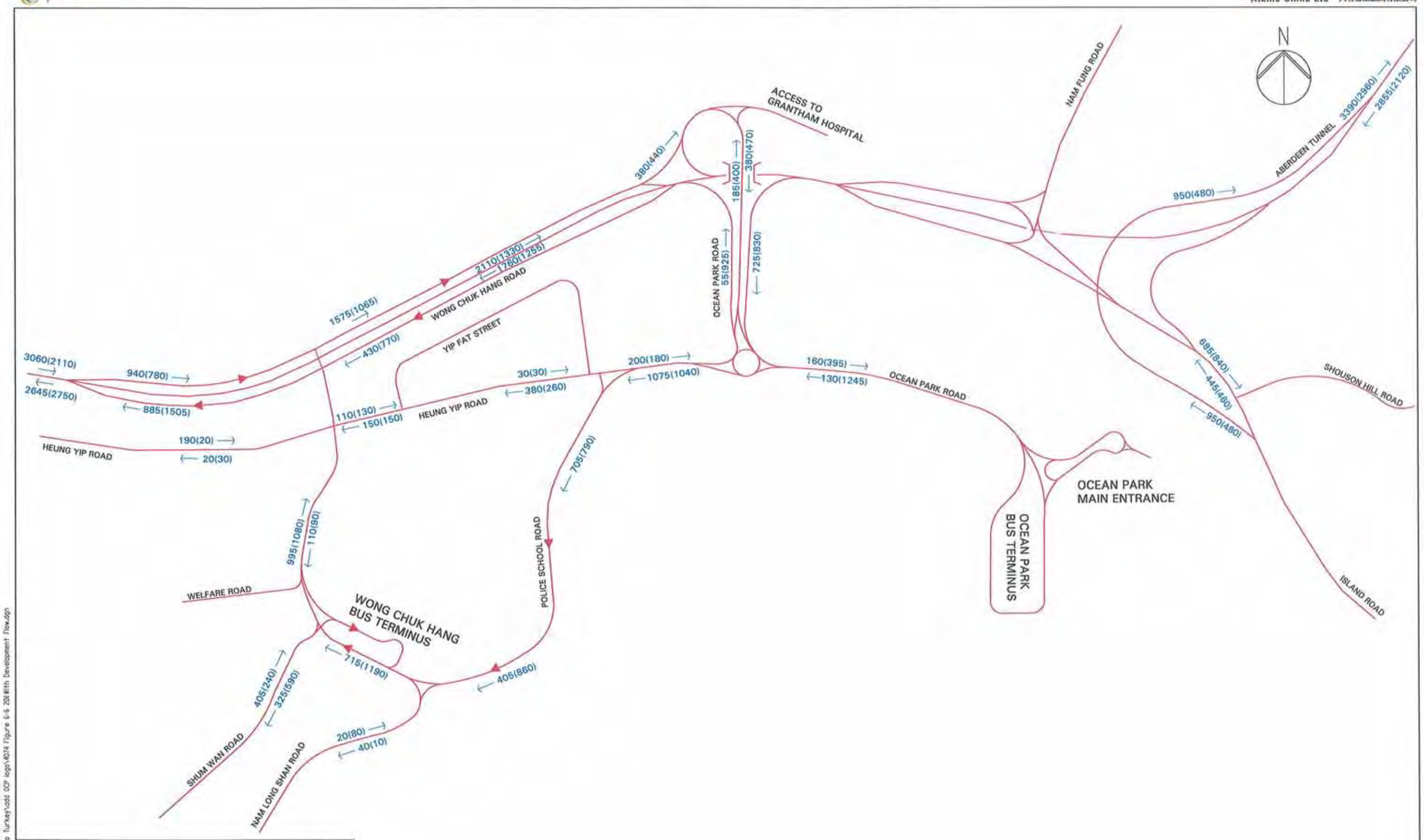

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J1	JUNCTION NOTATION
⟵ 533(258)	MORNING (EVENING) PEAK HOUR TRAFFIC FLOWS IN PCUS PER HOUR

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FILENAME: a:\Exchange\5-FRI\To Turkey\odd OCP logo\4074 Figure 6-6 2011 With Development Flow.dgn

2011 TRAFFIC FORECAST - WITH HOTEL DEVELOPMENTS

FIGURE 6.6

Feasibility Study for Ocean Park Hotel Development Project

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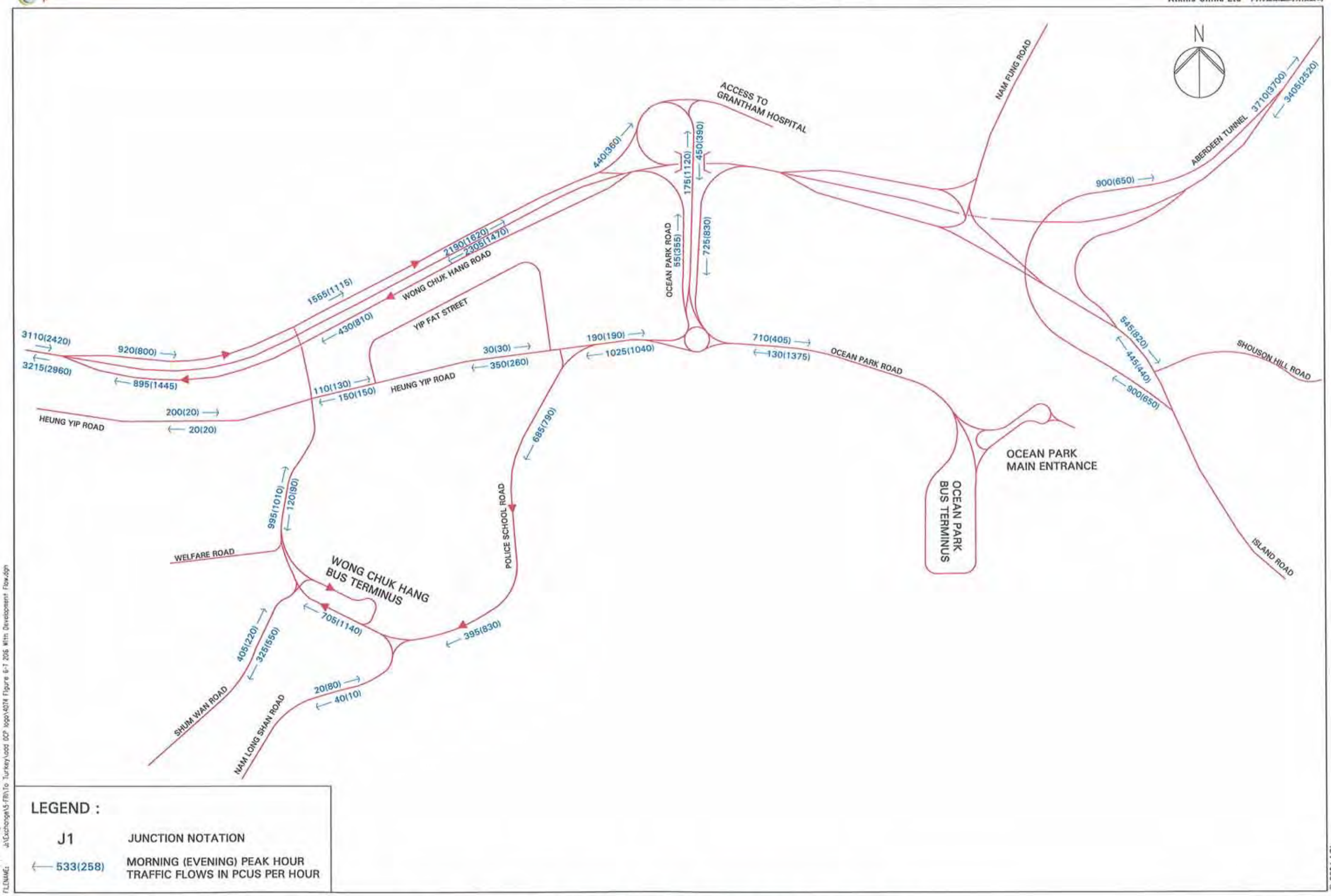
Atkins China Ltd 阿特金斯顧問有限公司



LEGEND :

J1	JUNCTION NOTATION
⟵ 533(258)	MORNING (EVENING) PEAK HOUR TRAFFIC FLOWS IN PCUS PER HOUR

PRINTED BY: turkey 1/26/2007 10:54:55 AM
FILENAME: J:\Exchange\S-FR\To Turkey\ood OCP logo\4074 Figure 6-7 2016 With Development Flow.dgn

2016 TRAFFIC FORECAST - WITH HOTEL DEVELOPMENTS

FIGURE 6.7

Feasibility Study for Ocean Park Hotel Development Project

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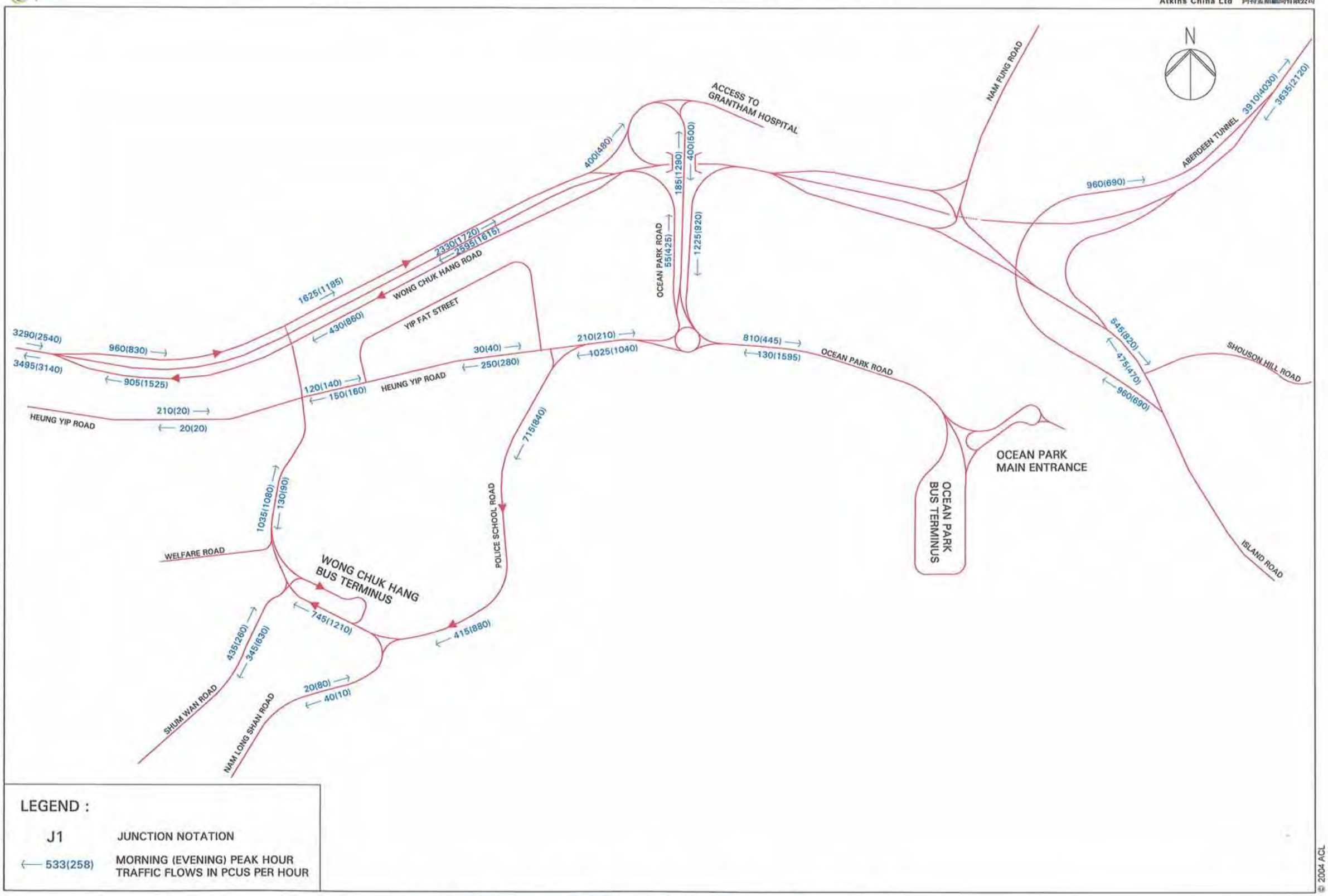


LEGEND :

J1	JUNCTION NOTATION
⟵ 533(258)	MORNING (EVENING) PEAK HOUR TRAFFIC FLOWS IN PCUS PER HOUR

PRINTED BY: Turkey 1/26/2007 10:53:22 AM
FILENAME: a:\Exchange\5-FRA\To Turkey\ood DCP Jobs\4074 Figure 6-8 2022 with Development Flow.dgn

2022 TRAFFIC FORECAST - WITH HOTEL DEVELOPMENTS

FIGURE 6.8

Appendix 6A
Traffic Signal Calculation Sheets

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

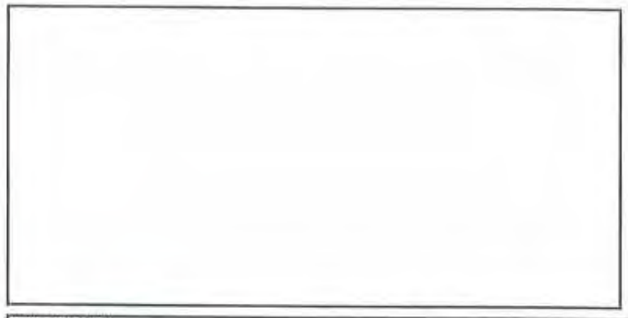
Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

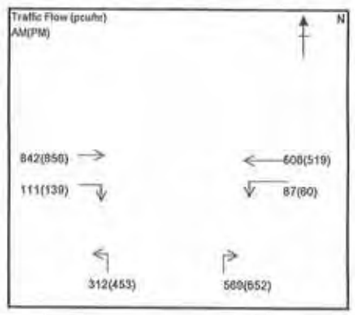
Design Year: 2006

Scheme : Observed Flows

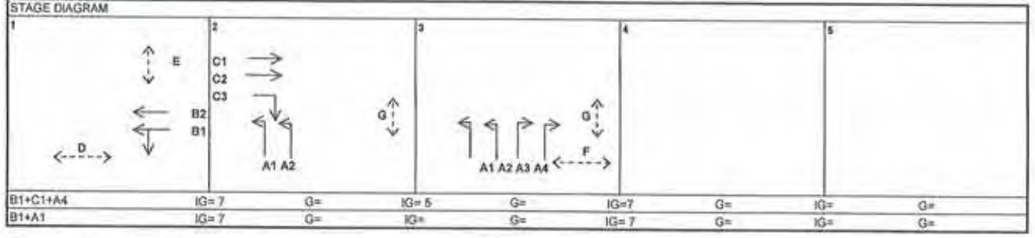
Designed by: JC

Checked by: JY





STAGE DIAGRAM



B1+C1+A4	IG= 7	G=	IG= 5	G=	IG=7	G=	IG=	G=	
B1+A1	IG= 7	G=	IG=	G=	IG= 7	G=	IG=	G=	

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	2,3	3.30	Y	N	11.0	0.0	148	100%	1712	0.086	215	100%	1712	0.126
A2	2,3	3.30	N	N	15.0	0.0	164	100%	1895	0.086	238	100%	1895	0.126
A3	3	3.30	N	N	29.0	0.0	286	100%	1982	0.144	327	100%	1982	0.165
A4	3	3.30	N	N	25.0	0.0	283	100%	1967	**0.144**	325	100%	1967	**0.165**
Wong Chuk Hang Road WB														
B1	1	3.50	Y	N	15.0	0.0	282	31%	1906	**0.148**	276	22%	1923	**0.144**
B2	1	3.50	N	N	0.0	0.0	311	0%	2105	0.148	303	0%	2105	0.144
Wong Chuk Hang Road EB														
C1	2	3.30	Y	N	0.0	0.0	406	0%	1945	**0.209**	413	0%	1945	**0.212**
C2	2	3.30	N	N	0.0	0.0	436	0%	2085	0.209	443	0%	2085	0.212
C3	2	3.30	N	Y	9.0	0.0	111	100%	1590	0.070	139	100%	1590	0.087
D	1		10GM	+ 12FG	= 22s									
E	1		7GM	+ 8FG	= 15s									
F	3		6GM	+ 9FG	= 15s									
G	2,3		13GM	+ 10FG	= 23s									

