中華人民共和國香港特別行政區政府總部食物及衞生局
Food and Health Bureau, Government Secretariat
The Government of the Hong Kong Special Administrative Region
The People's Republic of China

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Ms Doris LO
Clerk to the Public Works Subcommittee
Public Works Subcommittee
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

23 May 2018

Dear Ms LO,

PWSC(2018-19)9
Provision of columbarium at Cape Collinson Road in Chai Wan and Expansion of Wo Hop Shek Crematorium

At the Public Works Subcommittee meeting on 12 May 2018, Members requested the Government to provide the traffic impact assessment (TIA) report and the TIA Review Study report completed in 2012 and 2014 respectively on the 23NB (provision of columbarium at Cape Collinson Road in Chai Wan) when discussing the captioned item. The relevant documents are at **Annex**.

Yours sincerely,

(Miss Diane WONG)
for Secretary for Food and Health

附件
Annex

Halcrow China Ltd

Traffic Impact Assessment Study for
Columbarium Development
at Cape Collinson Road, Chai Wan
Final Traffic Impact Assessment Report
May 2012

Architectural Services Department

Halcrow China Ltd

Traffic Impact Assessment Study for
Columbarium Development
at Cape Collinson Road, Chai Wan
Final Traffic Impact Assessment Report
May 2012

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Traffic Impact Assessment Study for
Columbarium Development
at Cape Collinson Road, Chai Wan
Final Traffic Impact Assessment Report
May 2012

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Contents

List of Tables

List of Figures

Appendices

VOLUME 1

Appendix A1	Hong Kong Police Force - Special Traffic Arrangements Ching Ming Festival in Chai Wan in 2011
Appendix A2	Transport Department – Special Traffic and Transport Arrangements on Hong Kong Island for Ching Ming Festival 2011
Appendix B	Site Photos showing Existing Traffic and Pedestrian Conditions
Appendix C	2016/ 2021/ 2026 Peak Hour Reference and Design Flows
Appendix D	Ching Ming Day LOS Assessment Results
Appendix E	2021 Sensitivity Test Peak Hour Traffic Flows
Appendix F	2016/ 2021/ 2026 Option 1 and 2 Special Traffic Plan Peak Hour Flows
Appendix G	2021 Sensitivity Test - LOS Assessment Results
Appendix H	2011 Passenger Queue Observations at Chai Wan MTR PTI
Appendix I	Swept Path Assessment for Bus

VOLUME 2

Appendix J1	2011 Junction Capacity Calculation Sheets
Appendix J2	2016/ 2021/ 2026 Junction Capacity Calculation Sheets
Appendix J3	2016/ 2021/ 2026 Option 1 and 2 Special Traffic Plan Junction Capacity Calculation Sheets
Appendix J4	2021 Sensitivity Test – Junction Capacity Calculation Sheets

1 Introduction

1.1 General

Halcrow China Limited (HCL) has been commissioned by Architectural Services Department (ArchSD) of the Government of the Hong Kong Special Administration Region, under Contract No. CPM301_15/10, to provide professional services for the "Traffic Impact Assessment Study for Columbarium Development at Cape Collinson Road, Chai Wan" (hereafter called "the Study").

The project proponent is Food and Environmental Hygiene Department (FEHD) while ArchSD is responsible for project management and co-ordination of the Study.

1.2 Background

In order to meet the public demand for niches, the Government has been exploring various potential sites in the territory for columbarium development. Amongst the potential sites, two sites on Cape Collinson Road have been identified for multi-storey columbarium blocks, as shown in Figure 1.1. The locations of the two sites are:

Site I – Located at Cape Collinson Road opposite Chai Wan Chinese Permanent Cemetery Columbarium (Lower Columbarium) and next to the Wan Tsui Estate Park with an area of approximately 3,800m^2. The development proposal is for the construction of a multi-storey columbarium building, comprising about 15,000 niches with ancillary facilities.

Site II – Located at the junction of Lin Shing Road / Cape Collinson Road with an area of approximately 1,730 m^2. The development proposal is for the construction of a multi-storey columbarium building, comprising about 8,000 niches with ancillary facilities.

It is proposed to develop either Site I or Site II only. The proposed development is tentatively scheduled to commence construction in 2013 for completion in 2016. The increased number of niches from this development along with other proposed columbarium developments in Chai Wan area may cause impact to existing traffic condition.

1.3 Objectives of the Study

The main objectives of this study are to:

(i) Carry out and provide a TIA study for the two developments exclusive to each other

(ii) Identify traffic impacts within the study area for the assessment years 2011, 2016, 2021 and 2026

(iii) Recommend optimum development intensity for the study area and its vicinity to accommodate for the traffic impact arising from the proposed development at the two separate sites that may influence the transport network, junction capacity, pedestrian access, and public transportation arrangement

(iv) Propose solutions to the traffic impact and problems identified in the TIA study

(v) Assess the proposed solutions taking into account the engineering feasibility, land issue and public acceptance

(vi) Achieve optimal development for the proposed sites.

1.4 Scope of the Study

The main scope of the Assignment is to conduct a thorough study to assess the traffic impact of the development proposal at Site I and Site II exclusive of each other to the adjacent road network, pedestrian access network, public transport arrangement on normal days, public holidays and special days at Ching Ming festive periods, for both construction and operation periods, and propose improvement measures to meet the anticipated demand. From past record, the vehicular and pedestrian traffic volume is the highest during Ching Ming Festival and thus taken for study. The Area of Influence for the traffic impact assessment study is also shown in Figure 1.1.

Specific scope of work includes:

(i) To obtain traffic data through traffic surveys and build a traffic model by developing a tailor-made Local Transport Model (LTM) based on the available Base District Traffic Model (BDTM) to forecast the traffic flow in the study area in order to assess the traffic requirements of the projects

(ii) Based on the loading capacity of the existing transportation system, pedestrian access and road network, assess the maximum number of niches that can be built in the vicinity of Cape Collinson Road and in

the proposed site under both scenarios with and without traffic management measures

(iii) To conduct a thorough review on the special traffic arrangement and public transport service arrangement (including bus, taxi, pick up/drop off operation) currently adopted in recent years during Ching Ming Festival within Cape Collinson Road and at the temporary / permanent public transport interchanges (PTIs) in the vicinity

(iv) To review the public transport arrangement at Chai Wan MTR Station for Ching Ming and Chung Yeung festive periods, such as the stacking of buses, passenger queuing arrangements, pick up and set down of passengers for services operating between the station, Lin Shing Road and Cape Collinson Road.

(v) To identify any need for improvement works and propose effective temporary / permanent mitigation measures to minimise the impact on local traffic in both construction and operation periods. To advise on other issues relating to road improvement works such as cost estimate, land acquisition and tree felling as well as their implications on cost and programme

(vi) To examine the feasibility of providing additional PTIs and other public transport services to meet both normal and festive demand. Outline the requirements/ strategy of public transport services such as provisions of PTIs, new shuttle bus, enhanced bus schedules and routings etc.

(vii) To explore any enhancement on pedestrian accessibility such as provisions of escalators, new pedestrian links and new roads to meet both normal and festive demand

(viii) To explore any enhancement on public accessibility such as pick up/ drop off points and car parking and loading/unloading facilities in the vicinity of the Study Area and to cater for the future operational needs.

(ix) To undertake sensitivity tests for Ching Ming Festivals and at immediate Saturdays and Sundays prior to and after Ching Ming in 2021 and recommend contingency traffic management measures.

(a) the trip generation and attraction rate assumed for all the proposed sites is underestimated by 20% during the critical days;

(b) the proposed number of niches at either site is increased by 20%; and

(c) the background traffic at the road network within the study area is underestimated by 20%.

1.5 Structure of the Report

This traffic impact assessment report contains the following chapters:

Chapter 2 Existing Conditions of the Sites;

Chapter 3 Baseline Traffic Data;

Chapter 4 Traffic Assessment;

Chapter 5 Proposed Improvement Schemes;

Chapter 6 Sensitivity Test; and

Chapter 7 Conclusions.

2 Existing Conditions of the Sites

2.1 *Site Location*

The proposed development sites, Site I and Site II, are located within the cluster of cemeteries in the Chai Wan area (Chai Wan Cemeteries) as shown in Figure 1.1. Chai Wan Cemeteries are situated in the surroundings of Cape Collinson Road, stretching from Siu Sai Wan in the east and Shek O Road to the west.

2.1.1 *Columbarium and Graves Facilities*

Chai Wan Cemeteries are composed of a number of cemeteries and columbaria managed by several different bodies. At present, FEHD manages the existing columbarium, Cape Collinson Columbarium (CCC), providing 61,615 niches in total. The Board of Management of the Chinese Permanent Cemeteries (BMCPC) also manages 22,715 coffin graves, 1,409 urn graves, 66,229 niches and 8,849 ossuaries in the area. Other cemeteries along Cape Collinson Road, including the Roman Catholic Cemetery, Muslim Cemetery and Buddhist Cemetery, currently provide a total of 10,506 coffin graves, 710 urn graves, 31,090 niches and 1,314 ossuaries.

BMCPC plans to provide additional 15,571 niches in 2011-12 and 9,990 niches in 2013. The Buddhist Cemetery also plans to provide additional 1,106 niches in 2011-12.

Taking into account the potential impact to be induced by the proposed development in Site I and Site II, Figure 1.1 also shows the Study Area for this TIA study and includes all the key roads and junctions in the vicinity of the proposed development sites.

2.2 *Existing Transport Network and Facilities*

2.2.1 *Road and Pedestrian Networks*

Figure 1.1 shows the road network in the Chai Wan district. Chai Wan, situated at the eastern part of Hong Kong Island, is connected with other parts of the territories by Island Eastern Corridor Expressway (Strategic Route No. 4). Chai Wan Road and Tai Tam Road are Primary Distributor roads for traffic between centres within Hong Kong Island and Shek O Road is a District Distributor road connecting Chai Wan and Shek O. Other Local Distributor roads within Chai Wan such as Wing Tai Road, Siu Sai Wan Road and Wan Tsui Road provide direct access from district distributor roads to buildings and land within Chai Wan district.

Chai Wan Cemeteries can be accessed from Cape Collinson Road via Lin Shing Road, from the north and Shek O Road from the west. Cape Collinson Road is a local access road connecting different parts of the Chai Wan Cemeteries. The section of Cape Collinson Road from Lin Shing Road to approximately 200 metres east of the cemetery office of Chai Wan Chinese Permanent Cemetery Columbarium (CWCPC) is a single-2 carriageway, while the section therefrom to Cape Collinson Correctional Institution is a single track access road with passing bays at intermittent locations. The western section from Lin Shing Road to the junction of slip road to Cape Collinson Crematorium is a one way road, while the section therefrom to Shek O Road is a single-2 carriageway road, and forms a priority junction with Shek O Road. Within Chai Wan Cemeteries, Cape Collinson Road also connects with the private roads, either managed or owned by third parties, and forms an internal loop road.

Footpaths are provided along both sides of the carriageway of Lin Shing Road which is the major pedestrian access route to the cemeteries. Footpaths are available only on the section of Cape Collinson Road near CWCPC for about 350-400 metres, and some other short and narrow sections near Shek O Road junction. In addition, pedestrian staircases are also provided at the hillside leading to Wan Tsui Estate Park from Cape Collinson Road.

2.2.2 *Public Transport Services*

The area is well served by public transport services. The closest MTR station to Chai Wan Cemeteries is Chai Wan Station which is the eastern terminus of the Island Line. A Public Transport Interchange (PTI) is located next to the station serving franchised bus, Green Mini Bus (GMB), taxi as well as pick up and drop off facilities. Site I and Site II are approximately 560 metres and 600 metres away (crow-fly distance) from the Chai Wan Station PTI respectively.

In addition to the PTI services, there are other bus services connecting the area with other districts. Table 2-1 shows the franchised bus and GMB routes serving the area in the vicinity of Chai Wan Cemeteries. Figure 2.1 shows the bus stops locations in the vicinity of Chai Wan Cemeteries and Table 2-2 gives the number of bus routes observing each of these bus stops.

Table 2-1: Franchised Bus and GMB Services Serving Chai Wan District

Service	Route No.	Terminating Points		Remarks
Franchised Bus	8S	Siu Sai Wan (Island Resort)	Happy Valley Race Course	Services on horse racing day only
	8X	Siu Sai Wan (Island Resort)	Happy Valley (Lower)	Daily services every 5-15 minutes
	8P	Siu Sai Wan (Island Resort)	Wan Chai Ferry	Daily express services every 4-13 minutes
	81	Chai Wan (Hing Wah Estate)	Lai Tak Tsuen	Daily services every 15-20 minutes
	81A	Hing Wah Estate	Lai Tak Tsuen	Services on school days only
	81S	Siu Sai Wan (Harmony Garden)	Braemar Hill	Services on school days only
	82	North Point Ferry Pier	Siu Sai Wan (Island Resort)	Daily services every 5-15minutes
	82M	Chai Wan Station	Siu Sai Wan (Island Resort) (Circular)	Services on weekday every 20-40 minutes; special departure during morning peak at 07:00, 07:25, 07:50, 08:15 and 08:40
	82S	Yiu Hing Road/ Siu Sai Wan (Island Resort)	Siu Sai Wan / Wai Hang Street	Services on school day mornings only
	82X	Siu Sai Wan (Island Resort)	North Point (Circular)	Daily express services every 15-20 minutes
	85	North Point Ferry Pier	Siu Sai Wan (Island Reort)	Daily services every 10-21 minutes
	106	Wong Tai Sin	Siu Sai Wan (Island Resort)	Daily services every 4-10 minutes
	314	Siu Sai Wan (Island Resort)	Stanley (Circular)	Services on Sunday and Public Holidays every 30 minutes
	388	Chai Wan MTR Station	Chai Wan Cemeteries / Cape Collinson	Services on specified day, circular
	389	Shau Kei Wan MTR Station	Chai Wan Cemeteries / Cape Collinson	Services on specified day, circular
	118	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)	Daily services every 3-13 minutes; Special Monday to Saturday morning peak departure at 08:05 and 08:20; Special express services on school days at 21:35and 21:40;
	118P	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)/ Mong Kok (Bute Street)	Monday to Saturday express morning and evening peak services
	529P	Siu Sai Wan (Island Resort)	Braemar Hill	School days only, morning & evening peak only, express
	606	Choi Wan	Siu Sai Wan (Island Resort)	Daily services every 11 to 22 minutes
	606A	Choi Wan	Siu Sai Wan (Island Resort)(morning Services)	Daily morning services every 15-20 minutes
	606P	Choi Wan	Siu Sai Wan (Island Resort)(morning Services)	Monday to Saturday services at 07:35 and 08:00
	698R	Siu Sai Wan (Island Resort)	Sai Kung (Wong Shek Pier)	Sunday and public holidays morning and evening limited services

Service	Route No.	Terminating Points		Remarks
Franchised Bus	682	Lee On	Chai Wan (East)	Daily services every 4-20 minutes
	682P	Lee On	Chai Wan (East)	Monday to Saturday morning peak express services at 07:40 and 07:55
	694	Tiu Keng Leng PTI	Siu Sai Wan	Daily express services every 15-25 minutes
	780	Chai Wan (East)	Central(Central Ferry Piers)	Daily express services every 7-20 minutes
	788	Central (Macau Ferry)	Siu Sai Wan (Island Resort)	Express
	789	Admiralty (Rodney Street)	Siu Sai Wan (Island Resort)	Express
	802	Shatin Racecourse	Siu Sai Wan (Island Resort)	Service on specified day, horse racing
	9	Shau Kei Wan	Shek O	Daily services every 6-30 minutes
	A12	Siu Sai Wan (Island Resort)	Airport (Ground Transportation Centre)	Cityflyer services daily every 20-25 minutes; Special departure during morning and evening peaks
GMB	16A(1)	Chai Wan Station	Chung Hom Kok (Circular)	Daily services from Chai Wan Station at 10:05, 12:05, 12:40, 17:15 and 19:35; from Chung Hom Kok at 10:35, 12:35, 13:05, 17:45 and 20:05
	16M(1)	Chai Wan Station	Chung Hom Kok	Daily services every 15 minutes
	16X(1)	Chai Wan Station	Stanley Beach Road	Daily services every 15 minutes
	18M(1)	Chai Wan Station	Cape Collinson (Correctional Institution)	Monday to Thursday, Saturday and Sunday from 08:15 to 18:30, every 90-120 minutes
	43M(1)	Chai Wan Station	Fung Wah Estate (Circular)	Daily service every 5-15
	66(1)	Chai Wan (Wan Tsui Road)	Aldrich Bay (Circular)	Daily service every 8-10

Remark:

(1) For locations of GMB terminus T1& T2, refer to Figure 2.1. T1 – Terminus of routes 16A, 16M, 16X, 18M & 43M. T2 – Terminus of route 66.

Table 2-2: Bus Stop/Terminus Locations and the Stopping Bus Routes

Bus Stop (1)	Location	Stopping Bus Routes (2)
T1	Chai Wan MTR Station (near Exit C)	82M, 388
T2	Sheung On Street	82, 682, 682P, 780, 82M
S1	Wan Tsui Road (Eastbound) – Outside Hing Wah Estate Phase I Shopping Centre	8S, 8X, 81, 81A, 82, 82S, 106, 118, 314, 606, 606A, 698R, 780, 802, A12
S2	Wan Tsui Road (Eastbound) – Near Youth Square	8S, 8X, 81, 81A, 82, 82S, 106, 118, 314, 606, 606A, 698R, 780, 802, A12
S3	Chai Wan Road (Eastbound) – Near Yee Tai Street	106, 118, 118P, 606, 606A, 606P, 682, 682P, 694, 698R, 802, A12
S4	Chai Wan Road (Eastbound) – Outside Walton Estate	8P, 8S, 8X, 82, 82S, 82X, 789
S5	Chai Wan Road (Eastbound) – Outside Gold Mine Building	8, 314, 529P, 780
S6	Chai Wan Road (Eastbound) – Outside Yue Wan Estate	8, 8P, 8S, 8X, 82, 82S, 82X, 106, 118, 118P, 314,529P, 606, 606A, 606P, 682, 682P, 694, 698R, 780, 789, 802, A12
S7	Chai Wan Road (Eastbound) – Near Sheung On Street	8P, 8S, 8X, 82M, 82S, 82X, 85, 106, 118, 118P, 314, 529P, 606, 606A, 606P, 682, 682P, 694, 698R, 788, 789, 802, A12
S8	Chai Wan Road (Westbound) – Outside Fu Shing Court	8P, 8X, 81S, 82, 82M, 82S, 82X, 85, 106, 106P, 118, 118P, 314, 529P, 606, 682, 694, 698R, 788, 789, A12
S9	Chai Wan Road (Westbound) – Outside Lok Hin Terrace	8, 8P, 8X, 81S, 82, 82S, 82X, 106, 106P, 118, 314, 529P, 606, 682, 694, 698R, 780, A12
S10	Chai Wan Road (Westbound) – Outside Wan Tsui Market	8, 8P, 8X, 81S, 82, 82M, 82S, 82X, 106, 106P, 118, 314, 529P, 606, 682, 694, 698R, 780, A12
S11	Wan Tsui Road (Westbound) – Outside Chak Tsui House of Wan Tsui Estate	8X, 81, 82, 82S, 106, 106P, 118, 314, 606, 682, 694, 698R, 780, A12
S12	Wan Tsui Road (Westbound) – Opposite to Cheuk Wah House of Hing Wah Estate	8X, 81, 82, 82S, 106, 106P, 118, 314, 606, 682, 694, 698R, 780, A12
S13	Lin Shing Road (Southbound) – After Wah Ha Street	388, 389
S14	Cape Collinson Road (Westbound) – Near Chinese Permanent Cemetery	388, 389
S15	Cape Collinson Road (Westbound) – Opposite to Sai Wan War Cemetery	388, 389
S16	Cape Collinson Road (Westbound) – Outside Buddhist Cemetery	388, 389
S17	Cape Collinson Road (Westbound) – Before Shek O Road	388, 389
S18	Shek O Road (Southbound) – After Cape Collinson Road	9
S19	Shek O Road (Northbound) – Opposite to Cape Collinson Road	9

Remarks:

(1) T – Bus Terminus; S – Bus Stop. For location of bus terminus/stop, refer to Figure 2.1.

(2) Overnight bus routes are not included in the table.

3 Baseline Traffic Data

3.1 Traffic and Pedestrian Survey Schedule

3.1.1 Traffic Surveys

In order to reveal the traffic conditions in the area particularly during Ching Ming Festival Period, traffic and pedestrian count surveys were undertaken at key locations within the study area. Table 3-1 presents details of the traffic and pedestrian surveys schedule.

Table 3-1: Traffic and Pedestrian Survey Schedule

Survey Date	Traffic Survey	Pedestrian Survey
8 March 2011, Tuesday	0730-0930; 1700-1900	0730-0930; 1700-1900
2 April 2011, Saturday	0700-1800	0700-1800
3 April 2011, Sunday	0700-1800	0700-1800
5 April 2011, Tuesday (Ching Ming)	0700-1800	0700-1800
9 April 2011, Saturday	0700-1800	0700-1800
10 April 2011, Sunday	0700-1800	0700-1800

3.1.2 Traffic Count Surveys

Manual classified count surveys were undertaken at the key junctions in the Study Area as described in Table 3-2 and the junction locations are shown in Figure 3.1.

Vehicular turning movements were recorded in 15-minute intervals under the following classifications:

- Private Car, Taxi and Passenger Van;
- Public Light Bus, including GMB and RMB;
- Medium Goods Vehicle;
- Heavy Goods Vehicle;
- Bus and Coach.

Table 3-2: Traffic Count Survey Locations

Jn No.	Junction Type	Location
J1	Priority	Cape Collinson Road and Lin Shing Road
J2	Signal	Wan Tsui Road and Lin Shing Road
J3	Priority	Cape Collinson Road and Shek O Road
J4	Roundabout	Chai Wan Road and Island Eastern Corridor
J5	Signal	Chai Wan Road, Wing Tai Road and Siu Sai Wan Road
J6	Signal	Siu Sai Wan Road and Harmony Road (SW)
J7	Signal	Siu Sai Wan Road and Harmony Road (NE)
J8	Signal	Chai Wan Road and Tai Tam Road
J9	Priority	Chai Wan Road and Wan Tsui Road

3.1.3 *Pedestrians Count Surveys*

In order to establish a comprehensive inventory of visiting patterns to the proposed development sites, pedestrian count surveys were conducted across the main pedestrian routes to/from Chai Wan Cemeteries and the survey locations are shown in Figure 3.1 and Figure 3.2 and described in Table 3-3. Total numbers of pedestrian flows along the footpaths were recorded in 5-minute interval throughout the survey period. Total numbers of queuing passengers at the bus-stops in both Chai Wan MTR Station and Shau Kei Wan MTR Station PTIs, and vehicle occupancy for buses and GMBs leaving the PTIs were recorded.

Table 3-3: Pedestrian Count Survey Locations

Index	Type	Location
P1	Footpath	Cape Collinson Road and Lin Shing Road
P2	Footpath	Wan Tsui Road and Lin Shing Road
P3	Footpath	Cape Collinson Road near Shek O Road
P4	Footpath	Cape Collinson Road East near Chai Wan CPC East entrance
P5	PTI	Chai Wan MTR Station PTI
P6	PTI	Shau Kei Wan MTR Station PTI

3.2 Special Traffic Arrangements During Ching Ming Festival Period

3.2.1 Special Traffic and Transport Arrangements

In order to accommodate the heavy volume of grave sweepers during the Ching Ming Festival Period, special traffic and transport arrangements were implemented by the Hong Kong Police Force (HKPF). Details of the special traffic and transport arrangements throughout the Ching Ming Festival Period are given in Appendices A1 and A2.

Figure 3.3 (Plan A) and Figure 3.4 (Plan B) show two different traffic diversion and road closure plans being observed on the five survey days during Ching Ming period:

- 2 April 2011 (Saturday) Plan A
- 3 April 2011 (Sunday) Plan B
- 5 April 2011 (Tuesday/ Ching Ming) Plan B
- 9 April 2011 (Saturday) Plan A
- 10 April 2011 (Sunday) Plan A

3.2.2 Traffic Diversions and Road Closures

Figure 3.3 (Plan A) shows the traffic re-routing being implemented on 2 April, 9 and 10 April 2011 in which Cape Collinson Road east of Lin Shing Road was re-routed for one-way clockwise traffic for cars and taxis. General traffic was also allowed to travel along Cape Collinson Road west of Lin Shing Road leading to Shek O Road. Special franchised buses (Nos. 388, 389) and authorised GMB routes (Routes 16A, 16M, 16X, 18M) travelled on Lin Shing Road to Cape Collinson Road to Shek O Road, which was running one way in westbound direction.

The observed peak hour traffic flows on the three survey days under Plan A are given in Figures 3.11 to 3.13.

Figure 3.4 (Plan B) shows the traffic diversion and road closures implemented on Ching Ming Day (5 April) and also the Sunday preceding Ching Ming Day (3 April) due to heavy pedestrian flows. As illustrated in Figure 3.4, Plan B involved the following road closures to general traffic:

(a) Cape Collinson Road east of Lin Shing Road;

(b) the slip road leading from Cape Collinson Road to Garden of Remembrance and Crematorium, except hearses and vehicle carrying passengers to service at the Crematorium (crematorium was closed on Ching Ming Day);
(c) the slip road leading to Chai Wan Chinese Permanent Cemetery;
(d) Wan Tsui Lane
(e) Cape Collinson Road west of Lin Shing Road and Lin Shing Road were closed to all vehicular traffic except franchised buses, GMB routes 16A, 16M, 16X, 18M and hearses.

The observed peak hour traffic flows on the two survey days under Plan B are given in Figures 3.14 and 3.15.

All road closures were implemented and enforced by the HKPF with appropriate traffic management and crowd control measures within Chai Wan Cemeteries.

3.2.3 *Special Public Transport Services*

Special Public Transport Services Serving Chai Wan Cemeteries

During the Ching Ming Festival period the public transport interchange at Chai Wan MTR Station was closed to all bus services except the special bus service No. 388, GMB Nos. 16A, 16M, 16X and 18M which provide direct services between Chai Wan MTR Station and Cape Collinson Road. All other bus routes and public light bus routes were relocated to Lee Chung Street and Cheung Lee Street in order to free up the space to accommodate queuing passengers for Route No. 388. In addition to the special bus service No. 388 at Chai Wan MTR Station PTI, another special bus service, No. 389, provided direct services between Shau Kei Wan MTR Station PTI and Chai Wan Cemeteries. The PTI at Shau Kei Wan MTR Station is adjacent to Exit A of the MTR Station.

The PTI at Chai Wan MTR Station provides the main public transport services for access of Chai Wan Cemeteries, with an average headway of around 2.5 min for Route No. 388 during the peak periods of the survey days. The average headway for Route No. 389 terminating at Shau Kei Wan PTI was around 12-15 minutes over the weekends and increased to around 3-5 min on Ching Ming Day and when demand was high.

Chai Wan MTR Station Public Transport Interchange

Figure 3.5 shows the queuing arrangement for passengers waiting for No. 388 at the bus station. Directions and information for the temporary arrangement were well signed within the MTR Station and the PTI area. The current queuing arrangements for the special bus service (No. 388), GMB stands and the temporary

taxi stand within the PTI were observed on each of the five survey days; and the location of the back of the queue was recorded in 10-minutes intervals. The results are shown in the figures in Appendix H.

The longest queue for Route 388 was observed to occur on Ching Ming Day at 11:10am, the queue for sitting spots was approximately 300m long. The longest queue for standing queue was approximately 60m, which occurred at 10:20am. The PTI at Chai Wan MTR Station also serves a number of GMB stands providing services to Cape Collinson Road and a temporary taxi stand. Traffic management and crowd control were carried out by the HKPF who maximised the efficient use of space as far as practicable. Although queue lengths were long in particular during the peak periods of Ching Ming Festival period, in general, the arrangement provided sufficient queuing space to accommodate all waiting passengers even on the busiest festival day, i.e. Ching Ming Day.

Shau Kei Wan MTR Station Public Transport Interchange

A special area on the western side of the PTI was allocated for No. 389 with bus passengers queuing inside a small open space area as shown in Figure 3.6. At this PTI, there are also separate queues for standing and sitting queues for route no. 389. The longest queues were approximately 50m and 10m for sitting and standing spots respectively. In general, the space was sufficient to accommodate the waiting passenger as the number of cemetery visitors was much lower than that at Chai Wan MTR Station. It was observed that disruption to other services was minimal.

Bus stops at Cape Collinson Road/ Shek O Road Junction

Both the special bus Routes 388 and 389 were circular services providing direct connection between Cape Collinson Road with Chai Wan MTR Station PTI and Shau Kai Wan MTR Station PTI respectively. Bus stops were available only on Lin Shing Road and Cape Collinson Road serving grave sweepers visiting the area. Particular concerns were identified at the bus stops near the junction of Cape Collinson Road and Shek O Road where special queuing arrangement and crowd control had been implemented by the HKPF. Due to high intensity of activities in this area, where high volume of bus passengers and pedestrians mingled with bus traffic on road carriageways without proper footpaths or other pedestrian facilities, the situation was sometimes chaotic and difficult to manage. A number of images taken on site are given in Appendix B to show the traffic and pedestrian conditions for each particular scenario.

It is considered that improvements to provide wider footways for pedestrians and queuing spaces for bus passengers, on both Collinson Road and Shek O Road, are

required to mitigate the existing problems. Due to physical constraints, extensive slope work might be required in order to get the needed spaces.

3.3 Existing Traffic Conditions

3.3.1 Identification of Critical Traffic Conditions

All vehicle flows in the subsequent analysis are converted to passenger car unit (PCU) based on the PCU factors indicated in Table 3-4.

Table 3-4 Passenger Car Unit Conversion Factors

Vehicle Type	PCU
Private Car/Taxi/Passenger Van	1.0
Public Light Bus including GMB and RMB	1.5
Medium Good Vehicle	1.75
Heavy Goods Vehicle	2.0
Bus and Coach	3.0

Graph 3-1 and Table 3-5 present the hourly traffic flows in the Study Area on each survey day by summing up the total traffic flows recorded at all the survey junctions. As shown in the graph, comparing to other survey days, the hourly traffic flows on Ching Ming (5 April) and the preceding Sunday (3 April) were lower due to closure of Lin Shing Road and Cape Collinson Road to general traffic on these two days. Traffic flows are higher on other weekends in which Lin Shing Road and Cape Collinson Road were opened to general traffic and the most critical hour is identified to occur at 10:45-11:45 of the preceding Saturday (2 April).

Graph 3-1: 2011 Hourly Traffic Flow Profile in the Study Area

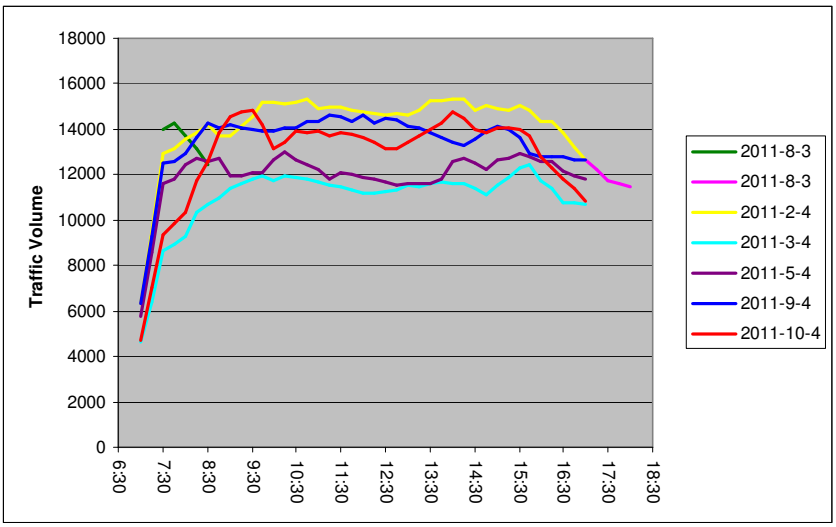


Table 3-5 2011 Total Hourly Traffic Flows and Profile

Date	8 March (Tue)		2 April (Sat)		3 April (Sun)		5 April (Tue) (Ching Ming)		9 April (Sat)		10 April (Sun)	
Hour	Flows (pcu)	%	Flows (pcu)	%	Flows (pcu)	%	Flows (pcu)	%	Flows (pcu)	%	Flows (pcu)	%
7:00	13990[(1)]	27.7%	6352	4.2%	4641	4.0%	5800	4.5%	6355	4.4%	4737	3.5%
8:00	12466[(1)]	24.6%	13610	9.1%	9304	8.0%	12446	9.7%	12932	9.0%	10319	7.6%
9:00	-	-	13722	9.1%	11364	9.7%	11976	9.3%	14237	9.9%	14556	10.7%
10:00	-	-	15201	10.1%	11757	10.1%	12662	9.9%	13925	9.7%	13121	9.6%
11:00	-	-	14910	9.9%	11681	10.0%	12241	9.5%	14329	10.0%	13934	10.2%
12:00	-	-	14785	9.8%	11146	9.5%	11861	9.3%	14592	10.2%	13646	10.0%
13:00	-	-	14627	9.7%	11501	9.8%	11625	9.1%	14166	9.9%	13441	9.9%
14:00	-	-	15342	10.2%	11634	9.9%	12556	9.8%	13438	9.4%	14775	10.9%
15:00	-	-	14917	9.9%	11563	9.9%	12652	9.9%	14120	9.8%	14081	10.3%
16:00	-	-	14368	9.6%	11749	10.0%	12582	9.8%	12799	8.9%	12816	9.4%
17:00	12668	25.0%	12633	8.4%	10672	9.1%	11845	9.2%	12662	8.8%	10805	7.9%
18:00	11462	22.7%	-	-	-	-	-	-	-	-	-	-
Total	50586	100.0%	150467	100.0%	117012	100.0%	128246	100.0%	143555	100.0%	136231	100.0%

Note: (1) The survey time for normal weekday morning is 7:30-8:30am and 8:30-9:30am.

Based on the traffic count data and on-site observations, the most critical hour in terms of vehicular traffic flows under different traffic management conditions are discussed below:

Normal Weekday - This represents the traffic condition on a normal weekday in which the special traffic arrangements described in Section 3.2 are not implemented on site. The peak hour is identified to occur at 07:45-08:45 in the morning and at 17:00-18:00 in the evening. It should be noted that the amount of traffic accessing Chai Wan Cemeteries is minimal on a normal weekday.

Festival Weekend - This represents the traffic conditions on the weekends before and after Ching Ming Festival Day in which Cape Collinson Road east of Lin Shing Road was re-routed for one-way clockwise traffic as shown in Figure 3.3. In this case, the most critical peak hour is identified to occur at 10:45-11:45 am on 2 April 2011 (Saturday).

Ching Ming Day - This represents the traffic condition where the highest level of restriction to vehicular traffic in the area was enforced, that is, implementation of road closures (a) to (e) as discussed in Paragraph 3.2.2 and illustrated in Figure 3.4. The most critical hour is identified to occur at 10:15-11:15 am on Ching Ming (5 April 2011).

3.3.2 *Traffic Analysis of Key Road Junctions*

Figures 3.7 to 3.9 show the peak hour turning flows recorded at the key junctions in the Study Area in each of the above critical days, i.e. Normal Weekday, Festival Weekend (2 April), and Ching Ming Day. Junction capacity assessments are undertaken to reveal the existing peak hour traffic conditions in the Study Area. Table 3-6 presents the results of the assessment. Detailed calculation sheets are presented in Appendix J1.

Table 3-6: 2011 Peak Hour Junction Performance on Critical Days

Jn No.	Location	Junction Type*	Weekday AM Peak	Weekday PM Peak	Weekend	Ching Ming
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.24	0.19	***0.58***	***0.32***
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	28.0%	42.7%	***-0.3%***	***37.7%***
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.29	0.23	***0.79***	***0.52***
J4	J/O Chai Wan Road and Island Eastern Corridor Roundabout	Roundabout	0.61	0.61	0.66	0.60
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	178.3%	157.0%	217.8%	282.8%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	24.1%	100.1%	41.1%	144.9%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	64.5%	103.3%	116.9%	124.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	39.1%	25.3%	48.7%	7.7%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.40	0.33	0.37	0.43

*Notes: Reserve Capacity (RC) for signal controlled junction;
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout
J1/J2/J3 are for information only (on-site manual traffic control implemented by the HKPF)

The calculation of the reserve capacities (RC) of signal controlled junctions and design flow/capacity ratio (DFC) of priority junctions and roundabout are carried out in accordance with the Transport Planning and Design Manual (TPDM) Volumes 2 and 4. A RC value of 10% or >10% for signal controlled junctions is considered within acceptable level without causing undue delay to motorists passing through the concerned junction. Likewise, a DFC value of 0.85 or <0.85 for priority and roundabout junction is considered satisfactory.

As shown in Table 3-6, all the key junctions performed satisfactorily during both the AM peak and PM peak hour on a normal weekday.

During the Ching Ming Period, special traffic arrangements had been implemented as described in Section 3.2.2 and traffic control was carried out by the HKPF at the junctions along Cape Collinson Road and Lin Shing Road, i.e. J1, J2 and J3. Hence, calculation of RC and DFC at these junctions as shown in Table 3-6 is for reference only and does not truly reflect the actual traffic condition as extensive traffic control were implemented by HKPF aimed to balance the demand of vehicular and pedestrian traffic and ensure road safety. On-site observations revealed that traffic queues were not significant and the junctions performed satisfactorily without undue delays to both vehicular and pedestrian traffic. With the exception of J8 (J/O Chai Wan Road and Tai Tam Road) on Ching Ming Day, all other key junctions in the area performed satisfactorily during the critical hours

and no traffic problems were observed. For J8, heavy right turn movements from Chai Wan Road (N) to Tai Tam Road was recorded and the junction was found to approach capacity during the peak hour on Ching Ming Day.

3.3.3 *Identification of Critical Pedestrian Conditions*

Graph 3-2 and Table 3-7 present the hourly pedestrian flows by summing up the pedestrian flows recorded at each of the count locations for P1 to P4 (Movements A to I) shown in Figure 3.10. Since the pedestrian flow on a normal weekday was extremely low with no more than 500 pedestrians during the survey periods, the data are not included in the figure and subsequent analysis. Not surprisingly, the highest daily pedestrian flows were recorded on Ching Ming Day (5 April), followed by the preceding Sunday on 3 April. In general, the highest pedestrian activities within the area occurred at late morning between 11:00-12:00.

Graph 3-2: 2011 Hourly Pedestrian Flow Profile at Count Locations

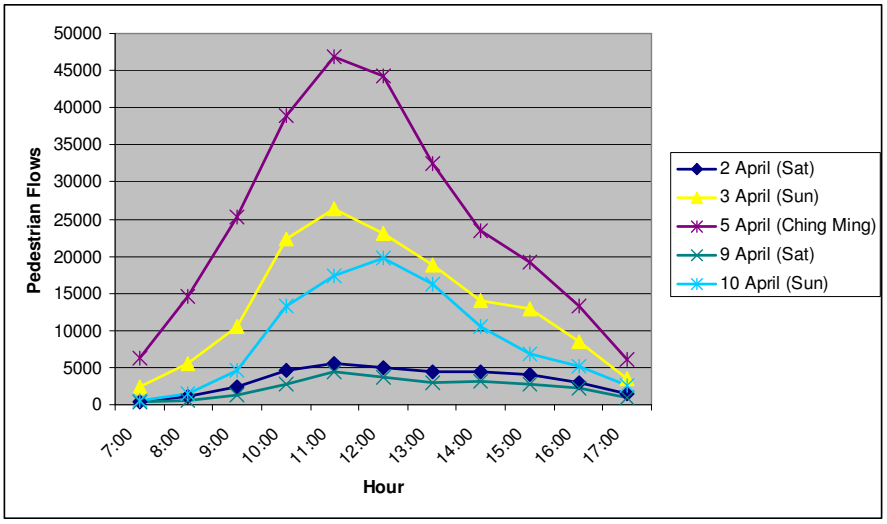


Table 3-7 2011 Total Hourly Pedestrian Flows and Profile

Date	2 April (Sat)		3 April (Sun)		5 April (Tue) (Ching Ming)		9 April (Sat)		10 April (Sun)	
Hour	Flows (No.)	%	Flows (No.)	%	Flows (No.)	%	Flows (No.)	%	Flows (No.)	%
7:00	437	1.2%	2425	1.6%	6205	2.3%	409	1.6%	484	0.5%
8:00	1019	2.8%	5602	3.8%	14609	5.4%	470	1.9%	1460	1.5%
9:00	2324	6.4%	10477	7.1%	25237	9.3%	1226	4.9%	4522	4.6%
10:00	4643	12.7%	22399	15.1%	39012	14.4%	2825	11.2%	13247	13.5%
11:00	**5583**	**15.3%**	**26487**	**17.9%**	**46784**	**17.3%**	**4461**	**17.7%**	17308	17.7%
12:00	5033	13.8%	23120	15.6%	44213	16.3%	3740	14.9%	**19737**	**20.1%**
13:00	4382	12.0%	18911	12.7%	32503	12.0%	2862	11.4%	16146	16.5%
14:00	4494	12.3%	14016	9.4%	23509	8.7%	3109	12.4%	10494	10.7%
15:00	4086	11.2%	12846	8.7%	19099	7.1%	2854	11.3%	6910	7.0%
16:00	3022	8.3%	8525	5.7%	13228	4.9%	2225	8.8%	5155	5.3%
17:00	1450	4.0%	3575	2.4%	6129	2.3%	979	3.9%	2594	2.6%
Total	36473	100%	148383	100%	270528	100%	25160	100%	98057	100%

To establish conservative assessment of pedestrian movements, pedestrian flows recorded on Ching Ming Day are adopted in the following analysis. Table 3-8 presents the hourly pedestrian flows at the critical links recorded on Ching Ming Festival Day (please refer to Figure 3.10 for the direction of movements). It is indicated that a total two-way pedestrian flows of 73,324 were recorded along the key pedestrian route for accessing and leaving Chai Wan Cemeteries, i.e. Links D and E along Lin Shing Road at P2.

Table 3-8: 2011 Ching Ming Day Hourly Pedestrian Flows at Critical Links

Route	**P1**		**P2**			**P3**		**P4**		**Total**
Link	A	B	C	D	E	F	G	H	I	
7:00	1475	252	373	1476	302	182	1176	808	161	6205
8:00	3099	1160	1183	2269	762	785	3626	1293	432	14609
9:00	4841	2005	3114	4679	1849	2118	3938	1906	787	25237
10:00	6580	4100	5213	8546	2908	2764	5307	2394	1200	39012
11:00	7373	6531	5030	7870	3468	4047	5474	4454	2537	46784
12:00	6439	7647	3601	5649	5959	5019	5078	2394	2427	44213
13:00	3775	5925	1985	2626	5689	4078	3874	1870	2681	32503
14:00	2860	3767	1647	2540	4738	2718	1946	1287	2006	23509
15:00	2396	3560	1230	1439	3599	2616	1488	966	1805	19099
16:00	846	2587	632	612	3994	1345	1110	509	1593	13228
17:00	212	1627	204	201	2149	561	245	138	792	6129
Total	39896	39161	24212	**37907**	**35417**	26233	33262	18019	16421	270528

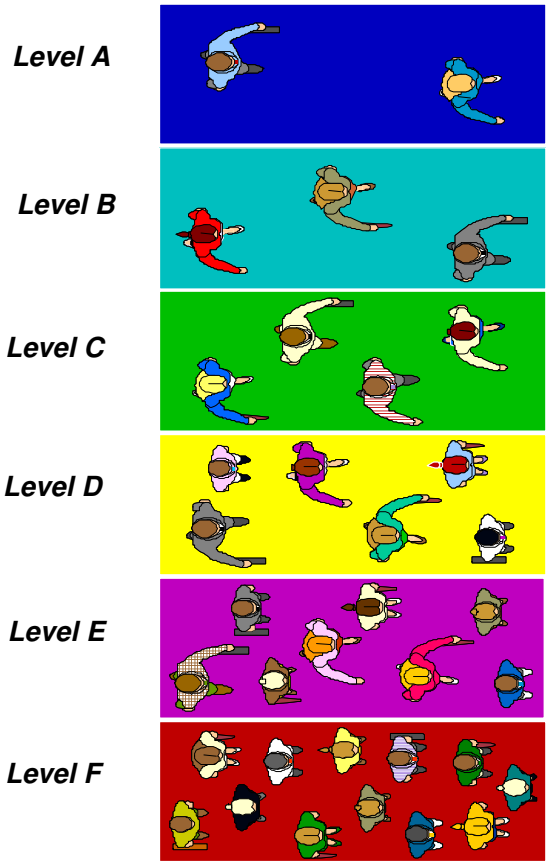
3.3.4 *Traffic Analysis of Key Pedestrian Routes*

In order to assess the performance of these critical pedestrian links, the level of service (LOS) of the links is calculated. Table 3-9 describes the definition of different level of LOS in accordance with the Highway Capacity Manual (HCM) 2000 with the respective LOS shown graphically in Graph 3-3 for easy reference. In general, LOS D is considered the minimum threshold from a comfort and safety point of view.

Table 3-9: Description of Level-of-Service (LOS)

LOS	Flow Rate (ped/min/m)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 - 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 - 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exists, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33 - 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 - 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

Graph 3-3: Graphical Presentation of LOS



The LOS at the critical links is calculated using the observed peak-5 minute pedestrian flows along the links. It is noted that the actual widths along the critical links such as D and E along Lin Shing Road are widened by the special traffic management implemented on-site. For all footpath widths, 0.5m "dead area" is deducted from the actual width to derive the effective width for the calculation. The calculations of the pedestrian LOS for Ching Ming Day at critical links for the peak 5-mins flows are shown in Table 3-10.

Table 3-10: 2011 LOS of Critical Links on Ching Ming Day

Route	Critical Links	Actual Width	Effective Width[1]	Peak 5-min Flows	ped/min/m	LOS Value
P1	A+B[2]	10.9	9.9	1620	33	C
P2	C[3]	3.0	2.5	354	-	-
	D[4]	4.5	4.0	1026	51	**E**
	E[4]	3.3	2.8	719	52	**E**
P3	F+G[5]	2.8	2.3	1322	115	**F**
P4	H+I[2]	5.9	4.9	1063	44	D

Notes: (1) Effective width = Actual width – 0.5m (one side or both sides)
(2) Carriageway without traffic being used as footway
(3) Management and crowd control by the HKPF at pedestrian crossings to control flows
(4) Footway width includes 1.0m temporary footway widening
(5) Footway at Link G only, no footway at Link F

An undesirable LOS value of E is calculated on the footpaths on both sides of Lin Shing Road, i.e. Link D and Link E at P2, which is the main pedestrian route to/from Chai Wan Cemeteries. It was observed that during the peak period on Ching Ming, a number of visitors left the cemeteries via the downhill stairways adjacent to Wan Tsui Estate, which provides a shorter alternative route to Chai Wan MTR Station and thus relieved the pressure on Lin Shing Road footpath (Link E). However, very little pedestrian flow was observed on the other direction, i.e. uphill direction.

The other main entrance to Chai Wan Cemeteries is situated at the western end of Cape Collinson Road, i.e. Links F and G at P3. A high volume of bus passengers accessed the cemeteries after alighting at the bus stops on Shek O Road. Likewise, a large amount of leaving grave sweepers either taking Routes 388 or 389 on Cape Collinson Road, or other bus services on Shek O Road. It is concerned that there is actually no footpath at Link F, instead, bus passengers were queuing along the edge of carriageway and high level of vehicular/pedestrian conflicts were observed during the peak period. A theoretical LOS value of F is calculated at Link G, along the narrow footpath adjacent to the northern kerbside of Cape Collison Road (effective width 2.3m). Due to the narrow width of the available footpath and the high intensity of conflicting vehicular and pedestrian activities in the area, observations revealed that in reality, pedestrian were found to spill over and walked along the trafficked carriageway and required high demand of management and control by the HKPF.

3.4 Optimum Development

Based on the assessment results discussed in Section 3.3, while most of the key junctions in the Study Area are performing satisfactorily during the peak periods throughout the Ching Ming Festival Period, there are great concerns with regards to pedestrian /vehicle conflicts due to extremely heavy pedestrian demand to Chai Wan Cemeteries. To maintain safe and efficient road and pedestrian networks, extensive special traffic and transport arrangements and enforcement by the HKPF are absolutely necessary. Based on the traffic conditions being observed during the Ching Ming festival period, it is considered therefore that the existing development intensity has already achieved its optimum level and further development would not be feasible without additional provisions particularly for pedestrian facilities in the area.

4 Traffic Assessment

4.1 Traffic Impact Assessment

4.1.1 Approach and Assessment Years

To accord with the Brief, the assessment years for the traffic impact assessment study are 2016, 2021 and 2026. The traffic data collected in 2011, as discussed in Chapter 3 above, and the 2008, 2016 and 2021 Base District Traffic Models (BDTM), supplied by the Transport Department, have been used in the development of the Local Transport Model (LTM).

The development of LTM for different scenarios are summarised below:

Step 1: 2011 Baseline Peak Hour Flows = 2011 observed Peak Hour flows

Step 2: 2016 Background Peak Hour Flows = 2011 Baseline Flows x BDTM growth factor (refer to Section 4.1.2)

Step 3: 2016 Reference Peak Hour Flows = 2016 Background Flows + additional flows from the Committed Developments in the Study Area (refer to Section 4.1.3)

Step 4: 2016 Design Peak Hour Flows = 2016 Reference Flows + additional development flows from Site I /Site II (refer to Section 4.1.3)

Step 5: The potential impact to be induced by Site I or Site II can be assessed by comparing Design Flows against the Reference Flows (refer to Section 4.1.5)

The traffic impact assessments are carried out for the worst case scenarios, i.e. the peak hour conditions on both Ching Ming Day and the preceding Saturday which are identified as the critical conditions from vehicular traffic point of view as indicated in Section 3.3.1. The above assessments are repeated for 2021 and 2026 but using different background growth factors from respective BDTM as detailed in the following section.

4.1.2 Background Traffic Growth

The historical trend of traffic conditions in the Study Area was reviewed based on the Annual Average Daily Traffic (AADT) from the Annual Traffic Census (ATC)

Report published by Transport Department each year. Table 4-1 shows the AADT recorded at the relevant stations in the Study Area and the percent changes from 2004 and 2009. On average, there was a reduction of traffic growth in the area over the past 5 years.

Table 4-1: 2004 – 2009 AADT from Annual Traffic Census Data

Station Number	Location	AADT						
		2004	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
1254	Chai Wan Road from Wing Tai Road to Sun Yip Street	25430	25350	25110	26160	23240	23670	24827
1256	Wing Tai Road from Chai wan Road to Wing Tai Road near Tsui Wan Estate	36130	36010	35680	37160	33170	34000	35358
1420	Chai Wan Road from Wan Tsui Road Wing Tai Road	20570	20920	20710	20870	21180	18680	20488
1446	Island Eastern Corridor from Wan Tsui Road RA to Wing Tai Road INT	17590	16390	16240	16920	16650	16640	16738
2401	Lin Shing Road from wan Tsui Road to Cape Collinson Road	2320	2400	2520	2510	2330	2490	2428
2607	Cape Collinson Road from Shek O Road to a restricted boundary	930	870	720	630	640	640	738
Station Number	**Location**	**Growth Rate (p.a.)**						
		2004	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
1254	Chai Wan Road from Wing Tai Road to Sun Yip Street	-8.6%	-0.3%	-0.9%	4.2%	-11.2%	1.9%	-1.8%
1256	Wing Tai Road from Chai wan Road to Wing Tai Road near Tsui Wan Estate	9.8%	-0.3%	-0.9%	4.1%	-10.7%	2.5%	-1.5%
1420	Chai Wan Road from Wan Tsui Road Wing Tai Road	-10.5%	1.7%	-1.0%	0.8%	1.5%	-11.8%	-2.4%
1446	Island Eastern Corridor from Wan Tsui Road RA to Wing Tai Road INT	-8.1%	-6.8%	-0.9%	4.2%	-1.6%	-0.1%	-1.4%
2401	Lin Shing Road from wan Tsui Road to Cape Collinson Road	-2.9%	3.4%	5.0%	-0.4%	-7.2%	6.9%	1.8%
2607	Cape Collinson Road from Shek O Road to a restricted boundary	2.2%	-6.5%	-17.2%	-12.5%	1.6%	0.0%	-9.0%

Reference has also been made to the relevant BDTMs for Hong Kong Island districts. It is noted that the BDTM are weekday models and hence not directly applicable to the existing case in which weekends and public holidays are identified

as the critical scenarios. The following growth rates are derived based on the link flows along the sections of Chai Wan Road and Island Eastern Corridor within the Study Area:

- 2008 – 2016 + 2.9%
- 2016 – 2021 + 2.8%

As the BDTM has already taken into account future population and employment growth in the districts as stipulated in the 2006-based Territorial Population and Employment Data Matrix (TPEDM) planning data from Planning Department, the above growth rates are considered appropriate for deriving the background traffic growth in the Study Area. Moreover, the growth rates provide more conservative estimates than the historical growth rates indicated in Table 4-1.

Since BDTM is not available for Year 2026, the same growth rate between 2016 and 2021 (i.e. +2.8%) is adopted for the period of 2021 – 2026.

4.1.3 *Existing Trip Generations by Vehicular Modes*

There are currently approximately a total of 204,437 nos. of graves/urns in Chai Wan Cemeteries. Based on the observed flows, Table 4-2 summarises the peak hour flows and associated trip generation rates by the existing development in Chai Wan Cemeteries. The existing trip generation rates will be used to estimate the additional traffic to be generated by the committed and proposed developments, also in Chai Wan Cemeteries.

Table 4-2: 2011 Peak Hour Generation Rates by Modes

	Peak Hour Traffic Flow (PCU)					
	Weekend (10:45 - 11:45, 2 April 2011)			Ching Ming Day (10:15 – 11:15, 5 April 2011)		
	In	Out	Total	In	Out	Total
Car/Taxi	543	558	1101	552	557	1109
Bus	207	174	837	198	162	360
GMB	126	134	260	92	98	190
Others	53	53	106	25	29	54
Total	929	919	2304	867	846	1713
	Peak Hour Trip Rate (PCU per 100 graves/ urn graves/ niches)					
Car/Taxi	0.266	0.273	5.39	0.270	0.272	0.542
Bus	0.101	0.085	4.10	0.097	0.079	0.176
GMB	0.062	0.065	1.27	0.045	0.048	0.093
Others	0.026	0.026	0.52	0.012	0.014	0.026
Total	0.454	0.450	0.904	0.424	0.413	0.837

Note: 2011 total number of graves/ urn graves/ niches = 204,437

4.1.4 *Traffic Generation from Committed and Proposed Developments*

In the year 2011 to 2012, an additional 15,571 niches will be built, and 9,990 thereafter in 2013 in Chai Wan Chinese Permanent Cemetery. In addition, the Buddhist Cemetery plans to provide 1,106 new niches in the year 2011 to 2012. As a result, a total of 26,667 new niches will be provided by 2013.

The peak hour traffic to be generated by the committed provisions (26,667 niches) and the proposed provision at Site I (15,000 new niches) and Site II (8,000 niches) are derived based on the existing traffic generations observed on the critical days at Chai Wan Cemeteries as shown in Table 4-2. The resulting peak hour vehicular trips to be generated by the committed or proposed developments are presented in Table 4-3. Figure 4.1 to 4.6 shows the committed development traffic (committed provisions, Site I and Site II), including the pick up and drop off activities on Wan Tsui Road, to and from Chai Wan Cemeteries during the peak hour of the critical weekend and Ching Ming Day.

As indicated in Table 4-3, it is estimated that Site I would induce 136 PCUs (two-way) during the peak hour on a critical weekend, and 126 PCUs (two-way) on Ching Ming Day. With a lower intensity for Site II, the peak hour two way flows are estimated to be 73 PCUs and 68 PCUs on a critical weekend and Ching Ming Day respectively.

Table 4-3: Peak Hour Development Traffic on Critical Days

	Mode	Peak Hour Vehicular Trips (PCU)					
		Weekend			Ching Ming Day		
		In	Out	Total	In	Out	Total
Committed Development (26,667 niches)	Car/Taxi	71	73	144	72	73	145
	Bus	27	23	50	26	21	47
	GMB	16	17	33	12	13	25
	Others	7	7	14	4	4	8
	Total	121	120	241	114	111	225
Site I (15,000 niches)	Car/Taxi	40	41	81	41	41	82
	Bus	15	13	28	15	12	27
	GMB	9	10	19	7	7	14
	Others	4	4	8	1	2	3
	Total	68	68	136	64	62	126
Site II (8,000 niches)	Car/Taxi	21	22	43	22	22	44
	Bus	8	7	15	8	6	14
	GMB	5	5	10	4	4	8
	Others	3	2	5	1	1	2
	Total	37	36	73	35	33	68

4.1.5 *Traffic Demand Forecast*

The forecast peak hour traffic demand in the study area are derived based on the steps described in Section 4.1.1 above and summarise below:

- 2016 Background Traffic = 2011 Baseline Traffic x growth rate
- 2016 Reference Traffic = 2016 Background Traffic + Committed Development traffic
- 2016 Design Traffic = 2016 Reference Traffic + Site I Traffic/Site II Traffic.

The above exercise is repeated for each assessment year (i.e. 2016, 2021 and 2026) and for each development site (i.e. Site I and Site II) exclusively. The development traffic for individual development sites are distributed with reference to the existing traffic distribution pattern in the Study Area. The resulting Reference and Design Flows for all assessment years are presented in Appendix C.

4.1.6 *Traffic Impact Assessment for Full Development of Site I or Site II*

Traffic impact assessments are undertaken by comparing the performance of the key junctions under different Design scenarios against the corresponding Reference scenarios in 2016, 2021 and 2026. By comparing the Design flows against the Reference flows (which include committed development flows), the potential traffic impact to be induced by Site I or Site II can be assessed. The assessment results for Site I and Site II are presented in Table 4-4 and Table 4-5 respectively. Detailed calculation sheets are given in Appendix J2.

As high pedestrian flows are expected throughout the Ching Ming Festival periods in the future similar to the existing situation, it is assumed that special traffic management and control by the HKPF similar to the existing situations will be maintained. Again, capacity calculations at J1, J2 and J3 are for reference only as the junctions will be managed and controlled by HKPF based on actual demand.

Table 4-4: Site I Development Peak Hour Junction Performance

Jn No.	Location	Junction Type	Reference		Site I	
			Weekend	Ching Ming	Weekend	Ching Ming
Year 2016						
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.70	0.37	0.75	0.39
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	-12.0%	19.7%	-16.4%	12.8%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.96	0.64	1.02	0.70
J4	J/O Chai Wan Road Roundabout	Roundabout	0.74	0.62	0.77	0.65
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	204.2%	269.2%	201.6%	266.7%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	36.7%	138.0%	36.7%	138.0%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	80.9%	118.4%	80.9%	118.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	40.1%	2.0%	38.1%	0.7%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.42	0.48	0.44	0.50
Year 2021						
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.72	0.38	0.76	0.40
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	-14.2%	16.8%	-18.3%	10.2%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.98	0.67	1.02	0.73
J4	J/O Chai Wan Road Roundabout	Roundabout	0.77	0.65	0.80	0.68
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	196.1%	259.2%	193.6%	256.9%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	33.0%	131.5%	33.0%	131.5%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	75.9%	112.4%	76.1%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	36.4%	**-0.7%**	33.1%	**-2.0%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.43	0.50	0.47	0.52
Year 2026						
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.74	0.39	0.79	0.41
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	-16.3%	13.9%	-20.3%	7.7%
J3	J/O Cape Collinson Road and Shek O Road	Priority	1.01	0.69	1.02	0.75
J4	J/O Chai Wan Road Roundabout	Roundabout	0.81	0.67	0.83	0.71
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	188.1%	249.5%	185.8%	247.3%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	29.4%	125.2%	29.4%	125.2%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	71.1%	106.8%	71.1%	106.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	32.7%	**-3.3%**	30.9%	**-4.7%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.44	0.51	0.48	0.54

*Notes: Reserve Capacity (RC) for signal controlled junction
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

Table 4-5 Site II Development Peak Hour Junction Performance

Jn No.	Location	Junction Type*	Reference		Site II	
			Weekend	Ching Ming	Weekend	Ching Ming
Year 2016						
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.70	0.37	0.73	0.38
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	-12.0%	19.7%	-13.7%	15.9%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.96	0.64	0.96	0.63
J4	J/O Chai Wan Road Roundabout	Roundabout	0.74	0.62	0.75	0.64
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	204.2%	269.2%	202.9%	268.3%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	36.7%	138.0%	36.7%	138.0%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	80.9%	118.4%	80.9%	118.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	40.1%	2.0%	38.7%	1.3%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.42	0.48	0.45	0.29
Year 2021						
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.72	0.38	0.75	0.39
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	-14.2%	16.8%	-15.8%	13.1%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.98	0.67	0.99	0.65
J4	J/O Chai Wan Road Roundabout	Roundabout	0.77	0.65	0.79	0.66
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	196.1%	259.2%	194.8%	265.0%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	33.0%	131.5%	33.0%	367.5%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	75.9%	112.4%	76.1%	243.6%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	36.4%	**-0.7%**	34.9%	**-1.4%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.43	0.50	0.46	0.30
Year 2026						
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.74	0.39	0.77	0.40
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	-16.3%	13.9%	-17.8%	10.5%
J3	J/O Cape Collinson Road and Shek O Road	Priority	1.01	0.69	1.02	0.67
J4	J/O Chai Wan Road Roundabout	Roundabout	0.81	0.67	0.82	0.69
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	188.1%	249.5%	186.9%	248.7%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	29.4%	125.2%	29.4%	125.2%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	71.1%	106.8%	71.1%	106.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	32.7%	**-3.3%**	31.4%	**-4.0%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.44	0.51	0.47	0.30

*Notes: Reserve Capacity (RC) for signal controlled junction;
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

By comparing the Reference flows against the Design Flows, it can be seen that the traffic impact to be induced by Site I or Site II are not substantial on both critical days. Also, with the exception of J8, the RC values of all signal controlled junctions are >10% and the DFC values for all priority and roundabout junction are <0.85. J8 would be slightly overloaded in 2021 even without the proposed Site I or II developments. These imply that most of the key junctions in the area would

perform satisfactorily even with the additional development traffic to be induced by Site I or Site II with appropriate special traffic managements to be implemented similar to the existing situations.

4.2 Pedestrian Impact Assessment

4.2.1 Additional Pedestrian Flows from Committed and Proposed Developments

To provide conservative estimate, the pedestrian flows recorded on Ching Ming Festival Day are used to forecast future pedestrian demand to be induced by the committed and proposed development within Chai Wan Cemeteries. As mentioned in Section 3.3.3, the major pedestrian routes for accessing Chai Wan Cemeteries from Chai Wan MTR Station, i.e. P1 and P2 in Figure 3.10, are also the main pedestrian routes to Site I and Site II. On the other hand, the number of visitors from Site I or Site II who would pass by P3 near Shek O Road and P4 at CWCPC east entrance (refer to Figure 3.1 and 3.2) are expected to be very low as P3 and P4 are far away from both Site I and Site II. Hence, the subsequent analysis is focused on the major routes of P1 and P2. Based on the existing pedestrian demand recorded in 2011, Table 4-6 shows the additional pedestrian flows to be generated by the committed and proposed Site I and Site II developments on P1 and P2.

Table 4-6 Peak 5-minute Pedestrian Flows on Ching Ming Day

		Peak 5-min Pedestrian Flows				
		Existing Flows	Generation Rates	Committed Developments	Site I	Site II
No. of graves/niches		204,437	per niche	26,667	15,000	8,000
Route*	**Link***					
P1	A	857	0.0042	112	63	N.A.
	B	763	0.0037	100	56	N.A.
P2	C	354	0.0017	46	*	*
	D	1026	0.0050	134	75	40
	E	719	0.0035	94	53	28

* Notes: Refer to Figure 3.10 for locations of Routes and Links
HKPF pedestrian management and crowd control is essential at the pedestrian crossings at Link C

Site I is expected to induce around 120 - 130 two-way pedestrian flows (Peak-5 minute) along the major pedestrian route on Cape Collinson Road (P1) and Lin Shing Road (P2). Site II would increase around 70 two-way pedestrian flows (Peak-5 minute) on Lin Shing Road (P2) only but very little influence on Cape Collinson Road (P1) in particular towards the east.

4.2.2 *Level of Service Assessment*

The forecast peak 5-minute pedestrian demand along the major pedestrian routes P1 and P2 are calculated as described below:

- Reference Pedestrian Flows = Existing Flows + Committed Development Flows
- Design Pedestrian Flows = Reference Traffic + Site I Flows / Site II Flows.

The forecast pedestrian flows to be induced by Site I or Site II are assigned to the footpaths along P1 and P2 to be affected in order to assess the potential impact of the proposed developments. Table 4-7 and 4-8 show the forecast pedestrian flows (which include committed development flows) and the subsequent LOS along the key pedestrian routes for Site I and Site II respectively.

Table 4-7: LOS of Critical Links during Ching Ming – Site I Development

Route(5)	**Critical Links**	**Actual Width**	**Effective Width(1)**	**Peak 5-min Flows**		**ped/min/m**		**LOS Value**	
				Reference	Design	Reference	Design	Reference	Design
P1	A+B(2)	11	9.9	1831	1950	37	39	D	D
P2	C(3)	3.0	2.5	400	-(6)	-		-	
	D(4)	4.5	4.0	1160	1235	58	61	**E**	**E**
	E(4)	3.3	2.8	813	866	59	62	**E**	**E**

Notes: (1) Effective width = Actual width – 0.5m (one side or both sides)
(2) Carriageway without traffic being used as footway
(3) Flow management and control by the HKPF at pedestrian crossings to control flows
(4) Footway width includes 1.5m temporary footway widening
(5) Refer to Figure 3.10 for locations of Routes and Links
(6) HKPF pedestrian management and crowd control is essential at the pedestrian crossings at Link C

Table 4-8: LOS of Critical Links during Ching Ming – Site II Development

Route(5)	**Critical Links**	**Actual Width**	**Effective Width(1)**	**Peak 5-min Flows**		**ped/min/m**		**LOS Value**	
				Reference	Design	Reference	Design	Reference	Design
P1	A+B(2)	11	9.9	1831	1831	37	37	D	D
P2	C(3)	3.0	2.5	400	-(6)	-		-	
	D(4)	4.5	4.0	1160	1200	58	60	**E**	**E**
	E(4)	3.3	2.8	813	841	59	61	**E**	**E**

Notes: same as Table 4-7

As shown in Table 4-7 and 4-8, all of these critical links would be deteriorated from the existing situation under the Reference Scenario, i.e. due to the committed development even without Site I or Site II development. In particular, the footpaths on both sides of Lin Shing Road (Links D and E) would not be able to accommodate the increased demand by the committed development even with the implementation of existing special traffic management to provide more space for pedestrians. The undesirable LOS value of "E" would be maintained with Site I or Site II development.

4.3 Summary of Findings

The assessment results indicate that amount of vehicular traffic to be induced by the proposed Site I or Site II development are not substantial. The additional vehicular traffic would not create adverse impact to the road network in the Study Area and the amount of additional bus passengers can be accommodated by strengthening the services by around 7%, i.e. around 10 additional bus trips during the peak hour on the critical weekend and 5 additional bus trips on Ching Ming Day.

As mentioned in Section 3.4 above, the key issues and concerns with regard to any new development in the cemeteries relate mainly to pedestrian flows and in particular pedestrian/vehicular conflicts within the cemetery site. A series of improvement schemes are proposed with the aim to resolve these particular issues and these are discussed in the next section.

5 Proposed Improvement Schemes

5.1 *Review of Potential Improvement Options*

The impact study as discussed above reveals that no substantial vehicular traffic impact is anticipated to be induced from the proposed columbarium development at Potential Site I or II during the critical days with the current special transport and traffic arrangements being retained. However, the current and the future walking environment are considered not desirable and the increase of pedestrian demand due to the proposed developments would further aggravate the problem. Therefore, the improvement proposals discussed in this section focus on improving the existing pedestrian facilities, in particular to reduce vehicular/ pedestrian conflicts along the major pedestrian routes, namely along the sections of Lin Shing Road and Cape Collinson Road leading to Site I and Site II.

On the other hand, extensive road upgrading and widening works to the Cape Collinson Road and Lin Shing Road to accommodate additional vehicular traffic flows generated from the proposed development of Site I or Site II are not recommended due to the following considerations:

1. The amount of pedestrian and vehicular movements in the area is light generally throughout the year except only at the weekends of Ching Ming and Chung Yeung Festival Periods characterised with extremely high surge of grave sweepers attending the cemeteries within short period of time. Due to the physical constraints within Chai Wan Cemeteries, extensive road widening and slope works are required to accommodate the anticipated vehicular demand but which are not considered cost-effective solutions to address the concerns.
2. Any upgrading and improvement works within Chai Wan Cemeteries would likely attract more traffic to Chai Wan district and hence creating pressure onto the existing road network in the area. However, currently there is limited space to carry out extensive improvement of the road network in Chai Wan.
3. Due to the extremely high volume of pedestrian flows particularly during Ching Ming and Chung Yeung Day, and the weekends preceding and following the festive days, in any case the implementation of special transport and traffic arrangements are essential. Walking is considered a more sustainable transport mode for accessing the cemeteries. In other words, enhancing pedestrian facilities and strengthening public transport services are considered more efficient and effective solutions to address the traffic concerns in the area.

4. Environmental and cost implications are also key concerns for carrying out extensive road improvement works. In view of low utilisation during normal days, it is not considered a cost effective and efficient solution.

Nevertheless, the potential improvement options raised in the Assignment Brief are preliminarily examined and our considerations/recommendations are summarized in Table 5-1.

Table 5-1: Summary of Review on Potential Improvement Options

Potential Improvement Options	Considerations/Recommendations
1. Provision of a transport by-pass at Lin Shing Road to relieve the congestion at the location	• The TIA study reveals that the capacity of the junctions at both end of Lin Shing Road would only be sufficient with implementation of the current special traffic arrangement and control by the HKPF during the critical days; the provision of a transport by-pass would not alleviate the underlying problem, i.e. vehicular / pedestrian conflicts; • Improvement schemes are proposed in the following section to provide alternative pedestrian routes to Lin Shing Road so as to relieve congestion by segregating vehicular and pedestrian movements as far as possible.
2. Develop a ring road for CWCPC by using the road within the Roman Catholic Cemetery to complete the loop	• During the Ching Ming festive period, the mentioned slip road is open for public use and form an internal ring road; • Currently the road is privately owned/managed involving a number of private lot owners. Land resumption for this road section may be difficult. Moreover, access to the cemeteries by private cars/taxi during critical days should not be promoted as this would induce adverse traffic impact to both the internal road network within the Roman Catholic Cemetery as well as the external road network of Chai Wan District.
3. Add lay-by(s) for the road to Chinese Permanent Cemetery	• Local widening of the road section to the west of Site II is proposed and discussed in Section 5.2. Further addition of road capacity to the east of Site I is considered not necessary as the development traffic from either Site I or II is not substantial. • The potential traffic impact arising from the proposed development of Site I or Site II on the section of Cape Collinson Road further east of Site II will be negligible. It is because there is no purpose or destination for the development traffic from Site I or Site II to travel onto the road section passing Site I and further to the east. Therefore, no proposed works is recommended for this road section under this columbarium development project.
4. Expand Cape Collinson Road to dual carriageway from Leaping Dragon Walk to Shek O Road	• Same comment as Item 3.

Potential Improvement Options	Considerations/Recommendations
5. Improve the connection between Cape Collinson Road and Siu Sai Wan via Leaping Dragon Walk and associated public transport arrangements	• Same comment as Item 3.
6. Widen or improve Lin Shing Road leading to Cape Collinson Road to relieve congestion	• Same comments as Item 1. • Improvement options to the junction of Lin Shing Road and Cape Collinson Road are proposed and will be discussed in Section 5.2.
7. Provide escalator linking up Site I down to San Ha Street and associated public transport arrangements	• This option has been developed to the proposed Assess Route 2 which will be discussed in Section 5.2.
8. Provide escalator linking up Lin Shing Road with Yan Tsui Court	• This option has been examined and further developed to the proposed Assess Route 1 which will be discussed in Section 5.2. However, escalator link is not recommended for the following considerations: – topographic constraints; and – in close proximity to Yan Tsui Court with safety/privacy and visual impact concerns.

5.2 Proposed Pedestrian Improvement Schemes

Two additional pedestrian access routes, Route 1 and Route 2 as shown in Figure 5.1, are proposed to provide an alternative from the predominate access along Lin Shing Road, encourage walk mode and to relieve the currently congested zone between the junction of Lin Shing Road and Cape Collinson Road, and the Lower Columbarium of the CWCPC. The two routes are proposed to be constructed mainly in form of escalators and/or stairways and their conceptual layouts are presented in Figure 5.2a. Moreover, the existing access route along Lin Shing Road will be maintained, forming a barrier-free access for people with special needs to/from the cemeteries.

Improvements to the existing layout of the junction at Lin Shing Road and Cape Collinson Road is also recommended to reduce conflicts between vehicles and pedestrians and enhance road safety. There are two proposed conceptual layouts and they are shown in Figures 5.3a and 5.3b.

5.2.1 Access Route 1

It is to connect Site I with Wan Tsui Estate/ Yan Tsui Court, and then connects with the existing pedestrian facilities (i.e. footbridges) to Chai Wan Road and Chai

Wan MTRC Station (see Figure 5.1). As shown on Figure 5.2a, provision of Route 1 can be carried out by modifying/upgrading two sections of the existing hillside staircases to 3m wide; and undertake local widening of a slope berm for pedestrian access. A section of the existing staircase is connecting Wan Tsui Estate Park and a football field. The other staircase is linking between Wan Tsui Estate Park and Wan Tsui Estate/Yan Tsui Court. The proposed Route 1 will utilise these existing facilities to avoid large scale construction works for cost-effectiveness consideration and minimizing the potential environmental impacts. Furthermore, the upgraded access can benefit not only visitors during Ching Ming and Chung Yeung festive periods, it also provides a convenient facility for the local community. For construction of Route 1, it is anticipated that three existing registered slopes and fencing of the existing football field will be affected.

5.2.2 *Access Route 2*

The route runs along the natural hillside of San Ha Street and eventually connecting San Ha Street with Cape Collison Road (see Figure 5.1). The route can be established with two parallel single-width escalators of 0.8m each, plus a minimum 3.0m wide stairway. This setting can allow greater flexibility on the operation of the facilities to suit the different conditions during normal days, Ching Ming and Chung Yeung festive periods, e.g. operation of escalators can be controlled by sensors during normal days when pedestrian flow is light; or double the capacity by adjusting direction to suit peak tidal demand. Furthermore, to minimize the potential heritage impact, the alignment of the proposed route is set to avoid encroaching into two existing temples above San Ha Street; i.e. Tai Sheung Lo Kwan Temple (太上老君廟) and Tai Shing Antique Temple (大聖古廟). However, in the next project stage, it is also recommended to explore the feasibility of locating Route 2 at a piece of developed land in between the two temples so as to reduce the potential environmental impacts.

At both ends of the proposed escalator route, i.e. at the landings of San Ha Street and Cape Collinson Road, it is proposed to provide dedicated queuing areas to cater for the high demand of visitors during the grave sweeping festive periods. Figure 5.2b shows the proposed layout of the hillside escalators and pedestrians queuing areas at both ends of the facility.

It is also proposed to provide a 3m wide footpath along the section of Cape Collinson Road between Route 1 and Route 2, and local widening of Cape Collinson Road at this area to a standard 6.75 - 7.3m wide single-2 lanes carriageway, as shown in Figure 5.2a. The improvement works connects the

proposed development sites, in particular Site I, and Route 2 to facilitate convenient pedestrian access and enhance road safety.

Near to the landing of the proposed route at San Ha Street, there are some on-street metered parking spaces which can be utilised as temporary bus-stop or drop off /pick up lay-bys during the Ching Ming and Chung Yeung festive periods. In addition, San Ha Street is closed to Chai Wan Road where the existing bus stops along the road are well served by extensive bus services, coupled with the existing car parks located in the vicinity of San Ha Street and Chai Wan Road, all greatly enhance the accessibility of Site I and nearby developments along Cape Collinsion Road via the proposed escalators.

It is also noted that Transport Department has issued a report with title of 'Establishment of a Ranking System on Provision of Hillside Escalator Links and Elevator Systems' in September 2010. The report outlines evaluation criteria for provision of escalators/elevator systems in Hong Kong hillside areas. However, these criteria are more applicable to escalator link for daily uses. Although columbarium/ cemetery sites as in this case with relatively low pedestrian flows during normal days, it is recommended to equip the link with escalators to provide better walking environment to attract usage of the route and promote walking to the sites during Ching Ming and Chung Yeung festive periods. For consideration of cost-effectiveness and energy saving during normal days, the escalators can be designed with motion sensors to control the escalators in an intermittent-run mode when no passenger on them. The provision of escalator link in Route 2 should be further discussed with the relevant government departments and concerned parties.

5.2.3 *Assessments of Access Routes 1 and 2*

A preliminary assessment of the proposed Routes 1 and 2 has been carried out from the perspectives of engineering, traffic, environmental, cost and land issues. Three scenarios are assessed to study the potential impacts of the proposed improvements, these are:

- Scenario 1 – Provision of Route 1 only;
- Scenario 2 – Provision of Route 2 only; and
- Scenario 3 – Provision of Routes 1 and 2.

A summary of the assessments is shown on Table 5-2.

Without doubt, the mechanical means of Route 2 (with escalators) provides a much quicker and shorter route between Chai Wan MTR Station and Site I, and

nearby areas, than Route 1. More importantly, Route 2 is also attractive to other visitors and hence more efficient in diverting pedestrians from the existing congested route along Lin Shing Road. On the other hand, Route 1 (with stairways only) is likely to attract only a small amount of pedestrians in the downhill direction but will have no or very little effect for the uphill direction similar to the existing stairways. Route 1 is unlikely to be able to cope with the additional demand by the proposed columbarium site (either Site I or Site II) and hence the pressure on the existing pedestrian routes would not be relieved but worsen even with the provision of Route 1. In view of these, Scenario 1 (Route 1) is not recommended and Scenario 2 (Route 2) is more preferable than Scenario 1 (Route 1) from pedestrian point of view.

However, it is noted that the construction cost and environmental impact for Route 2 would be more extensive than Route 1 and which need to be investigated in detail in the next project stage.

Likewise, while Scenario 3 (Route 1 + Route 2) has the added benefits of more capacity by Route 1 (stairways) in addition to Route 2 (escalators), the limited benefit of the stairways mainly for downhill direction of flow would need to be assessed critically in the next project stage against the added cost and environmental impact for such provisions. Considering these, Scenario 2 is more preferable than Scenario 3 from cost and environmental impact point of view.

Table 5-2 Summary of Assessments of the Proposed Access Routes

Key Consideration /Factor	Scenario		
	1. Provision of Route 1 (stairway) only	**2. Provision of Route 2 (stairway + escalators) only**	**3. Provision of Routes 1 and 2**
Attractiveness	• A more direct route to the proposed Site I and the Chinese Permanent Cemetery than Lin Shing Road • Opportunity to integrate with the design with the proposed Site I to provide a shorter route to Wan Tsui Estate and Chai Wan MTR Station • Less attractive than Route 2 for uphill direction	• A more direct route to the proposed Site I and the Chinese Permanent Cemetery and Lin Shing Road • The stairway-and-escalator arrangement allows greater flexibility for pedestrian flow control • Provision of escalators is more attractive than Route 1 in particular for uphill direction	• With greater flexibility for flow control as compared with Scenarios 1 or 2 • Also see Scenarios 1 and 2
Traffic Issues	• Stairways only hence less attractive in particular for uphill direction. • Would help to divert a small amount of downhill pedestrian flows on Lin Shing Road	• An attractive alternative than Route 1 to divert pedestrian flows from Lin Shing Road, hence also beneficial to other pedestrians on Lin Shing Road even not using the escalators • Details of the proposed traffic arrangement plan on San Ha Street are discussed in Section 5.3.	• Similar traffic impact to Scenario 2.
Other Engineering Issues /Constraints	• Topographic constraint restricts provision of escalator on a portion of the route • Stability of the affected existing slopes to be assessed due to the proposed works	• Ground conditions to be assessed to confirm the scale of the geotechnical works, such as foundation type of stairway structure and slope works • Potential interfaces with the existing utilities along the footpaths of San Ha Street and Cape Collinson Road • The average gradient of the existing hillside proposed for Route 2 has been estimated based on the topographic map by the Lands Department. The range of the slope gradient varies from about 20^{o} to 30^{o} along the alignment of Route 2 and hence is considered feasible to accommodate escalators and stairways. Detailed investigation to be carried out in the next study stage to confirm and optimize the proposal.	• See Scenarios 1 and 2
Environmental Issues	• Smaller project scale and less environmental impacts as compared with Route 2 • A section of staircase in close proximity to Yat Tsui House of Wan Tsui Estate may cause landscape and visual concerns	• Larger project scale and potentially greater environmental impacts as compared with Route 1, particular the cultural heritage issues with the nearby temples, and landscape and visual impact • More energy consumption in the long-term as compared to Route 1	• See Scenarios 1 and 2
Land Issues	• The route aligns on the existing slopes or leisure facilities, which are currently maintained by different government departments, and therefore require agreement by relevant authorities.	• Partial excavation into the existing slopes which are maintained by different government departments, and hence require agreement by relevant departments. • The land status plan provided by Lands Department shows that the hillside area and the land currently falls within government land. However, the land issues should be confirmed and further liaison with the relevant government department is required in the next project stage.	• See Scenarios 1 and 2
Estimated Construction Cost	Approximate HK$4M (2011 prices) All estimated costs are only ballpark figures and will be reviewed at later study stage	Approximate HK$65 M (2011 prices)	Approximate HK$69 M (2011 prices).
Overall Conclusion	Less attractive alternative route but easier to implement due to the smaller project scale in terms of engineering, environmental, land and cost implications	More attractive alternative route and hence more effective in resolving traffic concerns but the larger project scale require higher funding and more detailed assessments	Most effective and flexible scenario for pedestrian flow control but at higher cost and potentially greater environmental impact.

5.3 Traffic and Transport Requirements to Complement the Proposed Escalators

5.3.1 Uphill Peak Hour Person Trips

As mentioned in 5.2.3, based on the preliminary assessment, both Route 1 and Route 2 are technically feasible but Route 1 is not efficient in relieving the traffic impact to be induced by the proposed columbarium development particularly for the uphill direction and hence is not recommended. Therefore, the following section focuses on the impact assessment of both the road network and pedestrian network in the study area for Route 2 (provision of hillside escalators on San Ha Street).

To provide conservative estimates, the assessment is based on Site I (15,000 urns/graves) which is almost 50% larger than Site II (8,000 urns/graves) and hence represents the worst case scenario. The proposed improvements to Site I will also suffice to cover Site II development which will induce lesser pedestrian and vehicular traffic.

The peak hour pedestrian flows are identified to occur at 10:45 – 11:45 on Ching Ming Day for uphill direction accessing the cemeteries. Accordingly, Table 5-3 shows the corresponding person trips by different modes during this peak hour for the Reference Scenario (with Committed Development only) and Design Scenario (with Site I and Escalators in addition to the Reference scenario).

Table 5-3 Peak Hour Person Trips on Ching Ming Day

	IN					**OUT**				
	(a)	**(b)**	**(c)**	**(a)+(b)**	**(a)+(b)+(c)**	**(a)**	**(b)**	**(c)**	**(a)+(b)**	**(a)+(b)+(c)**
	Existing	Committed Development	Site I	Reference Scenario	Design Scenario	Existing	Committed Development	Site I	Reference Scenario	Design Scenario
No. of Urns	204437	26667	15000	231104	246104	204437	26667	15000	231104	246104
Person Trips on Ching Ming Day										
Walk	8879	1158	***0***	10037	10037	3634	474	***0***	4108	4108
Bus	11191	1460	1528	12651	14179	8997	1280	987	10277	11264
GMB	752	***0***	***0***	752	752	816	***0***	***0***	816	816
Taxi/ Car	1324	271	97	1595	1692	448	58	33	506	539
TOTAL PERSON TRIPS	22146	2889	**1625**	25035	26660	13895	1812	**1020**	15707	16727

As indicated in Table 5-3, Site I would attract 1625 trips and generate 1020 trips during the peak hour on Ching Ming Day. Site I visitors are expected to use mainly bus services or car/taxi facilities provided on San Ha Street to access the escalators leading to Site I. Also, due to limited scope to further increase GMB services, it is assumed no increase in GMB vehicles and all additional GMB passengers from future committed developments and Site I would shift to use bus services instead.

5.3.2 *Special Traffic Plan on Ching Ming Day with the Proposed Hillside Escalators*

To cope with the anticipated pedestrian flows as indicated in Table 5-3, Figure 5.4 shows the proposed special traffic plan along and in the vicinity of San Ha Street, which includes:

- Conversion of San Ha Street to one-way westbound direction in order to free up space for visitors.
- Closure of existing metered car parking spaces on the southern carriageway for temporary bus stand and/or pick up/drop off layby for car/taxi.
- Temporary bus stand for special bus services from Heng Fa Chuen MTR Station to San Ha Street and Shau Kei Wan MTR Station to San Ha Street and some existing bus services diverted from Chai Wan Road to San Ha Street.
- Temporarily closing the nearside lane of Chai Wan Road to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street.
- The existing GMB service on San Ha Street westbound is to be maintained.
- The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street and San Ha Street are to be maintained.
- The arrangement for guiding pedestrians for access from Chai Wan MTR Station to escalators on San Ha Street via Chai Wan Park and Yee Shun Street and pedestrian egress route from San Ha Street to Chai Wan MTR Station via Chai Wan Road southern footpaths and the footbridges across Chai Wan Road Roundabout may be considered.

Table 5-4 describes the options of traffic arrangement on San Ha Street being considered and compared with the Reference Scenario (i.e. without hillside escalators).

Table 5-4: Special Traffic Plan Options

Scenario	Reference	Design (Option 1)	Design (Option 2)	Design (Option 3)
Peak hour Pedestrian Flow	Figure 5.5	Figure 5.6	Figure 5.7	Figure 5.8
Proposed Improvements	Nil	Route 2 Escalators (1 up and 1 down)	Route 2 Escalators (1 up and 1 down)	Route 2 escalators (2 up)
Pedestrian System from Chai Wan MTR Station to Cemeteries	Same as existing: *Access route:* southern footbridge to Wan Tsui Lane–Lin Shing Road *Egress route:* Wah Ha Street – Wan Tsui Estate – footbridges across roundabout	Same as existing plus MTR northern footbridge – Chai Wan Park – Yee Shun Street – San Ha Street escalators	Same as Option 1	In order to access the escalators, need to reverse the existing pedestrian system with significant impact to local area, hence NOT recommended.
Pick up drop off facilities for Car and Taxi	Wan Tsui Road same as existing	100% on San Ha Street	Wan Tsui Road (50%) and San Ha Street (50%)	n.a.
New Special Bus services (Table 5-6)	Nil	Heng Fa Chuen MTR Station – San Ha Street Circular Route (see Figure 5.9 for proposed routing) AND Shau Kei Wan MTR Station – San Ha Street Circular Route (see Figure 5.10 for proposed routing)	Same as Option 1	n.a.
Strengthening of existing bus services on Chai Wan Road to accommodate additional passengers shifted from other modes due to the attractiveness of the proposed escalators (Table 5-7)	n.a.	Eastbound bus services for accessing passengers remains on Chai Wan Road but with strengthened frequency	Same as Option 1 but different bus trips	n.a.
	n.a.	- Divert some existing westbound bus routes on Chai Wan Road to San Ha Street for leaving visitors (see Fig. 5.11) - Left turning from Chai Wan Road to Wing Ping Street can be accommodated by temporarily closing the nearside lane of the southern approach (see Figure 5.12)	Same as Option 1 but different bus trips	n.a.
GMB and RMB Services	Same as existing: - No increase in GMB services - The section of Chai Wan Road eastbound near San Ha Street and San Ha Street remain as PLB prohibited zones	Same as Reference Case	Same as Reference Case	n.a.

5.3.3 *Usage of the Proposed Hillside Escalators*

Based on the forecast person trips in Table 5-3 and the traffic plans described in Table 5-4, Table 5-5 summarises the forecast usage of the proposed escalators for Option 1 and Option 2.