Capacity Calculation	AM Peak B1+A1	AM Peak B1+C1+A4	PM Peak B1+A1	PM Peak B1+C1+A4
Sum of Critical y Values - Y	0.234	0.501	0.269	0.521
Lost Time - L	12	16	12	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.792	0.756	0.792	0.756
Reserve Capacity - RC (%)	238%	51%	194%	45%

Remark:

Date : 19/Jan/07 Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

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APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

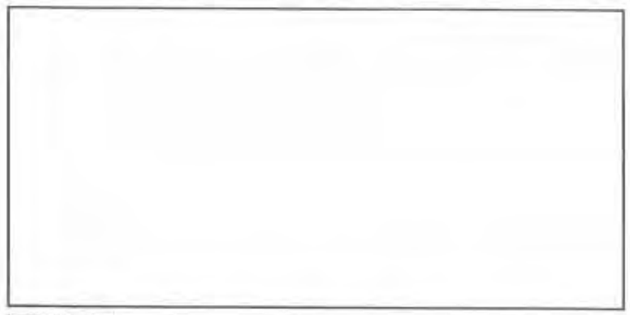
Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

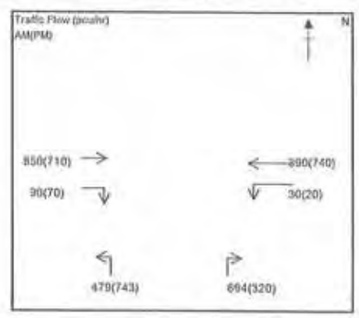
Design Year: 2011

Scheme : Reference (Redevelopment + No Hotel + No SIL)

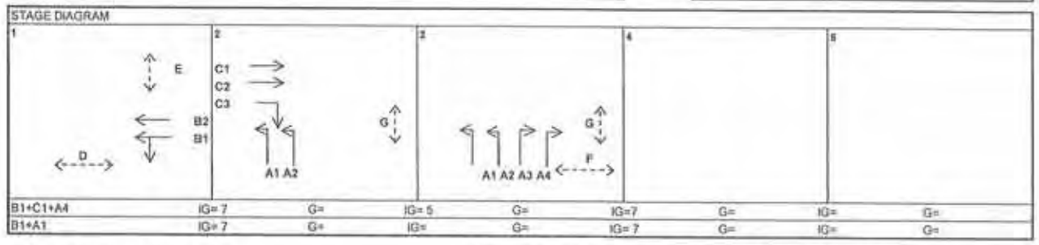
Designed by: JC

Checked by: JY





STAGE DIAGRAM



B1+C1+A4	IG= 7	G=	IG= 5	G=	IG=7	G=	IG=	G=	
B1+A1	IG= 7	G=	IG=	G=	IG= 7	G=	IG=	G=	

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	2,3	3.30	Y	N	11.0	0.0	227	100%	1712	0.133	353	100%	1712	0.206
A2	2,3	3.30	N	N	15.0	0.0	252	100%	1895	0.133	390	100%	1895	0.206
A3	3	3.30	N	N	29.0	0.0	348	100%	1982	0.176	161	100%	1982	0.081
A4	3	3.30	N	N	25.0	0.0	346	100%	1967	**0.176**	159	100%	1967	**0.081**
Wong Chuk Hang Road WB														
B1	1	3.50	Y	N	15.0	0.0	201	15%	1936	**0.104**	368	5%	1954	**0.187**
B2	1	3.50	N	N	0.0	0.0	219	0%	2105	0.104	394	0%	2105	0.187
Wong Chuk Hang Road EB														
C1	2	3.30	Y	N	0.0	0.0	410	0%	1945	**0.211**	343	0%	1945	**0.176**
C2	2	3.30	N	N	0.0	0.0	440	0%	2085	0.211	367	0%	2085	0.176
C3	2	3.30	N	Y	9.0	0.0	80	100%	1590	0.057	70	100%	1590	0.044
D	1		10GM	+ 12FG	= 22s									
E	1		7GM	+ 8FG	= 15s									
F	3		6GM	+ 9FG	= 15s									
G	2,3		13GM	+ 10FG	= 23s									

Capacity Calculation	AM Peak B1+A1	AM Peak B1+C1+A4	PM Peak B1+A1	PM Peak B1+C1+A4
Sum of Critical y Values - Y	0.237	0.491	0.393	0.444
Lost Time - L	12	16	12	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.792	0.756	0.792	0.756
Reserve Capacity - RC (%)	235%	54%	101%	70%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

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TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

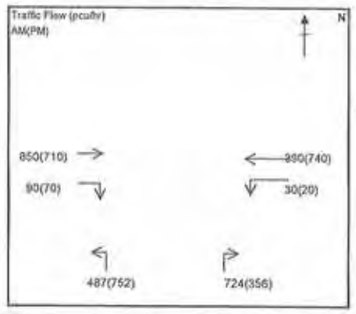
Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

Design Year: 2011

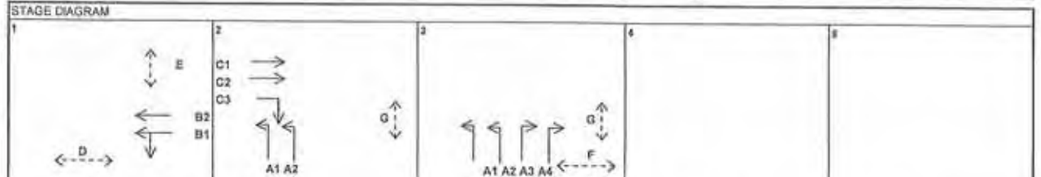
Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+C1+A4	IG= 7	G=	IG= 5	G=	IG=7	G=	IG=	G=
B1+A1	IG= 7	G=	IG=	G=	IG= 7	G=	IG=	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	2,3	3.30	Y	N	11.0	0.0	231	100%	1712	0.135	357	100%	1712	0.208
A2	2,3	3.30	N	N	15.0	0.0	256	100%	1895	0.135	395	100%	1895	0.208
A3	3	3.30	N	N	29.0	0.0	363	100%	1982	0.183	179	100%	1982	0.090
A4	3	3.30	N	N	25.0	0.0	361	100%	1967	0.183	177	100%	1967	0.090
Wong Chuk Hang Road WB														
B1	1	3.50	Y	N	15.0	0.0	201	15%	1936	0.104	366	5%	1954	0.187
B2	1	3.50	N	N	0.0	0.0	219	0%	2105	0.104	394	0%	2105	0.187
Wong Chuk Hang Road EB														
C1	2	3.30	Y	N	0.0	0.0	410	0%	1945	0.211	349	0%	1945	0.176
C2	2	3.30	N	N	0.0	0.0	440	0%	2085	0.211	367	0%	2085	0.176
C3	2	3.30	N	Y	9.0	0.0	90	100%	1590	0.057	70	100%	1590	0.044
D	1		10GM	+ 12FG	= 22s									
E	1		7GM	+ 8FG	= 15s									
F	3		6GM	+ 9FG	= 15s									
G	2,3		13GM	+ 10FG	= 23s									

Capacity Calculation	AM Peak		PM Peak	
	B1+A1	B1+C1+A4	B1+A1	B1+C1+A4
Sum of Critical y Values - Y	0.239	0.498	0.396	0.454
Lost Time - L	12	16	12	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.792	0.756	0.792	0.756
Reserve Capacity - RC (%)	231%	52%	100%	67%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

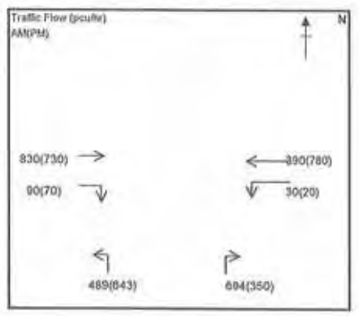
Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

Design Year: 2016

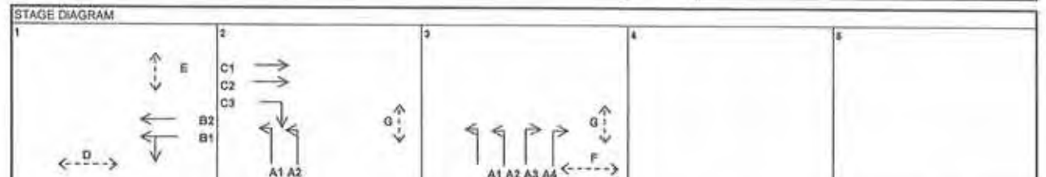
Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+C1+A4	IG= 7	G=	IG= 5	G=	IG=7	G=	IG=	G=
B1+A1	IG= 7	G=	IG=	G=	IG= 7	G=	IG=	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	2,3	3.30	Y	N	11.0	0.0	232	100%	1712	0.136	305	100%	1712	0.178
A2	2,3	3.30	N	N	15.0	0.0	257	100%	1895	0.136	338	100%	1895	0.178
A3	3	3.30	N	N	29.0	0.0	348	100%	1982	0.176	176	100%	1982	0.089
A4	3	3.30	N	N	25.0	0.0	346	100%	1967	0.176	174	100%	1967	0.089
Wong Chuk Hang Road WB														
B1	1	3.50	Y	N	15.0	0.0	201	15%	1936	0.104	385	5%	1955	0.197
B2	1	3.50	N	N	0.0	0.0	219	0%	2105	0.104	415	0%	2105	0.197
Wong Chuk Hang Road EB														
C1	2	3.30	Y	N	0.0	0.0	401	0%	1945	0.206	352	0%	1945	0.181
C2	2	3.30	N	N	0.0	0.0	429	0%	2085	0.206	378	0%	2085	0.181
C3	2	3.30	N	Y	9.0	0.0	90	100%	1590	0.057	70	100%	1590	0.044
D	1		10GM	+ 12FG	= 22s									
E	1		7GM	+ 8FG	= 15s									
F	3		6GM	+ 9FG	= 15s									
G	2,3		13GM	+ 10FG	= 23s									

Capacity Calculation	AM Peak		PM Peak	
	B1+A1	B1+C1+A4	B1+A1	B1+C1+A4
Sum of Critical y Values - Y	0.239	0.484	0.375	0.467
Lost Time - L	12	16	12	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.792	0.756	0.792	0.756
Reserve Capacity - RC (%)	231%	56%	111%	62%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 19/Jan/07 Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

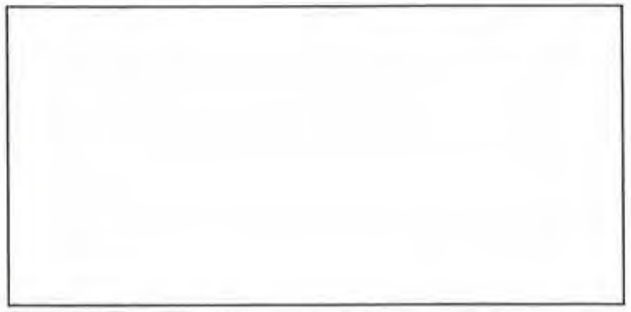
Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

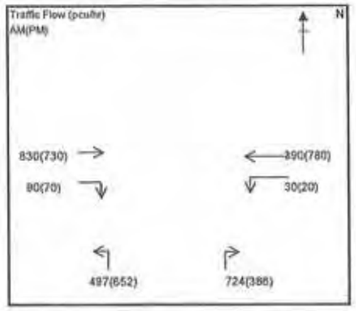
Design Year: 2016

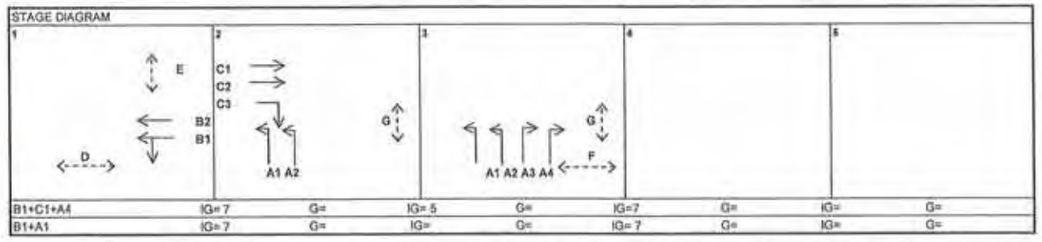
Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: JC

Checked by: JY







Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	2,3	3.30	Y	N	11.0	0.0	236	100%	1712	0.138	309	100%	1712	0.181
A2	2,3	3.30	N	N	15.0	0.0	261	100%	1895	0.138	343	100%	1895	0.181
A3	3	3.30	N	N	29.0	0.0	363	100%	1982	0.183	194	100%	1982	0.098
A4	3	3.30	N	N	25.0	0.0	361	100%	1967	**0.183**	192	100%	1967	**0.098**
Wong Chuk Hang Road WB														
B1	1	3.50	Y	N	15.0	0.0	201	15%	1938	**0.104**	385	5%	1955	**0.197**
B2	1	3.50	N	N	0.0	0.0	219	0%	2105	0.104	415	0%	2105	0.197
Wong Chuk Hang Road EB														
C1	2	3.30	Y	N	0.0	0.0	401	0%	1945	**0.206**	352	0%	1945	**0.181**
C2	2	3.30	N	N	0.0	0.0	429	0%	2085	0.206	378	0%	2085	0.181
C3	2	3.30	N	Y	9.0	0.0	90	100%	1590	0.057	70	100%	1590	0.044
D	1		10GM	+ 12FG	= 22s									
E	1		7GM	+ 8FG	= 15s									
F	3		6GM	+ 9FG	= 15s									
G	2,3		13GM	+ 10FG	= 23s									

Capacity Calculation	AM Peak B1+A1	AM Peak B1+C1+A4	PM Peak B1+A1	PM Peak B1+C1+A4
Sum of Critical y Values - Y	0.242	**0.493**	0.378	**0.475**
Lost Time - L	12	16	12	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.792	0.758	0.792	0.756
Reserve Capacity - RC (%)	226%	**53%**	110%	**59%**

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 19/Jan/07 Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

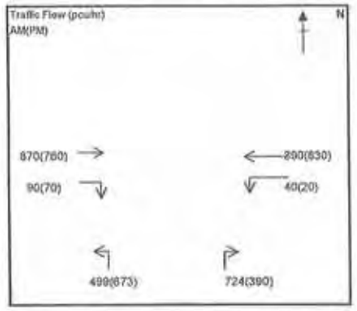
Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

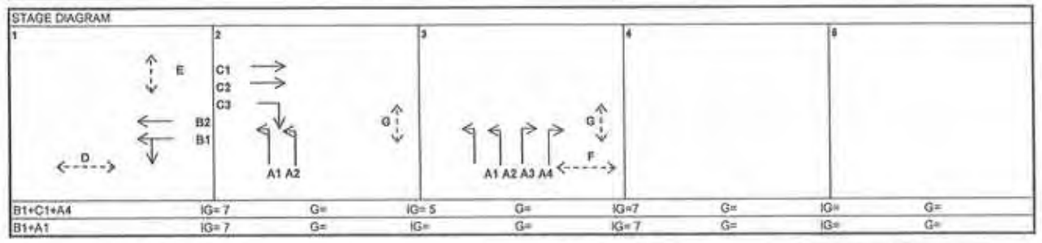
Design Year: 2022

Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: JC

Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	2,3	3.30	Y	N	11.0	0.0	237	100%	1712	0.138	319	100%	1712	0.187
A2	2,3	3.30	N	N	15.0	0.0	262	100%	1895	0.138	354	100%	1895	0.187
A3	3	3.30	N	N	29.0	0.0	363	100%	1982	0.183	196	100%	1982	0.099
A4	3	3.30	N	N	25.0	0.0	361	100%	1967	**0.183**	194	100%	1967	**0.099**
Wong Chuk Hang Road WB														
B1	1	3.50	Y	N	15.0	0.0	206	19%	1927	**0.107**	400	5%	1955	**0.209**
B2	1	3.50	N	N	0.0	0.0	224	0%	2105	0.107	441	0%	2105	0.209
Wong Chuk Hang Road EB														
C1	2	3.30	Y	N	0.0	0.0	420	0%	1945	**0.216**	367	0%	1945	**0.189**
C2	2	3.30	N	N	0.0	0.0	450	0%	2085	0.216	393	0%	2085	0.189
C3	2	3.30	N	Y	9.0	0.0	90	100%	1590	0.057	70	100%	1590	0.044
D	1		10GM	+ 12FG	= 22s									
E	1		7GM	+ 8FG	= 15s									
F	3		6GM	+ 9FG	= 15s									
G	2,3		13GM	+ 10FG	= 23s									