Table 5-5: Assumed usage of the Proposed Escalators (No. of Pedestrians)

Components	Uphill direction			Downhill direction		
	Access Mode	**Option 1**	**Option 2**	**Egress Mode**	**Option 1**	**Option 2**
Site I Visitors	New Special Bus	1528	1528	New Special Bus	987	987
	Car/Taxi	97	97	Car/Taxi	33	33
Other visitors	New Special Bus (diverted from No. 389)	700	700	New Special Bus (diverted from No. 389)	500	500
	MTR (diverted to use existing bus services)	-	-	MTR	1800	1800
	Existing bus services (diverted from MTR)	1000	1800	Existing bus services (diverted from MTR)	600	800
	Car/Taxi	1600	800	Car/Taxi	400	200
TOTAL		4925	4925		4320	4320

For ease of reference and simplicity, the following assumptions are adopted to derive the usage of the proposed escalators:

- all Site I visitors would use either the new special bus or car/taxi to San Ha Street for accessing the site via the proposed escalators.

- Some of the existing No. 389 bus passengers boarding and/or alighting at the bus stop near the junction of Cape Collinson Road and Lin Shing Road would be attracted by the proposed escalators, and hence diverted to use the new special bus service for accessing the escalators on San Ha Street.

- Some of the existing MTR passengers would be attracted by the escalators. As the access route from Chai Wan MTR station to San Ha Street via Chai Wan Park and Yee Shun Street is detour and indirect, majority of the accessing MTR visitors attracted by the escalators are expected to be diverted to use the existing bus services on Chai Wan Road for accessing the escalators instead of walking directly from Chai Wan MTR station to San Ha Street. Hence, for the sake of simplicity, it is assumed no accessing visitors directly from MTR to the escalators. For the downhill direction,

however, as the route from San Ha Street to Chai Wan MTR station is more direct, majority of the MTR visitors are expected to walk directly from San Ha Street to Chai Wan MTR station with a small proportion of around 25% diverted to use the existing bus services on Chai Wan Road.

- The main difference between Option 1 and 2 is the provision of pick up/drop off facilities for car and taxi. In Option 1, pick up/drop off facilities are provided on San Ha Street only but the provisions are available in both San Ha Street and Wan Tsui Road in Option 2. Hence, the amount of car/taxi visitors using the proposed escalators is different accordingly.

It should be noted that the above assumptions, though theoretical in a certain extent, are based on the observations of existing travel pattern. It would provide a guideline for the preparation of sufficient new and existing transport provisions and which are to be discussed in more detail in the following sections. The basic principle of the usage assumptions is that the proposed escalators will serve not only the Site I visitors, but also to be shared use by all other visitors to the cemeteries until the capacity of the escalator is reached.

Hence, for both Option 1 and 2, around 4900 pedestrians are estimated to use the uphill escalator, and 4300 pedestrians for the downhill direction during the Ching Ming Day uphill peak hour. The estimated usage is about 80-90% of the capacity of the escalator which is around 5000 – 5500 pedestrians/hour.

Among the uphill pedestrians, around 33% (1625 pedestrians) are visitors to Site I and about 67% (3300 pedestrians) are "other visitors" to the nearby cemeteries. For the downhill direction, around 24% (1020 pedestrians) are Site 1 visitors and nearly 76% (3300 pedestrians) are "other visitors" from nearby cemeteries.

5.3.4 *Peak Hour Main Pedestrian Route Assessments*

Figure 5.5 and 5.6 compares the amount of pedestrians along the major pedestrian routes for the Reference Case (i.e. no escalator) and Design Case (i.e. with Site I and escalators). Comparing Figure 5.5 with Figure 5.6 , the amount of pedestrians on Lin Shing Road is expected to reduce from 11600 to 9000 on uphill direction, and from 4100 to around 1300 for the downhill direction during the uphill peak hour on Ching Ming Day.

Table 5-6 shows the LOS assessment results on the critical pedestrian links on Cape Collinson Road (P1) and Lin Shing Road (P2). The LOS on Lin Shing Road would be improved due to the diversion of pedestrian flows to the escalators.

Table 5-6: Peak Hour LOS of Critical Links

Route[1]	Critical Links	Effective Width[3]	Reference		Site I	
			PMM[2]	LOS	PMM[2]	LOS
Proposed Improvement			No improvement		Route 2 Escalators	
P1	A+B[5]	9.9	37	D	31	C
P2	C	2.5	Flow management and control by HKPF			
	D[4]	4.0	58	**E**	45	D
	E[5]	2.8	54	**E**	32	D

Notes:
(1) Refer to Figure 3.10 for locations of Routes and Links
(2) PMM = Pedestrian/ min/ meter
(3) Assume effective width same as existing
(4) Based on uphill direction busiest hour flow
(5) Based on downhill direction busiest hour flow

5.3.5 Peak Hour Bus Passenger Demand and Bus Fleet Requirements

(a) Special Bus Services

Based on Table 5-5 above, the estimated demand for the new special bus service is around 2300 (1528+700). The additional bus trips and fleet requirement is shown in Table 5-7.

Table 5-7: Special Bus Services on Ching Ming Day

Bus Route	Journey Time	Peak Hour Passengers			Peak Hour Bus Trips			No. of Bus		
		Existing	Reference	Design	Existing	Reference	Design	Existing	Reference	Design
No. 388	50 - 60 min	3780	4725	4725	28	35	35	26	33	33
No. 389	60 - 70 Min	3105	3645	2945	23	27	22	24	28	23
NEW Special Bus Service:										
Heng Fa Chuen MTR Station - San Ha Street (50%)	35 – 45 Min	-	-	1150	-	-	9	-	-	6
AND										
Shau Kei Wan MTR Station – San Ha Street (50%)		-	-	1150	-	-	9	-	-	6
TOTAL		**6885**	**8370**	**9970**	**51**	**62**	**75**	**50**	**61**	**68**

No or minimal change is expected to No. 388 as the bus passengers alighting at the bus stop close to the J/O Cape Collinson Road and Lin Shing Road (Stop S14, please refer to Figure 2.1 for location of bus stop) are mainly Route No. 389 passengers. Most of No. 388 passengers are heading towards the west and hence less likely to be attracted by the escalators.

Around 70% of the No. 389 passengers (i.e. about 700 passengers) alighting at Stop S14 is expected to be diverted to use the new special bus on San Ha Street in order to access the escalators. Hence, there would be reduction of bus trips and fleet requirement for No. 389.

In summary, comparing the Reference (i.e. without Site I and escalators) and Design (with Site I and escalators) scenarios:

- An increase of 18 nos. of bus trips for the new bus services to San Ha Street (i.e. 9 trips for Heng Fa Chuen MTR Station and another 9 trips for Shau Kei Wan MTR Station assuming a 50:50 split) and a reduction of 5 bus trips for No. 389, giving a net increase of 13 bus trips in the peak hour.

- An increase of 12 nos. of bus is required for the new bus services (i.e. 6 nos. of bus for Heng Fa Chuen MTR Station and another 6 nos. of bus for Shau Kei Wan MTR Station assuming a 50:50 split) and a reduction of 5 nos. of bus for No. 389, giving a net increase of 7 nos. of bus.

(b) Strengthening of Existing Bus Services

Due to the attractiveness of the escalators to the eastern part of Chai Wan Cemeteries, it is expected some of the MTR passengers from different parts of the HK territories would be shifted to use bus services instead to access the escalators. The modal shift is estimated based on the spare capacity available after the usages by Site I visitors, other visitors by bus and car/taxi:

- Option 1 – 1000 passengers
- Option 2 – 1800 passengers.

To accommodate this increase in demand, it is proposed to strengthen some of existing bus routes on Chai Wan Road to accommodate the increased demand as shown in Table 5-8. An addition of 9 nos. of bus trips for Option 1 and an addition of 16 bus trips for Option 2.

The proposed increase in frequency for each route is still within their published frequencies. Some of these bus routes can be diverted to stop at San Ha Street to gain direct access to the escalators (refer to Figure 5.11). The proposed routes are for reference only subject to more detailed study on passenger origin-destination (OD) in the next stage and further discussion with bus operators with regard to vehicle allocation.

Table 5-8: Strengthening of Existing Bus Services on Chai Wan Road

Bus Route	Terminating Points	Published Frequency	Peak Hour Bus Trips			
			Existing	Reference	Option 1	Option 2
8P	Siu Sai Wan - Wan Chai Ferry	3 - 12 min	10	10	**11**	***12***
8X	Siu Sai Wan - Happy Valley	7 - 14 min	10	10	**11**	***12***
82	North Point Ferry Pier - Siu Sai Wan	5 - 15 min	10	10	**11**	***12***
82X	North Point - Siu Sai Wan	15 - 20 min	4	4	4	***5***
106	Wong Tai Sin - Siu Sai Wan	4 - 10 min	10	10	**11**	***12***
118	Sham Shui Po - Siu Sai Wan	3 - 13 min	10	10	**11**	***12***
606	Siu Sai Wan - Choi Hung	11 - 22 min	6	6	**7**	***7***
682	Lee On - Chai Wan (East)	4 - 20 min	6	6	**7**	***7***
694	Siu Sai Wan - Tiu Keng Leng PTI	15 - 25 min	4	4	**5**	***5***
780	Chai Wan (East) - Central	6 - 20 min	9	9	**10**	***11***
TOTAL			**79**	**79**	**88**	**95**

5.3.6 *Traffic Impact Assessment with the proposed Special Traffic Plan at San Ha Street*

Table 5-9 compares the junction capacity assessment results for the following scenarios:

- Reference – no Site 1 and Escalators
- Site 1 with Escalators and Special Traffic Plan Option 1 (100% car /taxi drop off on San Ha Street)
- Site 1 with Escalators and Special Traffic Plan Option 2 (50% car/taxi drop-off pick-up on San Ha Street and 50% on Wan Tsui Street)

In addition to the data collected in during the Ching Ming Festive period in 2011, additional traffic surveys at the Junction of Chai Wan Road and San Ha Street (J10), and the Junction of Chai Wan Road, Sheung On Street and Wing Ping Street (J11) have also been conducted during weekday morning and afternoon peak hours, and derived for the Ching Ming peak hour based on the travel pattern observed on the Ching Ming festival period in 2011. This additional data are collected in response to the recommendations and proposed improvement schemes. The peak hour traffic flows with the Special Traffic Plan Option 1 and Option 2, as described in Table 5-4, for all the design years of 2016, 2021 and 2026 are presented in Appendix F and detailed junction calculation sheets are given in Appendix J.

Table 5-9: Comparisons of Peak Hour Junction Performance

Jn No.	Location	Junction Type	Ching Ming Peak Hour		
			Reference	Site I (Option 1)	Site I (Option 2)
Year 2016					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.37	0.37	0.37
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	19.7%	30.5%	27.9%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.64	0.62	0.62
J4	J/O Chai Wan Road Roundabout	Roundabout	0.62	0.75	0.75
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	269.2%	168.9%	173.7%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	138.0%	138.1%	138.1%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	118.4%	118.7%	118.7%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	**2.0%**	**1.4%**	**1.6%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.48	0.28	0.30
J10	J/O Chai Wan Road and San Ha Street	Signal	87.7%	28.9%	31.9%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	153.7%	78.6%	81.9%
Year 2021					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.38	0.38	0.38
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	16.8%	27.2%	24.7%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.67	0.64	0.64
J4	J/O Chai Wan Road Roundabout	Roundabout	0.65	0.78	0.78
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	259.2%	162.0%	166.5%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	131.5%	131.4%	131.4%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	112.4%	112.5%	112.5%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	**-0.7%**	**-1.4%**	**-1.1%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.50	0.29	0.31
J10	J/O Chai Wan Road and San Ha Street	Signal	82.8%	25.7%	28.6%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	146.8%	74.0%	77.2%
Year 2026					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.39	0.39	0.39
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	13.9%	24.0%	21.6%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.69	0.66	0.66
J4	J/O Chai Wan Road Roundabout	Roundabout	0.67	0.81	0.81
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	249.5%	155.2%	159.5%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	125.2%	125.0%	125.0%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	106.8%	106.7%	106.7%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	**-3.3%**	**-4.1%**	**-3.8%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.51	0.30	0.31
J10	J/O Chai Wan Road and San Ha Street	Signal	78.0%	22.6%	25.3%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	140.1%	69.5%	72.5%

*Notes: Reserve Capacity (RC) for signal controlled junction
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

As indicated in the table, for both Option 1 and 2, with the operation of the hillside escalators and the implementation of Special Traffic Plan at San Ha Street, the traffic conditions at J1 and J2, i.e. on Lin Shing Road and Wan Tsui Road, would be improved as car/taxi traffic are diverted to use the new pickup/drop off facilities at San Ha Street for accessing the hillside escalators. It should be noted that the calculation of junction capacity for J1, J2 and J3 are for information only as extensive crowd management and control are required at these locations due to heavy pedestrian flow.

It is proposed in the Special Traffic Plan to convert San Ha Street (between Wing Ping Street and Fu Tsui Street) to one way westbound only in order to provide more space for pedestrian movements. It is also required to temporarily closing the nearside lane of the Chai Wan Road approach at J11 (the junction of Chai Wan Road and Wing Ping Street) to allow buses left turn from Chai Wan Road to Wing Ping Street as shown in Figure 5.12. With the increased traffic flows on San Ha Street, the reserve capacity at J10 (J/O Chai Wan Road and San Ha Street) and J11 (J/O Chai Wan Road and Wing Ping Street) would still be sufficient to cope with the demand.

In general, the traffic impact to be induced by the proposed Site I development is within acceptable level. With the exception of J8 (J/O Chai Wan Road and Tai Tam Road), the reserve capacity of all other key junctions would be sufficient to cope with the anticipated increase. Similar to the existing situation, J8 would be overloaded on Ching Ming Day even without the Site I development. It can be seen that the proposed Site I development will only induce limited negative impact to J8. More importantly, the proposed hillside escalators (Route 2) and associated special traffic scheme at San Ha Street would help to relieve the pressure on Lin Shing Road by reducing both vehicular and pedestrian flows along Lin Shing Road and Wan Tsui Road.

5.4 ***Proposed Junction Improvement Scheme***

5.4.1 *Improvement Scheme for Lin Shing Road/Cape Collinson Road Junction*

In order to improve the traffic movements at the junction of Lin Shing Road and Cape Collinson Road, it has been taken into consideration to convert the existing priority junction into a mini-roundabout. However, based on the criteria set out in TPDM, the site is not considered a suitable location for a roundabout / mini-roundabout. The site is too small for a normal size roundabout and the flows on each arm is not balanced enough to enable an efficient operation of a mini-roundabout. Moreover, in order to provide a mini-roundabout at this location, Lin Shing Road will need to be realigned eastward, roughly in line with the private road, which is not ideal due to existing site constraints.

Table 5-10: J/O Lin Shing Road and Cape Collinson Road

	2011 Weekday Peak	2011 Weekend Peak
Priority junction	0.239	0.585
Mini-roundabout	0.225	0.707

* Flow to Capacity Ratio

As the results shown in Table 5-10, during a normal weekday, the difference of Flow to Capacity Ration between a priority and mini-roundabout layout is not great. However, the weekend scenario shows that the existing priority layout performs considerably better than a mini-roundabout layout, mainly due to the imbalance flows on each arm. Based on the above, it is not recommended to convert the junction to become a mini-roundabout.

Instead, it is proposed to relocate the existing temporary bus stop outside the office of Holy Cross Catholic Cemetery. The temporary bus stop is implemented during the Ching Ming and Chung Yeung festive periods for special bus routes 388 and 389. The existing bus stop does not have sufficient space for queuing passengers and also bus manoeuvring at the junction is difficult due to limited space. To minmize the existing conflicts between vehicles and pedestrians at the junction, two options are proposed to improve the layout of the junction as shown in Figures 5.3a and 5.3b.

Option A (Figure 5.3a) - a bus lay-by to be provided on the northern approach of Lin Shing Road. A 3m wide passenger waiting area is to be provided to allow efficient boarding and alighting activities and a minimum of 6m wide footway for pedestrian movements. Local widening is required to improve manoeuvrability by bus particularly the right turn movements. Swept path assessment for right turning movement is given in Appendix I.

Option B (Figure 5.3b) - 2 bus bays to be provided at the existing open area adjacent to the junction. Swept path assessment for right turning movement is given in Appendix I.

Both of the proposed works mainly fall within the existing carriageways/footpaths of Lin Shing Road and Cape Collinson Road with part of the works encroach into an open area adjacent to the junction. Further clarification regarding the land status of this area from Lands Department is required. It is also anticipated that the potential interfaces with the existing facilities include highway lightings, road drains, traffic signs, utilities along the footpath and fencing of the open area.

The project scale of the proposed works is relatively small and therefore it is considered that the potential environmental impact during both construction and operation stages would be limited. The estimated construction cost for the proposed junction improvement works and the associated reprovisioning works is about HK$1.5M.

5.5 Recommendations

Taking into account the various aspects such as funding and potential environmental impact as discussed in Section 5.2 and 5.3, the improvement schemes are prioritised into the following order:

1. Access Route 2 (Essential) – with footpath and carriageway widening on Cape Collinson Road and special traffic plan, greatly improve the accessibility of Site I and also beneficial to other visitors to nearby cemeteries. The scale of the project should be studied in greater detail if funding is a concern, e.g. providing one single-width escalator for uphill direction in order to reduce cost if necessary.

2. Junction Improvement at Lin Shing Road and Cape Collinson Road (Essential) – relatively low cost and minimal land take and environment impact; improvement to both pedestrian and vehicular traffic by reducing pedestrian/ vehicular conflicts at the junction.

3. Access Route 1 (Optional) – minimise the potential impact by Site I or Site II by providing additional pedestrian access route to the cemeteries.

To summarise, Item 1 and 2 above are essential improvements required for the development of Site I or Site II whereas Item 3 is optional. The proposed improvement of Access Route 2 would help to relieve the pressure on Lin Shing Road and improve the condition from a LOS "E" to LOS "D" which is the minimum service threshold that should be achieved. Overall, the proposed Site I development (i.e. 15,000 niches), which has a higher level of development intensity than Site II (8,000 niches), is considered the optimum development level.

6 Sensitivity Tests

6.1 *Test Scenarios*

Sensitivity tests have been conducted to assess the traffic impact in 2021 due to:

Test 1 - The trip generation and attraction rates are underestimated by 20%
Test 2 - The proposed no. of niches is increased by 20%
Test 3 - The background traffic is underestimated by 20%.

For consistency, the sensitivity tests are also conducted on the worse case scenario, that is, the proposed Site I development.

6.2 *Test 1 and 2*

6.2.1 *Traffic Assessment*

Since the total number of development traffic are determined by multiplying the trip generation /attraction rates and the proposed no. of niches, hence, the changes of Test 1 and Test 2 will provide exactly the same forecast traffic flows as illustrated in below. The resulting Design Flows are given in Appendix E.

Test 1		Test 2
120% (Trip rates) x (no. of niches)	=	(Trip rates) x 120% (no. of niches)

Table 6-1 shows the junction performances in 2021 for Site I development for Options 1 and 2 and the detailed calculation sheets are given in Appendix J4. The results indicate that all key junctions in the study area would perform satisfactorily during the peak hour even with the 20% increase of development flows. It is noted that Junction of Chai Wan Road and Tai Tam Road (J8) would be overloaded and J10 would be operating close to capacity.

Table 6-1: 2021 Peak Hour Junction Performance for Site I – Test 1 & 2 for Special Traffic Plan Option 1 & 2

Jn No.	Location	Junction Type	Ching Ming Peak Hour		
			Reference	Site I (Option 1)	Site I (Option 2)
Year 2016					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.38	0.38	0.38
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	16.8%	43.7%	39.8%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.67	0.64	0.64
J4	J/O Chai Wan Road Roundabout	Roundabout	0.65	0.80	0.79
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	259.2%	157.2%	163.4%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	131.5%	131.4%	131.4%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	112.4%	112.5%	112.5%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	**-0.7%**	**-13.0%**	**-12.8%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.50	0.29	0.31
J10	J/O Chai Wan Road and San Ha Street	Signal	82.8%	8.7%	26.6%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	146.8%	70.7%	75.0%

*Notes: Reserve Capacity (RC) for signal controlled junction;
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout
J1/J2/J3 are for information only, on-site crowd management and traffic control will be required

6.2.2 *Pedestrian Assessment*

Similarly, the change in pedestrian traffic under Test 1 and 2 above will provide the same amount of future pedestrian flows to be generated by the proposed Site I development for Options 1 & 2. Based on the increased pedestrian demand, the LOS of the critical pedestrian routes P1 and P2 are assessed for both "with improvement schemes" and "without improvement" discussed in Section 5.2 above. The results are shown in Table 6-2 and detailed calculation sheets given in Appendix G.

Table 6-2: LOS of Critical Links for Site I – Test 1 & 2

Route(1)	**Critical Links**	**Effective Width**	**Site I**		**Scenario 1**		**Scenario 2***		**Scenario 3***	
			PMM(2)	LOS	PMM(2)	LOS	PMM(2)	LOS	PMM(2)	LOS
Proposed Improvement			No improvement		Route 1 Stairways only		Route 2 Stairways +Escalators		Route 1 + Route 2	
P1	A+B(3)	9.9	40	D	37	D	30	C	27	C
P2	C	2.5	Flow management and control by HKPF							
	D(4)	4.0	62	**E**	61	**E**	50	**E**	48	D
	E(4)	2.8	63	**E**	56	**E**	45	D	38	D

Notes:
(1) Refer to Figure 3.10 for locations of Routes and Links
(2) PMM = Pedestrian/ min/ meter
(3) Assume effective width same as existing
(4) Footway width includes 1.0m temporary footway widening

6.3 Test 3

6.3.1 Traffic Assessment

For this sensitivity test, the 2021 background traffic is underestimated by 20% before adding the new development traffic (committed developments and Site I/ Site II development). The resulting Reference and Design Flows are given in Appendix E. Table 6-3 shows the junction performance results and detailed calculation sheets are given in Appendix J4. Sensitivity Test 3 is regarding the background traffic at the road network and is therefore not applicable to pedestrian analysis.

Table 6-3: 2021 Peak Hour Junction Performance for Site I – Test 3 for Special Traffic Plan Option 1 & 2

Jn No.	Location	Junction Type	Ching Ming Peak Hour		
			Reference	Site I (Option 1)	Site I (Option 2)
Year 2016					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.45	0.45	0.45
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	-5.0%	22.2%	20.1%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.83	0.80	0.80
J4	J/O Chai Wan Road Roundabout	Roundabout	0.87	1.02	1.01
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	199.7%	121.2%	124.5%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	93.0%	92.9%	92.9%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	77.1%	77.2%	77.2%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	**-26.6%**	**-27.1%**	**-26.9%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.62	0.36	0.37
J10	J/O Chai Wan Road and San Ha Street	Signal	54.7%	6.7%	8.7%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	63.4%	47.0%	49.2%

*Notes: Reserve Capacity (RC) for signal controlled junction;
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control will be required

The results indicate that J4, J8 and J10 would be overloaded under the Reference Case, i.e. even without the proposed Site I or Site II development due to a significant increase of background traffic in the future.

7 Conclusions

7.1 *Summary of Findings*

7.1.1 Halcrow are commissioned by Architectural Services Department to undertake a traffic impact assessment study for the following proposed developments:

Site I – Located at Cape Collinson Road opposite Chai Wan Chinese Permanent Cemetery Columbarium (Lower Columbarium); for the provision of multi-storey columbarium building, comprising about 15,000 niches with ancillary facilities.

Site II – Located at the junction of Lin Shing Road / Cape Collinson Road, for the provision of multi-storey columbarium building, comprising about 8,000 niches with ancillary facilities.

7.1.2 Traffic count and Pedestrian count surveys were undertaken on a normal weekday in March 2011 and during the Ching Ming Festival Period in April 2011 including Ching Ming, and the Saturdays and Sundays preceding and following Ching Ming.

7.1.3 The assessment years are Baseline 2011 and future years 2016, 2021 and 2026. Each of the potential sites is assessed independently.

7.1.4 For traffic impact assessments, junction capacity assessments are undertaken for the peak hour and for the following critical conditions:

- Ching Ming (road closure of Lin Shing Road and Cape Collinson Road except for franchised bus and GMB are implemented)
- Critical Weekend (traffic diversion and one way system within Chai Wan Cemeteries are implemented).

7.1.5 Junction capacity assessments are carried out for all the key junctions within the Study Area. The results indicated that most of the key junctions would perform satisfactorily in all assessment years even with the Potential Site I or II developments. The traffic impact to be generated by either Site I or Site II are not significant and would not create adverse impact to the nearby road network. However, it should be noted that the three junctions along Lin Shing Road, Cape Collinson Road and Shek O Road would be seriously overloaded if without the management and controlled by the Police throughout the festival days when pedestrian demand is extremely heavy.

7.1.6 Pedestrian assessments are carried out based on the worst case situation, i.e. Ching Ming Day when pedestrian flow is the highest over the festival period. The level of service of the critical pedestrian links in the study area are calculated and the results reveal that the walking environment and vehicular / pedestrian conflicts at several locations are of concern, namely Lin Shing Road, Junction of Lin Shing Road and Cape Collinson Road and Junction of Shek O Road and Cape Collinson Road.

7.1.7 The assessment results indicate that the walking environment along the major pedestrian routes such as Lin Shing Road would be deteriorated to an undesirable level even without the proposed development Site I or Site II, any additional pedestrian traffic even if it is small would further aggravate the problem. Hence, a number of pedestrian improvement schemes which focus on minimising the vehicular and pedestrian conflicts, the underlying problems, and enhancing pedestrian facilities and environment in the area are proposed.

7.1.8 Based on the assessment results, the proposed improvement schemes are prioritised:

1. Provision of new pedestrian Access Route 2 with escalators and stairways linking Cape Collinson Road and San Ha Street, with associated footpath and carriageway widening on Cape Collinson Road and special traffic plan.
2. Junction improvement at J/O Cape Collinson Road and Lin Shing Road.
3. Provision of new pedestrian Access Route 1 with stairways linking Cape Collinson Road and Fu Tsui Street.

In essence, Item 1 and 2 above are essential to mitigate the potential problems to be induced by Site I or Site II development.

7.1.9 Special Traffic Plan is proposed to be implemented along and in the vicinity of San Ha Street to facilitate the operation of the hillside escalators.

- Conversion of San Ha Street to one-way westbound direction in order to free up space for visitors.

- Closure of existing metered car parking spaces on the southern carriageway for temporary bus stand and/or pick up/drop off layby for car/taxi.

- Temporary bus stand for special bus services from Heng Fa Chuen MTR Station to San Ha Street and Shau Kei Wan MTR Station to San Ha Street and some existing bus services diverted from Chai Wan Road to San Ha Street.

- Temporarily closing the nearside lane of Chai Wan Road to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street.

- The existing GMB service on San Ha Street westbound is to be maintained.

- The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street, and San Ha Street are to be maintained.

- The arrangement for guiding pedestrians for access from Chai Wan MTR Station to escalators on San Ha Street via Chai Wan Park and Yee Shun Street and pedestrian egress route from San Ha Street to Chai Wan MTR Station via Chai Wan Road southern footpaths and the footbridges across Chai Wan Road Roundabout may be considered.

7.1.10 New bus services from Shau Kei Wan MTR Station and from Heng Fa Chuen MTR Station to San Ha Street, are proposed. Strengthening of existing bus services running along Chai Wan Road are also required to cope with the anticipated demand. Some of the eastbound services on Chai Wan Road can be diverted to the temporary bus stop at San Ha Street. Bus fleet requirements are set out in 5.3.5.

7.1.11 Sensitivity tests have been carried out and it is identified that most of the road and pedestrian network (with improvement schemes) in the area would be able to cope with a further increase of development traffic by 20% and the background traffic underestimated by 20%.

7.2 Conclusions

7.2.1 Based on the traffic conditions being observed during the Ching Ming festive period, it is considered that the existing development intensity in Chai Wan Cemeteries has already achieved its optimum level. The proposed development of Site I or Site II would not be feasible without additional transport provisions particularly for pedestrian facilities in the area.

7.2.2 The results of the traffic impact assessment indicate that the proposed development Site I or Site II would not create adverse vehicular traffic impact to the road network in Chai Wan district. However, due to extremely high volume of pedestrian activities during Ching Ming festive periods, additional pedestrian facilities are proposed in order to minimise the pedestrian impact to be induced by the proposed Site I or Site II development.

7.2.3 For the development of Site I or Site II, the following improvement schemes are needed and prioritised into the following order:

1. Access Route 2 (Essential) – a new pedestrian access route, with escalators and stairway connecting Cape Collinson Road, near Site I, with San Ha Street. As part of the new provisions, local footpath and carriageway widening at short sections of Cape Collinson Road are required to accommodate the resulting increase of pedestrian flows. The estimated construction cost is around HK$65 million subject to the provisions of escalators.

2 Junction Improvement at Lin Shing Road and Cape Collinson Road (Essential) – local widening of carriageway and footways and provision of bus bay to minimise pedestrian/ vehicular conflicts at the junction. The estimated construction cost is around HK$1.5 million.

3. Access Route 1 (Optional) – additional pedestrian access route connecting Site I with the existing pedestrian stairways near Wan Tsui Estate/ Yan Tsui Court. The estimated construction cost is around HK$4 million.

7.2.4 Overall, the proposed Site I development (i.e. 15,000 niches), which has a higher level of development intensity than Site II (i.e. 8,000 niches), is considered the optimum development level. Taking into account the locations of Site I and Site II, if Route Access 2 (with escalators and stairway) linking Cape Collinson Road and San Ha Street is chosen, the proposed development at Site I is preferred than Site II.

Figures

LEGEND:

POTENTIAL SITE LOCATION FOR COLUMBARIUM DEVELOPMENT

INFLUENCED AREA FOR TIA

842000E

843000E

844000E

814000N

813000N

INFLUENCED AREA FOR TIA

PROJECT SITE I

PROJECT SITE II

CHAI WAN

柴灣

CHAI WAN KOK

柴灣角

CHAI WAN AU

柴灣坳

SIU SAI WAN

小西灣

SIU SAI WAN ROAD

CHAI WAN ROAD

TAI TAM ROAD

SHEK O ROAD

WING TAI ROAD

SAN WAN STREET

CAPE COLLINSON ROAD

FEI TSUI ROAD

WAN TSUI ROAD

LIN SHING ROAD

ISLAND EASTERN CORRIDOR

CHAI WAN MTR STATION

CREMATORIUM

CHINESE PERMANENT CEMETERY

POTTINGER PEAK

TAI TAM GAP

POTTINGER GAP

Cargo Handling Basin

Sewage Treatment Works

Chai Wan Swimming Pool

Lok Kang Po

Siu Sai Wan Estate

Island Resort

Cheerful Garden

Fullview Garden

Harmony Garden

Hing Man Estate

Yue Wan Estate

Tsui Wan Estate

Hing Wah (1) Estate

Hing Wah (2) Estate

Lok Wah South Estate

Shan Tsui Court

Hiu Tsui Court

Kai Tsui Court

King Tsui Court

Yan Tsui Court

Wan Tsui Estate

Eung Wah Estate

Greenwood Terrace

Pamela Youde Nethersole Eastern Hospital

Dolphin

Bus Depot

Public Cargo Working Area

Works in progress

0 75 150 225 300 375

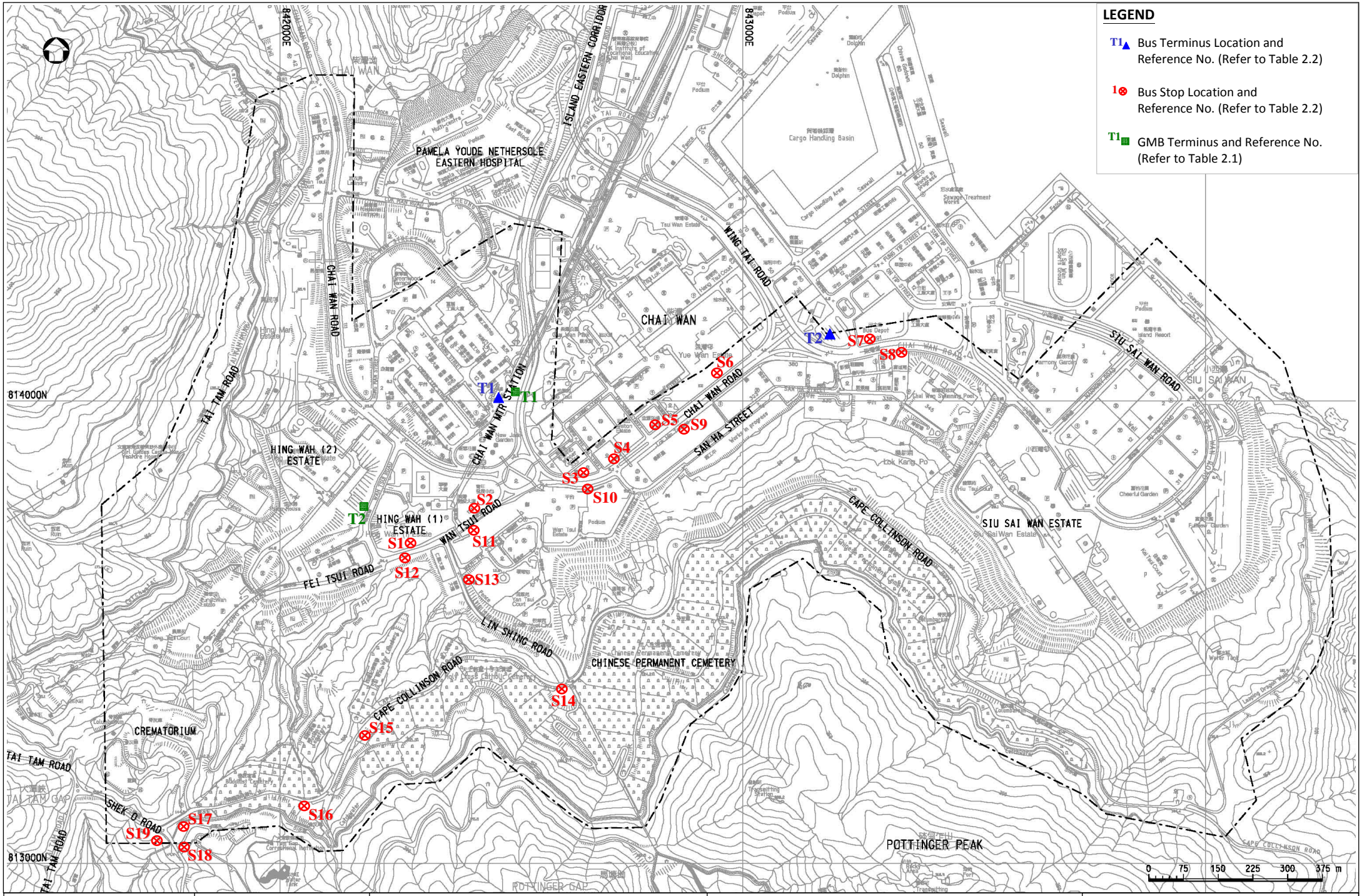
METRES

SCALE 1 : 7500

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	FIGURE 1.1	
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SITE LOCATION PLAN AND INFLUENCED AREA FOR TIA	Checked: OC	Scale: 1: 7500 @ A3 / Rev.: 0
				Designed: YC	Drawn: PF / Date: 27/04/2011

phillpF 11/05/2011

e:*proj*CTLDOS*figure*TIA*CCR_FIG_1_1_0_TIAR.dgn



Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: LOCATIONS OF BUS STOP / TERMINUS AND GMB TERMINUS IN THE VICINITY OF CHAI WAN CEMETERIES

FIGURE 2.1

Checked	Scale	Rev.
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Designed	**Drawn**	**Date**
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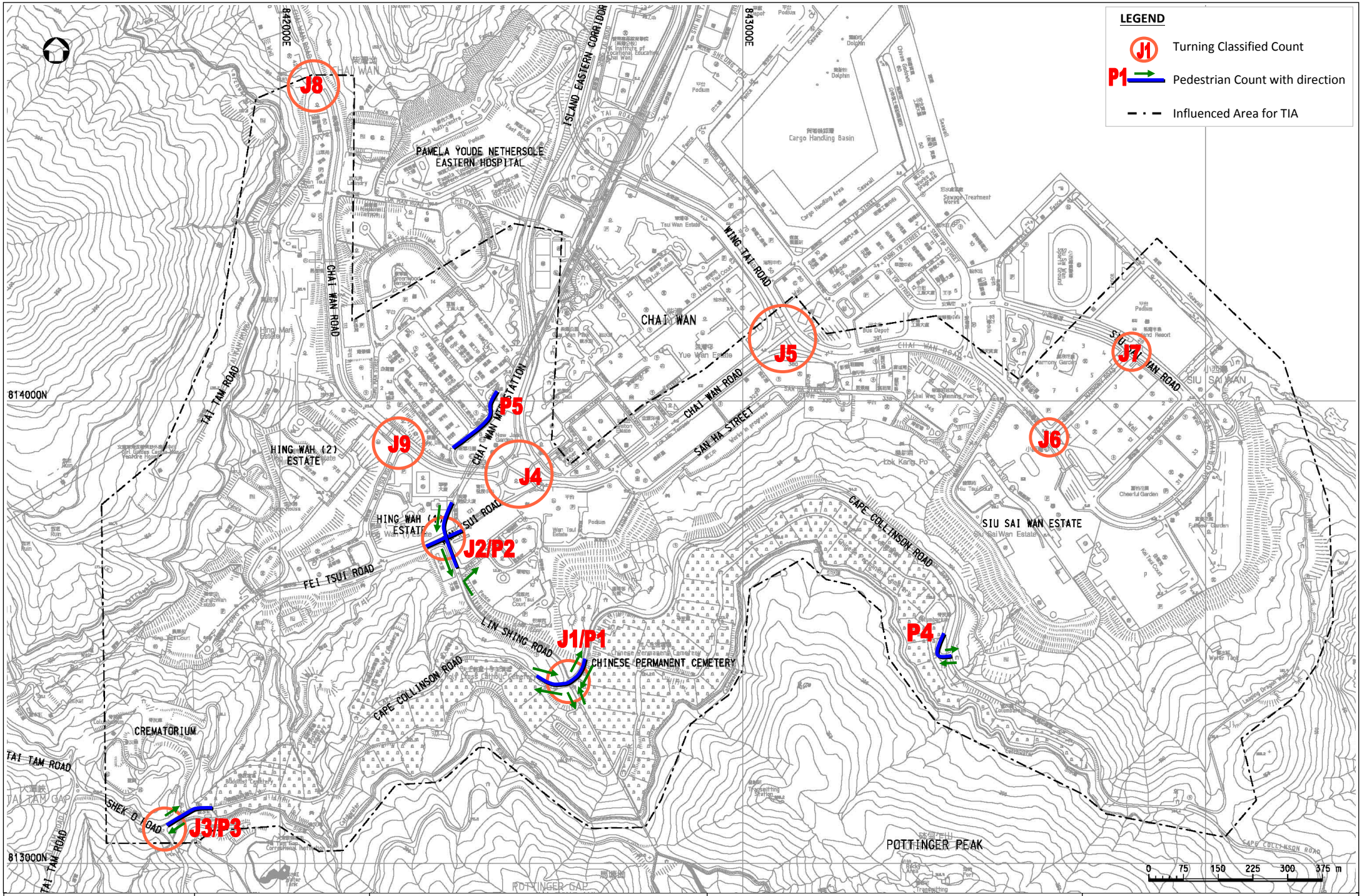
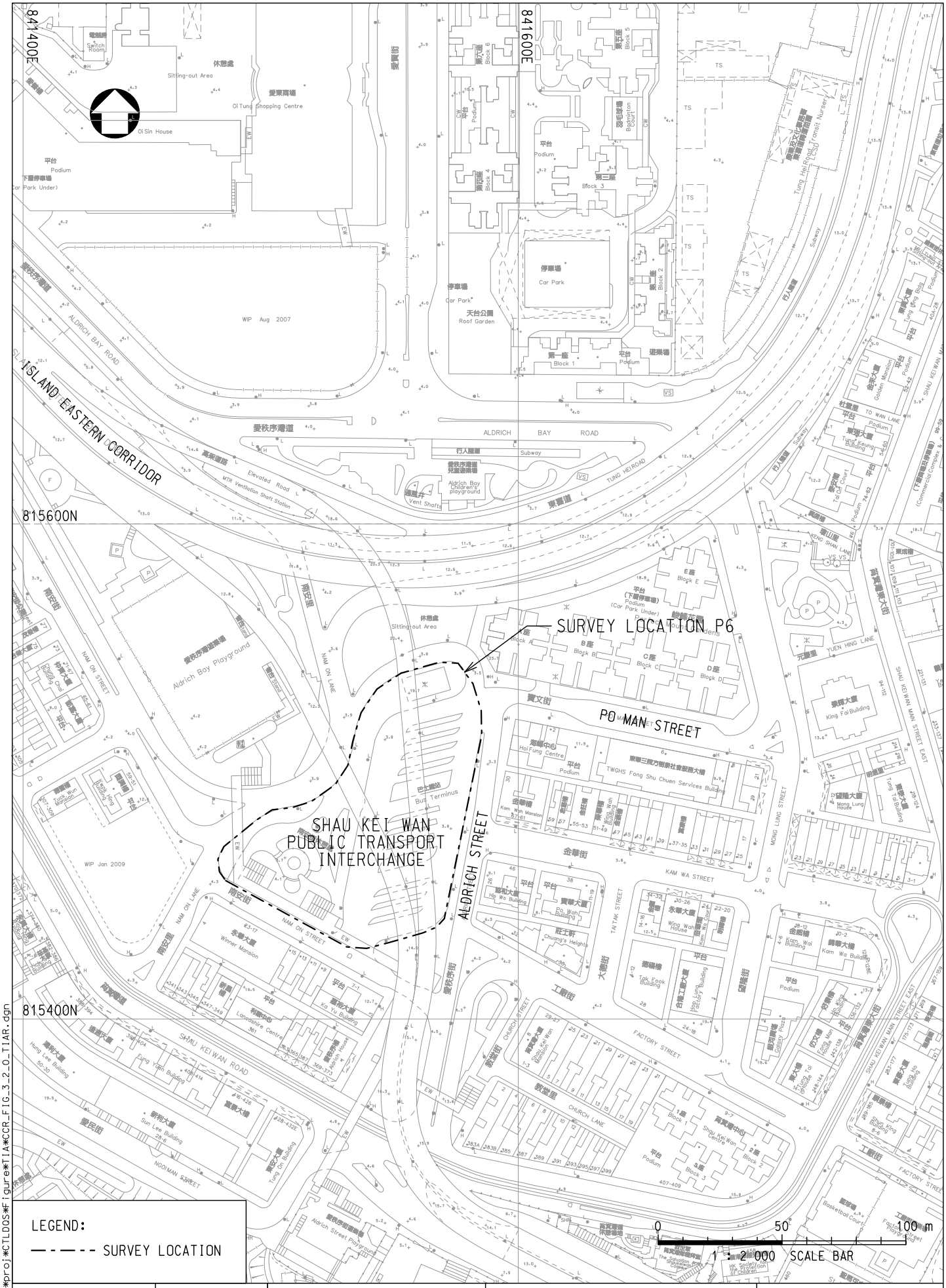


Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	FIGURE 3.1
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: LOCATION OF TRAFFIC AND PEDESTRIANS SURVEY (SHEET 1 OF 2)	Checked: OC; Scale: -; Rev.: 0; Designed: YC; Drawn: -; Date: 11/05/2011



Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	FIGURE 3.2	
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: LOCATION OF TRAFFIC AND PEDESTRIANS SURVEY (SHEET 2 OF 2)	Checked: OC / Scale: 1:2000@A4 / Rev.: 0	Designed: YC / Drawn: PF / Date: 05/05/2011

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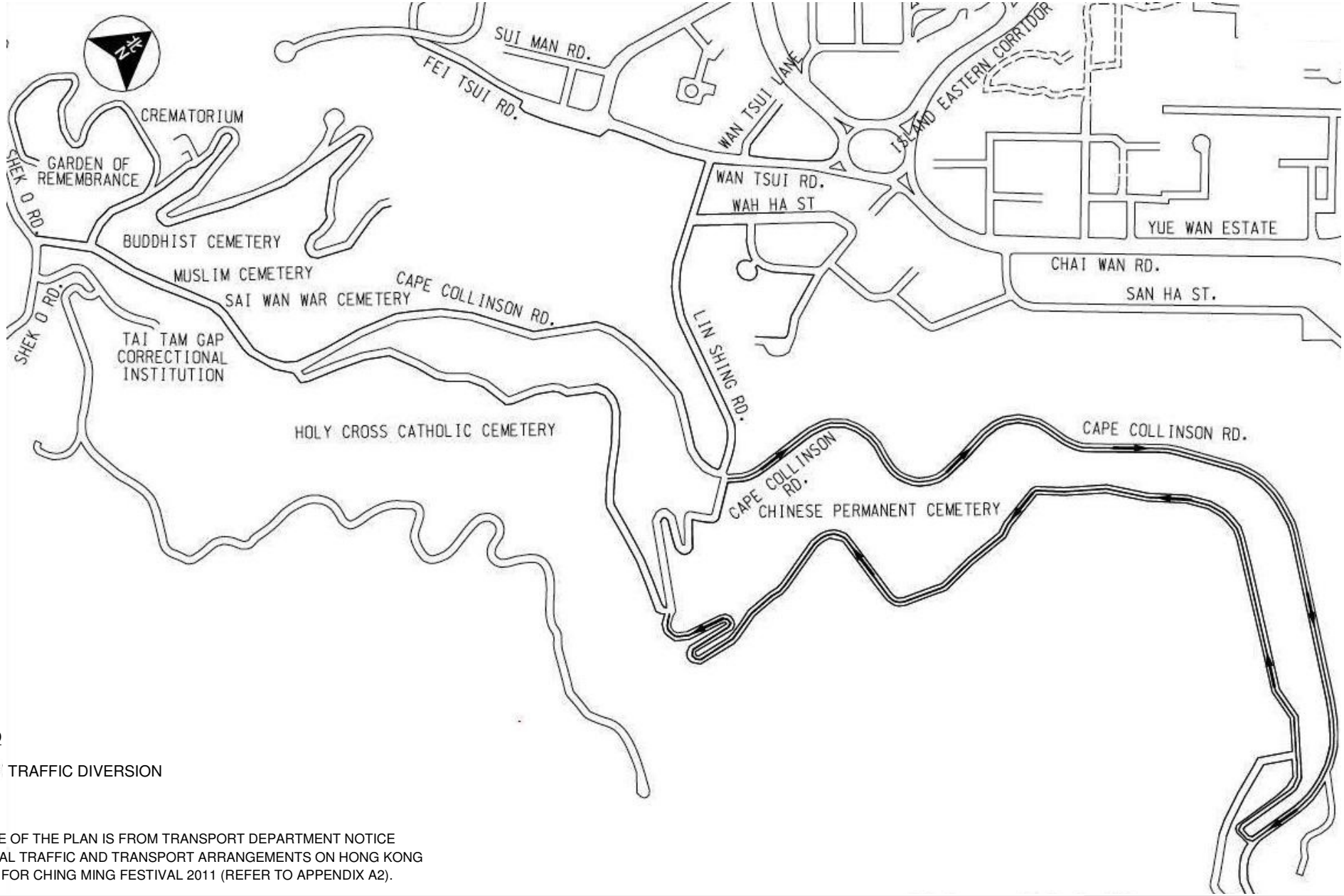


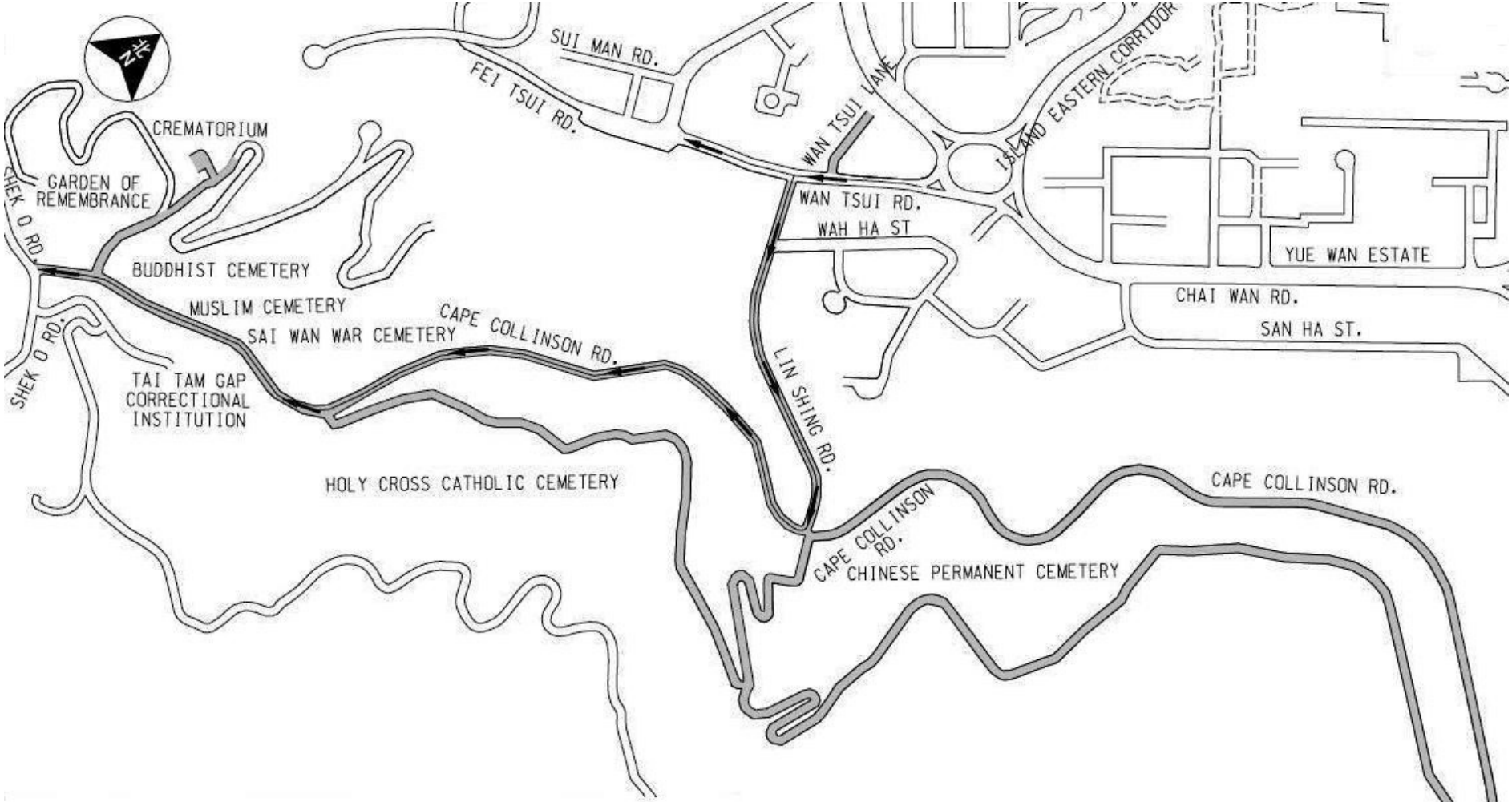
LEGEND

TRAFFIC DIVERSION

NOTE

1. SOURCE OF THE PLAN IS FROM TRANSPORT DEPARTMENT NOTICE – SPEICAL TRAFFIC AND TRANSPORT ARRANGEMENTS ON HONG KONG ISLAND FOR CHING MING FESTIVAL 2011 (REFER TO APPENDIX A2).

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.3**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: SPECIAL TRAFFIC ARRANGEMENT OBSERVED ON 2, 9 & 10 APRIL 2011 DURING SURVEY	Checked: OC / Scale: - / Rev.: 0 Designed: YC / Drawn: - / Date: 11/07/2011



LEGEND

ROAD CLOSURE

TRAFFIC DIVERSION

NOTE

1. SOURCE OF THE PLAN IS FROM TRANSPORT DEPARTMENT NOTICE – SPEICAL TRAFFIC AND TRANSPORT ARRANGEMENTS ON HONG KONG ISLAND FOR CHING MING FESTIVAL 2011 (REFER TO APPENDIX A2).

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.4**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: SPECIAL TRAFFIC ARRANGEMENT OBSERVED ON 3 & 5 APRIL 2011 DURING SURVEY	Checked: OC / Scale: - / Rev.: 0 Designed: YC / Drawn: - / Date: 11/07/2011

The queue for bus route No. 388 on Ching Ming Festival, 05/04/2011

Legend:

Queue for Sitting

Queue for Standing

842500E

814100N

814000N

柴灣公園 Chai Wan Park

CHAI WAN PUBLIC TRANSPORT INTERCHANGE

NING FOO STREET

LEE CHUNG STREET

CHAI WAN MTR STATION

ISLAND EASTERN CORRIDOR

Johnson Building

Eltee Building

Kantone Centre

Minico Building

Shell Industrial Building

Glory Industrial Building

Chai Wan Industrial Centre

Podium

Block 1

0 10 20 30 40

1 : 1 000 SCALE BAR

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Agreement No.: CPM301_15/10	**Figure 3.5**
		TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	**CHAI WAN STATION PUBLIC TRANSPORT INTERCHANGE AND BUS QUEUING ARRANGEMENT**

The queue for bus route No. 389 on Ching Ming Festival, 05/04/2011

Legend:

Queue for Sitting

Queue for Standing

SHAU KEI WAN MTR STATION ENTRANCE

SHAU KEI WAN PUBLIC TRANSPORT INTERCHANGE

PO MAN STREET

ALDRICH STREET

NAM ON STREET

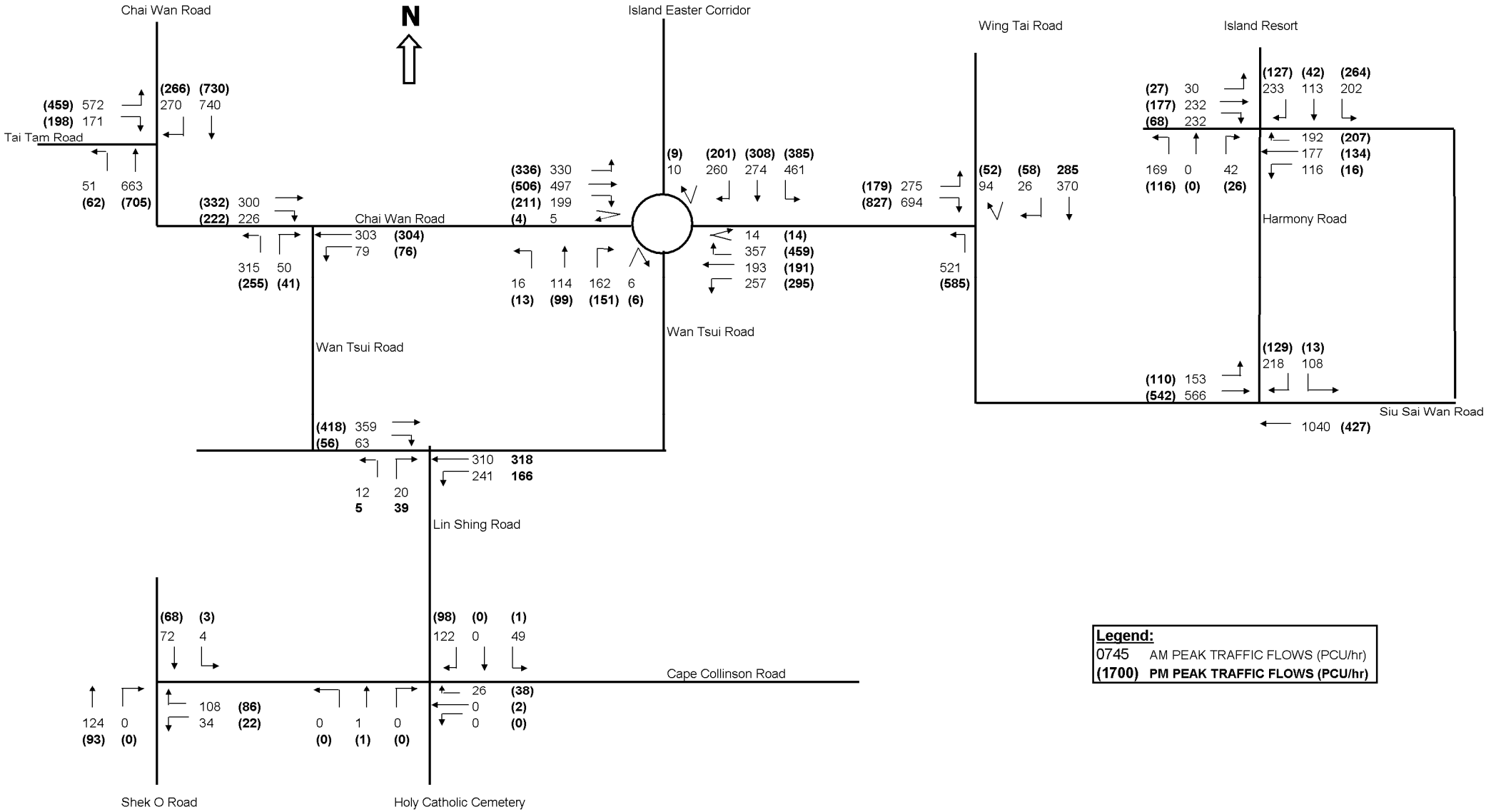
NAM ON LANE

0 10 20 30 40 50 m

1 : 1 000 SCALE BAR

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Agreement No.: CPM301_15/10	**Figure 3.6**
		TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	**SHAU KEI WAN STATION PUBLIC TRANSPORT INTERCHANGE AND BUS QUEUING ARRANGEMENT**

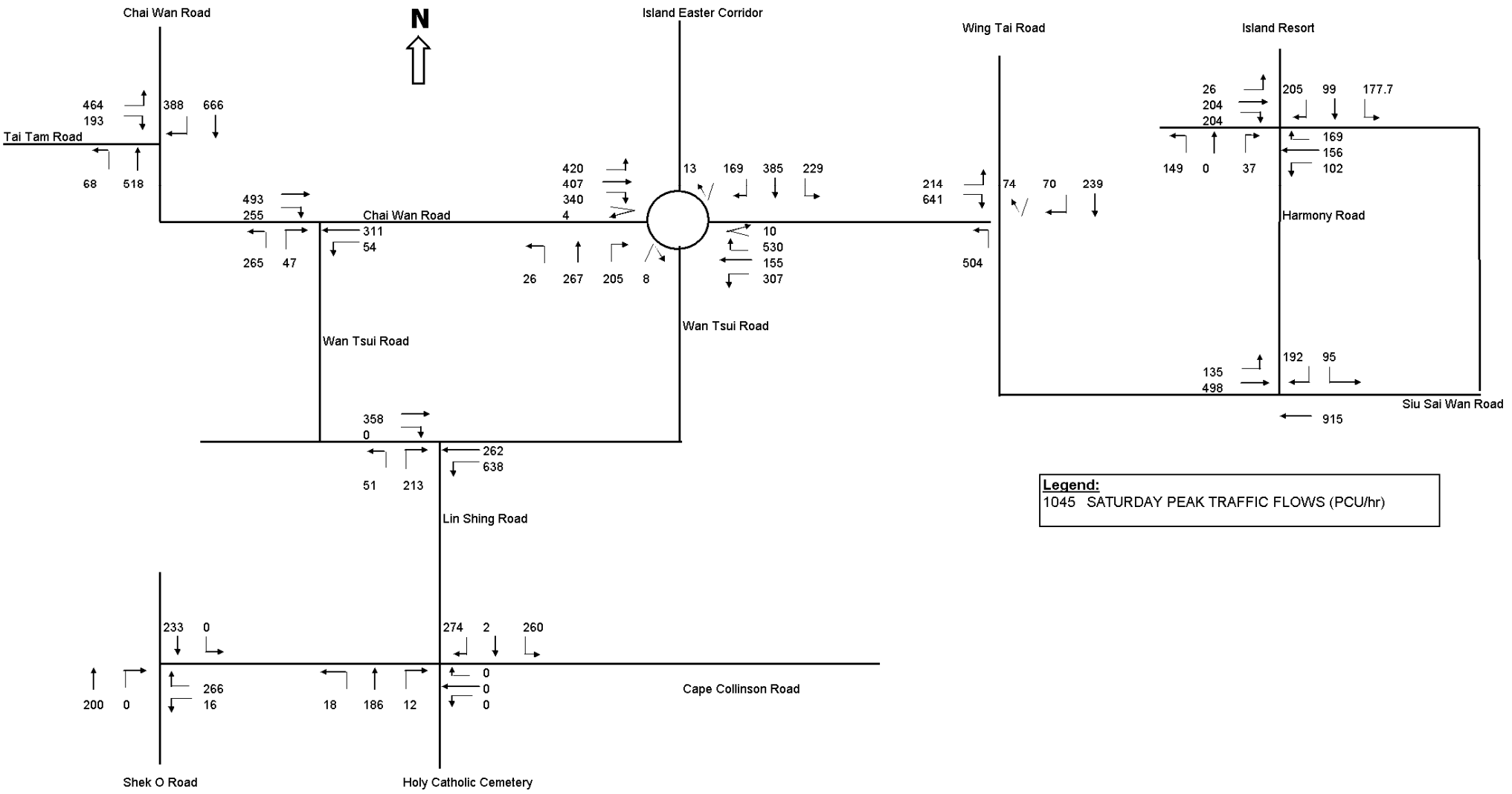
TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Weekday Observed Traffic Flows
Survey Date: 08/03/2011
AM Peak: 07:45-08:45
PM Peak: 17:00-18:00



Legend:
0745 AM PEAK TRAFFIC FLOWS (PCU/hr)
(1700) PM PEAK TRAFFIC FLOWS (PCU/hr)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.7**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: 2011 WEEKDAY OBSERVED TRAFFIC VOLUME	Checked: OC / Scale: - / Rev.: 0 / Designed: YC / Drawn: - / Date: 13/05/2011

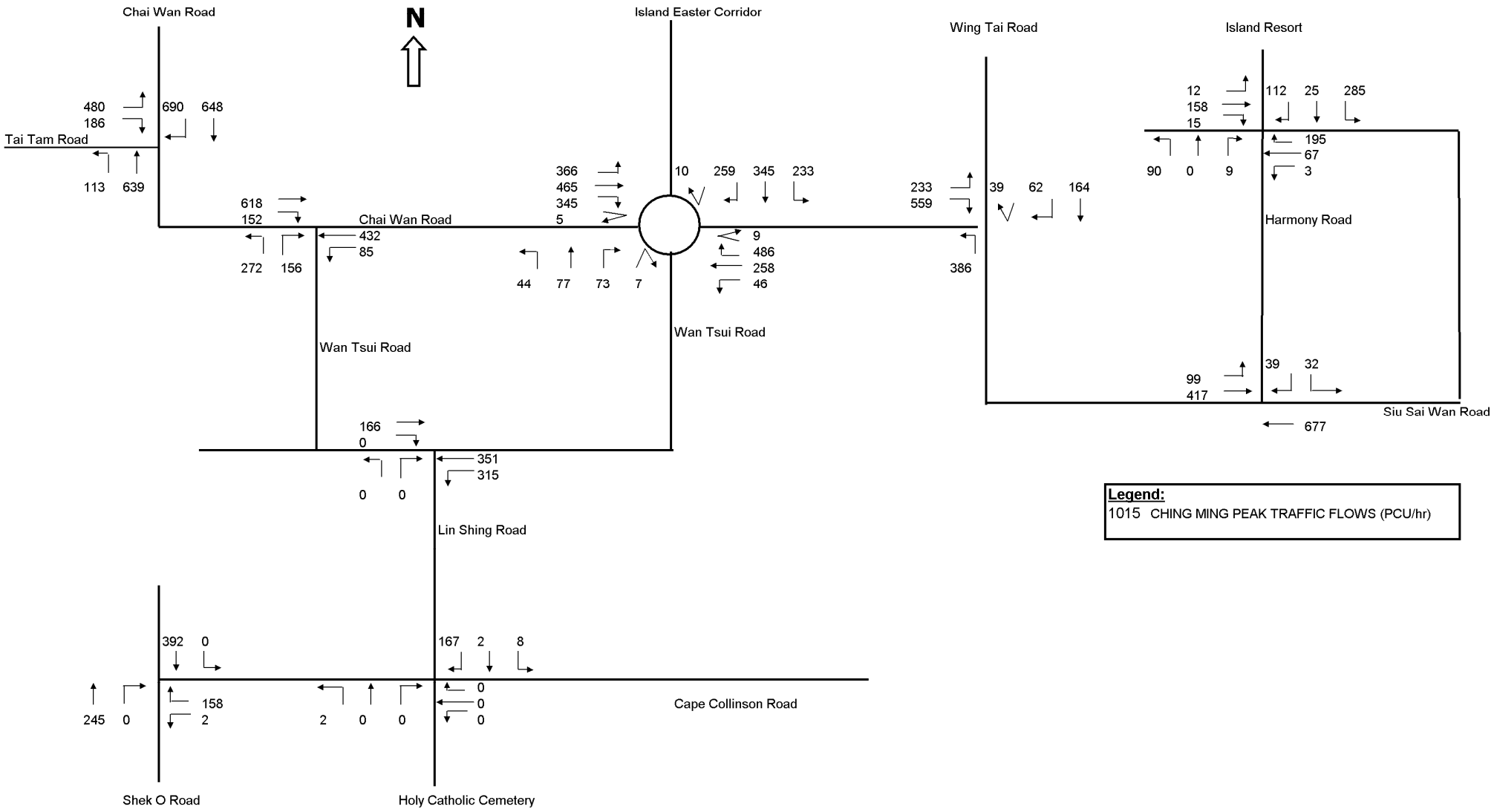
TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Weekend ObservedTraffic Flows
Survey Date: 02/04/2011
Peak: 10:45-11:45



Legend:
1045 SATURDAY PEAK TRAFFIC FLOWS (PCU/hr)

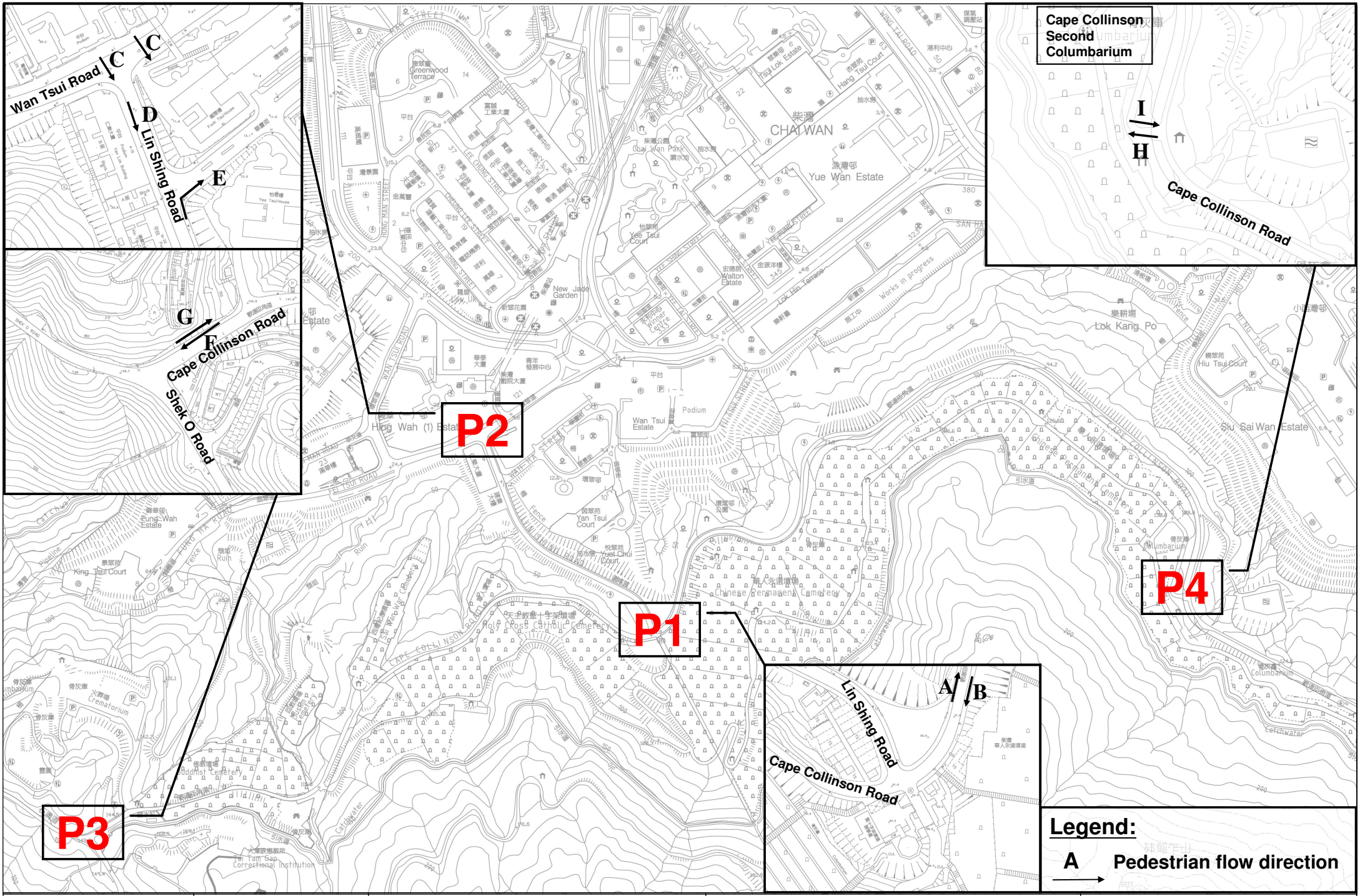
Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.8**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: 2011 WEEKEND OBSERVED TRAFFIC VOLUME	Checked: OC / Scale: - / Rev.: 0 / Designed: YC / Drawn: - / Date: 13/05/2011

TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Ching Ming Festival ObservedTraffic Flows
Survey Date: 05/04/2011
Peak: 10:15-11:15



Legend:
1015 CHING MING PEAK TRAFFIC FLOWS (PCU/hr)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.9**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: 2011 CHING MING FESTIVAL OBSERVED TRAFFIC VOLUME	Checked: OC; Scale: -; Rev.: 0; Designed: YC; Drawn: -; Date: 13/05/2011

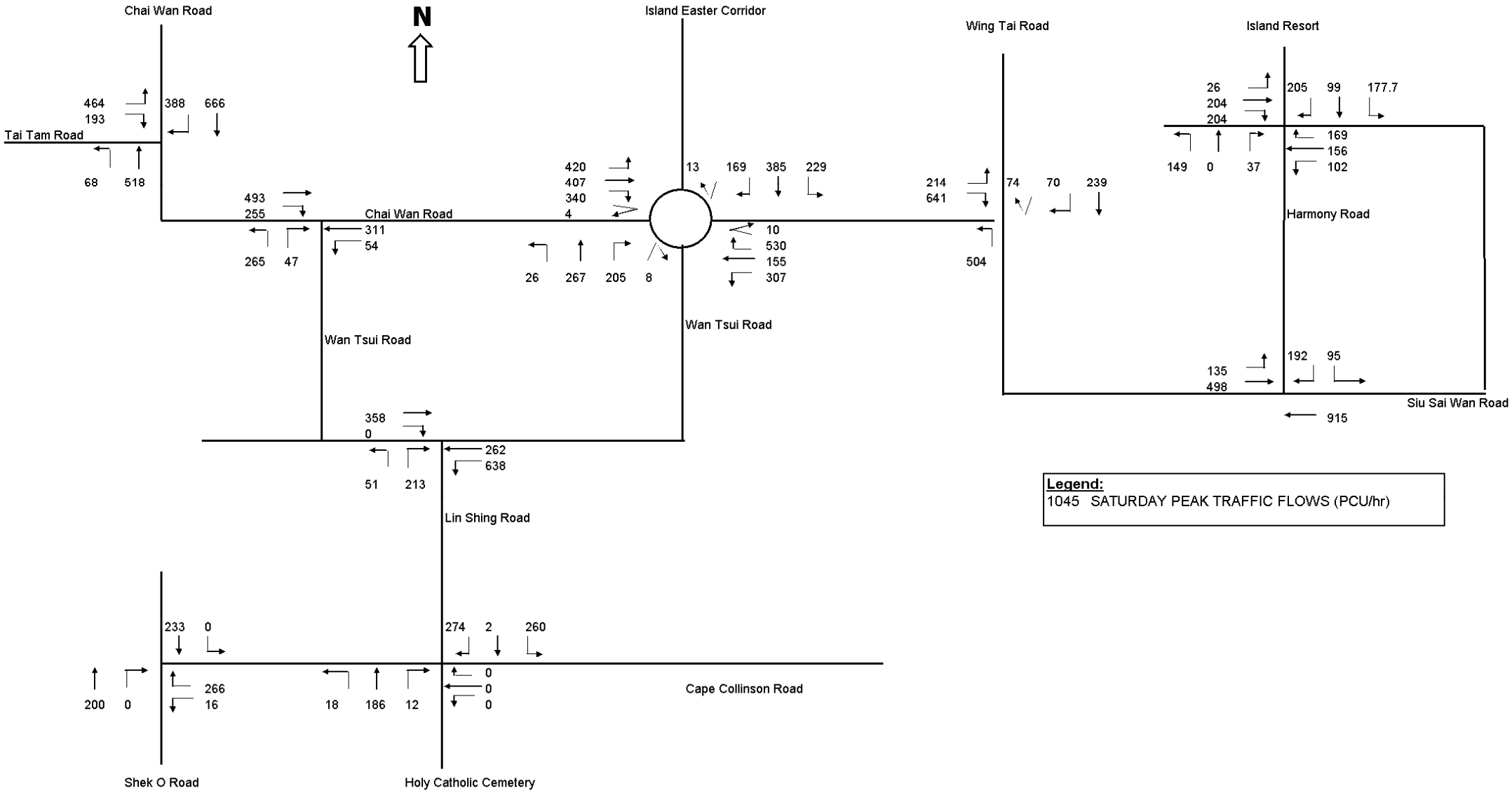


Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: 2011 OBSERVED PEDESTRIAN FLOWS CRITICAL LOCATION

FIGURE 3.10

Checked	Scale	Rev.
OC	-	1
Designed	**Drawn**	**Date**
YC	-	17/08/2011

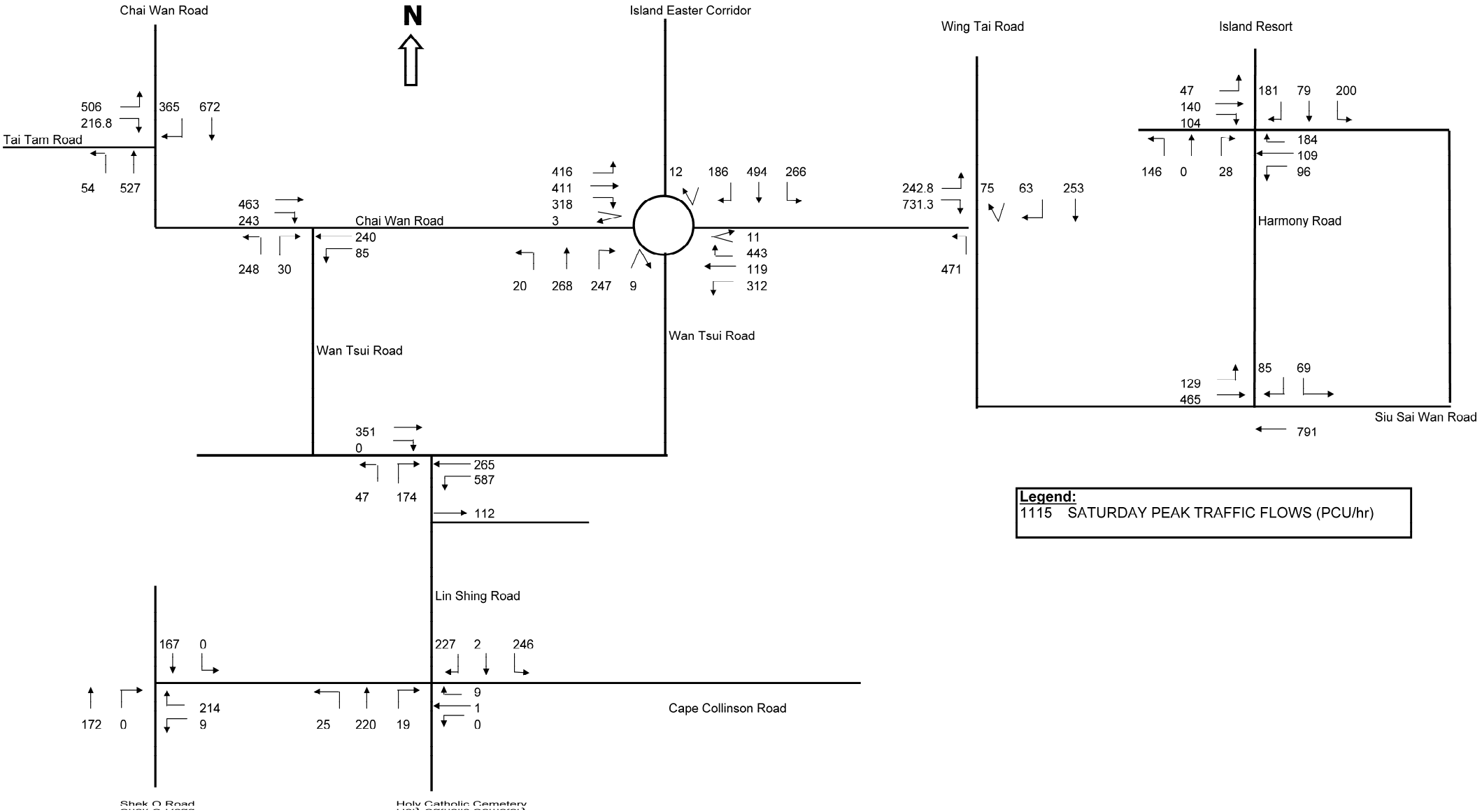
TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Weekend ObservedTraffic Flows
Survey Date: 02/04/2011
Peak: 10:45-11:45



Legend:
1045 SATURDAY PEAK TRAFFIC FLOWS (PCU/hr)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.11**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: SATURDAY 02/04/2011 OBSERVED TRAFFIC VOLUME	Checked: OC / Scale: - / Rev.: 0 / Designed: YC / Drawn: - / Date: 24/02/2012

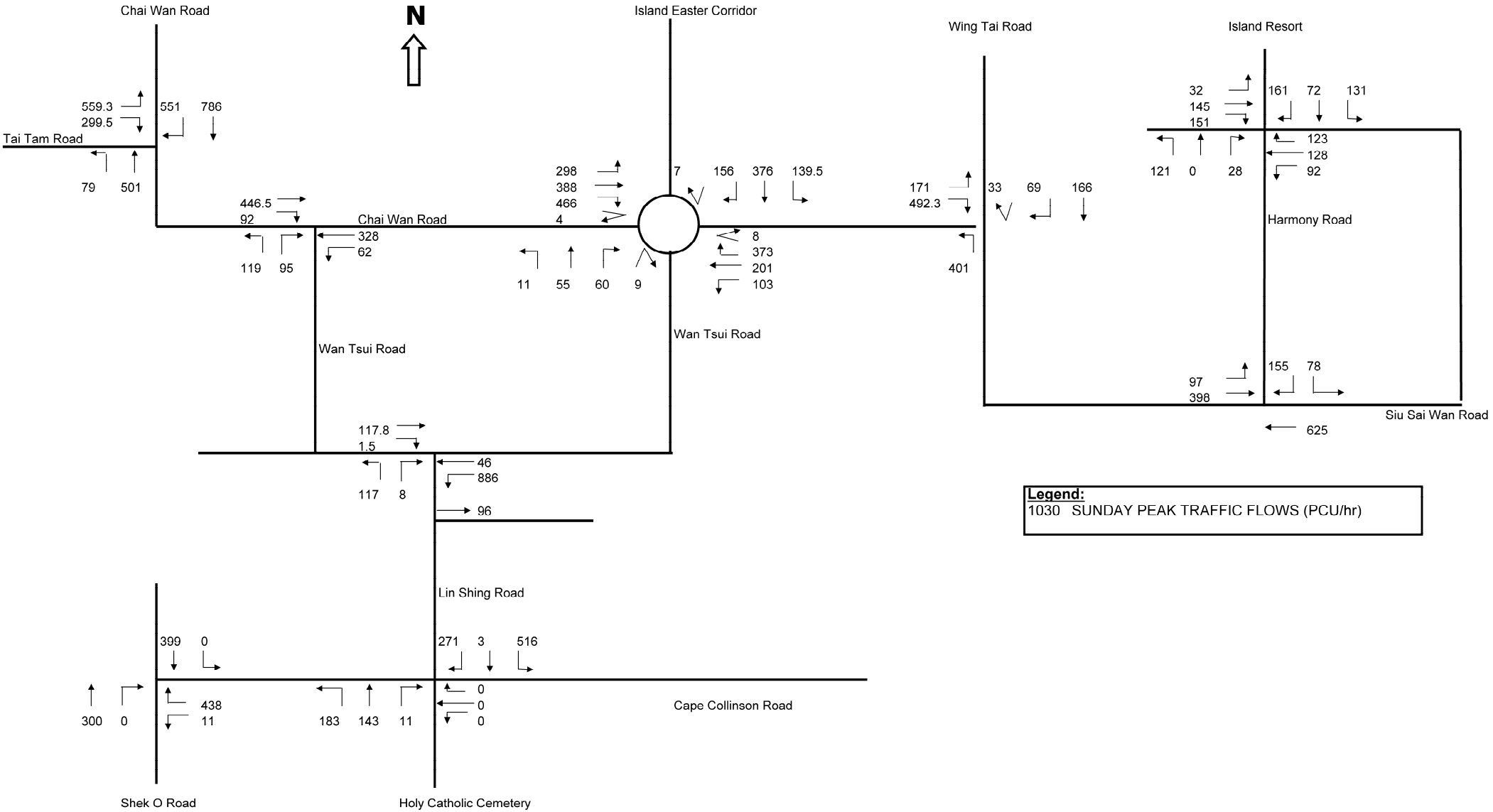
TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Weekend Observed Traffic Flows
Survey Date: 09/04/2011
Peak: 11:15-12:15



Legend:
1115 SATURDAY PEAK TRAFFIC FLOWS (PCU/hr)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.12**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: SATURDAY 09/04/2011 OBSERVED TRAFFIC VOLUME	Checked: OC / Scale: - / Rev.: 0 / Designed: YC / Drawn: - / Date: 24/02/2012

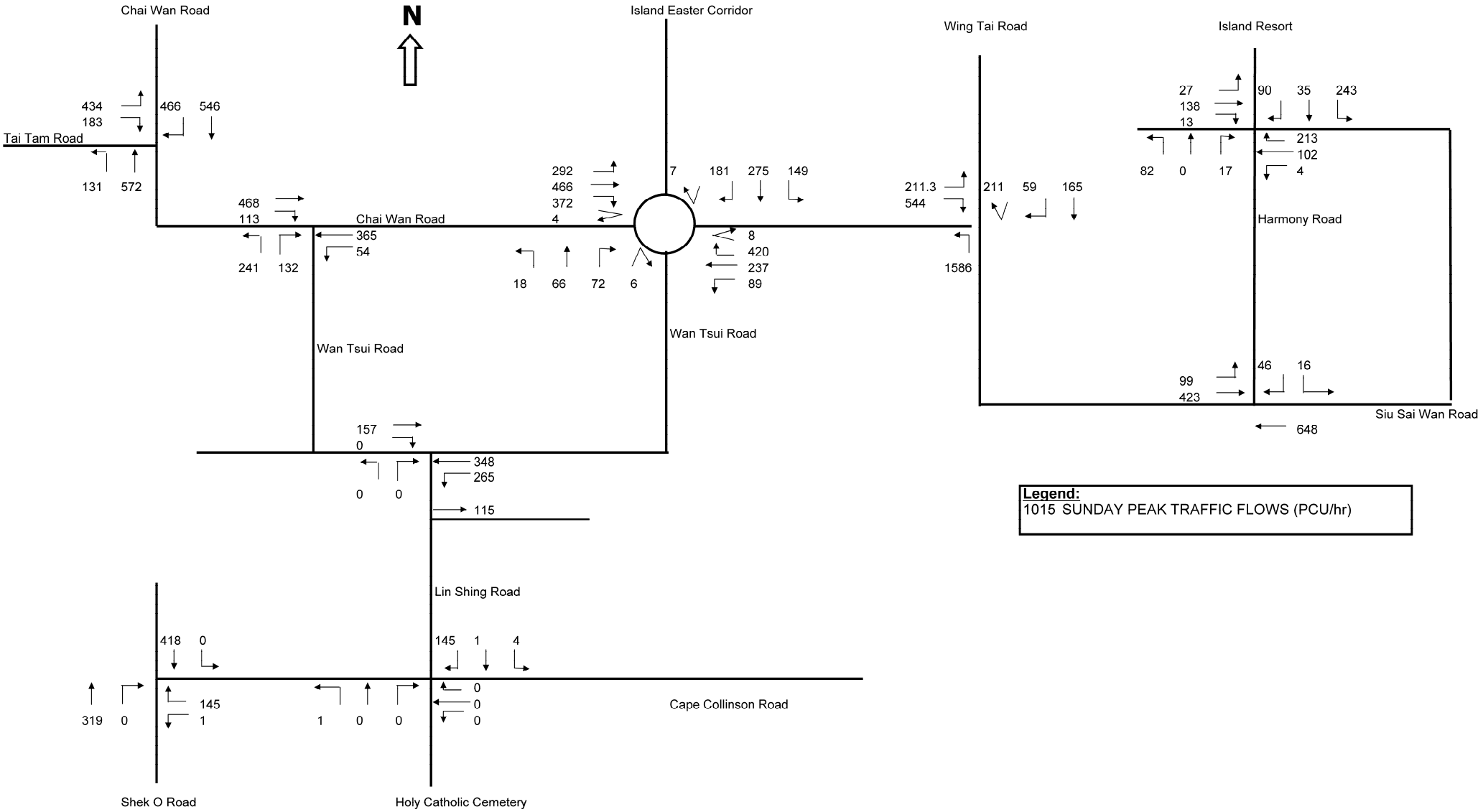
TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Weekend Observed Traffic Flows
Survey Date: 10/04/2011
Peak: 10:30-11:30



Legend:
1030 SUNDAY PEAK TRAFFIC FLOWS (PCU/hr)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.13**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: SUNDAY 10/04/2011 OBSERVED TRAFFIC VOLUME	Checked: OC / Scale: - / Rev.: 0 / Designed: YC / Drawn: - / Date: 24/02/2012

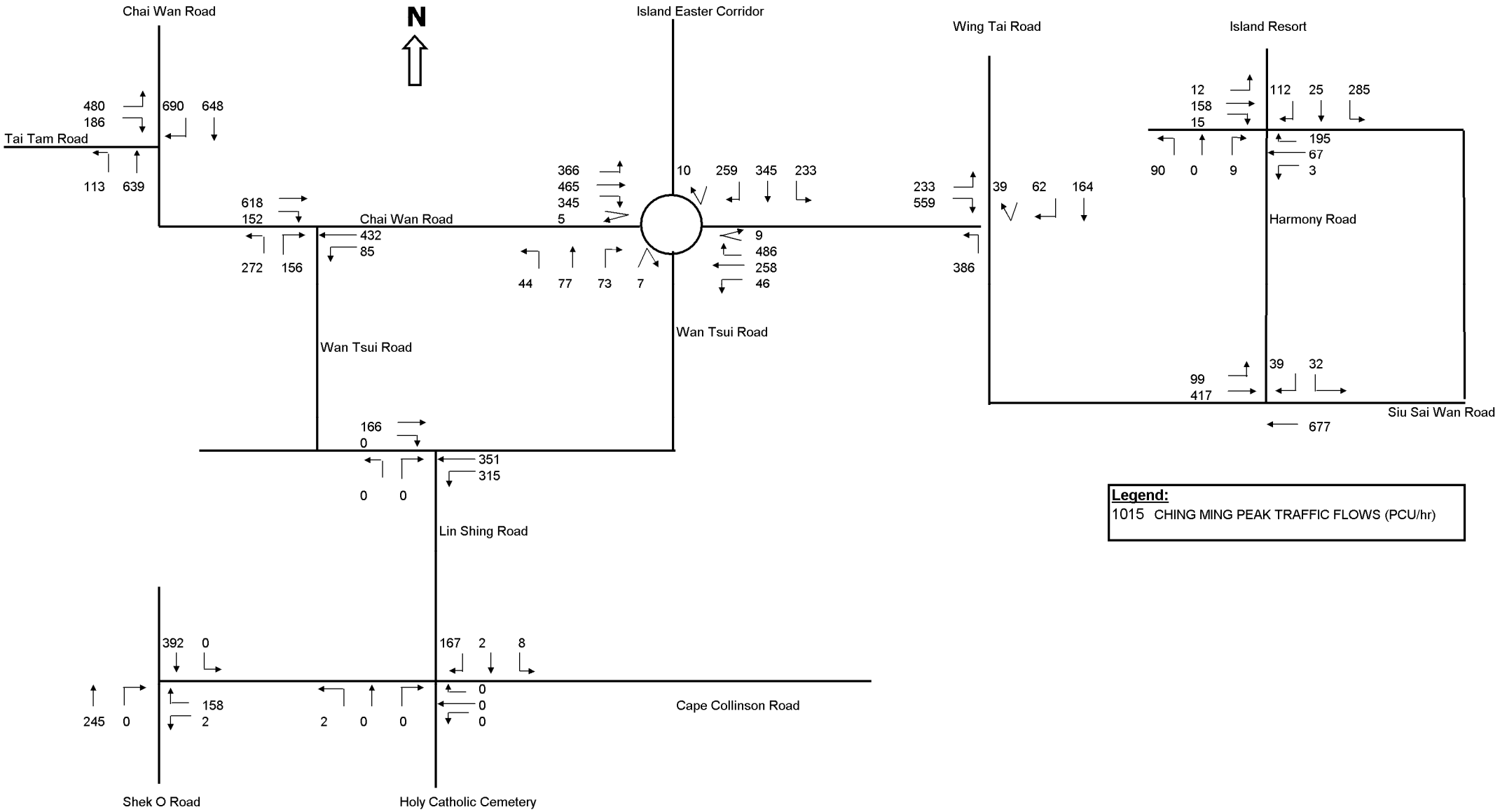
TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Weekend Observed Traffic Flows
Survey Date: 03/04/2011
Peak: 10:15-11:15



Legend:
1015 SUNDAY PEAK TRAFFIC FLOWS (PCU/hr)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.14**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: SUNDAY 03/04/2011 OBSERVED TRAFFIC VOLUME	Checked: OC; Scale: -; Rev.: 0; Designed: YC; Drawn: -; Date: 24/02/2012

TIA Study for Cape Collinson Columbarium, Chai Wan
2011 Ching Ming Festival ObservedTraffic Flows
Survey Date: 05/04/2011
Peak: 10:15-11:15



Legend:
1015 CHING MING PEAK TRAFFIC FLOWS (PCU/hr)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 3.15**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: TUESDAY 05/04/2011 CHING MING FESTIVAL OBSERVED TRAFFIC VOLUME	Checked: OC / Scale: - / Rev.: 0 Designed: YC / Drawn: - / Date: 24/02/2012

Figure 4.1
TIA Study for Cape Collinson Columbarium, Chai Wan
Committed Development Traffic Flows - Weekend

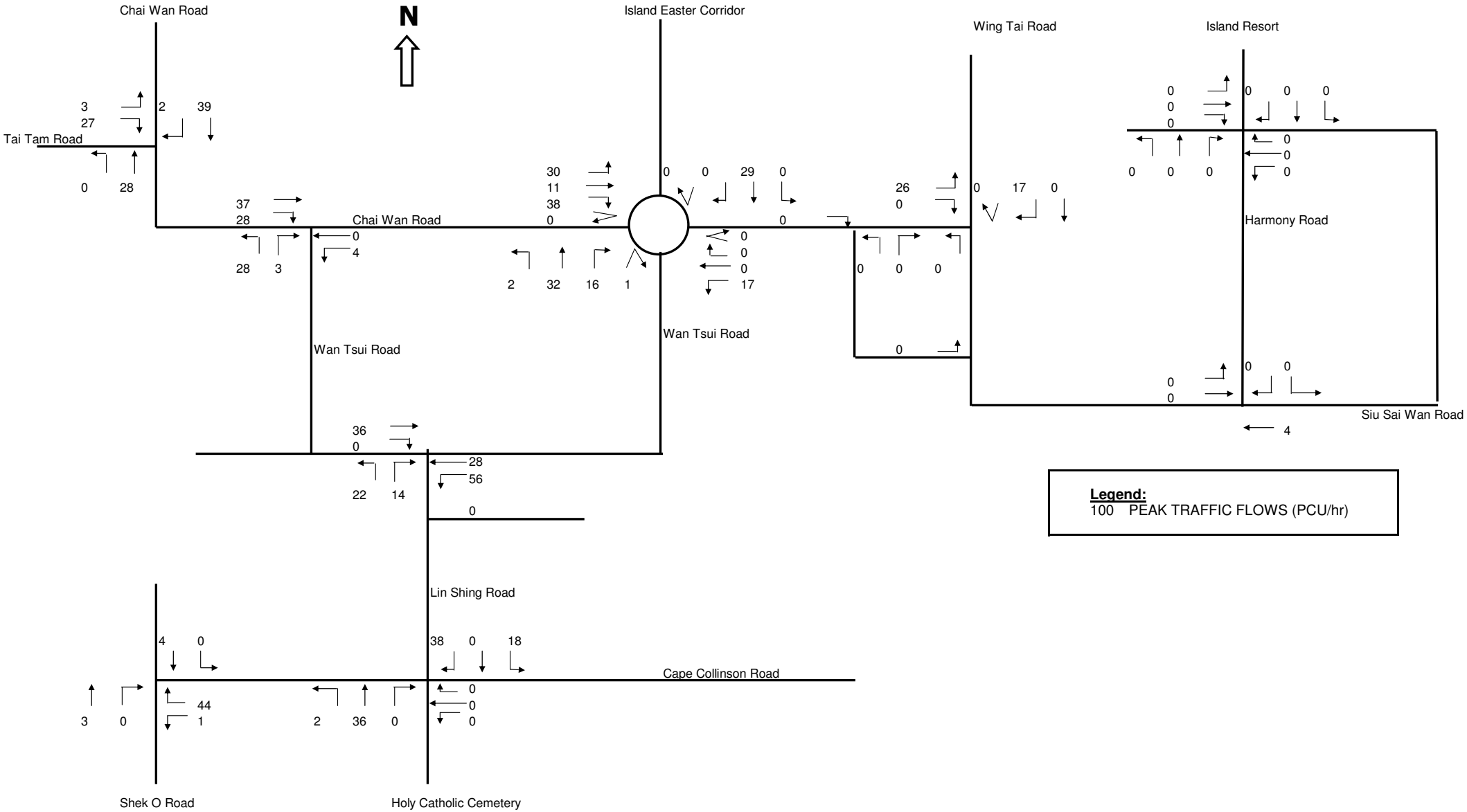


Figure 4.2
TIA Study for Cape Collinson Columbarium, Chai Wan
Site I Development Traffic Flows - Weekend

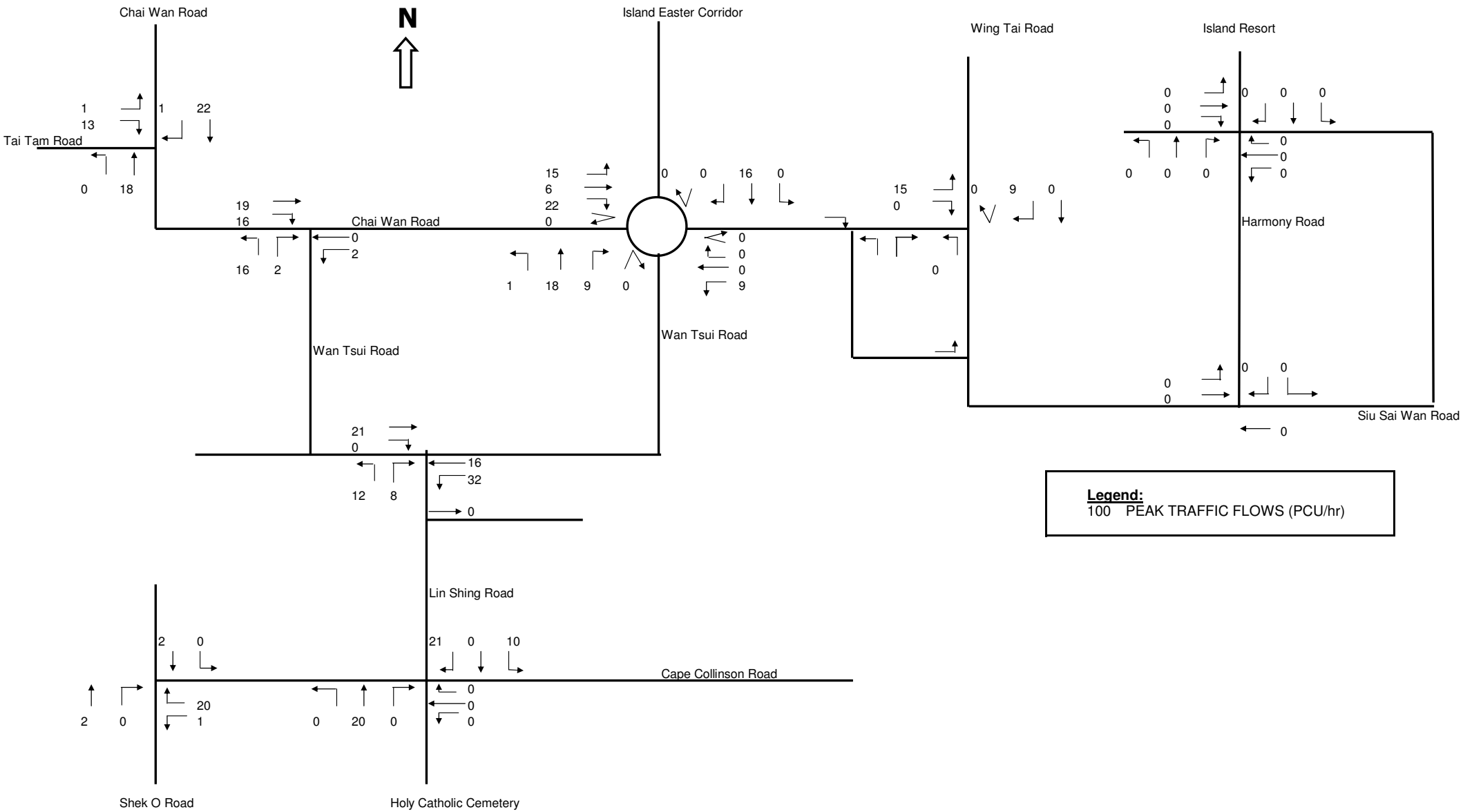


Figure 4.3
TIA Study for Cape Collinson Columbarium, Chai Wan
Site II Development Traffic Flows - Weekend

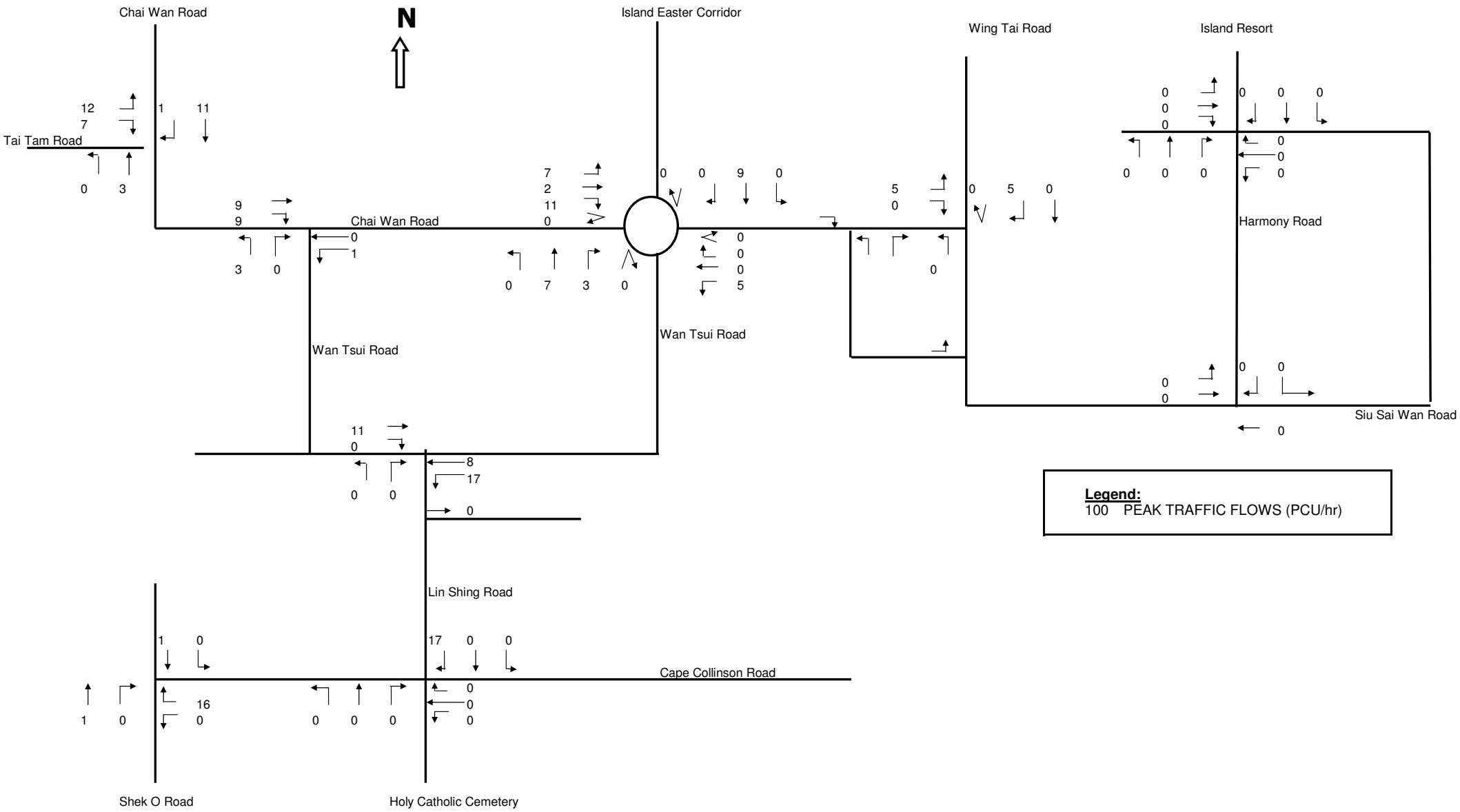


Figure 4.4
TIA Study for Cape Collinson Columbarium, Chai Wan
Committed Development Traffic Flows - Ching Ming Festival

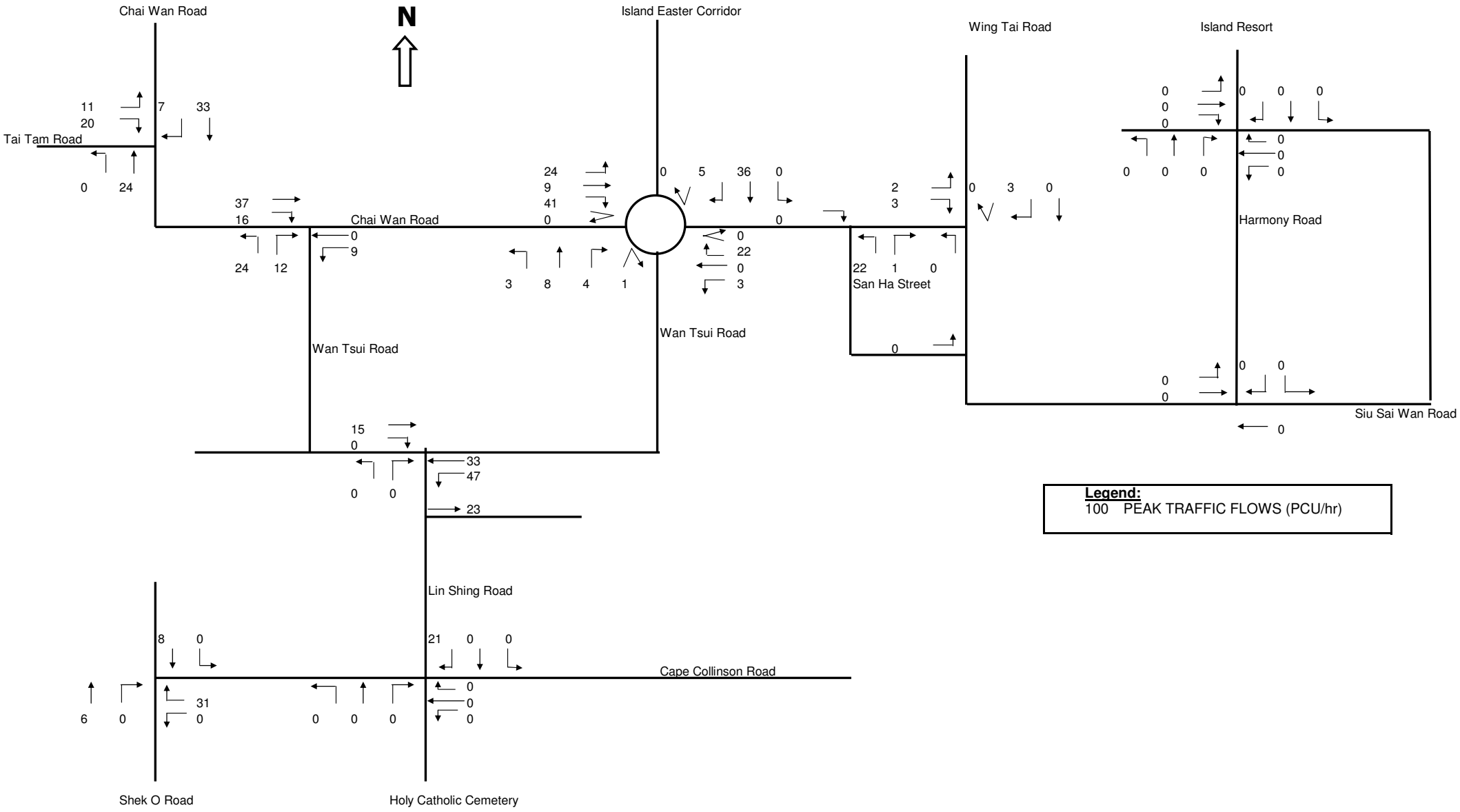


Figure 4.5
TIA Study for Cape Collinson Columbarium, Chai Wan
Site I Development Traffic Flows - Ching Ming Festival

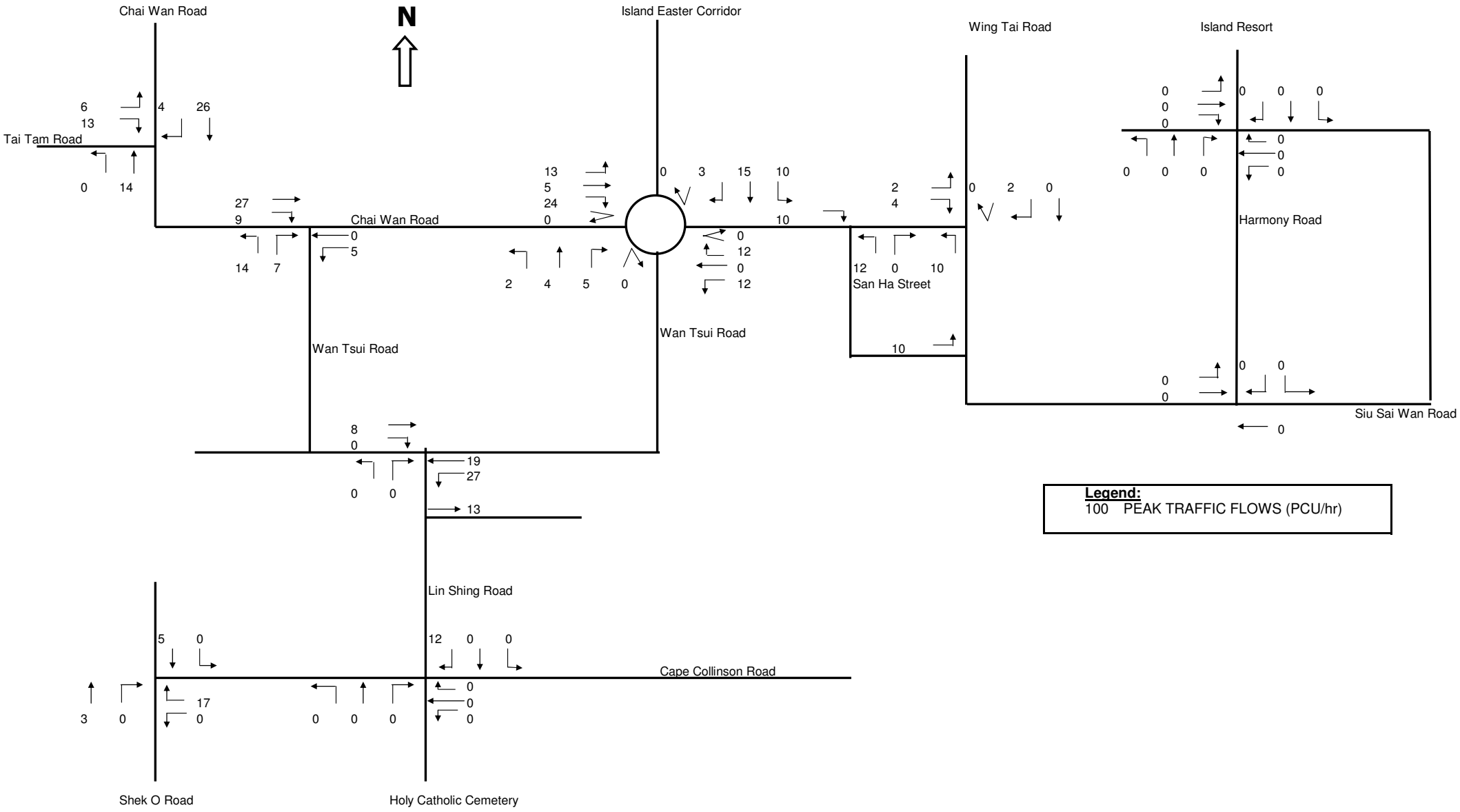
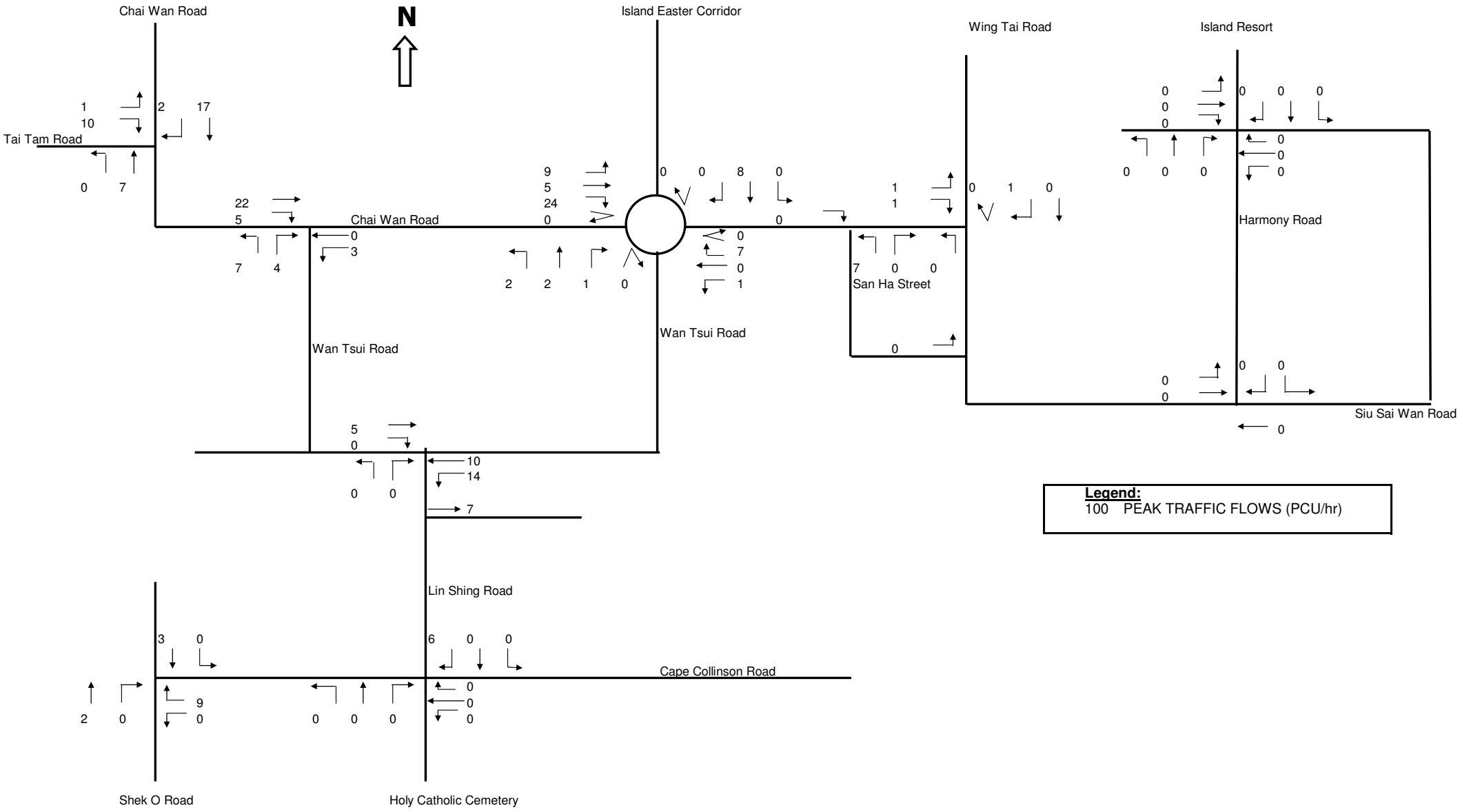


Figure 4.6
TIA Study for Cape Collinson Columbarium, Chai Wan
Site II Development Traffic Flows - Ching Ming Festival



842250E
842500E
842750E
843000E
813750N
813500N
EXIT B
CHAI WAN MTR STATION
EXIT E
CHAI WAN ROAD
LOK HIN TERRENCE
SAN HA STREET
11SE-D/DC17
TAI SHEUNG LO KWAN TEMPLE
11SE-D/DT10
TAI SHING ANTIQUE TEMPLE
ROUTE 2
CAPE COLLINSON ROAD
HING WAH SHOPPING CENTRE
WAN TSUI SHOPPING CENTRE
WAN TSUI ESTATE
WAN TSUI ROAD
11SE-D/C489
ROUTE 1
11SE-D/C494
YAN TSUI COURT
WAN TSUI ESTATE PARK
YUET CHUI COURT
LOWER COLUMBARIUM OF CHINESE PERMAMENT CEMETERY
11SE-D/FR18
PROJECT SITE I
LIN SHING ROAD
CAPE COLLINSON ROAD
CHINESE PERMANENT CEMETERY
PROJECT SITE II

NOTE:
1. ALL COORDINATES REFER TO HONG KONG 1980 GRID.

LEGEND:

- POTENTIAL SITE LOCATION FOR COLIMBARIUM DEVELOPMENT
- PREDOMINATE ACCESS ROUTE (ARRIVAL) DURING 2011 CHING MING FESTIVAL
- PREDOMINATE ACCESS ROUTE (DEPARTURE) DURING 2011 CHING MING FESTIVAL
- OTHER ACCESS ROUTE (DEPARTURE) DURING 2011 CHING MING FESTIVAL
- PROPOSED ADDITIONAL ACCESS ROUTE 1
- PROPOSED ADDITIONAL ACCESS ROUTE 2
- EXIT B — EXIT "B" OF CHAI WAN MTR STATION
- 11SE-D/FR18 — POTENTIALLY AFFECTED EXISTING REGISTERED SLOPE

0 25 50 75 100 125
METRES
SCALE 1 : 2500

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: EXISTING AND PROPOSED PEDESTRIAN ACCESS ROUTES

FIGURE 5.1

Checked	Scale	Rev.
OC	1:2500 @ A3	0
Designed	Drawn	Date
YC	PF	09/05/2011

philipF 11/05/2011
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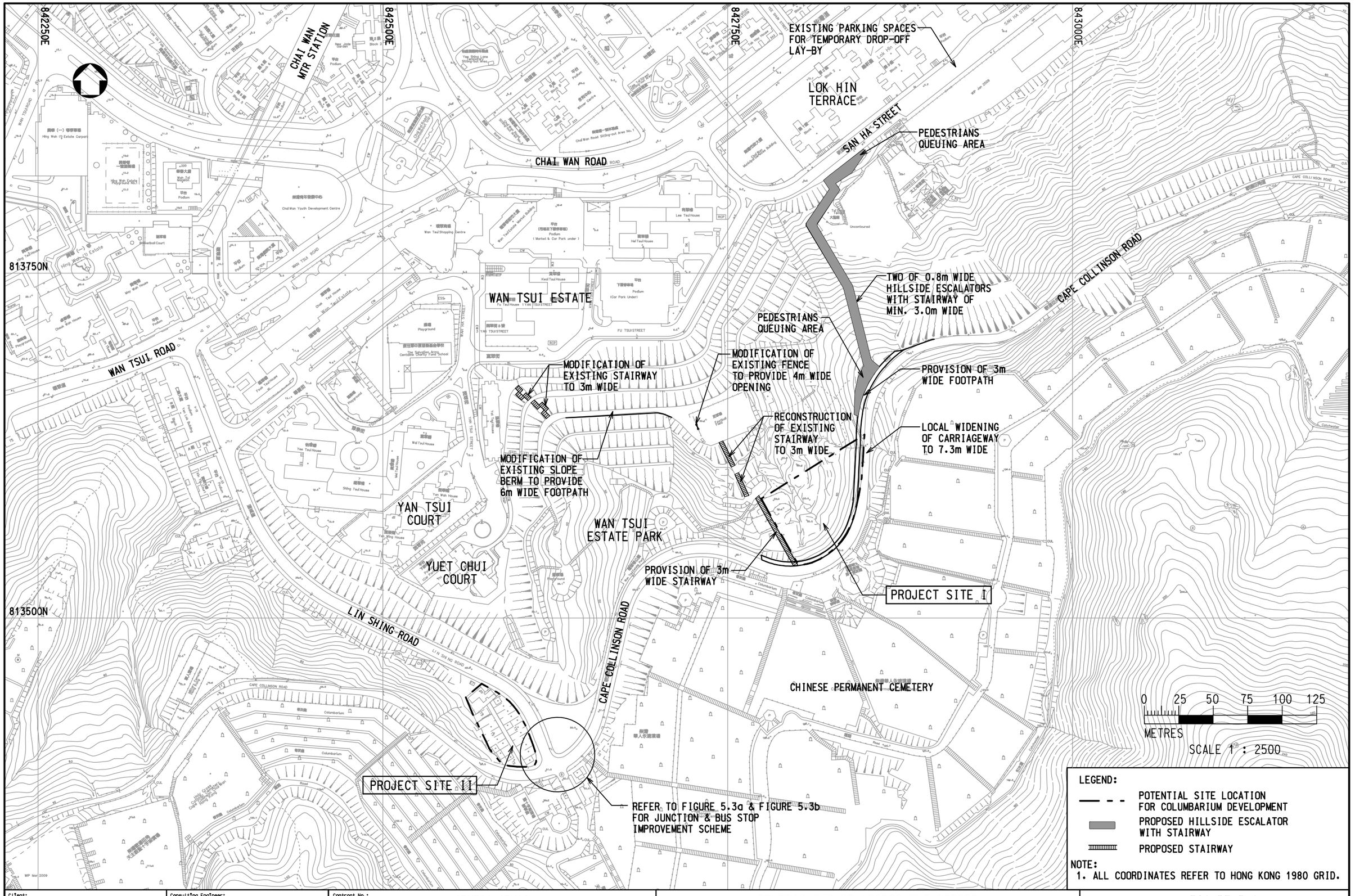

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED IMPROVEMENT SCHEMES FOR PEDESTRIAN FACILITIES

FIGURE 5.2a

Checked	Scale	Rev.
OC	1:2500 @ A3	2
Designed	Drawn	Date
YC	PF	16/02/2012

HN_Kaml 24/02/2012
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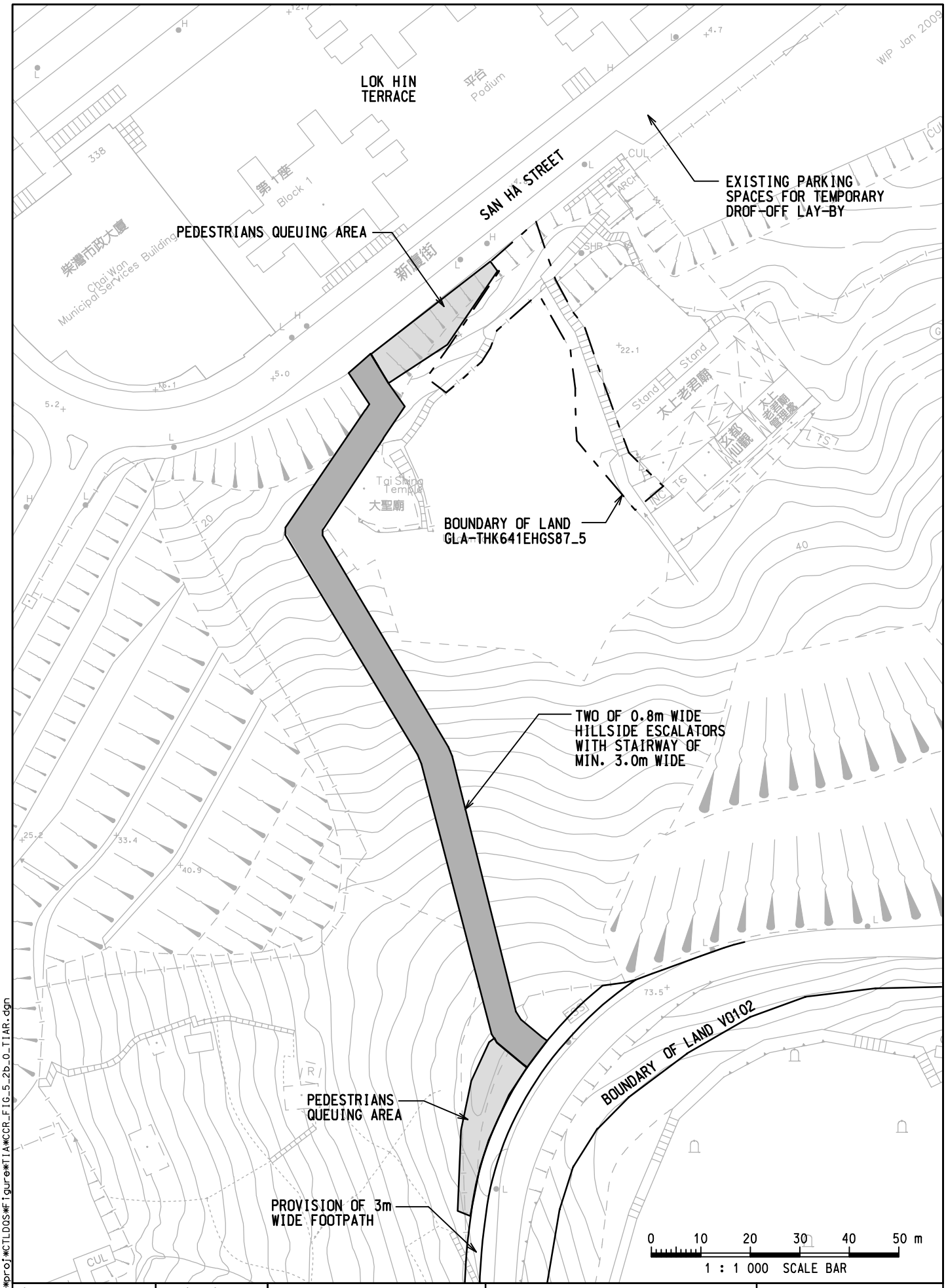

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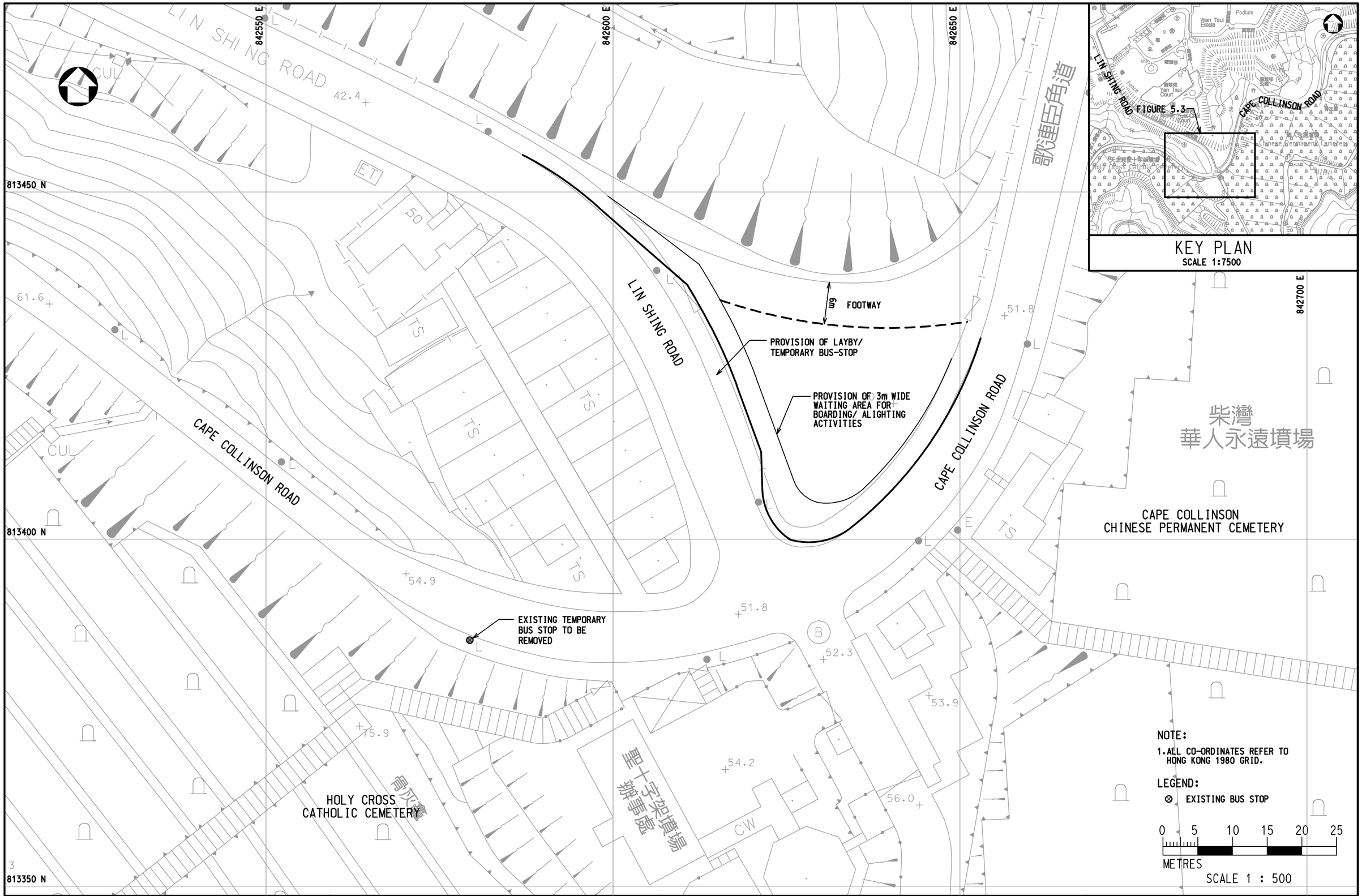
HN_Kaml

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	FIGURE 5.2b		
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED ESCALATORS AND STAIRWAY WITH PEDESTRIANS QUEUNG AREA	Checked: OC	Scale: 1:1000 @A4	Rev.: 0
				Designed: YC	Drawn: PF	Date: 17/02/2012



KEY PLAN
SCALE 1:7500

NOTE:
1. ALL CO-ORDINATES REFER TO HONG KONG 1980 GRID.

LEGEND:
⊗ EXISTING BUS STOP

0 5 10 15 20 25
METRES
SCALE 1 : 500

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 5.3a**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED IMPROVEMENT SCHEME AT LIN SHING ROAD & CAPE COLLINSON ROAD JUNCTION (OPTION A)	Checked: OC; Scale: 1:500 @ A3; Rev.: 1; Designed: KC; Drawn: PF; Date: 01/06/2012

HN_Kam1 25/06/2012
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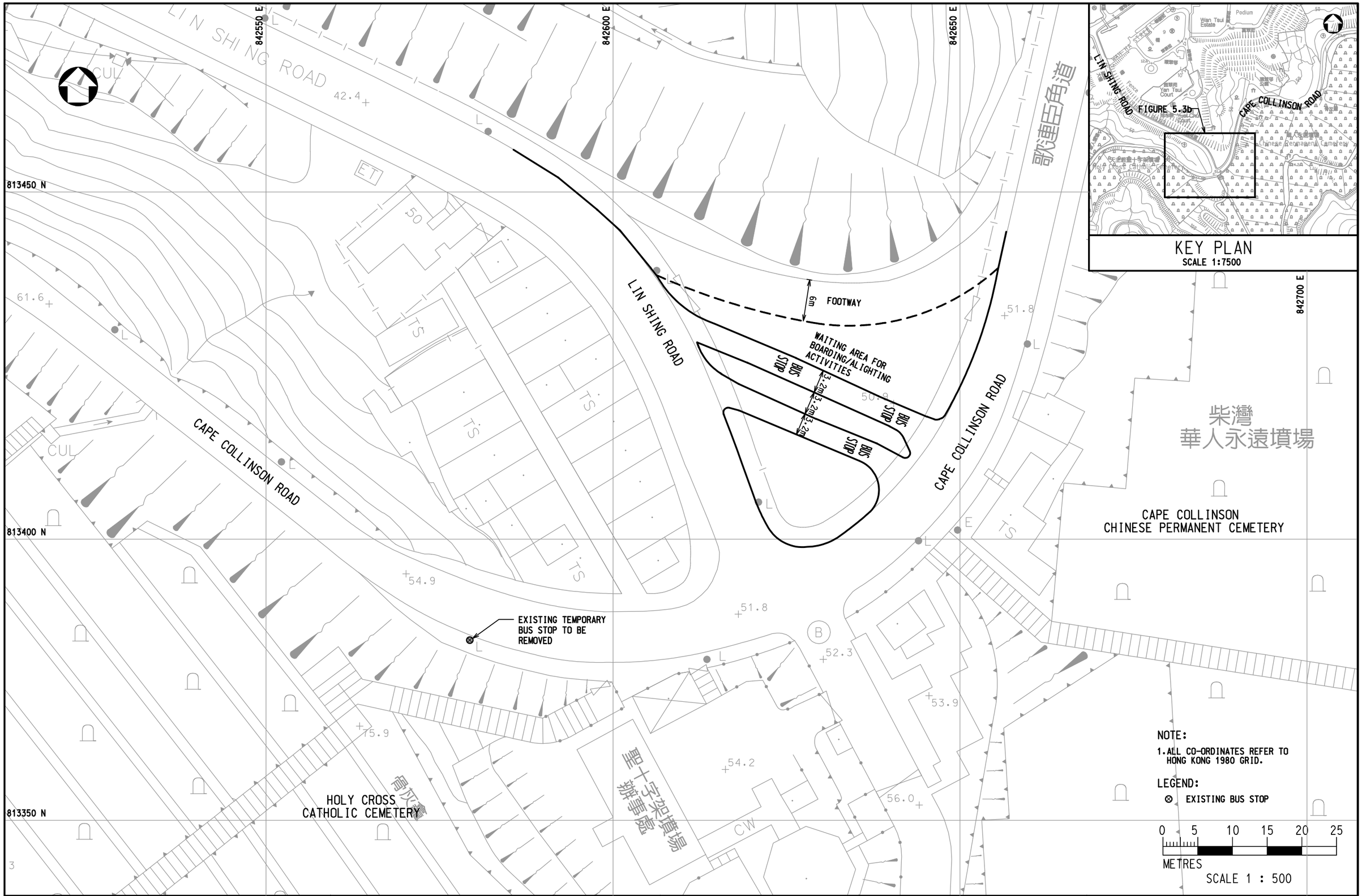

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED IMPROVEMENT SCHEME AT LIN SHING ROAD & CAPE COLLINSON ROAD JUNCTION (OPTION B)

FIGURE 5.3b

Checked	Scale	Rev.
OC	1:500 @ A3	1
Designed: KC	Drawn: PF	Date: 01/06/2012

HN_Kam1 25/06/2012
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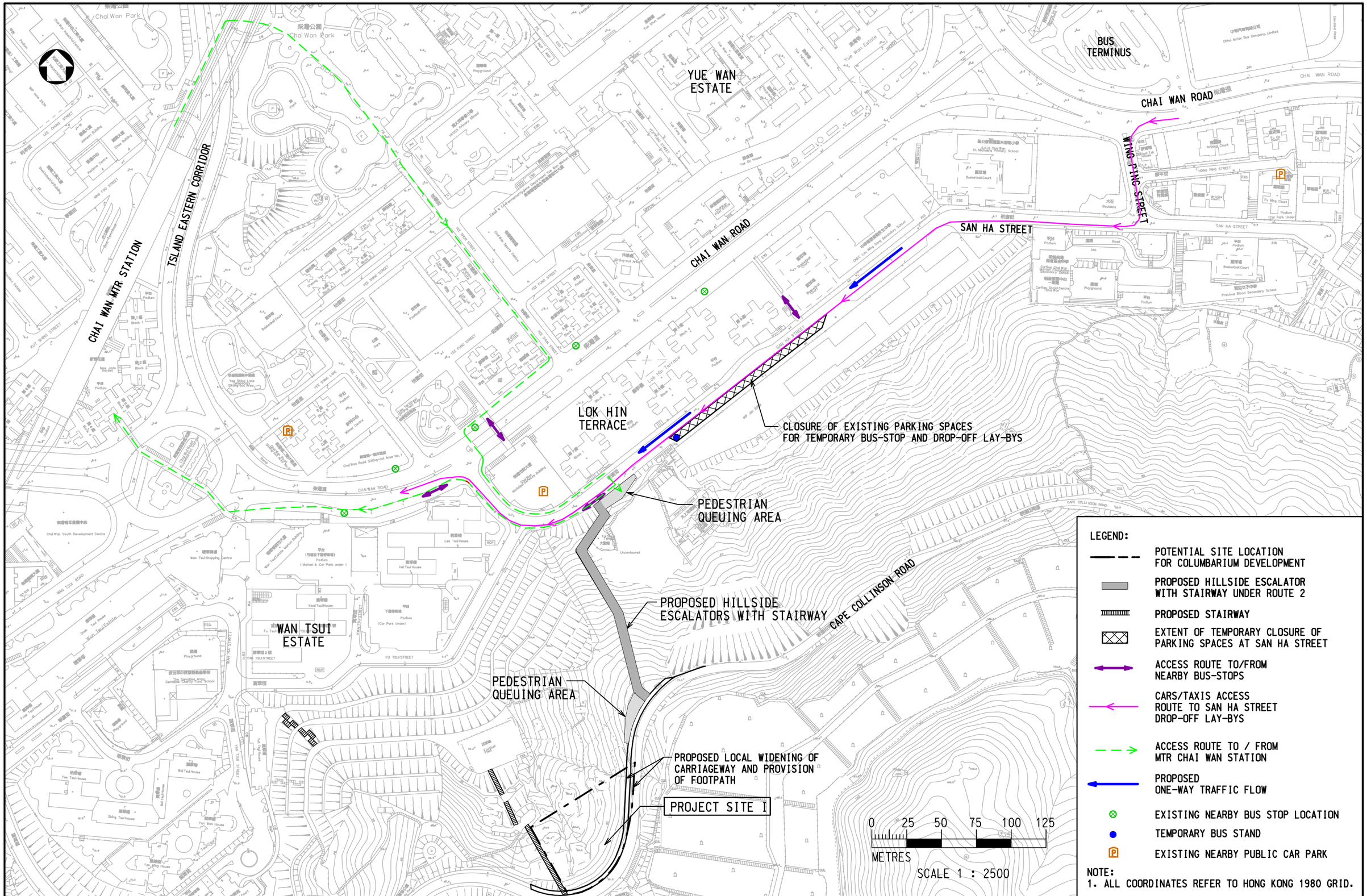
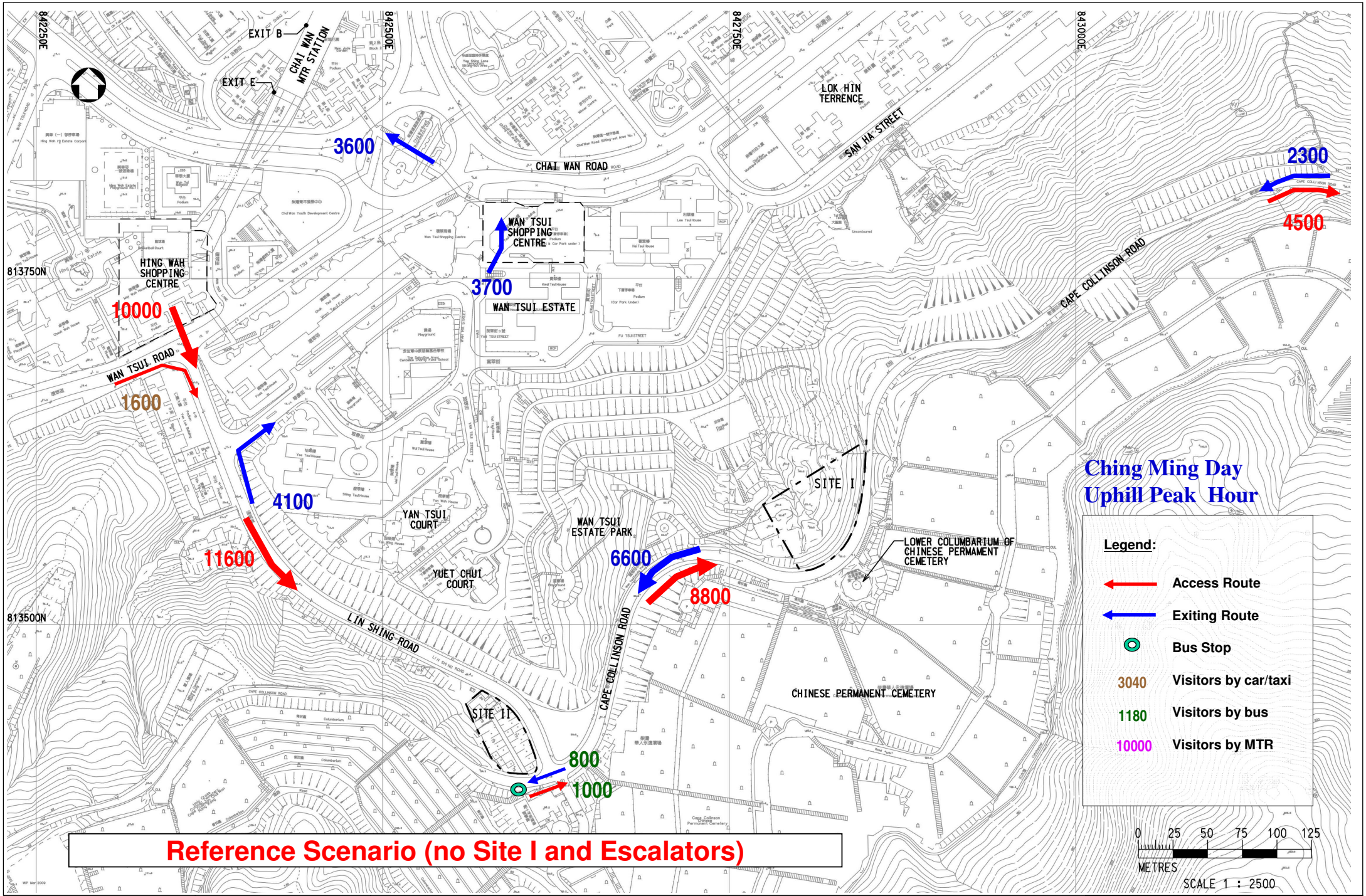


Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED SPECIAL TRAFFIC ARRANGEMENT AT SAN HA STREET DURING CHING MING AND CHUNG YEUNG FESTIVE PERIODS

FIGURE 5.4

Checked	Scale	Rev.
OC	1:2500 @ A3	0
Designed	Drawn	Date
YC	PF	20/02/2012

HN_Kam1 24/02/2012
E:\proj\CTLDGS\Figure\TIA\CCR_FIG_5_4_0_TIAR.dgn

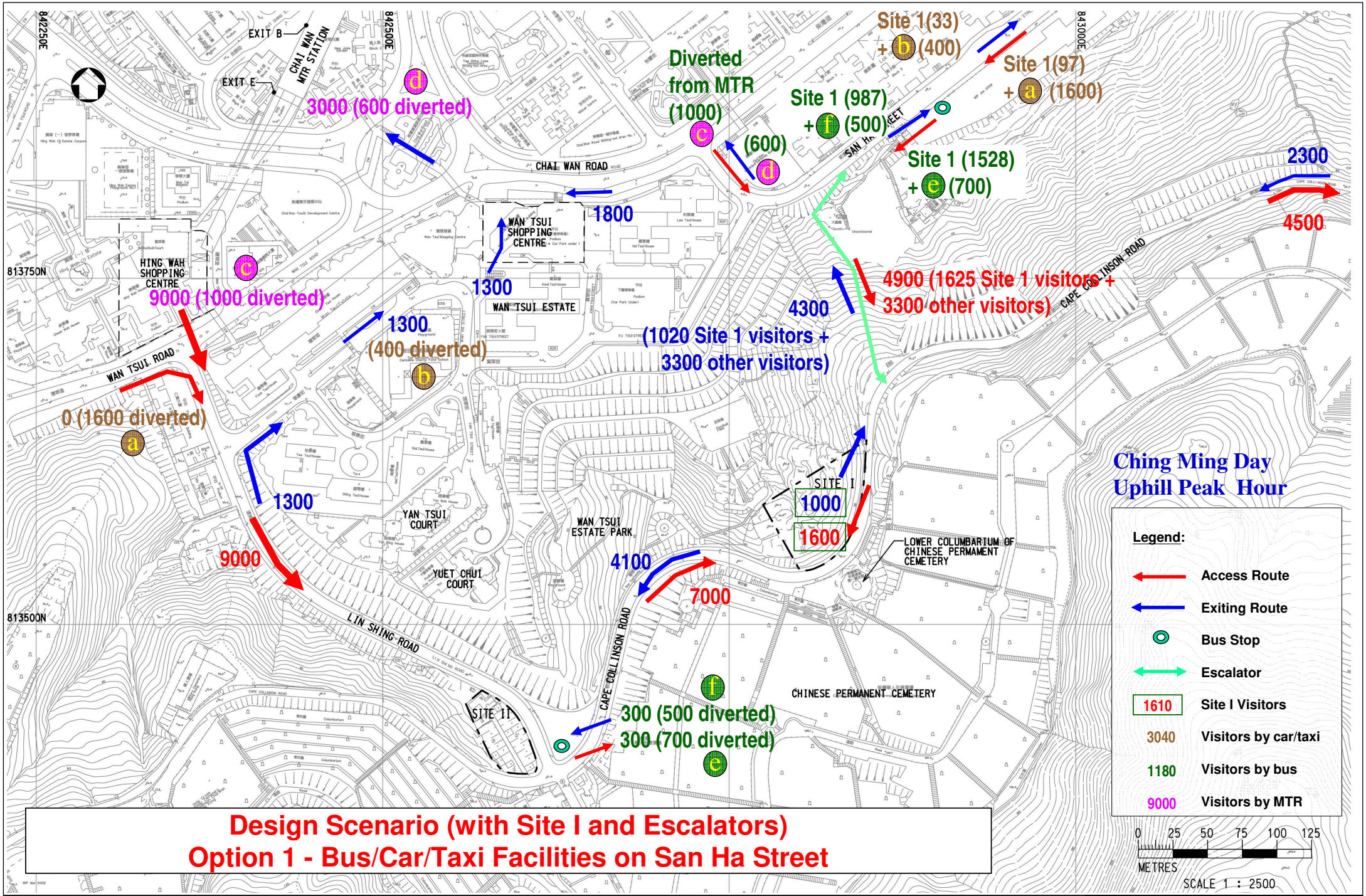


Reference Scenario (no Site I and Escalators)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: **Uphill Peak Hour Pedestrian Flows on Ching Ming Day Reference**

FIGURE 5.5

Checked	Scale	Rev.
OC	-	0
Designed	**Drawn**	**Date**
YC	-	21/11/2011

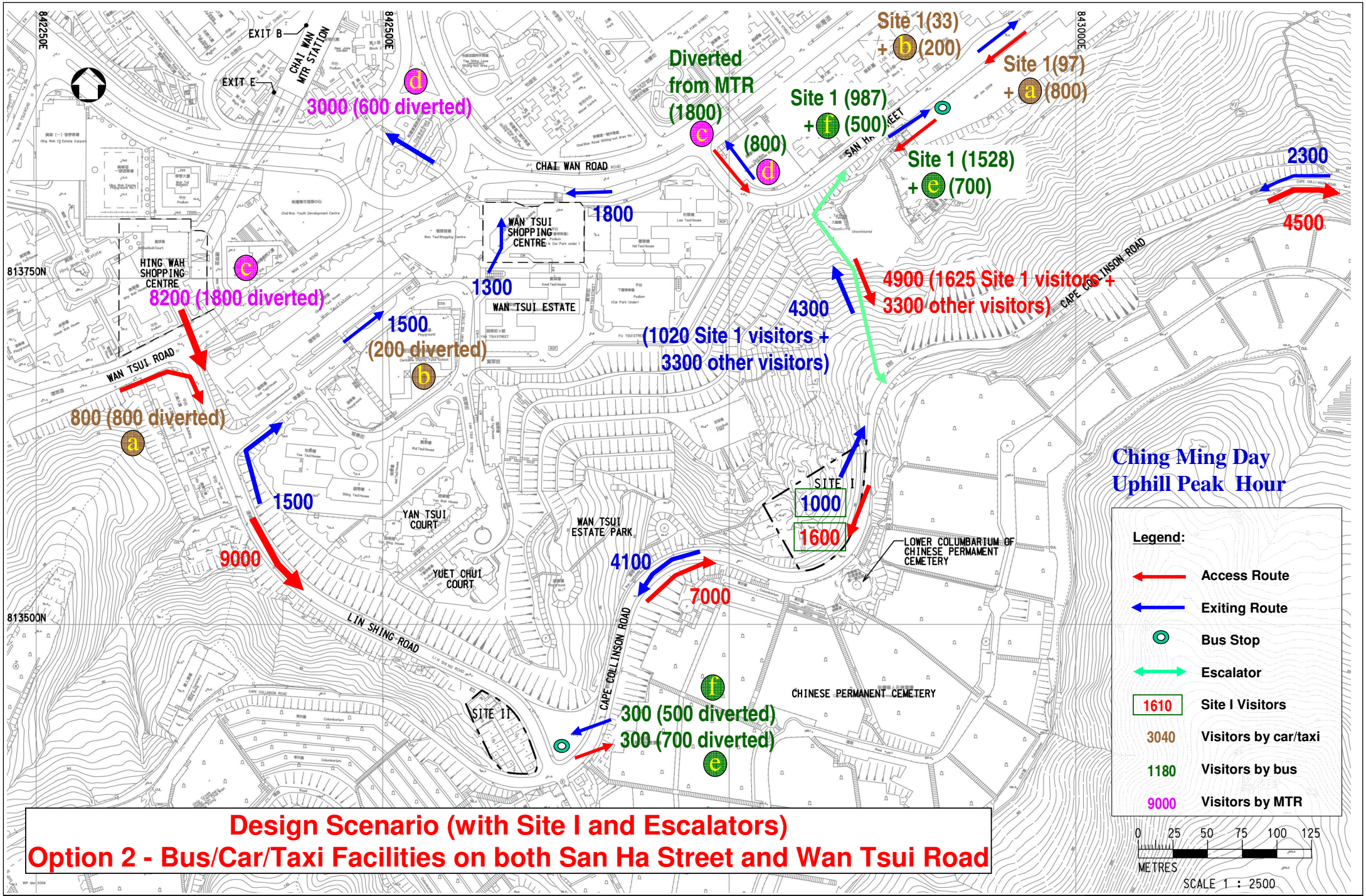


Design Scenario (with Site I and Escalators)
Option 1 - Bus/Car/Taxi Facilities on San Ha Street

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: Uphill Peak Hour Pedestrian Flows on Ching Ming Day Option 1

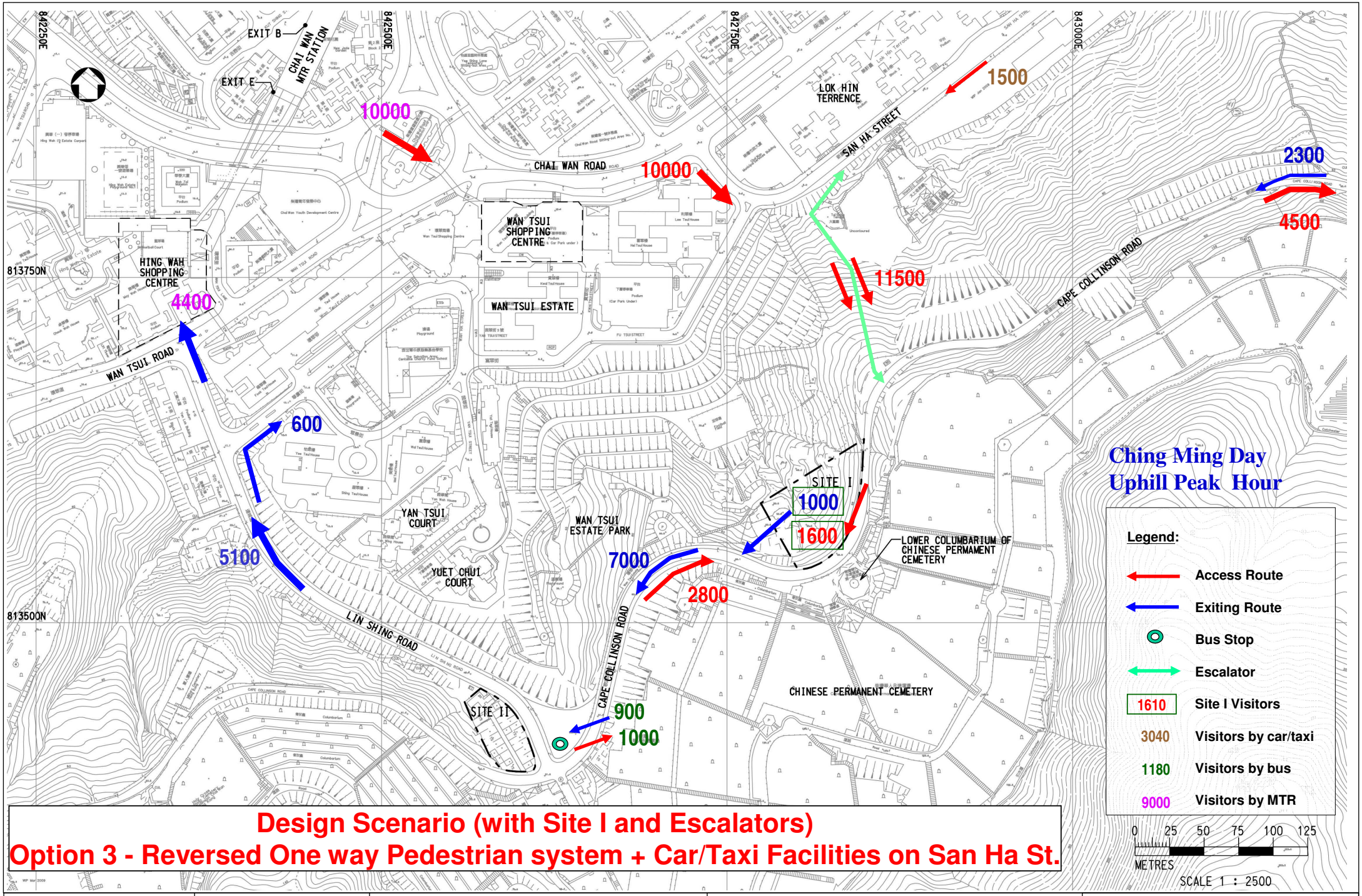
FIGURE 5.6

Checked	Scale	Rev.
OC	-	0
Designed	**Drawn**	**Date**
YC	-	21/11/2011



Design Scenario (with Site I and Escalators)
Option 2 - Bus/Car/Taxi Facilities on both San Ha Street and Wan Tsui Road

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	FIGURE 5.7
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: Uphill Peak Hour Pedestrian Flows on Ching Ming Day Option 2	Checked: OC; Scale: -; Rev.: 0; Designed: YC; Drawn: -; Date: 21/11/2011

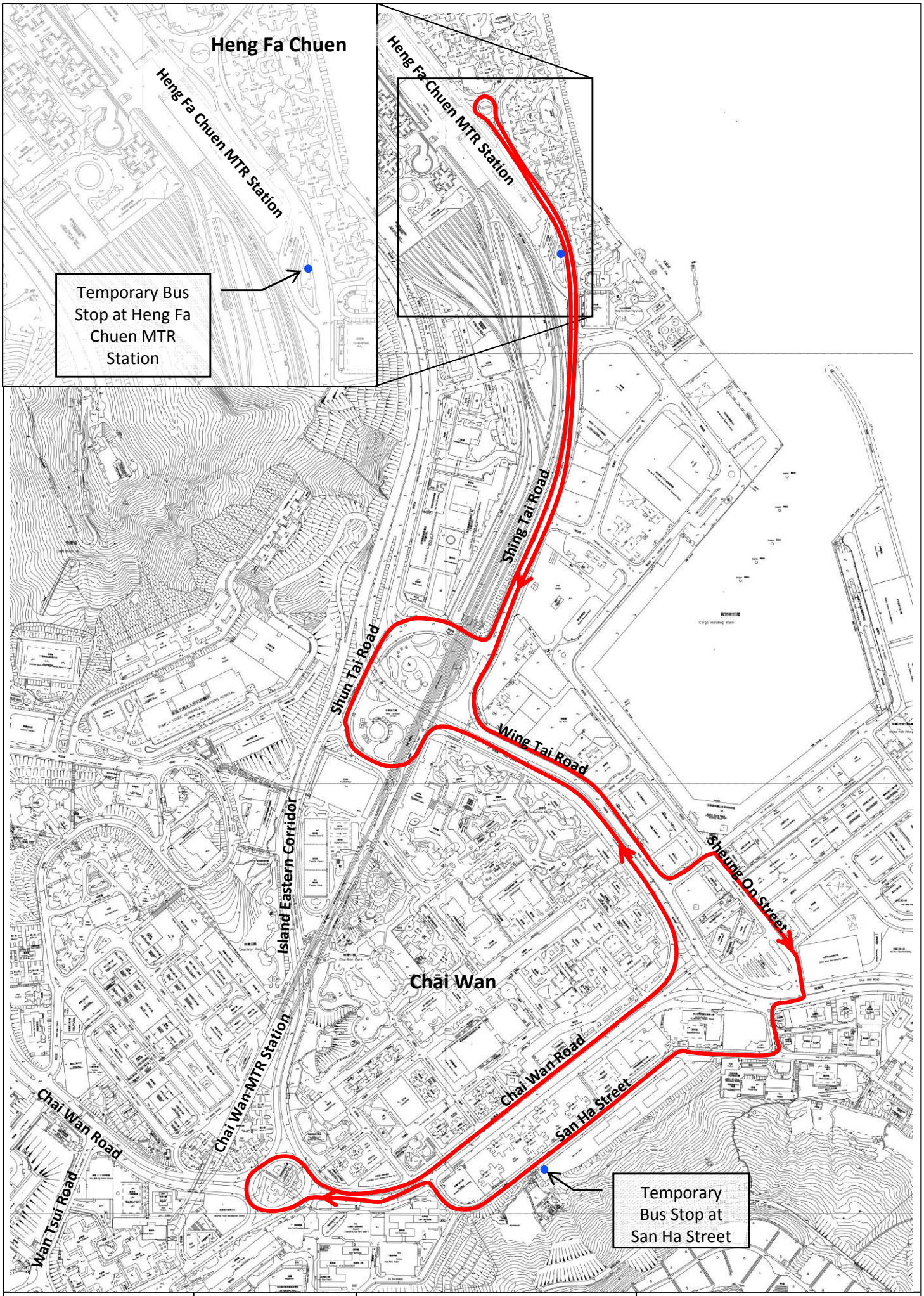


Design Scenario (with Site I and Escalators)
Option 3 - Reversed One way Pedestrian system + Car/Taxi Facilities on San Ha St.

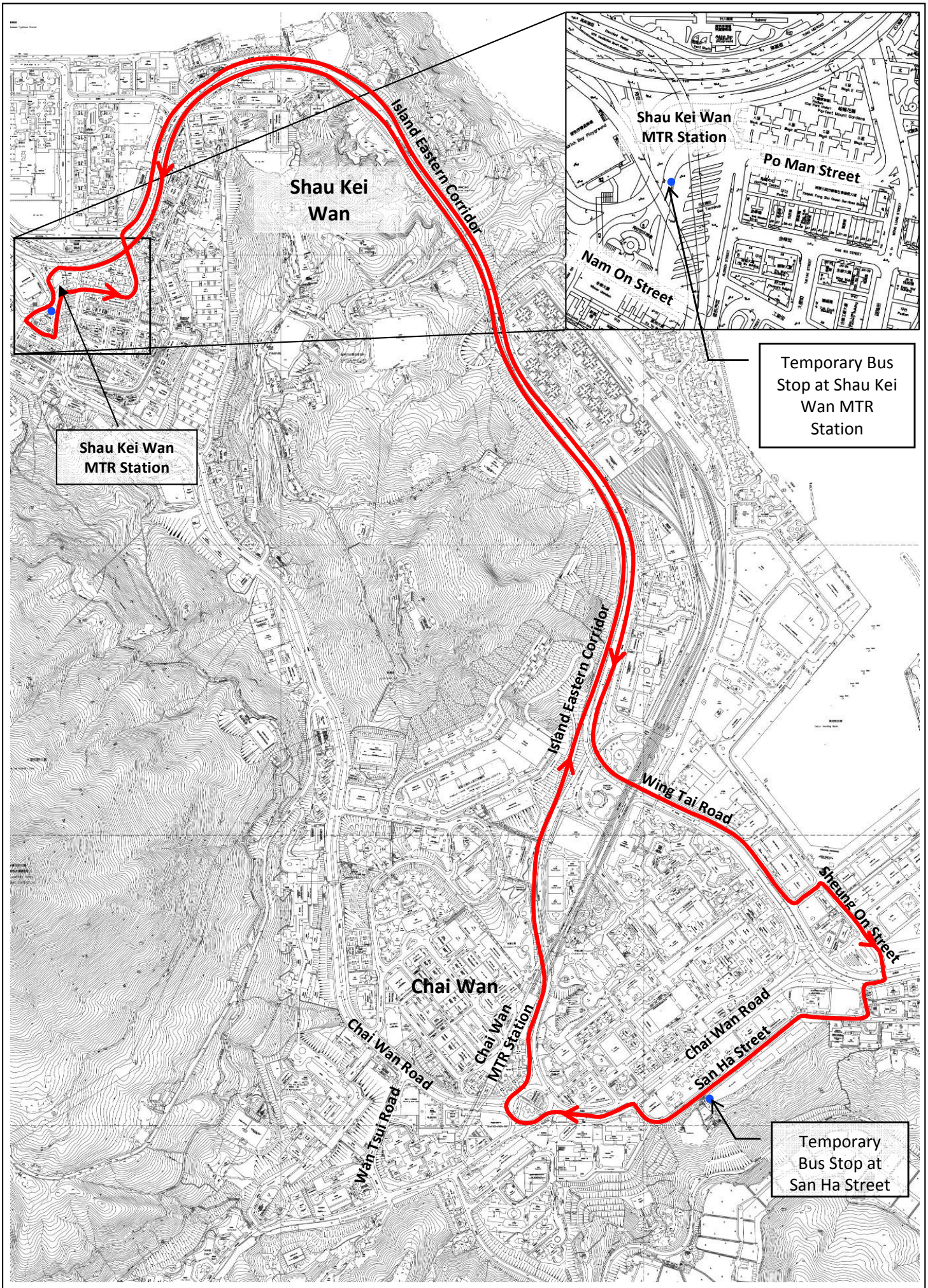
Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: Uphill Peak Hour Pedestrian Flows on Ching Ming Day Option 3

FIGURE 5.8

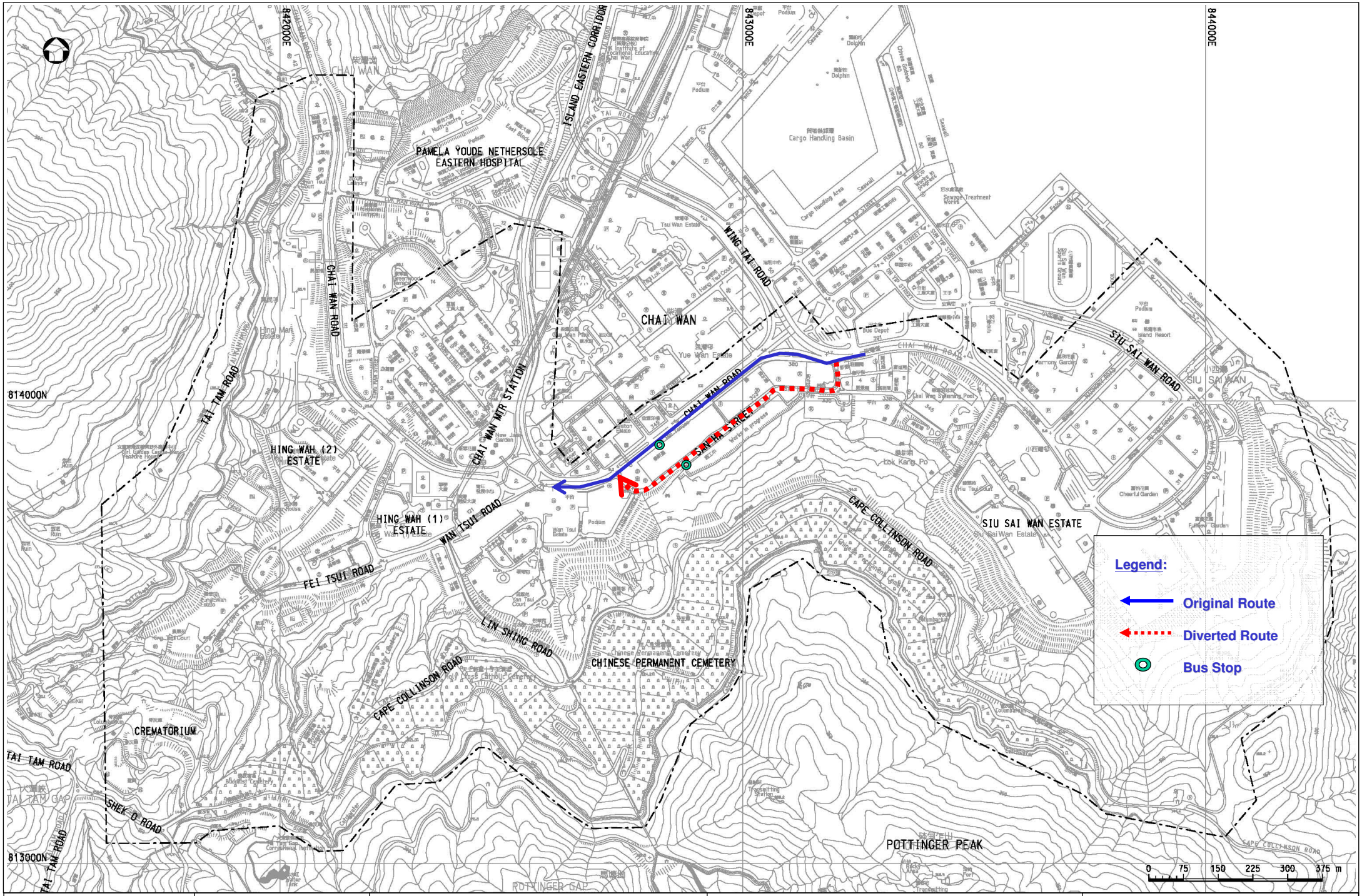
Checked	Scale	Rev.
OC	-	0
Designed	**Drawn**	**Date**
YC	-	21/11/2011



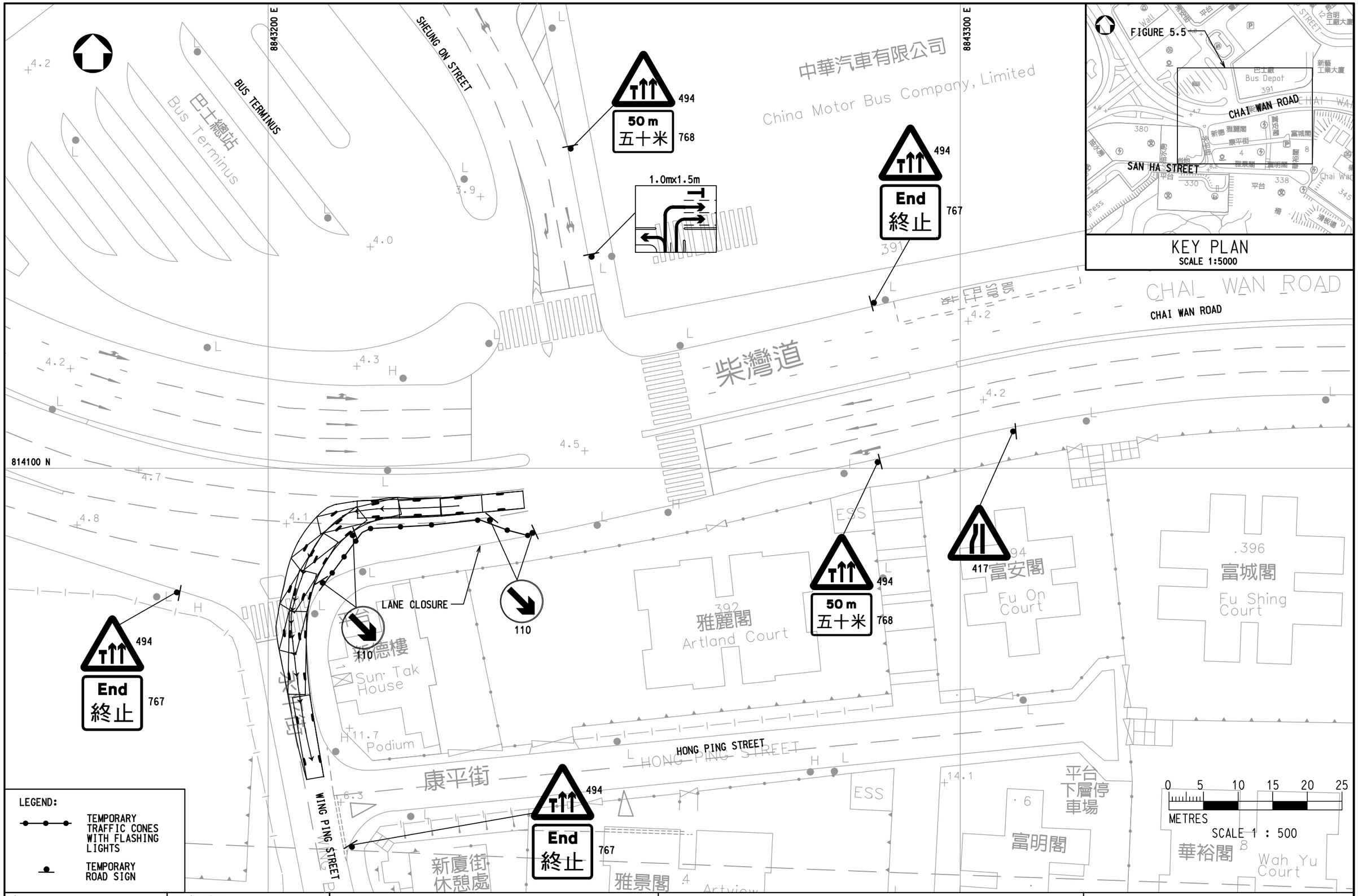
Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Agreement No.: CPM301_15/10	FIGURE 5.9
		TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	POSSIBLE NEW SPECIAL BUS ROUTE (HENG FA CHUEN – SAN HA STREET)



Client ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer Halcrow China Ltd.	Agreement No.: CPM301_15/10 TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	FIGURE 5.10 POSSIBLE NEW SPECIAL BUS ROUTE (SHAU KEI WAN – SAN HA STREET)



Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 5.11**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: **Possible Bus Diversions From Chai Wan Road to San Ha Street**	Checked: OC; Scale: -; Rev.: 0; Designed: GK; Drawn: -; Date: 01/02/2012



Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED TTMS FOR CHING MING PERIOD AND SWEPT PATH FOR BUS

FIGURE 5.12

Checked	Scale	Rev.
OC	1:500 @ A3	0
Designed: KC	Drawn: PF	Date: 21/02/2012

HN_Kamt
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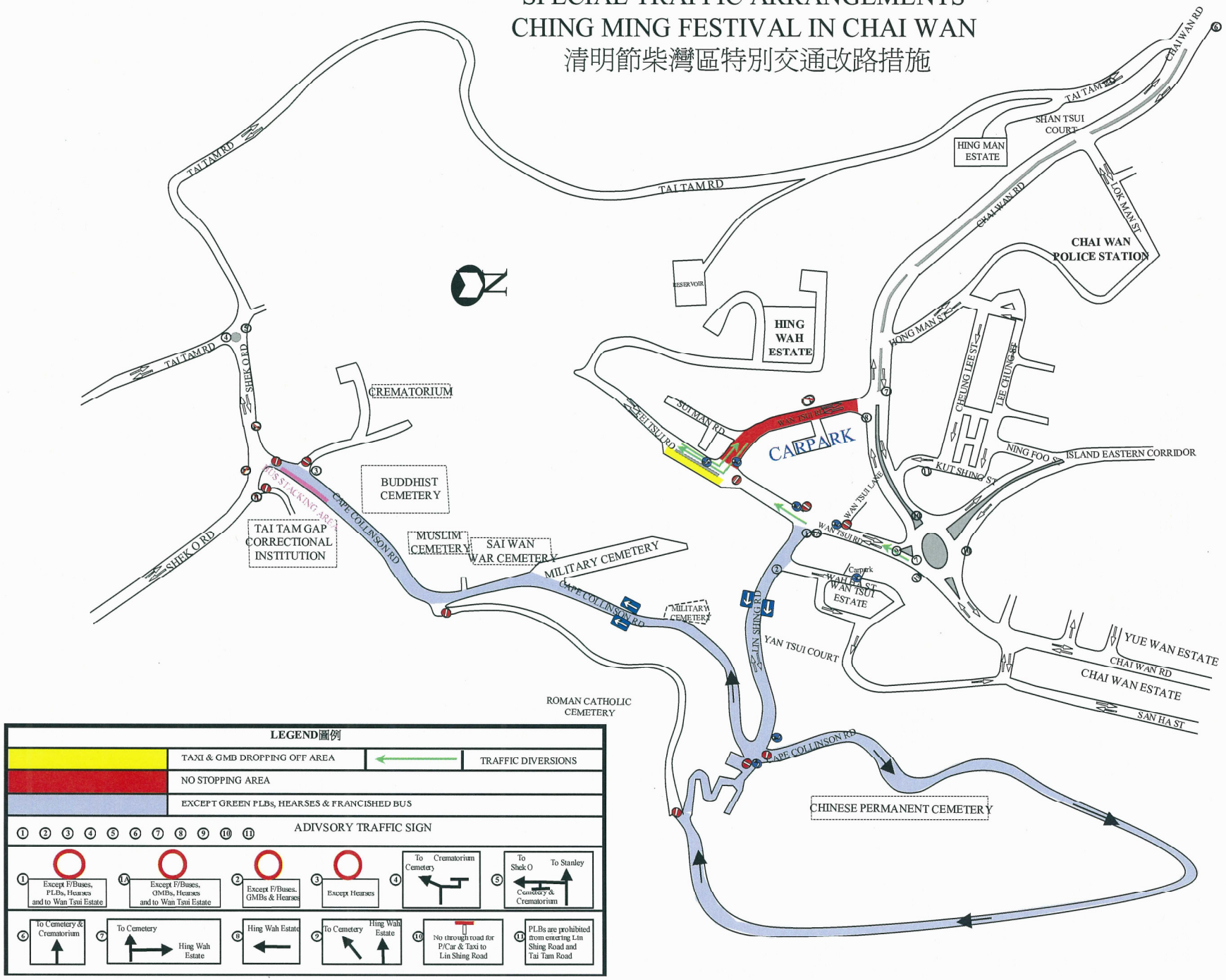
24/02/2012

Appendix A1

Hong Kong Police Force -
Special Traffic Arrangements
Ching Ming Festival in Chai Wan in 2011

SPECIAL TRAFFIC ARRANGEMENTS
CHING MING FESTIVAL IN CHAI WAN
清明節柴灣區特別交通改路措施



LEGEND圖例			
	TAXI & GMB DROPPING OFF AREA	←	TRAFFIC DIVERSIONS
	NO STOPPING AREA		
	EXCEPT GREEN PLBs, HEARSES & FRANCISHED BUS		

ADIVSORY TRAFFIC SIGN

① Except F/Buses, PLBs, Hearses and to Wan Tsui Estate	①A Except F/Buses, GMBs, Hearses and to Wan Tsui Estate	② Except F/Buses, GMBs & Hearses	③ Except Hearses	④ To Crematorium / To Cemetery	⑤ To Shek O / To Stanley / Cemetery & Crematorium	⑥ To Cemetery & Crematorium	⑦ To Cemetery / Hing Wah Estate	⑧ Hing Wah Estate	⑨ To Cemetery / Hing Wah Estate	⑩ No through road for P/Car & Taxi to Lin Shing Road	⑪ PLBs are prohibited from entering Lin Shing Road and Tai Tam Road

TRANSPORT DEPARTMENT NOTICE

Special Traffic and Transport Arrangements on Hong Kong Island for Ching Ming Festival 2011

Notice is hereby given that the following traffic and transport arrangements will be implemented on Hong Kong Island in connection with the Ching Ming Festival 2011.

Chai Wan

A. The following traffic arrangements will be implemented from 8.30 am to 5.30 pm on 19 and 26 March 2011, 16, 22, 23, 24, 25 and 30 April 2011; and from 8.30 am to 4.30 pm on 1 and 2 May 2011 (see Figure 1):

I. Traffic re-routing

Cape Collinson Road east of Lin Shing Road will be re-routed for one-way clockwise traffic.

II. Traffic restriction

Vehicles exceeding 10 metres in length will be banned from entering Cape Collinson Road east of Lin Shing Road.

Actual implementation will be made by the police depending on the traffic condition in the vicinity of the cemeteries. If the police consider it necessary, the road closures, traffic and transport arrangements as specified in paragraph B below will also be implemented partially and intermittently during the above period.

B. The following traffic and transport arrangements will be implemented from 7.30 am to 5.30 pm on 20 and 27 March 2011, 2, 9, 10 and 17 April 2011; from 7.00 am to 5.30 pm on 3 April 2011; and from 7.00

am to 6.30 pm on 5 April 2011(see Figure 2). Actual implementation will be made by the police depending on the traffic condition in the vicinity of the cemeteries.

I. Road closures

The following sections of roads will be closed to all vehicular traffic :

(a) Cape Collinson Road east of Lin Shing Road;

(b) the slip road leading from Cape Collinson Road to Garden of Remembrance and Crematorium, except hearses and vehicle carrying passengers to service at the Crematorium;

(c) the slip road leading to Chai Wan Chinese Permanent Cemetery;

(d) Wan Tsui Lane; and

(e) Cape Collinson Road west of Lin Shing Road and Lin Shing Road may also be closed to all vehicular traffic except franchised buses, HKI GMB routes 16A, 16M, 16X, 18M and hearses depending on traffic condition without prior notice from the Police.

II. Traffic re-routings

The following sections of roads will be re-routed for one-way traffic:

(a) the eastern section of Wan Tsui Road between Chai Wan Road and Fei Tsui Road will be re-routed as one-way westbound;

(b) Lin Shing Road between Wan Tsui Road and Cape Collinson Road will be re-routed as one-way

southbound; and

(c) Cape Collinson Road from the slip road leading to the Crematorium to Shek O Road will be re-routed as one-way westbound.

III. No parking

No parking will be permitted along the following roads from 6.00 am to 7.00 pm on the above-mentioned dates:

(a) Cape Collinson Road;

(b) Lin Shing Road;

(c) Shek O Road between Tai Tam Gap Correctional Institution and Tai Tam Road; and

(d) Wan Tsui Road.

IV. Prohibition to taxis, public light buses and private cars

Depending on the crowd situation and number of vehicles in the vicinity of the cemeteries, all taxis, public light buses and private cars may not be permitted to enter Lin Shing Road for Cape Collinson Road except for those gaining access to Wan Tsui Estate. In this connection, taxis, public light buses and private cars will be allowed to set down passengers at the public light bus stand on Fei Tsui Road near its junction with Wan Tsui Road. Advisory signs on the prohibition of public light buses from entering Lin Shing Road will be placed at the public light bus stands at Kut Shing Street in Chai Wan and Factory Street in Shau Kei Wan.

Depending on traffic condition, public light buses may also be prohibited from entering Tai Tam Road from Chai Wan Road

without prior notice of the Police.