Capacity Calculation	AM Peak B1+A1	AM Peak B1+C1+A4	PM Peak B1+A1	PM Peak B1+C1+A4
Sum of Critical y Values - Y	0.245	**0.506**	0.390	**0.497**
Lost Time - L	12	16	12	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.792	0.756	0.792	0.756
Reserve Capacity - RC (%)	223%	**49%**	100%	**52%**

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 19/Jan/07 Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

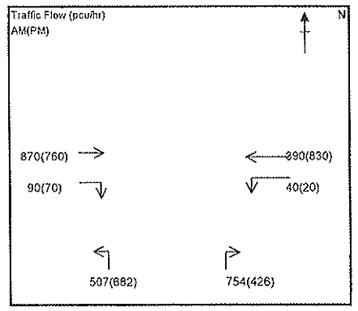
Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

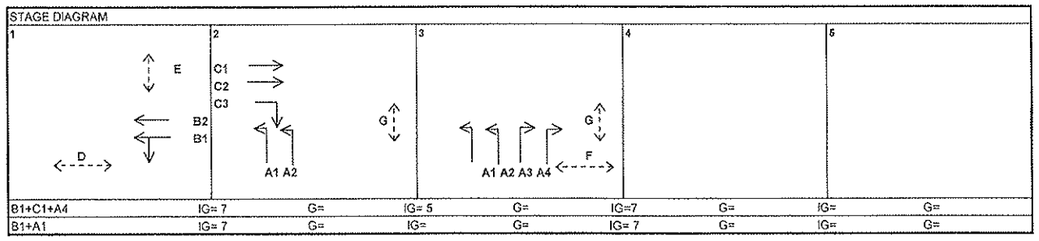
Design Year: 2022

Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: JC

Checked by: JY





B1+C1+A4	IG= 7	G=	IG= 5	G=	IG=7	G=	IG=	G=
B1+A1	IG= 7	G=	IG=	G=	IG= 7	G=	IG=	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	2,3	3.30	Y	N	11.0	0.0	241	100%	1712	0.141	324	100%	1712	0.189
A2	2,3	3.30	N	N	15.0	0.0	266	100%	1895	0.141	358	100%	1895	0.189
A3	3	3.30	N	N	29.0	0.0	378	100%	1982	0.191	214	100%	1982	0.108
A4	3	3.30	N	N	25.0	0.0	376	100%	1967	0.191	212	100%	1967	0.108
Wong Chuk Hang Road WB														
B1	1	3.50	Y	N	15.0	0.0	206	19%	1927	0.107	409	5%	1955	0.209
B2	1	3.50	N	N	0.0	0.0	224	0%	2105	0.107	441	0%	2105	0.209
Wong Chuk Hang Road EB														
C1	2	3.30	Y	N	0.0	0.0	420	0%	1945	0.216	367	0%	1945	0.189
C2	2	3.30	N	N	0.0	0.0	450	0%	2085	0.216	393	0%	2085	0.189
C3	2	3.30	N	Y	9.0	0.0	90	100%	1590	0.057	70	100%	1590	0.044
D	1		10GM	+ 12FG	= 22s									
E	1		7GM	+ 8FG	= 15s									
F	3		6GM	+ 9FG	= 15s									
G	2,3		13GM	+ 10FG	= 23s									

Capacity Calculation	AM Peak B1+A1	AM Peak B1+C1+A4	PM Peak B1+A1	PM Peak B1+C1+A4
Sum of Critical y Values - Y	0.247	0.513	0.398	0.505
Lost Time - L	12	16	12	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.792	0.756	0.792	0.756
Reserve Capacity - RC (%)	220%	47%	99%	49%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 19/Jan/07 Junction : J1 Wong Chuk Hang Road/ Nam Long Shan Road (W14)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

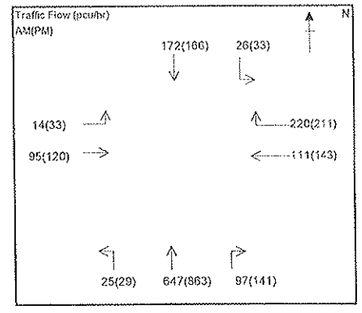
Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

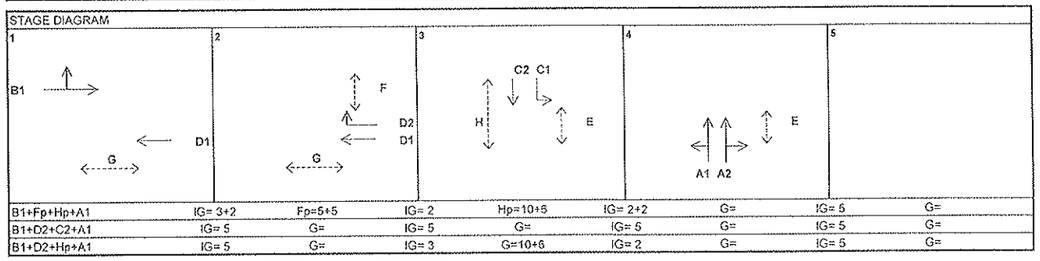
Design Year 2006

Scheme : Observed Flows

Designed by: JC

Checked by: JY





B1+Fp+Hp+A1	IG= 3+2	Fp=5+5	IG= 2	Hp=10+6	IG= 2+2	G=	IG= 5	G=
B1+D2+C2+A1	IG= 5	G=	IG= 5	G=	IG= 5	G=	IG= 5	G=
B1+D2+Hp+A1	IG= 5	G=	IG= 3	G=10+6	IG= 2	G=	IG= 5	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	4	3.50	Y	N	6.0	0.0	374	7%	1933	0.193	503	6%	1937	0.260
A2	4	3.50	N	N	12.0	0.0	395	25%	2042	0.193	530	27%	2037	0.260
Heung Yip Road EB														
B1	1	4.00	Y	N	9.0	0.0	109	13%	1973	0.055	153	22%	1945	0.079
Nam Long Shan Road SB														
C1	3	3.50	Y	N	6.0	0.0	26	100%	1572	0.017	33	100%	1572	0.021
C2	3	3.50	N	N	0.0	0.0	172	0%	2105	0.082	166	0%	2105	0.079
Heung Yip Road WB														
D1	1,2	3.25	Y	N	0.0	0.0	111	0%	1940	0.057	143	0%	1940	0.074
D2	2	3.25	N	N	9.0	0.0	220	100%	1783	0.123	211	100%	1783	0.118
Ep	3,4		5GM	+ 6FG	= 11s									
Fp	2		5GM	+ 5FG	= 10s									
Gp	1,2		10GM	+ 9FG	= 19s									
Hp	3		10GM	+ 6FG	= 16s									

Capacity Calculation	AM Peak B1+D2+Hp+A1	AM Peak B1+D2+C2+A1	PM Peak B1+D2+Hp+A1	PM Peak B1+D2+C2+A1
Sum of Critical y Values - Y	0.372	0.454	0.457	0.536
Lost Time - L	28	16	28	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.648	0.756	0.648	0.756
Reserve Capacity - RC (%)	74%	67%	42%	41%

Remark:

Date : 25/Jan/07 Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

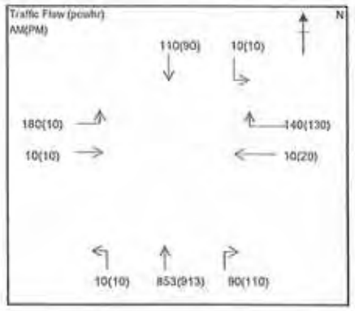
Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

Design Year: 2011

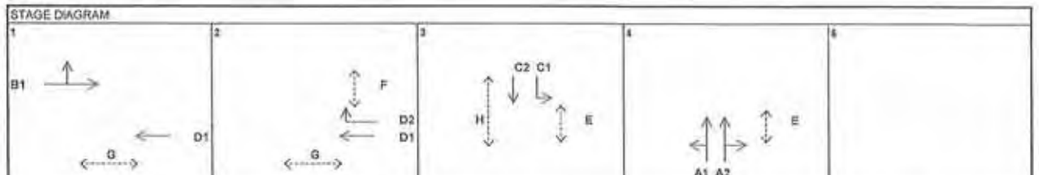
Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+Fp+Hp+A1	IG= 3+2	Fp=5+5	IG= 2	Hp=10+6	IG= 2+2	G=	IG= 5	G=
B1+D2+C2+A1	IG= 5	G=	IG= 5	G=	IG= 5	G=	IG= 5	G=
B1+D2+Hp+A1	IG= 5	G=	IG= 3	G=10+6	IG= 2	G=	IG= 5	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	4	3.50	Y	N	6.0	0.0	464	2%	1954	0.238	504	2%	1955	0.258
A2	4	3.50	N	N	12.0	0.0	489	18%	2058	0.238	529	21%	2052	0.258
Heung Yip Road EB														
B1	1	4.00	Y	N	9.0	0.0	190	95%	1740	0.109	20	50%	1860	0.011
Nam Long Shan Road SB														
C1	3	3.50	Y	N	6.0	0.0	10	100%	1572	0.006	10	100%	1572	0.006
C2	3	3.50	N	N	0.0	0.0	110	0%	2105	0.052	90	0%	2105	0.043
Heung Yip Road WB														
D1	1,2	3.25	Y	N	0.0	0.0	10	0%	1940	0.005	20	0%	1940	0.010
D2	2	3.25	N	N	9.0	0.0	140	100%	1783	0.079	130	100%	1783	0.073
Ep	3,4		5GM	+ 6FG	= 11s									
Fp	2		5GM	+ 5FG	= 10s									
Gp	1,2		10GM	+ 9FG	= 19s									
Hp	3		10GM	+ 6FG	= 16s									

Capacity Calculation	AM Peak		PM Peak	
	B1+D2+Hp+A1	B1+D2+C2+A1	B1+D2+H+A1	B1+D2+C2+A1
Sum of Critical y Values - Y	0.425	0.477	0.341	0.384
Lost Time - L	28	16	28	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.648	0.756	0.648	0.756
Reserve Capacity - RC (%)	52%	58%	90%	97%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

ATKINS CHINA LIMITED

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

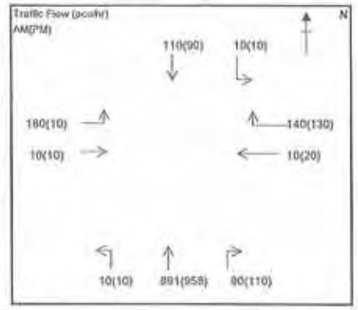
Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

Design Year: 2011

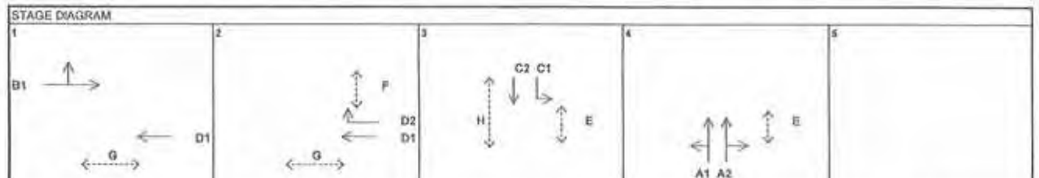
Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+Fp+Hp+A1	IG= 3+2	Fp=5+5	IG= 2	Hp=10+6	IG= 2+2	G=	IG= 5	G=
B1+D2+C2+A1	IG= 5	G=	IG= 5	G=	IG= 5	G=	IG= 5	G=
B1+D2+Hp+A1	IG= 5	G=	IG= 3	G=10+6	IG= 2	G=	IG= 5	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	4	3.50	Y	N	6.0	0.0	483	2%	1955	0.247	526	2%	1956	0.269
A2	4	3.50	N	N	12.0	0.0	508	18%	2059	0.247	552	20%	2054	0.269
Heung Yip Road EB														
B1	1	4.00	Y	N	9.0	0.0	190	95%	1740	0.109	20	50%	1860	0.011
Nam Long Shan Road SB														
C1	3	3.50	Y	N	6.0	0.0	10	100%	1572	0.006	10	100%	1572	0.006
C2	3	3.50	N	N	0.0	0.0	110	0%	2105	0.052	90	0%	2105	0.043
Heung Yip Road WB														
D1	1,2	3.25	Y	N	0.0	0.0	10	0%	1940	0.005	20	0%	1940	0.010
D2	2	3.25	N	N	9.0	0.0	140	100%	1783	0.079	130	100%	1783	0.073
Ep	3,4		5GM	+ 6FG	= 11s									
Fp	2		5GM	+ 5FG	= 10s									
Gp	1,2		10GM	+ 9FG	= 19s									
Hp	3		10GM	+ 6FG	= 16s									

Capacity Calculation	AM Peak		PM Peak	
	B1+D2+Hp+A1	B1+D2+C2+A1	B1+D2+H+A1	B1+D2+C2+A1
Sum of Critical y Values - Y	0.435	0.487	0.353	0.395
Lost Time - L	28	16	28	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.648	0.756	0.648	0.756
Reserve Capacity - RC (%)	49%	55%	84%	91%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

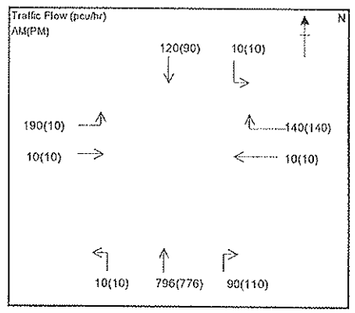
Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

Design Year: 2016

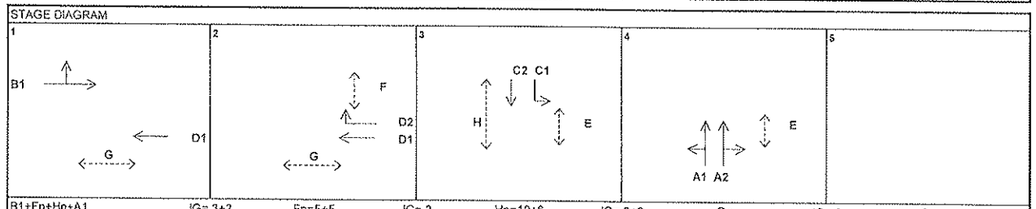
Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+Fp+Hp+A1	IG= 3+2	Fp=5+5	IG= 2	Hp=10+6	IG= 2+2	G=	IG= 5	G=
B1+D2+C2+A1	IG= 5	G=	IG= 5	G=	IG= 5	G=	IG= 5	G=
B1+D2+Hp+A1	IG= 5	G=	IG= 3	G=10+6	IG= 2	G=	IG= 5	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow Calculations: AM Peak Flow (pcu/hr)	AM Peak Flow Calculations: Proportion turning (%) f	AM Peak Flow Calculations: Saturation flow (pcu/hr)	AM Peak Flow Calculations: y value	PM Peak Flow Calculations: PM Peak Flow (pcu/hr)	PM Peak Flow Calculations: Proportion turning (%) f	PM Peak Flow Calculations: Saturation flow (pcu/hr)	PM Peak Flow Calculations: y value
Nam Long Shan Road NB														
A1	4	3.50	Y	N	6.0	0.0	437	2%	1954	0.224	438	2%	1954	0.224
A2	4	3.50	N	N	12.0	0.0	459	20%	2055	0.224	458	24%	2044	0.224
Heung Yip Road EB														
B1	1	4.00	Y	N	9.0	0.0	200	95%	1740	0.115	20	50%	1860	0.011
Nam Long Shan Road SB														
C1	3	3.50	Y	N	6.0	0.0	10	100%	1572	0.006	10	100%	1572	0.006
C2	3	3.50	N	N	0.0	0.0	120	0%	2105	0.057	90	0%	2105	0.043
Heung Yip Road WB														
D1	1,2	3.25	Y	N	0.0	0.0	10	0%	1940	0.005	10	0%	1940	0.005
D2	2	3.25	N	N	9.0	0.0	140	100%	1783	0.079	140	100%	1783	0.079
Ep	3,4		5GM	+ 6FG	= 11s									
Fp	2		5GM	+ 5FG	= 10s									
Gp	1,2		10GM	+ 9FG	= 19s									
Hp	3		10GM	+ 6FG	= 16s									

Capacity Calculation	AM Peak: B1+D2+Hp+A1	AM Peak: B1+D2+C2+A1	PM Peak: B1+D2+H+A1	PM Peak: B1+D2+C2+A1
Sum of Critical y Values - Y	0.417	0.474	0.313	0.356
Lost Time - L	28	16	28	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.648	0.756	0.648	0.756
Reserve Capacity - RC (%)	55%	59%	107%	112%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