V. Prohibition of picking up/setting down of public light buses

Public light buses will be prohibited from picking up/setting down passengers along Wan Tsui Road section between Chai Wan Road and Fei Tsui Road.

VI. Suspension of public light bus stand

The public light bus stand on Fei Tsui Road near its junction with Wan Tsui Road will be suspended from 7.30 am to 5.30 pm on 20 and 27 March 2011, 10 and 17 April 2011; from 7.00 am to 5.30 pm on 3 April 2011; and from 7.00 am to 6.30 pm on 5 April 2011.

VII. Temporary taxi stand

With the suspension of taxi stand in Kut Shing Street outside Chai Wan Station, a temporary taxi stand will be designated at the lay-by of Kut Shing Street west of its junction with Cheung Lee Street from 7.30 am to 5.30 pm on 20 and 27 March 2011, 2, 9, 10 and 17 April 2011; from 7.00 am to 5.30 pm on 3 April 2011; and from 7.00 am to 6.30 pm on 5 April 2011.

VIII. Alternative traffic arrangements

In case the crowd and vehicular traffic congestions in the vicinity of the cemeteries do not warrant the above special traffic arrangements, the following alternative traffic arrangements will be implemented to ease traffic:

(a) Cape Collinson Road east of Lin Shing Road will be re-routed for one-way clockwise traffic; and

(b) the slip road leading to Chai Wan Chinese

Permanent Cemetery will be opened to the public and maintained as one-way westbound.

IX. Bus services

(a) Special bus services

(i) NWFB route 388 between Chai Wan Station and Chai Wan Cemeteries (circular) will be operated from 8.30 am to 4.00 pm on 20 and 27 March 2011, 2, 9, 17, 22, 23, 24 and 25 April 2011 at a headway of 12-15 minutes; from 8.30 am to 4.00 pm on 26 March 2011 and 16 April 2011 at a headway of 15-20 minutes; from 8.30 am to 4.00 pm on 3 and 10 April 2011 at a headway of 4-12 minutes; and from 7.00 am to 5.30 pm on 5 April 2011 at a headway of 3-10 minutes; and

(ii) NWFB route 389 between Shau Kei Wan Bus Terminus and Chai Wan Cemeteries (circular) will be operated from 8.30 am to 4.30 pm on 26 and 27 March 2011, 2, 9, 16, 17, 22, 23 and 24 April 2011 at a headway of 12-15 minutes; from 8.30 am to 4.30 pm on 3 and 10 April 2011 at a headway of 6-12 minutes; and from 7.00 am to 5.30 pm on 5 April 2011 at a headway of 3-10 minutes.

The frequency and operating hours of these special bus services may be adjusted to suit passenger demand and traffic condition.

(b) Strengthened bus services

CTB routes 8X, 314 and 780, NWFB routes 8, 8P, 9, 14 and 82, and Cross Harbour routes 106, 118, 606, 606A, 682 and 694 will be strengthened subject to passenger

demand.

(c) Bus route diversions

Upon the restriction of the section of Wan Tsui Road between Chai Wan Road roundabout and Fei Tsui Road to public buses, the following bus route diversions will be implemented from 7.00 am to 5.30 pm on 20 and 27 March 2011, 3, 5, 10 and 17 April 2011 at the discretion of Police:

(i) NWFB route 82, CTB routes 8X, 314 and 780, Cross Harbour routes 106, 118, 606, 606A, 698R and A12 on journeys to / from Siu Sai Wan will be diverted to operate via Chai Wan Road omitting Wan Tsui Road;

(ii) NWFB route 81, after departure from its terminal point at Hing Wah Estate, will be diverted via the section of Wan Tsui Road north of Fei Tsui Road and Chai Wan Road eastbound;

(iii) NWFB route 81 on its journey to Hing Wah Estate will be diverted via Chai Wan Road eastbound and Wan Tsui Road east of Fei Tsui Road; and

(iv) Cross Harbour routes 682 and 694 after departure from their terminal points at Chai Wan/ Siu Sai Wan, will be diverted via Chai Wan Road.

(d) Bus stops

The following bus stop arrangements will be implemented from 7.00 am to 5.30 pm on 20 and 27 March 2011, 3, 5, 10 and 17 April 2011:

(i) the bus stop on Wan Tsui Road both bounds will be

suspended;

(ii) the bus stops on Wan Tsui Road northbound relocate to the lay-by about 60 metres northward will be made by the police depending on the traffic condition in the vicinity of the cemeteries on March and April 2011;

(iii) a temporary bus stop will be provided on Chai Wan Road outside Hong Man Industrial Building for the affected Siu Sai Wan bound bus routes;

(iv) a temporary bus stop will be provided on Chai Wan Road outside House No. 220 Wah Tai Mansion for the affected Shau Kei Wan bound bus routes;

(v) a temporary bus stop will be provided on Lin Shing Road after Wah Ha Street for NWFB routes 388 and 389; and

(vi) a temporary bus stop will be provided at the bus lay-by on Wan Tsui Road north of Fei Tsui Road for NWFB route 81.

X. HKI GMB services

(a) <u>GMB service suspension</u>

Service of GMB route 18M between Chai Wan Station and Cape Collinson Correctional Institution will be suspended on 3 and 5 April 2011.

(b) <u>GMB route diversions</u>

(i) Depending on the traffic condition in the vicinity of the cemeteries, GMB route 18M upon its

departure from Chai Wan Station heading to the Chai Wan Cemeteries may be diverted to operate via Cape Collinson Road west of Lin Shing Road, Shek O Road, Tai Tam Road and Chai Wan Road, omitting Cape Collinson Road, Lin Shing Road, Wan Tsui Road and Cape Collinson Correctional Institution;

(ii) GMB route 43M between Fung Wah Estate and Chai Wan Station on its journeys to Chai Wan Station will be diverted via Wan Tsui Road northbound, Chai Wan Road, Hong Man Street, Cheung Lee Street, Kut Shing Street, Chai Wan Road and Island Eastern Corridor slip road before resuming its original routing. On its journeys to Fung Wah Estate, this GMB route will be re-routed via Lee Chung Street, Hong Man Street, Chai Wan Road and Wan Tsui Road before resuming its original routing from 8.30 am to 4.00 pm on 20, 26 and 27 March 2011, 2, 3, 9, 10, 16, 17, 22, 23, 24 and 25 April 2011; and from 7.00 am to 5.30 pm on 5 April 2011.

(c) <u>GMB stops</u>

(i) the terminal point of GMB route 43M at Chai Wan Station will be temporarily relocated to Lee Chung Street from 8.30 am to 4.00 pm on 20, 26, 27 March 2011, 2, 3, 9, 10, 16, 17, 22, 23, 24, 25 April 2011; and from 7.00 am to 5.30 pm on 5 April 2011; and

(ii) the GMB stop of route 66 on Wan Tsui Road westbound outside Chak Tsui House will be temporarily relocated 40 metres westward to a point near the junction of Fei Tsui Road by the police depending on the traffic condition in the vicinity of the cemeteries.

Pok Fu Lam

The following traffic and transport arrangements will be implemented from 7.00 am to 5.00 pm on 2, 3, 5, 9 and 10 April 2011. Actual implementation will be made by the police depending on the traffic condition in the vicinity of the cemeteries:

I. Traffic re-routing

Consort Rise in the vicinity of Chinese Christian Cemetery will be re-routed as one-way southbound from Victoria Road to Bisney Road.

II. Bus services

(a) Special bus services

(i) CTB route 347 between Admiralty Station (West) and Chinese Christian Cemetery Aberdeen (circular) will be operated from 8.30 am to 3.30 pm on 3 April 2011 at a headway of 15-20 minutes; and from 7.30 am to 4.30 pm on 5 April 2011 at headway of 7-15 minutes; and

(ii) NWFB route 971R between Cyberport and Mong Kok (Bute Street) (circular) will be operated from 10.30 am to 4.30 pm on 2 and 3 April 2011 at a headway of 12 minutes; and from 9.30 am to 5.30 pm on 5 April 2011 at a headway of 10-15 minutes.

The frequency and operating hours of these special bus service may be adjusted to suit passenger demand and traffic conditions.

(b) Strengthened bus services

CTB routes 5, 5B, 7, 10, 71 and M47, Cross Harbour

routes 671, 930 and 971 will be strengthened subject to passenger demand.

Aberdeen

The following traffic and transport arrangements will be implemented from 8.00 am to 4.30 pm on 2, 9 and 10 April 2011; and from 7.00 am to 6.00 pm on 3 and 5 April 2011. Actual implementation will be made by the police depending on the traffic condition in the vicinity of the cemeteries:

I. Road closures

The following roads will be closed to all vehicular traffic :

(a) Peel Rise in the vicinity of Aberdeen Chinese Cemetery; and

(b) The slip road leading from Shek Pai Wan Road to Aberdeen Chinese Cemetery.

II. Bus services

(a) Special bus services

(i) CTB route 347 between Admiralty Station (West) and Chinese Christian Cemetery Aberdeen (circular) will be operated from 8.30 am to 3.30 pm on 3 April 2011 at a headway of 15-20 minutes; and from 7.30 am to 4.30 pm on 5 April 2011 at headway of 7-15 minutes; and

(ii) NWFB route 971R between Cyberport and Mong Kok (Bute Street) (circular) will be operated from 10.30 am to 4.30 pm on 2 and 3 April 2011 at a headway of 12 minutes; and from 9.30 am to 5.30 pm on 5 April 2011 at a headway of 10-15 minutes.

The frequency and operating hours of these special bus service may be adjusted to suit passenger demand and

traffic conditions.

(b) Strengthened bus services

CTB routes 5, 5B, 7, 10, 71 and M47, Cross Harbour routes 671, 930 and 971 will be strengthened subject to passenger demand.

Happy Valley

I. Tram stop

The tram stop on Wong Nai Chung Road northbound opposite to the Hong Kong Jockey Club will be relocated about 30 metres northward from 7.00 am to 7.00 pm on 3 and 5 April 2011.

Attention and Appeal

I. Any vehicle found illegally parked within the precinct of the special traffic arrangements as specified above might be towed away by the Police without prior notice.

II. Congestion is expected on approach roads to cemeteries. Motorists are advised not to drive to the affected/congested areas if possible.

III. Appropriate traffic aids will be erected to guide motorists. Motorists should exercise tolerance and patience in cases of traffic congestion, observe the instruction of the Police and watch out for the latest traffic news through media.

IV. For updated and latest traffic and transport information, the members of the public can call 1823 Call Centre or browse Transport Department website: www.td.gov.hk.

Joseph YT LAI *Commissioner for Transport*

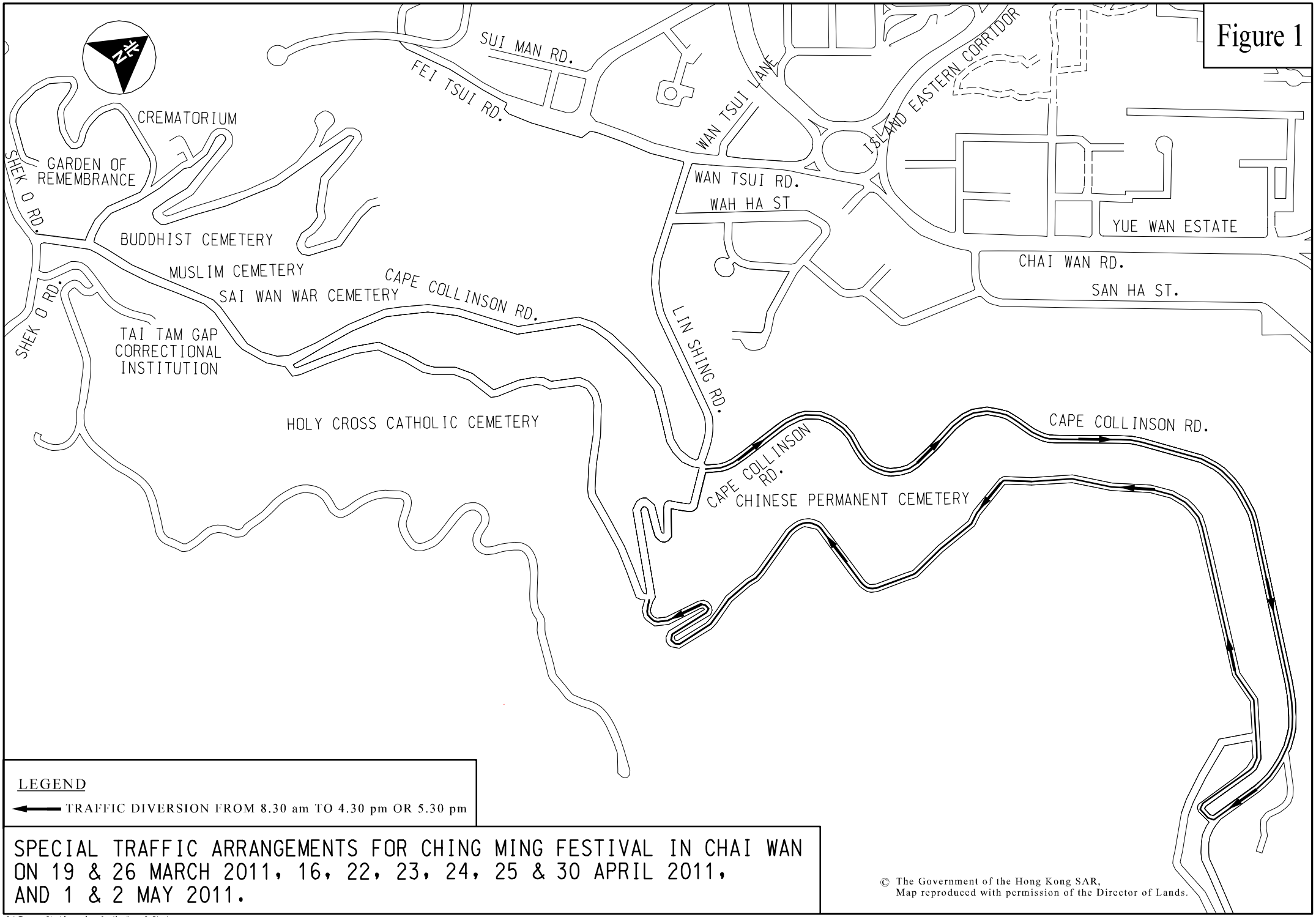
Top

 Last revision date: 4 Apr 2011

Appendix A2

Transport Department - Special Traffic and Transport Arrangements on Hong Kong Island for Ching Ming Festival 2011

Figure 1



LEGEND

TRAFFIC DIVERSION FROM 8.30 am TO 4.30 pm OR 5.30 pm

SPECIAL TRAFFIC ARRANGEMENTS FOR CHING MING FESTIVAL IN CHAI WAN ON 19 & 26 MARCH 2011, 16, 22, 23, 24, 25 & 30 APRIL 2011, AND 1 & 2 MAY 2011.

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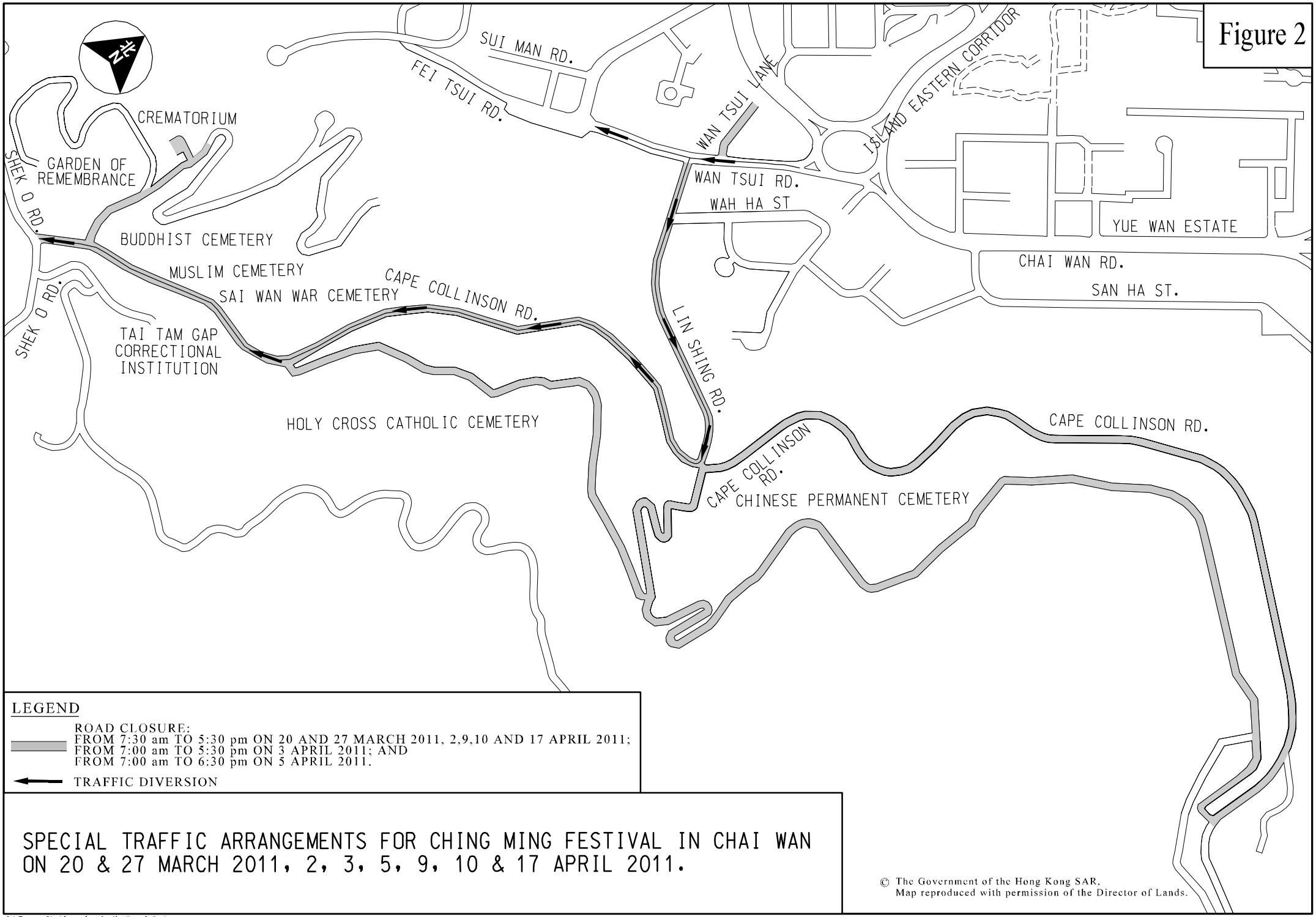

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Appendix B

Site Photos showing Existing Traffic and Pedestrian Conditions

Appendix B : Site Photos taken on Normal Weekday (8 March 2011)

Top Left:
Normal weekday bus usage and demand - overlooking Chai Wan MTR Station PTI

Top Right:
Green Mini Bus queue at Chai Wan MTR Station PTI

Bottom Left:
Minimum pedestrian and vehicular activities, photo taken at Cape Collinson Road looking over Lin Shing Road

Bottom Right:
Minimum pedestrian and vehicular activities, photo taken at Wan Tsui Road looking over Lin Shing Road

Appendix B : Site Photos taken on Festival Weekend (2 April 2011)

Top Left: Traffic coming from the southern approach of Lin Shing Road at the junction of Cape Collinson Road
Top Middle: Cape Collinson Road east, near the entrance towards the CWCPC Second Columbarium
Top Right: Pedestrian and vehicular activities at the junction of Cape Collinson Road and Lin Shing Road, overlooking northbound direction
Bottom Left: Queue of Bus route No.389 at Shau Kei Wan MTR Station PTI
Bottom Middle: Festival Weekend bus usage and demand - overlooking Chai Wan MTR Station PTI
Bottom Right: Passenger demand at the taxi station on Kut Shing Street near Chai Wan MTR Station

Appendix B : Site Photos taken on Ching Ming Day (5 April 2011)

Top Left:
Queue of Bus route No.9 at Shau Kei Wan MTR Station PTI

Top Right:
Queue of Bus route No.389 at Shau Kei Wan MTR Station PTI

Bottom Left:
Pedestrian activities and vehicular drop off - photo taken at the junction of Cape Collinson Road and Shek O Road overlooking at the northbound direction

Bottom Right:
Photo showing pedestrian on the footway and bus passengers waiting on the road at Cape Collinson Road near the junction of Shek O Road

Appendix B : Site Photos taken on Ching Ming Day (5 April 2011)

Top Left:
HKPF traffic control at the junction of Cape Collinson Road and Shek O Road

Top Right:
Passengers boarding the alighting at the bus stop west of the junction of Cape Collinson Road and Lin Shing Road

Bottom Left:
Pedestrians activities - east of the junction of Cape Collinson Road and Lin Shing Road

Bottom Right:
Pedestrians activities - south of the junction of Cape Collinson Road and Lin Shing Road

Appendix B : Site Photos taken on Ching Ming Day (5 April 2011)

Top Left:
HKPF traffic control at the junction of Wan Tsui Road and Lin Shing Road

Top Right:
Pedestrian activities at the junction of Wan Tsui Road and Lin Shing Road

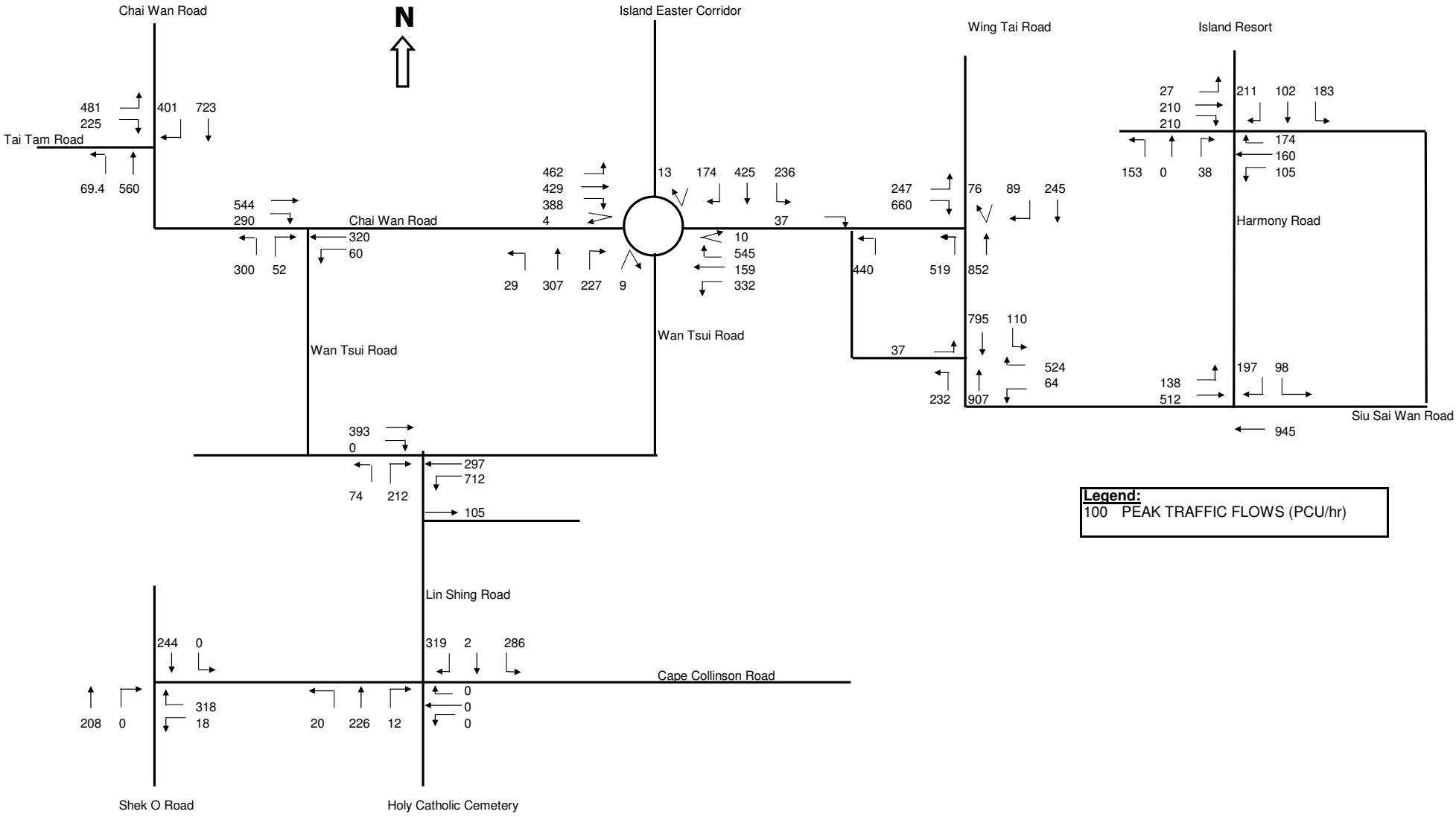
Bottom Left:
Ching Ming Day bus usage and demand - overlooking Chai Wan MTR Station PTI

Bottom Right:
Pedestrians walking towards Roman Catholic Cemetery – photo taken south of the junctino of Cape Collinson Road and Lin Shing Road

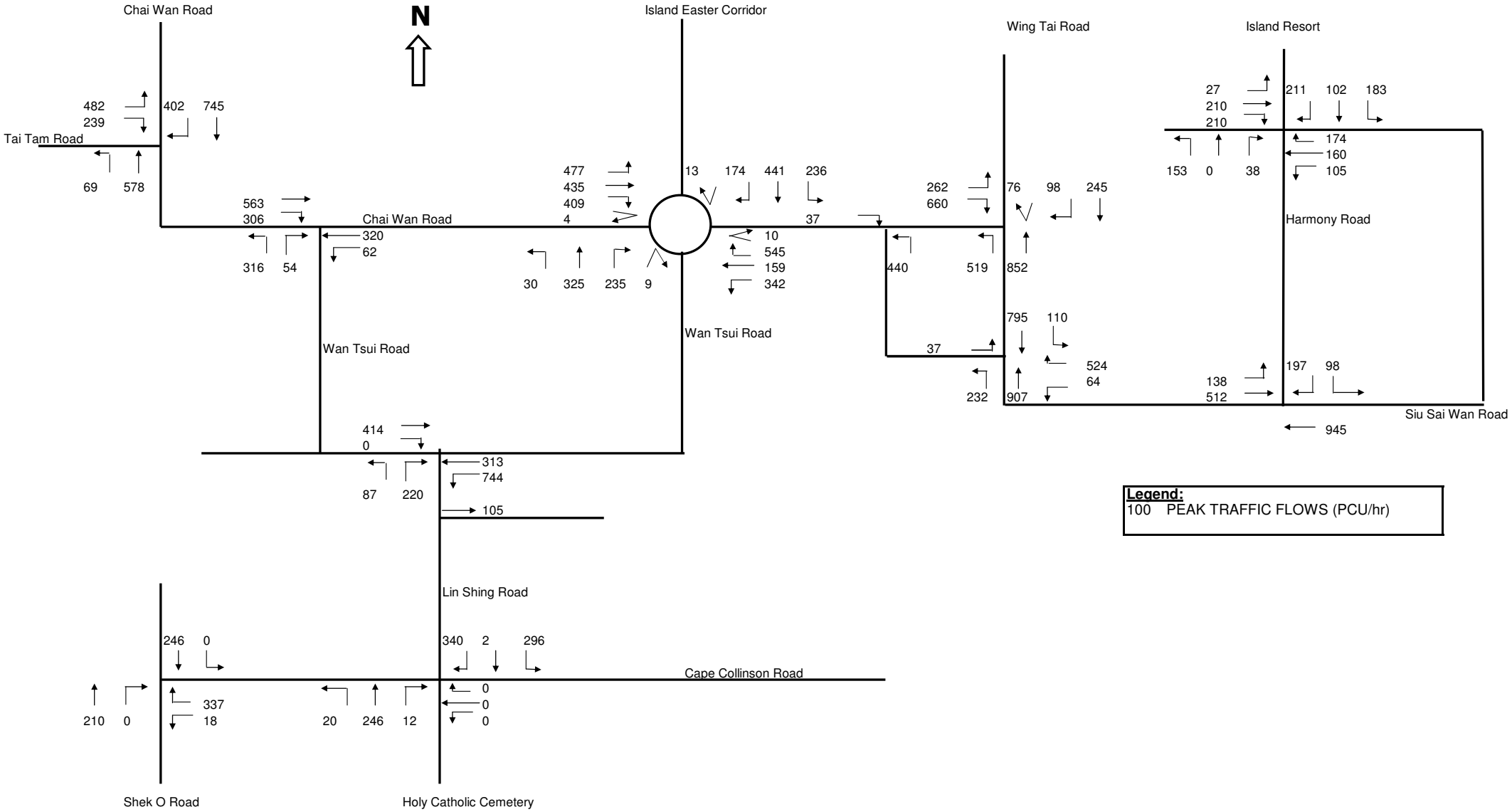
Appendix C

2016 / 2021 / 2026 Peak Hour Reference and Design Flows

TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Weekend Reference Traffic Flows

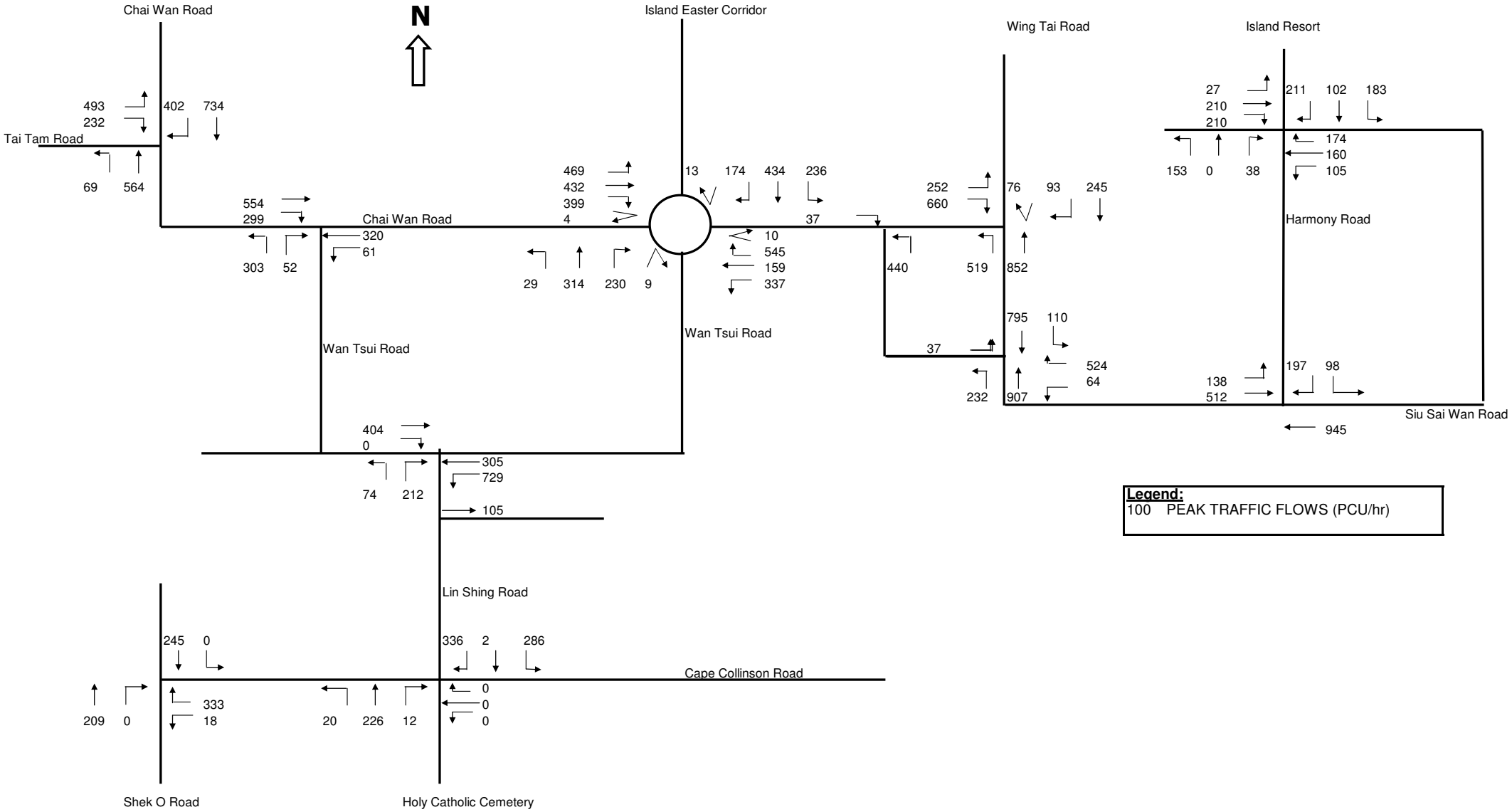


TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Weekend Design Traffic - Site I



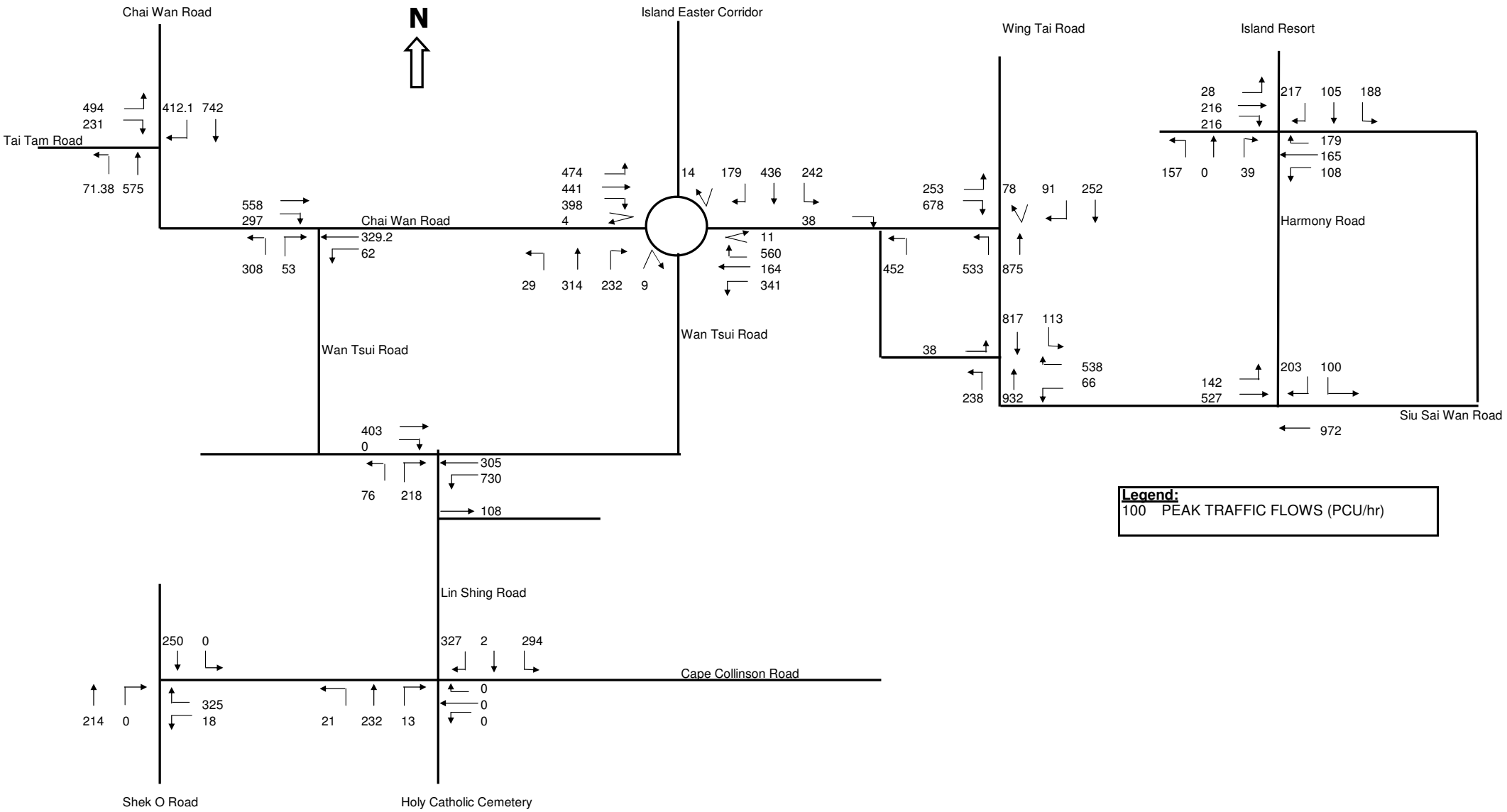
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Weekend Design Traffic - Site II



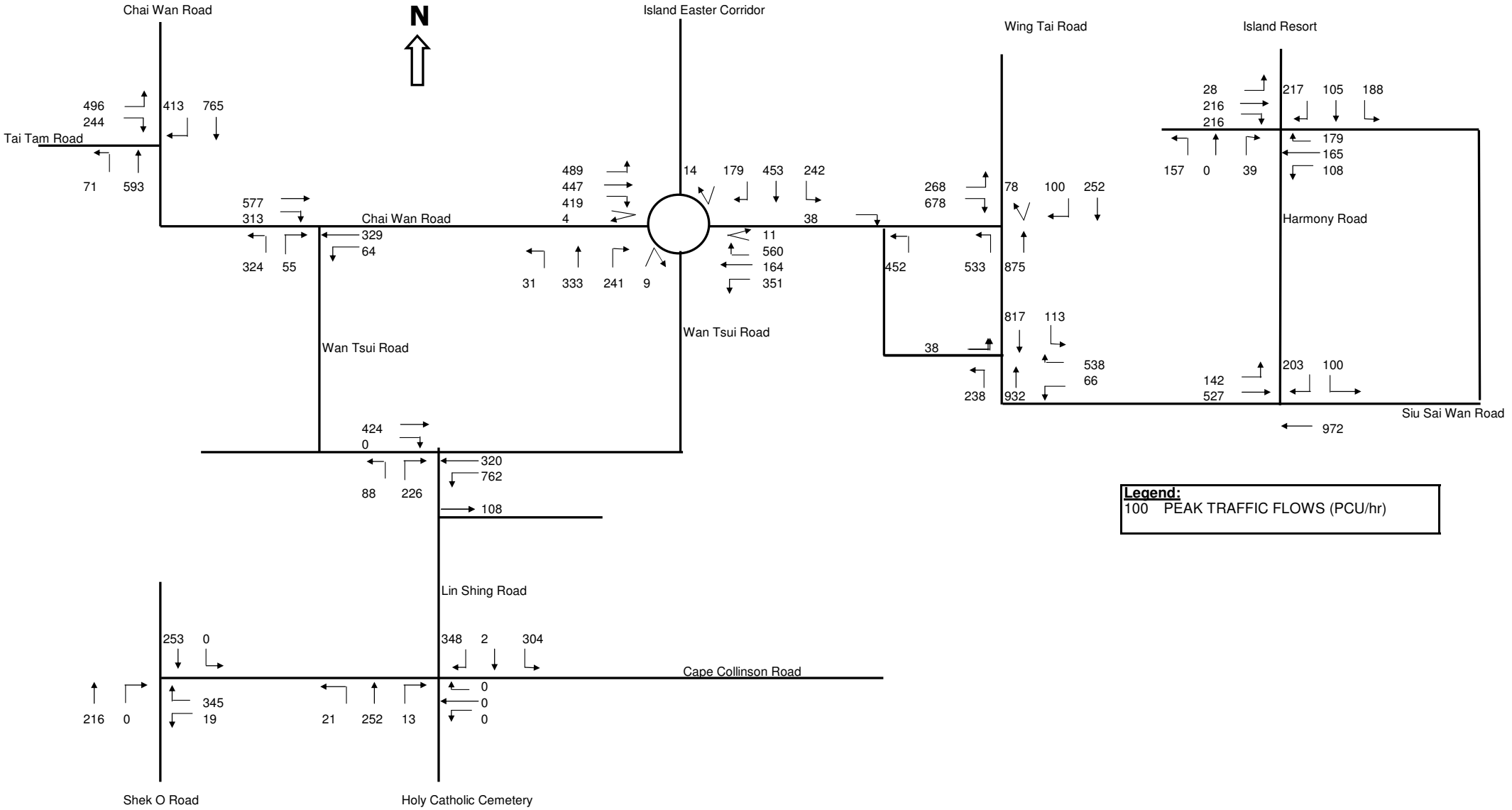
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Weekend Reference Traffic Flows



Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Weekend Design Traffic - Site I



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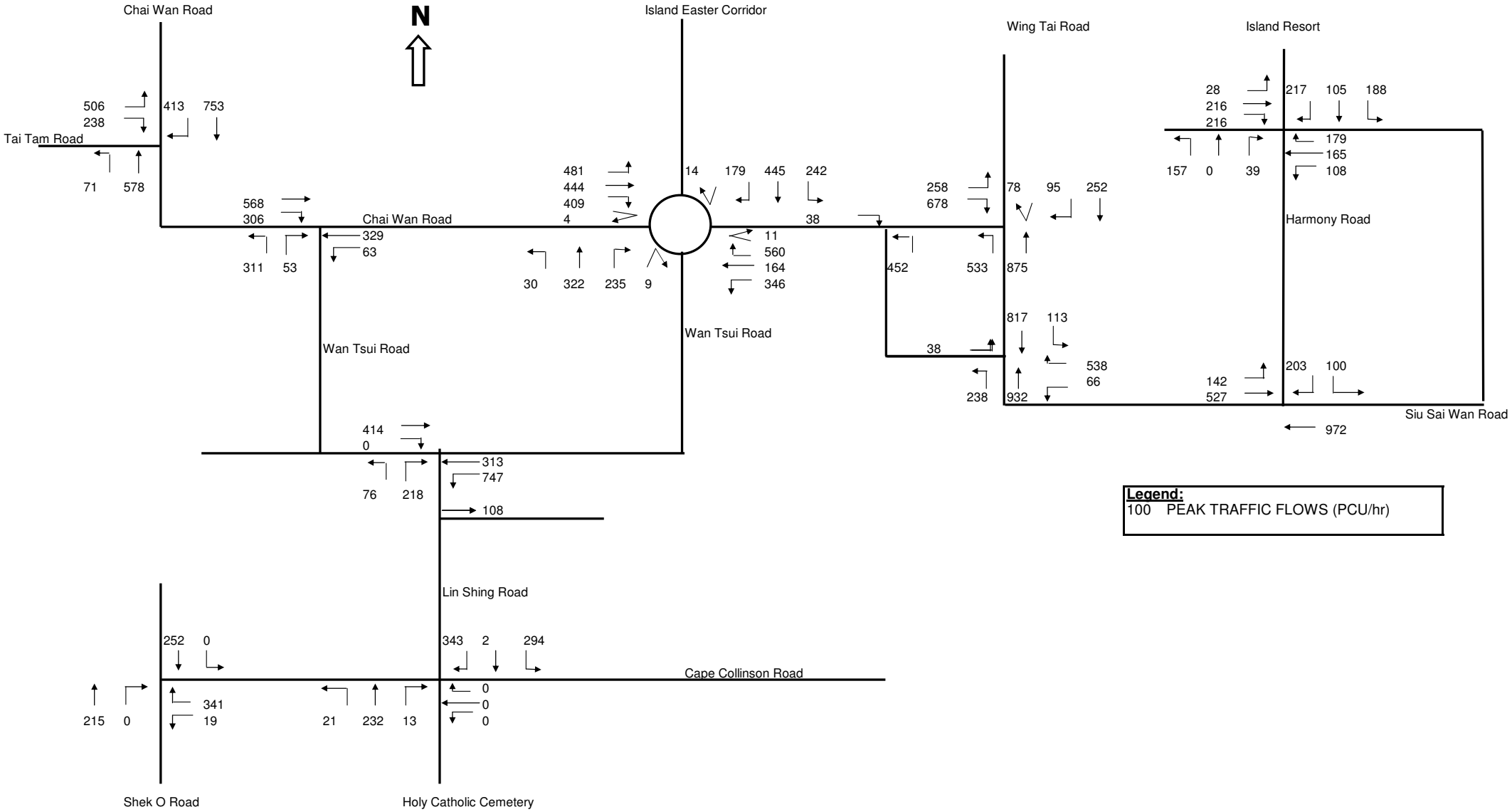
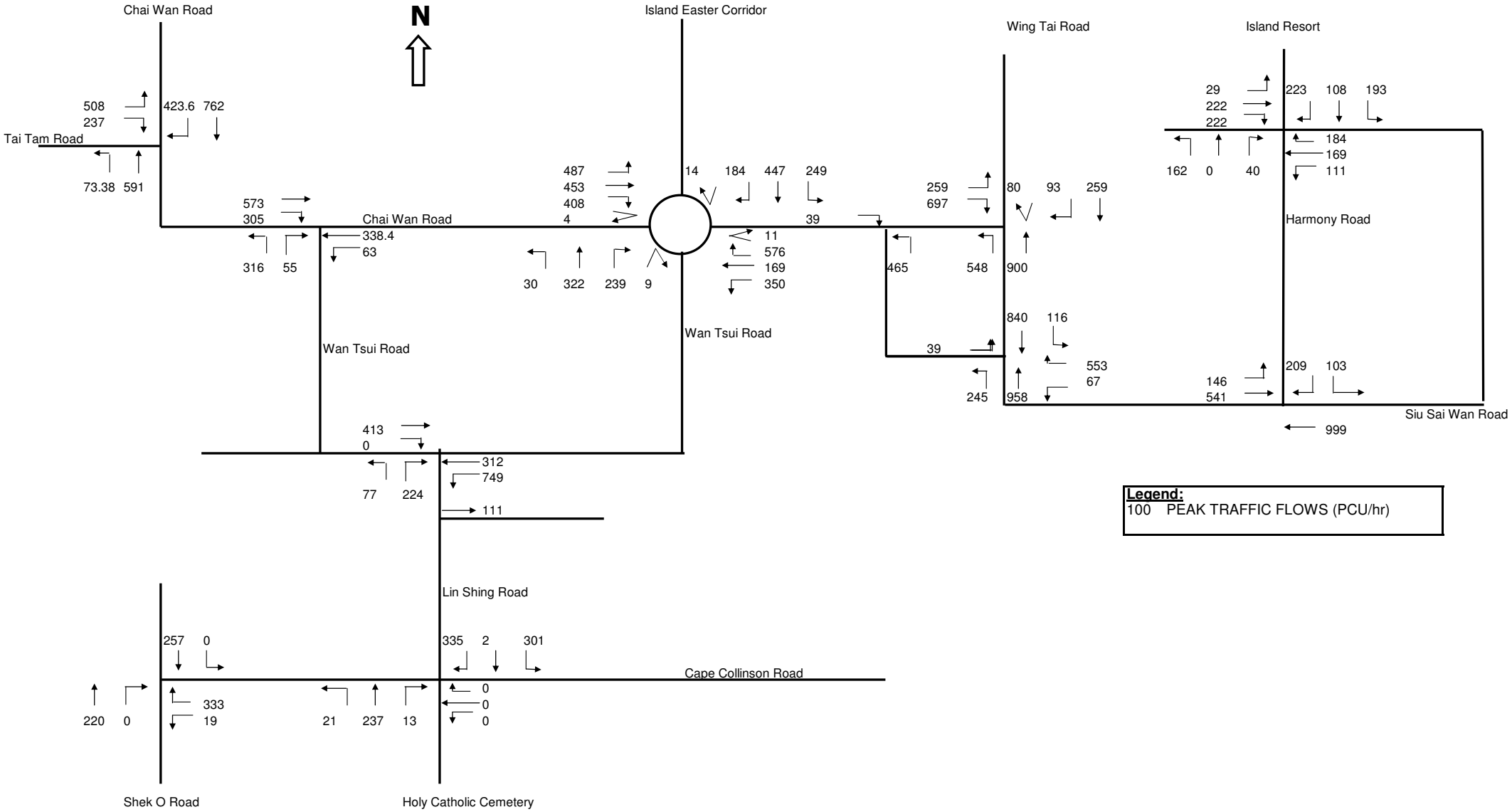
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Weekend Design Traffic - Site II



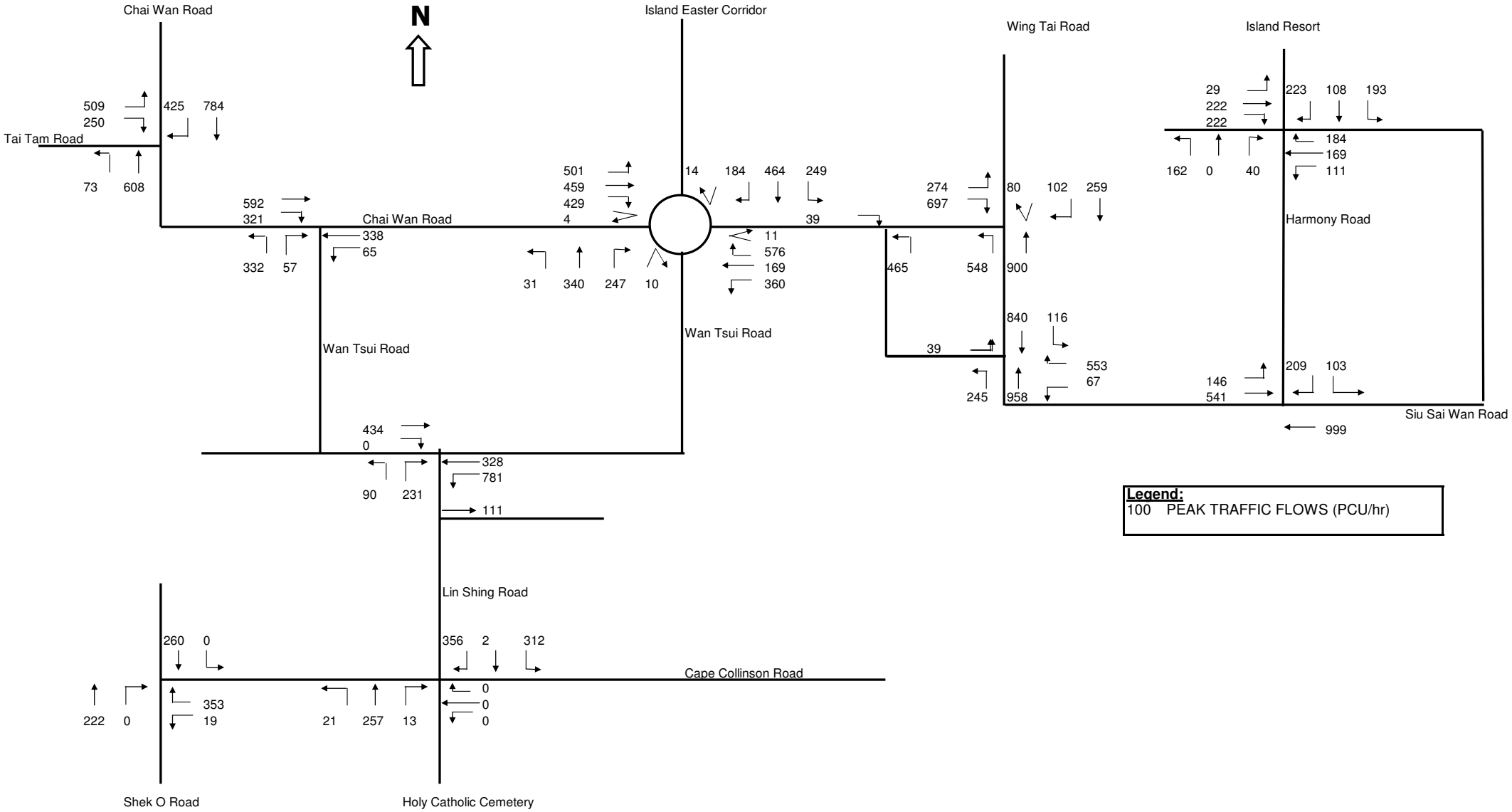
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Weekend Reference Traffic Flows



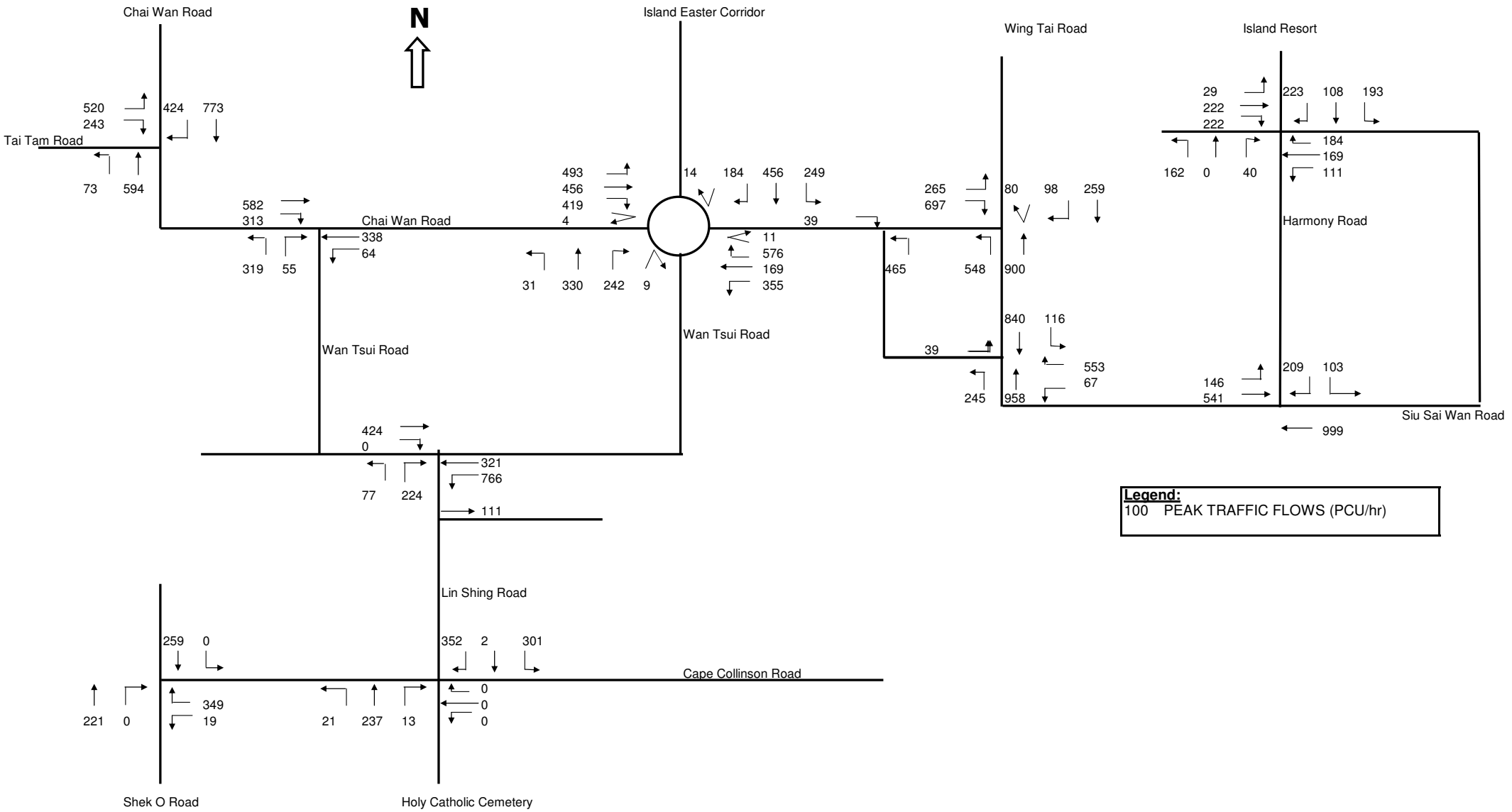
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Weekend Design Traffic - Site I



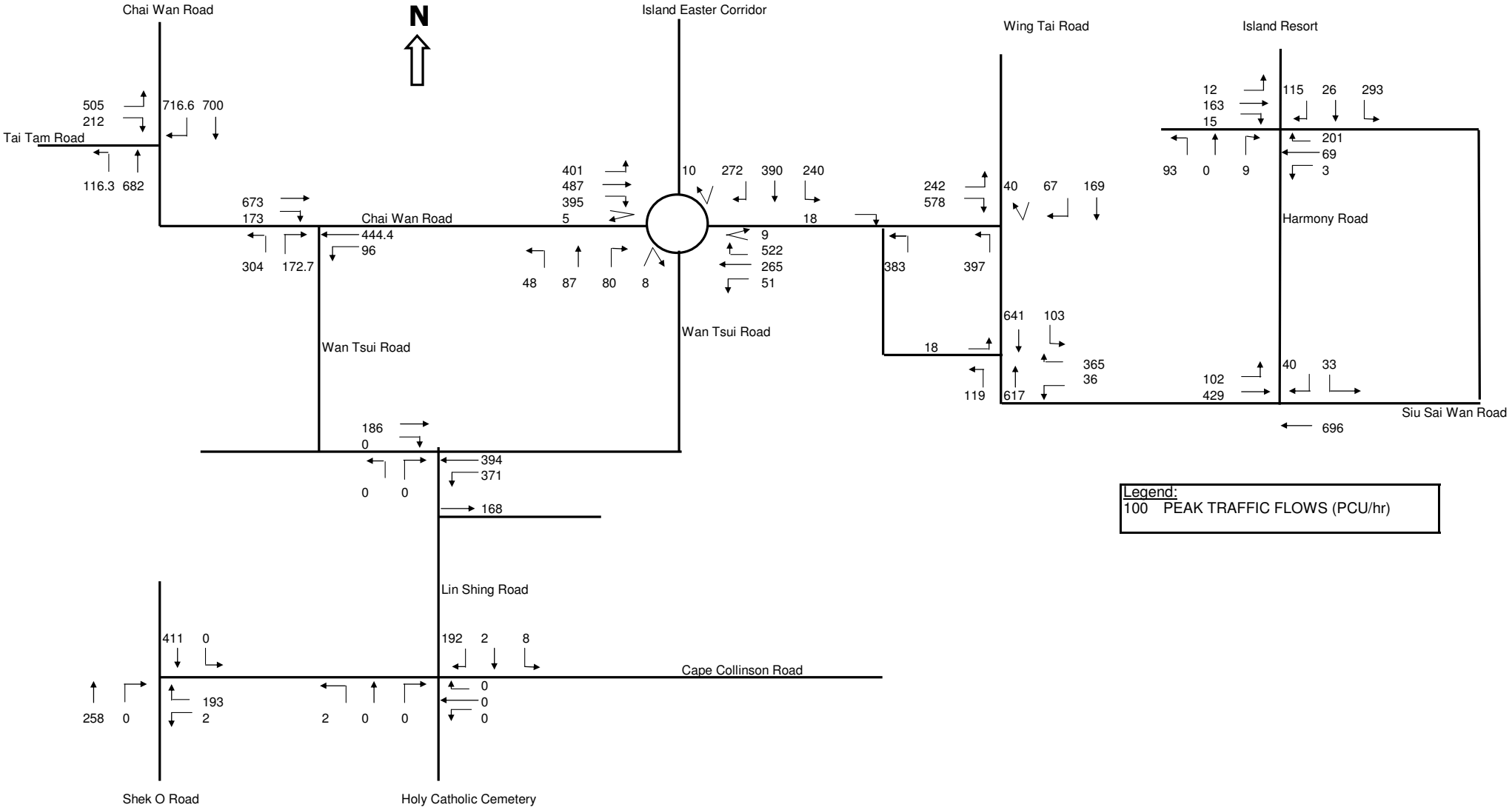
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Weekend Design Traffic - Site II



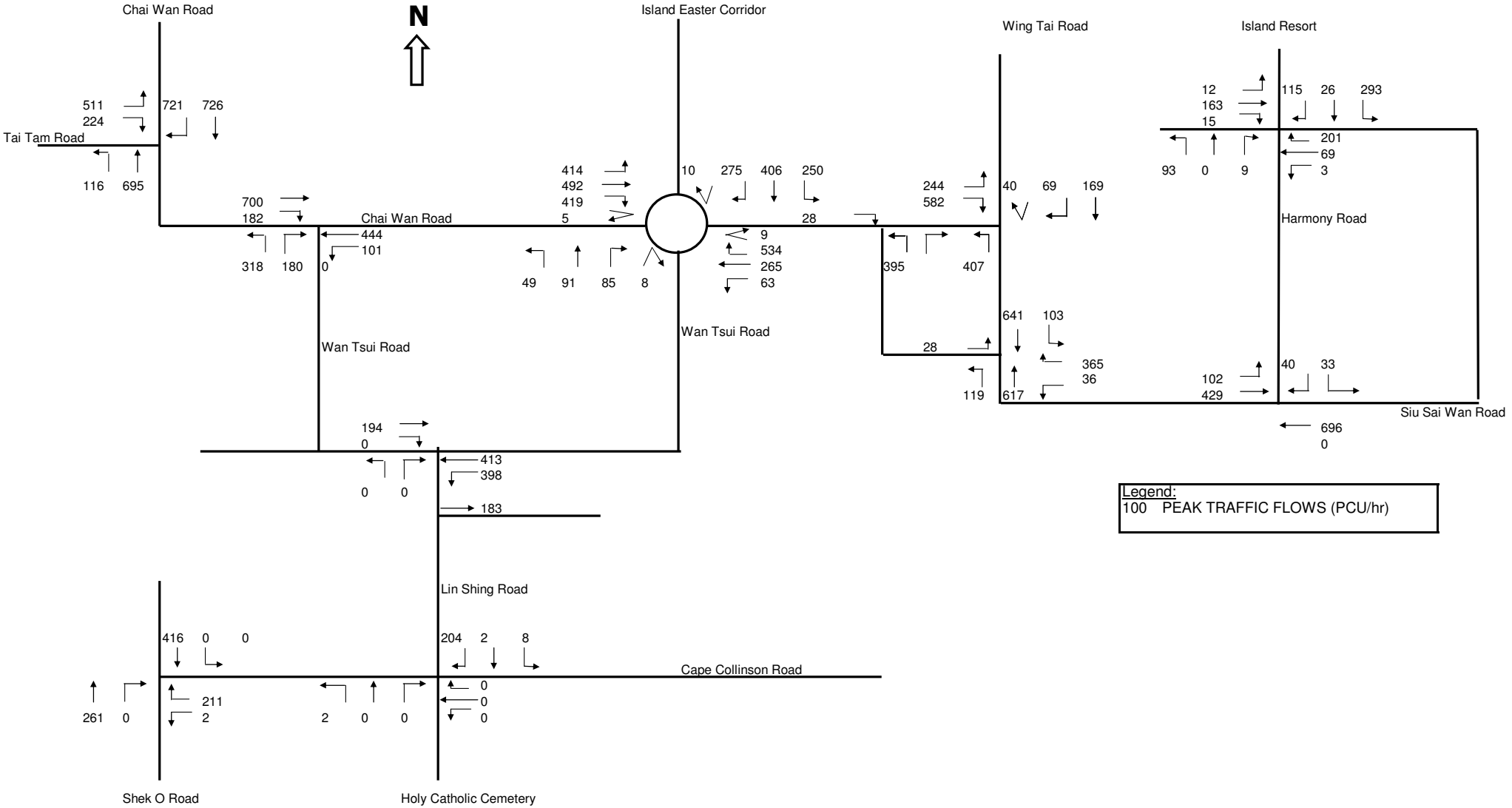
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Ching Ming Reference Traffic Flows

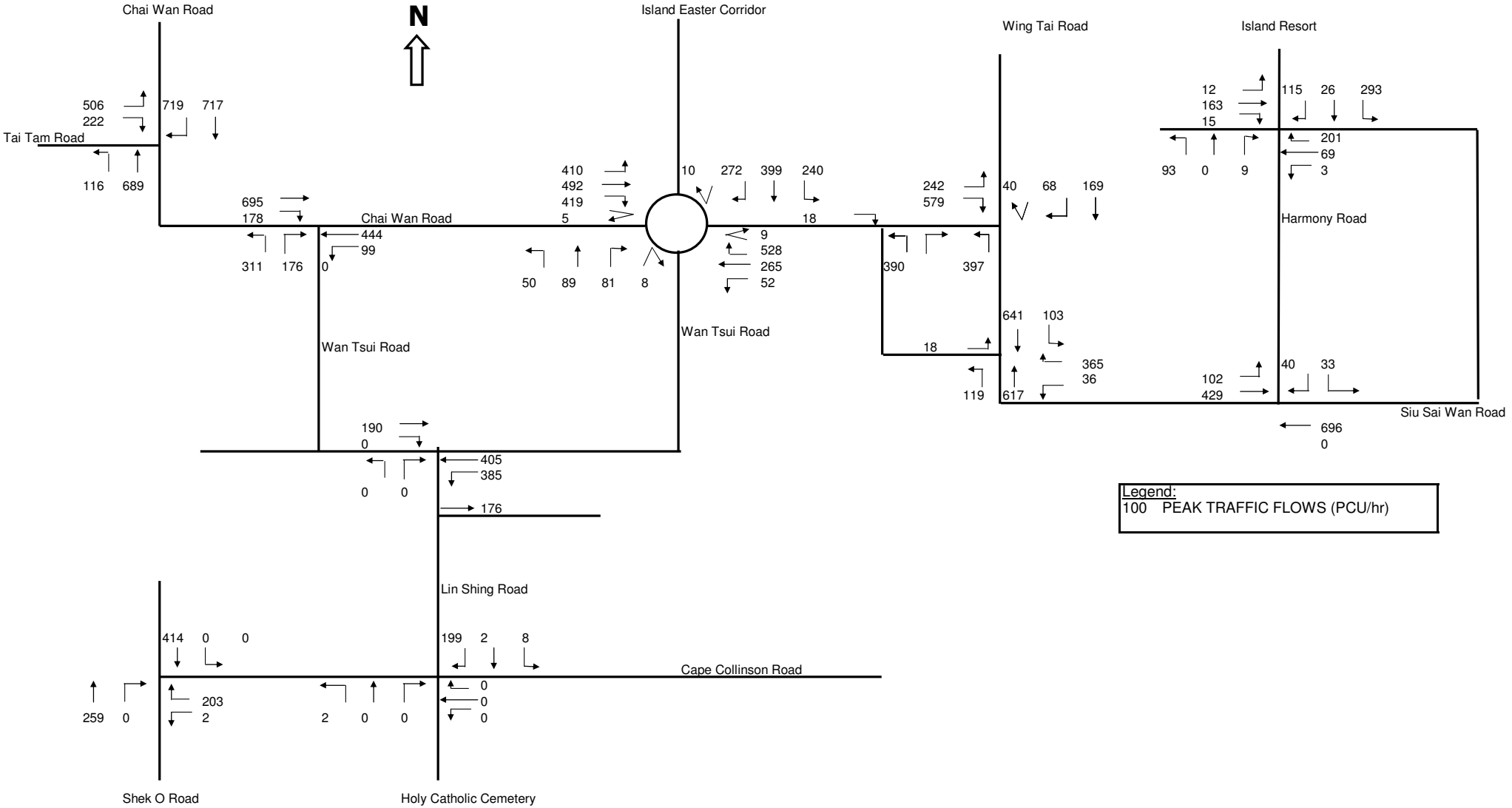


Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

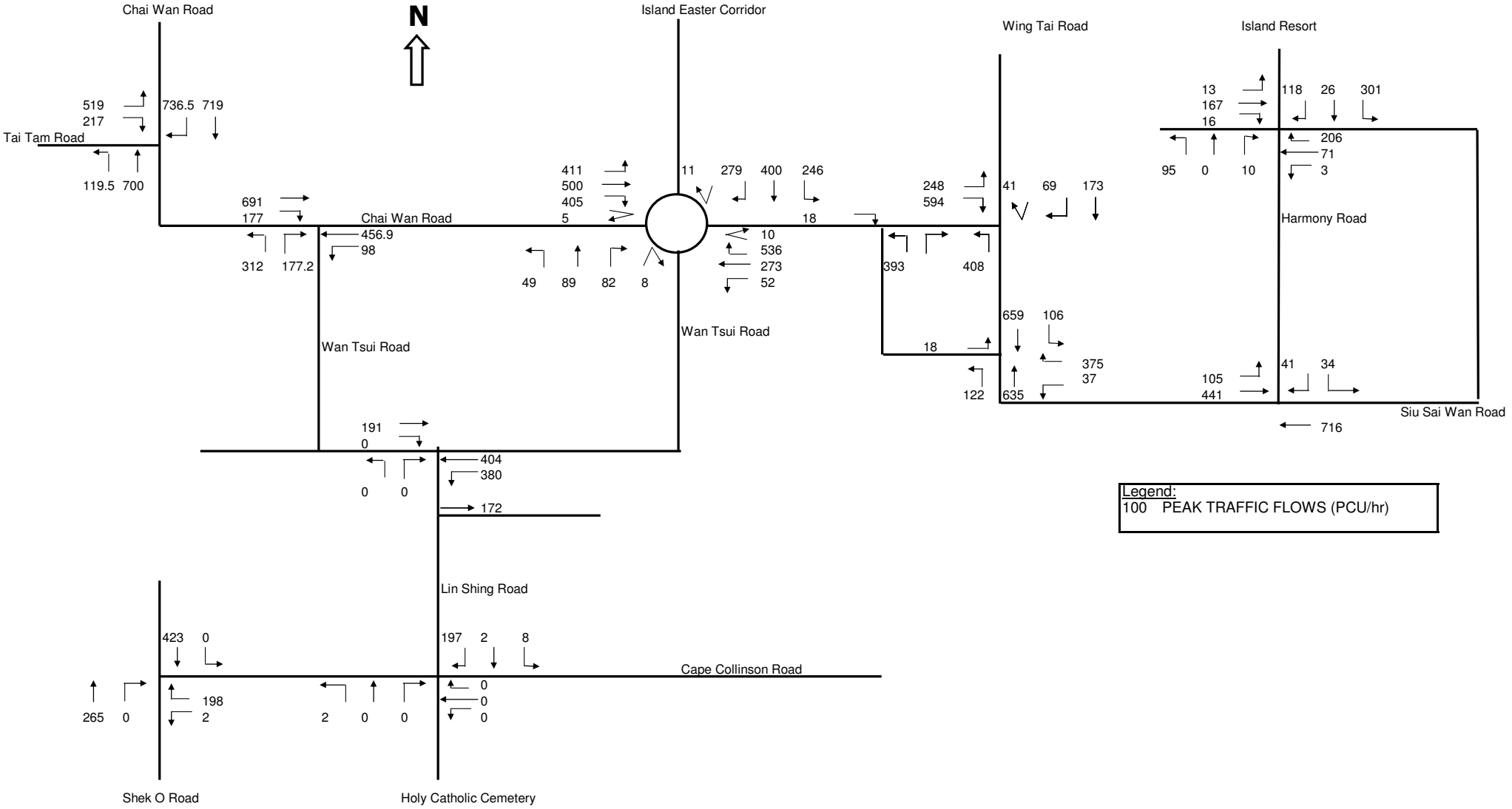
TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Ching Ming Design Traffic - Site I



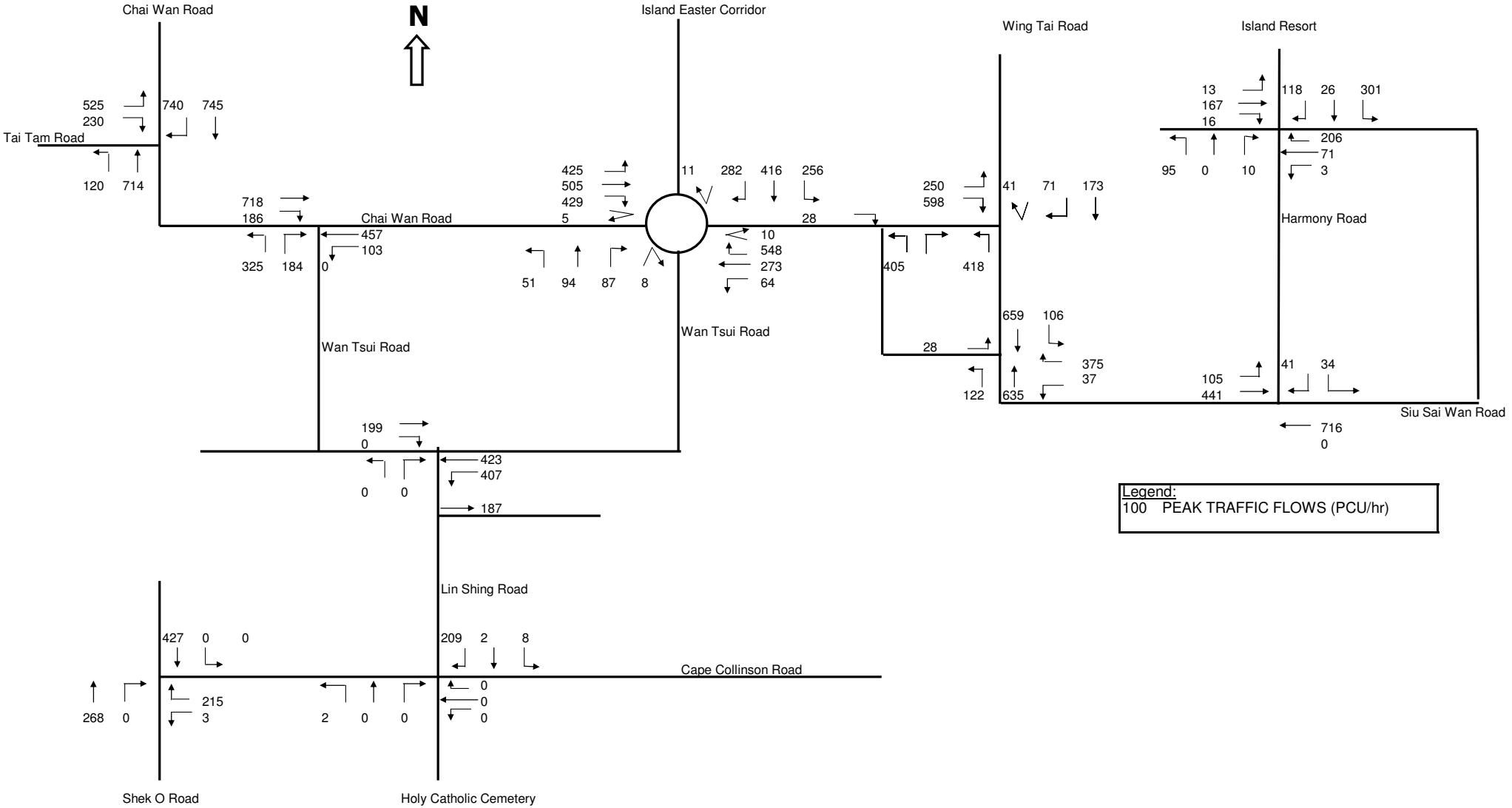
TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Ching Ming Design Traffic - Site II



TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Reference Traffic Flows

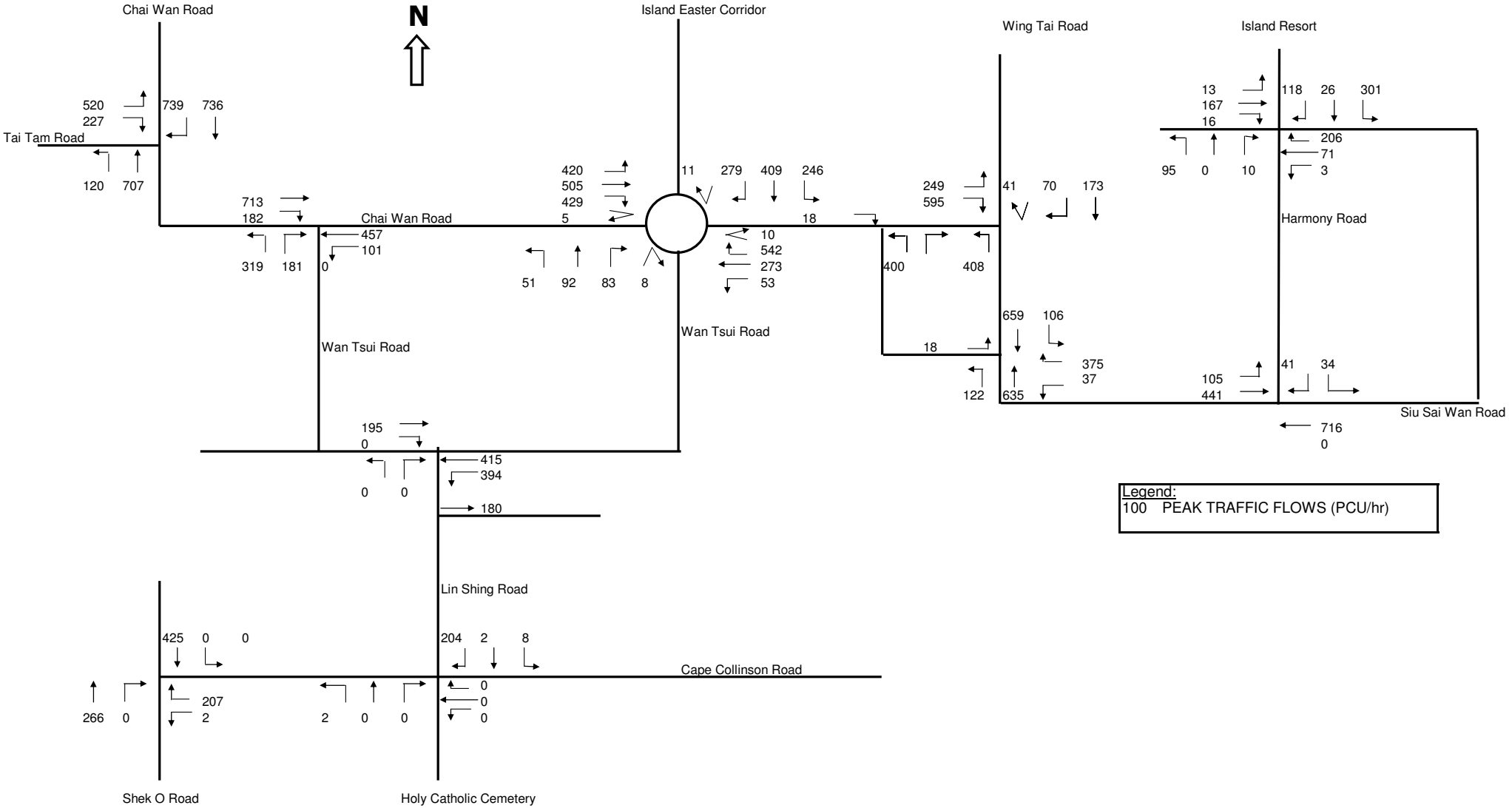


TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site I

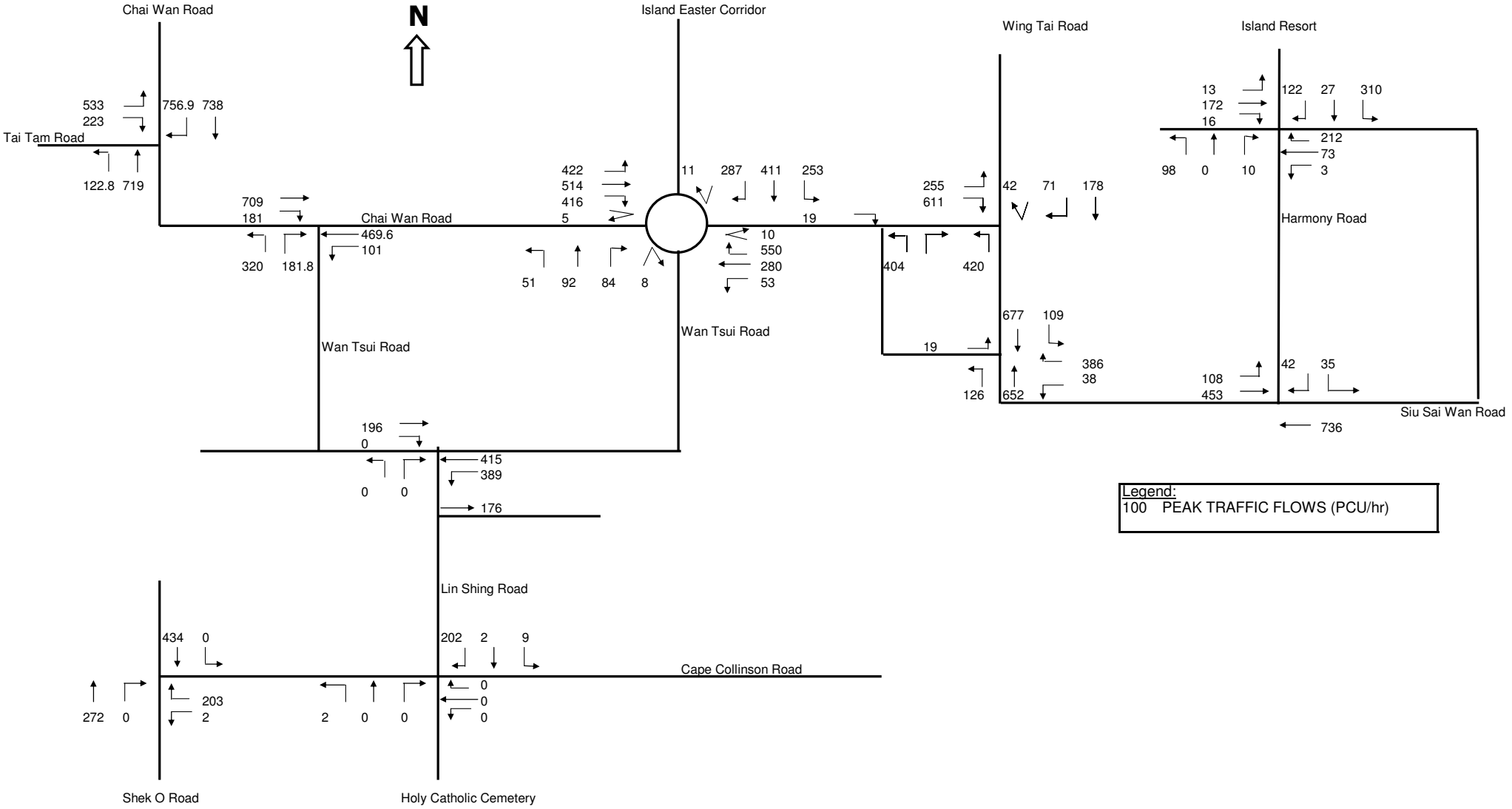


Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

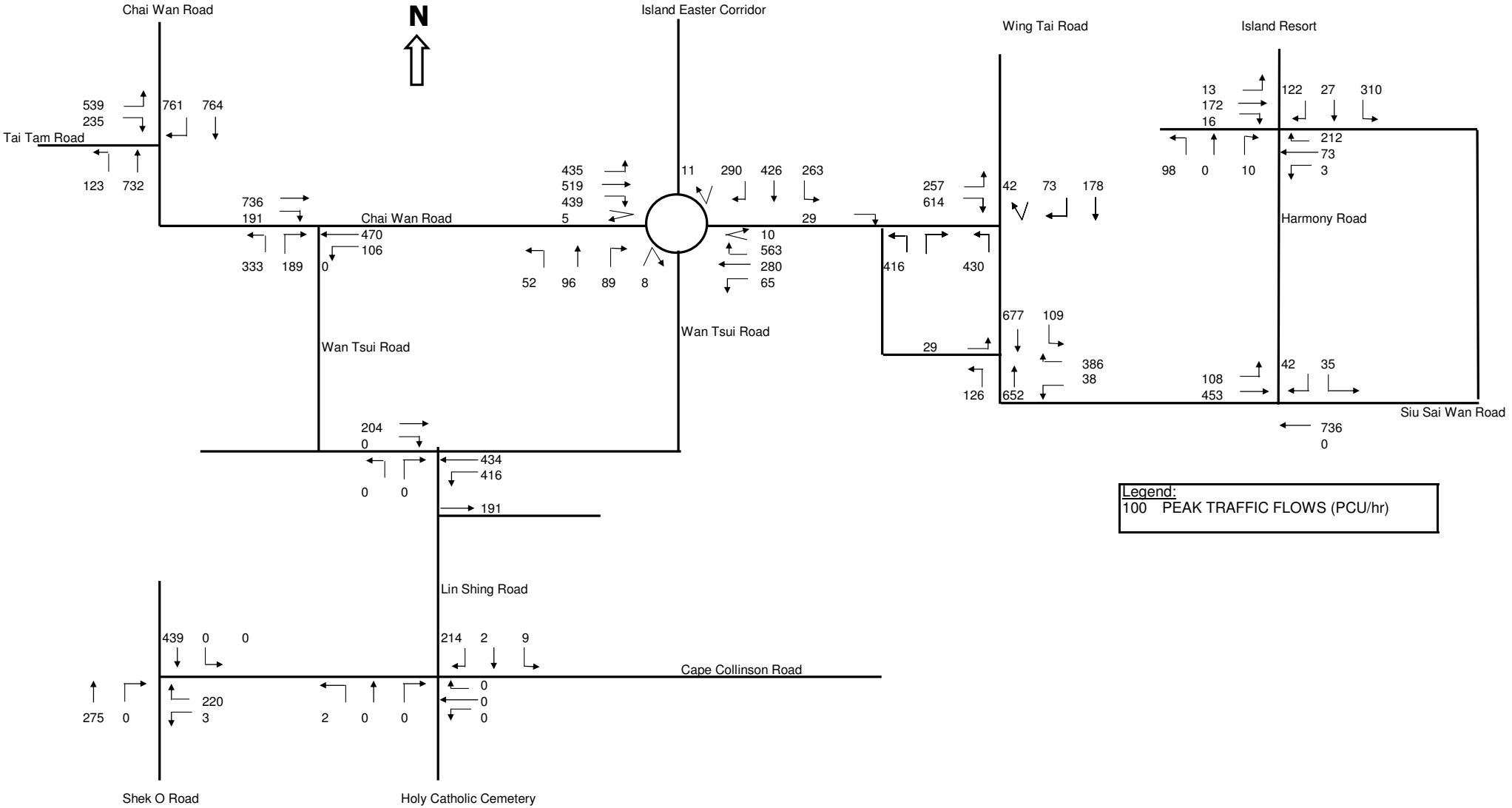
TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site II



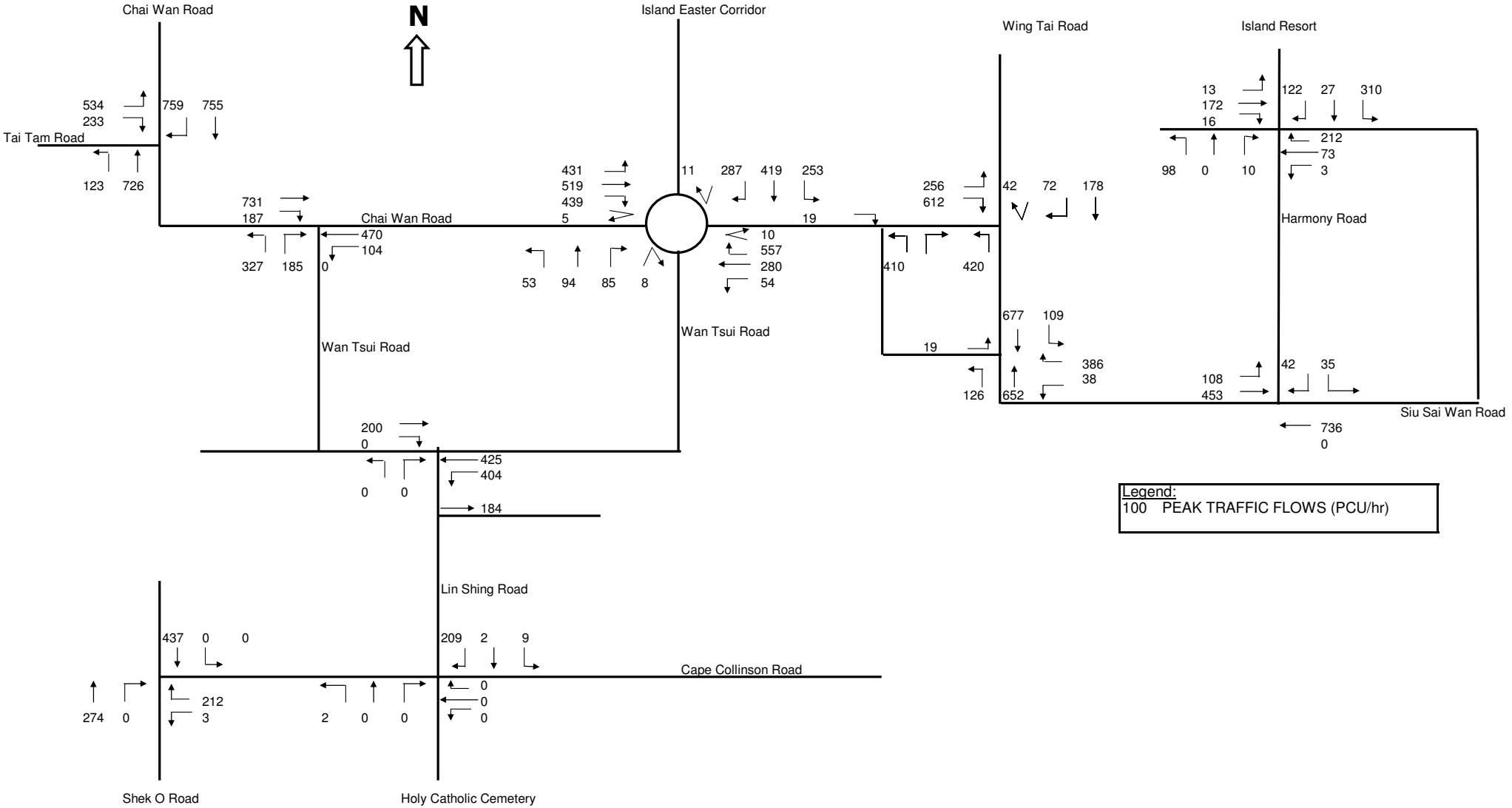
TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Ching Ming Reference Traffic Flows



TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Ching Ming Design Traffic - Site I



TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Ching Ming Design Traffic - Site II



Appendix D

Ching Ming Day
LOS Assessment Results

Appendix D

Level of Service Assessment - Ching Ming Day

(a) No Improvement Scheme

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1950	1831	37	39	37	D	D	D
	C	3.0	2.5	354	400	426	414	c	-	-	-	-	-
	D	3.53	4.0	1026	1160	1235	1200	58	61	60	E	E	E
P2	E	2.27	2.8	719	813	866	841	59	62	61	E	E	E

(b) Sensitivity Test 1 & Test 2: Scenario 1 - with Improvement Sheme Route 1

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1820	1701	37	37	34	D	D	D
	C	3.0	2.5	354	400	426	414	-	-	-	-	-	-
	D	3.53	4.0	1026	1160	1205	1170	58	60	58	E	E	E
P2	E	2.27	2.8	719	813	766	741	59	55	53	E	E	E

(c) Sensitivity Test 1 & Test 2: Scenario 2 - with Improvement Sheme Route 2

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1450	1331	37	29	27	D	C	C
	C	3.0	2.5	354	400	426	414	-	-	-	-	-	-
	D	3.53	4.0	1026	1160	985	950	58	49	47	E	D	D
P2	E	2.27	2.8	719	813	616	591	59	44	43	E	D	D

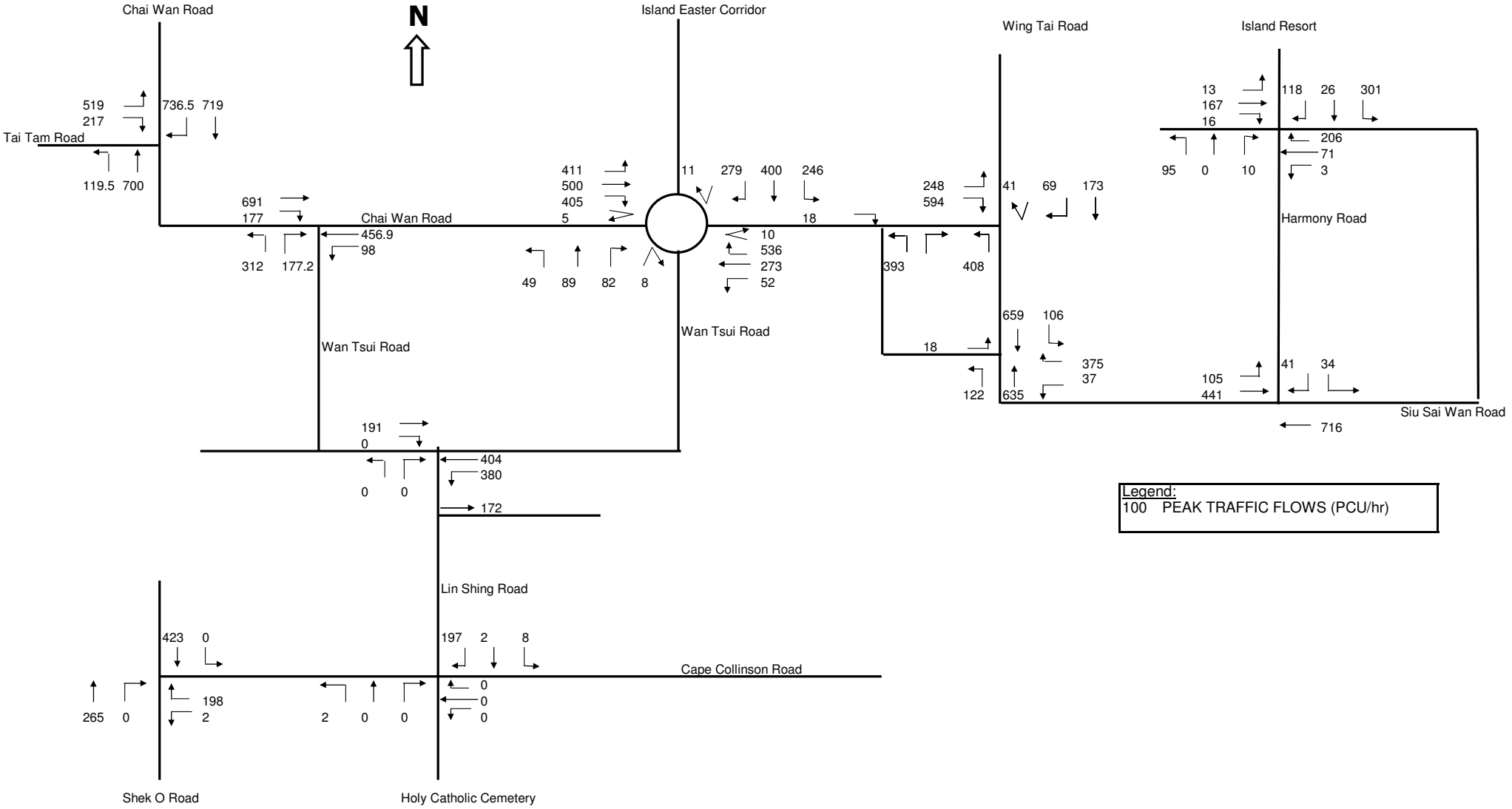
(d) Sensitivity Test 1 & Test 2: Scenario 3 - with Improvement Shemes Route 1 + Route 2

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1320	1201	37	27	24	D	C	C
	C	3.0	2.5	354	400	426	414	-	-	-	-	-	-
	D	3.53	4.0	1026	1160	955	920	58	47	46	E	D	D
P2	E	2.27	2.8	719	813	516	491	59	37	35	E	D	D

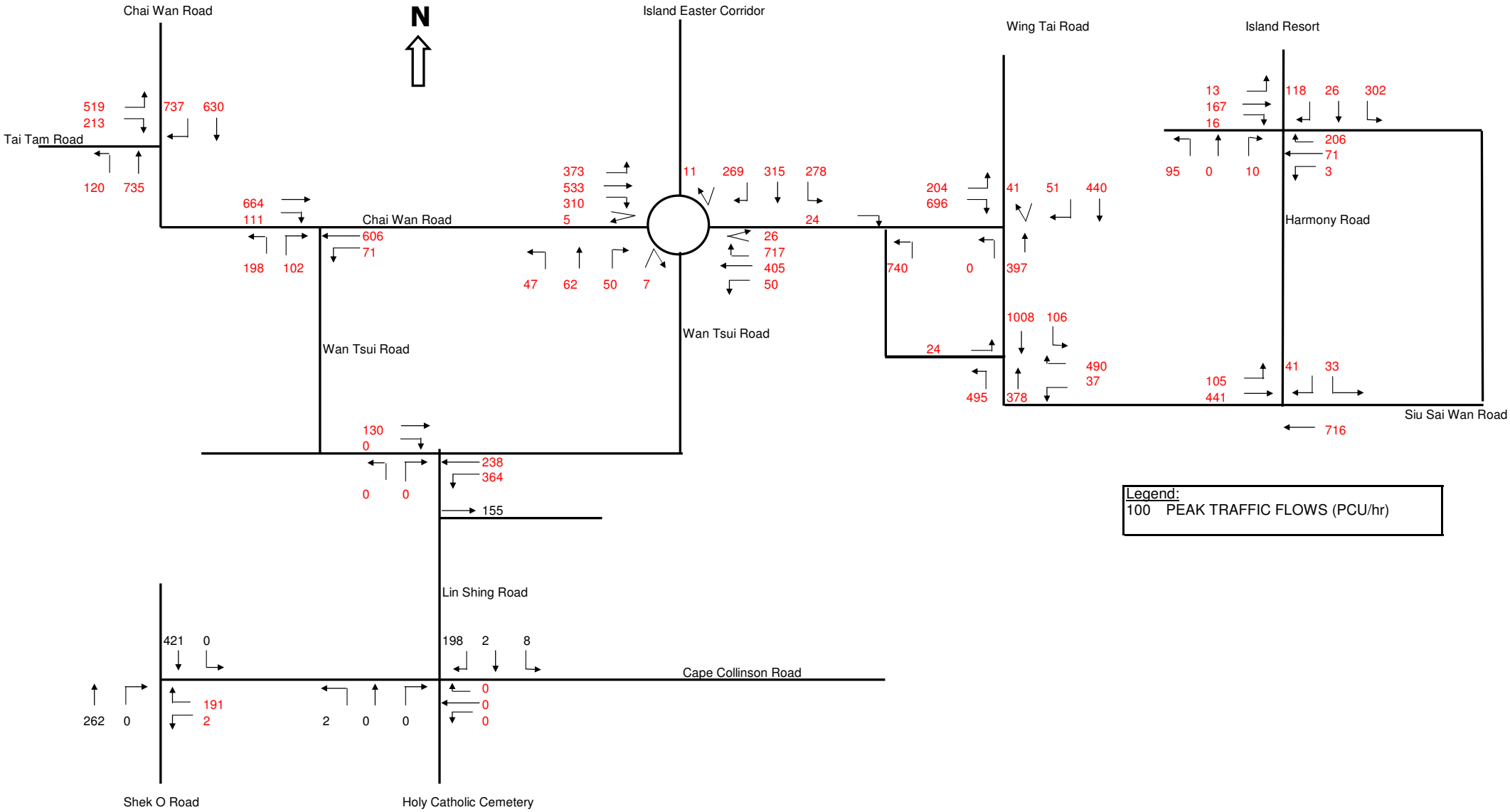
Appendix E

2021 Sensitivity Test
Peak Hour Traffic Flows

TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Reference Traffic Flows

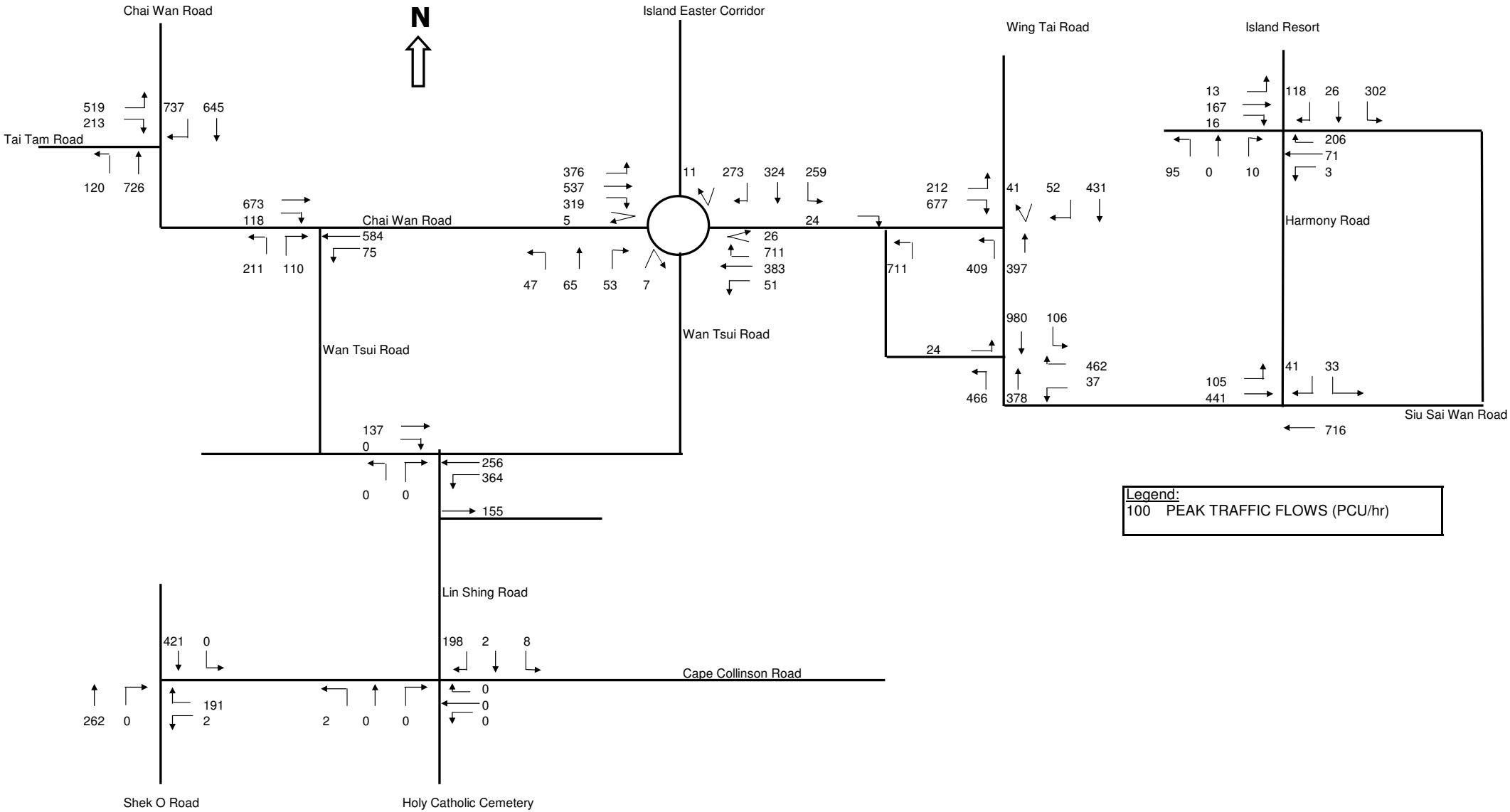


Sensitivity Test 1 & 2
TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site I Option 1



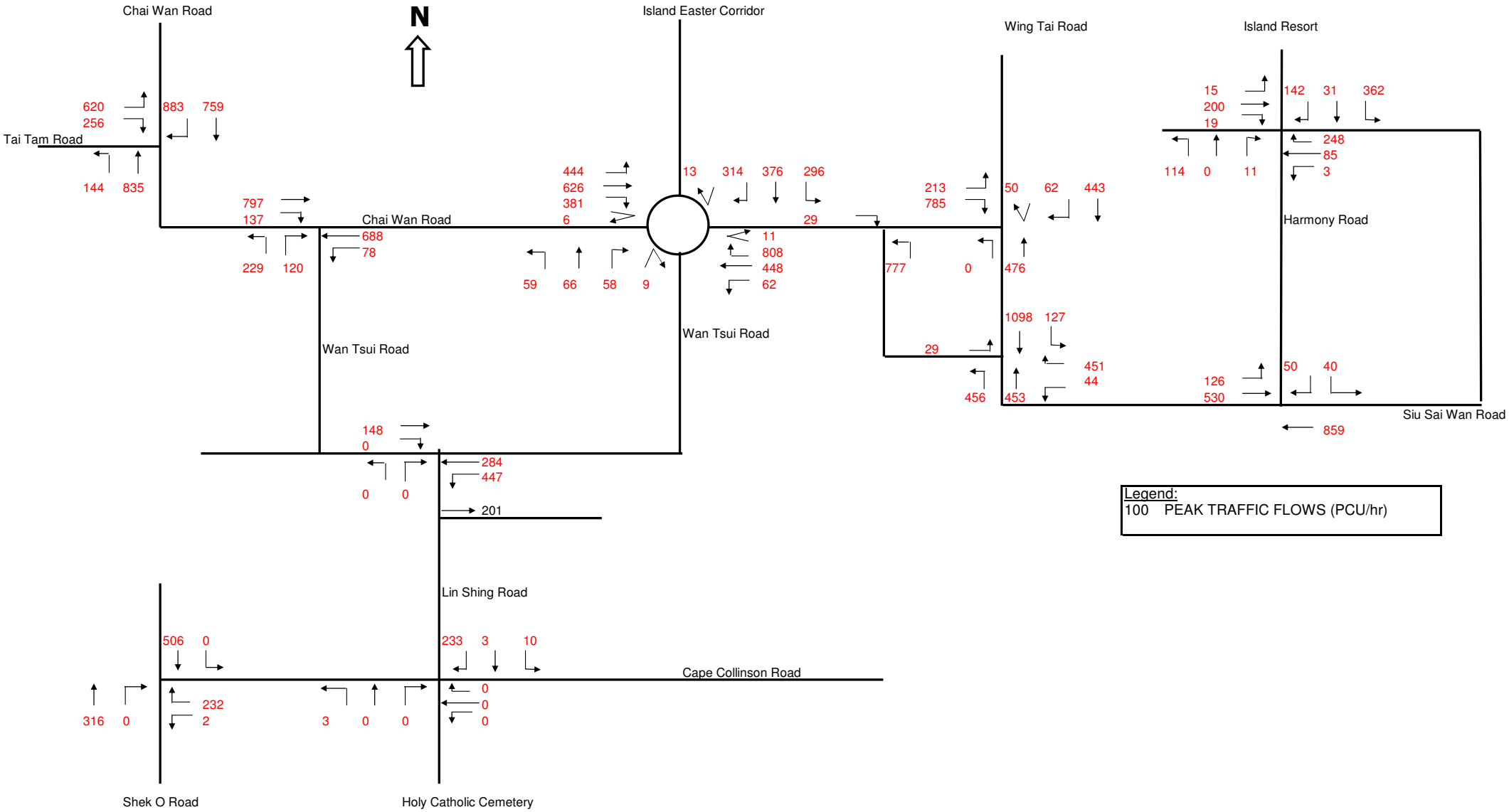
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

Sensitivity Test 1 & 2
TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site I Option 2



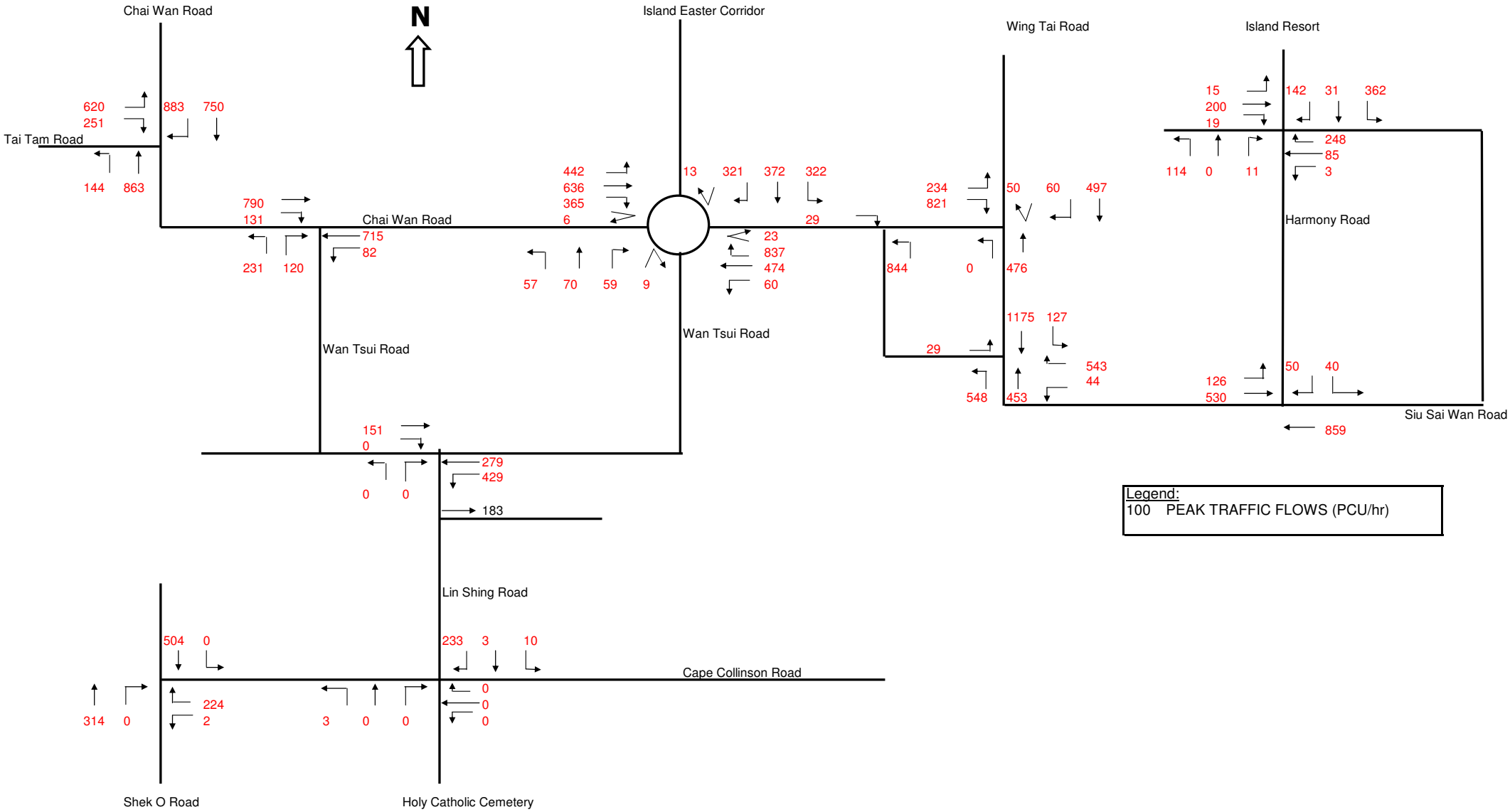
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

Sensitivity Test 3
TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Reference Traffic Flows Option 1

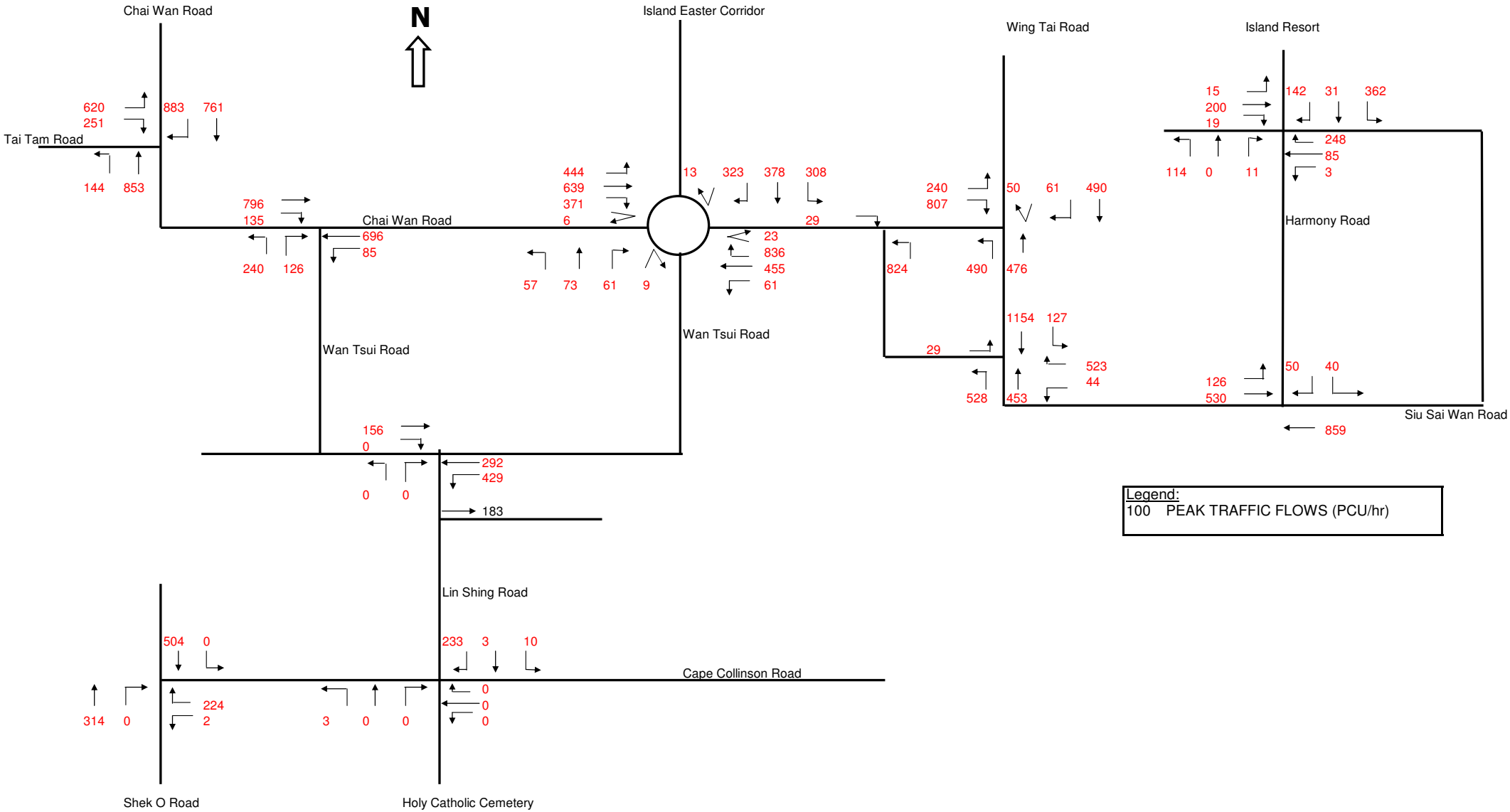


Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

Sensitivity Test 3
TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site I Option 1



Sensitivity Test 3
TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site I Option 2

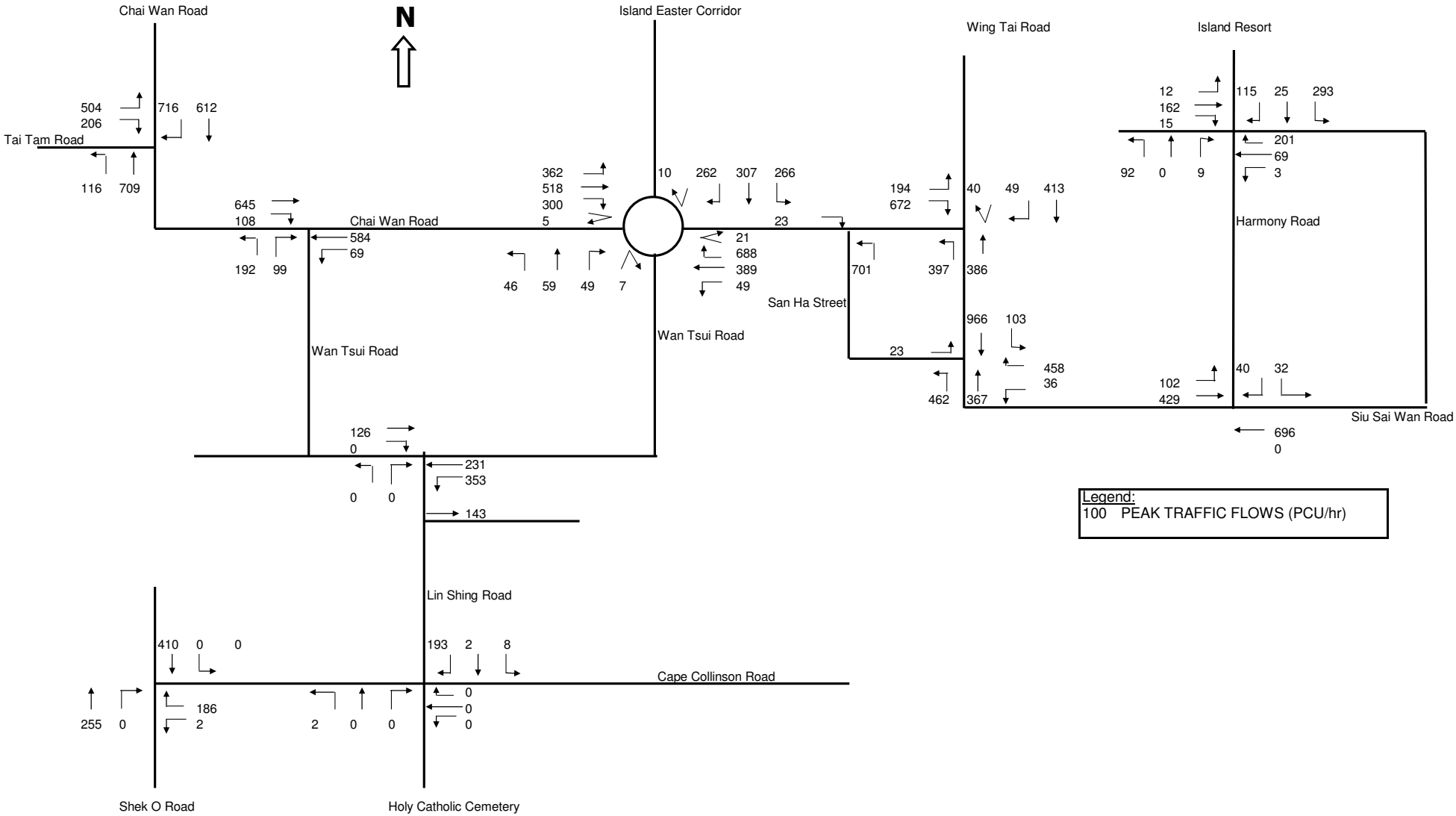


Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

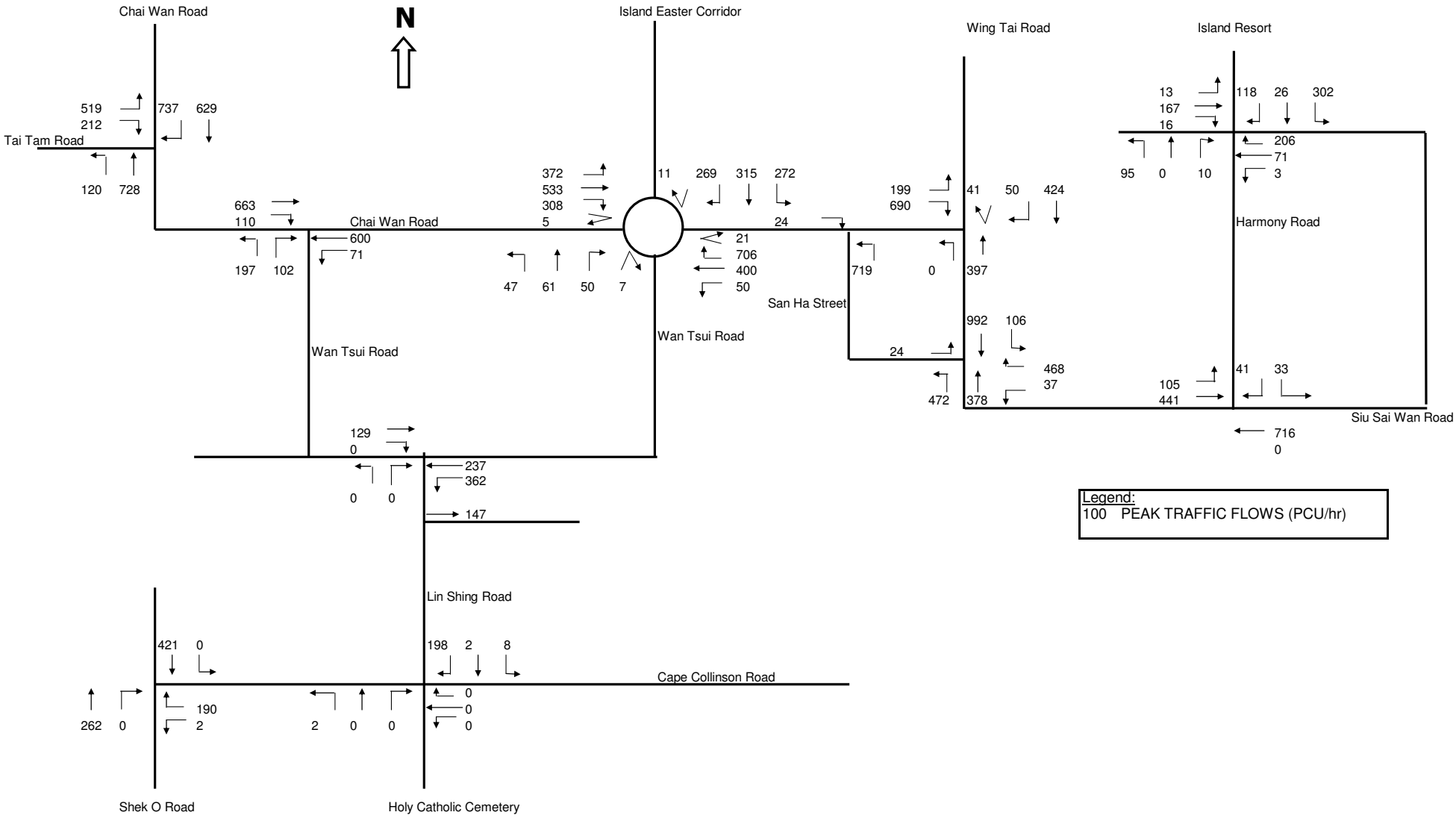
Appendix F

2016 / 2021 / 2026
Option 1 and 2 Special Traffic Plan
Peak Hour Flows

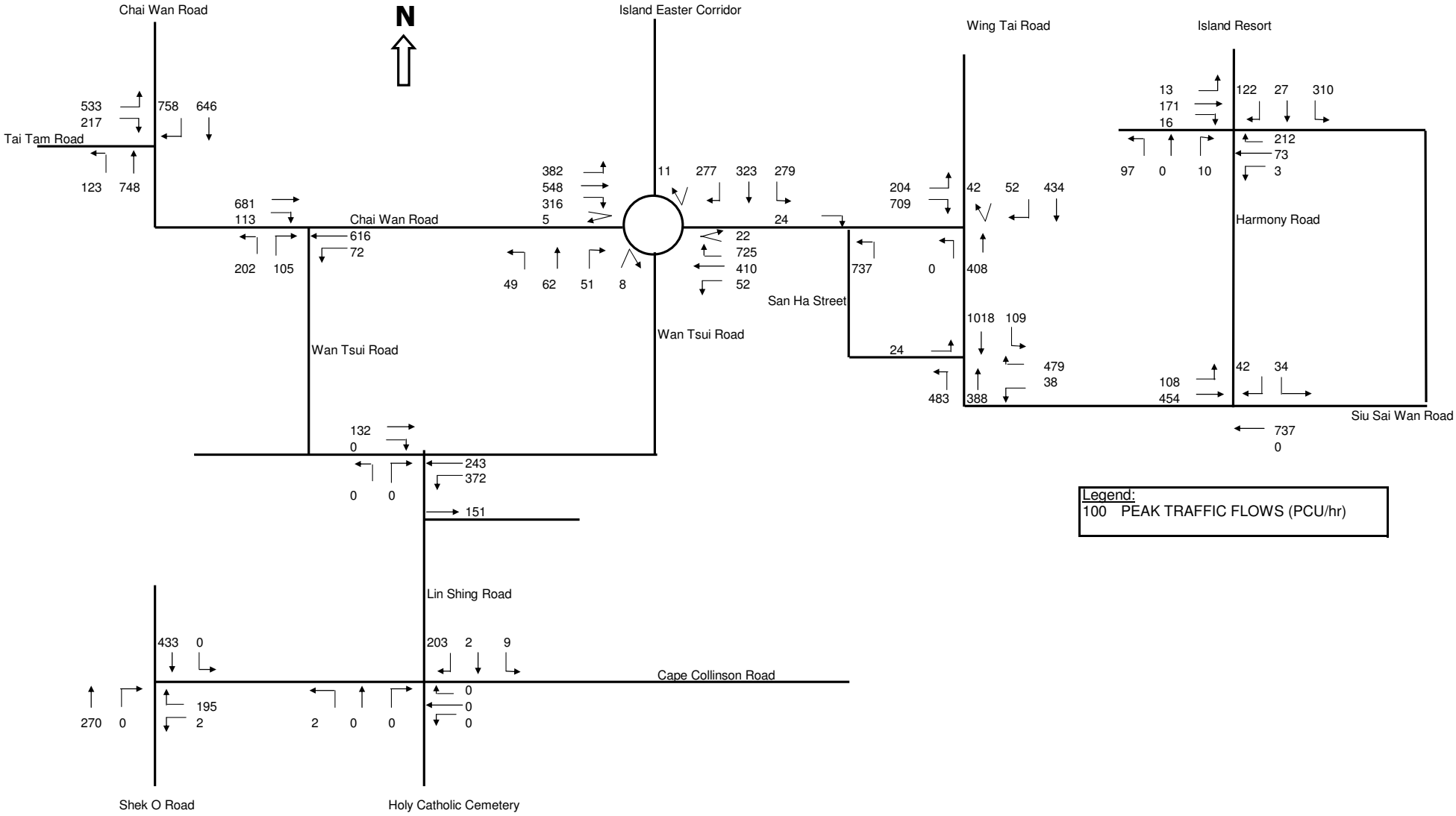
TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Ching Ming Design Traffic - Site I Option 1



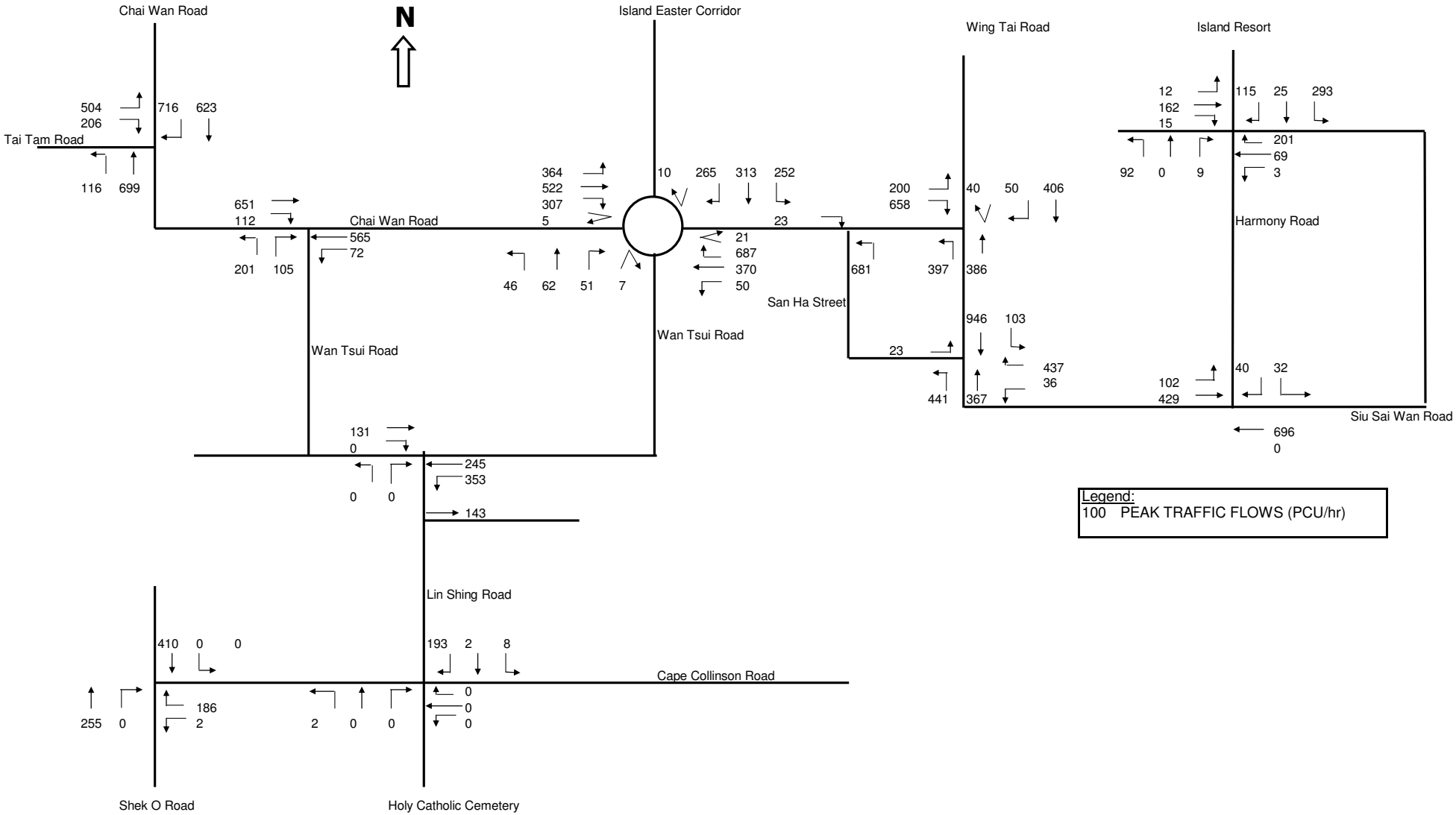
TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site I Option 1



TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Ching Ming Design Traffic - Site I Option 1

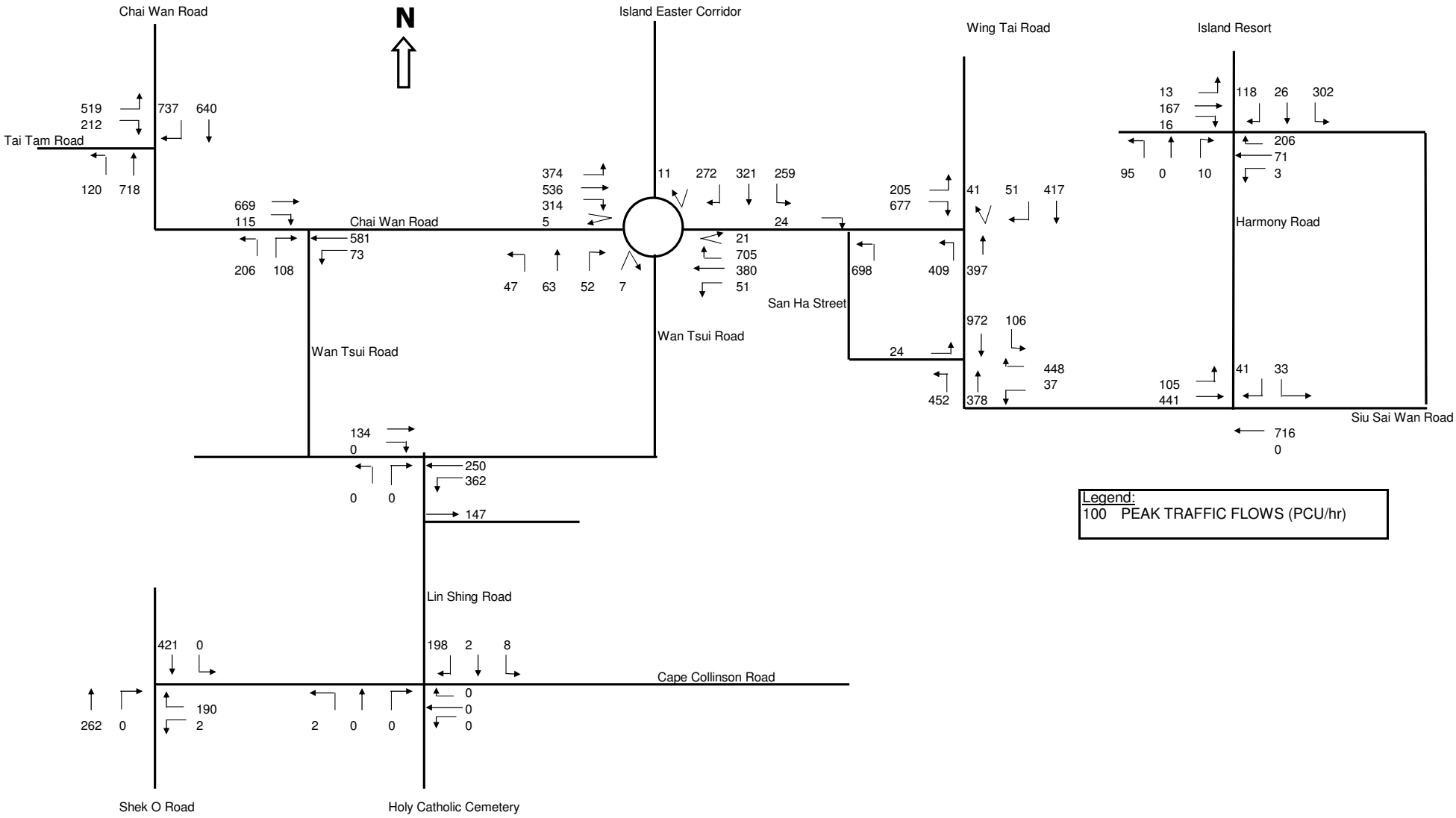


TIA Study for Cape Collinson Columbarium, Chai Wan
2016 Ching Ming Design Traffic - Site I Option 2



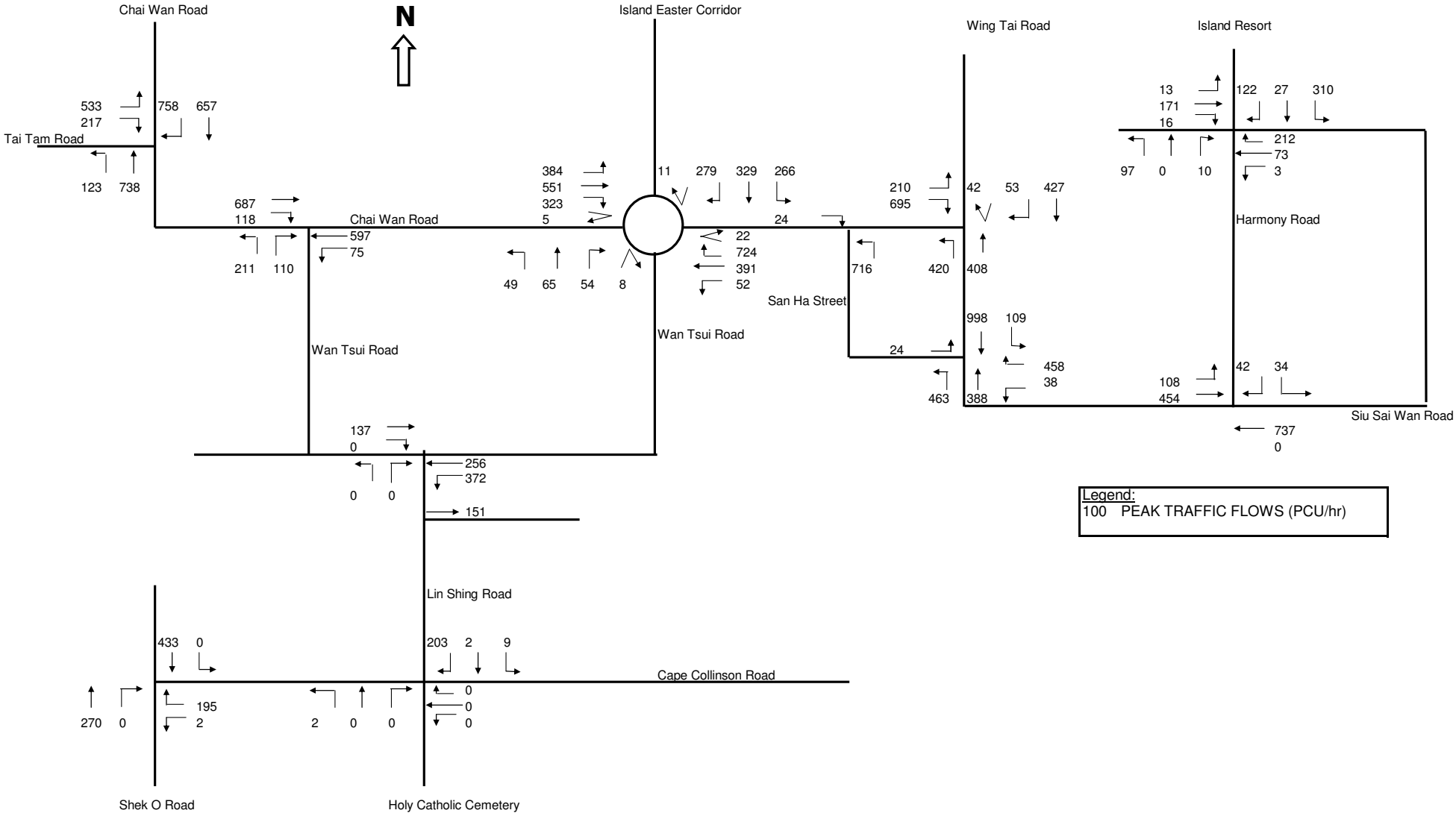
Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2021 Ching Ming Design Traffic - Site I Option 2



Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

TIA Study for Cape Collinson Columbarium, Chai Wan
2026 Ching Ming Design Traffic - Site I Option 2



Legend:
100 PEAK TRAFFIC FLOWS (PCU/hr)

Appendix G

2021 Sensitivity Test – LOS Assessment Results

Appendix G

Level of Service Assessment - Ching Ming Day
Sensitivity Test 1 (Trip Rates +20%) & Test 2 (No. of Niches +20%)

(a) No Improvement Scheme

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1974	1831	37	40	37	D	D	D
	C	3.0	2.5	354	400	431	417	c	-	-	-	-	-
	D	3.53	4.0	1026	1160	1250	1208	58	62	60	E	E	E
P2	E	2.27	2.8	719	813	876	847	59	63	61	E	E	E

(b) Sensitivity Test 1 & Test 2: Scenario 1 - with Improvement Sheme Route 1

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1844	1701	37	37	34	D	D	D
	C	3.0	2.5	354	400	426	414	-	-	-	-	-	-
	D	3.53	4.0	1026	1160	1220	1178	58	61	58	E	E	E
P2	E	2.27	2.8	719	813	776	747	59	56	54	E	E	E

(c) Sensitivity Test 1 & Test 2: Scenario 2 - with Improvement Sheme Route 2

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1474	1331	37	30	27	D	C	C
	C	3.0	2.5	354	400	426	414	-	-	-	-	-	-
	D	3.53	4.0	1026	1160	1000	958	58	50	48	E	E	D
P2	E	2.27	2.8	719	813	626	597	59	45	43	E	D	D

(d) Sensitivity Test 1 & Test 2: Scenario 3 - with Improvement Shemes Route 1 + Route 2

				Peak 5-min Flows				Ped/min/meter			Level of Service (LOS)		
Route	Link		Effective Width (m)	Background	Reference	Site I	Site II	Reference	Site I	Site II	Reference	Site I	Site II
P1	A+B		9.9	1620	1831	1344	1201	37	27	24	D	C	C
	C	3.0	2.5	354	400	426	414	-	-	-	-	-	-
	D	3.53	4.0	1026	1160	970	928	58	48	46	E	D	D
P2	E	2.27	2.8	719	813	526	497	59	38	36	E	D	D

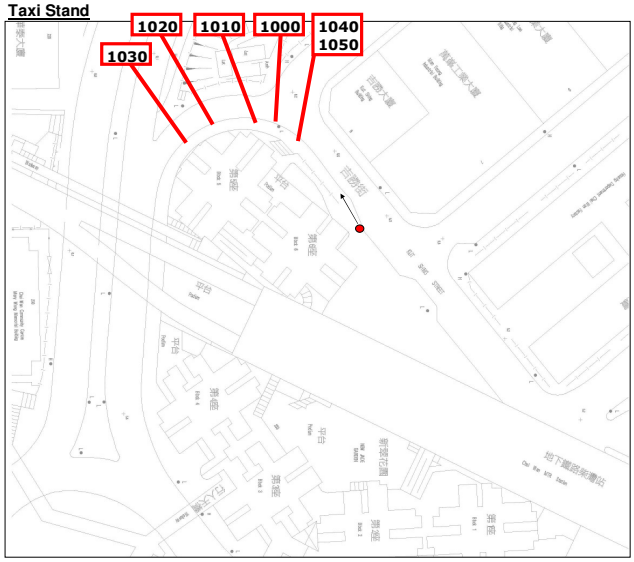
Appendix H

2011 Passenger Queue Observations at Chai Wan MTR PTI

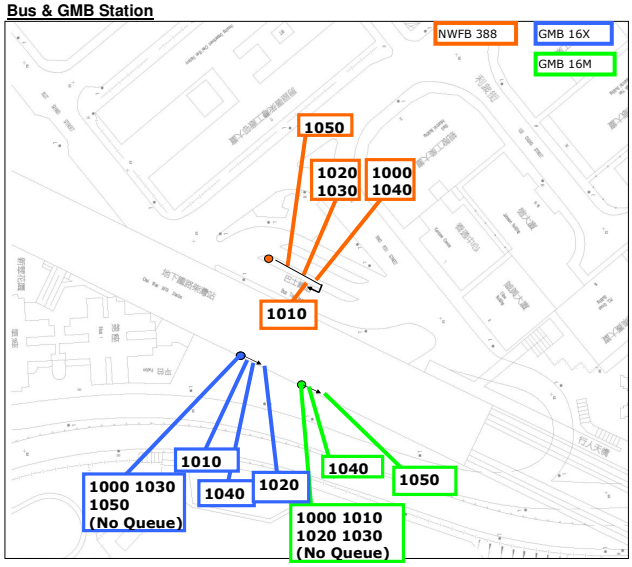
Appendix H

Queuing Situation - 02/04/2011 - 10am - 1pm

Taxi Stand

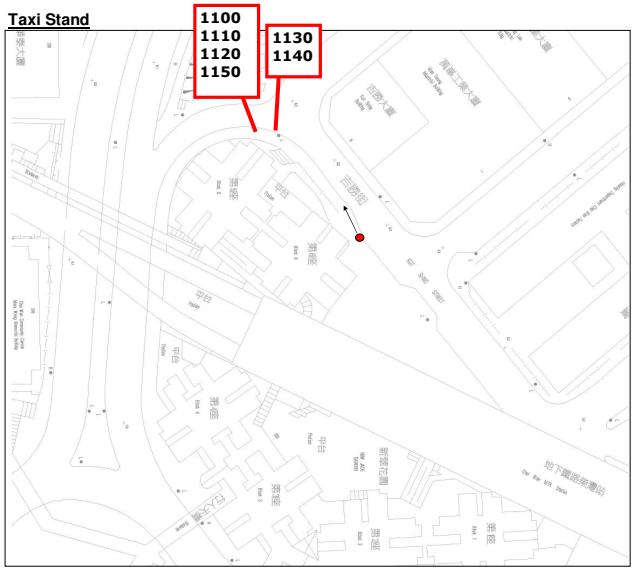


Bus & GMB Station

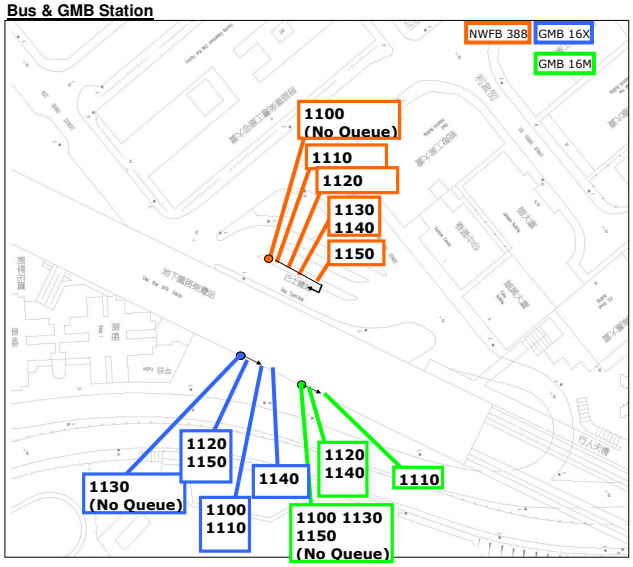


Passenger Queuing Diredction

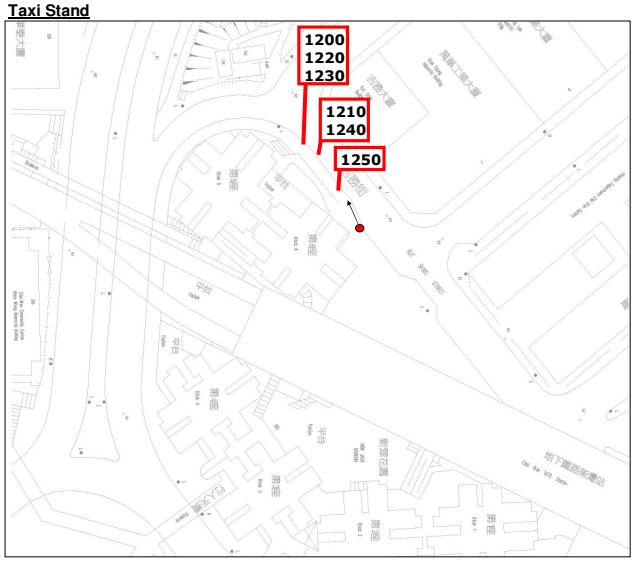
Taxi Stand



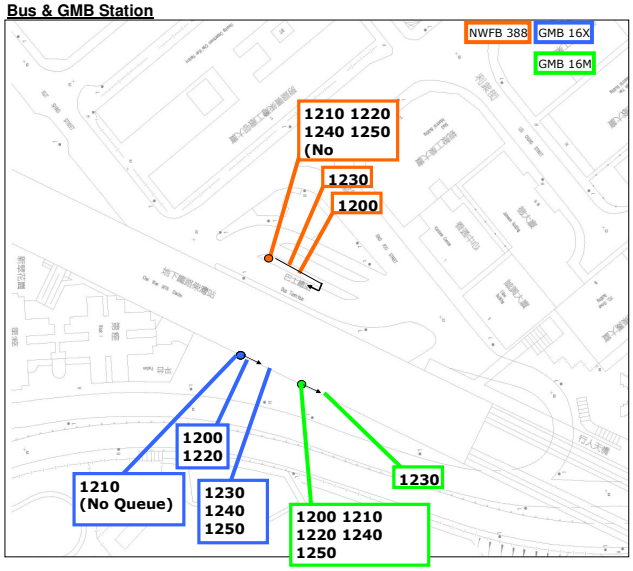
Bus & GMB Station



Taxi Stand

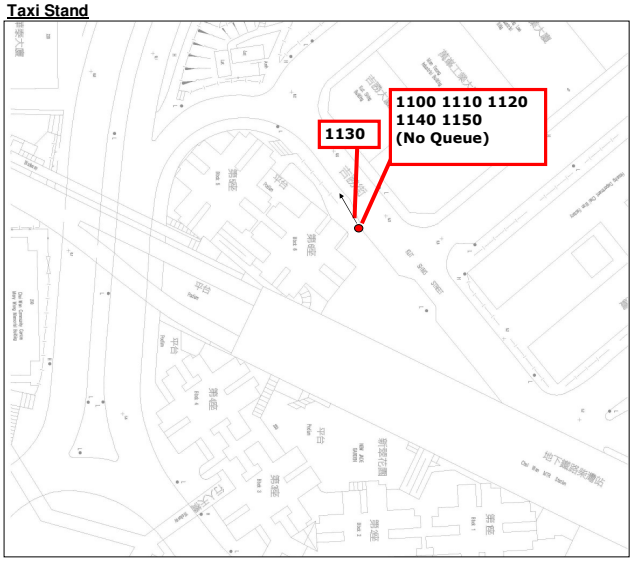


Bus & GMB Station

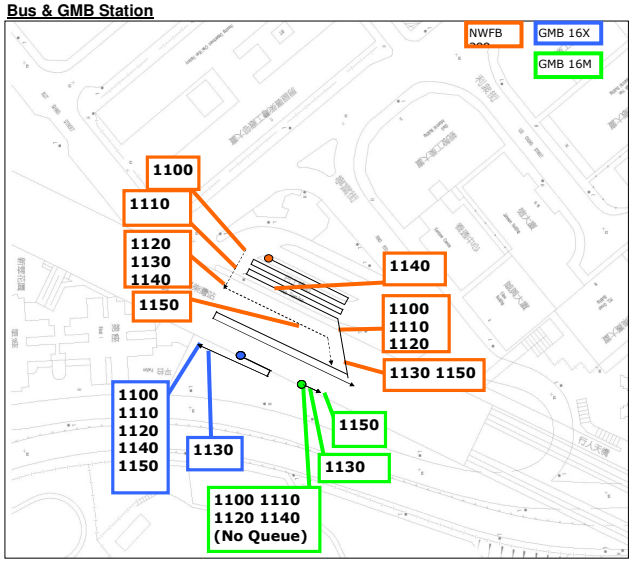


Queuing Situation - 03/04/2011 - 11am - 2pm

Taxi Stand

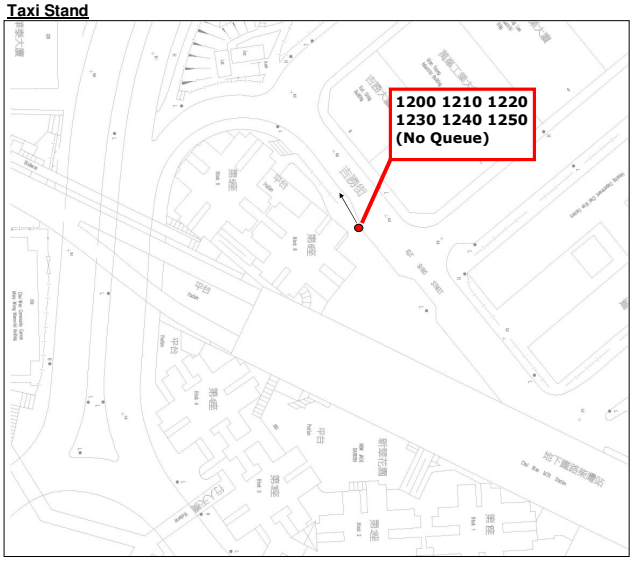


Bus & GMB Station

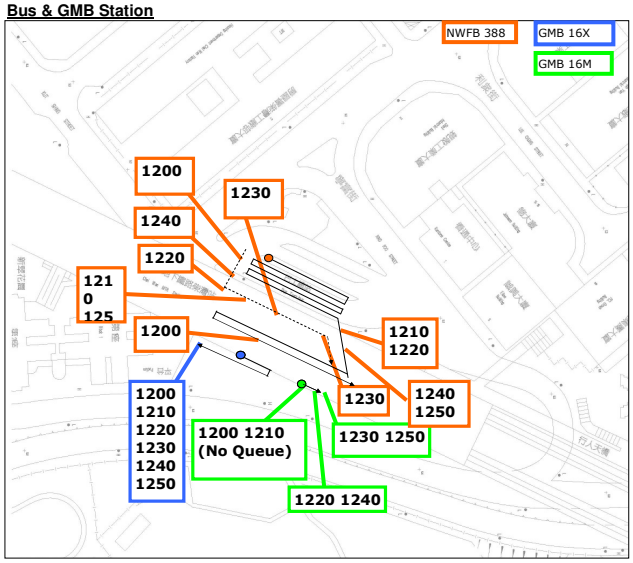


Passenger Queuung Diredction
Passenger Queue for Standing

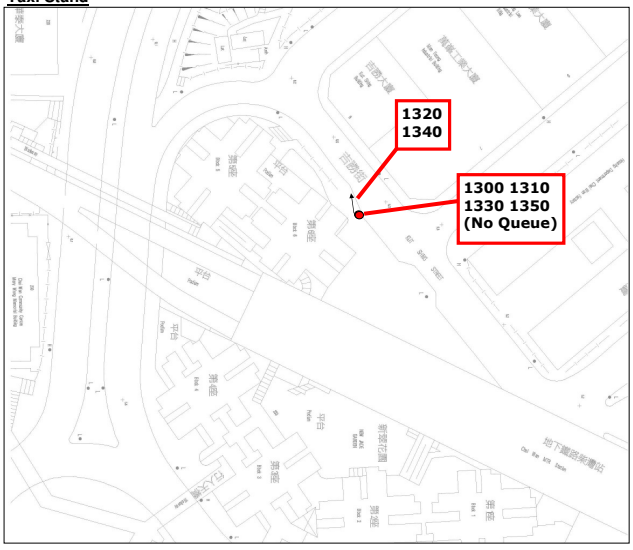
Taxi Stand



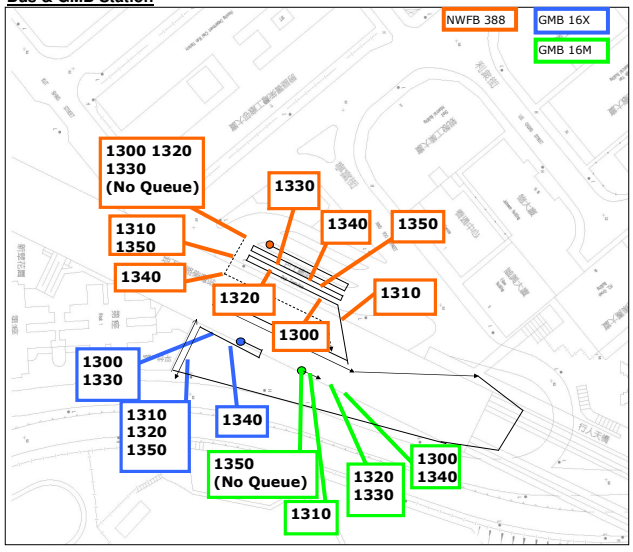
Bus & GMB Station



Taxi Stand

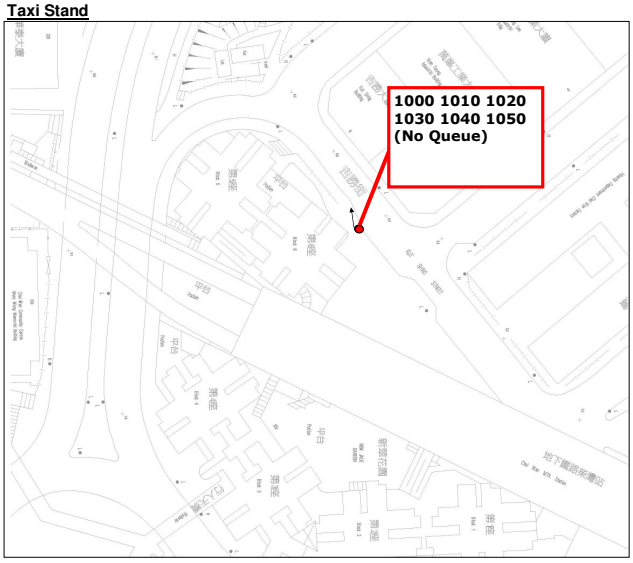


Bus & GMB Station

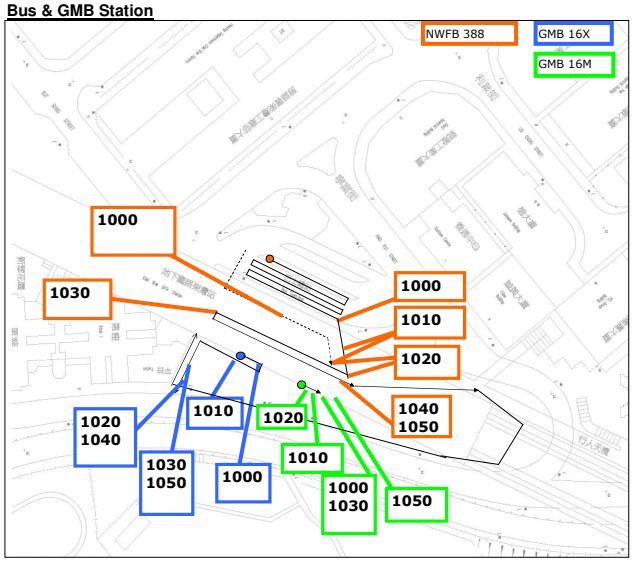


Queuing Situation - 05/04/2011 - 10am - 1pm

Taxi Stand



Bus & GMB Station

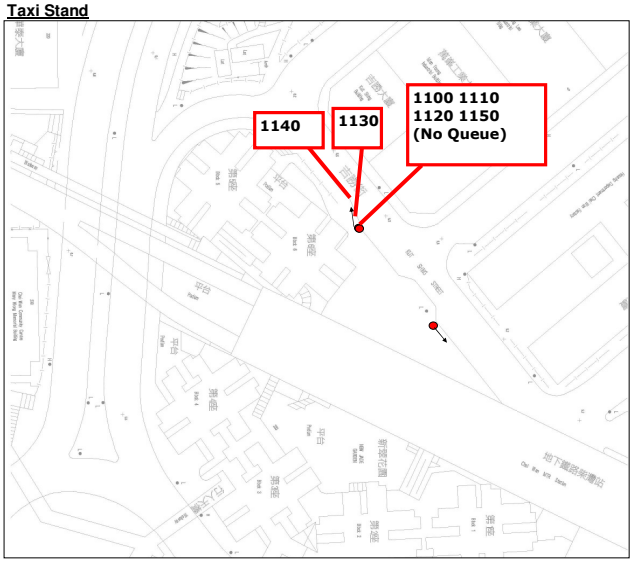


* Original Taxi Stand

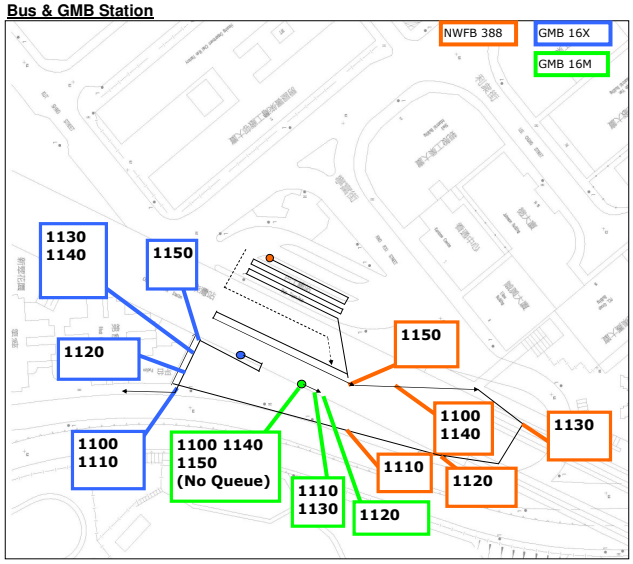
\# No bus service

Passenger Queue for Standing

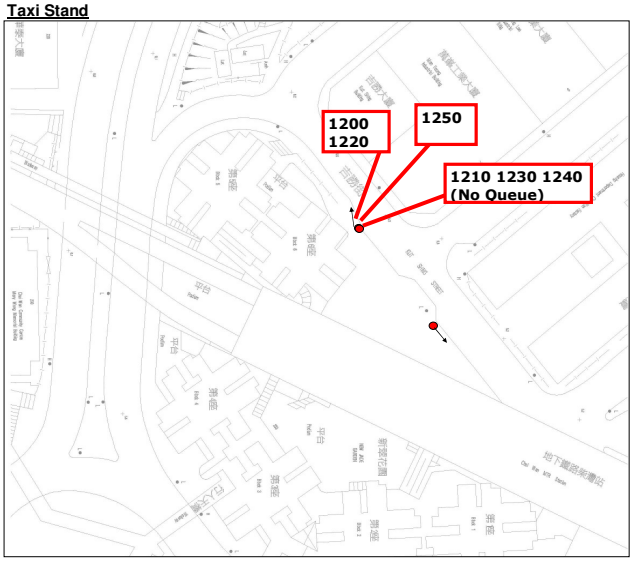
Taxi Stand



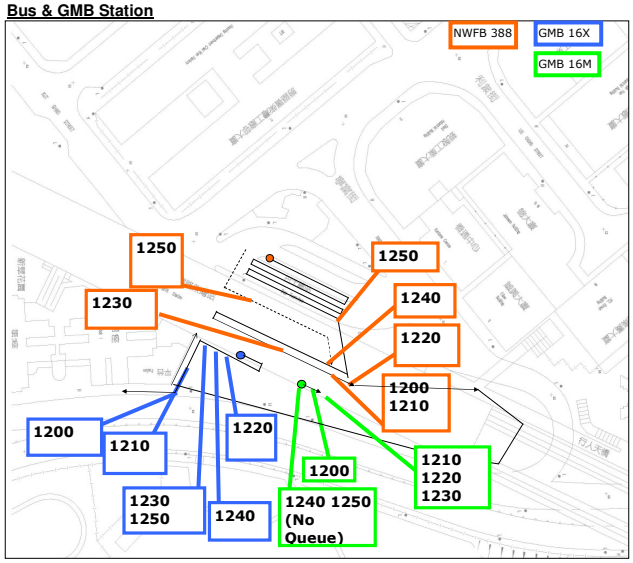
Bus & GMB Station



Taxi Stand

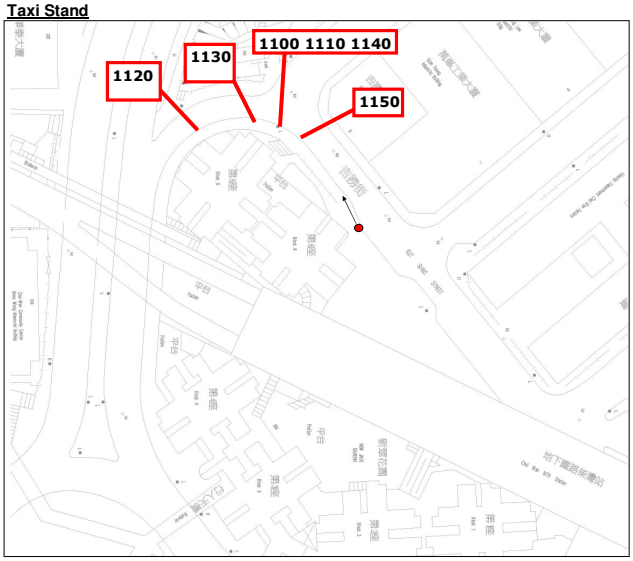


Bus & GMB Station

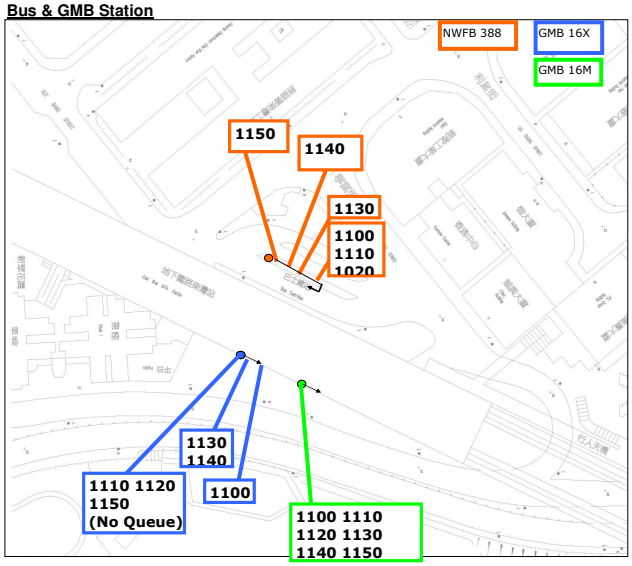


Queuing Situation - 09/04/2011 - 11am - 2pm

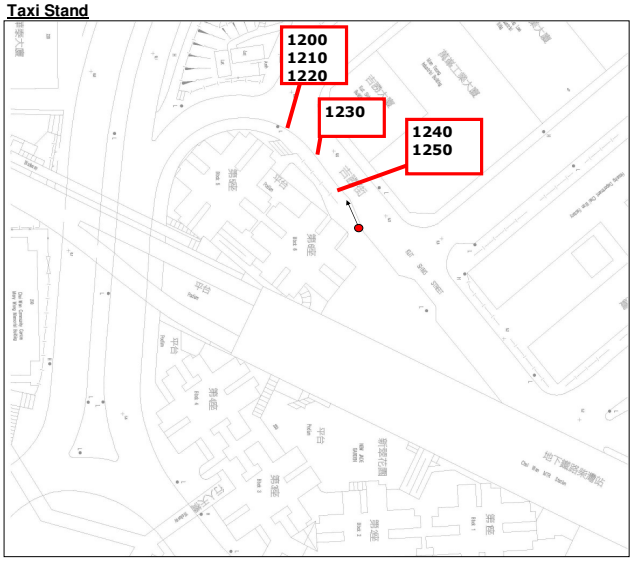
Taxi Stand



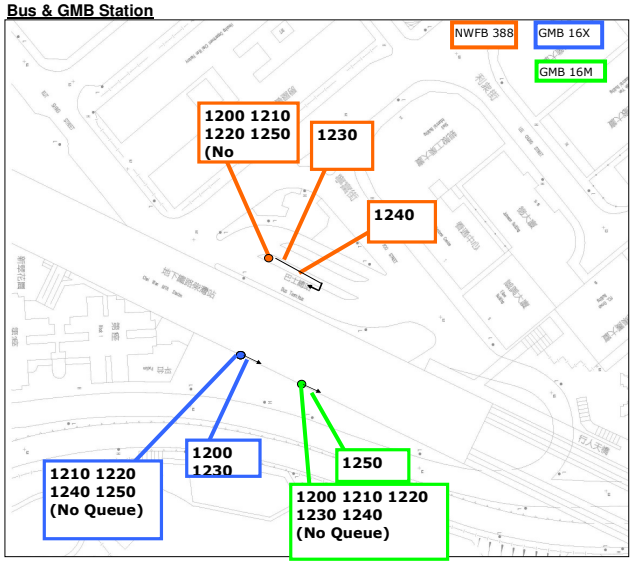
Bus & GMB Station



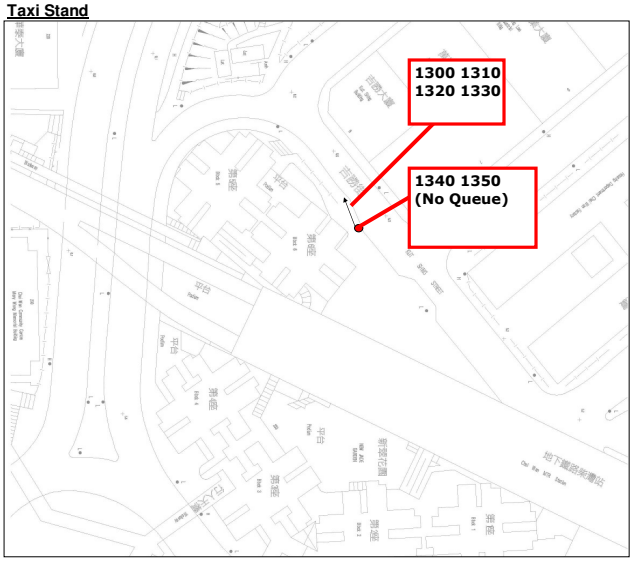
Taxi Stand



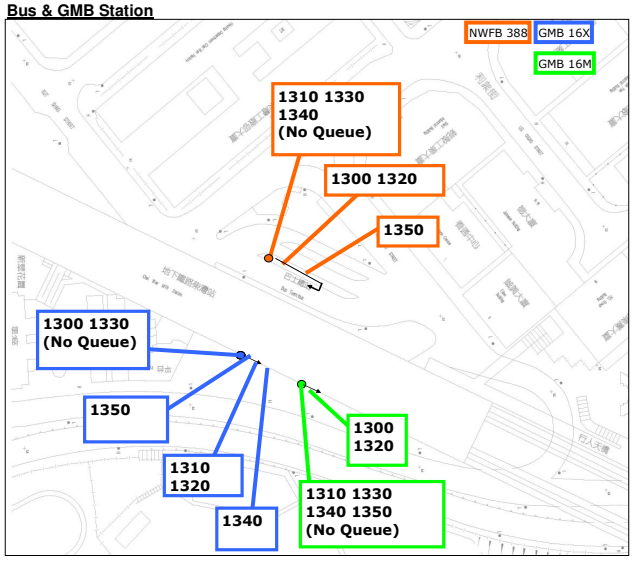
Bus & GMB Station



Taxi Stand

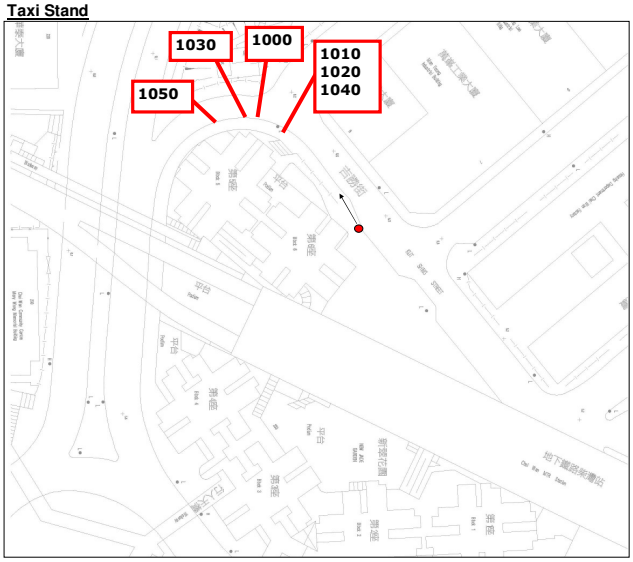


Bus & GMB Station

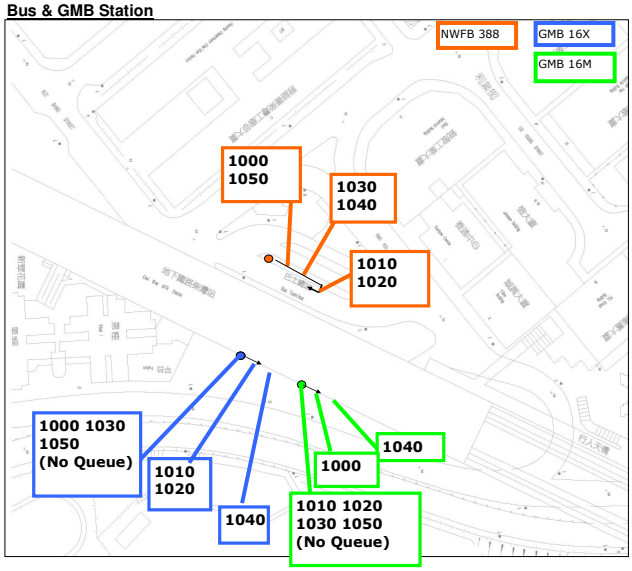


Queuing Situation - 10/04/2011 - 10am - 1pm

Taxi Stand

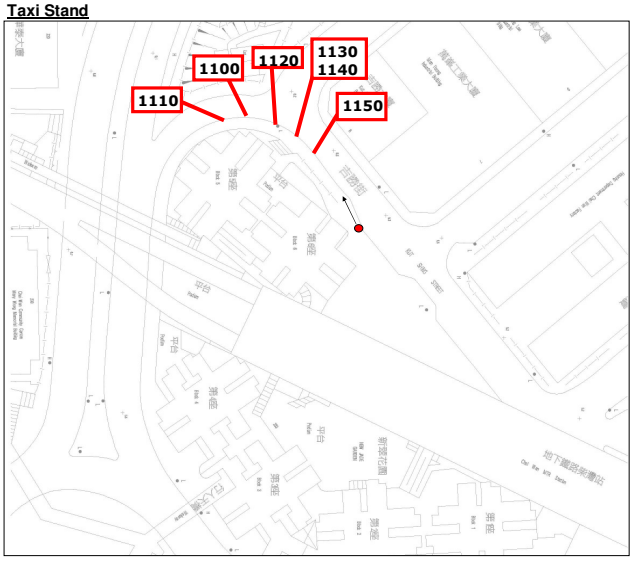


Bus & GMB Station

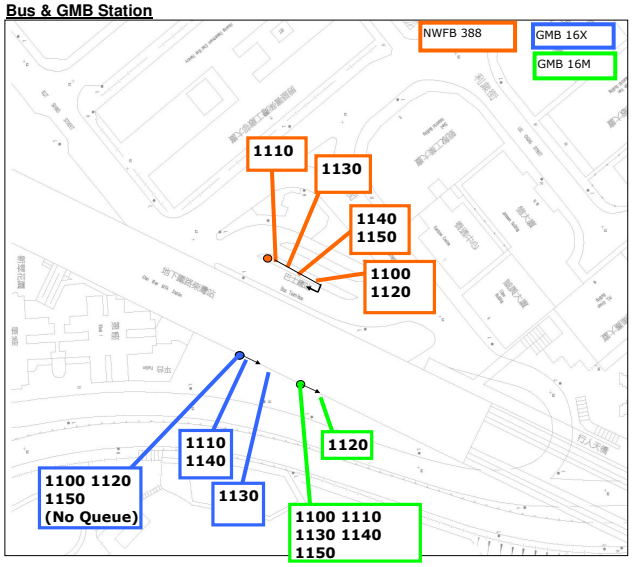


Passenger Queuung Diredction

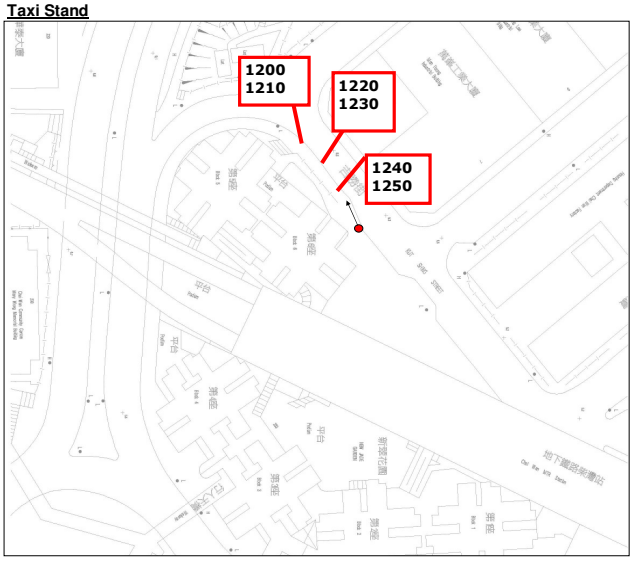
Taxi Stand



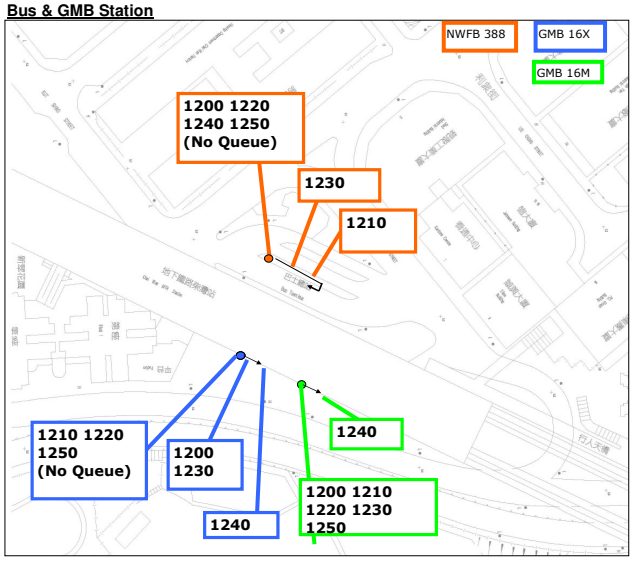
Bus & GMB Station



Taxi Stand

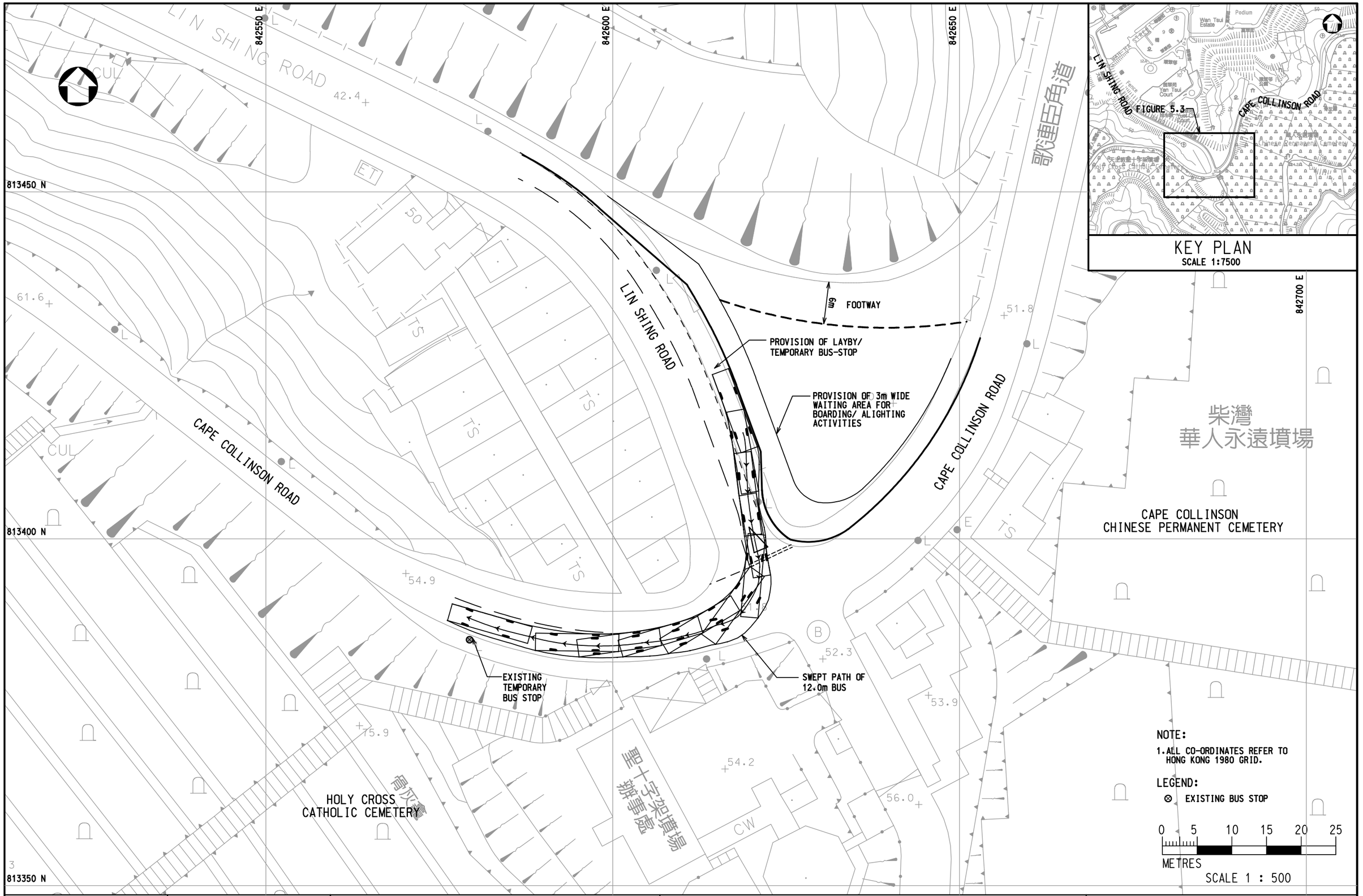


Bus & GMB Station



Appendix I

Swept Path Assessment for Bus



KEY PLAN
SCALE 1:7500

NOTE:
1. ALL CO-ORDINATES REFER TO HONG KONG 1980 GRID.