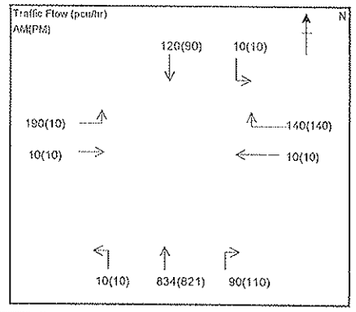
Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

Design Year: 2016

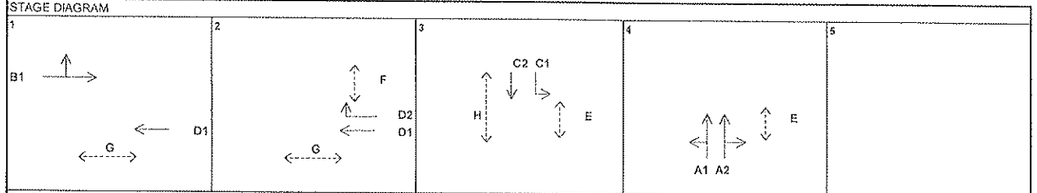
Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+Fp+Hp+A1	IG= 3+2	Fp=5+5	IG= 2	Hp=10+6	IG= 2+2	G=	IG= 5	G=
B1+D2+C2+A1	IG= 5	G=	IG= 5	G=	IG= 5	G=	IG= 5	G=
B1+D2+Hp+A1	IG= 5	G=	IG= 3	G=10+6	IG= 2	G=	IG= 5	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow Calculations: AM Peak Flow (pcu/hr)	AM Peak Flow Calculations: Proportion turning (%) f	AM Peak Flow Calculations: Saturation flow (pcu/hr)	AM Peak Flow Calculations: y value	PM Peak Flow Calculations: PM Peak Flow (pcu/hr)	PM Peak Flow Calculations: Proportion turning (%) f	PM Peak Flow Calculations: Saturation flow (pcu/hr)	PM Peak Flow Calculations: y value
Nam Long Shan Road NB														
A1	4	3.50	Y	N	6.0	0.0	455	2%	1954	0.233	460	2%	1954	0.235
A2	4	3.50	N	N	12.0	0.0	479	19%	2057	0.233	481	23%	2047	0.235
Heung Yip Road EB														
B1	1	4.00	Y	N	9.0	0.0	200	95%	1740	0.115	20	50%	1860	0.011
Nam Long Shan Road SB														
C1	3	3.50	Y	N	6.0	0.0	10	100%	1572	0.006	10	100%	1572	0.006
C2	3	3.50	N	N	0.0	0.0	120	0%	2105	0.057	90	0%	2105	0.043
Heung Yip Road WB														
D1	1,2	3.25	Y	N	0.0	0.0	10	0%	1940	0.005	10	0%	1940	0.005
D2	2	3.25	N	N	9.0	0.0	140	100%	1783	0.079	140	100%	1783	0.079
Ep	3,4		5GM	+ 6FG	= 11s									
Fp	2		5GM	+ 5FG	= 10s									
Gp	1,2		10GM	+ 9FG	= 19s									
Hp	3		10GM	+ 6FG	= 16s									

Capacity Calculation	AM Peak: B1+D2+Hp+A1	AM Peak: B1+D2+C2+A1	PM Peak: B1+D2+H+A1	PM Peak: B1+D2+C2+A1
Sum of Critical y Values - Y	0.426	0.483	0.324	0.367
Lost Time - L	28	16	28	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.648	0.756	0.648	0.756
Reserve Capacity - RC (%)	52%	56%	100%	106%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

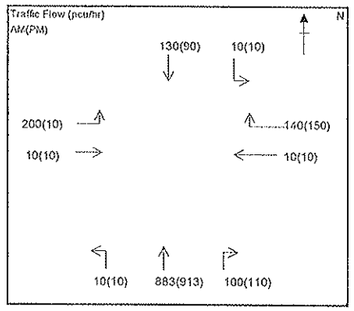
Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

Design Year: 2022

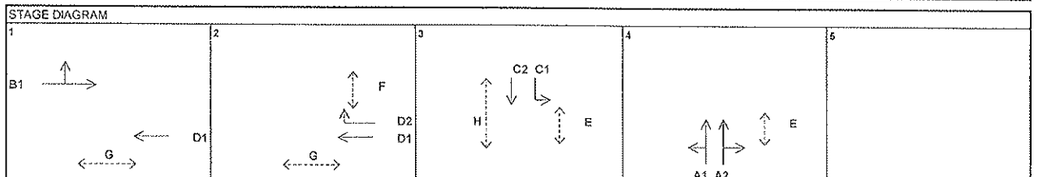
Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+Fp+Hp+A1	IG= 3+2	Fp=5+5	IG= 2	Hp=10+6	IG= 2+2	G=	IG= 5	G=
B1+D2+C2+A1	IG= 5	G=	IG= 5	G=	IG= 5	G=	IG= 5	G=
B1+D2+Hp+A1	IG= 5	G=	IG= 3	G=10+6	IG= 2	G=	IG= 5	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	4	3.50	Y	N	6.0	0.0	484	2%	1955	0.248	504	2%	1955	0.258
A2	4	3.50	N	N	12.0	0.0	509	20%	2055	0.248	529	21%	2052	0.258
Heung Yip Road EB														
B1	1	4.00	Y	N	9.0	0.0	210	95%	1739	0.121	20	50%	1860	0.011
Nam Long Shan Road SB														
C1	3	3.50	Y	N	6.0	0.0	10	100%	1572	0.006	10	100%	1572	0.006
C2	3	3.50	N	N	0.0	0.0	130	0%	2105	0.062	90	0%	2105	0.043
Heung Yip Road WB														
D1	1,2	3.25	Y	N	0.0	0.0	10	0%	1940	0.005	10	0%	1940	0.005
D2	2	3.25	N	N	9.0	0.0	140	100%	1783	0.079	150	100%	1783	0.084
Ep	3,4		5GM	+ 6FG	= 11s									
Fp	2		5GM	+ 5FG	= 10s									
Gp	1,2		10GM	+ 9FG	= 19s									
Hp	3		10GM	+ 6FG	= 16s									

Capacity Calculation	AM Peak		PM Peak	
	B1+D2+Hp+A1	B1+D2+C2+A1	B1+D2+H+A1	B1+D2+C2+A1
Sum of Critical y Values - Y	0.447	0.509	0.353	0.395
Lost Time - L	28	16	28	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.648	0.756	0.648	0.756
Reserve Capacity - RC (%)	45%	49%	84%	91%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

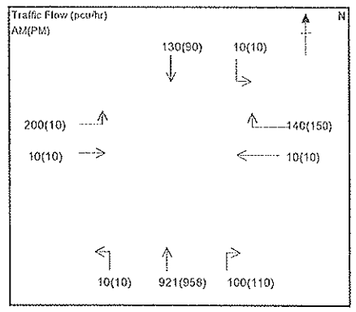
Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

Design Year: 2022

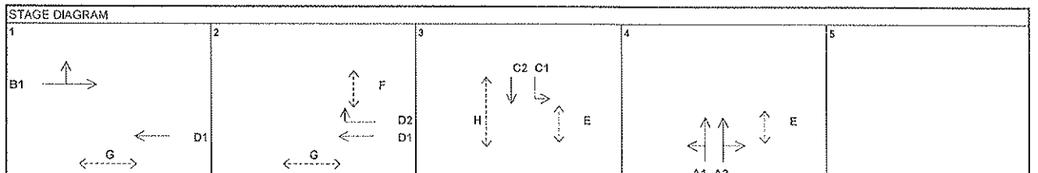
Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: JC

Checked by: JY



STAGE DIAGRAM



B1+Fp+Hp+A1	IG= 3+2	Fp=5+5	IG= 2	Hp=10+6	IG= 2+2	G=	IG= 5	G=
B1+D2+C2+A1	IG= 5	G=	IG= 5	G=	IG= 5	G=	IG= 5	G=
B1+D2+Hp+A1	IG= 5	G=	IG= 3	G=10+6	IG= 2	G=	IG= 5	G=

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Nam Long Shan Road NB														
A1	4	3.50	Y	N	6.0	0.0	503	2%	1955	0.257	526	2%	1956	0.269
A2	4	3.50	N	N	12.0	0.0	528	19%	2056	0.257	552	20%	2054	0.269
Heung Yip Road EB														
B1	1	4.00	Y	N	9.0	0.0	210	95%	1739	0.121	20	50%	1860	0.011
Nam Long Shan Road SB														
C1	3	3.50	Y	N	6.0	0.0	10	100%	1572	0.006	10	100%	1572	0.006
C2	3	3.50	N	N	0.0	0.0	130	0%	2105	0.062	90	0%	2105	0.043
Heung Yip Road WB														
D1	1,2	3.25	Y	N	0.0	0.0	10	0%	1940	0.005	10	0%	1940	0.005
D2	2	3.25	N	N	9.0	0.0	140	100%	1783	0.079	150	100%	1783	0.084
Ep	3,4		5GM	+ 6FG	= 11s									
Fp	2		5GM	+ 5FG	= 10s									
Gp	1,2		10GM	+ 9FG	= 19s									
Hp	3		10GM	+ 6FG	= 16s									

Capacity Calculation	AM Peak		PM Peak	
	B1+D2+Hp+A1	B1+D2+C2+A1	B1+D2+H+A1	B1+D2+C2+A1
Sum of Critical y Values - Y	0.456	0.518	0.364	0.407
Lost Time - L	28	16	28	16
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.648	0.756	0.648	0.756
Reserve Capacity - RC (%)	42%	46%	78%	86%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J2 - Heung Yip Road/ Nam Long Shan Road (W15)

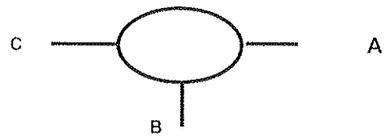
ATKINS CHINA LIMITED

Simplified Roundabout Capacity Calculation

ATKINS

Job Title:	Ocean Park Hotel Development Feasibility Study		
Junction:	J3 - Ocean Park Road / Heung Yip Road Roundabout	Designed by:	JC
Scheme:	Observed Flows	Checked by:	JY
Design Year: 2006	Job No.: 4074	Date :	1/25/2007

ARM A: Heung Yip Road
ARM B: Ocean Park Road (to WCH Rd)
ARM C: Ocean Park Road (to Main Entrance)



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.50	8.00	25	12	37	15	0.16
B	11.00	12.50	20	33	37	17.5	0.12
C	5.50	11.00	27.5	100	37	15	0.32

AM FLOWS

from/to	A	B	C	Circ	Entry
A	11	216	29	304	256
B	1024	302	217	42	1543
C	63	0	2	1337	65

Flow in pcu/hr

PM FLOWS

from/to	A	B	C	Circ	Entry
A	4	212	85	386	301
B	990	318	137	98	1445
C	141	59	9	1312	209

Flow in pcu/hr

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	RFC AM	RFC PM
A	1.02	7.39	0.10	2240	1.45	0.76	2049	1986	0.12	0.15
B	1.06	12.21	0.10	3700	1.45	1.05	3884	3822	0.40	0.38
C	1.09	8.85	0.10	2683	1.45	0.85	1693	1716	0.04	0.12

Crtical Arm:	B	B
RFC:	**0.40**	**0.38**

- In accordance with TPDM V2.4

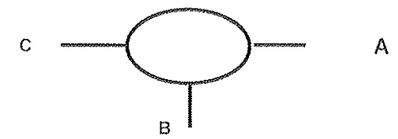
APPENDIX 6A

Simplified Roundabout Capacity Calculation

ATKINS

Job Title:	Ocean Park Hotel Development Feasibility Study		
Junction:	J3 - Ocean Park Road / Heung Yip Road Roundabout	Designed by:	JC
Scheme:	Reference (Redevelopment+ No Hotel+ No SIL)	Checked by:	JY
Design Year: 2011	Job No.: 4074	Date :	1/25/2007

ARM A: Heung Yip Road
ARM B: Ocean Park Road (to WCH Rd)
ARM C: Ocean Park Road (to Main Entrance)



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.50	8.00	25	12	37	15	0.16
B	11.00	12.50	20	33	37	17.5	0.12
C	5.50	11.00	27.5	100	37	15	0.32

AM FLOWS

from/to	A	B	C	Circ	Entry
A	10	90	100	118	200
B	1013	40	8	120	1061
C	10	68	10	1063	88

Flow in pcu/hr

PM FLOWS

from/to	A	B	C	Circ	Entry
A	10	50	120	1241	180
B	953	70	221	140	1244
C	30	1161	10	1033	1201

Flow in pcu/hr

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	RFC AM	RFC PM
A	1.02	7.39	0.10	2240	1.45	0.76	2193	1326	0.09	0.14
B	1.06	12.21	0.10	3700	1.45	1.05	3797	3775	0.28	0.33
C	1.09	8.85	0.10	2683	1.45	0.85	1946	1973	0.05	0.61

Crtical Arm:	B	C
RFC:	**0.28**	**0.61**

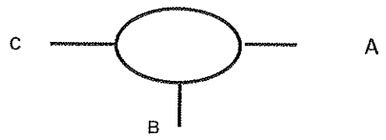
- In accordance with TPDM V2.4

Simplified Roundabout Capacity Calculation

ATKINS

Job Title:	Ocean Park Hotel Development Feasibility Study		
Junction:	J3 - Ocean Park Road / Heung Yip Road Roundabout	Designed by:	JC
Scheme:	Scheme (Redevelopment+ New Hotel+ No SIL)	Checked by:	JY
Design Year: 2011	Job No.: 4074	Date :	1/25/2007

ARM A: Heung Yip Road
ARM B: Ocean Park Road (to WCH Rd)
ARM C: Ocean Park Road (to Main Entrance)



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.50	8.00	25	12	37	15	0.16
B	11.00	12.50	20	33	37	17.5	0.12
C	5.50	11.00	27.5	100	37	15	0.32

AM FLOWS

from/to	A	B	C	Circ	Entry
A	10	90	100	157	200
B	1051	40	47	120	1138
C	10	107	10	1101	127

Flow in pcu/hr

PM FLOWS

from/to	A	B	C	Circ	Entry
A	10	50	120	1287	180
B	998	70	267	140	1335
C	30	1207	10	1078	1247

Flow in pcu/hr

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	RFC AM	RFC PM
A	1.02	7.39	0.10	2240	1.45	0.76	2163	1291	0.09	0.14
B	1.06	12.21	0.10	3700	1.45	1.05	3797	3775	0.30	0.35
C	1.09	8.85	0.10	2683	1.45	0.85	1911	1932	0.07	0.65

Crtical Arm:	B	C
RFC:	**0.30**	**0.65**

- In accordance with TPDM V2.4

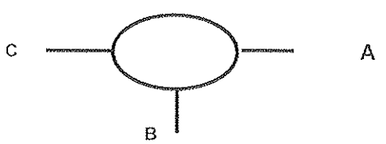
APPENDIX 6A

Simplified Roundabout Capacity Calculation

ATKINS

Job Title:	Ocean Park Hotel Development Feasibility Study		
Junction:	J3 - Ocean Park Road / Heung Yip Road Roundabout	Designed by:	JC
Scheme:	Reference (Redevelopment+ No Hotel+ No SIL)	Checked by:	JY
Design Year: 2016	Job No.: 4074	Date :	1/25/2007

ARM A: Heung Yip Road
ARM B: Ocean Park Road (to WCH Rd)
ARM C: Ocean Park Road (to Main Entrance)



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.50	8.00	25	12	37	15	0.16
B	11.00	12.50	20	33	37	17.5	0.12
C	5.50	11.00	27.5	100	37	15	0.32

AM FLOWS

from/to	A	B	C	Circ	Entry
A	10	80	100	118	190
B	963	40	558	120	1561
C	10	68	10	1013	88

Flow in pcu/hr

PM FLOWS

from/to	A	B	C	Circ	Entry
A	10	60	120	1381	190
B	973	70	231	140	1274
C	20	1301	10	1053	1331

Flow in pcu/hr

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	RFC AM	RFC PM
A	1.02	7.39	0.10	2240	1.45	0.76	2193	1218	0.09	0.16
B	1.06	12.21	0.10	3700	1.45	1.05	3797	3775	0.41	0.34
C	1.09	8.85	0.10	2683	1.45	0.85	1992	1955	0.04	0.68