LEGEND:
⊗ EXISTING BUS STOP

0 5 10 15 20 25
METRES
SCALE 1 : 500

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**APPENDIX I1**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SWEPT PATH TEST FOR PROPOSED IMPROVEMENT SCHEME (OPTION A) – PATH 1	Checked: OC; Scale: 1:500 @ A3; Rev.: 0; Designed: KC; Drawn: PF; Date: 20/02/2012

HN_Kam1 25/06/2012
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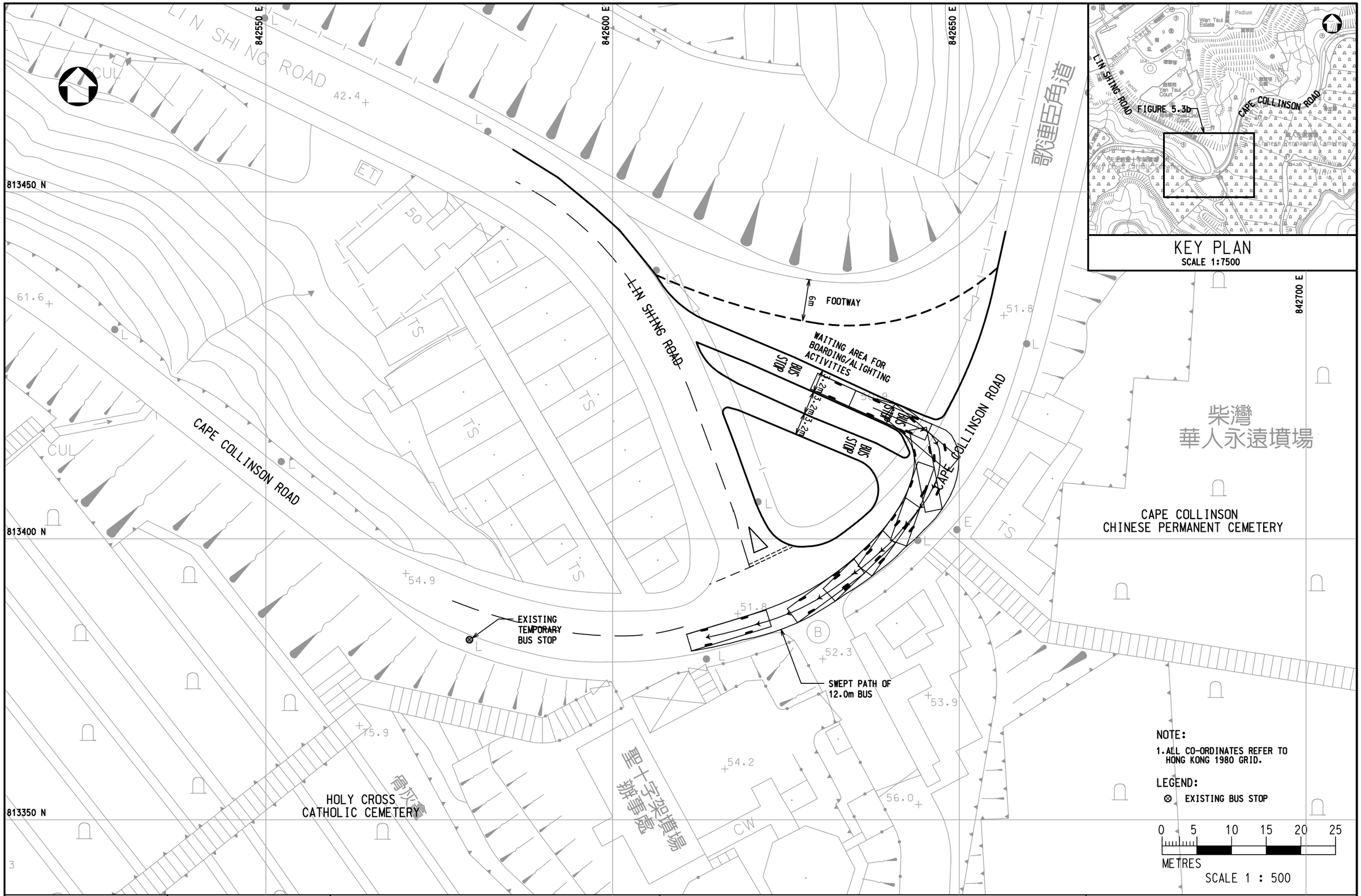

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**APPENDIX I2**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SWEPT PATH TEST FOR PROPOSED IMPROVEMENT SCHEME (OPTION B) – PATH 1	Checked: OC; Scale: 1:500 @ A3; Rev.: 0; Designed: KC; Drawn: PF; Date: 20/02/2012

HN_Kam1
25/06/2012
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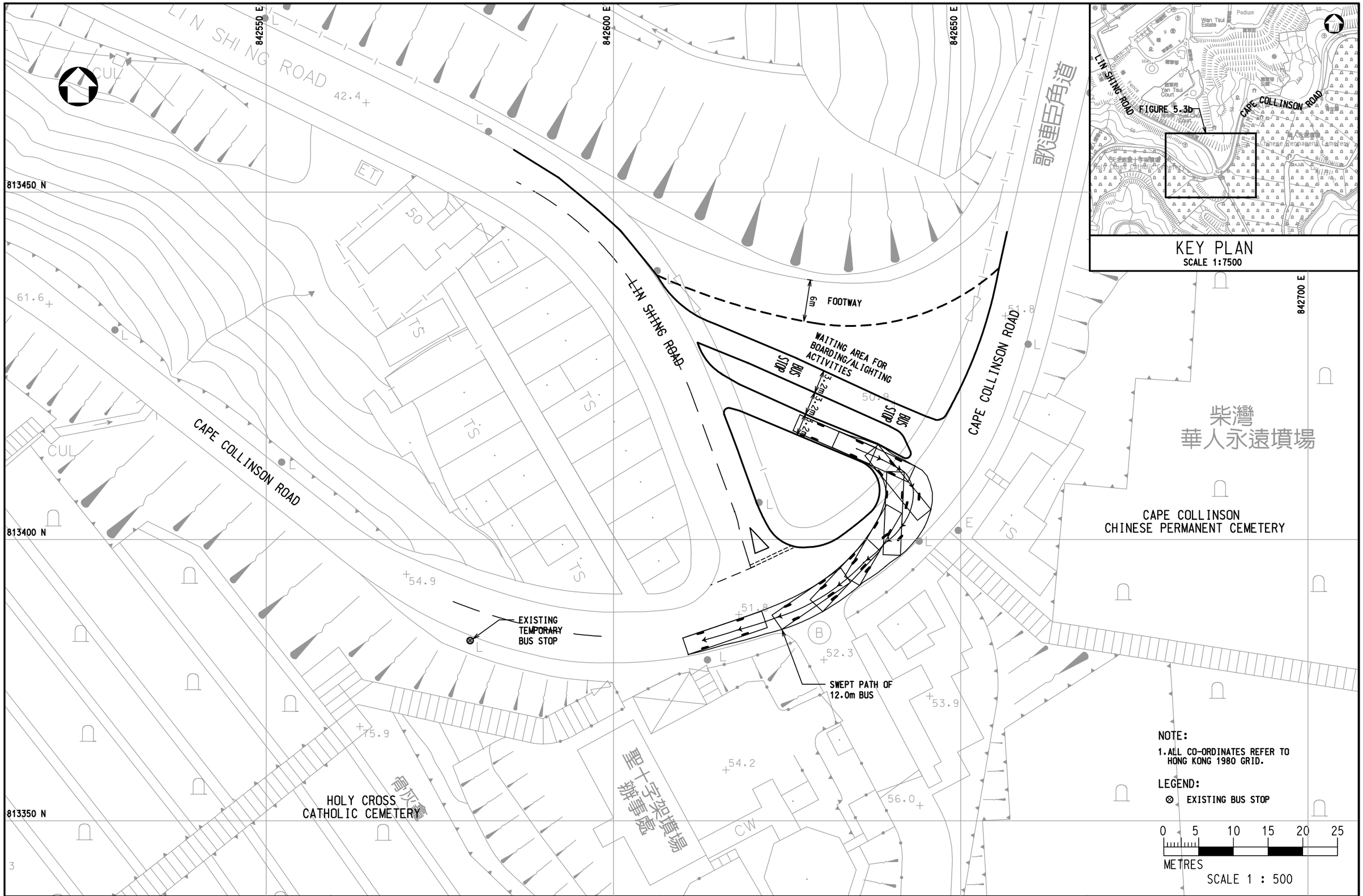


NOTE:

1. ALL CO-ORDINATES REFER TO HONG KONG 1980 GRID.

LEGEND:

⊗ EXISTING BUS STOP

0 5 10 15 20 25
METRES
SCALE 1 : 500

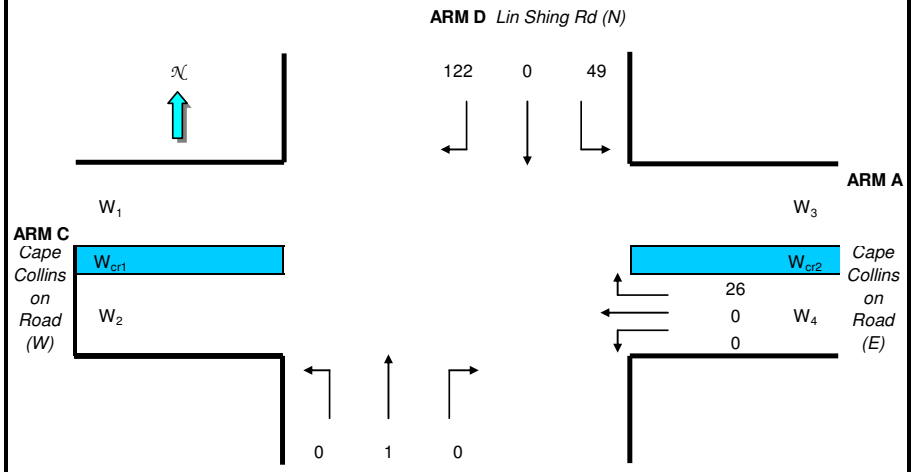
Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**APPENDIX I3**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SWEPT PATH TEST FOR PROPOSED IMPROVEMENT SCHEME (OPTION B) – PATH 2	Checked: OC; Scale: 1:500 @ A3; Rev.: 0; Designed: KC; Drawn: PF; Date: 20/02/2012

HN_Kam1 25/06/2012
E:\proj\CTLDOS\Figure\TIA\APPENDIX_I3.dgn

Appendix J1

2011 Junction Capacity Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base Year
Time - AM Peak (Weekday)



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	26	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	0	(pcu/hr)
q_{b-d}	=	1	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	49	(pcu/hr)
q_{d-b}	=	0	(pcu/hr)
q_{d-c}	=	122	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

Q_{b-a}	=	611
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	604
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	520
Q_{d-c}	=	509
Q_{c-b}	=	444
Q_{a-d}	=	616

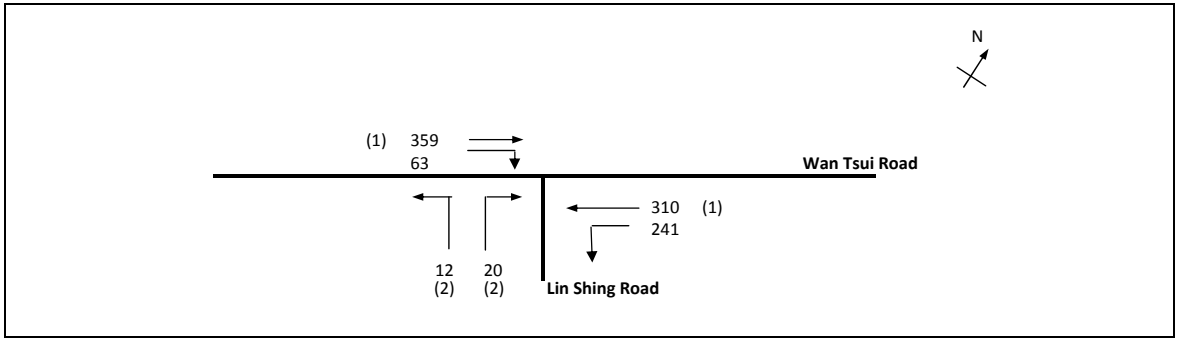
COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.000
DFC_{b-d}	=	0.002
DFC_{d-a}	=	0.073
DFC_{d-b}	=	0.000
DFC_{d-c}	=	0.239
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.042

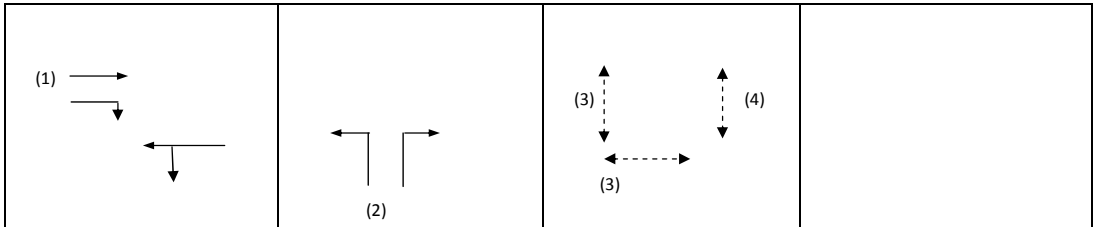
Critical DFC = 0.239

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	75 sec
Sum(y)		Y =	0.309
Loss time		L =	42 sec
Total Flow		=	1005 pcu
Co	= (1.5*L+5)/(1-Y)	=	98.5 sec
Cm	= L/(1-Y)	=	60.8 sec
Yult		=	0.585
R.C.ult	= (Yult-Y)/Y*100%	=	89.0 %
Cp	= 0.9*L/(0.9-Y)	=	64.0 sec
Ymax	= 1-L/C	=	0.440
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.0 %

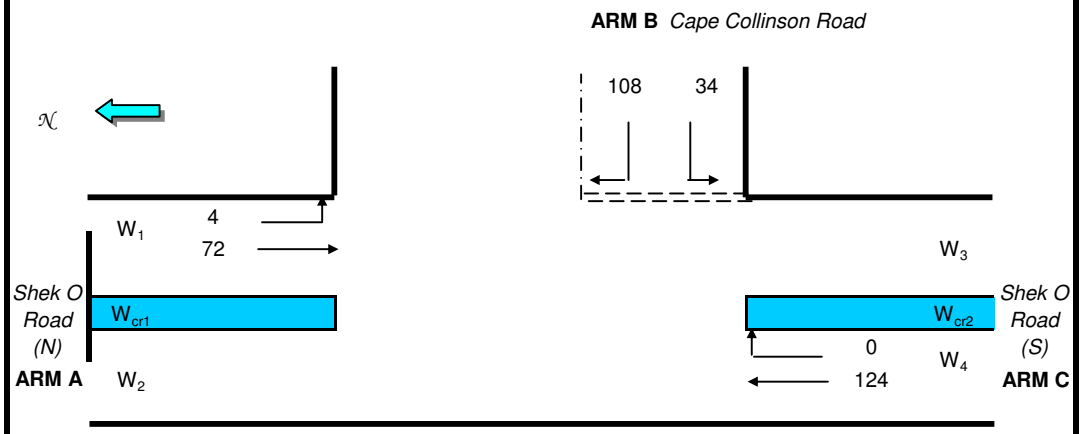


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		359		359	0.00	1915			1915	0.187			20	21	0.670	30	20
RT	A	3.00	1	1	15	y		2055			63	63	1.00	1659			1659	0.038			4	21	0.136	0	17
ST/LT	A	4.00	1	1	10		y	2015	241	310		551	0.44	1891			1891	0.291	0.291		31	21	1.041	48	23
LT/RT	B	3.75	2	1	12		y	1990	12		20	32	1.00	1769			1769	0.018	0.018		2	7	0.194	0	30
Ped	C	6.00	3																	16					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base
Time - AM Peak (Weekday)



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	4	(pcu/hr)
q_{a-c}	=	72	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	124	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	108	(pcu/hr)
q_{b-c}	=	34	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	723
Q_{c-b}	=	805
Q_{b-a}	=	368

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.293
DFC_{b-c}	=	0.047
DFC_{c-b}	=	0.000

Critical DFC = 0.293

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2011_WD_J4_AM.vai"
(drive-on-the-left) at 09:49:45 on Friday, 29 April 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2011_WD_J4_AM


 DEMAND SET TITLE:  2011_WD_J4_AM
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.010 I  0.459 I  0.273 I  0.259 I
 I                    I         I   10.0 I  461.0 I  274.0 I  260.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.435 I  0.017 I  0.313 I  0.235 I
 I                    I         I  357.0 I   14.0 I  257.0 I  193.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.383 I  0.544 I  0.020 I  0.054 I
 I                    I         I  114.0 I  162.0 I    6.0 I   16.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.320 I  0.482 I  0.193 I  0.005 I
 I                    I         I  330.0 I  497.0 I  199.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	16.75	27.37	0.612	- -	-	0.0	1.6	45.6	
-	0.093	I							
I ARM B	13.68	27.14	0.504	- -	-	0.0	1.0	29.7	
-	0.074	I							
I ARM C	4.97	20.67	0.240	- -	-	0.0	0.3	9.3	
-	0.064	I							
I ARM D	17.18	45.46	0.378	- -	-	0.0	0.6	18.0	
-	0.035	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	16.75	27.35	0.612	- -	-	1.6	1.6	47.1	
-	0.094	I							
I ARM B	13.68	27.11	0.505	- -	-	1.0	1.0	30.4	
-	0.075	I							
I ARM C	4.97	20.64	0.241	- -	-	0.3	0.3	9.5	
-	0.064	I							
I ARM D	17.18	45.44	0.378	- -	-	0.6	0.6	18.2	
-	0.035	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.6	*
08.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

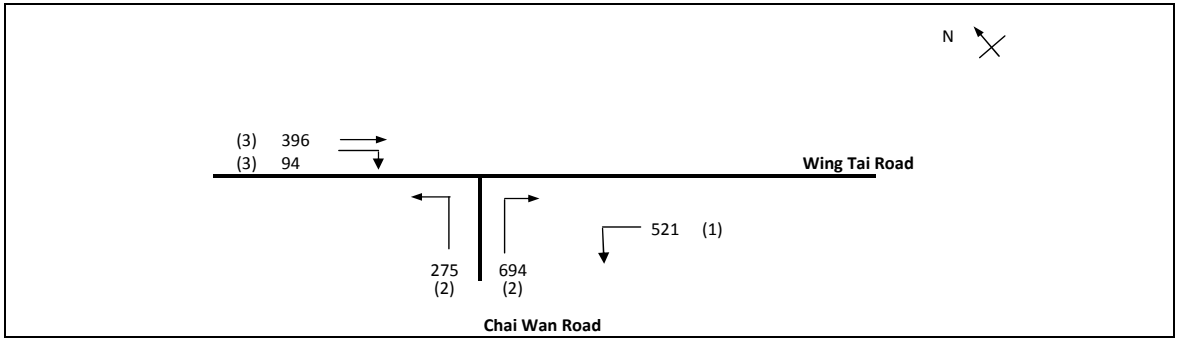
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1005.0	1005.0	92.7	0.09	92.7	0.09
B	820.8	820.8	60.1	0.07	60.2	0.07
C	298.2	298.2	18.8	0.06	18.8	0.06
D	1030.8	1030.8	36.2	0.04	36.2	0.04
ALL	3154.8	3154.8	207.9	0.07	207.9	0.07

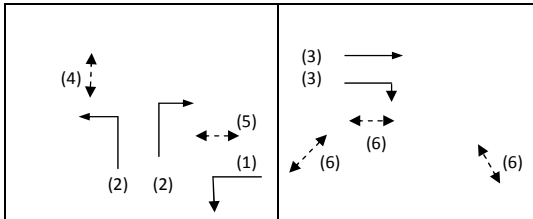
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5AM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.291
Loss time		L =	10 sec
Total Flow		=	1980 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.2 sec
Cm	= L/(1-Y)	=	14.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	183.4 %
Cp	= 0.9*L/(0.9-Y)	=	14.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	178.3 %



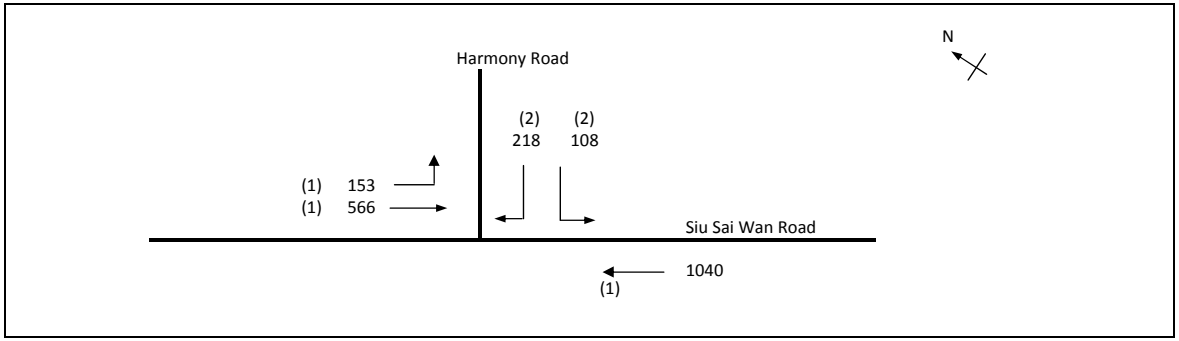
Stage A I = 7

Stage B I = 5

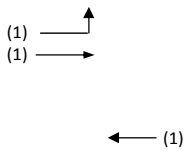
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10				
LT	A	3.75	1	2	22		y	4120	521			521	1.00	3857			3857	0.135			42	60	0.225	15	6
LT	A	4.00	2	2	24			4310	275			275	1.00	4056			4056	0.068			21	60	0.113	9	7
RT	A	3.50	2	2	11		y	4070			694	694	1.00	3582			3582	0.194	0.194		60	60	0.323	21	6
ST	B	3.50	3	2			y	4070		396		396	0.00	4070			4070	0.097	0.097		30	30	0.323	21	20
RT	B	4.50	3	2	13		y	4270			94	94	1.00	3828			3828	0.025			8	30	0.082	3	22
Ped	A	4.50	4																					
Ped	A	4.50	5																					
Ped	B	4.50	6																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

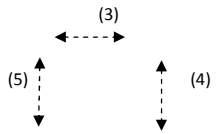
TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road(S)	J6AM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



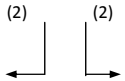
No. of stages per cycle	N =	3
Cycle time	C =	100 sec
Sum(y)	Y =	0.377
Loss time	L =	48 sec
Total Flow	=	2085 pcu
Co = (1.5*L+5)/(1-Y)	=	123.6 sec
Cm = L/(1-Y)	=	77.1 sec
Yult	=	0.540
R.C.ult = (Yult-Y)/Y*100%	=	43.2 %
Cp = 0.9*L/(0.9-Y)	=	82.6 sec
Ymax = 1-L/C	=	0.520
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	24.1 %



Stage A I = 10



Stage B I = 15

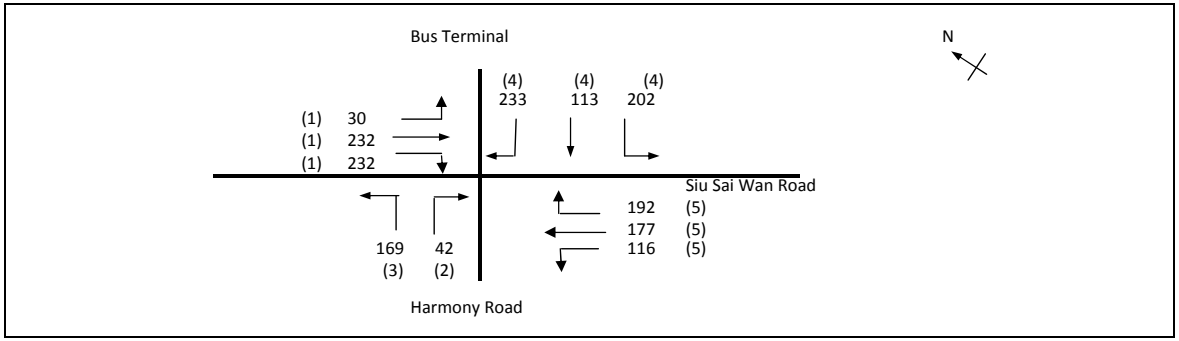


Stage C I = 6

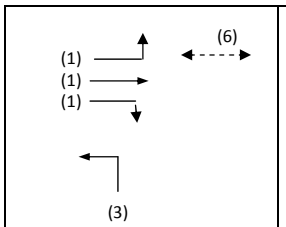
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	153	185		338	0.45	1832			1832	0.185			25	36	0.511	30	18
ST	A	3.20	1	1				2075		381		381	0.00	2075			2075	0.184			25	36	0.508	36	17
ST	A	3.00	1	2			y	3970		1040		1040	0.00	3970			3970	0.262	0.262		36	36	0.725	54	17
LT	C	3.75	2	1	12		y	1990	108			108	1.00	1769			1769	0.061			8	16	0.385	12	34
RT	C	3.75	2	1	12			2130			218	218	1.00	1893			1893	0.115	0.115		16	16	0.725	30	42
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

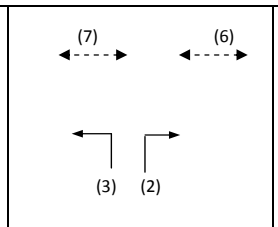
TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7AM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



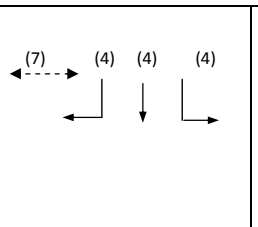
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.453
Loss time	L =	18 sec
Total Flow	=	1738 pcu
Co = (1.5*L+5)/(1-Y)	=	58.5 sec
Cm = L/(1-Y)	=	32.9 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	68.8 %
Cp = 0.9*L/(0.9-Y)	=	36.3 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	64.5 %



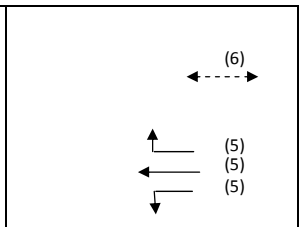
Stage A I = 5



Stage B I = 5



Stage C I = 6

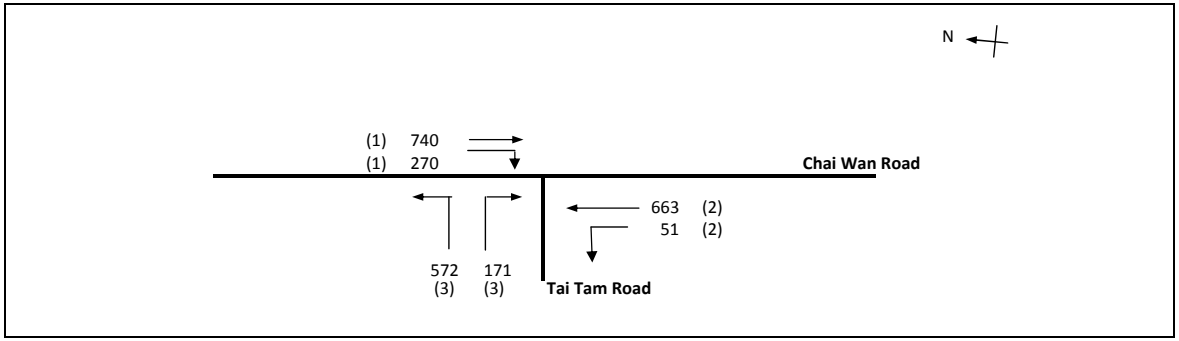


Stage C I = 6

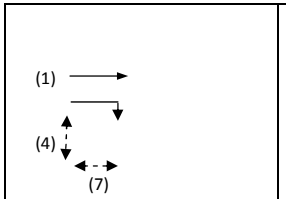
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	30	224		254	0.12	1914			1914	0.133			25	25	0.563	30	29
ST/RT	A	3.30	1	1	12			2085		8	232	240	0.97	1860			1860	0.129	0.129		25	25	0.547	30	28
RT	B	3.50	2	1	12			2105			42	42	1.00	1871			1871	0.022	0.022		4	4	0.547	6	68
LT	A,B	3.75	3	1	13		y	1990	169			169	1.00	1784			1784	0.095			18	34	0.292	18	21
RT	C	3.50	4	1	12			2105			233	233	1.00	1871			1871	0.125			24	33	0.393	24	21
LT/ST	C	3.50	4	1	12		y	1965	202	113		315	0.64	1819			1819	0.173	0.173		33	33	0.547	36	22
ST/RT	D	3.50	5	1	12			2105		56	192	248	0.77	1919			1919	0.129			25	25	0.547	30	28
LT/ST	D	3.50	5	1	11		y	1965	116	121		237	0.49	1842			1842	0.129	0.129		25	25	0.547	30	29
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

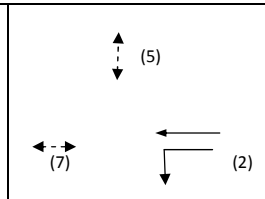
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8AM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



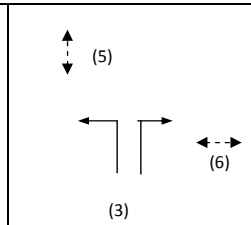
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.536
Loss time		L =	18 sec
Total Flow		=	2467 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.0 sec
Cm	= L/(1-Y)	=	38.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	42.7 %
Cp	= 0.9*L/(0.9-Y)	=	44.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	39.1 %



Stage A I = 7



Stage B I = 8

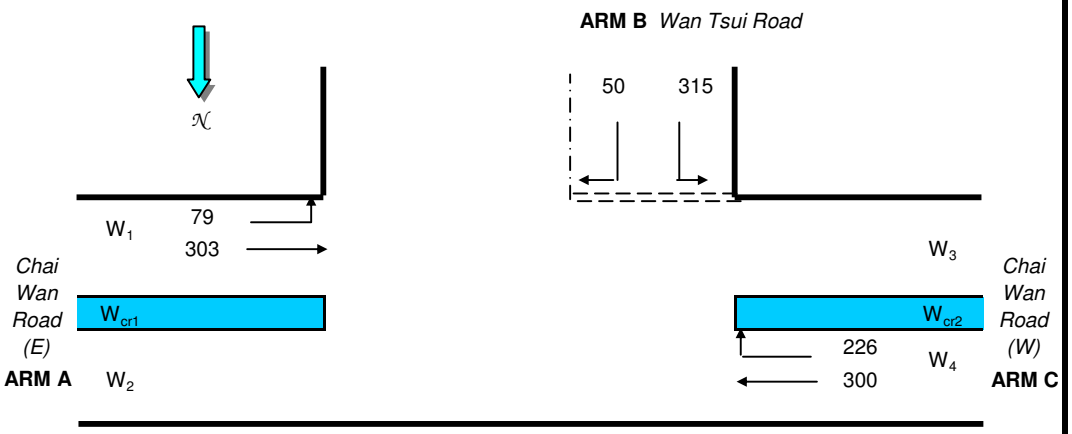


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
ST	A	3.40	1	2			y	4050		740		740	0.00	4050			4050	0.183	0.183		30	30	0.647	45	22
RT	A	3.50	1	1	13			2105			270	270	1.00	1887			1887	0.143			23	30	0.507	30	24
ST	B	3.50	2	2				4210		663		663	0.00	4210			4210	0.157	0.157		26	26	0.647	42	26
LT	B	3.10	2	1	12		y	1925	51			51	1.00	1711			1711	0.030			5	26	0.122	6	27
LT	C	4.00	3	1	15		y	2015	359			359	1.00	1832			1832	0.196	0.196		32	40	0.514	36	17
LT/RT	C	4.00	3	1	15			2155	213		171	384	1.00	1959			1959	0.196			32	40	0.515	36	17
Ped	A	4.50	4																					
Ped	B,C	3.50	5																					
Ped	C	3.50	6																					
Ped	A,B	3.50	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2011 Base
Time - AM Peak (Weekday)



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	79	(pcu/hr)
q_{a-c}	=	303	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	300	(pcu/hr)
q_{c-b}	=	226	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	50	(pcu/hr)
q_{b-c}	=	315	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	783
Q_{c-b}	=	696
Q_{b-a}	=	384

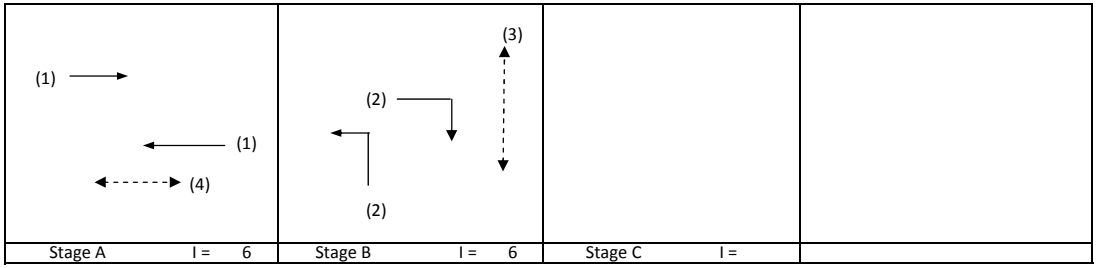
COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.130
DFC_{b-c}	=	0.402
DFC_{c-b}	=	0.325

Critical DFC = 0.402

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10AM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011

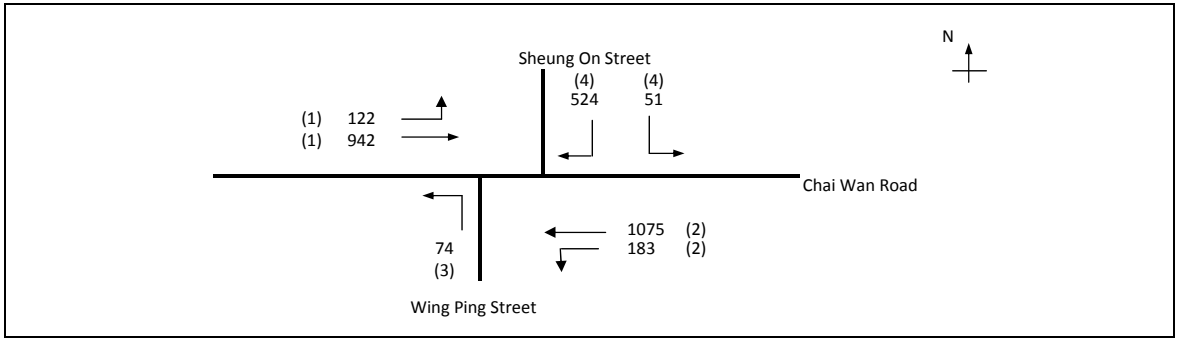
No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.403
Loss time		L =	10 sec
Total Flow		=	1955 pcu
Co	= (1.5*L+5)/(1-Y)	=	33.5 sec
Cm	= L/(1-Y)	=	16.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	104.9 %
Cp	= 0.9*L/(0.9-Y)	=	18.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	101.2 %



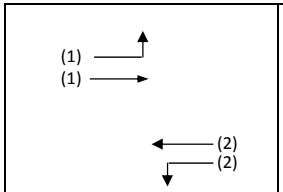
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		969		969	0.00	4070			4070	0.238	0.238		53	47	0.507	42	11
ST	A	3.50	1	2	10		N	4070		547		547	0.00	4070			4070	0.134			30	47	0.286	24	11
LT	B	3.00	2	1	10		N	1915	274			274	1.00	1665			1665	0.165	0.165		37	53	0.310	18	9
RT	B	3.50	2	1	12			2105			165	165	1.00	1871			1871	0.088			20	53	0.166	12	9
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

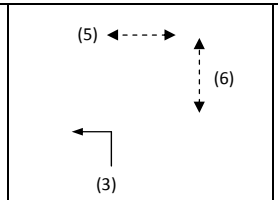
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11AM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



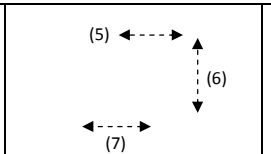
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.414
Loss time		L =	37 sec
Total Flow		=	2971 pcu
Co	= (1.5*L+5)/(1-Y)	=	103.2 sec
Cm	= L/(1-Y)	=	63.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	50.4 %
Cp	= 0.9*L/(0.9-Y)	=	68.5 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	50.4 %



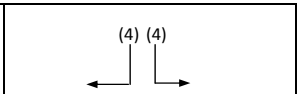
Stage A I = 8



Stage B I = 5



Stage C I = 7

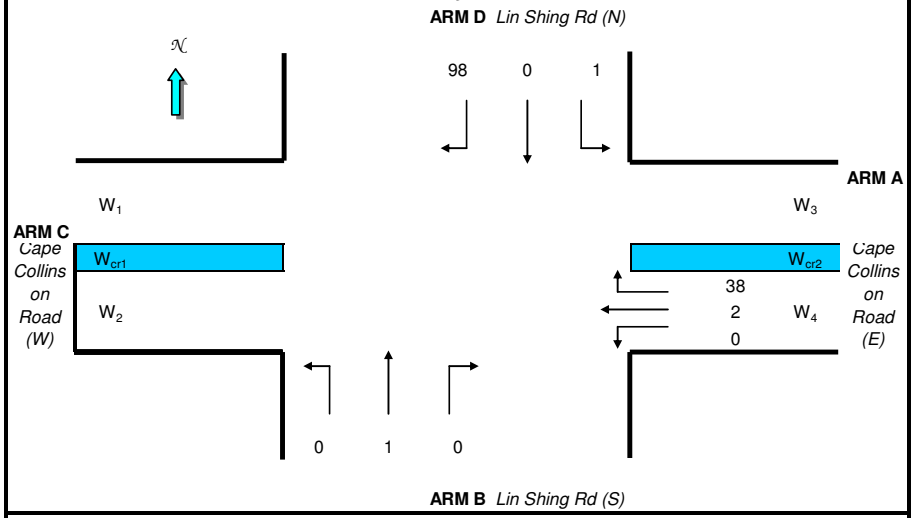


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	122	942		1064	0.11	6088			6088	0.175			35		0.000	70	54
LT/ST	A	3.30	2	3	12		Y	6115	183	1075		1258	0.15	6006			6006	0.209	0.209		42		0.000	82	54
LT	B	3.50	3	1	9		Y	1965	74			74	1.00	1684			1684	0.044	0.044		9		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	51		524	575	1.00	3583			3583	0.160	0.160		32		0.000	57	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base Year
Time - PM Peak (Weekday)



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM B-C
X_D	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	2	(pcu/hr)
q_{a-d}	=	38	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	0	(pcu/hr)
q_{b-d}	=	1	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	1	(pcu/hr)
q_{d-b}	=	0	(pcu/hr)
q_{d-c}	=	98	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

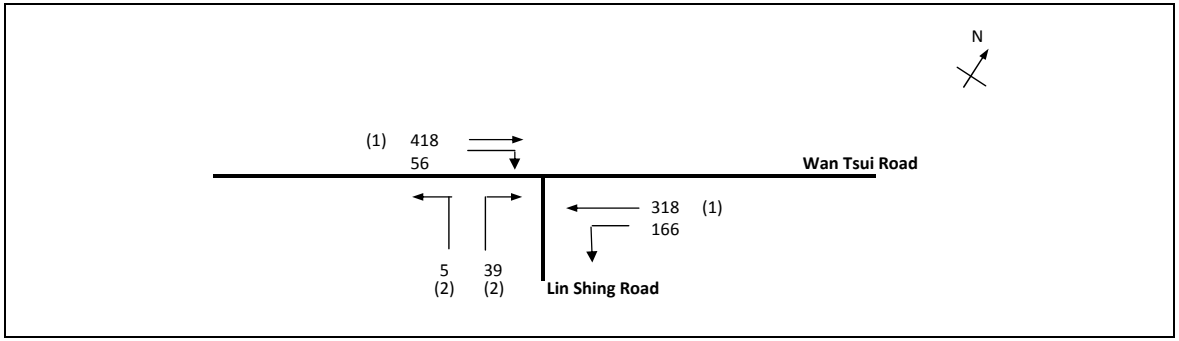
Q_{b-a}	=	624
Q_{b-c}	=	748
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	600
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	514
Q_{d-c}	=	505
Q_{c-b}	=	448
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

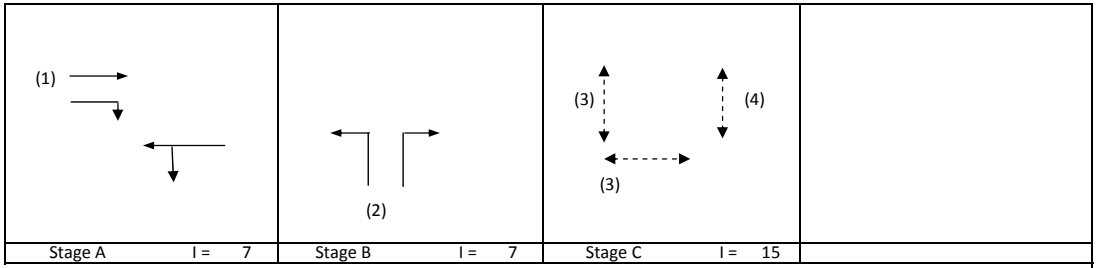
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.000
DFC_{b-d}	=	0.002
DFC_{d-a}	=	0.001
DFC_{d-b}	=	0.000
DFC_{d-c}	=	0.194
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.062
Critical DFC	=	**0.194**

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2PM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday PM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	75 sec
Sum(y)		Y =	0.277
Loss time		L =	42 sec
Total Flow		=	1002 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.1 sec
Cm	= L/(1-Y)	=	58.1 sec
Yult		=	0.585
R.C.ult	= (Yult-Y)/Y*100%	=	110.9 %
Cp	= 0.9*L/(0.9-Y)	=	60.7 sec
Ymax	= 1-L/C	=	0.440
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	42.7 %

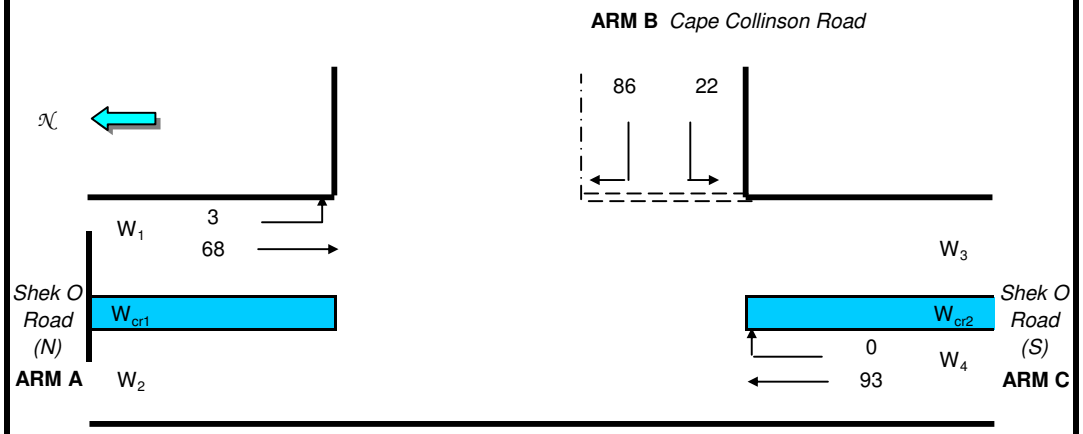


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		418		418	0.00	1915			1915	0.218			26	21	0.780	36	24
RT	A	3.00	1	1	15	y		2055			56	56	1.00	1659			1659	0.034			4	21	0.121	0	17
ST/LT	A	4.00	1	1	10		y	2015	166	318		484	0.34	1916			1916	0.253	0.253		30	21	0.902	54	22
LT/RT	B	3.75	2	1	12		y	1990	5		39	44	1.00	1769			1769	0.025	0.025		3	7	0.267	0	31
Ped	C	6.00	3																	16					
Ped	C	11.00	4																	12					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base
Time - PM Peak (Weekday)



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	3	(pcu/hr)
q_{a-c}	=	68	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	93	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	86	(pcu/hr)
q_{b-c}	=	22	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	724
Q_{c-b}	=	806
Q_{b-a}	=	372

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.231
DFC_{b-c}	=	0.030
DFC_{c-b}	=	0.000

Critical DFC = 0.231

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2011_WD_J4_PM.vai"
(drive-on-the-left) at 09:59:36 on Friday, 29 April 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

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 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2011_WD_J4_PM


 DEMAND SET TITLE:  2011_WD_J4_PM
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.010 I  0.426 I  0.341 I  0.223 I
 I                    I         I    9.0 I  385.0 I  308.0 I  201.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.479 I  0.015 I  0.308 I  0.199 I
 I                    I         I  459.0 I   14.0 I  295.0 I  191.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.368 I  0.561 I  0.022 I  0.048 I
 I                    I         I   99.0 I  151.0 I    6.0 I   13.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.318 I  0.479 I  0.200 I  0.004 I
 I                    I         I  336.0 I  506.0 I  211.0 I    4.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 07.45-08.15									
I									
I ARM A	16.75	27.28	0.614	- -	-	0.0	1.6	45.9	
-	0.094	I							
I ARM B	13.68	26.63	0.514	- -	-	0.0	1.1	30.8	
-	0.077	I							
I ARM C	4.97	21.02	0.236	- -	-	0.0	0.3	9.1	
-	0.062	I							
I ARM D	17.18	44.85	0.383	- -	-	0.0	0.6	18.4	
-	0.036	I							
I									
I									

.----------

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 08.15-08.45									
I									
I ARM A	16.75	27.27	0.614	- -	-	1.6	1.6	47.5	
-	0.095	I							
I ARM B	13.68	26.61	0.514	- -	-	1.1	1.1	31.6	
-	0.077	I							
I ARM C	4.97	21.00	0.237	- -	-	0.3	0.3	9.3	
-	0.062	I							
I ARM D	17.18	44.82	0.383	- -	-	0.6	0.6	18.6	
-	0.036	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.6	*
08.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

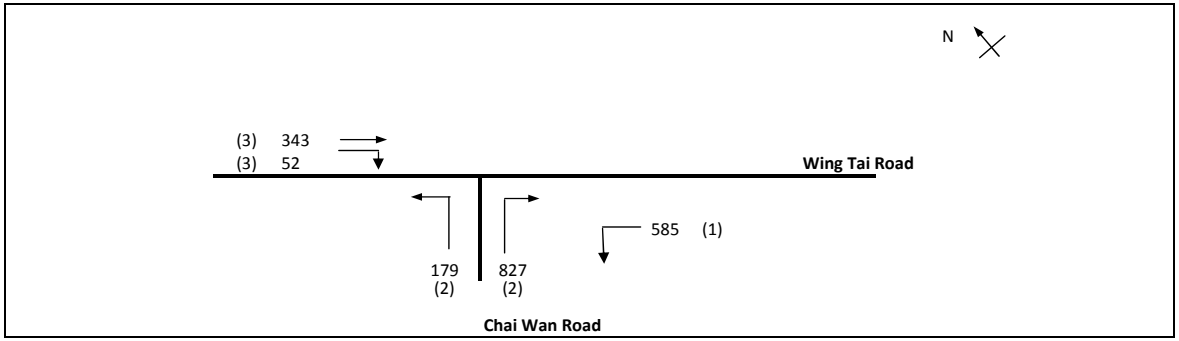
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1005.0	1005.0	93.4	0.09	93.5	0.09
B	820.8	820.8	62.4	0.08	62.5	0.08
C	298.2	298.2	18.4	0.06	18.4	0.06
D	1030.8	1030.8	37.0	0.04	37.0	0.04
ALL	3154.8	3154.8	211.3	0.07	211.4	0.07

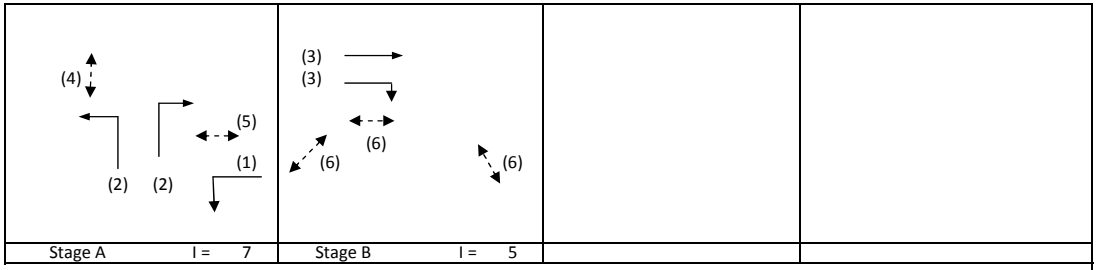
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5PM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday PM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2
Cycle time	C =	100 sec
Sum(y)	Y =	0.315
Loss time	L =	10 sec
Total Flow	=	1986 pcu
Co = (1.5*L+5)/(1-Y)	=	29.2 sec
Cm = L/(1-Y)	=	14.6 sec
Yult	=	0.825
R.C.ult = (Yult-Y)/Y*100%	=	161.8 %
Cp = 0.9*L/(0.9-Y)	=	15.4 sec
Ymax = 1-L/C	=	0.900
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	157.0 %

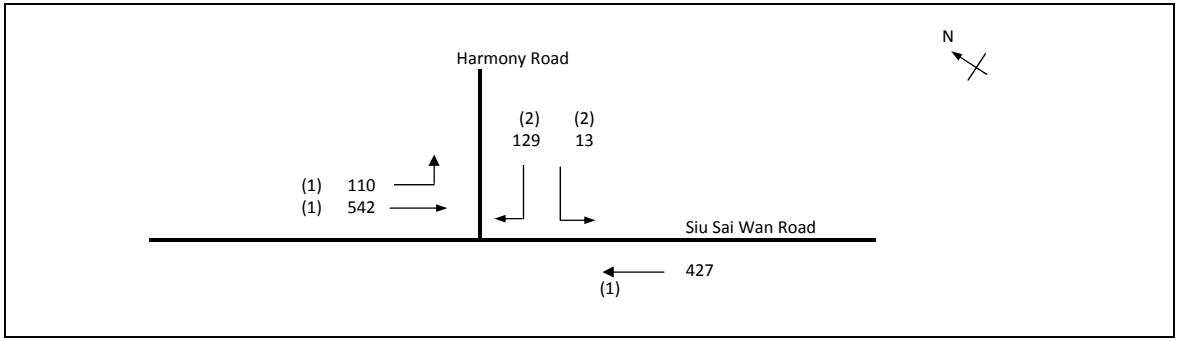


Stage A I = 7 Stage B I = 5

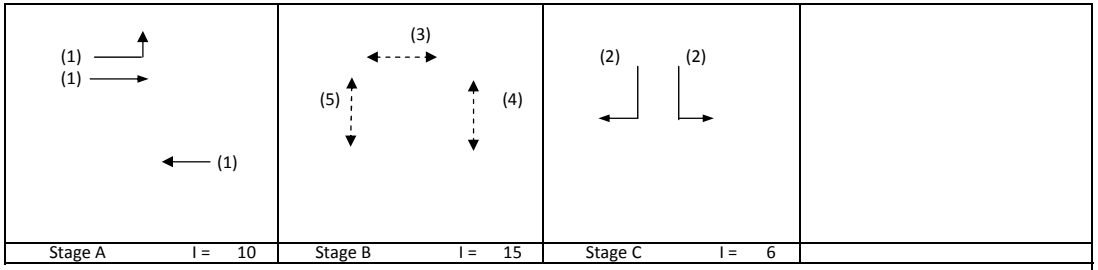
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	585			585	1.00	3857			3857	0.152			43	66	0.230	15	5
LT	A	4.00	2	2	24			4310	179			179	1.00	4056			4056	0.044			13	66	0.067	3	5
RT	A	3.50	2	2	11		y	4070			827	827	1.00	3582			3582	0.231	0.231		66	66	0.350	21	4
ST	B	3.50	3	2			y	4070		343		343	0.00	4070			4070	0.084	0.084		24	24	0.350	21	25
RT	B	4.50	3	2	13		y	4270			52	52	1.00	3828			3828	0.014			4	24	0.056	3	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road(S)	J6PM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday PM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	100 sec
Sum(y)	Y =	0.234
Loss time	L =	48 sec
Total Flow	=	1221 pcu
Co = (1.5*L+5)/(1-Y)	=	100.5 sec
Cm = L/(1-Y)	=	62.7 sec
Yult	=	0.540
R.C.ult = (Yult-Y)/Y*100%	=	130.9 %
Cp = 0.9*L/(0.9-Y)	=	64.9 sec
Ymax = 1-L/C	=	0.520
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	100.1 %

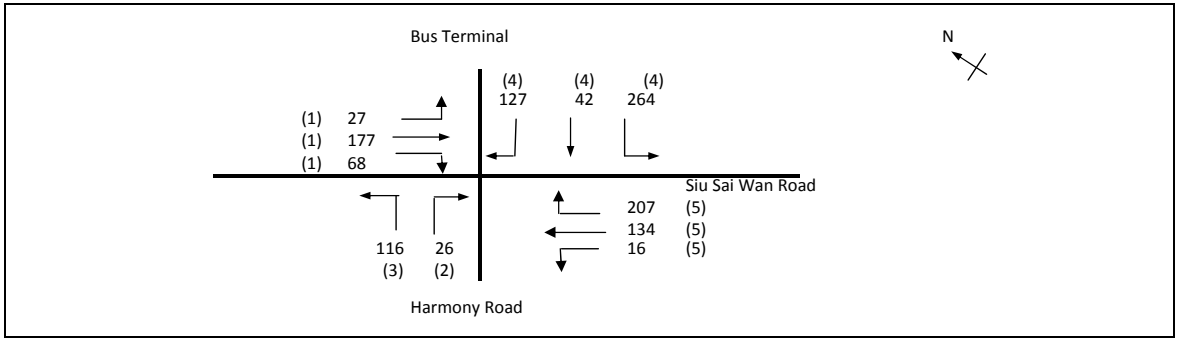


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

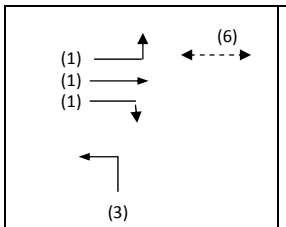
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	110	198		308	0.36	1855			1855	0.166			37	24	0.695	36	30
ST	A	3.20	1	1				2075		344		344	0.00	2075			2075	0.166			37	24	0.693	42	29
ST	A	3.00	1	2			y	3970		427		427	0.00	3970			3970	0.108	0.166		24	24	0.450	27	25
LT	C	3.75	2	1	12		y	1990	13			13	1.00	1769			1769	0.007			2	15	0.049	0	32
RT	C	3.75	2	1	12			2130			129	129	1.00	1893			1893	0.068	0.068		15	15	0.450	18	35
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

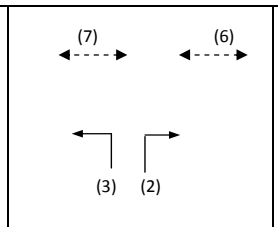
TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7PM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday AM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



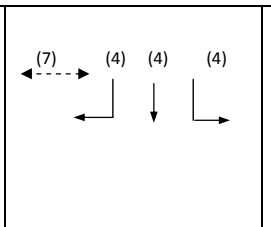
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.367
Loss time	L =	18 sec
Total Flow	=	1204 pcu
Co = (1.5*L+5)/(1-Y)	=	50.5 sec
Cm = L/(1-Y)	=	28.4 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	108.5 %
Cp = 0.9*L/(0.9-Y)	=	30.4 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	103.3 %



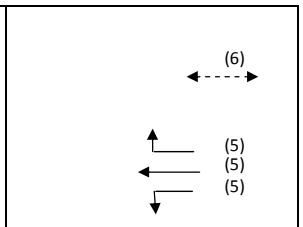
Stage A I = 5



Stage B I = 5



Stage C I = 6

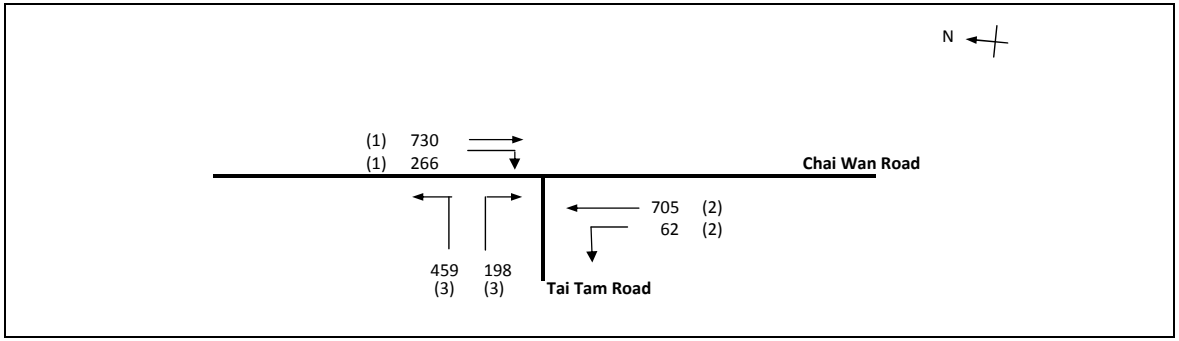


Stage C I = 6

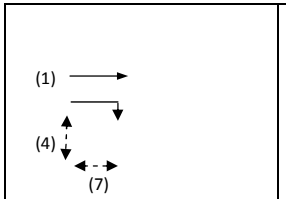
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	27	108		135	0.20	1893			1893	0.071			17	17	0.452	18	36
ST/RT	A	3.30	1	1	12			2085		69	68	137	0.50	1963			1963	0.070	0.070		17	17	0.443	18	35
RT	B	3.50	2	1	12			2105			26	26	1.00	1871			1871	0.014	0.014		3	3	0.443	0	66
LT	A,B	3.75	3	1	13		y	1990	116			116	1.00	1784			1784	0.065			15	25	0.275	12	27
RT	C	3.50	4	1	12			2105			127	127	1.00	1871			1871	0.068			16	41	0.174	12	17
LT/ST	C	3.50	4	1	12		y	1965	264	42		306	0.86	1774			1774	0.173	0.173		41	41	0.443	30	16
ST/RT	D	3.50	5	1	12			2105		0	207	207	1.00	1871			1871	0.111	0.111		26	26	0.443	24	26
LT/ST	D	3.50	5	1	11		y	1965	16	134		150	0.11	1937			1937	0.077			18	18	0.443	18	33
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

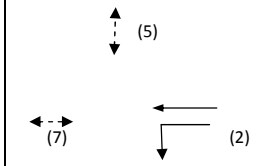
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8PM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday PM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



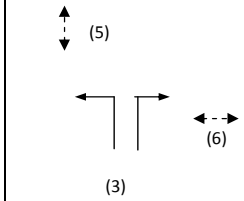
No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.595
Loss time	L =	18 sec
Total Flow	=	2610 pcu
Co = (1.5*L+5)/(1-Y)	=	79.1 sec
Cm = L/(1-Y)	=	44.5 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	28.5 %
Cp = 0.9*L/(0.9-Y)	=	53.2 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	25.3 %



Stage A I = 7



Stage B I = 8

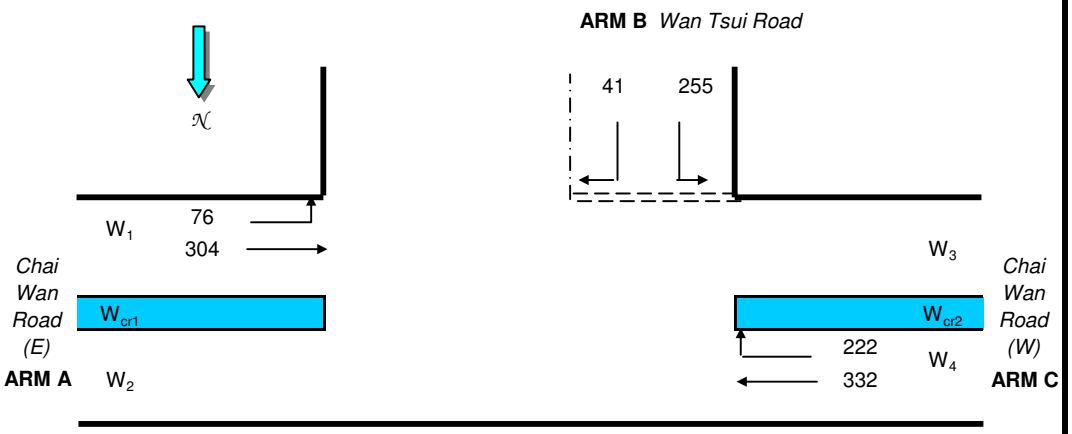


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
ST	A	3.75	1	2			y	4120		730		730	0.00	4120			4120	0.177	0.177		26	26	0.718	48	26
RT	A	3.00	1	1	13			2055			266	266	1.00	1842			1842	0.144			21	26	0.585	30	28
ST	B	3.50	2	2				4210		705		705	0.00	4210			4210	0.167	0.167		24	24	0.718	45	27
LT	B	3.10	2	1	12		y	1925	62			62	1.00	1711			1711	0.036			5	24	0.155	6	28
LT	C	4.00	3	1	15		y	2015	459			459	1.00	1832			1832	0.251	0.251		37	37	0.718	48	21
LT/RT	C	4.00	3	1	15			2155	190		198	388	1.00	1959			1959	0.198			29	37	0.568	42	19
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2011 Base
Time - PM Peak (Weekday)



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	76	(pcu/hr)
q_{a-c}	=	304	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	332	(pcu/hr)
q_{c-b}	=	222	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	41	(pcu/hr)
q_{b-c}	=	255	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

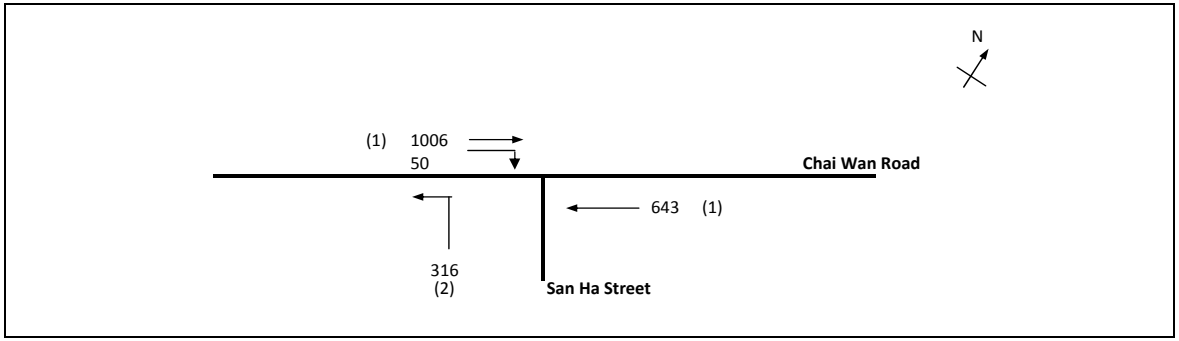
Q_{b-c}	=	783
Q_{c-b}	=	696
Q_{b-a}	=	383

COMPARISION OF DESIGN FLOW TO CAPACITY

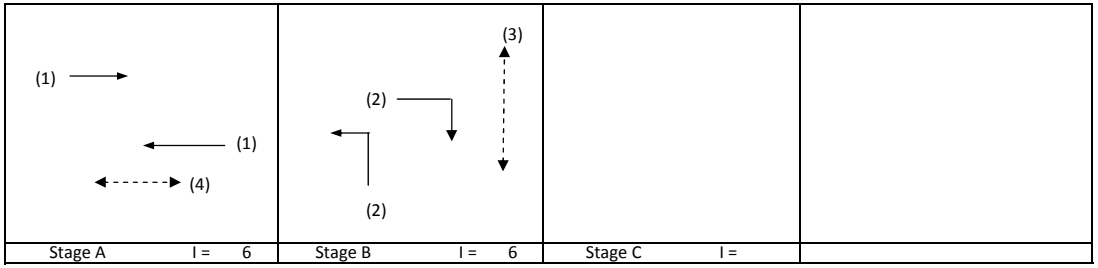
DFC_{b-a}	=	0.107
DFC_{b-c}	=	0.326
DFC_{c-b}	=	0.319

Critical DFC = 0.326

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10PM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday PM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



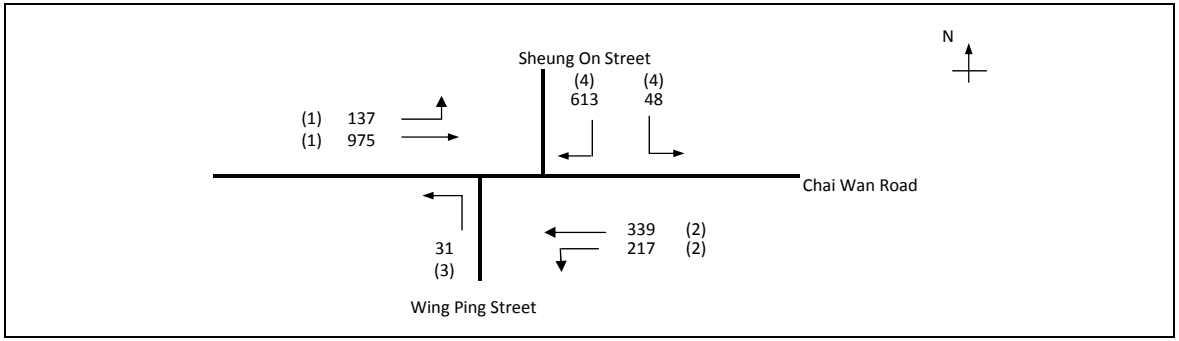
No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.437
Loss time		L =	10 sec
Total Flow		=	2015 pcu
Co	= (1.5*L+5)/(1-Y)	=	35.5 sec
Cm	= L/(1-Y)	=	17.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	88.8 %
Cp	= 0.9*L/(0.9-Y)	=	19.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	85.4 %



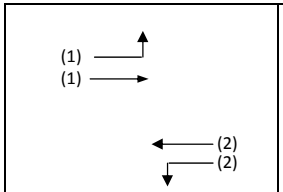
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1006		1006	0.00	4070			4070	0.247	0.247		51	47	0.526	42	10
ST	A	3.50	1	2	10		N	4070		643		643	0.00	4070			4070	0.158			33	47	0.336	27	11
LT	B	3.00	2	1	10		N	1915	316			316	1.00	1665			1665	0.190	0.190		39	53	0.358	24	9
RT	B	3.50	2	1	12			2105			50	50	1.00	1871			1871	0.027			6	53	0.050	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

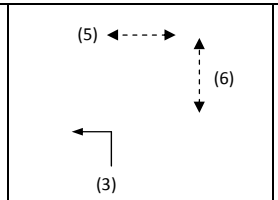
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11PM - Peak Hour Traffic Flows	FILENAME : 2011_WD_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekday PM Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



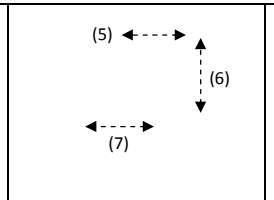
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.386
Loss time		L =	37 sec
Total Flow		=	2360 pcu
Co	= (1.5*L+5)/(1-Y)	=	98.5 sec
Cm	= L/(1-Y)	=	60.2 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	61.4 %
Cp	= 0.9*L/(0.9-Y)	=	64.8 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	61.4 %



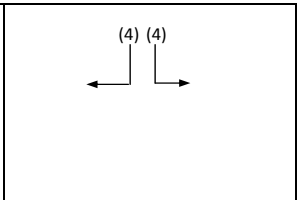
Stage A I = 8



Stage B I = 5



Stage C I = 7

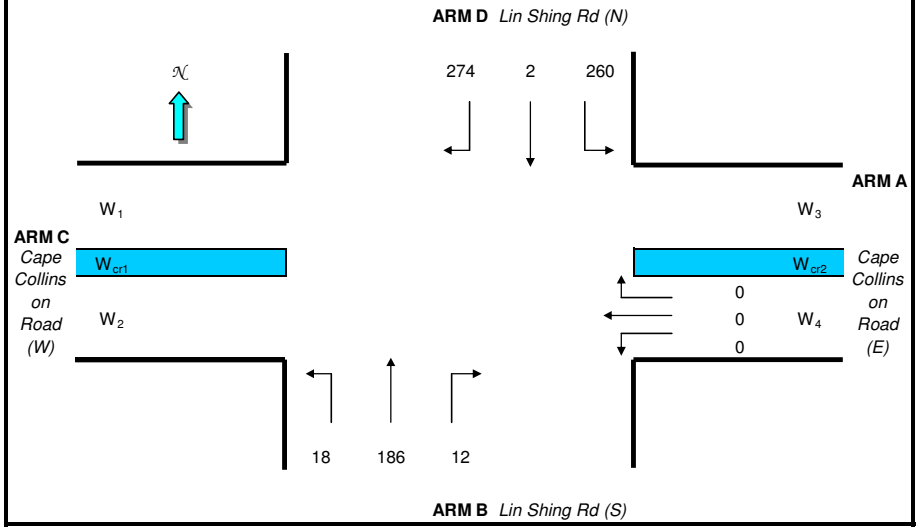


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	137	975		1112	0.12	6081			6081	0.183	0.183		39		0.000	74	54
LT/ST	A	3.30	2	3	12		Y	6115	217	339		556	0.39	5831			5831	0.095			21		0.000	36	54
LT	B	3.50	3	1	9		Y	1965	31			31	1.00	1684			1684	0.018	0.018		4		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	48		613	661	1.00	3583			3583	0.185	0.185		40		0.000	66	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base Year
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	12	(pcu/hr)
q_{b-c}	=	17.5	(pcu/hr)
q_{b-d}	=	185.5	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	260.25	(pcu/hr)
q_{d-b}	=	1.5	(pcu/hr)
q_{d-c}	=	273.5	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

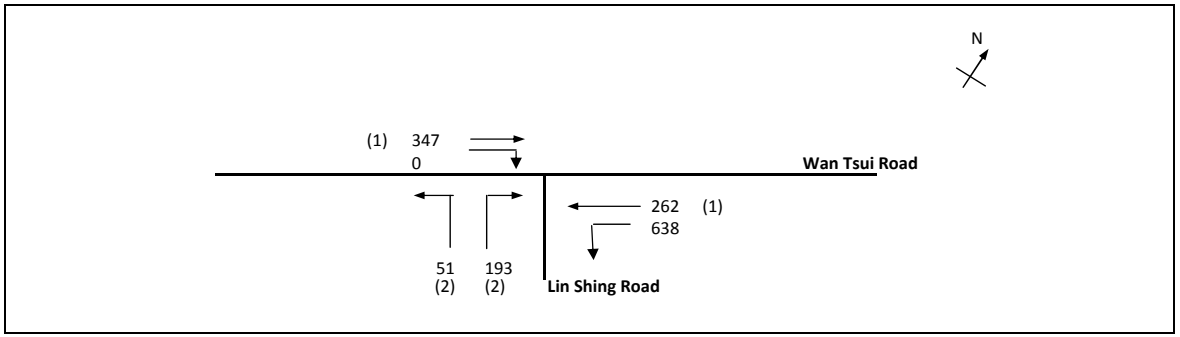
THE CAPACITY OF MOVEMENT

Q_{b-a}	=	532
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	469
Q_{c-b}	=	437
Q_{a-d}	=	616

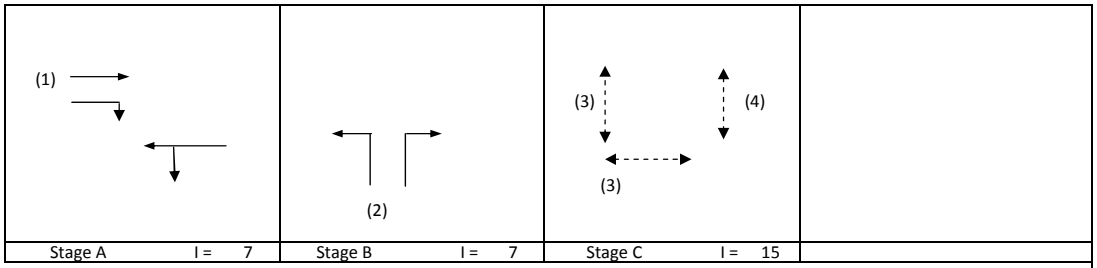
COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.023
DFC_{b-c}	=	0.023
DFC_{b-d}	=	0.303
DFC_{d-a}	=	0.386
DFC_{d-b}	=	0.003
DFC_{d-c}	=	0.584
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000
Critical DFC	=	**0.584**

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME : 2011_WE_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.632
Loss time		L =	36 sec
Total Flow		=	1490 pcu
Co	= (1.5*L+5)/(1-Y)	=	160.2 sec
Cm	= L/(1-Y)	=	97.7 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-0.3 %
Cp	= 0.9*L/(0.9-Y)	=	120.8 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-0.3 %

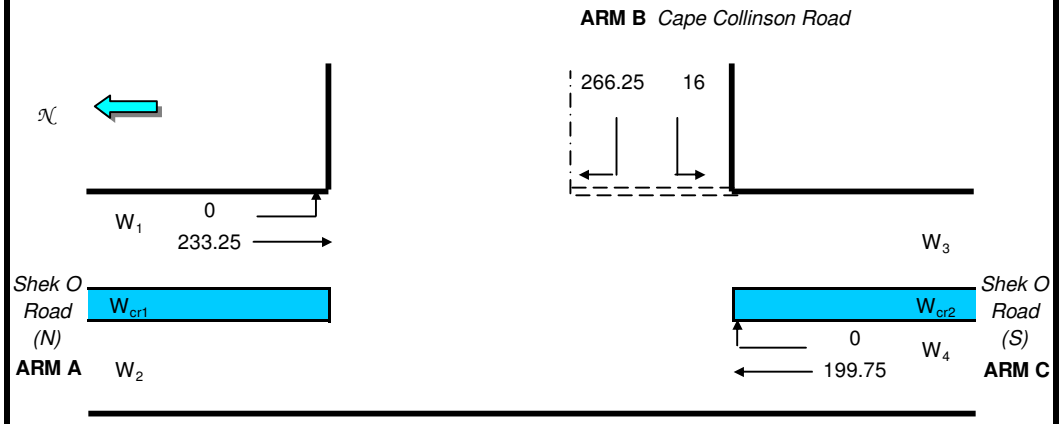


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		347		347	0.00	1915			1915	0.181			24	66	0.331	30	10
ST/LT	A	4.00	1	1	10		y	2015	638	262		899	0.71	1821			1821	0.494	0.494		66	66	0.902	78	16
LT/RT	B	3.75	2	1	12		y	1990	51		193	244	1.00	1769			1769	0.138	0.138		18	18	0.902	54	46
Ped	C	8.00	3																	10					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	233.25	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	199.75	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	266.25	(pcu/hr)
q_{b-c}	=	16	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	682
Q_{c-b}	=	760
Q_{b-a}	=	335

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.796
DFC_{b-c}	=	0.023
DFC_{c-b}	=	0.000

Critical DFC = 0.796

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
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Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2011_WD_J4_WE.vai"
(drive-on-the-left) at 10:00:29 on Friday, 29 April 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
T5								

ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638
ARM B	6.40	7.60	21.00	65.00	48.00	15.0	0.784	40.660
ARM C	5.50	7.00	25.00	19.00	50.00	42.0	0.645	32.621
ARM D	10.30	12.60	28.00	60.00	45.00	33.0	1.036	62.571

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2011_WD_J4_WE

DEMAND SET TITLE: 2011_WD_J4_WE

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
		TURNING PROPORTIONS			
		TURNING COUNTS			
		(PERCENTAGE OF H.V.S)			
07.45 - 08.45	ARM A	0.010	0.206	0.554	0.230
		7.0	140.0	376.0	156.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.545	0.012	0.150	0.293

```
I                   I         I  373.0 I    8.0 I  103.0 I  201.0 I
I                   I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
I                   I         I       I       I       I       I
I                   I  ARM  C I  0.407 I  0.444 I  0.067 I  0.081 I
I                   I         I   55.0 I   60.0 I    9.0 I   11.0 I
I                   I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
I                   I         I       I       I       I       I
I                   I  ARM  D I  0.258 I  0.336 I  0.403 I  0.003 I
I                   I         I  298.0 I  388.0 I  466.0 I    4.0 I
I                   I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
I                   I         I       I       I       I       I
.-------------------------------------------------------------------
```