Crtical Arm:	B	C
RFC:	**0.41**	**0.68**

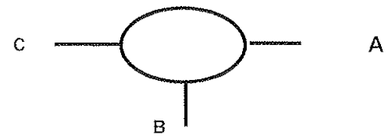
- In accordance with TPDM V2.4

Simplified Roundabout Capacity Calculation

ATKINS

Job Title:	Ocean Park Hotel Development Feasibility Study		
Junction:	J3 - Ocean Park Road / Heung Yip Road Roundabout	Designed by:	JC
Scheme:	Scheme (Redevelopment+ New Hotel+ No SIL)	Checked by:	JY
Design Year: 2016	Job No.: 4074	Date :	1/25/2007

ARM A: Heung Yip Road
ARM B: Ocean Park Road (to WCH Rd)
ARM C: Ocean Park Road (to Main Entrance)



GEOMETRY

ARM	*v*	*e*	*L*	*r*	*D*	*Phi*	*S*
A	5.50	8.00	25	12	37	15	0.16
B	11.00	12.50	20	33	37	17.5	0.12
C	5.50	11.00	27.5	100	37	15	0.32

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	10	80	100	157	190
B	1001	40	597	120	1638
C	10	107	10	1051	127

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	10	60	120	1427	190
B	1018	70	277	140	1365
C	20	1347	10	1098	1377

Flow in pcu/hr

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	RFC AM	RFC PM
A	1.02	7.39	0.10	2240	1.45	0.76	2163	1183	0.09	0.16
B	1.06	12.21	0.10	3700	1.45	1.05	3797	3775	0.43	0.36
C	1.09	8.85	0.10	2683	1.45	0.85	1957	1913	0.06	0.72

Crtical Arm:	B	C
RFC:	**0.43**	**0.72**

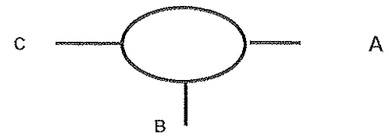
- In accordance with TPDM V2.4

Simplified Roundabout Capacity Calculation

ATKINS

Job Title:	Ocean Park Hotel Development Feasibility Study		
Junction:	J3 - Ocean Park Road / Heung Yip Road Roundabout	Designed by:	JC
Scheme:	Reference (Redevelopment+ No Hotel+ No SIL)	Checked by:	JY
Design Year: 2022	Job No.: 4074	Date :	1/25/2007

ARM A: Heung Yip Road
ARM B: Ocean Park Road (to WCH Rd)
ARM C: Ocean Park Road (to Main Entrance)



GEOMETRY

ARM	*v*	*e*	*L*	*r*	*D*	*Phi*	*S*
A	5.50	8.00	25	12	37	15	0.16
B	11.00	12.50	20	33	37	17.5	0.12
C	5.50	11.00	27.5	100	37	15	0.32

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	10	90	110	118	210
B	893	40	648	130	1581
C	10	68	10	943	88

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	10	70	130	1591	210
B	1033	70	261	150	1364
C	30	1511	10	1113	1551

Flow in pcu/hr

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	RFC AM	RFC PM
A	1.02	7.39	0.10	2240	1.45	0.76	2193	1056	0.10	0.20
B	1.06	12.21	0.10	3700	1.45	1.05	3786	3764	0.42	0.36
C	1.09	8.85	0.10	2683	1.45	0.85	2056	1899	0.04	0.82

Crtical Arm:	B	C
RFC:	**0.42**	**0.82**

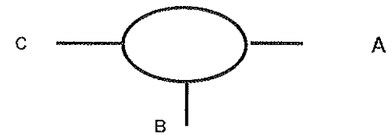
- In accordance with TPDM V2.4

Simplified Roundabout Capacity Calculation

ATKINS

Job Title:	Ocean Park Hotel Development Feasibility Study		
Junction:	J3 - Ocean Park Road / Heung Yip Road Roundabout	Designed by:	JC
Scheme:	Scheme (Redevelopment+ New Hotel+ No SIL)	Checked by:	JY
Design Year:	2022 Job No.: 4074	Date :	1/25/2007

ARM A: Heung Yip Road
ARM B: Ocean Park Road (to WCH Rd)
ARM C: Ocean Park Road (to Main Entrance)



GEOMETRY

ARM	*v*	*e*	*L*	*r*	*D*	*Phi*	*S*
A	5.50	8.00	25	12	37	15	0.16
B	11.00	12.50	20	33	37	17.5	0.12
C	5.50	11.00	27.5	100	37	15	0.32

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	10	90	110	157	210
B	931	40	687	130	1658
C	10	107	10	981	127

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	10	70	130	1637	210
B	1078	70	307	150	1455
C	30	1557	10	1158	1597

Flow in pcu/hr

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	RFC AM	RFC PM
A	1.02	7.39	0.10	2240	1.45	0.76	2163	1020	0.10	0.21
B	1.06	12.21	0.10	3700	1.45	1.05	3786	3764	0.44	0.39
C	1.09	8.85	0.10	2683	1.45	0.85	2021	1858	0.06	0.86

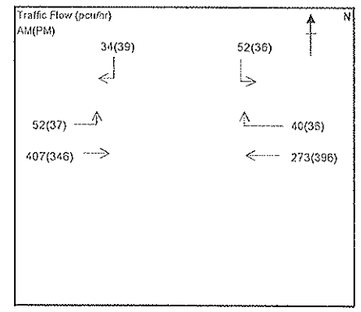
Crtical Arm:	B	C
RFC:	0.44	0.86

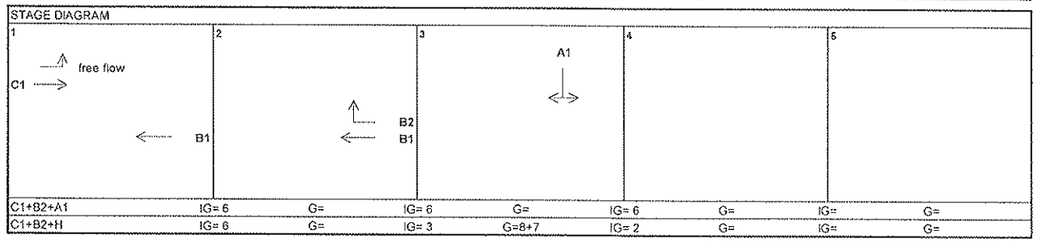
- In accordance with TPDM V2.4

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

Junction : J4 - Ocean Park Road/ Hospital Access Road
Design Year: 2006
Scheme : Observed Flows
Designed by: YKC
Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) *w*	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Flow (pcu/hr)	AM Proportion turning (%) *f*	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) *f*	PM Saturation flow (pcu/hr)	PM y value
Hospital Access Road SB														
A1	3	3.50	N	N	10.0	0.0	88	100%	1830	0.047	75	100%	1830	0.041
Ocean Park Road WB														
B1	1,2	3.30	N	N	0.0	0.0	273	0%	2085	0.131	396	0%	2085	0.190
B2	2	3.50	N	N	10.0	0.0	40	100%	1830	0.022	36	100%	1830	0.020
Wong Chuk Hang Road EB														
C1	1	3.50	N	N	0.0	0.0	407	0%	2105	0.193	346	0%	2105	0.164
E	1,2		5GM	+ 7FG	= 12s									
F	3,1		7GM	+ 7FG	= 14s									
G	2,3		10GM	+ 8FG	= 18s									
H	3		8GM	+ 7FG	= 15s									

Capacity Calculation	AM Peak C1+B2+H	AM Peak C1+B2+A1	PM Peak C1+B2+H	PM Peak C1+B2+A1
Sum of Critical y Values - Y	0.215	0.262	0.184	0.225
Lost Time - L	24	15	24	15
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.684	0.765	0.684	0.765
Reserve Capacity - RC (%)	218%	192%	272%	240%

Remark:

Date : 25/Jan/07 Junction : J4 - Ocean Park Road/ Hospital Access Road

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

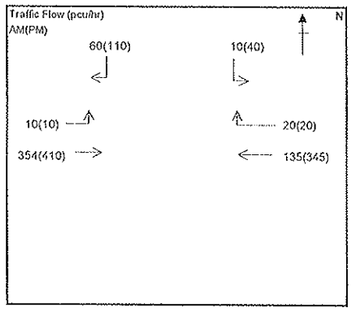
Junction : J4 - Ocean Park Road/ Hospital Access Road

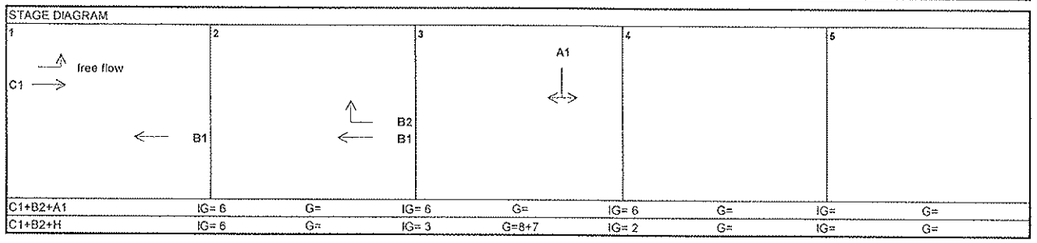
Design Year: 2011

Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: YKC

Checked by: JY





C1+B2+A1	IG= 6	G=	IG= 6	G=	IG= 6	G=	IG=	G=		
C1+B2+H	IG= 6	G=	IG= 3	G=8+7	IG= 2	G=	IG=	G=		

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value	PM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value
Hospital Access Road SB														
A1	3	3.50	N	N	10.0	0.0	70	100%	1830	0.038	150	100%	1830	0.082
Ocean Park Road WB														
B1	1,2	3.30	N	N	0.0	0.0	135	0%	2085	0.065	345	0%	2085	0.165
B2	2	3.50	N	N	10.0	0.0	20	100%	1830	0.011	20	100%	1830	0.011
Wong Chuk Hang Road EB														
C1	1	3.50	N	N	0.0	0.0	354	0%	2105	0.168	410	0%	2105	0.195
E	1,2		5GM	+ 7FG	= 12s									
F	3,1		7GM	+ 7FG	= 14s									
G	2,3		10GM	+ 8FG	= 18s									
H	3		8GM	+ 7FG	= 15s									

Capacity Calculation	AM Peak C1+B2+H	AM Peak C1+B2+A1	PM Peak C1+B2+H	PM Peak C1+B2+A1
Sum of Critical y Values - Y	0.179	0.217	0.206	0.288
Lost Time - L	24	15	24	15
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.684	0.765	0.684	0.765
Reserve Capacity - RC (%)	282%	252%	233%	166%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J4 - Ocean Park Road/ Hospital Access Road

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

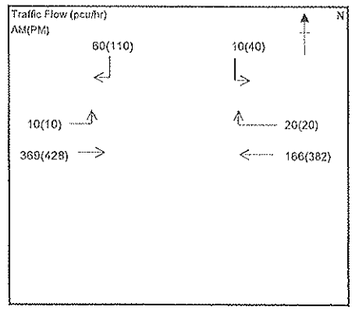
Junction : J4 - Ocean Park Road/ Hospital Access Road

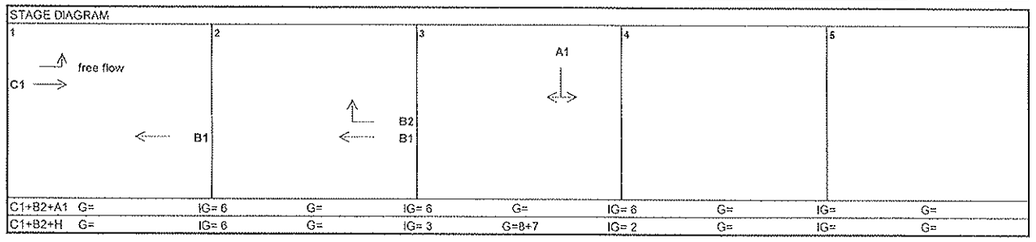
Design Year: 2011

Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: YKC

Checked by: JY





C1+B2+A1	G=	IG= 6	G=	IG= 6	G=	IG= 6	G=	IG=	G=	
C1+B2+H	G=	IG= 6	G=	IG= 3	G=8+7	IG= 2	G=	IG=	G=	

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value	PM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value
Hospital Access Road SB														
A1	3	3.50	N	N	10.0	0.0	70	100%	1830	0.038	150	100%	1830	0.082
Ocean Park Road WB														
B1	1,2	3.30	N	N	0.0	0.0	166	0%	2085	0.080	382	0%	2085	0.183
B2	2	3.50	N	N	10.0	0.0	20	100%	1830	0.011	20	100%	1830	0.011
Wong Chuk Hang Road EB														
C1	1	3.50	N	N	0.0	0.0	369	0%	2105	0.175	428	0%	2105	0.203
E	1,2		5GM	+ 7FG	= 12s									
F	3,1		7GM	+ 7FG	= 14s									
G	2,3		10GM	+ 8FG	= 18s									
H	3		8GM	+ 7FG	= 15s									

Capacity Calculation	AM Peak C1+B2+H	AM Peak C1+B2+A1	PM Peak C1+B2+H	PM Peak C1+B2+A1
Sum of Critical y Values - Y	0.186	0.224	0.214	0.296
Lost Time - L	24	15	24	15
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.684	0.765	0.684	0.765
Reserve Capacity - RC (%)	267%	241%	219%	158%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J4 - Ocean Park Road/ Hospital Access Road

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

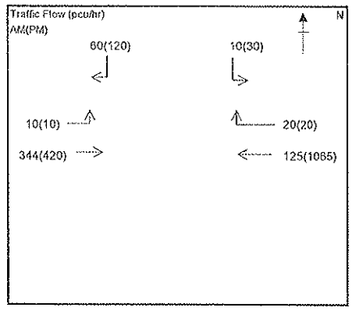
Junction : J4 - Ocean Park Road/ Hospital Access Road

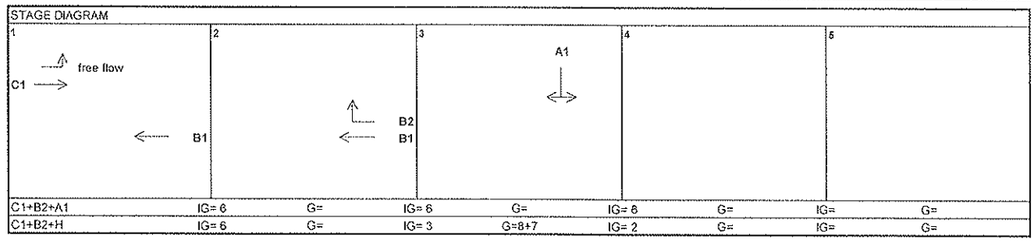
Design Year: 2016

Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: YKC

Checked by: JY





C1+B2+A1	IG= 6	G=	IG= 6	G=	IG= 6	G=	IG=	G=		
C1+B2+H	IG= 6	G=	IG= 3	G=8+7	IG= 2	G=	IG=	G=		

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value	PM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value
							AM Peak Flow Calculations				PM Peak Flow Calculations			
Hospital Access Road SB														
A1	3	3.50	N	N	10.0	0.0	70	100%	1830	0.038	150	100%	1830	0.082
Ocean Park Road WB														
B1	1,2	3.30	N	N	0.0	0.0	125	0%	2085	0.060	1065	0%	2085	0.511
B2	2	3.50	N	N	10.0	0.0	20	100%	1830	0.011	20	100%	1830	0.011
Wong Chuk Hang Road EB														
C1	1	3.50	N	N	0.0	0.0	344	0%	2105	0.163	420	0%	2105	0.200
E	1,2		5GM	+ 7FG	= 12s									
F	3,1		7GM	+ 7FG	= 14s									
G	2,3		10GM	+ 8FG	= 18s									
H	3		8GM	+ 7FG	= 15s									

Capacity Calculation	AM Peak		PM Peak	
	C1+B2+H	C1+B2+A1	B1+A1	C1+B2+A1
Sum of Critical y Values - Y	0.174	0.213	0.593	0.292
Lost Time - L	24	15	10	15
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.684	0.765	0.810	0.765
Reserve Capacity - RC (%)	292%	260%	37%	162%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J4 - Ocean Park Road/ Hospital Access Road

ATKINS CHINA LIMITED

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

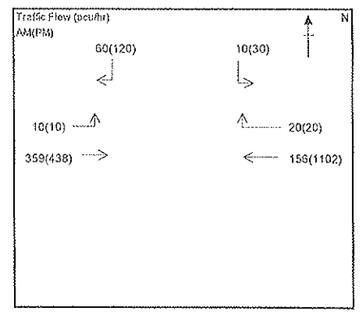
Junction : J4 - Ocean Park Road/ Hospital Access Road