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

```
.-------------------------------------------------------------------------------
------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 -
                               -
 I 07.45-08.15
                               I
 I ARM A      16.75     26.76   0.626   - -       -    0.0    1.7       48.2
     -             0.099     I
 I ARM B      13.68     20.85   0.656   - -       -    0.0    1.9       54.1
     -             0.137     I
 I ARM C       4.97     19.58   0.254   - -       -    0.0    0.3       10.0
     -             0.068     I
 I ARM D      17.18     44.14   0.389   - -       -    0.0    0.6       18.9
     -             0.037     I
 I
                               I

-------------------------------------------------------------------------------
-------------------------------
.-------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 -
                               -
 I 08.15-08.45
                               I
 I ARM A      16.75     26.74   0.626   - -       -    1.7    1.7       50.0
     -             0.100     I
 I ARM B      13.68     20.81   0.657   - -       -    1.9    1.9       56.9
     -             0.140     I
 I ARM C       4.97     19.53   0.254   - -       -    0.3    0.3       10.2
     -             0.069     I
 I ARM D      17.18     44.10   0.390   - -       -    0.6    0.6       19.1
     -             0.037     I
 I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.9	**
08.45	1.9	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.6	*
08.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

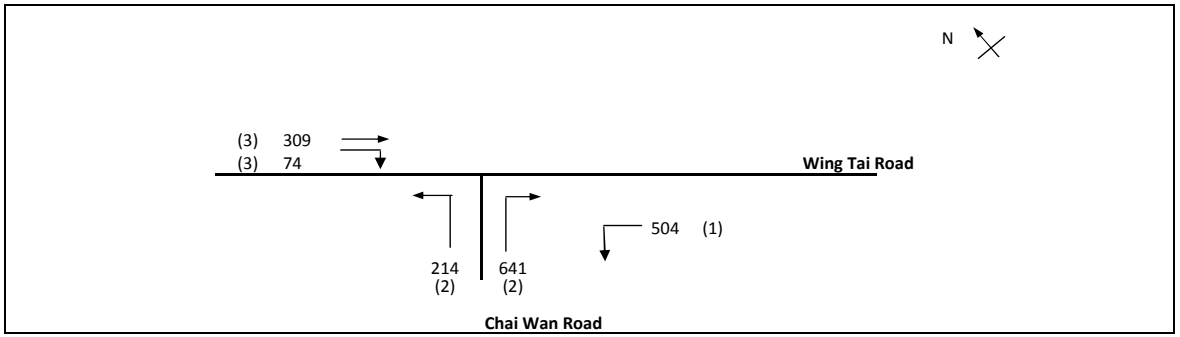
ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1005.0	1005.0	98.2	0.10	98.3	0.10
B	820.8	820.8	111.0	0.14	111.1	0.14
C	298.2	298.2	20.2	0.07	20.2	0.07
D	1030.8	1030.8	38.0	0.04	38.0	0.04

ALL	3154.8	3154.8	267.5	0.08	267.6	0.08

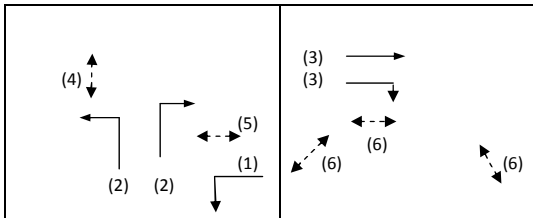
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME : 2011_WE_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.255	
Loss time		L =	10	sec
Total Flow		=	1742	pcu
Co	= (1.5*L+5)/(1-Y)	=	26.8	sec
Cm	= L/(1-Y)	=	13.4	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	223.7	%
Cp	= 0.9*L/(0.9-Y)	=	13.9	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	217.8	%



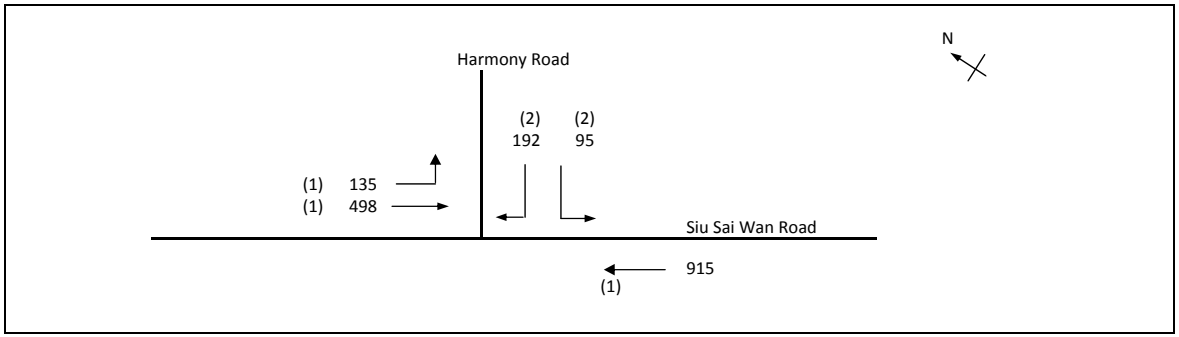
Stage A I = 7

Stage B I = 5

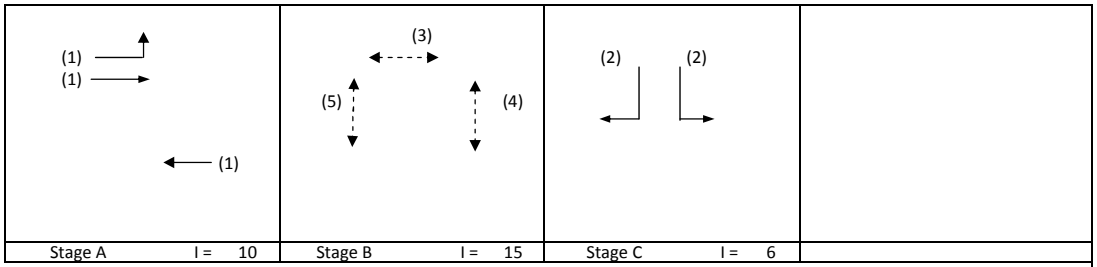
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	504			504	1.00	3857			3857	0.131			46	63	0.207	15	5
LT	A	4.00	2	2	24			4310	214		0	214	1.00	4056			4056	0.053			19	63	0.084	6	6
RT	A	3.50	2	2	11		y	4070			641	641	1.00	3582			3582	0.179	0.179		63	63	0.283	18	5
ST	B	3.50	3	2			y	4070		309		309	0.00	4070			4070	0.076	0.076		27	27	0.283	18	23
RT	B	4.50	3	2	13		y	4270			74	74	1.00	3828			3828	0.019			7	27	0.072	3	24
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME : 2011_WE_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



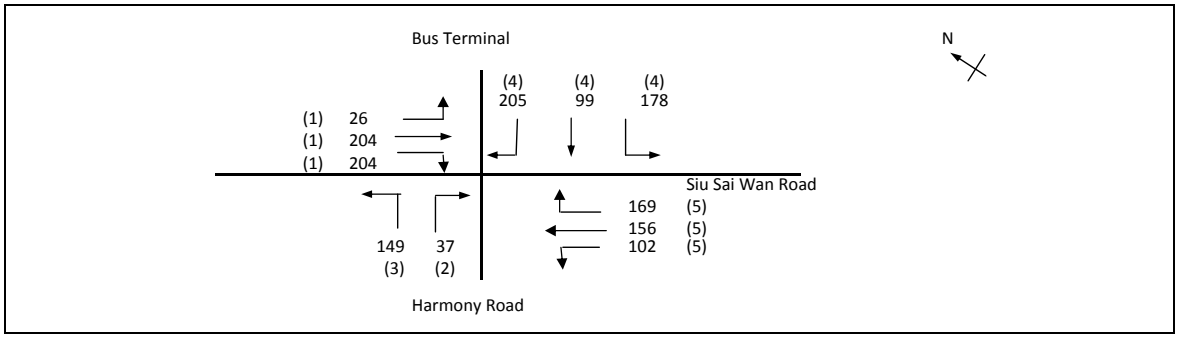
No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.332
Loss time		L =	48 sec
Total Flow		=	1834 pcu
Co	= (1.5*L+5)/(1-Y)	=	115.2 sec
Cm	= L/(1-Y)	=	71.8 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	62.8 %
Cp	= 0.9*L/(0.9-Y)	=	76.0 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	41.1 %



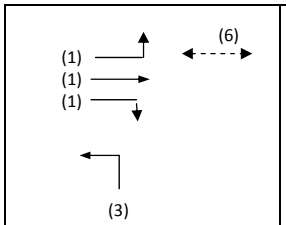
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	135	162		297	0.45	1832			1832	0.162			25	36	0.448	30	17
ST	A	3.20	1	1				2075		336	0	336	0.00	2075			2075	0.162			25	36	0.448	30	17
ST	A	3.00	1	2			y	3970		915		915	0.00	3970			3970	0.230	0.230		36	36	0.638	48	16
LT	C	3.75	2	1	12		y	1990	95			95	1.00	1769			1769	0.054			8	16	0.338	12	33
RT	C	3.75	2	1	12			2130			192	192	1.00	1893			1893	0.101	0.101		16	16	0.638	24	38
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

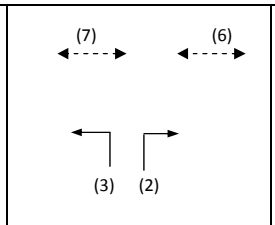
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME : 2011_WE_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



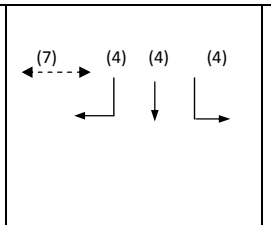
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.344	
Loss time	L =	18	sec
Total Flow	=	1325	pcu
Co = (1.5*L+5)/(1-Y)	=	48.8	sec
Cm = L/(1-Y)	=	27.4	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	122.6	%
Cp = 0.9*L/(0.9-Y)	=	29.1	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	116.9	%



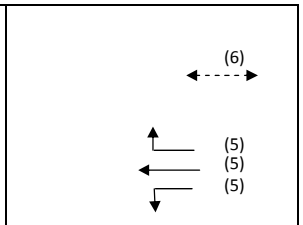
Stage A I = 5



Stage B I = 5



Stage C I = 6

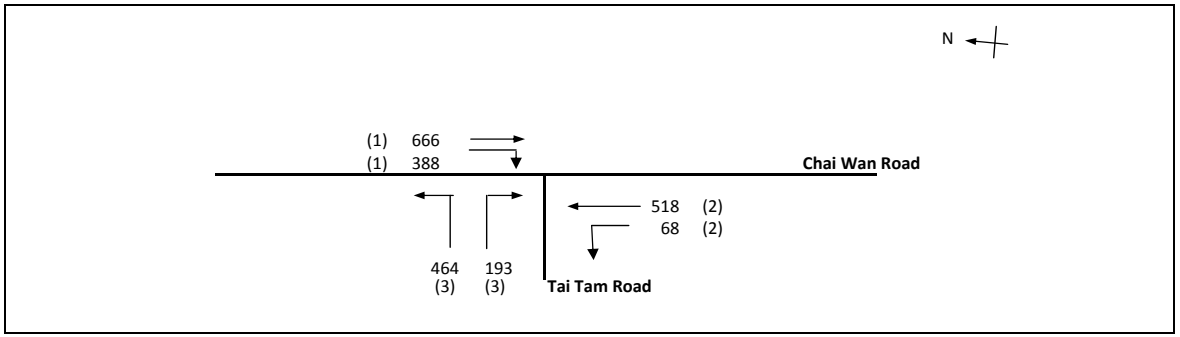


Stage C I = 6

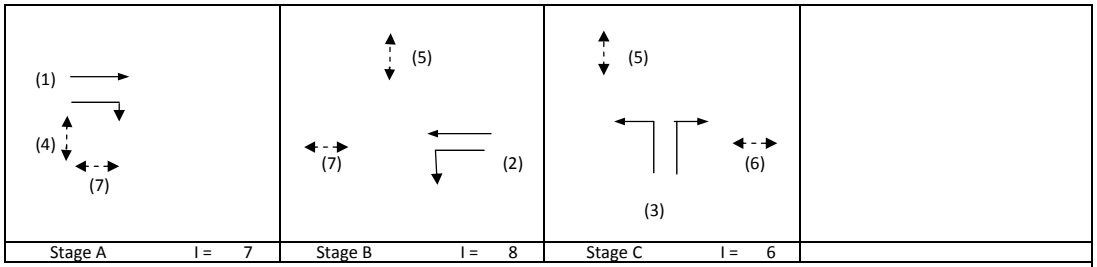
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	26	83		109	0.24	1883			1883	0.058			15	15	0.415	12	37
ST/RT	A	3.30	1	1	12			2085		121	0	121	0.00	2085			2085	0.058	0.058		15	15	0.415	18	37
RT	B	3.50	2	1	12			2105			37	37	1.00	1871			1871	0.020	0.020		5	5	0.415	6	55
LT	A,B	3.75	3	1	13		y	1990	149			149	1.00	1784			1784	0.083			21	25	0.354	18	27
RT	C	3.50	4	1	12			2105			205	205	1.00	1871			1871	0.110			28	39	0.298	18	18
LT/ST	C	3.50	4	1	12		y	1965	178	99		277	0.64	1819			1819	0.152	0.152		39	39	0.415	30	18
ST/RT	D	3.50	5	1	12			2105		49	169	218	0.78	1919			1919	0.114	0.114		29	29	0.415	24	24
LT/ST	D	3.50	5	1	11		y	1965	102	107		209	0.49	1842			1842	0.113			29	29	0.415	24	24
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME : 2011_WE_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.501
Loss time		L =	18 sec
Total Flow		=	2295 pcu
Co	= (1.5*L+5)/(1-Y)	=	64.2 sec
Cm	= L/(1-Y)	=	36.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	52.5 %
Cp	= 0.9*L/(0.9-Y)	=	40.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	48.7 %

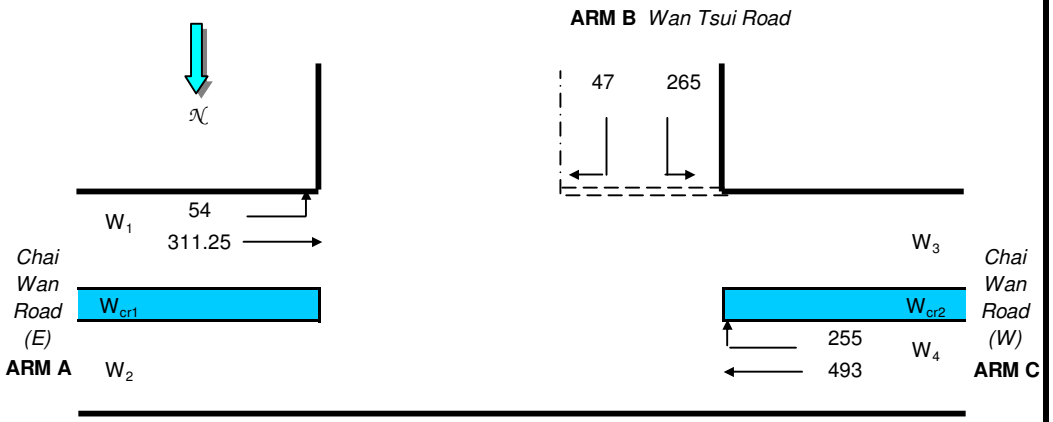


Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		666		666	0.00	4070			4070	0.164			28	28	0.605	42	23
RT	A	3.50	1	1	13			2105			388	388	1.00	1887			1887	0.205	0.205		36	28	0.760	48	30
ST	B	3.50	2	2				4210		518		518	0.00	4210			4210	0.123	0.123		21	21	0.605	36	29
LT	B	3.10	2	1	12		y	1925	68			68	1.00	1711			1711	0.039			7	21	0.194	6	30
LT	C	4.00	3	1	15		y	2015	317			317	1.00	1832			1832	0.173	0.173		30	30	0.605	36	25
LT/RT	C	4.00	3	1	15			2155	147		193	340	1.00	1959			1959	0.173			30	30	0.606	42	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2011 Base
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	54.25	(pcu/hr)
q_{a-c}	=	311.25	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	492.75	(pcu/hr)
q_{c-b}	=	254.5	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	47	(pcu/hr)
q_{b-c}	=	265	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

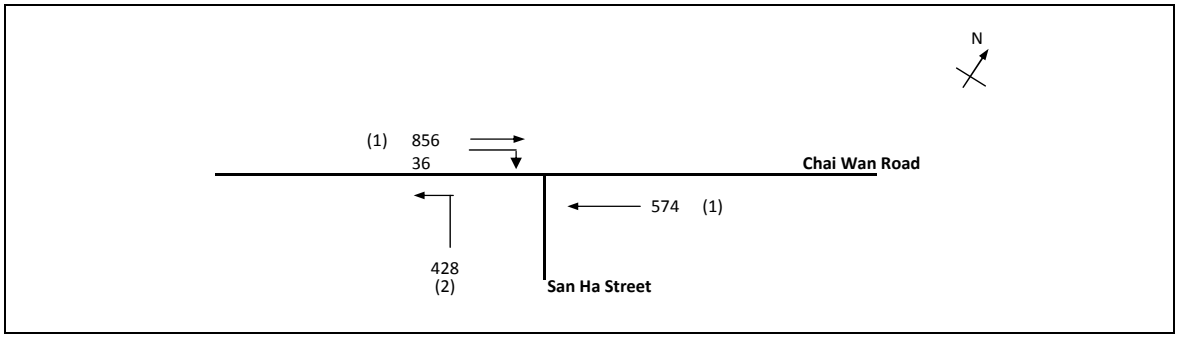
Q_{b-c}	=	783
Q_{c-b}	=	698
Q_{b-a}	=	371

COMPARISION OF DESIGN FLOW TO CAPACITY

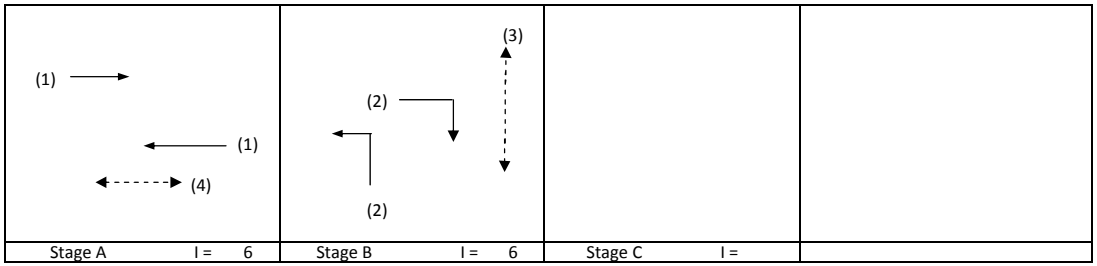
DFC_{b-a}	=	0.127
DFC_{b-c}	=	0.338
DFC_{c-b}	=	0.365

Critical DFC = 0.365

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME : 2011_WE_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



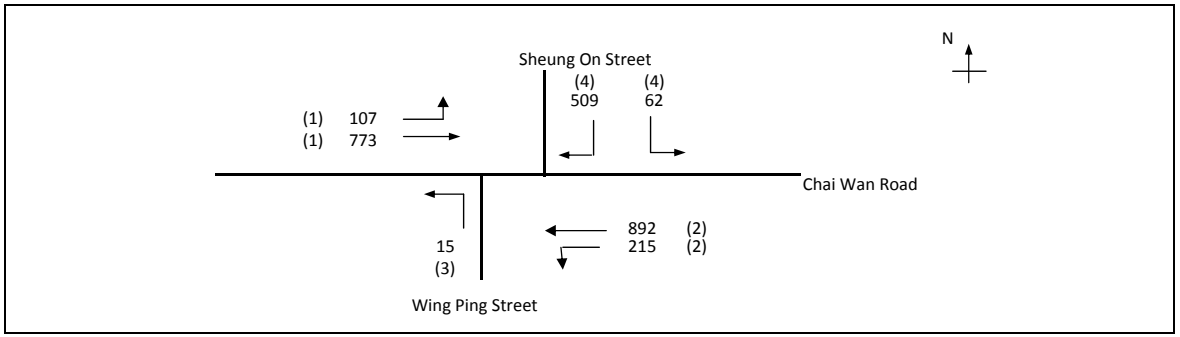
No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.467
Loss time		L =	10 sec
Total Flow		=	1893 pcu
Co	= (1.5*L+5)/(1-Y)	=	37.5 sec
Cm	= L/(1-Y)	=	18.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	76.6 %
Cp	= 0.9*L/(0.9-Y)	=	20.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	73.4 %



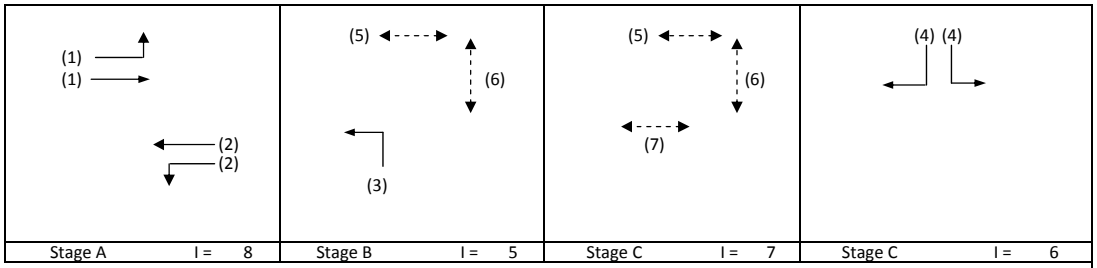
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		856		856	0.00	4070			4070	0.210	0.210		41	47	0.447	36	11
ST	A	3.50	1	2	10		N	4070		574		574	0.00	4070			4070	0.141			27	47	0.300	24	11
LT	B	3.00	2	1	10		N	1915	428			428	1.00	1665			1665	0.257	0.257		49	53	0.485	30	9
RT	B	3.50	2	1	12			2105			36	36	1.00	1871			1871	0.019			4	53	0.036	0	10
Ped	B	19.0	3																						
	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME : 2011_WE_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



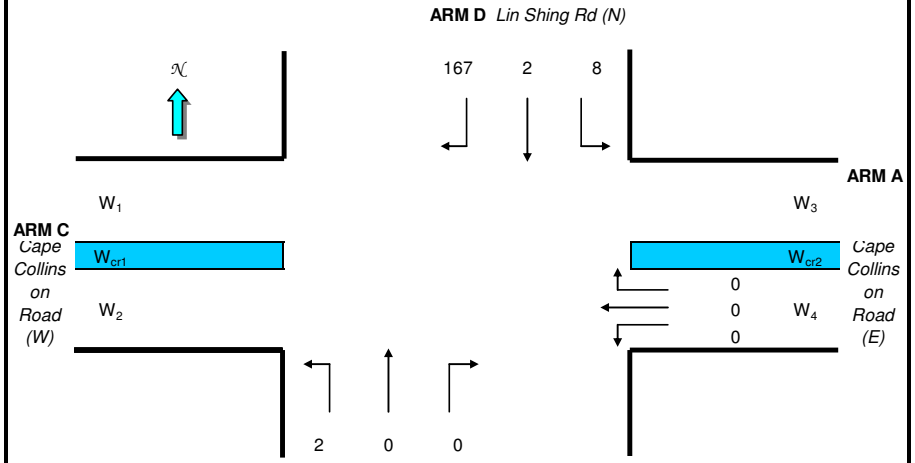
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.354
Loss time		L =	37 sec
Total Flow		=	2573 pcu
Co	= (1.5*L+5)/(1-Y)	=	93.6 sec
Cm	= L/(1-Y)	=	57.2 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	76.0 %
Cp	= 0.9*L/(0.9-Y)	=	61.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	76.0 %



Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	107	773		880	0.12	6083			6083	0.145			34		0.000	58	54
LT/ST	A	3.30	2	3	12		Y	6115	215	892		1107	0.19	5970			5970	0.185	0.185		44		0.000	72	54
LT	B	3.50	3	1	9		Y	1965	15			15	1.00	1684			1684	0.009	0.009		2		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	62		509	571	1.00	3583			3583	0.159	0.159		37		0.000	57	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base Year
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	167	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

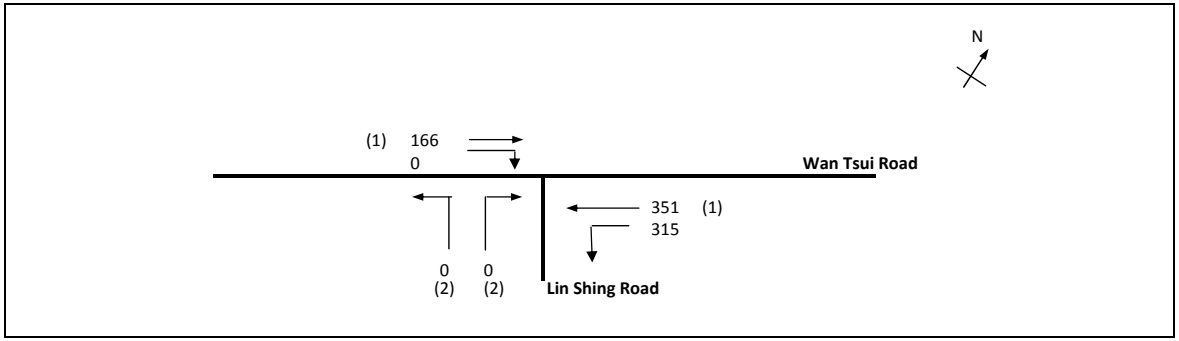
Q_{b-a}	=	623
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

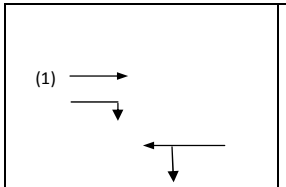
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.322
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.322

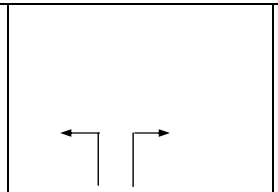
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME : 2011_CM_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Ching Ming Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



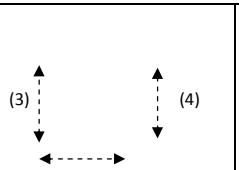
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.354
Loss time		L =	55 sec
Total Flow		=	832 pcu
Co	= (1.5*L+5)/(1-Y)	=	135.4 sec
Cm	= L/(1-Y)	=	85.1 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	37.7 %
Cp	= 0.9*L/(0.9-Y)	=	90.7 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	37.7 %



Stage A I = 7



Stage B I =

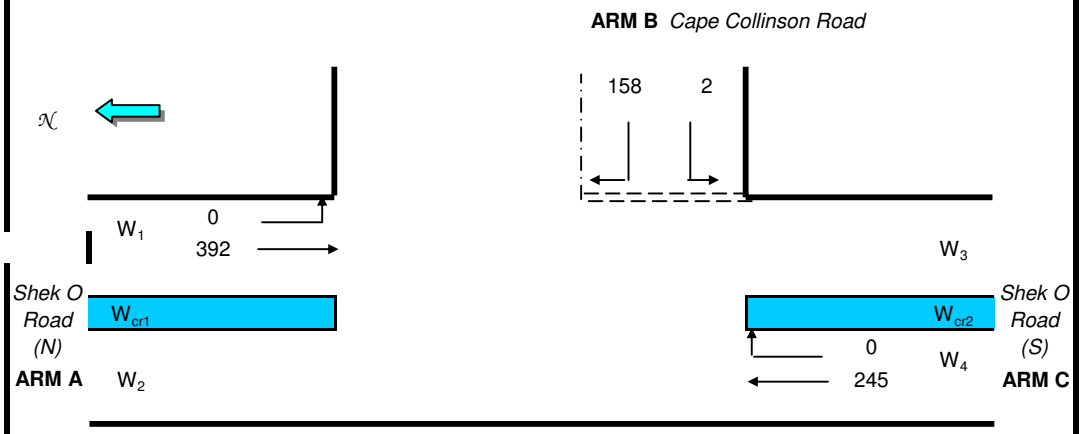


Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		166		166	0.00	1915			1915	0.087			16	65	0.160	12	11
ST/LT	A	4.00	1	1	10		N	2015	315	351		666	0.47	1882			1882	0.354	0.354		65	65	0.653	60	10
Ped	B	8.0	3									5709		8000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Base
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	392	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	245	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	158	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	642
Q_{c-b}	=	715
Q_{b-a}	=	305

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.519
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.519

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2011_WD_J4_CM.vai"
(drive-on-the-left) at 09:58:20 on Friday, 29 April 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

---------- T5
I ARM I V (M) I E (M) I L (M) I R (M) I D (M) I PHI (DEG) I SLOPE I INTERCEPT (PCU/MIN) I

ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	
ARM B	6.40	7.60	21.00	65.00	48.00	15.0	0.784	40.660	
ARM C	5.50	7.00	25.00	19.00	50.00	42.0	0.645	32.621	
ARM D	10.30	12.60	28.00	60.00	45.00	33.0	1.036	62.571	

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2011_WD_J4_CM

DEMAND SET TITLE: 2011_WD_J4_CM

T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	TURNING PROPORTIONS				
	TURNING COUNTS				
	(PERCENTAGE OF H.V.S)				
	ARM A	0.012	0.275	0.407	0.306
		10.0	233.0	345.0	259.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.608	0.011	0.058	0.323

```
I                    I         I  486.0 I    9.0 I   46.0 I  258.0 I
I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
I                    I         I        I        I        I        I
I                    I  ARM  C I  0.383 I  0.363 I  0.035 I  0.219 I
I                    I         I   77.0 I   73.0 I    7.0 I   44.0 I
I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
I                    I         I        I        I        I        I
I                    I  ARM  D I  0.310 I  0.394 I  0.292 I  0.004 I
I                    I         I  366.0 I  465.0 I  345.0 I    5.0 I
I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
I                    I         I        I        I        I        I
.--------------------------------------------------------------------
```

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

```
.-------------------------------------------------------------------------------
------------------------------- T70
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 -
                              -
 I 07.45-08.15
                              I
 I ARM A      16.75     27.98   0.599   - -       -    0.0    1.5       43.2
     -             0.088     I
 I ARM B      13.68     23.35   0.586   - -       -    0.0    1.4       40.8
     -             0.102     I
 I ARM C       4.97     17.91   0.278   - -       -    0.0    0.4       11.3
     -             0.077     I
 I ARM D      17.18     43.92   0.391   - -       -    0.0    0.6       19.0
     -             0.037     I
 I
                              I