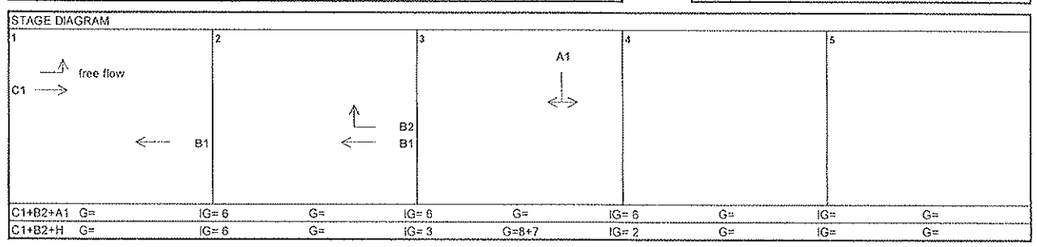
Design Year: 2016

Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: YKC

Checked by: JY





C1+B2+A1	G=	IG= 6	G=	IG= 6	G=	IG= 6	G=	IG=	G=	
C1+B2+H	G=	IG= 6	G=	IG= 3	G=8+7	IG= 2	G=	IG=	G=	

Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value	PM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value
							AM Peak Flow Calculations				PM Peak Flow Calculations			
Hospital Access Road SB														
A1	3	3.50	N	N	10.0	0.0	70	100%	1830	0.038	150	100%	1830	0.082
Ocean Park Road WB														
B1	1,2	3.30	N	N	0.0	0.0	156	0%	2085	0.075	1102	0%	2085	0.529
B2	2	3.50	N	N	10.0	0.0	20	100%	1830	0.011	20	100%	1830	0.011
Wong Chuk Hang Road EB														
C1	1	3.50	N	N	0.0	0.0	359	0%	2105	0.171	438	0%	2105	0.208
E	1,2		5GM	+ 7FG	= 12s									
F	3,1		7GM	+ 7FG	= 14s									
G	2,3		10GM	+ 8FG	= 18s									
H	3		8GM	+ 7FG	= 15s									

Capacity Calculation	AM Peak		PM Peak	
	C1+B2+H	C1+B2+A1	B1+A1	C1+B2+A1
Sum of Critical y Values - Y	0.181	0.220	0.610	0.301
Lost Time - L	24	15	10	15
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.684	0.765	0.810	0.765
Reserve Capacity - RC (%)	277%	248%	33%	154%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J4 - Ocean Park Road/ Hospital Access Road

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

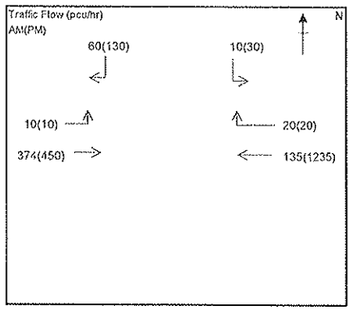
Junction : J4 - Ocean Park Road/ Hospital Access Road

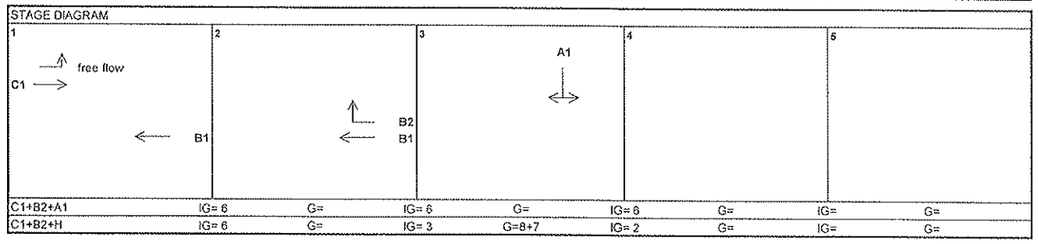
Design Year: 2022

Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: YKC

Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) t	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) t	PM Saturation flow (pcu/hr)	PM y value
Hospital Access Road SB														
A1	3	3.50	N	N	10.0	0.0	70	100%	1830	0.038	160	100%	1830	0.087
Ocean Park Road WB														
B1	1,2	3.30	N	N	0.0	0.0	135	0%	2085	0.065	1235	0%	2085	0.592
B2	2	3.50	N	N	10.0	0.0	20	100%	1830	0.011	20	100%	1830	0.011
Wong Chuk Hang Road EB														
C1	1	3.50	N	N	0.0	0.0	374	0%	2105	0.178	450	0%	2105	0.214
E	1,2		5GM	+ 7FG	= 12s									
F	3,1		7GM	+ 7FG	= 14s									
G	2,3		10GM	+ 8FG	= 18s									
H	3		8GM	+ 7FG	= 15s									

Capacity Calculation	AM Peak C1+B2+H	AM Peak C1+B2+A1	PM Peak B1+A1	PM Peak C1+B2+A1
Sum of Critical y Values - Y	0.189	0.227	0.680	0.312
Lost Time - L	24	15	10	15
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.684	0.765	0.810	0.765
Reserve Capacity - RC (%)	263%	237%	19%	145%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J4 - Ocean Park Road/ Hospital Access Road

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

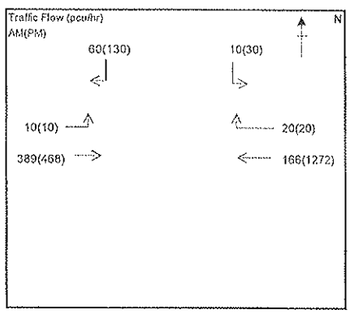
Junction : J4 - Ocean Park Road/ Hospital Access Road

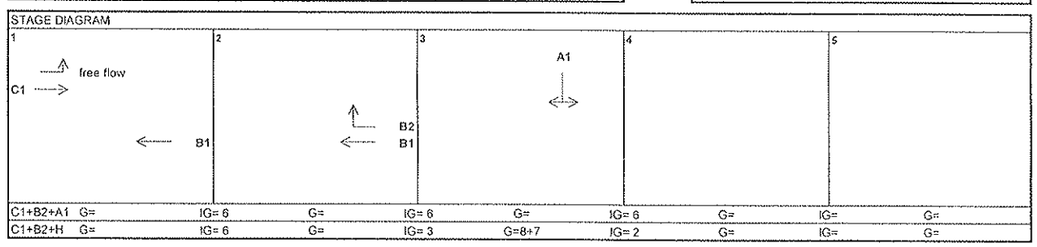
Design Year: 2022

Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: YKC

Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) t	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) t	PM Saturation flow (pcu/hr)	PM y value
Hospital Access Road SB														
A1	3	3.50	N	N	10.0	0.0	70	100%	1830	0.038	160	100%	1830	0.087
Ocean Park Road WB														
B1	1,2	3.30	N	N	0.0	0.0	166	0%	2085	0.080	1272	0%	2085	0.610
B2	2	3.50	N	N	10.0	0.0	20	100%	1830	0.011	20	100%	1830	0.011
Wong Chuk Hang Road EB														
C1	1	3.50	N	N	0.0	0.0	389	0%	2105	0.185	468	0%	2105	0.222
E	1,2		5GM	+ 7FG	= 12s									
F	3,1		7GM	+ 7FG	= 14s									
G	2,3		10GM	+ 8FG	= 18s									
H	3		8GM	+ 7FG	= 15s									

Capacity Calculation	AM Peak C1+B2+H	AM Peak C1+B2+A1	PM Peak B1+A1	PM Peak C1+B2+A1
Sum of Critical y Values - Y	0.196	0.234	0.697	0.321
Lost Time - L	24	15	10	15
Cycle Time - C	100	100	100	100
Practical Capacity - Ypr	0.684	0.765	0.810	0.765
Reserve Capacity - RC (%)	249%	227%	16%	139%

Remark: Traffic Forecast referenced from Maunsell TIA Report (June 2005)

Date : 25/Jan/07 Junction : J4 - Ocean Park Road/ Hospital Access Road

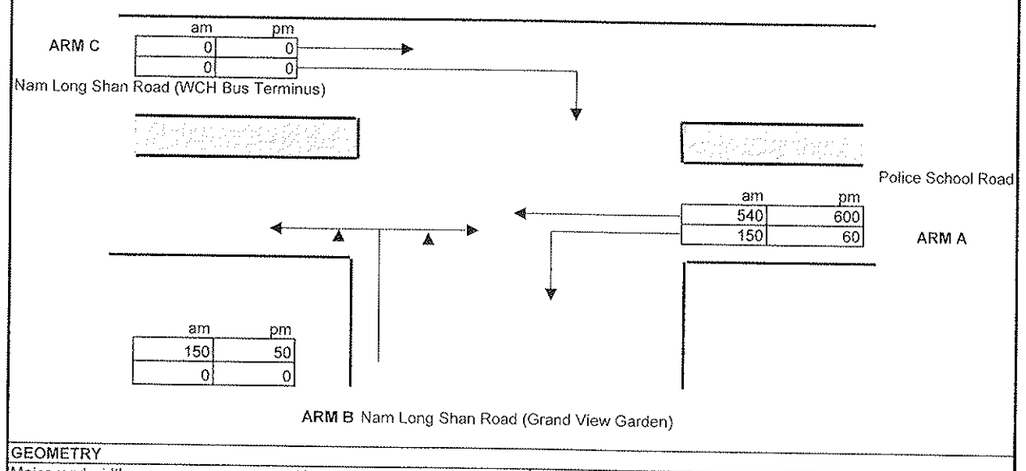
ATKINS CHINA LIMITED

Simplified Priority Junction Capacity Calculation

ATKINS

(Single Lane Minor Arm B)

Job Title:	Ocean Park Hotel Development Feasibility Study				
Junction:	J6 - Nam Long Shan Road / Police School Road			Designed by:	JC
Scheme:	Observed Flows			Checked by:	JY
Design Year:	2006	Job No.:	4074	Date :	1/25/2007
ARM A:	Police School Road				
ARM B:	Nam Long Shan Road (Grand View Garden)				
ARM C:	Nam Long Shan Road (WCH Bus Terminus)				



GEOMETRY					
Major road width	W	14.60	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	3.50
				w(c-b)	0.00
Visibilities	Vr(b-a)	80	Calculated	D	0.63
	Vl(b-a)	50		E	0.95
	Vr(b-c)	80		F	0.63
	Vr(c-b)	80		Y	0.50

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	0	0
	q(c-b)	0	0
	q(a-b)	150	60
	q(a-c)	540	600
	q(b-a)	0	0
	q(b-c)	150	50
	f	1.00	1.00
CAPACITIES	Q(b-a)	329	326
	Q(b-c)	605	601
	Q(c-b)	393	396
	Q(b-ac)	605	601
RFC's	c-b	0.000	0.000
	b-ac	0.248	0.083
RFC		0.25	0.08

Where Vl 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(Vl(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))
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)

T.P.D.M.V.2.4
Appendix 1

Capacity of combined streams

- In accordance with TPDM V2.4

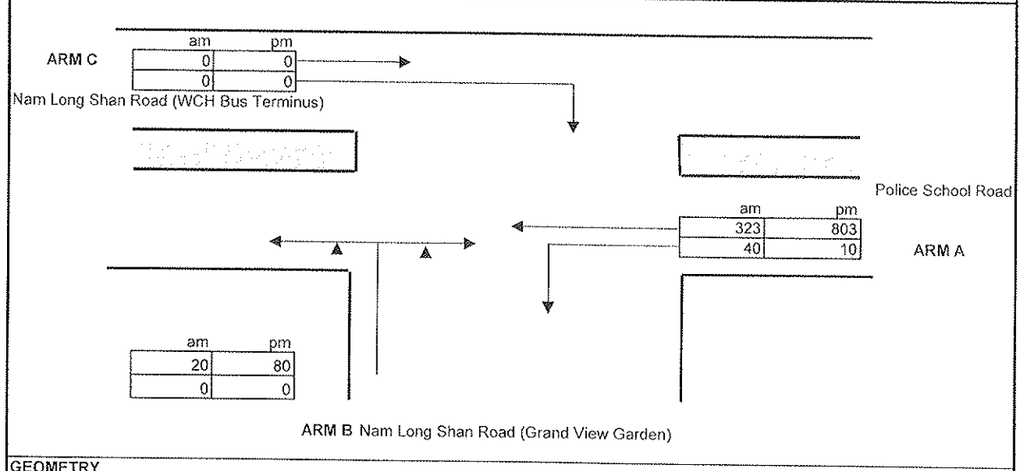
APPENDIX 6A

Simplified Priority Junction Capacity Calculation

ATKINS

(Single Lane Minor Arm B)

Job Title:	Ocean Park Hotel Development Feasibility Study				
Junction:	J6 - Nam Long Shan Road / Police School Road			Designed by:	JC
Scheme:	Reference (Redevelopment + No Hotel + No SIL)			Checked by:	JY
Design Year:	2011	Job No.:	4074	Date :	1/25/2007
ARM A:	Police School Road				
ARM B:	Nam Long Shan Road (Grand View Garden)				
ARM C:	Nam Long Shan Road (WCH Bus Terminus)				



GEOMETRY					
Major road width	W	14.60	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	3.50
				w(c-b)	0.00
Visibilities	Vr(b-a)	80	Calculated	D	0.63
	Vl(b-a)	50		E	0.95
	Vr(b-c)	80		F	0.63
	Vr(c-b)	80		Y	0.50

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	0	0
	q(c-b)	0	0
	q(a-b)	40	10
	q(a-c)	323	803
	q(b-a)	0	0
	q(b-c)	20	80
	f	1.00	1.00
CAPACITIES	Q(b-a)	359	305
	Q(b-c)	650	570
	Q(c-b)	430	379
	Q(b-ac)	650	570
RFC's	c-b	0.000	0.000
	b-ac	0.031	0.140
RFC		0.03	0.14

Where Vl 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(Vl(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))
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)

T.P.D.M.V.2.4
Appendix 1

Capacity of combined streams

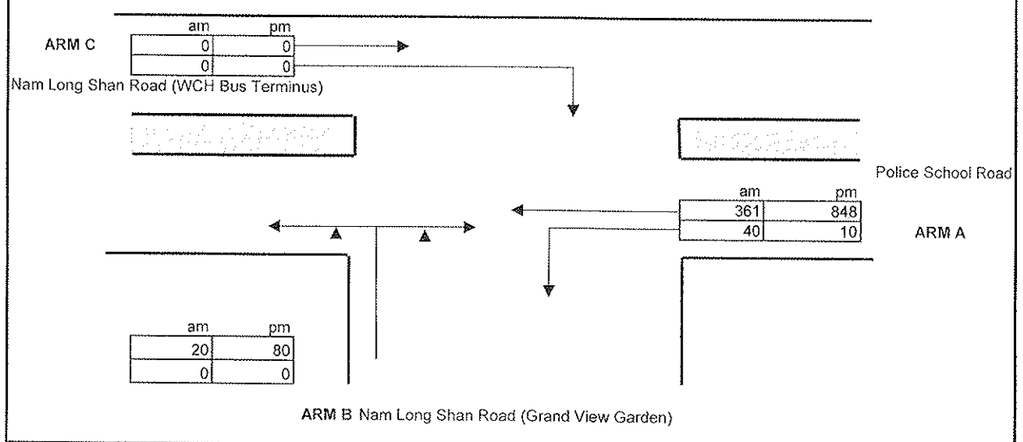
- In accordance with TPDM V2.4

Simplified Priority Junction Capacity Calculation

ATKINS

(Single Lane Minor Arm B)

Job Title:	Ocean Park Hotel Development Feasibility Study				
Junction:	J6 - Nam Long Shan Road / Police School Road			Designed by:	JC
Scheme:	Scheme (Redevelopment + New Hotel + No SIL)			Checked by:	JY
Design Year:	2011	Job No.:	4074	Date :	1/25/2007
ARM A:	Police School Road				
ARM B:	Nam Long Shan Road (Grand View Garden)				
ARM C:	Nam Long Shan Road (WCH Bus Terminus)				



GEOMETRY					
Major road width	W	14.60	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	3.50
				w(c-b)	0.00
Visibilities	Vr(b-a)	80	Calculated	D	0.63
	Vl(b-a)	50		E	0.95
	Vr(b-c)	80		F	0.63
	Vr(c-b)	80		Y	0.50

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	0	0
	q(c-b)	0	0
	q(a-b)	40	10
	q(a-c)	361	848
	q(b-a)	0	0
	q(b-c)	20	80
	f	1.00	1.00
CAPACITIES	Q(b-a)	355	300
	Q(b-c)	643	562
	Q(c-b)	426	374
	Q(b-ac)	643	562
RFC's	c-b	0.000	0.000
	b-ac	0.031	0.142
RFC		0.03	0.14

Where Vl 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(Vl(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))
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)

T.P.D.M.V.2.4
Appendix 1

Capacity of combined streams

- In accordance with TPDM V2.4

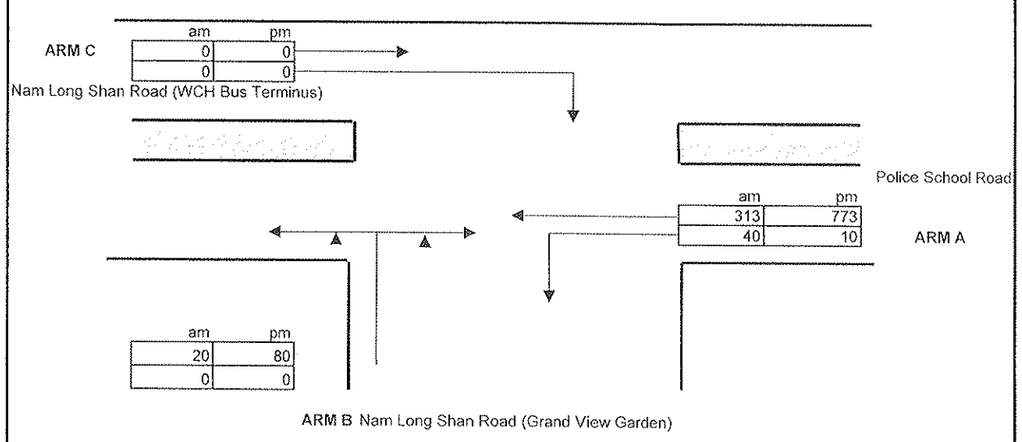
APPENDIX 6A

Simplified Priority Junction Capacity Calculation

ATKINS

(Single Lane Minor Arm B)

Job Title:	Ocean Park Hotel Development Feasibility Study				
Junction:	J6 - Nam Long Shan Road / Police School Road			Designed by:	JC
Scheme:	Reference (Redevelopment + No Hotel + No SIL)			Checked by:	JY
Design Year:	2016	Job No.:	4074	Date :	1/25/2007
ARM A:	Police School Road				
ARM B:	Nam Long Shan Road (Grand View Garden)				
ARM C:	Nam Long Shan Road (WCH Bus Terminus)				



GEOMETRY					
Major road width	W	14.60	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	3.50
				w(c-b)	0.00
Visibilities	Vr(b-a)	80	Calculated	D	0.63
	Vl(b-a)	50		E	0.95
	Vr(b-c)	80		F	0.63
	Vr(c-b)	80		Y	0.50

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	0	0
	q(c-b)	0	0
	q(a-b)	40	10
	q(a-c)	313	773
	q(b-a)	0	0
	q(b-c)	20	80
	f	1.00	1.00
CAPACITIES	Q(b-a)	360	309
	Q(b-c)	652	575
	Q(c-b)	431	382
	Q(b-ac)	652	575
RFC's	c-b	0.000	0.000
	b-ac	0.031	0.139
RFC		0.03	0.14

Where Vl 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(Vl(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))
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)

T.P.D.M.V.2.4
Appendix 1

Capacity of combined streams

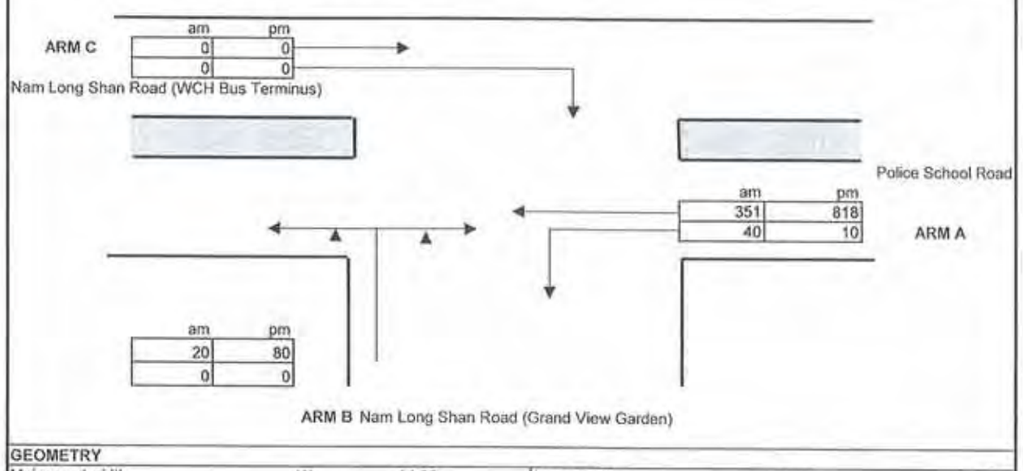
- In accordance with TPDM V2.4

Simplified Priority Junction Capacity Calculation

ATKINS

(Single Lane Minor Arm B)

Job Title:	Ocean Park Hotel Development Feasibility Study				
Junction:	J6 - Nam Long Shan Road / Police School Road			Designed by:	JC
Scheme:	Scheme (Redevelopment + New Hotel + No SIL)			Checked by:	JY
Design Year:	2016	Job No.:	4074	Date :	1/25/2007
ARM A:	Police School Road				
ARM B:	Nam Long Shan Road (Grand View Garden)				
ARM C:	Nam Long Shan Road (WCH Bus Terminus)				



GEOMETRY					
Major road width	W	14.60	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	3.50
				w(c-b)	0.00
Visibilities	Vr(b-a)	80	Calculated	D	0.63
	Vl(b-a)	50		E	0.95
	Vr(b-c)	80		F	0.63
	Vr(c-b)	80		Y	0.50

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	0	0
	q(c-b)	0	0
	q(a-b)	40	10
	q(a-c)	351	818
	q(b-a)	0	0
	q(b-c)	20	80
	f	1.00	1.00
CAPACITIES	Q(b-a)	356	304
	Q(b-c)	645	567
	Q(c-b)	427	377
	Q(b-ac)	645	567
RFC's	c-b	0.000	0.000
	b-ac	0.031	0.141
RFC		0.03	0.14

Where Vl 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(Vl(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))
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)

T.P.D.M.V.2.4
Appendix 1

Capacity of combined streams

- In accordance with TPDM V2.4

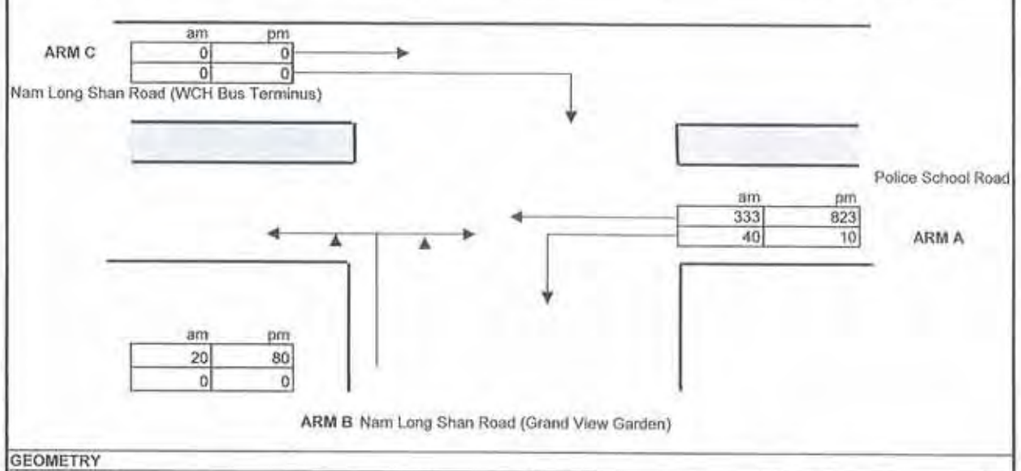
APPENDIX 6A

Simplified Priority Junction Capacity Calculation

ATKINS

(Single Lane Minor Arm B)

Job Title:	Ocean Park Hotel Development Feasibility Study				
Junction:	J6 - Nam Long Shan Road / Police School Road			Designed by:	JC
Scheme:	Reference (Redevelopment + No Hotel + No SIL)			Checked by:	JY
Design Year:	2022	Job No.:	4074	Date :	1/25/2007
ARM A:	Police School Road				
ARM B:	Nam Long Shan Road (Grand View Garden)				
ARM C:	Nam Long Shan Road (WCH Bus Terminus)				



GEOMETRY					
Major road width	W	14.60	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	3.50
				w(c-b)	0.00
Visibilities	Vr(b-a)	80	Calculated	D	0.63
	Vl(b-a)	50		E	0.95
	Vr(b-c)	80		F	0.63
	Vr(c-b)	80		Y	0.50

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	0	0
	q(c-b)	0	0
	q(a-b)	40	10
	q(a-c)	333	823
	q(b-a)	0	0
	q(b-c)	20	80
	f	1.00	1.00
CAPACITIES	Q(b-a)	358	303
	Q(b-c)	648	566
	Q(c-b)	429	376
	Q(b-ac)	648	566
RFC's	c-b	0.000	0.000
	b-ac	0.031	0.141
RFC		0.03	0.14

Where Vl 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(Vl(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))
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)

T.P.D.M.V.2.4
Appendix 1

Capacity of combined streams

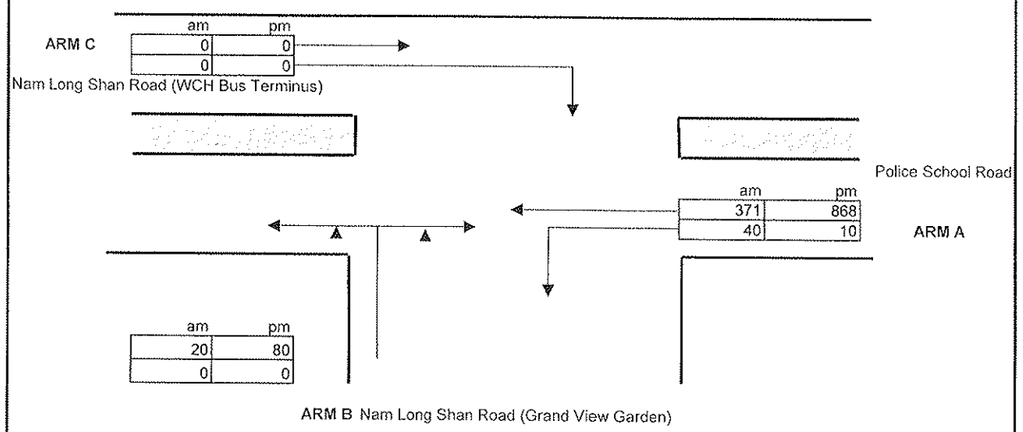
- In accordance with TPDM V2.4

Simplified Priority Junction Capacity Calculation

ATKINS

(Single Lane Minor Arm B)

Job Title:	Ocean Park Hotel Development Feasibility Study			
Junction:	J6 - Nam Long Shan Road / Police School Road		Designed by:	JC
Scheme:	Scheme (Redevelopment + New Hotel + No SIL)		Checked by:	JY
Design Year:	2022	Job No.: 4074	Date :	1/25/2007
ARM A:	Police School Road			
ARM B:	Nam Long Shan Road (Grand View Garden)			
ARM C:	Nam Long Shan Road (WCH Bus Terminus)			



GEOMETRY					
Major road width	W	14.60	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	3.50
				w(c-b)	0.00
Visibilities	Vr(b-a)	80	Calculated	D	0.63
	Vl(b-a)	50		E	0.95
	Vr(b-c)	80		F	0.63
	Vr(c-b)	80		Y	0.50

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	0	0
	q(c-b)	0	0
	q(a-b)	40	10
	q(a-c)	371	868
	q(b-a)	0	0
	q(b-c)	20	80
	f	1.00	1.00
CAPACITIES	Q(b-a)	354	298
	Q(b-c)	642	558
	Q(c-b)	425	371
	Q(b-ac)	642	558
RFC's	c-b	0.000	0.000
	b-ac	0.031	0.143
RFC		0.03	0.14

Where Vl 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(Vl(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))
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

T.P.D.M.V.2.4
Appendix 1

- In accordance with TPDM V2.4

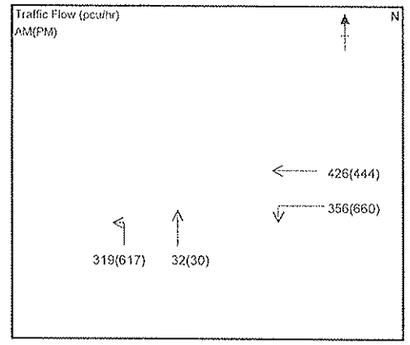
APPENDIX 6A

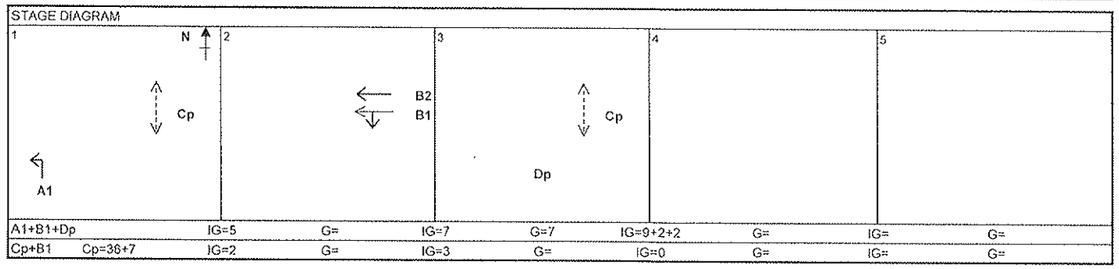
TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17) Design Year: 2006

Scheme : Observed Flows Designed by: YKC Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Shum Wan Road														
A1	1	3.75	Y	N	17.5	0.0	351	91%	1846	0.190	647	95%	1840	0.352
Nam Long Shan Road														
B1	2	3.60	Y	N	20.0	0.0	370	96%	1842	0.201	660	100%	1837	0.359
B2	2	4.40	Y	N	0.0	0.0	412	0%	2055	0.201	444	0%	2055	0.216
Cp	1,3			3GM+7FG=43										
Dp	3			7GM+9FG=16										

Capacity Calculation	AM Peak Cp+B1	AM Peak A1+B1+Dp	PM Peak Cp+B1	PM Peak A1+B1+Dp
Sum of Critical y Values - Y	0.201	0.391	0.359	0.711
Lost Time - L	47	30	47	30
Cycle Time - C	90	90	90	90
Practical Capacity - Ypr	0.430	0.600	0.430	0.600
Reserve Capacity - RC (%)	114%	54%	20%	-16%

Remark:

Date : 25-Jan-07 Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

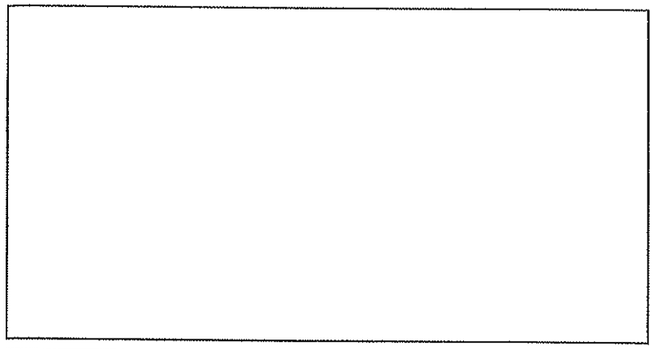
Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

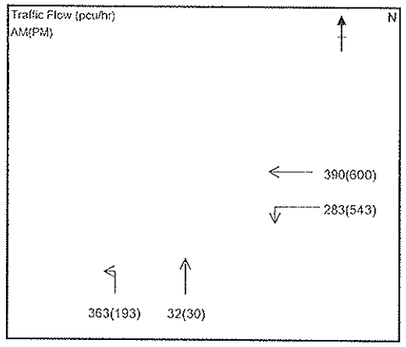
Design Year: 2011

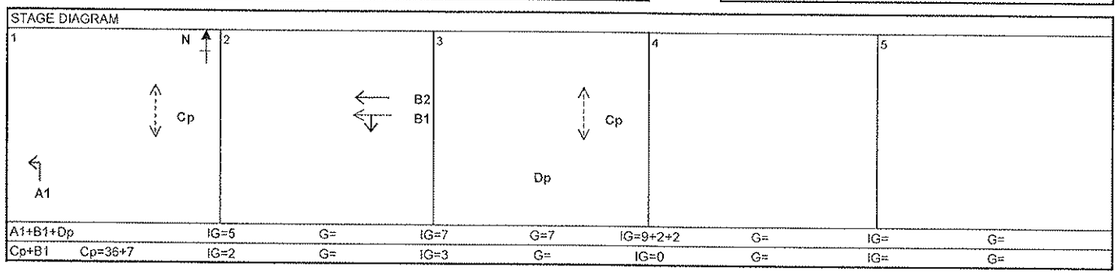
Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: YKC

Checked by: JY







Saturation Flow Calculations

Phase	Stage	Width (m) *w*	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Flow (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow (pcu/hr)	AM Peak y value	PM Peak Flow (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow (pcu/hr)	PM Peak y value
Shum Wan Road														
A1	1	3.75	Y	N	17.5	0.0	395	0%	1990	0.198	223	100%	1833	0.122
Nam Long Shan Road														
B1	2	3.60	Y	N	20.0	0.0	319	89%	1852	0.172	543	100%	1837	0.296
B2	2	4.40	Y	N	0.0	0.0	354	0%	2055	0.172	600	0%	2055	0.292
Cp	1,3			36GM+7FG=43										
Dp	3			7GM+9FG=16										

Capacity Calculation	AM Peak Cp+B1	AM Peak A1+B1+Dp	PM Peak Cp+B1	PM Peak A1+B1+Dp
Sum of Critical y Values - Y	0.172	0.371	0.296	0.417
Lost Time - L	47	30	47	30
Cycle Time - C	90	90	90	90
Practical Capacity - Ypr	0.430	0.600	0.430	0.600
Reserve Capacity - RC (%)	150%	62%	45%	44%

Remark:

Date : 25-Jan-07 Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

ATKINS CHINA LIMITED

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

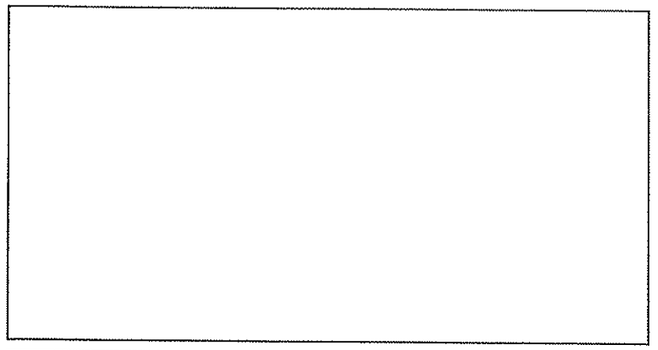
Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

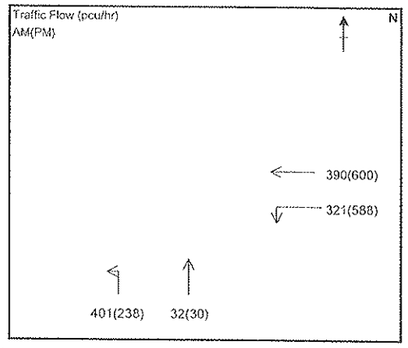
Design Year: 2011

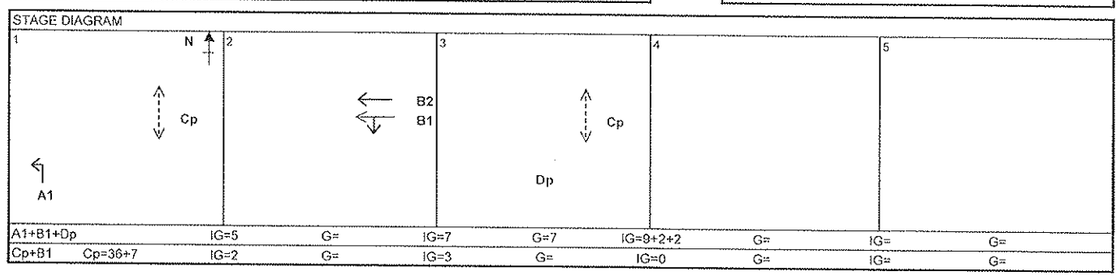
Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: YKC

Checked by: JY







Saturation Flow Calculations

Phase	Stage	Width (m) *w*	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Flow (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow (pcu/hr)	AM Peak y value	PM Peak Flow (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow (pcu/hr)	PM Peak y value
Shum Wan Road														
A1	1	3.75	Y	N	17.5	0.0	433	0%	1990	0.218	268	100%	1833	0.146
Nam Long Shan Road														
B1	2	3.60	Y	N	20.0	0.0	336	95%	1843	0.182	588	100%	1837	0.320
B2	2	4.40	Y	N	0.0	0.0	375	0%	2055	0.182	600	0%	2055	0.292
Cp	1,3			36GM+7FG=43										
Dp	3			7GM+9FG=16										

Capacity Calculation	AM Peak Cp+B1	AM Peak A1+B1+Dp	PM Peak Cp+B1	PM Peak A1+B1+Dp
Sum of Critical y Values - Y	0.182	0.400	0.320	0.466
Lost Time - L	47	30	47	30
Cycle Time - C	90	90	90	90
Practical Capacity - Ypr	0.430	0.600	0.430	0.600
Reserve Capacity - RC (%)	136%	50%	34%	29%

Remark:

Date : 25-Jan-07 Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

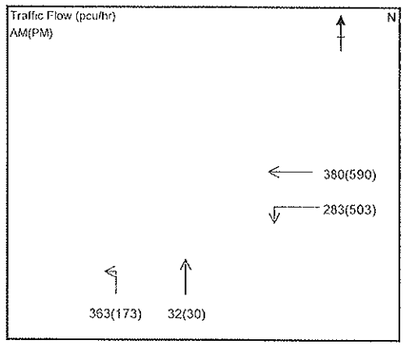
Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

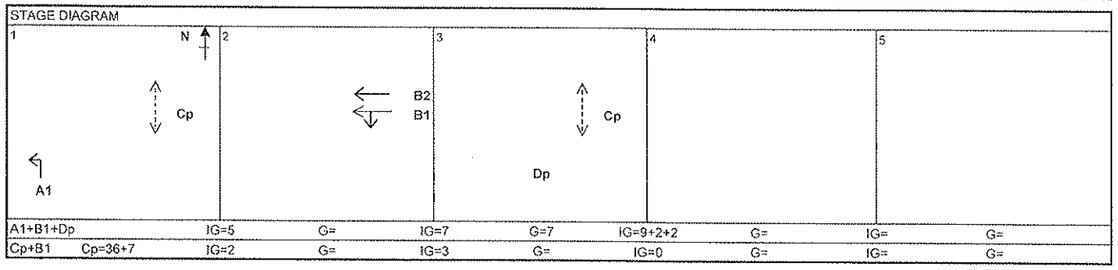
Design Year: 2016

Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: YKC

Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Shum Wan Road														
A1	1	3.75	Y	N	17.5	0.0	395	0%	1990	0.198	203	100%	1833	0.111
Nam Long Shan Road														
B1	2	3.60	Y	N	20.0	0.0	314	90%	1850	0.170	516	97%	1841	0.281
B2	2	4.40	Y	N	0.0	0.0	349	0%	2055	0.170	577	0%	2055	0.281
Cp	1,3			36GM+7FG=43										
Dp	3			7GM+9FG=16										

Capacity Calculation	AM Peak Cp+B1	AM Peak A1+B1+Dp	PM Peak Cp+B1	PM Peak A1+B1+Dp
Sum of Critical y Values - Y	0.170	0.368	0.281	0.391
Lost Time - L	47	30	47	30
Cycle Time - C	90	90	90	90
Practical Capacity - Ypr	0.430	0.600	0.430	0.600
Reserve Capacity - RC (%)	153%	63%	53%	53%

Remark:

Date : 25-Jan-07 Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

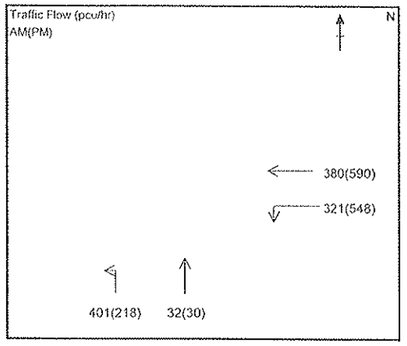
Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

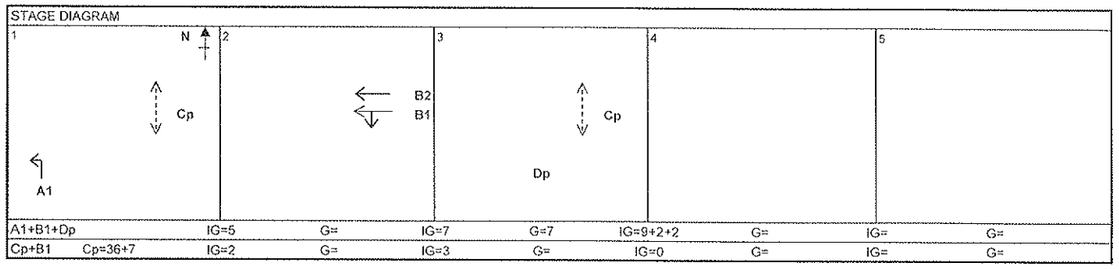
Design Year: 2016

Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: YKC

Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow (pcu/hr)	AM Proportion turning (%) f	AM Saturation flow (pcu/hr)	AM y value	PM Peak Flow (pcu/hr)	PM Proportion turning (%) f	PM Saturation flow (pcu/hr)	PM y value
Shum Wan Road														
A1	1	3.75	Y	N	17.5	0.0	433	0%	1990	0.218	248	100%	1833	0.135
Nam Long Shan Road														
B1	2	3.60	Y	N	20.0	0.0	331	97%	1841	0.180	548	100%	1837	0.298
B2	2	4.40	Y	N	0.0	0.0	370	0%	2055	0.180	590	0%	2055	0.287
Cp	1,3			36GM+7FG=43										
Dp	3			7GM+9FG=16										

Capacity Calculation	AM Peak Cp+B1	AM Peak A1+B1+Dp	PM Peak Cp+B1	PM Peak A1+B1+Dp
Sum of Critical y Values - Y	0.180	0.398	0.298	0.434
Lost Time - L	47	30	47	30
Cycle Time - C	90	90	90	90
Practical Capacity - Ypr	0.430	0.600	0.430	0.600
Reserve Capacity - RC (%)	139%	51%	44%	38%

Remark:

Date : 25-Jan-07 Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

ATKINS CHINA LIMITED

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

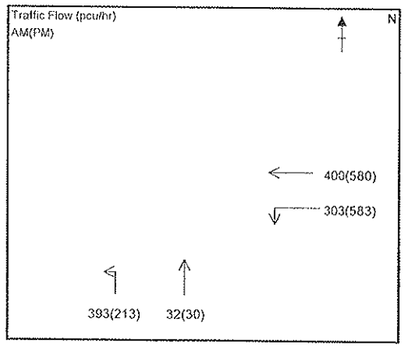
Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

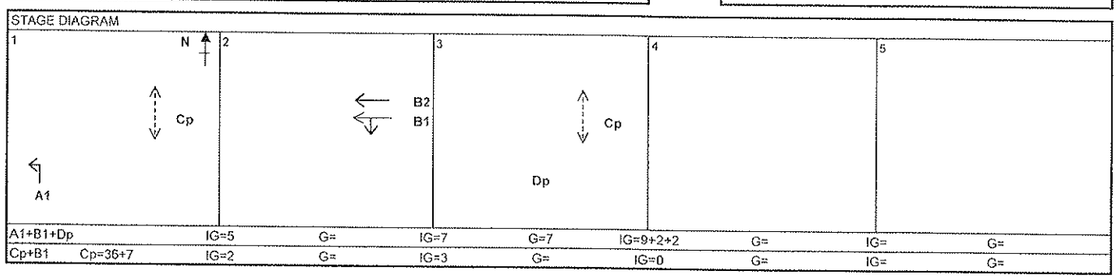
Design Year: 2022

Scheme : Reference (Redevelopment + No Hotel + No SIL)

Designed by: YKC

Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow Calculations: AM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value	PM Peak Flow Calculations: PM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value
Shum Wan Road														
A1	1	3.75	Y	N	17.5	0.0	425	0%	1990	0.214	243	100%	1833	0.133
Nam Long Shan Road														
B1	2	3.60	Y	N	20.0	0.0	333	91%	1849	0.180	583	100%	1837	0.317
B2	2	4.40	Y	N	0.0	0.0	370	0%	2055	0.180	580	0%	2055	0.282
Cp	1,3			36GM+7FG=43										
Dp	3			7GM+9FG=16										

Capacity Calculation	AM Peak Cp+B1	AM Peak A1+B1+Dp	PM Peak Cp+B1	PM Peak A1+B1+Dp
Sum of Critical y Values - Y	0.180	0.394	0.317	0.450
Lost Time - L	47	30	47	30
Cycle Time - C	90	90	90	90
Practical Capacity - Ypr	0.430	0.600	0.430	0.600
Reserve Capacity - RC (%)	139%	52%	36%	33%

Remark:

Date : 25-Jan-07 Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

APPENDIX 6A

TRAFFIC SIGNAL CALCULATION SHEET

JOB NO. : 4074

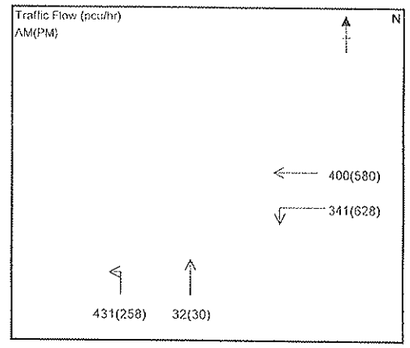
Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

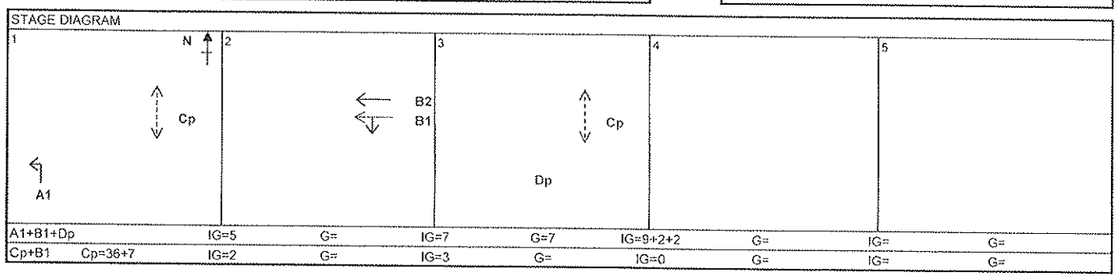
Design Year: 2022

Scheme : Scheme (Redevelopment + New Hotel + No SIL)

Designed by: YKC

Checked by: JY





Saturation Flow Calculations

Phase	Stage	Width (m) w	Nearside? (Y/N)	Opposed? (Y/N)	Radius for turning (m) r	Gradient in % g	AM Peak Flow Calculations: AM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value	PM Peak Flow Calculations: PM Peak Flow (pcu/hr)	Proportion turning (%) f	Saturation flow (pcu/hr)	y value
Shum Wan Road														
A1	1	3.75	Y	N	17.5	0.0	463	0%	1990	0.233	288	100%	1833	0.157
Nam Long Shan Road														
B1	2	3.60	Y	N	20.0	0.0	350	97%	1841	0.190	628	100%	1837	0.342
B2	2	4.40	Y	N	0.0	0.0	391	0%	2055	0.190	580	0%	2055	0.282
Cp	1,3			36GM+7FG=43										
Dp	3			7GM+9FG=16										

Capacity Calculation	AM Peak Cp+B1	AM Peak A1+B1+Dp	PM Peak Cp+B1	PM Peak A1+B1+Dp
Sum of Critical y Values - Y	0.190	0.423	0.342	0.499
Lost Time - L	47	30	47	30
Cycle Time - C	90	90	90	90
Practical Capacity - Ypr	0.430	0.600	0.430	0.600
Reserve Capacity - RC (%)	126%	42%	26%	20%

Remark:

Date : 25-Jan-07 Junction : J7 - Nam Long Shan Road / Shum Wan Road (W17)

ATKINS CHINA LIMITED