-------------------------------------------------------------------------------
-------------------------------
.-------------------------------------------------------------------------------
-------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 -
                              -
 I 08.15-08.45
                              I
 I ARM A      16.75     27.96   0.599   - -       -    1.5    1.5       44.6
     -             0.089     I
 I ARM B      13.68     23.32   0.587   - -       -    1.4    1.4       42.3
     -             0.104     I
 I ARM C       4.97     17.87   0.278   - -       -    0.4    0.4       11.5
     -             0.078     I
 I ARM D      17.18     43.88   0.392   - -       -    0.6    0.6       19.3
     -             0.037     I
 I
```

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.5	*
08.45	1.5	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.4	*
08.45	1.4	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.4
08.45	0.4

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.6	*
08.45	0.6	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

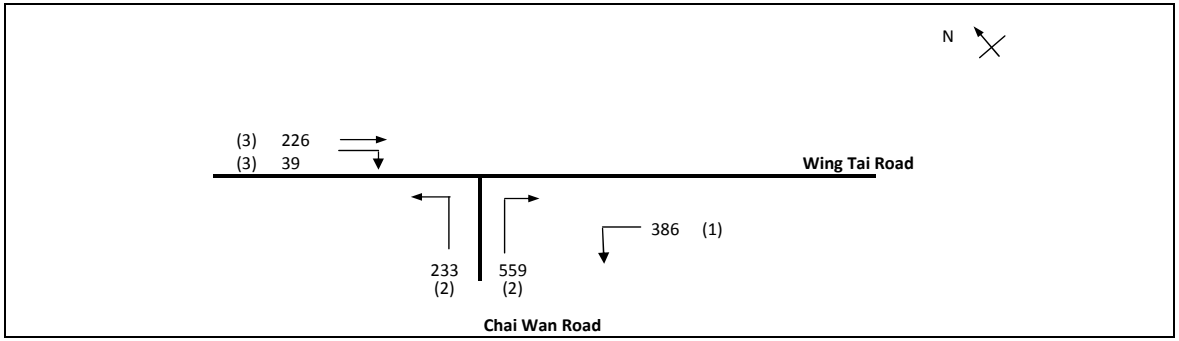
ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1005.0	1005.0	87.8	0.09	87.8	0.09
B	820.8	820.8	83.1	0.10	83.1	0.10
C	298.2	298.2	22.8	0.08	22.8	0.08
D	1030.8	1030.8	38.3	0.04	38.3	0.04

ALL	3154.8	3154.8	232.0	0.07	232.1	0.07

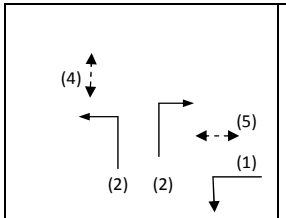
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

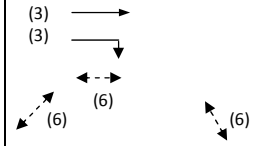
TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME : 2011_CM_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Ching Ming Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.212
Loss time		L =	10 sec
Total Flow		=	1443 pcu
Co	= (1.5*L+5)/(1-Y)	=	25.4 sec
Cm	= L/(1-Y)	=	12.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	289.9 %
Cp	= 0.9*L/(0.9-Y)	=	13.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	282.8 %



Stage A I = 7

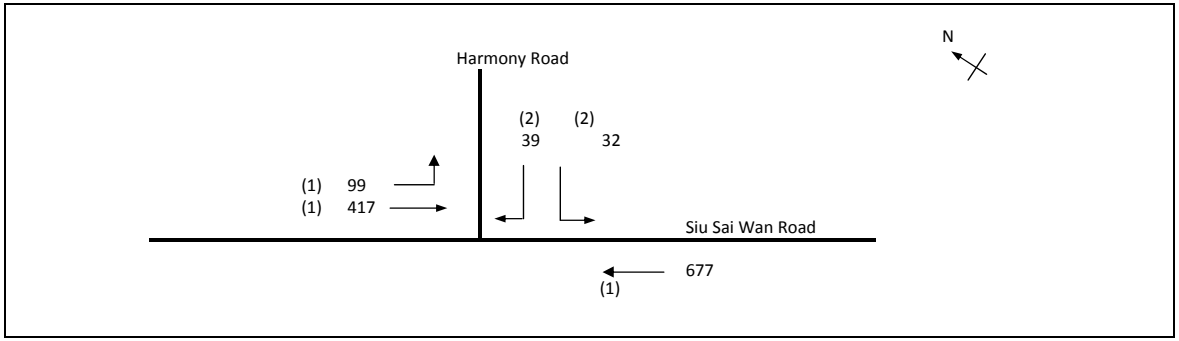


Stage B I = 5

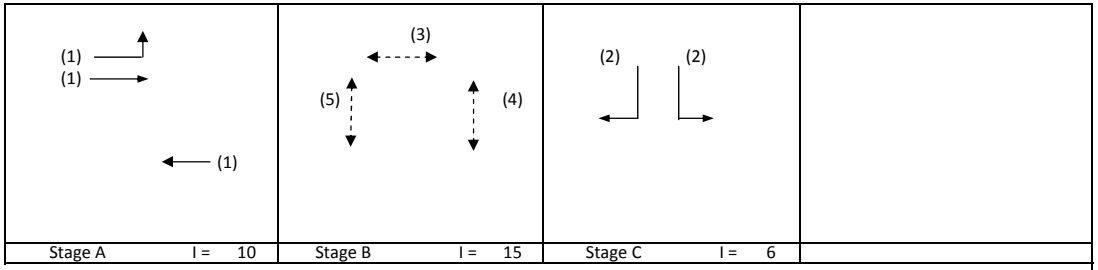
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10				
LT	A	3.75	1	2	22		y	4120	386			386	1.00	3857			3857	0.100			43	66	0.151	9	5
LT	A	4.00	2	2	24			4310	233			233	1.00	4056			4056	0.057			24	66	0.087	6	5
RT	A	3.50	2	2	11		y	4070			559	559	1.00	3582			3582	0.156	0.156		66	66	0.235	15	5
ST	B	3.50	3	2			y	4070		226		226	0.00	4070			4070	0.056	0.056		24	24	0.235	12	25
RT	B	4.50	3	2	13		y	4270			39	39	1.00	3828			3828	0.010			4	24	0.043	0	26
Ped	A	4.50	4																					
Ped	A	4.50	5																					
Ped	B	4.50	6																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME : 2011_CM_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Ching Ming Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	100 sec
Sum(y)	Y =	0.191
Loss time	L =	48 sec
Total Flow	=	1264 pcu
Co = (1.5*L+5)/(1-Y)	=	95.2 sec
Cm = L/(1-Y)	=	59.3 sec
Yult	=	0.540
R.C.ult = (Yult-Y)/Y*100%	=	182.5 %
Cp = 0.9*L/(0.9-Y)	=	60.9 sec
Ymax = 1-L/C	=	0.520
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	144.9 %

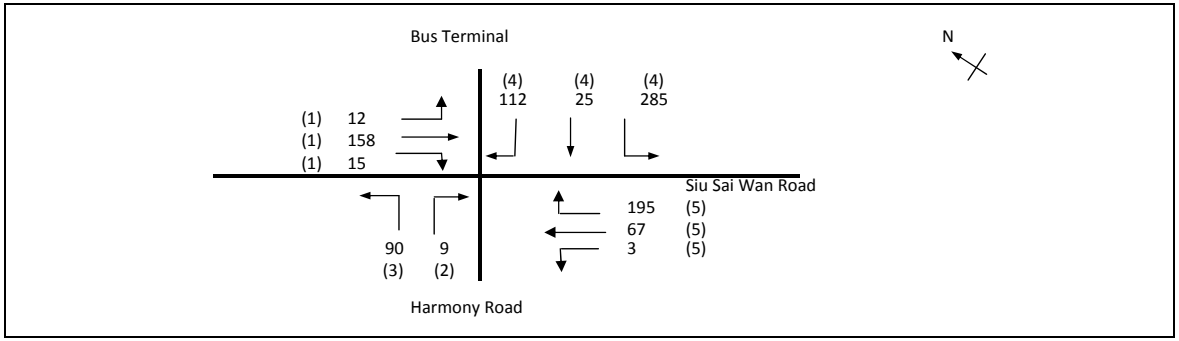


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

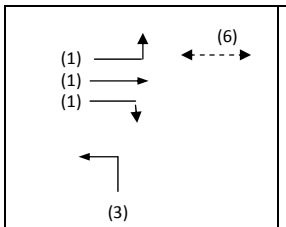
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	99	144		243	0.41	1843			1843	0.132			36	46	0.284	18	12
ST	A	3.20	1	1				2075		273		273	0.00	2075			2075	0.132			36	46	0.284	24	12
ST	A	3.00	1	2			y	3970		677		677	0.00	3970			3970	0.171	0.171		46	46	0.368	30	11
LT	C	3.75	2	1	12		y	1990	32			32	1.00	1769			1769	0.018			5	6	0.323	0	47
RT	C	3.75	2	1	12			2130			39	39	1.00	1893			1893	0.021	0.021		6	6	0.368	6	48
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

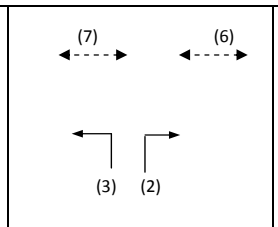
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME : 2011_CM_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Ching Ming Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



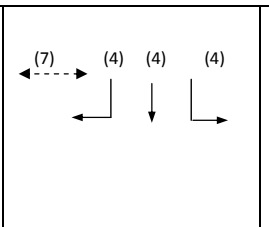
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.332
Loss time	L =	18 sec
Total Flow	=	971 pcu
Co = (1.5*L+5)/(1-Y)	=	47.9 sec
Cm = L/(1-Y)	=	27.0 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	130.2 %
Cp = 0.9*L/(0.9-Y)	=	28.5 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	124.4 %



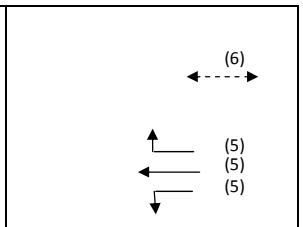
Stage A I = 5



Stage B I = 5



Stage C I = 6

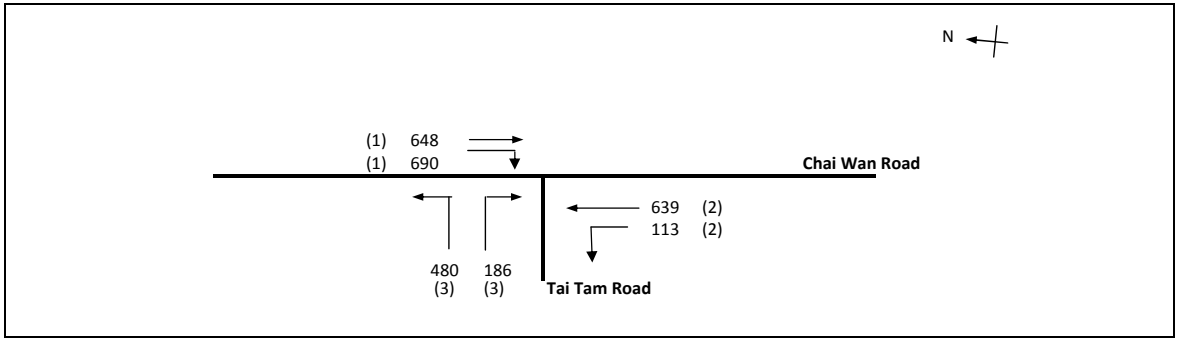


Stage C I = 6

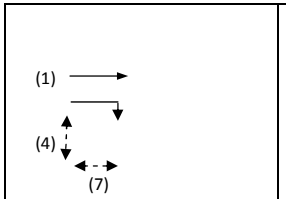
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	12	76		88	0.14	1909			1909	0.046			12	12	0.390	12	40
ST/RT	A	3.30	1	1	12			2085		82	15	97	0.15	2045			2045	0.047	0.047		12	12	0.401	12	39
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.401	0	94
LT	A,B	3.75	3	1	13		y	1990	90			90	1.00	1784			1784	0.050			13	19	0.284	12	32
RT	C	3.50	4	1	12			2105			112	112	1.00	1871			1871	0.060			16	46	0.136	6	14
LT/ST	C	3.50	4	1	12		y	1965	285	25		310	0.92	1762			1762	0.176	0.176		46	46	0.401	30	14
ST/RT	D	3.50	5	1	12			2105			195	195	1.00	1871			1871	0.104	0.104		27	27	0.401	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	67		70	0.04	1954			1954	0.036			9	9	0.401	6	44
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

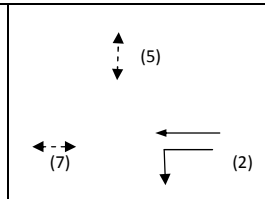
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME : 2011_CM_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Ching Ming Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



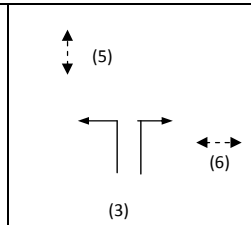
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.693
Loss time		L =	18 sec
Total Flow		=	2756 pcu
Co	= (1.5*L+5)/(1-Y)	=	104.1 sec
Cm	= L/(1-Y)	=	58.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	10.4 %
Cp	= 0.9*L/(0.9-Y)	=	78.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	7.7 %



Stage A I = 7



Stage B I = 8

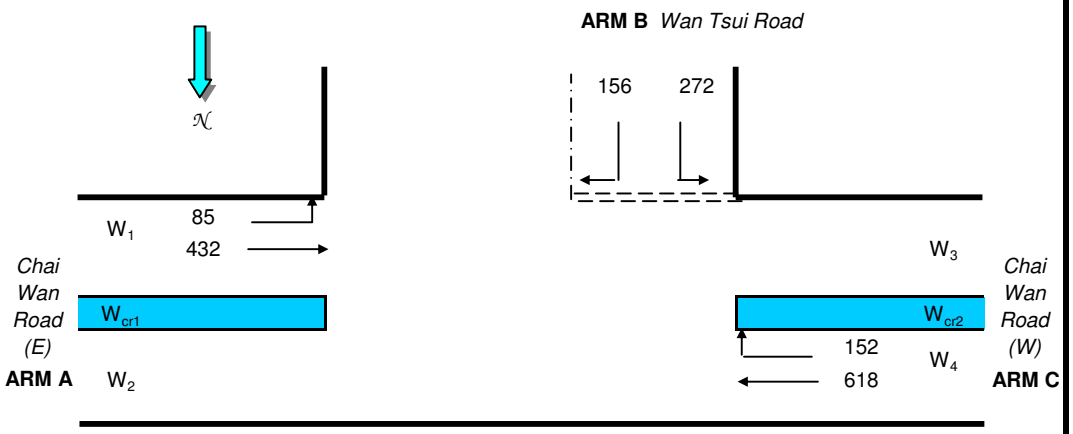


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		648		648	0.00	4070			4070	0.159			20	20	0.836	45	37
RT	A	3.50	1	1	13			2105			690	690	1.00	1887			1887	0.366	0.366		46	20	1.920	96	43
ST	B	3.50	2	2				4210		639		639	0.00	4210			4210	0.152	0.152		19	19	0.836	45	38
LT	B	3.10	2	1	12		y	1925	113			113	1.00	1711			1711	0.066			8	19	0.364	12	33
LT	C	4.00	3	1	15		y	2015	321			321	1.00	1832			1832	0.175	0.175		22	22	0.836	42	46
LT/RT	C	4.00	3	1	15			2155	159		186	345	1.00	1959			1959	0.176			22	22	0.840	48	45
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2011 Base
Time - Ching Ming Peak Hour



GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	85	(pcu/hr)
q_{a-c}	=	432	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	618	(pcu/hr)
q_{c-b}	=	152	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	156	(pcu/hr)
q_{b-c}	=	272	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	766
Q_{c-b}	=	680
Q_{b-a}	=	366

COMPARISION OF DESIGN FLOW TO CAPACITY

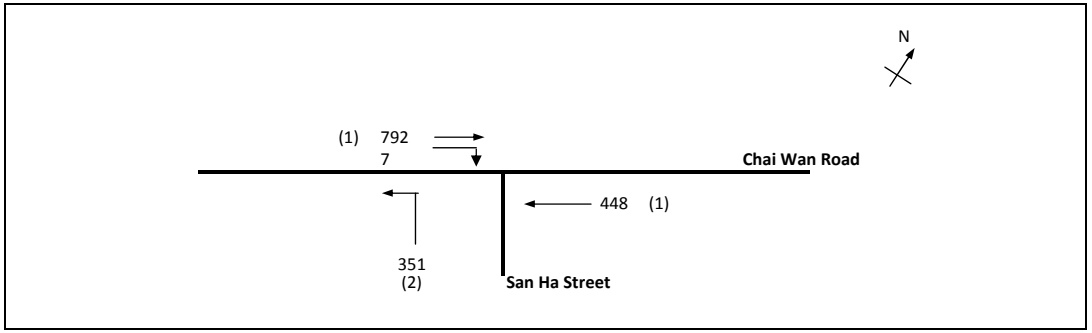
DFC_{b-a}	=	0.426
DFC_{b-c}	=	0.355
DFC_{c-b}	=	0.224

Critical DFC = 0.426

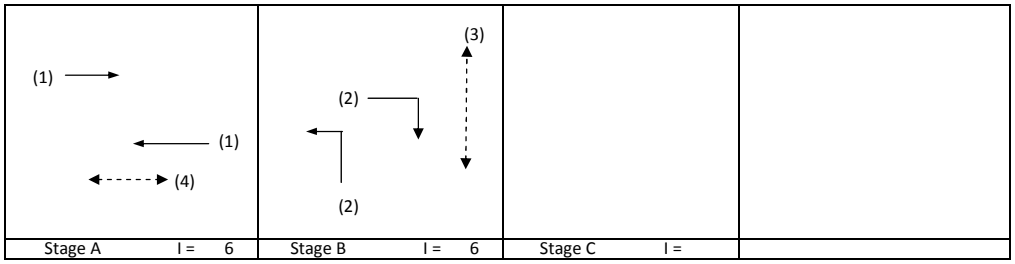
REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME I_CM_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2011 Ching Ming Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



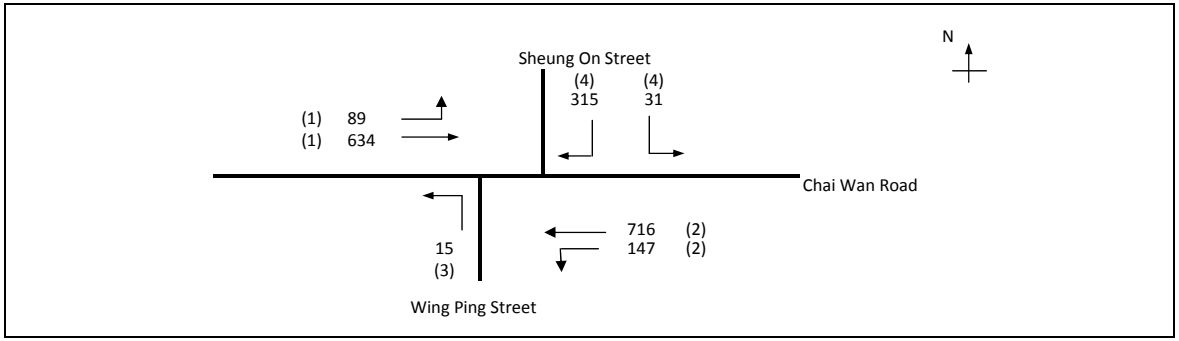
No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.405	
Loss time		L =	10	sec
Total Flow		=	1598	pcu
Co	= (1.5*L+5)/(1-Y)	=	33.6	sec
Cm	= L/(1-Y)	=	16.8	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	103.5	%
Cp	= 0.9*L/(0.9-Y)	=	18.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	99.8	%



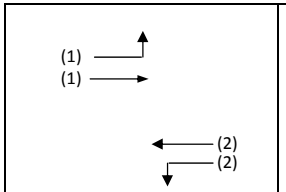
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		792		792	0.00	4070			4070	0.195	0.195		43	47	0.414	33	11
ST	A	3.50	1	2	10		N	4070		448		448	0.00	4070			4070	0.110			24	47	0.234	18	12
LT	B	3.00	2	1	10		N	1915	351			351	1.00	1665			1665	0.211	0.211		47	53	0.398	24	9
RT	B	3.50	2	1	12			2105			7	7	1.00	1871			1871	0.004			1	53	0.007	0	10
Ped	B	19.0	3																						
	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

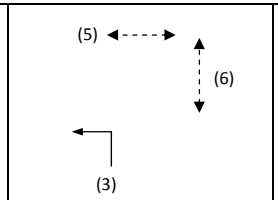
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME : 2011_CM_J1_J3_J9.xls	Checked By:	KC	29-4-2011
2011 Weekend Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



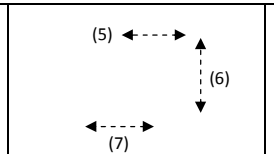
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.250
Loss time		L =	37 sec
Total Flow		=	1947 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.6 sec
Cm	= L/(1-Y)	=	49.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	149.4 %
Cp	= 0.9*L/(0.9-Y)	=	51.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	149.4 %



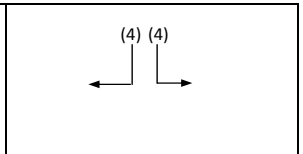
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	89	634		723	0.12	6081			6081	0.119			40		0.000	48	54
LT/ST	A	3.30	2	3	12		Y	6115	147	716		863	0.17	5988			5988	0.144	0.144		48		0.000	56	54
LT	B	3.50	3	1	9		Y	1965	15			15	1.00	1684			1684	0.009	0.009		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	31		315	346	1.00	3583			3583	0.097	0.097		32		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

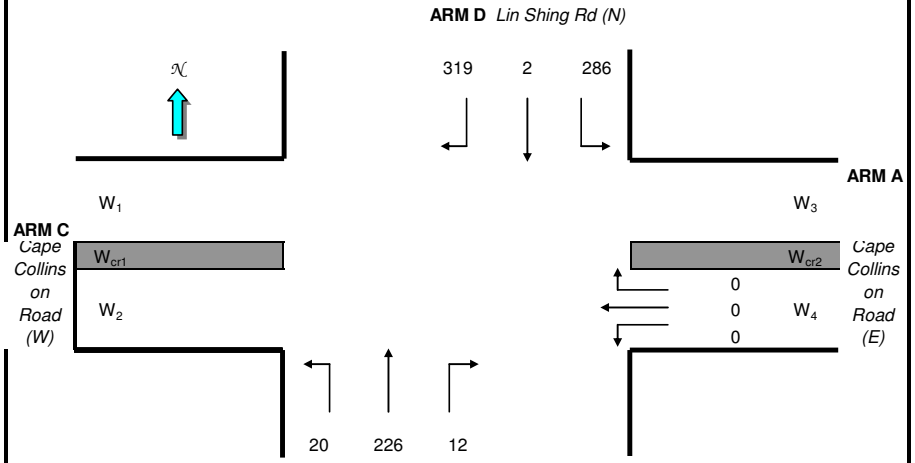
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix J2

2016 / 2021 / 2026 Junction Capacity Calculation Sheets

2016 Weekend
Reference / Site I / Site II
Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Weekend -Reference Case
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM B-C
X_D	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Y	=	GEOMETRIC PARAMETERS FOR STREAM D-A
		(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	12.345	(pcu/hr)
q_{b-c}	=	20.003	(pcu/hr)
q_{b-d}	=	226.45	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	286.1	(pcu/hr)
q_{d-b}	=	1.649	(pcu/hr)
q_{d-c}	=	318.92	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

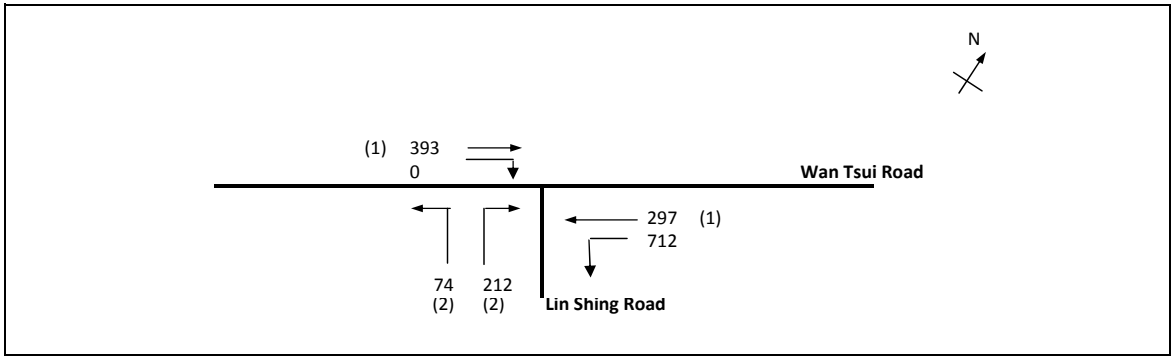
Q_{b-a}	=	517
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	458
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

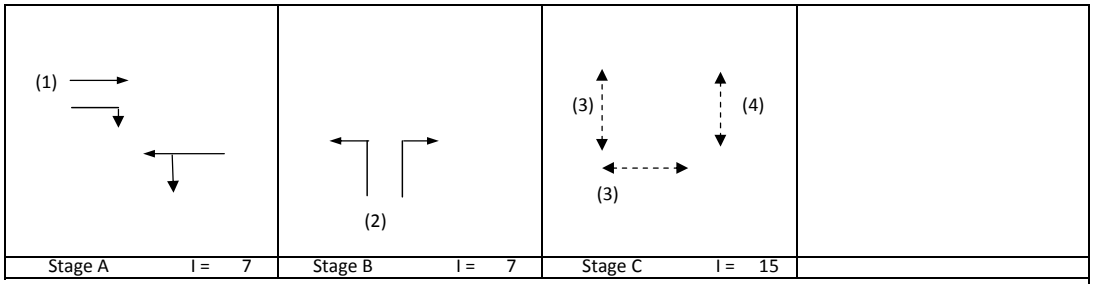
DFC_{b-a}	=	0.024
DFC_{b-c}	=	0.027
DFC_{b-d}	=	0.370
DFC_{d-a}	=	0.424
DFC_{d-b}	=	0.003
DFC_{d-c}	=	0.696
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.696

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.716	
Loss time	L =	36	sec
Total Flow	=	1689	pcu
Co = (1.5*L+5)/(1-Y)	=	207.7	sec
Cm = L/(1-Y)	=	126.7	sec
Yult	=	0.630	
R.C.ult = (Yult-Y)/Y*100%	=	-12.0	%
Cp = 0.9*L/(0.9-Y)	=	176.0	sec
Ymax = 1-L/C	=	0.700	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	-12.0	%



Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		393		393	0.00	1915			1915	0.205			24	65	0.379	36	10
ST/LT	A	4.00	1	1	10		y	2015	712	297		1009	0.71	1822			1822	0.554	0.554		65	65	1.023	90	18
LT/RT	B	3.75	2	1	12		y	1990	74		212	287	1.00	1769			1769	0.162	0.162		19	19	1.023	48	46
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

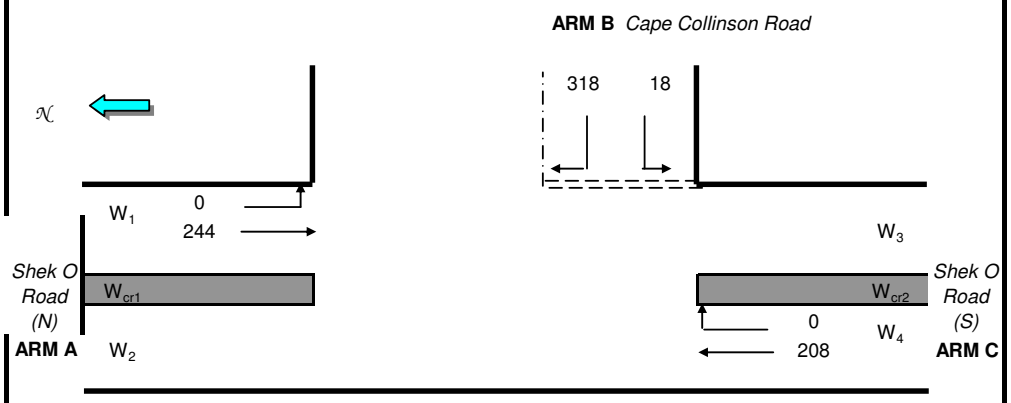
Junction Capacity Analysis

Prepared By:	**GK**
Checked By:	

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2016 Weekend -Reference Case

Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	244	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	208	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	318	(pcu/hr)
q_{b-c}	=	18	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	680
Q_{c-b}	=	757
Q_{b-a}	=	332

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.956
DFC_{b-c}	=	0.026
DFC_{c-b}	=	0.000

Critical DFC = 0.956

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 09:25:13 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_WE_Ref_J4

DEMAND SET TITLE: 2016_WE_Ref_J4

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.015	0.274	0.505	0.206
		13.0	236.0	434.0	177.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.519	0.010	0.316	0.155
		545.0	10.0	332.0	163.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.546	0.389	0.015	0.050
		319.0	227.0	9.0	29.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.354	0.338	0.306	0.003
		449.0	429.0	388.0	4.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	14.31	24.81	0.577	- -	-	0.0	1.4	39.5	
-	0.094	I							
I ARM B	17.45	23.62	0.739	- -	-	0.0	2.8	78.6	
-	0.158	I							
I ARM C	9.73	19.93	0.488	- -	-	0.0	0.9	27.7	
-	0.097	I							
I ARM D	21.18	37.61	0.563	- -	-	0.0	1.3	37.7	
-	0.061	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	14.31	24.78	0.577	- -	-	1.4	1.4	40.7	
-	0.095	I							
I ARM B	17.45	23.58	0.740	- -	-	2.8	2.8	83.9	
-	0.163	I							
I ARM C	9.73	19.88	0.489	- -	-	0.9	1.0	28.6	
-	0.098	I							
I ARM D	21.18	37.53	0.564	- -	-	1.3	1.3	38.7	
-	0.061	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.4	*
08.45	1.4	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.8	***
08.45	2.8	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.9	*
08.45	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.3	*
08.45	1.3	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

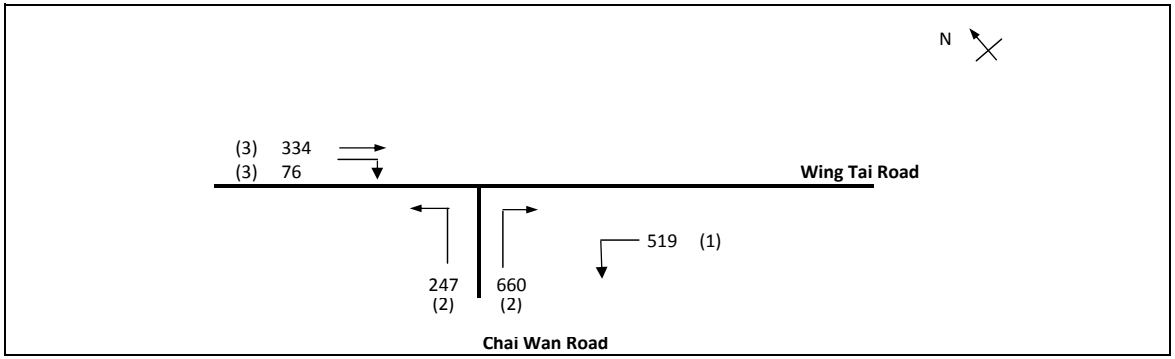
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	858.6	858.6	80.2	0.09	80.2	0.09
B	1047.0	1047.0	162.5	0.16	162.7	0.16
C	583.8	583.8	56.3	0.10	56.3	0.10
D	1270.8	1270.8	76.4	0.06	76.4	0.06
ALL	3760.2	3760.2	375.4	0.10	375.7	0.10

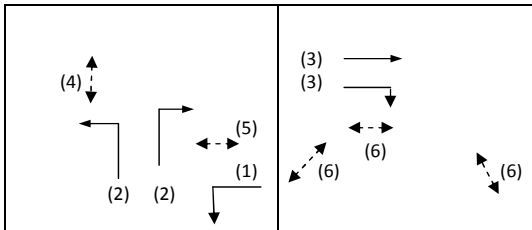
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.266	
Loss time	L =	10	sec
Total Flow	=	1835	pcu
Co = (1.5*L+5)/(1-Y)	=	27.3	sec
Cm = L/(1-Y)	=	13.6	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	209.9	%
Cp = 0.9*L/(0.9-Y)	=	14.2	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	204.2	%



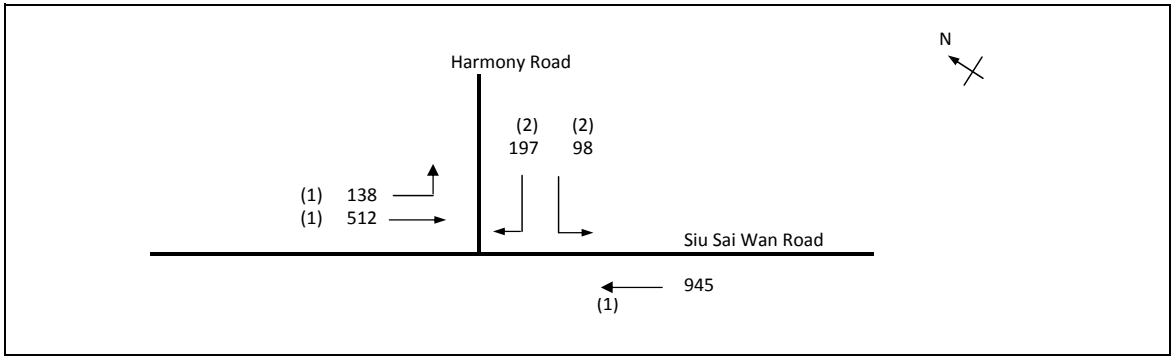
Stage A I = 7

Stage B I = 5

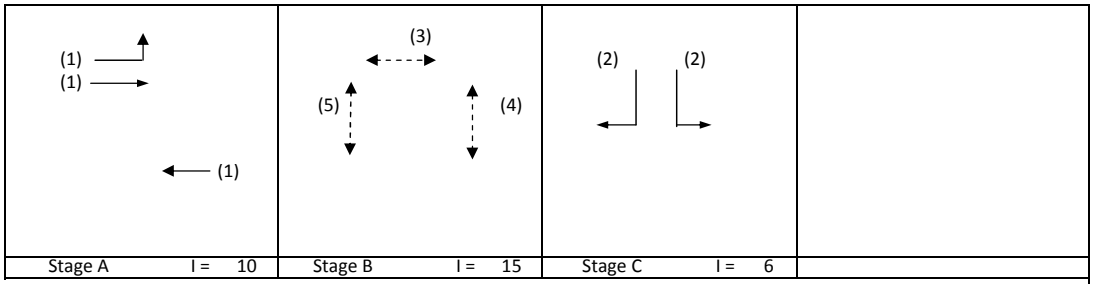
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	519			519	1.00	3857			3857	0.134			45	62	0.216	15	6
LT	A	4.00	2	2	24			4310	247			247	1.00	4056			4056	0.061			21	62	0.098	6	6
RT	A	3.50	2	2	11		y	4070			660	660	1.00	3582			3582	0.184	0.184		62	62	0.296	18	6
ST	B	3.50	3	2			y	4070		334		334	0.00	4070			4070	0.082	0.082		28	28	0.296	18	22
RT	B	4.50	3	2	13		y	4270			76	76	1.00	3828			3828	0.020			7	28	0.071	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.342	
Loss time	L =	48	sec
Total Flow	=	1891	pcu
Co = (1.5*L+5)/(1-Y)	=	117.1	sec
Cm = L/(1-Y)	=	73.0	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	57.7	%
Cp = 0.9*L/(0.9-Y)	=	77.5	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	36.7	%

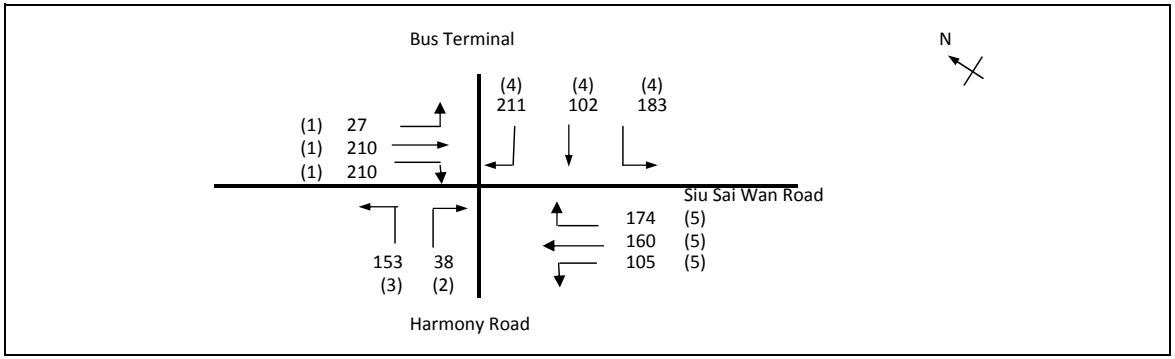


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

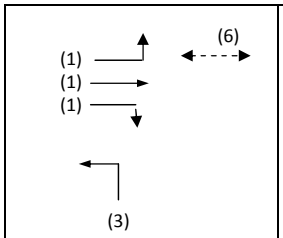
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	138	166		304	0.45	1831			1831	0.166			25	36	0.460	30	17
ST	A	3.20	1	1				2075		346		346	0.00	2075			2075	0.167			25	36	0.461	36	17
ST	A	3.00	1	2			y	3970		945		945	0.00	3970			3970	0.238	0.238		36	36	0.658	48	16
LT	C	3.75	2	1	12		y	1990	98			98	1.00	1769			1769	0.055			8	16	0.349	12	33
RT	C	3.75	2	1	12			2130			197	197	1.00	1893			1893	0.104	0.104		16	16	0.658	24	39
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

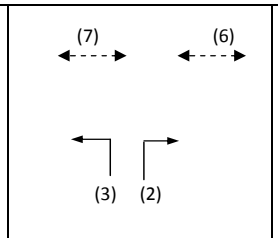
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



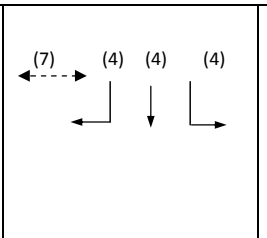
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.412	
Loss time	L =	18	sec
Total Flow	=	1573	pcu
Co = (1.5*L+5)/(1-Y)	=	54.4	sec
Cm = L/(1-Y)	=	30.6	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	85.6	%
Cp = 0.9*L/(0.9-Y)	=	33.2	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	80.9	%



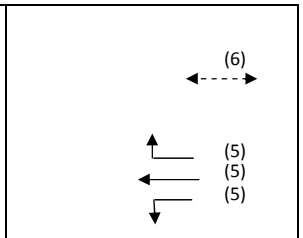
Stage A I = 5



Stage B I = 5



Stage C I = 6

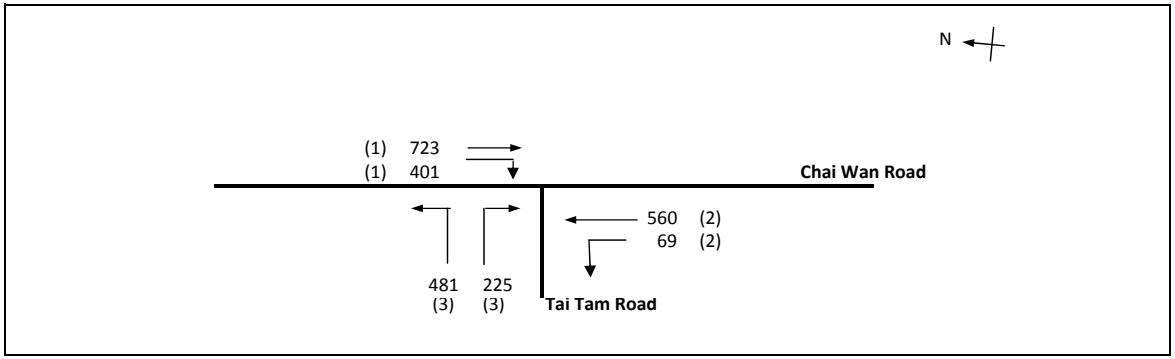


Stage C I = 6

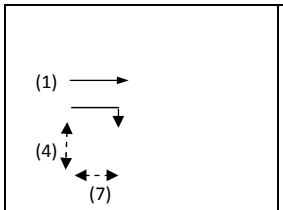
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	27	199		226	0.12	1914			1914	0.118			25	25	0.496	30	28
ST/RT	A	3.30	1	1	12			2085		11	210	221	0.95	1864			1864	0.119	0.119		25	25	0.498	24	28
RT	B	3.50	2	1	12			2105			38	38	1.00	1871			1871	0.020	0.020		4	4	0.498	6	64
LT	A,B	3.75	3	1	13		y	1990	153			153	1.00	1784			1784	0.086			18	34	0.262	18	21
RT	C	3.50	4	1	12			2105			211	211	1.00	1871			1871	0.113			24	33	0.358	24	21
LT/ST	C	3.50	4	1	12		y	1965	183	102		285	0.64	1819			1819	0.157	0.157		33	33	0.498	30	21
ST/RT	D	3.50	5	1	12			2105		50	174	224	0.78	1919			1919	0.117	0.117		25	25	0.498	24	28
LT/ST	D	3.50	5	1	11		y	1965	105	110		215	0.49	1842			1842	0.117			25	25	0.498	24	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

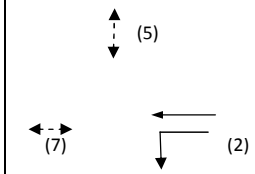
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



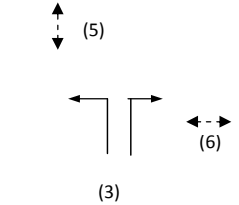
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.532
Loss time		L =	18 sec
Total Flow		=	2460 pcu
Co	= (1.5*L+5)/(1-Y)	=	68.4 sec
Cm	= L/(1-Y)	=	38.5 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	43.7 %
Cp	= 0.9*L/(0.9-Y)	=	44.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	40.1 %



Stage A I = 7



Stage B I = 8



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		723		723	0.00	4070			4070	0.178			29	29	0.642	45	23
RT	A	3.50	1	1	13			2105			401	401	1.00	1887			1887	0.212	0.212		35	29	0.768	48	30
ST	B	3.50	2	2				4210		560		560	0.00	4210			4210	0.133	0.133		22	22	0.642	36	29
LT	B	3.10	2	1	12		y	1925	69			69	1.00	1711			1711	0.041			7	22	0.196	6	30
LT	C	4.00	3	1	15		y	2015	342			342	1.00	1832			1832	0.187	0.187		31	31	0.642	42	25
LT/RT	C	4.00	3	1	15			2155	139		225	364	1.00	1959			1959	0.186			30	31	0.640	42	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

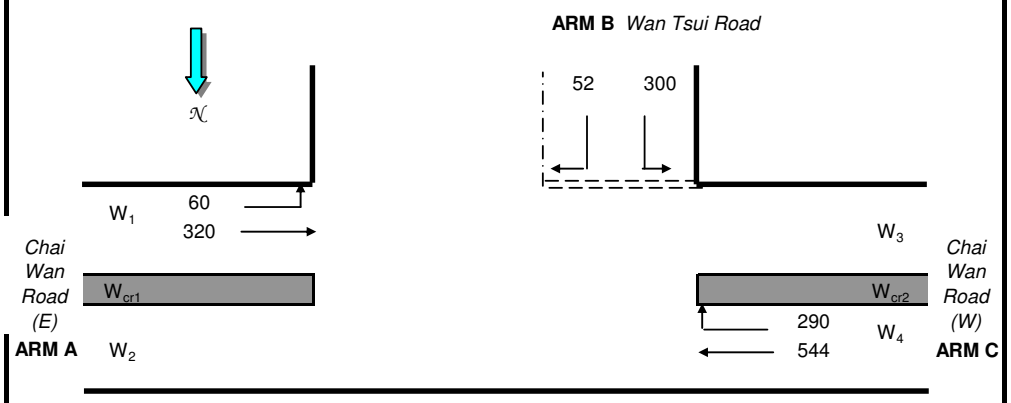
Junction Capacity Analysis

Prepared By:	**GK**
Checked By:	

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road

Design Year - 2016 Weekend -Reference Case

Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	59.9582	(pcu/hr)
q_{a-c}	=	320.203	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	544.292	(pcu/hr)
q_{c-b}	=	290.137	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	51.8369	(pcu/hr)
q_{b-c}	=	300.343	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

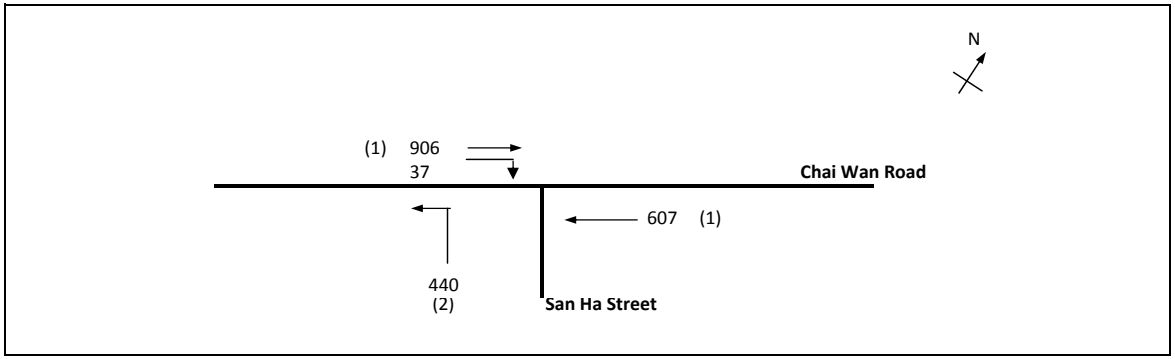
Q_{b-c}	=	782
Q_{c-b}	=	696
Q_{b-a}	=	364

COMPARISION OF DESIGN FLOW TO CAPACITY

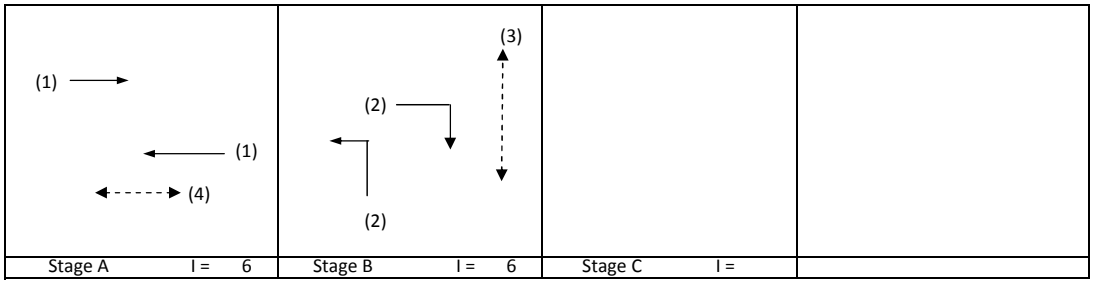
DFC_{b-a}	=	0.142
DFC_{b-c}	=	0.384
DFC_{c-b}	=	0.417

Critical DFC = 0.417

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.487
Loss time		L =	10 sec
Total Flow		=	1990 pcu
Co	= (1.5*L+5)/(1-Y)	=	39.0 sec
Cm	= L/(1-Y)	=	19.5 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	69.4 %
Cp	= 0.9*L/(0.9-Y)	=	21.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	66.3 %

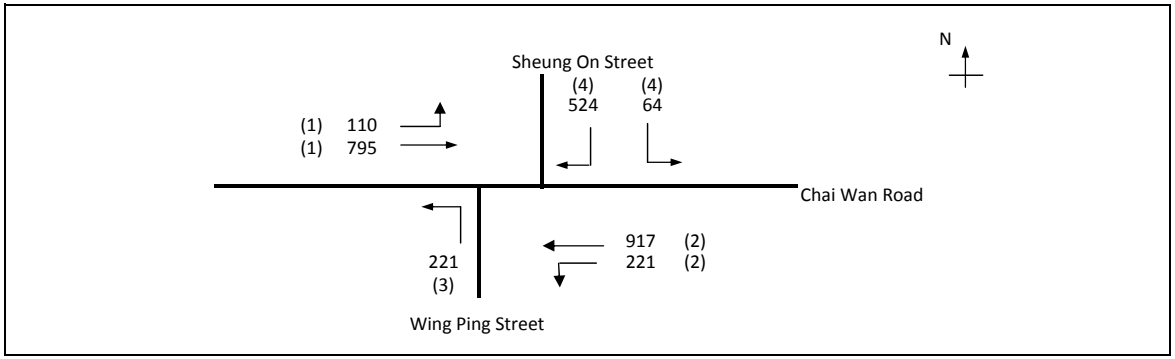


Stage A	I = 6	Stage B	I = 6	Stage C	I =

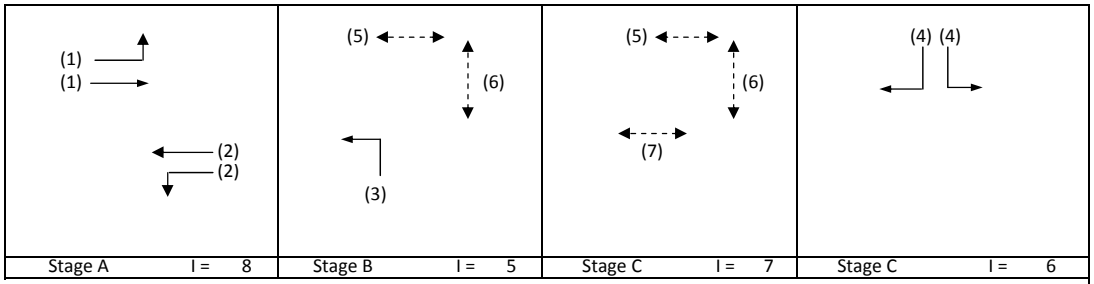
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		906		906	0.00	4070			4070	0.223	0.223		41	47	0.474	39	11
ST	A	3.50	1	2	10		N	4070		607		607	0.00	4070			4070	0.149			28	47	0.318	24	11
LT	B	3.00	2	1	10		N	1915	440			440	1.00	1665			1665	0.264	0.264		49	53	0.499	30	9
RT	B	3.50	2	1	12			2105			37	37	1.00	1871			1871	0.020			4	53	0.037	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.486
Loss time		L =	37 sec
Total Flow		=	2853 pcu
Co	= (1.5*L+5)/(1-Y)	=	117.7 sec
Cm	= L/(1-Y)	=	72.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	28.0 %
Cp	= 0.9*L/(0.9-Y)	=	80.5 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.0 %



Stage A	I = 8	Stage B	I = 5	Stage C	I = 7	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22				
LT/ST	A	3.50	1	3	12		y	6175	110	795		905	0.12	6083			6083	0.149			25		0.000	60	54
LT/ST	A	3.30	2	3	12		Y	6115	221	917		1139	0.19	5970			5970	0.191	0.191		33		0.000	74	54
LT	B	3.50	3	1	9		Y	1965	221			221	1.00	1684			1684	0.131	0.131		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	64		524	587	1.00	3583			3583	0.164	0.164		28		0.000	57	54
Ped	B,C	4.00	5																					
Ped	B,C	5.00	6																					
Ped	C	3.00	7																	15				

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

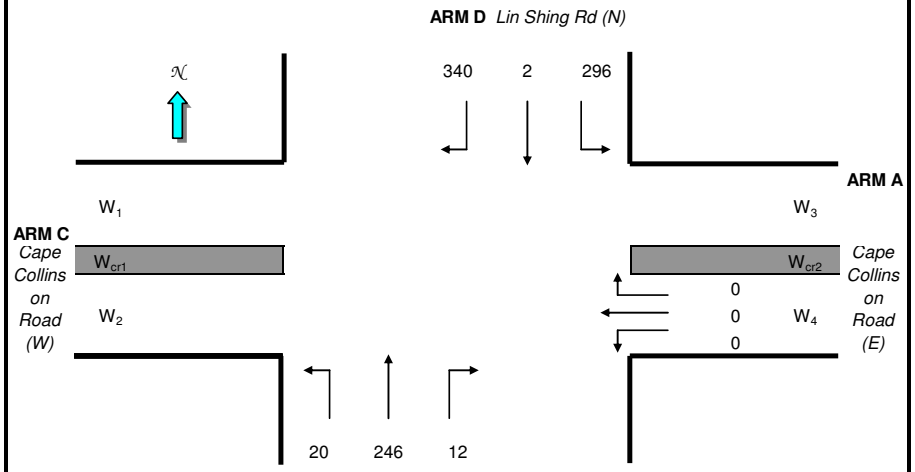
Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

Junction Capacity Analysis

Prepared By:	**GK**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	12.345	(pcu/hr)
q_{b-c}	=	20.316	(pcu/hr)
q_{b-d}	=	246.49	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	296.46	(pcu/hr)
q_{d-b}	=	1.7087	(pcu/hr)
q_{d-c}	=	340.25	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

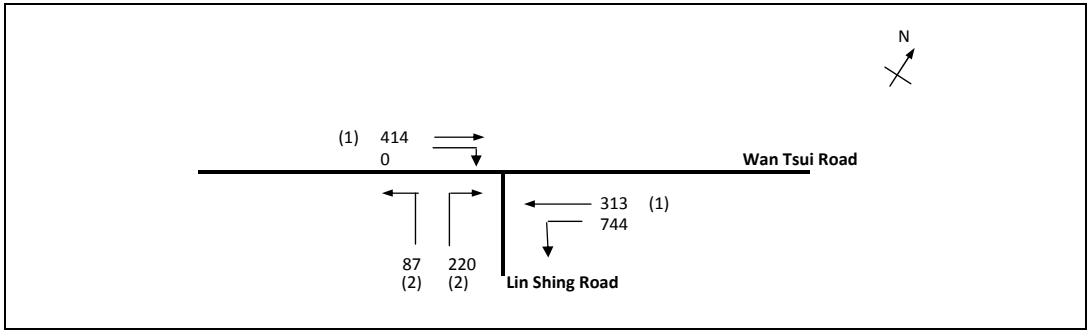
Q_{b-a}	=	511
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	453
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

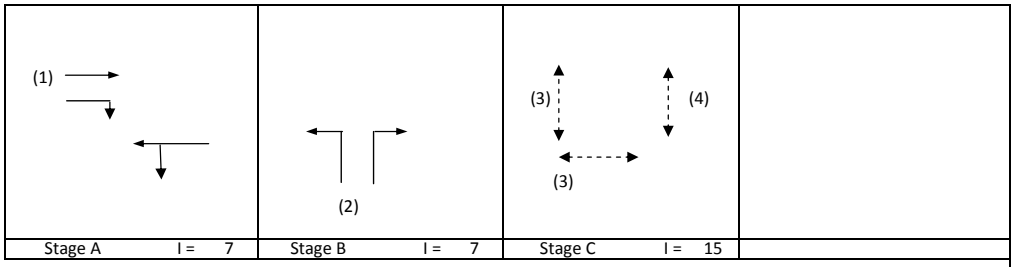
DFC_{b-a}	=	0.024
DFC_{b-c}	=	0.027
DFC_{b-d}	=	0.403
DFC_{d-a}	=	0.440
DFC_{d-b}	=	0.003
DFC_{d-c}	=	0.751
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.751

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME fE_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.753
Loss time	L =	36 sec
Total Flow	=	1777 pcu
Co = (1.5*L+5)/(1-Y)	=	239.2 sec
Cm = L/(1-Y)	=	145.9 sec
Yult	=	0.630
R.C.ult = (Yult-Y)/Y*100%	=	-16.4 %
Cp = 0.9*L/(0.9-Y)	=	220.9 sec
Ymax = 1-L/C	=	0.700
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	-16.4 %

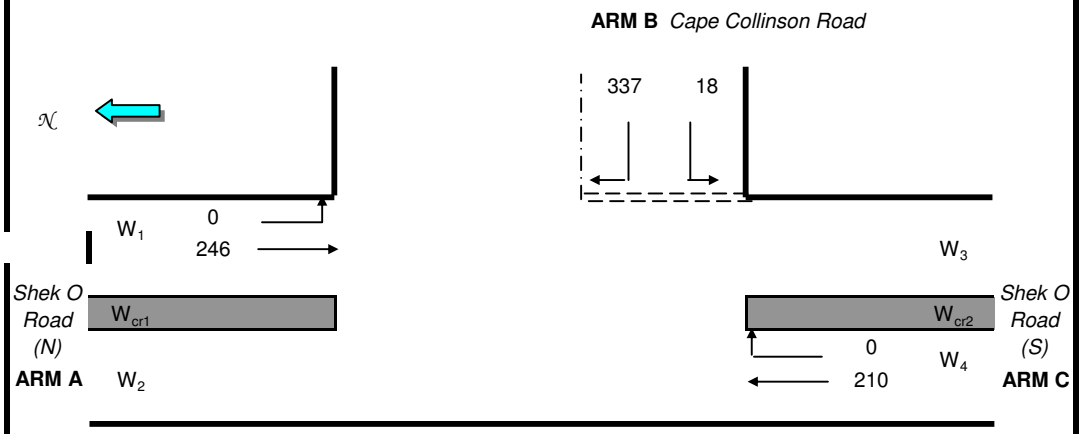


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		414		414	0.00	1915			1915	0.216			24	65	0.401	36	10
ST/LT	A	4.00	1	1	10		y	2015	744	313		1057	0.70	1823			1823	0.580	0.580		65	65	1.076	96	18
LT/RT	B	3.75	2	1	12		y	1990	87		220	307	1.00	1769			1769	0.174	0.174		19	19	1.076	48	46
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	245.899	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	210.106	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	337.142	(pcu/hr)
q_{b-c}	=	18.4935	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	679
Q_{c-b}	=	756
Q_{b-a}	=	332

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.017
DFC_{b-c}	=	0.027
DFC_{c-b}	=	0.000

Critical DFC = 1.017

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 09:28:52 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_WE_S1_J4

DEMAND SET TITLE: 2016_WE_S1_J4

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.015	0.268	0.516	0.202
		13.0	236.0	455.0	178.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.516	0.009	0.324	0.151
		545.0	10.0	342.0	159.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.556	0.381	0.015	0.048
		345.0	236.0	9.0	30.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.351	0.333	0.313	0.003
		459.0	435.0	410.0	4.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 07.45-08.15									I
I ARM A	14.70	24.30	0.605	- -	-	0.0	1.5	44.2	-
	0.103	I							
I ARM B	17.61	23.04	0.764	- -	-	0.0	3.2	89.0	-
	0.177	I							
I ARM C	10.33	19.94	0.518	- -	-	0.0	1.1	31.2	-
	0.103	I							
I ARM D	21.82	36.99	0.590	- -	-	0.0	1.4	42.0	-
	0.066	I							
I									I

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 08.15-08.45									I
I ARM A	14.70	24.26	0.606	- -	-	1.5	1.5	45.8	-
	0.105	I							
I ARM B	17.61	22.99	0.766	- -	-	3.2	3.2	96.0	-
	0.186	I							
I ARM C	10.33	19.89	0.519	- -	-	1.1	1.1	32.2	-
	0.105	I							
I ARM D	21.82	36.90	0.591	- -	-	1.4	1.4	43.2	-
	0.066	I							
I									I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.5	**
08.45	1.5	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.2	***
08.45	3.2	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.4	*
08.45	1.4	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

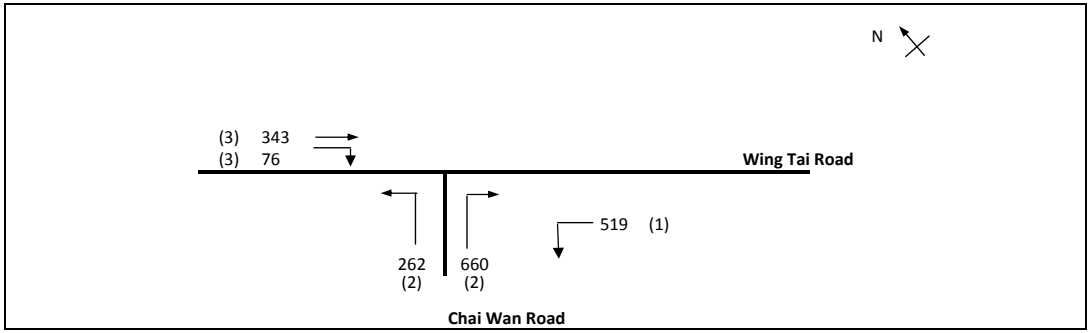
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	882.0	882.0	89.9	0.10	90.0	0.10
B	1056.6	1056.6	185.0	0.18	185.2	0.18
C	619.8	619.8	63.4	0.10	63.4	0.10
D	1309.2	1309.2	85.2	0.07	85.2	0.07
ALL	3867.6	3867.6	423.4	0.11	423.8	0.11

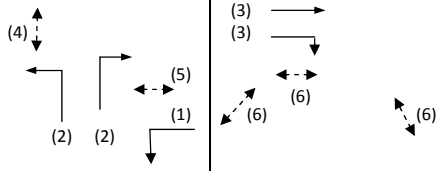
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME fE_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.269	
Loss time	L =	10	sec
Total Flow	=	1859	pcu
Co = (1.5*L+5)/(1-Y)	=	27.3	sec
Cm = L/(1-Y)	=	13.7	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	207.2	%
Cp = 0.9*L/(0.9-Y)	=	14.3	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	201.6	%



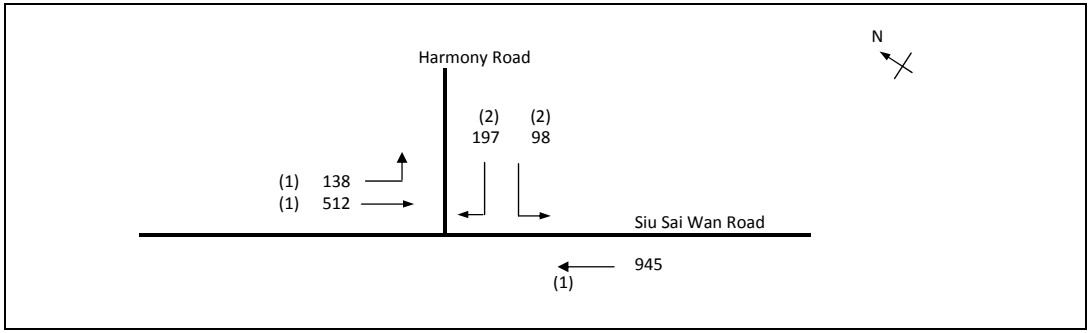
Stage A I = 7

Stage B I = 5

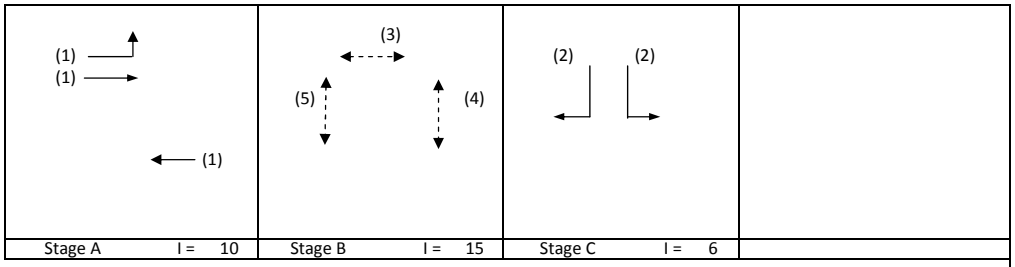
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	519			519	1.00	3857			3857	0.134			45	62	0.218	15	6
LT	A	4.00	2	2	24			4310	262			262	1.00	4056			4056	0.064			22	62	0.104	6	6
RT	A	3.50	2	2	11		y	4070			660	660	1.00	3582			3582	0.184	0.184		62	62	0.298	21	6
ST	B	3.50	3	2			y	4070		343		343	0.00	4070			4070	0.084	0.084		28	28	0.298	18	22
RT	B	4.50	3	2	13		y	4270			76	76	1.00	3828			3828	0.020			7	28	0.070	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME fE_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.342
Loss time		L =	48 sec
Total Flow		=	1891 pcu
Co	= (1.5*L+5)/(1-Y)	=	117.1 sec
Cm	= L/(1-Y)	=	73.0 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	57.7 %
Cp	= 0.9*L/(0.9-Y)	=	77.5 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.7 %

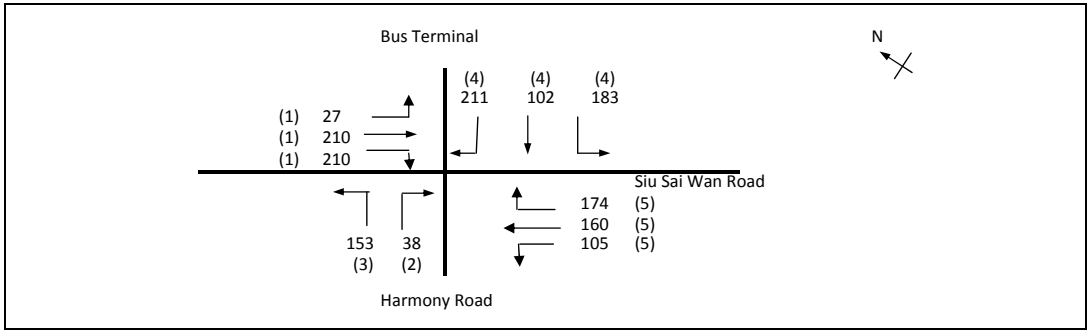


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

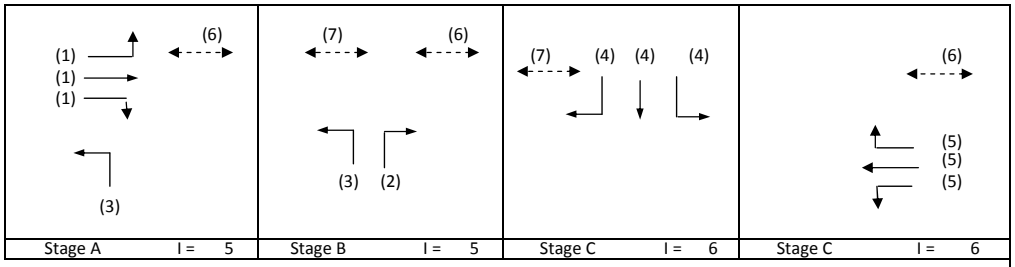
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	138	166		304	0.45	1831			1831	0.166			25	36	0.460	30	17
ST	A	3.20	1	1				2075		346		346	0.00	2075			2075	0.167			25	36	0.461	36	17
ST	A	3.00	1	2			y	3970		945		945	0.00	3970			3970	0.238	0.238		36	36	0.658	48	16
LT	C	3.75	2	1	12		y	1990	98			98	1.00	1769			1769	0.055			8	16	0.349	12	33
RT	C	3.75	2	1	12			2130			197	197	1.00	1893			1893	0.104	0.104		16	16	0.658	24	39
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME fE_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.412
Loss time		L =	18 sec
Total Flow		=	1573 pcu
Co	= (1.5*L+5)/(1-Y)	=	54.4 sec
Cm	= L/(1-Y)	=	30.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	85.6 %
Cp	= 0.9*L/(0.9-Y)	=	33.2 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	80.9 %

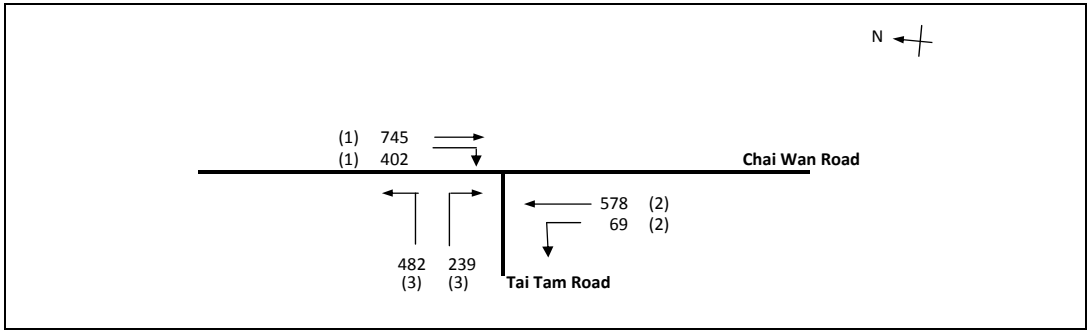


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

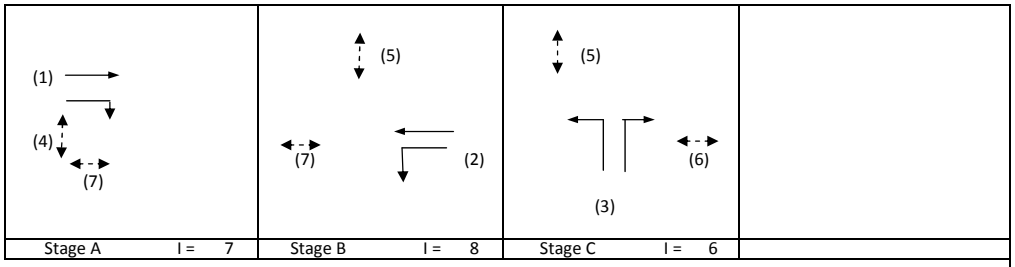
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	27	199		226	0.12	1914			1914	0.118			25	25	0.496	30	28
ST/RT	A	3.30	1	1	12			2085		11	210	221	0.95	1864			1864	0.119	0.119		25	25	0.498	24	28
RT	B	3.50	2	1	12			2105			38	38	1.00	1871			1871	0.020	0.020		4	4	0.498	6	64
LT	A,B	3.75	3	1	13		y	1990	153			153	1.00	1784			1784	0.086			18	34	0.262	18	21
RT	C	3.50	4	1	12			2105			211	211	1.00	1871			1871	0.113			24	33	0.358	24	21
LT/ST	C	3.50	4	1	12		y	1965	183	102		285	0.64	1819			1819	0.157	0.157		33	33	0.498	30	21
ST/RT	D	3.50	5	1	12			2105		50	174	224	0.78	1919			1919	0.117	0.117		25	25	0.498	24	28
LT/ST	D	3.50	5	1	11		y	1965	105	110		215	0.49	1842			1842	0.117			25	25	0.498	24	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME fE_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.540
Loss time		L =	18 sec
Total Flow		=	2516 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.6 sec
Cm	= L/(1-Y)	=	39.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	41.7 %
Cp	= 0.9*L/(0.9-Y)	=	45.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38.1 %

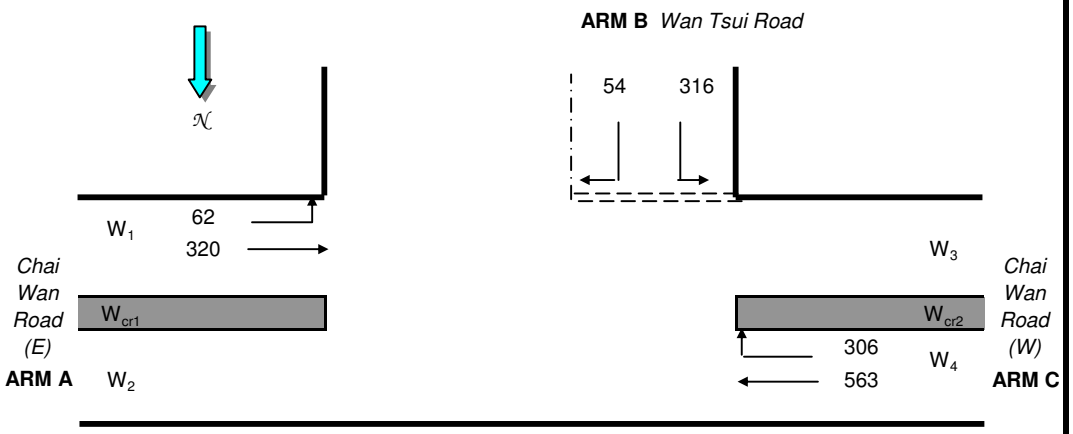


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		745		745	0.00	4070			4070	0.183			30	30	0.652	45	23
RT	A	3.50	1	1	13			2105			402	402	1.00	1887			1887	0.213	0.213		34	30	0.759	48	29
ST	B	3.50	2	2				4210		578		578	0.00	4210			4210	0.137	0.137		22	22	0.652	39	29
LT	B	3.10	2	1	12		y	1925	69			69	1.00	1711			1711	0.041			7	22	0.193	6	29
LT	C	4.00	3	1	15		y	2015	347			347	1.00	1832			1832	0.190	0.190		31	31	0.652	42	25
LT/RT	C	4.00	3	1	15			2155	135		239	374	1.00	1959			1959	0.191			31	31	0.655	42	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	62.2974	(pcu/hr)
q_{a-c}	=	320.203	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	563.113	(pcu/hr)
q_{c-b}	=	306.177	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	53.8016	(pcu/hr)
q_{b-c}	=	316.187	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

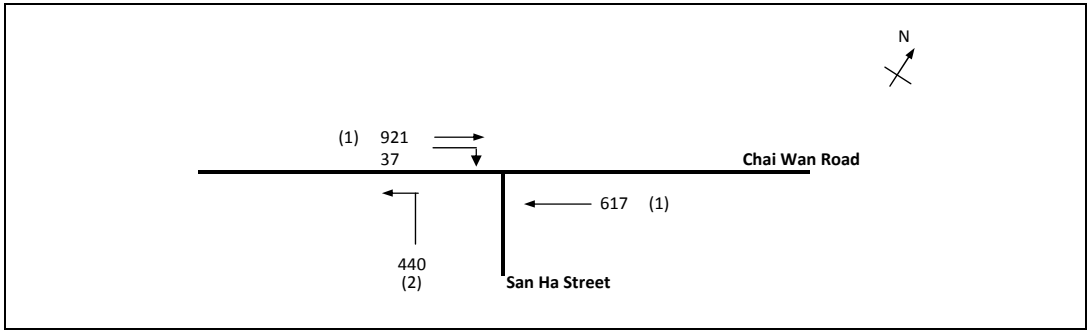
Q_{b-c}	=	782
Q_{c-b}	=	696
Q_{b-a}	=	361

COMPARISION OF DESIGN FLOW TO CAPACITY

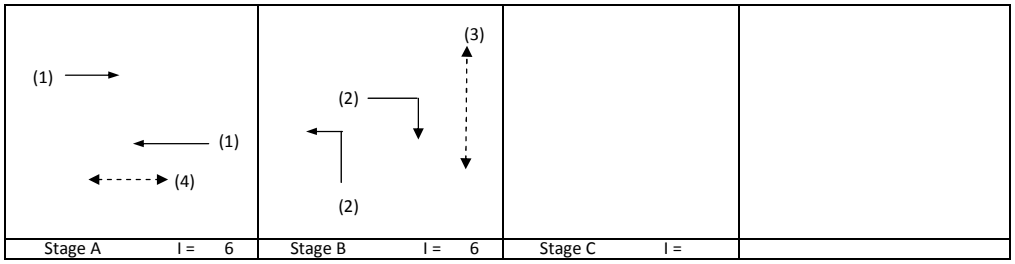
DFC_{b-a}	=	0.149
DFC_{b-c}	=	0.405
DFC_{c-b}	=	0.440

Critical DFC = 0.440

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME fE_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour -Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.491	
Loss time	L =	10	sec
Total Flow	=	2015	pcu
Co = (1.5*L+5)/(1-Y)	=	39.3	sec
Cm = L/(1-Y)	=	19.6	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	68.2	%
Cp = 0.9*L/(0.9-Y)	=	22.0	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	65.1	%

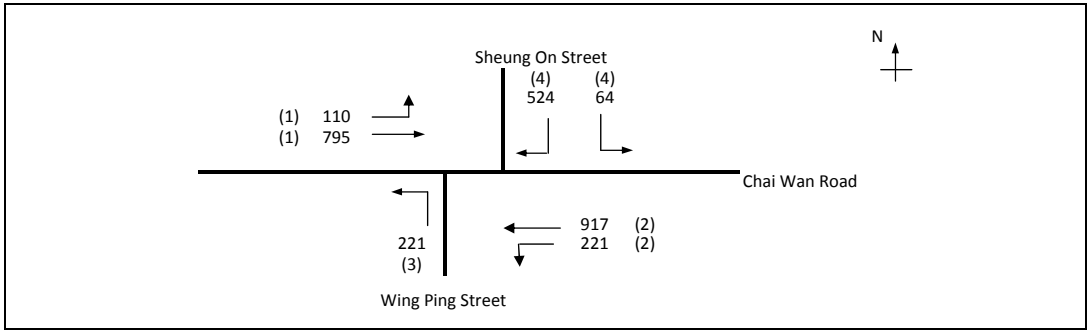


Stage A	I = 6	Stage B	I = 6	Stage C	I =		

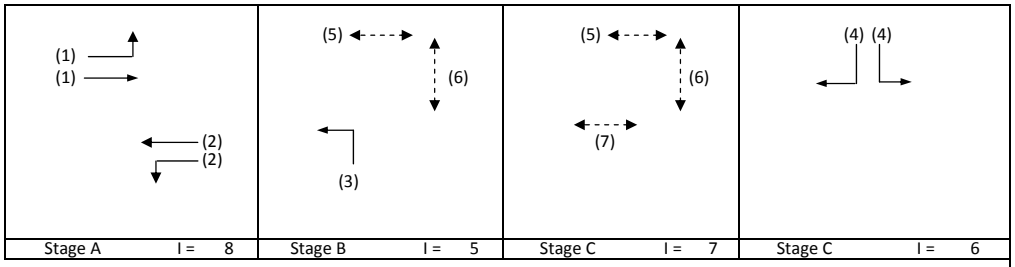
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		921		921	0.00	4070			4070	0.226	0.226		42	47	0.482	39	11
ST	A	3.50	1	2	10		N	4070		617		617	0.00	4070			4070	0.152			28	47	0.322	27	11
LT	B	3.00	2	1	10		N	1915	440			440	1.00	1665			1665	0.264	0.264		48	53	0.499	30	9
RT	B	3.50	2	1	12			2105			37	37	1.00	1871			1871	0.020			4	53	0.037	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME fE_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour -Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.486
Loss time		L =	37 sec
Total Flow		=	2853 pcu
Co	= (1.5*L+5)/(1-Y)	=	117.7 sec
Cm	= L/(1-Y)	=	72.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	28.0 %
Cp	= 0.9*L/(0.9-Y)	=	80.5 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.0 %

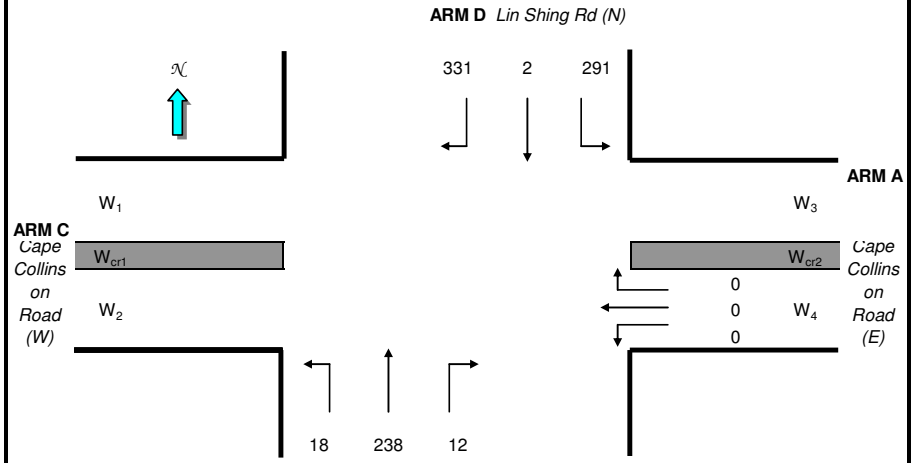


Stage A	I = 8	Stage B	I = 5	Stage C	I = 7	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22				
LT/ST	A	3.50	1	3	12		y	6175	110	795		905	0.12	6083			6083	0.149			25		0.000	60	54
LT/ST	A	3.30	2	3	12		Y	6115	221	917		1139	0.19	5970			5970	0.191	0.191		33		0.000	74	54
LT	B	3.50	3	1	9		Y	1965	221			221	1.00	1684			1684	0.131	0.131		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	64		524	587	1.00	3583			3583	0.164	0.164		28		0.000	57	54
Ped	B,C	4.00	5																					
Ped	B,C	5.00	6																					
Ped	C	3.00	7																	15				

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	12.345	(pcu/hr)
q_{b-c}	=	18.445	(pcu/hr)
q_{b-d}	=	238.22	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	291.44	(pcu/hr)
q_{d-b}	=	2.2418	(pcu/hr)
q_{d-c}	=	331.14	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

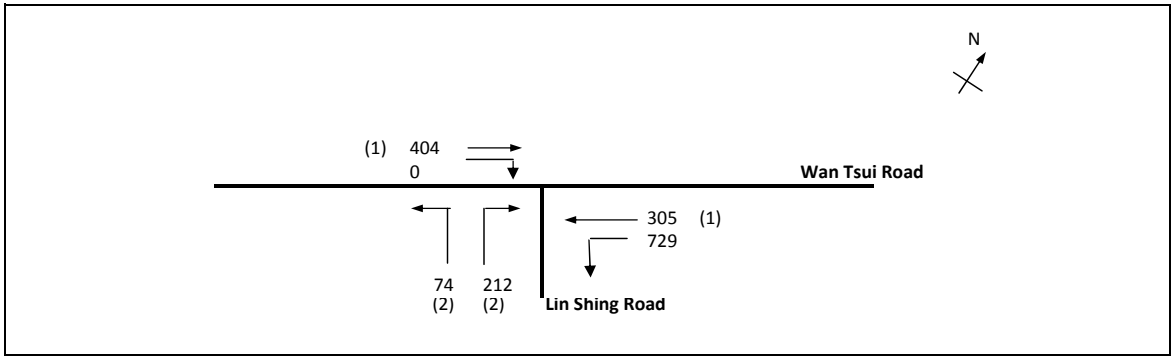
Q_{b-a}	=	514
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	456
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

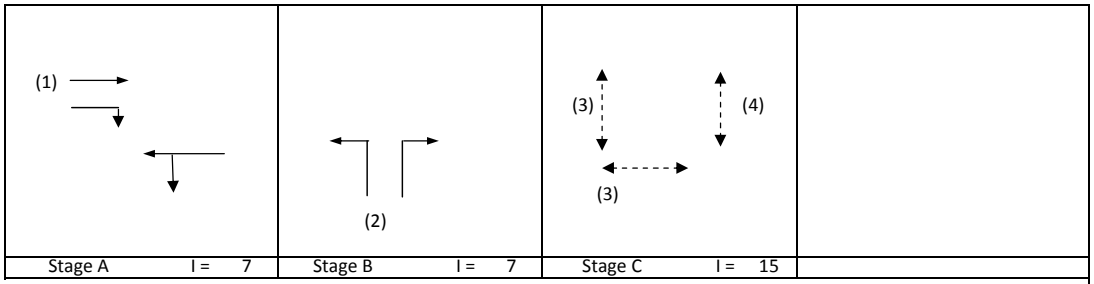
DFC_{b-a}	=	0.024
DFC_{b-c}	=	0.025
DFC_{b-d}	=	0.390
DFC_{d-a}	=	0.432
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.727
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.727

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.730
Loss time		L =	36 sec
Total Flow		=	1725 pcu
Co	= (1.5*L+5)/(1-Y)	=	218.3 sec
Cm	= L/(1-Y)	=	133.2 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-13.7 %
Cp	= 0.9*L/(0.9-Y)	=	190.2 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-13.7 %

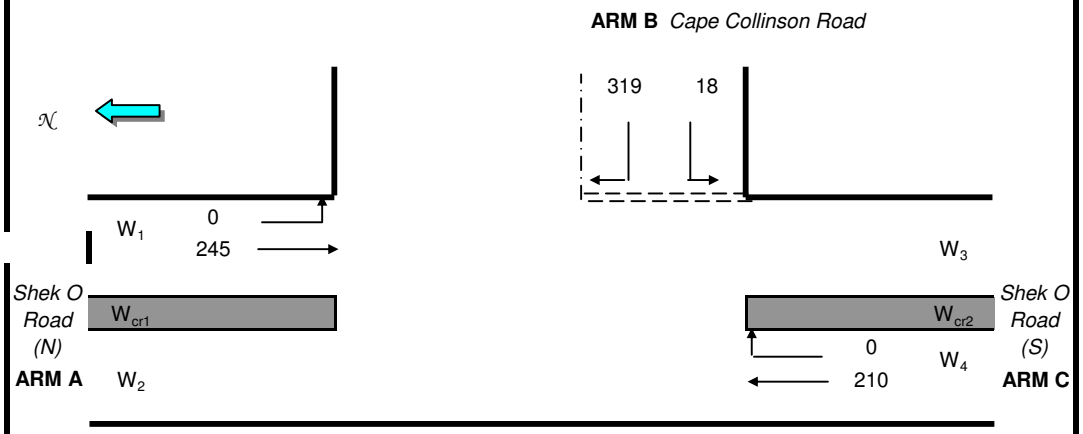


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		404		404	0.00	1915			1915	0.211			24	65	0.387	36	10
ST/LT	A	4.00	1	1	10		y	2015	729	305		1034	0.70	1822			1822	0.568	0.568		65	65	1.042	90	17
LT/RT	B	3.75	2	1	12		y	1990	74		212	287	1.00	1769			1769	0.162	0.162		19	19	1.042	48	46
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	245.092	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	210.393	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	318.697	(pcu/hr)
q_{b-c}	=	18.1086	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	679
Q_{c-b}	=	756
Q_{b-a}	=	332

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.961
DFC_{b-c}	=	0.027
DFC_{c-b}	=	0.000

Critical DFC = 0.961

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 09:36:30 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	I V (M)	I E (M)	I L (M)	I R (M)	I D (M)	I PHI (DEG)	I SLOPE	I INTERCEPT (PCU/MIN)	I T5
I ARM A	I 7.11	I 8.45	I 57.00	I 45.00	I 39.50	I 28.0	I 0.837	I 43.638	I

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
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 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_WE_S2_J4


 DEMAND SET TITLE:  2016_WE_S2_J4
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.015 I  0.271 I  0.511 I  0.203 I
 I                    I         I   13.0 I  236.0 I  445.0 I  177.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.518 I  0.010 I  0.321 I  0.151 I
 I                    I         I  545.0 I   10.0 I  338.0 I  159.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.552 I  0.385 I  0.015 I  0.048 I
 I                    I         I  333.0 I  232.0 I    9.0 I   29.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.352 I  0.335 I  0.310 I  0.003 I
 I                    I         I  455.0 I  433.0 I  400.0 I    4.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	14.53	24.53	0.592	- -	-	0.0	1.4	42.0	
-	0.099	I							
I ARM B	17.54	23.31	0.753	- -	-	0.0	3.0	84.0	
-	0.168	I							
I ARM C	10.06	19.95	0.504	- -	-	0.0	1.0	29.5	
-	0.100	I							
I ARM D	21.53	37.25	0.578	- -	-	0.0	1.4	40.1	
-	0.063	I							

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	14.53	24.49	0.593	- -	-	1.4	1.5	43.4	
-	0.100	I							
I ARM B	17.54	23.27	0.754	- -	-	3.0	3.0	90.1	
-	0.175	I							
I ARM C	10.06	19.90	0.506	- -	-	1.0	1.0	30.5	
-	0.102	I							
I ARM D	21.53	37.16	0.579	- -	-	1.4	1.4	41.1	
-	0.064	I							

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.4	*
08.45	1.5	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.0	***
08.45	3.0	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.4	*
08.45	1.4	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

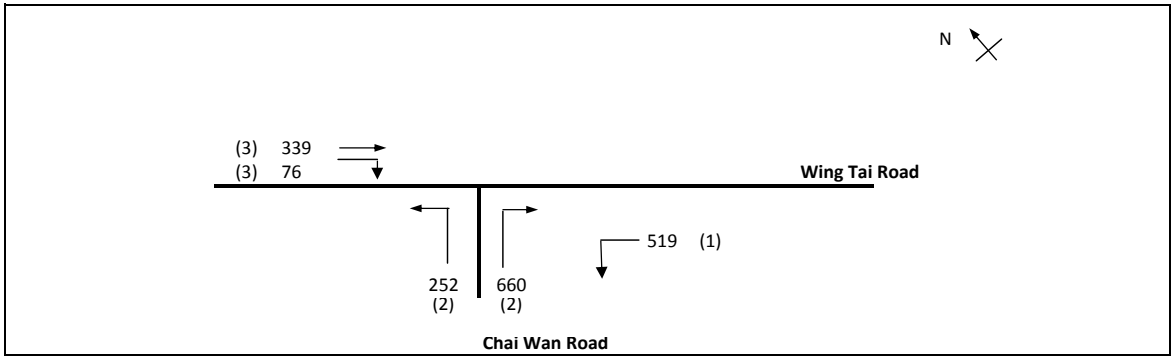
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	871.8	871.8	85.4	0.10	85.5	0.10
B	1052.4	1052.4	174.1	0.17	174.3	0.17
C	603.6	603.6	60.0	0.10	60.0	0.10
D	1291.8	1291.8	81.1	0.06	81.2	0.06
ALL	3819.6	3819.6	400.7	0.10	401.0	0.10

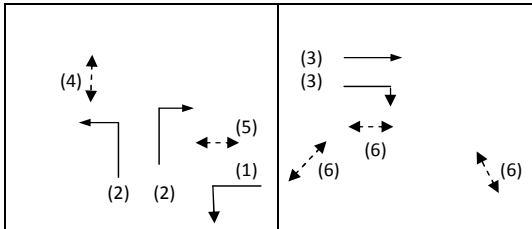
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME : E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.267	
Loss time		L =	10	sec
Total Flow		=	1845	pcu
Co	= (1.5*L+5)/(1-Y)	=	27.3	sec
Cm	= L/(1-Y)	=	13.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	208.5	%
Cp	= 0.9*L/(0.9-Y)	=	14.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	202.9	%



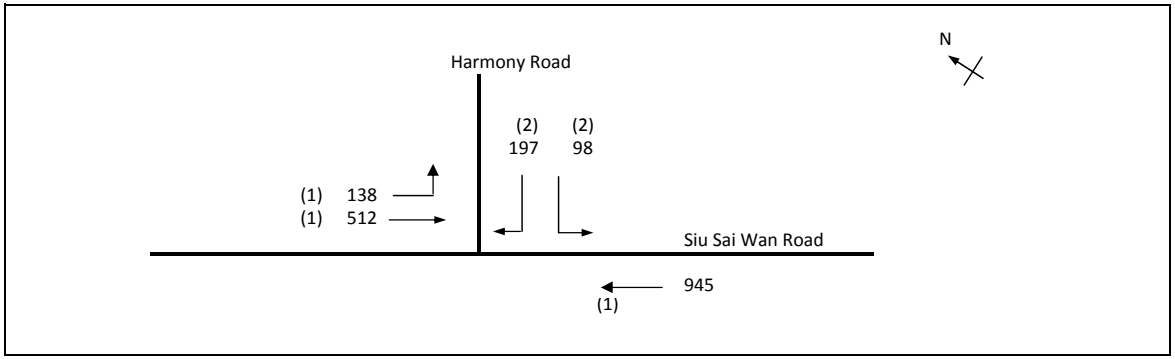
Stage A I = 7

Stage B I = 5

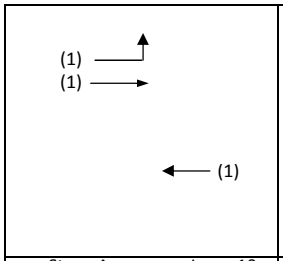
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	519			519	1.00	3857			3857	0.134			45	62	0.217	15	6
LT	A	4.00	2	2	24			4310	252			252	1.00	4056			4056	0.062			21	62	0.100	6	6
RT	A	3.50	2	2	11		y	4070			660	660	1.00	3582			3582	0.184	0.184		62	62	0.297	18	6
ST	B	3.50	3	2			y	4070		339		339	0.00	4070			4070	0.083	0.083		28	28	0.297	18	22
RT	B	4.50	3	2	13		y	4270			76	76	1.00	3828			3828	0.020			7	28	0.071	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

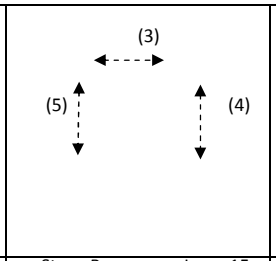
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME :	E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 2		REFERENCE NO.:		Reviewed By:	OC	3-5-2011



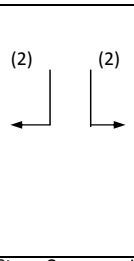
No. of stages per cycle		N =	3	
Cycle time		C =	100	sec
Sum(y)		Y =	0.342	
Loss time		L =	48	sec
Total Flow		=	1891	pcu
Co	= (1.5*L+5)/(1-Y)	=	117.1	sec
Cm	= L/(1-Y)	=	73.0	sec
Yult		=	0.540	
R.C.ult	= (Yult-Y)/Y*100%	=	57.7	%
Cp	= 0.9*L/(0.9-Y)	=	77.5	sec
Ymax	= 1-L/C	=	0.520	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.7	%



Stage A I = 10



Stage B I = 15

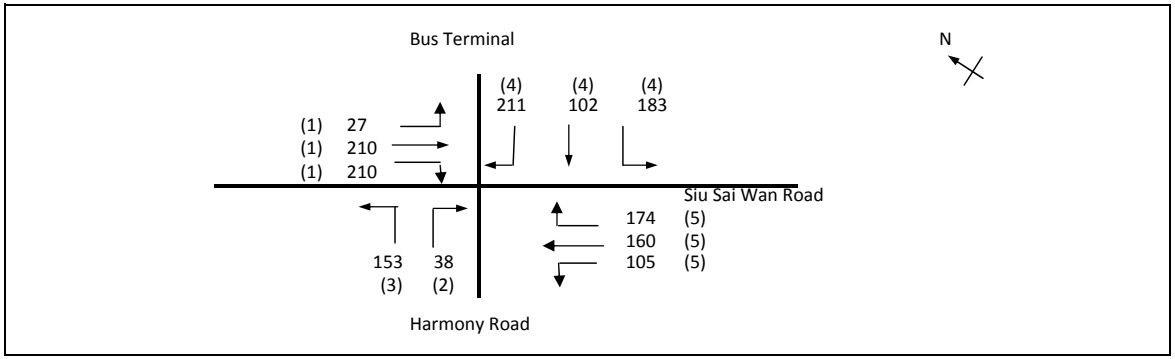


Stage C I = 6

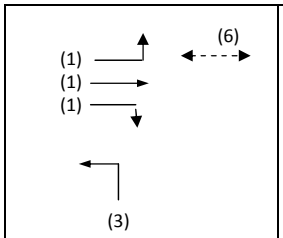
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	138	166		304	0.45	1831			1831	0.166			25	36	0.460	30	17
ST	A	3.20	1	1				2075		346		346	0.00	2075			2075	0.167			25	36	0.461	36	17
ST	A	3.00	1	2			y	3970		945		945	0.00	3970			3970	0.238	0.238		36	36	0.658	48	16
LT	C	3.75	2	1	12		y	1990	98			98	1.00	1769			1769	0.055			8	16	0.349	12	33
RT	C	3.75	2	1	12			2130			197	197	1.00	1893			1893	0.104	0.104		16	16	0.658	24	39
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

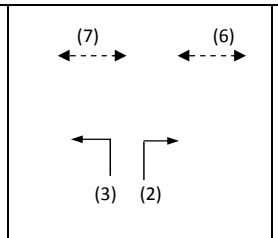
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



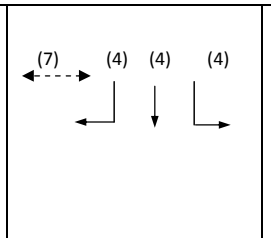
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.412	
Loss time	L =	18	sec
Total Flow	=	1573	pcu
Co = (1.5*L+5)/(1-Y)	=	54.4	sec
Cm = L/(1-Y)	=	30.6	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	85.6	%
Cp = 0.9*L/(0.9-Y)	=	33.2	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	80.9	%



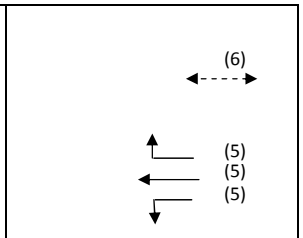
Stage A I = 5



Stage B I = 5



Stage C I = 6

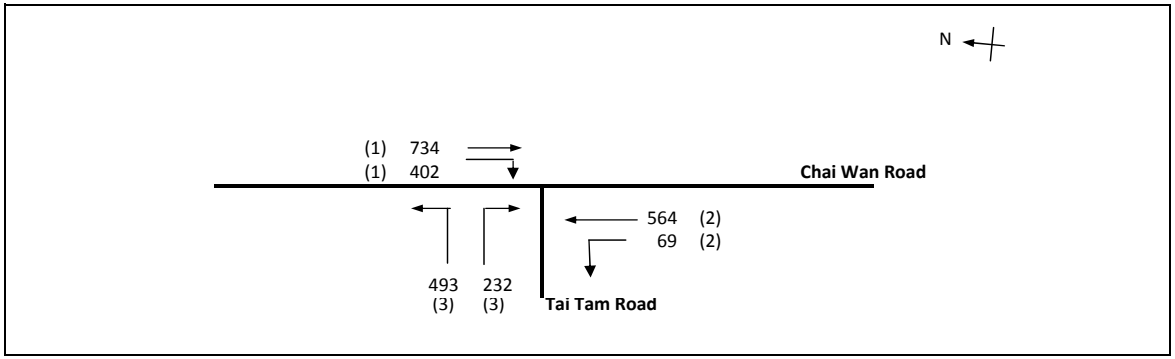


Stage C I = 6

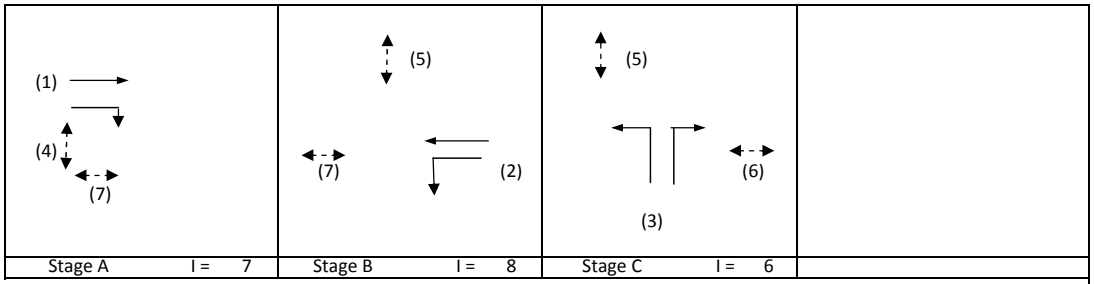
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	27	199		226	0.12	1914			1914	0.118			25	25	0.496	30	28
ST/RT	A	3.30	1	1	12			2085		11	210	221	0.95	1864			1864	0.119	0.119		25	25	0.498	24	28
RT	B	3.50	2	1	12			2105			38	38	1.00	1871			1871	0.020	0.020		4	4	0.498	6	64
LT	A,B	3.75	3	1	13		y	1990	153			153	1.00	1784			1784	0.086			18	34	0.262	18	21
RT	C	3.50	4	1	12			2105			211	211	1.00	1871			1871	0.113			24	33	0.358	24	21
LT/ST	C	3.50	4	1	12		y	1965	183	102		285	0.64	1819			1819	0.157	0.157		33	33	0.498	30	21
ST/RT	D	3.50	5	1	12			2105		50	174	224	0.78	1919			1919	0.117	0.117		25	25	0.498	24	28
LT/ST	D	3.50	5	1	11		y	1965	105	110		215	0.49	1842			1842	0.117			25	25	0.498	24	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.538
Loss time		L =	18 sec
Total Flow		=	2493 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.2 sec
Cm	= L/(1-Y)	=	38.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	42.3 %
Cp	= 0.9*L/(0.9-Y)	=	44.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38.7 %

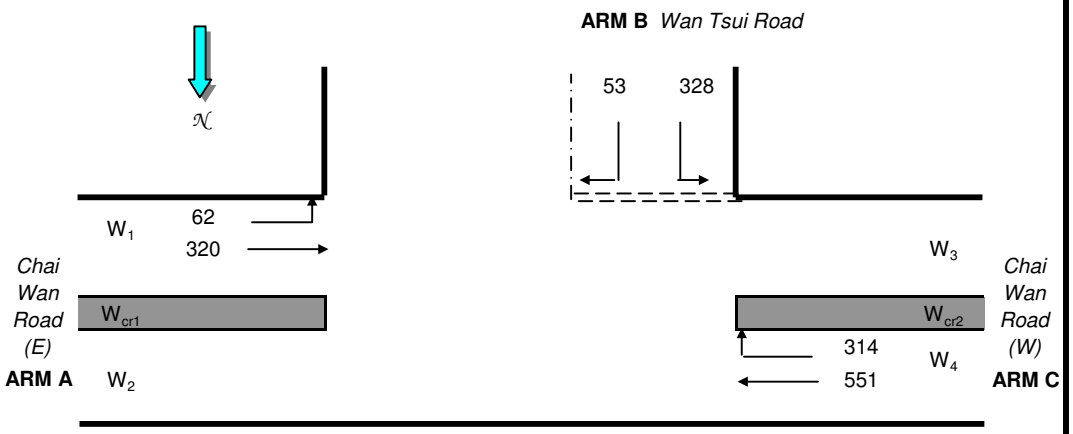


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		734		734	0.00	4070			4070	0.180			29	29	0.649	45	23
RT	A	3.50	1	1	13			2105			402	402	1.00	1887			1887	0.213	0.213		34	29	0.766	48	29
ST	B	3.50	2	2				4210		564		564	0.00	4210			4210	0.134	0.134		22	22	0.649	39	29
LT	B	3.10	2	1	12		y	1925	69			69	1.00	1711			1711	0.041			7	22	0.197	6	30
LT	C	4.00	3	1	15		y	2015	350			350	1.00	1832			1832	0.191	0.191		31	31	0.649	42	25
LT/RT	C	4.00	3	1	15			2155	143		232	375	1.00	1959			1959	0.191			31	31	0.651	42	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	61.6489	(pcu/hr)
q_{a-c}	=	319.946	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	551.108	(pcu/hr)
q_{c-b}	=	313.621	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	52.7677	(pcu/hr)
q_{b-c}	=	327.939	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

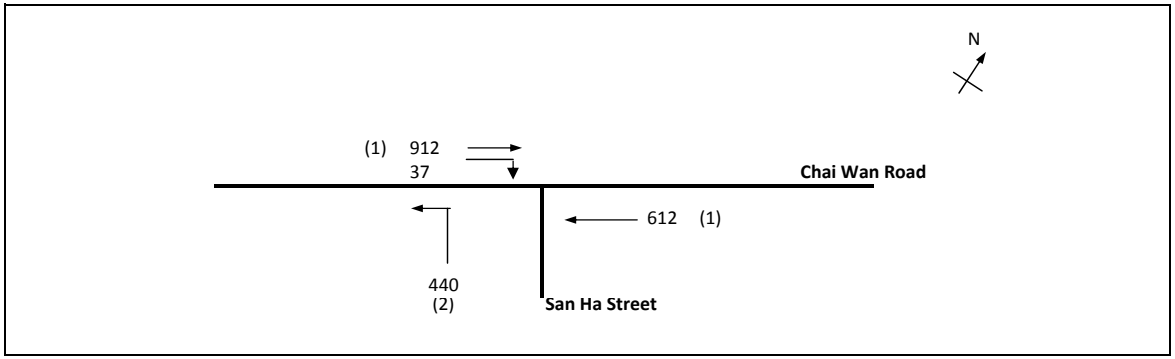
Q_{b-c}	=	782
Q_{c-b}	=	696
Q_{b-a}	=	361

COMPARISION OF DESIGN FLOW TO CAPACITY

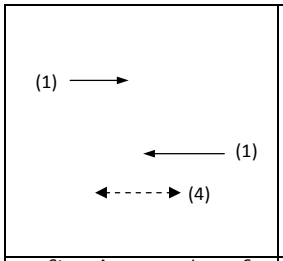
DFC_{b-a}	=	0.146
DFC_{b-c}	=	0.420
DFC_{c-b}	=	0.451

Critical DFC = 0.451

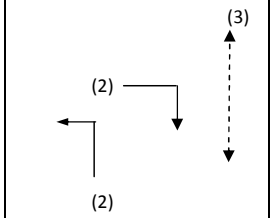
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour -Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.488
Loss time		L =	10 sec
Total Flow		=	2001 pcu
Co	= (1.5*L+5)/(1-Y)	=	39.1 sec
Cm	= L/(1-Y)	=	19.5 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	68.9 %
Cp	= 0.9*L/(0.9-Y)	=	21.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	65.9 %



Stage A I = 6



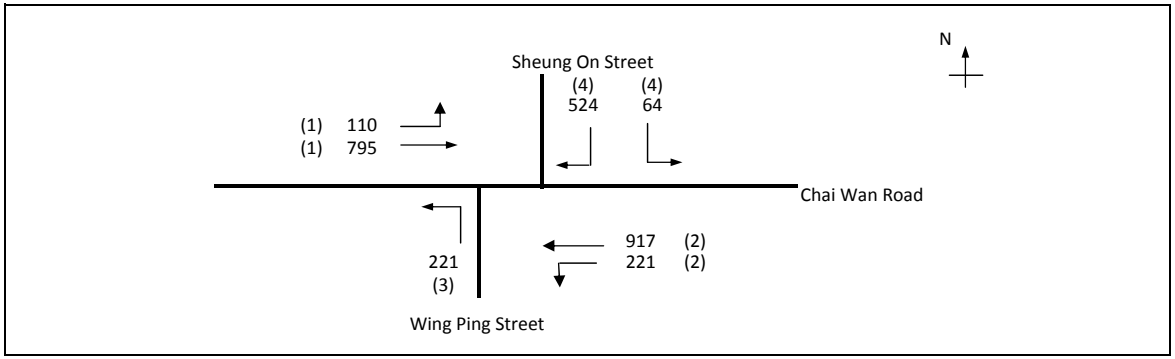
Stage B I = 6

Stage C I =

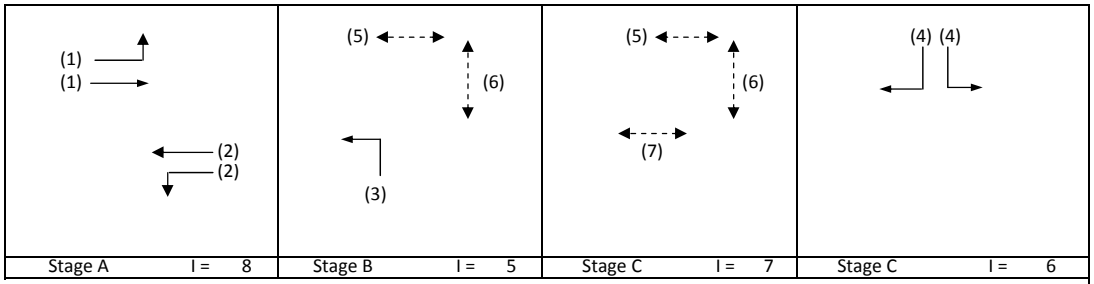
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		912		912	0.00	4070			4070	0.224	0.224		41	47	0.477	39	11
ST	A	3.50	1	2	10		N	4070		612		612	0.00	4070			4070	0.150			28	47	0.320	27	11
LT	B	3.00	2	1	10		N	1915	440			440	1.00	1665			1665	0.264	0.264		49	53	0.499	30	9
RT	B	3.50	2	1	12			2105			37	37	1.00	1871			1871	0.020			4	53	0.037	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Weekend Peak Hour -Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.486
Loss time		L =	37 sec
Total Flow		=	2853 pcu
Co	= (1.5*L+5)/(1-Y)	=	117.7 sec
Cm	= L/(1-Y)	=	72.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	28.0 %
Cp	= 0.9*L/(0.9-Y)	=	80.5 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.0 %



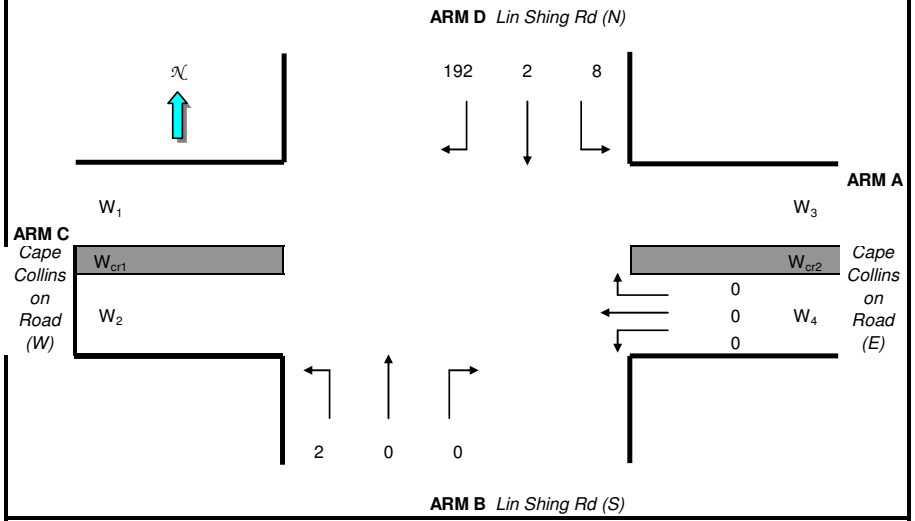
Stage A	I = 8	Stage B	I = 5	Stage C	I = 7	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22				
LT/ST	A	3.50	1	3	12		y	6175	110	795		905	0.12	6083			6083	0.149			25		0.000	60	54
LT/ST	A	3.30	2	3	12		Y	6115	221	917		1139	0.19	5970			5970	0.191	0.191		33		0.000	74	54
LT	B	3.50	3	1	9		Y	1965	221			221	1.00	1684			1684	0.131	0.131		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	64		524	587	1.00	3583			3583	0.164	0.164		28		0.000	57	54
Ped	B,C	4.00	5																					
Ped	B,C	5.00	6																					
Ped	C	3.00	7																	15				

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

2016 Ching Ming
Reference / Site I / Site II
Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.0575	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.2301	(pcu/hr)
q_{d-b}	=	2.0575	(pcu/hr)
q_{d-c}	=	192.44	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

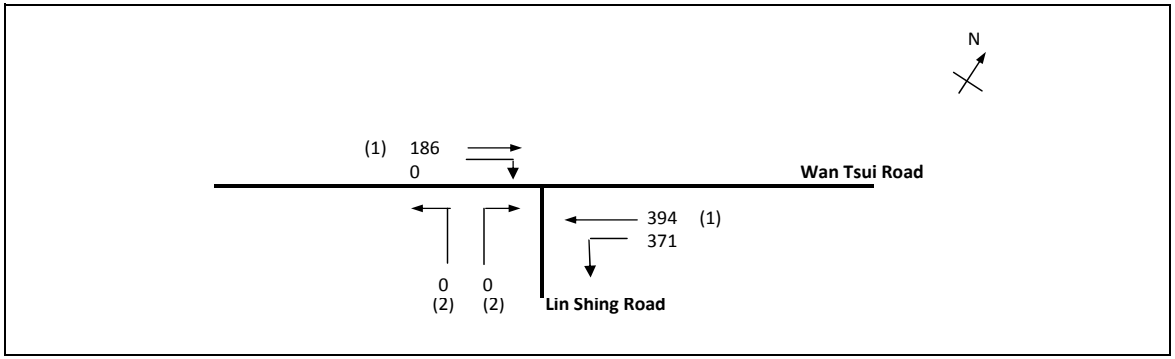
Q_{b-a}	=	620
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

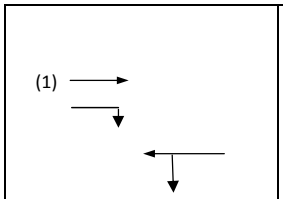
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.372
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.372

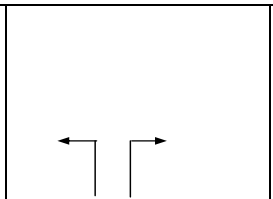
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



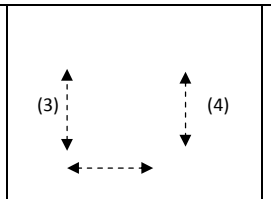
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.407
Loss time		L =	55 sec
Total Flow		=	951 pcu
Co	= (1.5*L+5)/(1-Y)	=	147.6 sec
Cm	= L/(1-Y)	=	92.8 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	19.7 %
Cp	= 0.9*L/(0.9-Y)	=	100.5 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	19.7 %



Stage A I = 7



Stage B I =

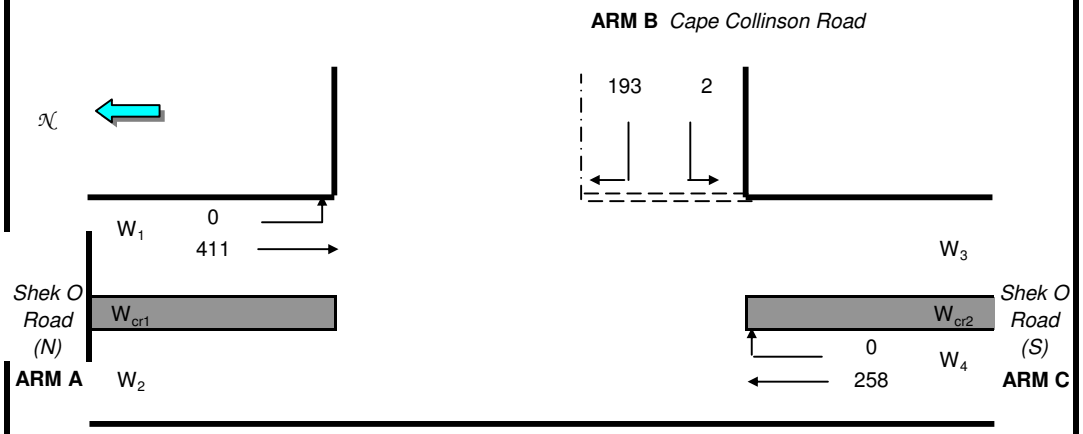


Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		186		186	0.00	1915			1915	0.097			15	65	0.179	12	11
ST/LT	A	4.00	1	1	10		N	2015	371	394		765	0.48	1878			1878	0.407	0.407		65	65	0.752	66	12
Ped	B	6.0	3									5709		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	411	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	258	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	193	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	637
Q_{c-b}	=	709
Q_{b-a}	=	300

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.644
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.644

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 03:44:02 on Wednesday, 7 December 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_CM_Ref_J4

DEMAND SET TITLE: 2016_CM_Ref_J4

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.011	0.263	0.428	0.298
		10.0	240.0	390.0	272.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.617	0.011	0.060	0.313
		523.0	9.0	51.0	265.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.390	0.359	0.036	0.215
		87.0	80.0	8.0	48.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.311	0.378	0.307	0.004
		401.0	487.0	395.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 07.45-08.15									I
I ARM A	15.20	25.96	0.585	- -	-	0.0	1.4	40.9	-
	0.092	I							
I ARM B	14.14	22.89	0.618	- -	-	0.0	1.6	46.4	-
	0.113	I							
I ARM C	3.71	18.05	0.206	- -	-	0.0	0.3	7.6	-
	0.070	I							
I ARM D	21.47	44.55	0.482	- -	-	0.0	0.9	27.5	-
	0.043	I							
I									I

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 08.15-08.45									I
I ARM A	15.20	25.94	0.586	- -	-	1.4	1.4	42.2	-
	0.093	I							
I ARM B	14.14	22.86	0.619	- -	-	1.6	1.6	48.3	-
	0.115	I							
I ARM C	3.71	18.01	0.206	- -	-	0.3	0.3	7.8	-
	0.070	I							
I ARM D	21.47	44.51	0.482	- -	-	0.9	0.9	27.9	-
	0.043	I							
I									I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.4	*
08.45	1.4	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.3	
08.45	0.3	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.9	*
08.45	0.9	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

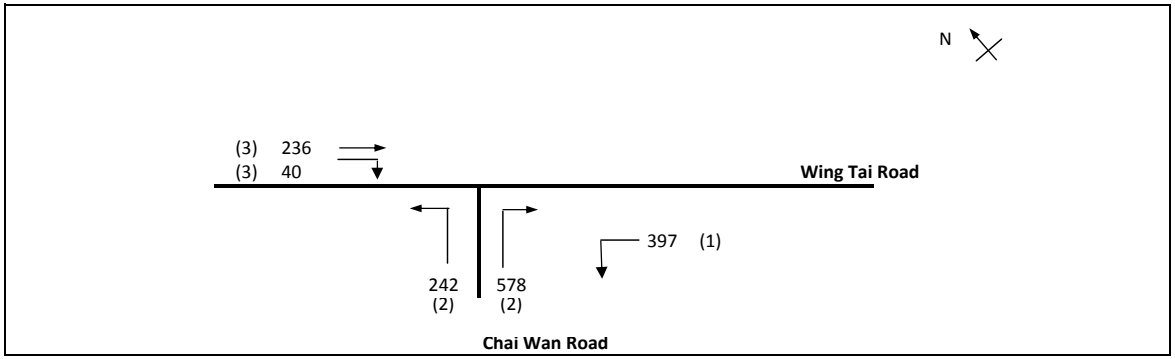
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	912.0	912.0	83.1	0.09	83.1	0.09
B	848.4	848.4	94.6	0.11	94.7	0.11
C	222.6	222.6	15.4	0.07	15.4	0.07
D	1288.2	1288.2	55.3	0.04	55.4	0.04
ALL	3271.2	3271.2	248.5	0.08	248.6	0.08

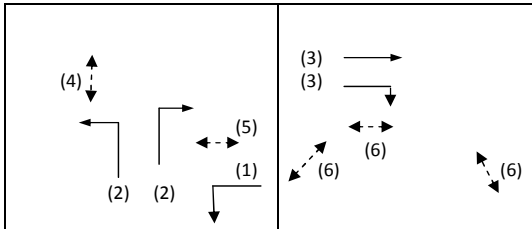
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.219	
Loss time		L =	10	sec
Total Flow		=	1493	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.6	sec
Cm	= L/(1-Y)	=	12.8	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	276.0	%
Cp	= 0.9*L/(0.9-Y)	=	13.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	269.2	%



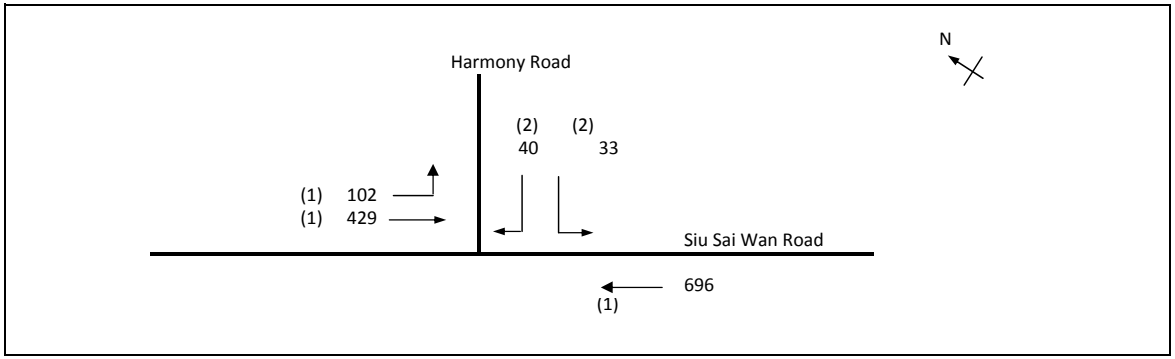
Stage A I = 7

Stage B I = 5

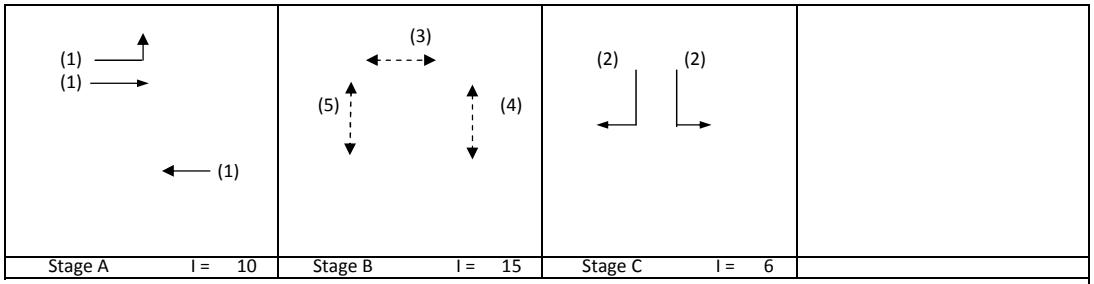
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	397			397	1.00	3857			3857	0.103			42	66	0.155	9	5
LT	A	4.00	2	2	24			4310	242			242	1.00	4056			4056	0.060			24	66	0.090	6	5
RT	A	3.50	2	2	11		y	4070			578	578	1.00	3582			3582	0.161	0.161		66	66	0.244	15	5
ST	B	3.50	3	2			y	4070		236		236	0.00	4070			4070	0.058	0.058		24	24	0.244	12	25
RT	B	4.50	3	2	13		y	4270			40	40	1.00	3828			3828	0.010			4	24	0.044	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.197	
Loss time	L =	48	sec
Total Flow	=	1300	pcu
Co = (1.5*L+5)/(1-Y)	=	95.8	sec
Cm = L/(1-Y)	=	59.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	174.6	%
Cp = 0.9*L/(0.9-Y)	=	61.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	138.0	%

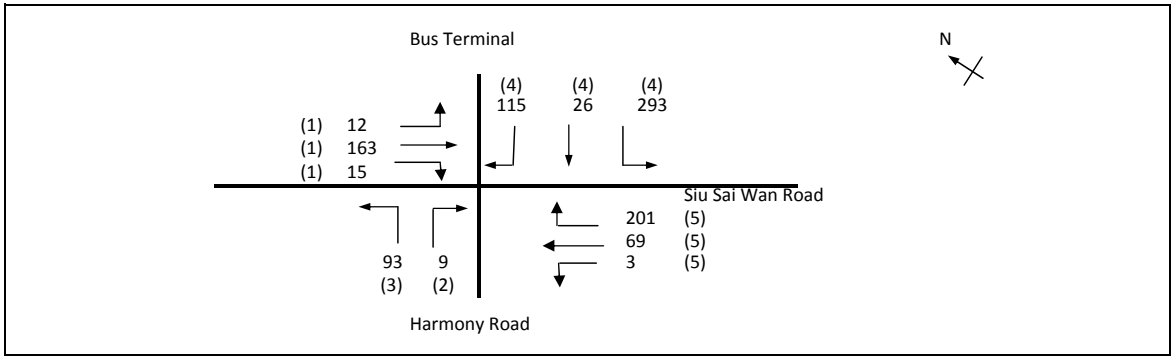


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

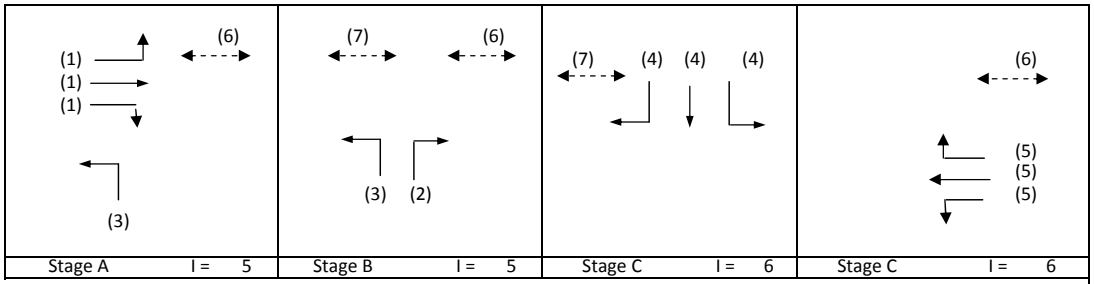
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	148		250	0.41	1843			1843	0.136			36	46	0.292	18	12
ST	A	3.20	1	1				2075		281		281	0.00	2075			2075	0.135			36	46	0.292	24	12
ST	A	3.00	1	2			y	3970		696		696	0.00	3970			3970	0.175	0.175		46	46	0.378	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.332	0	47
RT	C	3.75	2	1	12			2130			40	40	1.00	1893			1893	0.021	0.021		6	6	0.378	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.342	
Loss time	L =	18	sec
Total Flow	=	999	pcu
Co = (1.5*L+5)/(1-Y)	=	48.6	sec
Cm = L/(1-Y)	=	27.3	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	124.0	%
Cp = 0.9*L/(0.9-Y)	=	29.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	118.4	%

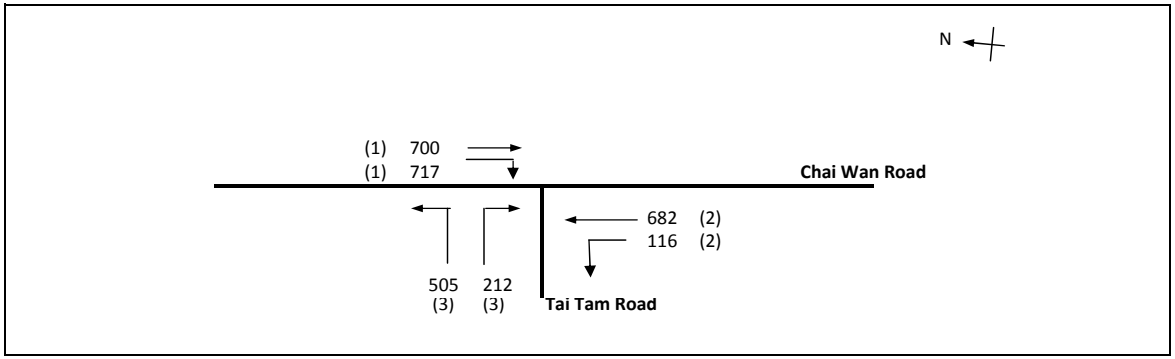


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

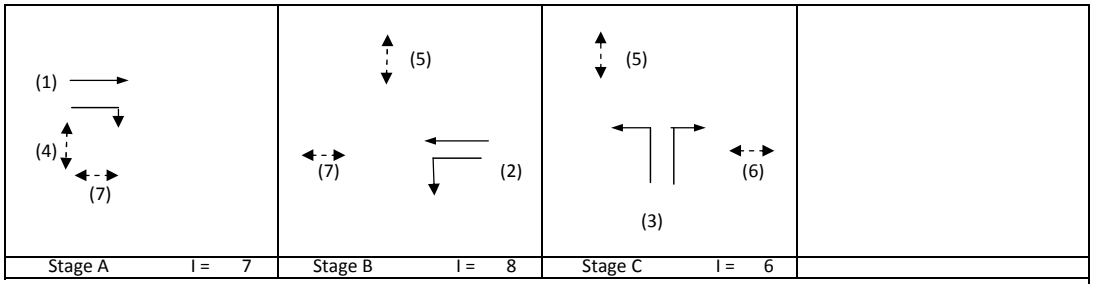
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.14	1910			1910	0.048			12	12	0.407	12	40
ST/RT	A	3.30	1	1	12			2085		84	15	99	0.16	2045			2045	0.048	0.048		12	12	0.412	12	40
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
LT	A,B	3.75	3	1	13		y	1990	93			93	1.00	1784			1784	0.052			13	19	0.293	12	32
RT	C	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.062			16	46	0.140	6	14
LT/ST	C	3.50	4	1	12		y	1965	293	26		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
ST/RT	D	3.50	5	1	12			2105		0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	69		72	0.04	1954			1954	0.037			9	9	0.412	6	44
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :\1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.731
Loss time		L =	18 sec
Total Flow		=	2931 pcu
Co	= (1.5*L+5)/(1-Y)	=	118.9 sec
Cm	= L/(1-Y)	=	66.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	4.7 %
Cp	= 0.9*L/(0.9-Y)	=	95.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	2.0 %

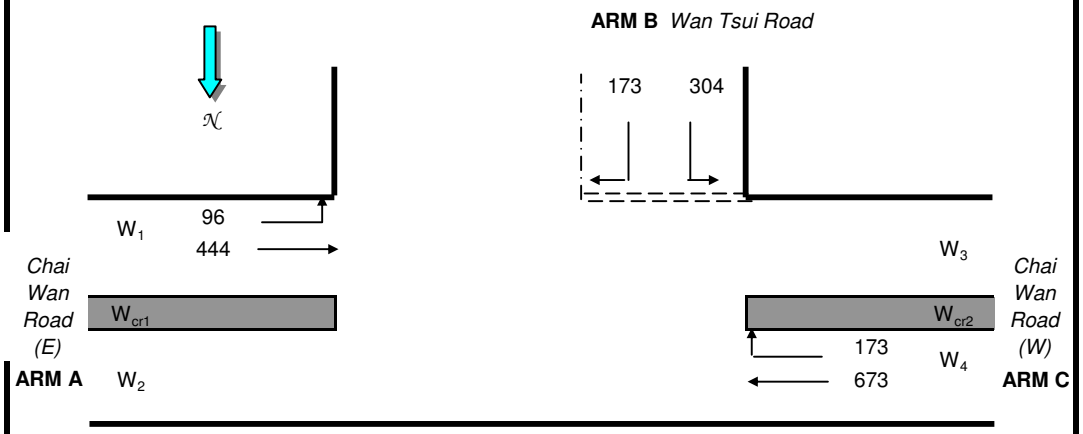


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		700		700	0.00	4070			4070	0.172			20	20	0.882	48	42
RT	A	3.50	1	1	13			2105			717	717	1.00	1887			1887	0.380	0.380		45	20	1.947	96	42
ST	B	3.50	2	2				4210		682		682	0.00	4210			4210	0.162	0.162		19	19	0.882	48	43
LT	B	3.10	2	1	12		y	1925	116			116	1.00	1711			1711	0.068			8	19	0.370	12	32
LT	C	4.00	3	1	15		y	2015	346			346	1.00	1832			1832	0.189			22	22	0.882	54	36
LT/RT	C	4.00	3	1	15			2155	159		212	371	1.00	1959			1959	0.189	0.189		23	22	0.884	54	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	96	(pcu/hr)
q_{a-c}	=	444	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	673	(pcu/hr)
q_{c-b}	=	173	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	173	(pcu/hr)
q_{b-c}	=	304	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

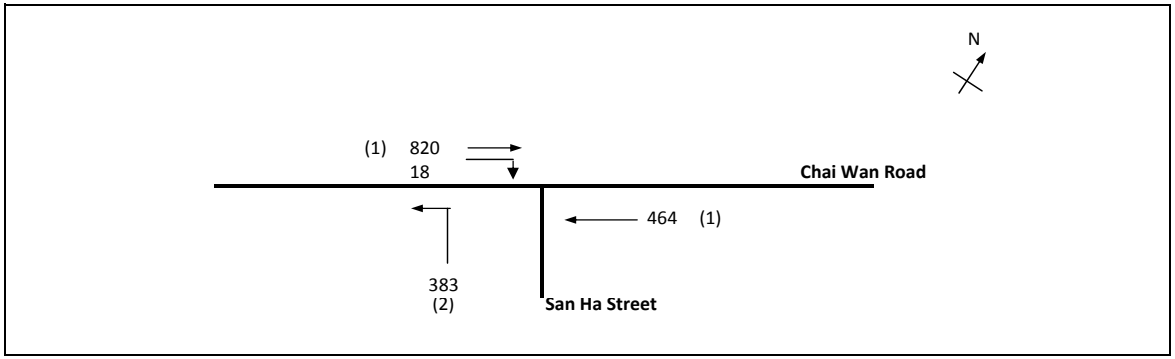
Q_{b-c}	=	764
Q_{c-b}	=	677
Q_{b-a}	=	360

COMPARISION OF DESIGN FLOW TO CAPACITY

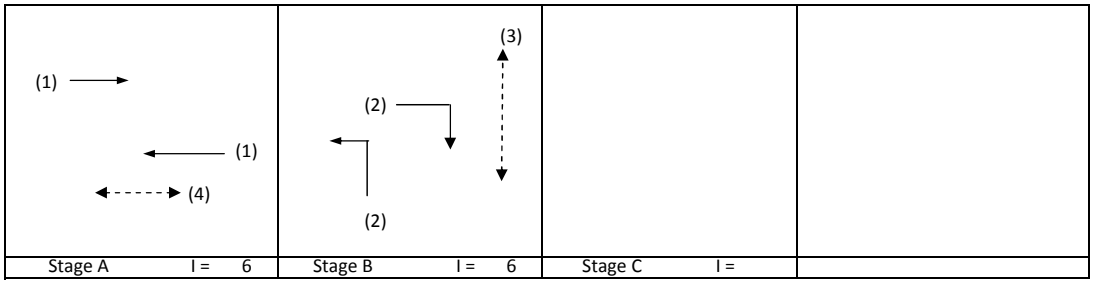
DFC_{b-a}	=	0.480
DFC_{b-c}	=	0.398
DFC_{c-b}	=	0.255

Critical DFC = 0.480

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



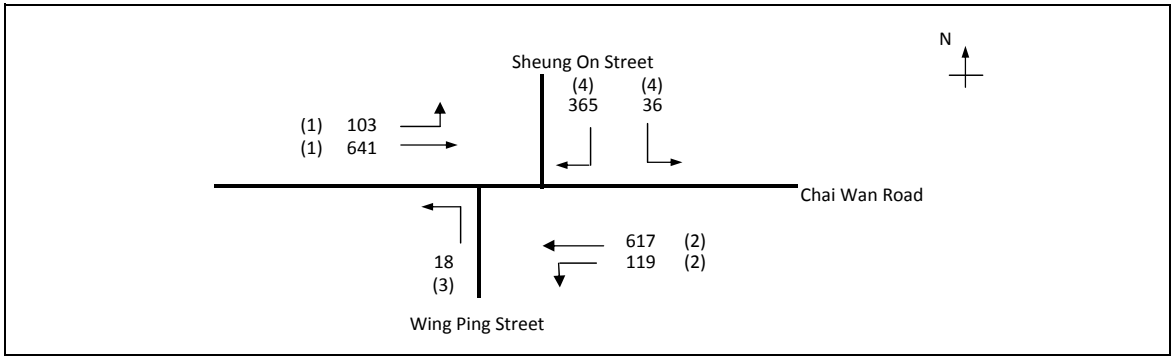
No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.432
Loss time		L =	10 sec
Total Flow		=	1685 pcu
Co	= (1.5*L+5)/(1-Y)	=	35.2 sec
Cm	= L/(1-Y)	=	17.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	91.2 %
Cp	= 0.9*L/(0.9-Y)	=	19.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	87.7 %



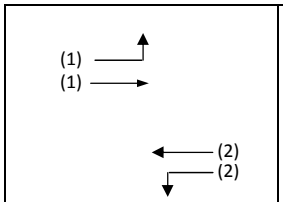
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		820		820	0.00	4070			4070	0.201	0.201		42	47	0.429	36	11
ST	A	3.50	1	2	10		N	4070		464		464	0.00	4070			4070	0.114			24	47	0.243	18	11
LT	B	3.00	2	1	10		N	1915	383			383	1.00	1665			1665	0.230	0.230		48	53	0.434	30	9
RT	B	3.50	2	1	12			2105			18	18	1.00	1871			1871	0.009			2	53	0.018	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

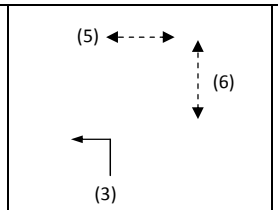
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



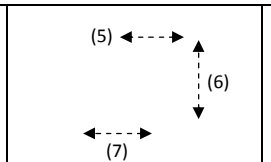
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.245
Loss time		L =	37 sec
Total Flow		=	1899 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.2 sec
Cm	= L/(1-Y)	=	49.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	153.7 %
Cp	= 0.9*L/(0.9-Y)	=	50.9 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	153.7 %



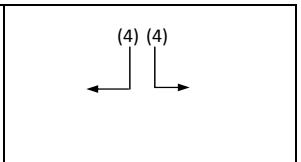
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	103	641		744	0.14	6070			6070	0.123			41		0.000	48	54
LT/ST	A	3.30	2	3	12		Y	6115	119	617		737	0.16	5994			5994	0.123	0.123		42		0.000	48	54
LT	B	3.50	3	1	9		Y	1965	18			18	1.00	1684			1684	0.010	0.010		4		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	36		365	401	1.00	3583			3583	0.112	0.112		38		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

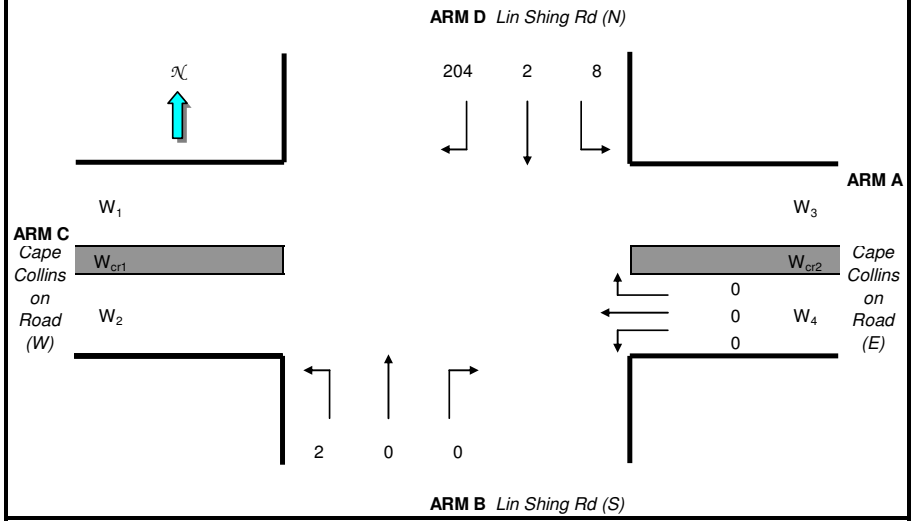
Junction Capacity Analysis

Prepared By:	**GK**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2016 Ching Ming - Site 1

Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.0575	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.2301	(pcu/hr)
q_{d-b}	=	2.0575	(pcu/hr)
q_{d-c}	=	204.37	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

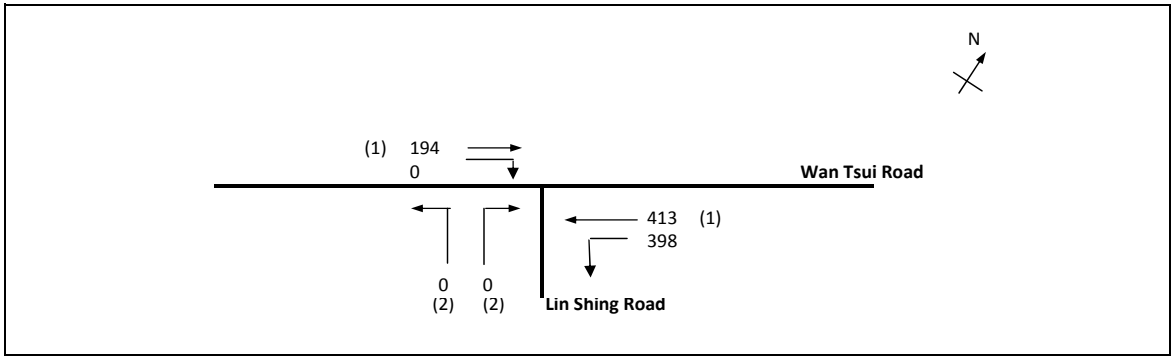
Q_{b-a}	=	618
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

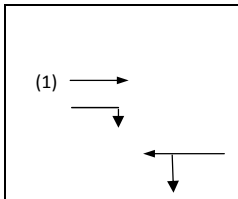
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.395
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.395

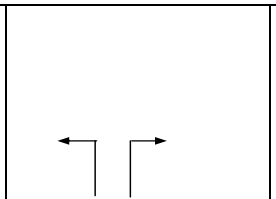
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



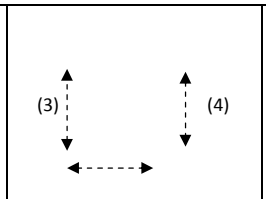
No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.432	
Loss time		L =	55	sec
Total Flow		=	1005	pcu
Co	= (1.5*L+5)/(1-Y)	=	154.1	sec
Cm	= L/(1-Y)	=	96.9	sec
Yult		=	0.488	
R.C.ult	= (Yult-Y)/Y*100%	=	12.8	%
Cp	= 0.9*L/(0.9-Y)	=	105.8	sec
Ymax	= 1-L/C	=	0.542	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	12.8	%



Stage A I = 7



Stage B I =

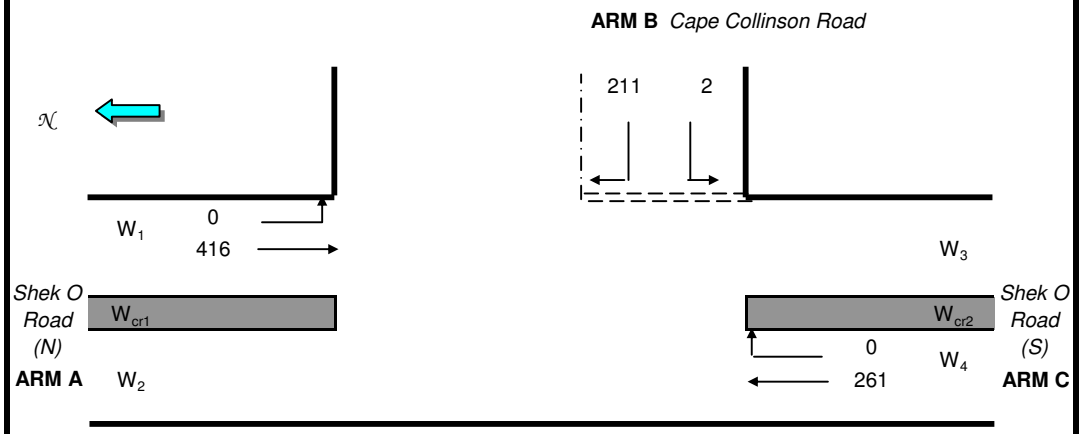


Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		194		194	0.00	1915			1915	0.101			15	65	0.187	12	11
ST/LT	A	4.00	1	1	10		N	2015	398	413		811	0.49	1877			1877	0.432	0.432		65	65	0.798	72	13
Ped	B	6.0	3									5709		60000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	416	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	261	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	211	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	636
Q_{c-b}	=	708
Q_{b-a}	=	299

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.705
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.705

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 09:40:21 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
I A	100
I B	100
I C	100
I D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_CM_S1_J4

DEMAND SET TITLE: 2016_CM_S1_J4

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.011	0.256	0.439	0.295
		10.0	240.0	411.0	276.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.620	0.010	0.062	0.308
		534.0	9.0	53.0	265.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.406	0.356	0.033	0.205
		97.0	85.0	8.0	49.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.310	0.368	0.318	0.004
		407.0	483.0	417.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	15.62	25.64	0.609	- -	-	0.0	1.5	45.0	
-	0.099	I							
I ARM B	14.36	22.28	0.645	- -	-	0.0	1.8	51.7	
-	0.125	I							
I ARM C	3.98	17.89	0.222	- -	-	0.0	0.3	8.4	
-	0.072	I							
I ARM D	21.87	44.10	0.496	- -	-	0.0	1.0	29.0	
-	0.045	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	15.62	25.62	0.610	- -	-	1.5	1.6	46.5	
-	0.100	I							
I ARM B	14.36	22.24	0.646	- -	-	1.8	1.8	54.1	
-	0.127	I							
I ARM C	3.98	17.84	0.223	- -	-	0.3	0.3	8.6	
-	0.072	I							
I ARM D	21.87	44.06	0.496	- -	-	1.0	1.0	29.5	
-	0.045	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.5	**
08.45	1.6	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.8	**
08.45	1.8	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.3	
08.45	0.3	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

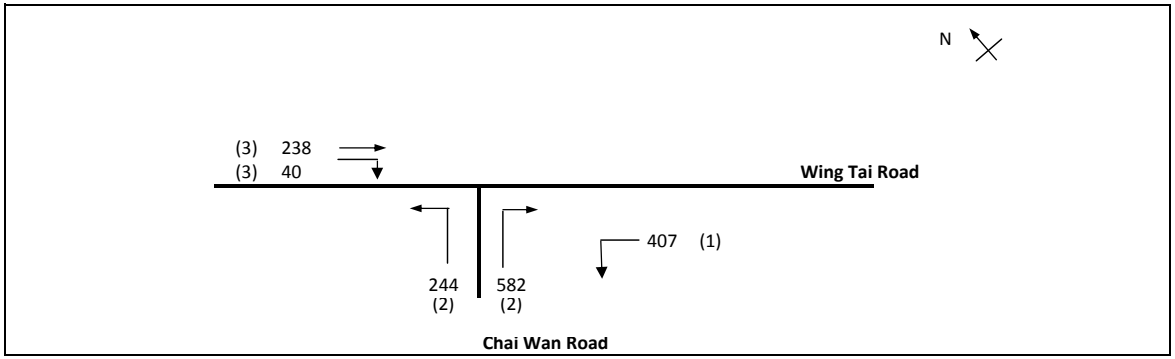
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	937.2	937.2	91.5	0.10	91.5	0.10
B	861.6	861.6	105.9	0.12	105.9	0.12
C	238.8	238.8	17.0	0.07	17.0	0.07
D	1312.2	1312.2	58.5	0.04	58.5	0.04
ALL	3349.8	3349.8	272.9	0.08	273.0	0.08

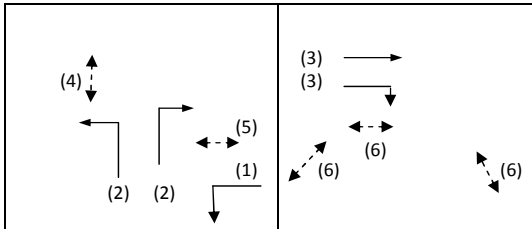
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.221	
Loss time		L =	10	sec
Total Flow		=	1510	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.7	sec
Cm	= L/(1-Y)	=	12.8	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	273.5	%
Cp	= 0.9*L/(0.9-Y)	=	13.3	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	266.7	%



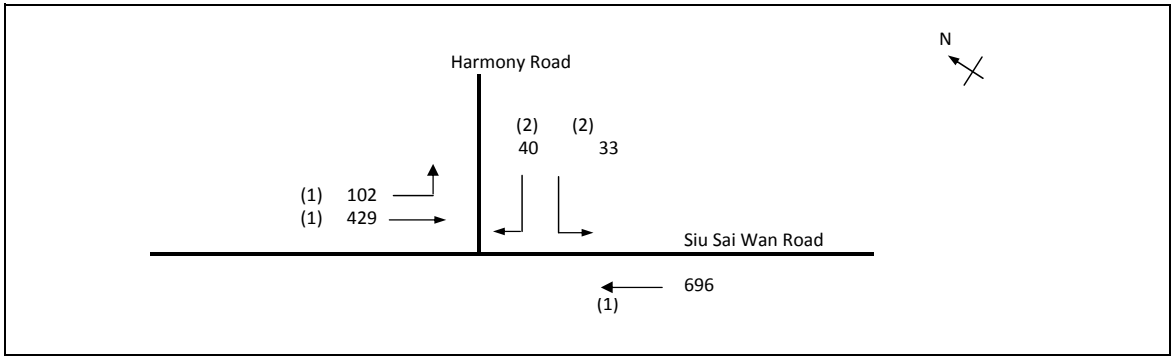
Stage A I = 7

Stage B I = 5

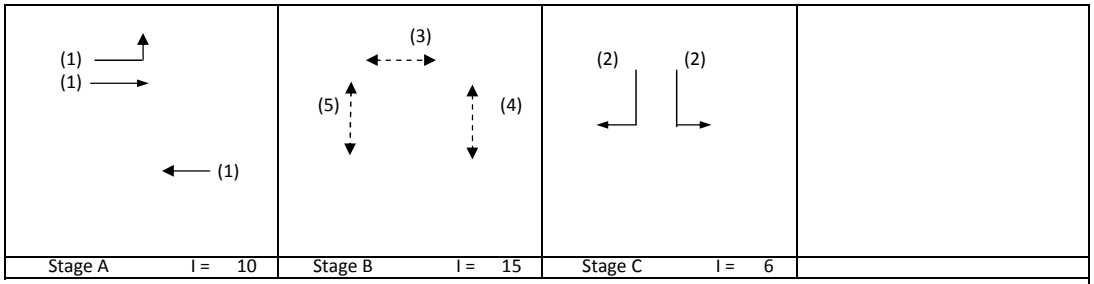
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	407			407	1.00	3857			3857	0.106			43	66	0.159	9	5
LT	A	4.00	2	2	24			4310	244			244	1.00	4056			4056	0.060			24	66	0.091	6	5
RT	A	3.50	2	2	11		y	4070			582	582	1.00	3582			3582	0.162	0.162		66	66	0.245	15	5
ST	B	3.50	3	2			y	4070		238		238	0.00	4070			4070	0.058	0.058		24	24	0.245	15	25
RT	B	4.50	3	2	13		y	4270			40	40	1.00	3828			3828	0.010			4	24	0.044	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.197	
Loss time	L =	48	sec
Total Flow	=	1300	pcu
Co = (1.5*L+5)/(1-Y)	=	95.8	sec
Cm = L/(1-Y)	=	59.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	174.6	%
Cp = 0.9*L/(0.9-Y)	=	61.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	138.0	%

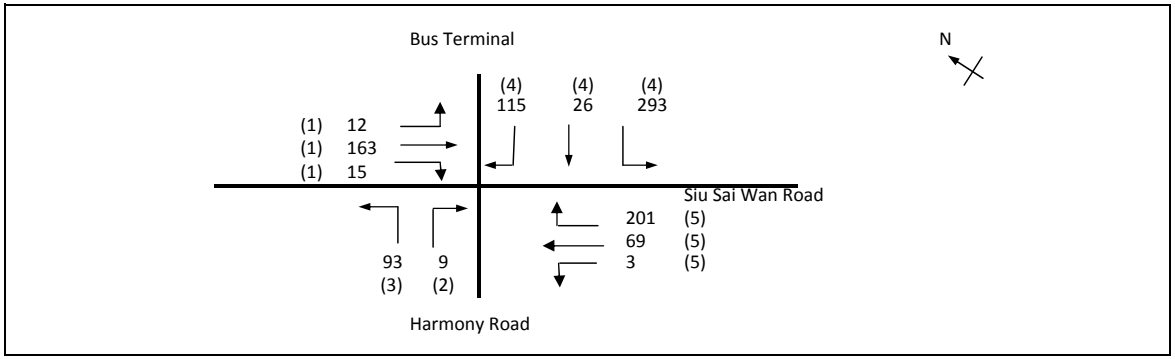


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

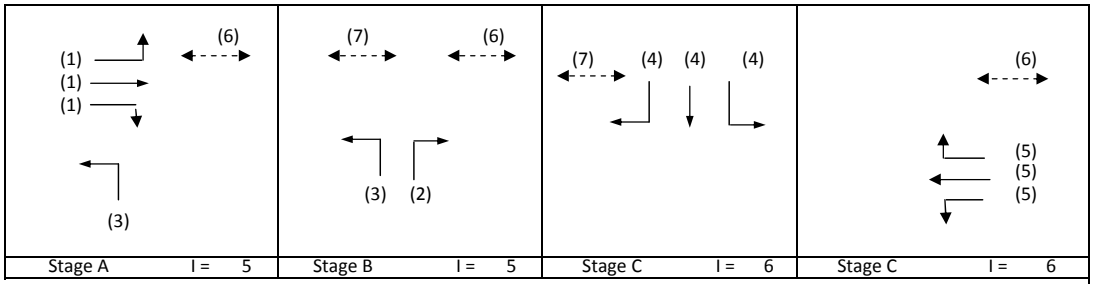
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	148		250	0.41	1843			1843	0.136			36	46	0.292	18	12
ST	A	3.20	1	1				2075		281		281	0.00	2075			2075	0.135			36	46	0.292	24	12
ST	A	3.00	1	2			y	3970		696		696	0.00	3970			3970	0.175	0.175		46	46	0.378	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.332	0	47
RT	C	3.75	2	1	12			2130			40	40	1.00	1893			1893	0.021	0.021		6	6	0.378	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.342	
Loss time	L =	18	sec
Total Flow	=	999	pcu
Co = (1.5*L+5)/(1-Y)	=	48.6	sec
Cm = L/(1-Y)	=	27.3	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	124.0	%
Cp = 0.9*L/(0.9-Y)	=	29.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	118.4	%

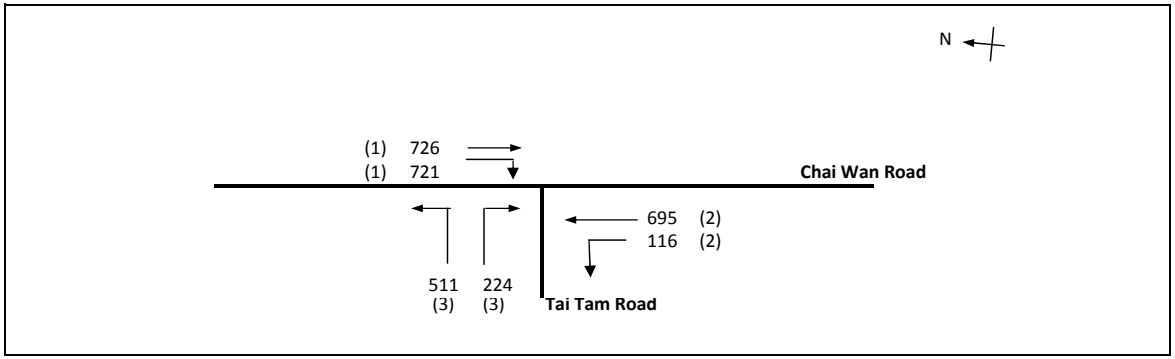


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

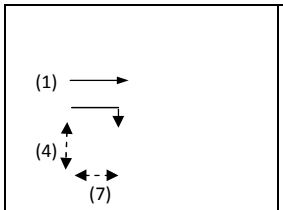
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.14	1910			1910	0.048			12	12	0.407	12	40
ST/RT	A	3.30	1	1	12			2085		84	15	99	0.16	2045			2045	0.048	0.048		12	12	0.412	12	40
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
LT	A,B	3.75	3	1	13		y	1990	93			93	1.00	1784			1784	0.052			13	19	0.293	12	32
RT	C	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.062			16	46	0.140	6	14
LT/ST	C	3.50	4	1	12		y	1965	293	26		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
ST/RT	D	3.50	5	1	12			2105		0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	69		72	0.04	1954			1954	0.037			9	9	0.412	6	44
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

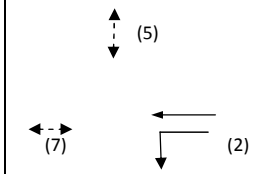
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



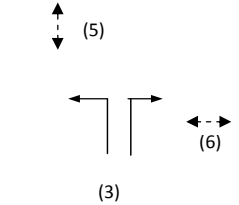
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.741
Loss time		L =	18 sec
Total Flow		=	2994 pcu
Co	= (1.5*L+5)/(1-Y)	=	123.3 sec
Cm	= L/(1-Y)	=	69.4 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	3.3 %
Cp	= 0.9*L/(0.9-Y)	=	101.6 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	0.7 %



Stage A I = 7



Stage B I = 8

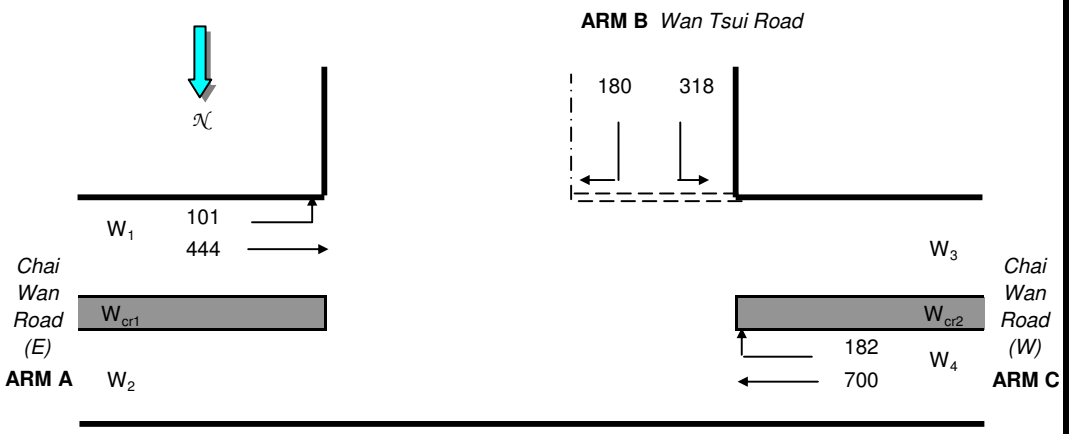


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		726		726	0.00	4070			4070	0.178			21	21	0.894	48	42
RT	A	3.50	1	1	13			2105			721	721	1.00	1887			1887	0.382	0.382		45	21	1.912	96	42
ST	B	3.50	2	2				4210		695		695	0.00	4210			4210	0.165	0.165		19	19	0.894	48	43
LT	B	3.10	2	1	12		y	1925	116			116	1.00	1711			1711	0.068			8	19	0.368	12	32
LT	C	4.00	3	1	15		y	2015	356			356	1.00	1832			1832	0.194			23	23	0.894	54	36
LT/RT	C	4.00	3	1	15			2155	155		224	379	1.00	1959			1959	0.194	0.194		23	23	0.890	60	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	100.922	(pcu/hr)
q_{a-c}	=	444.426	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	700.11	(pcu/hr)
q_{c-b}	=	181.935	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	179.513	(pcu/hr)
q_{b-c}	=	317.565	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

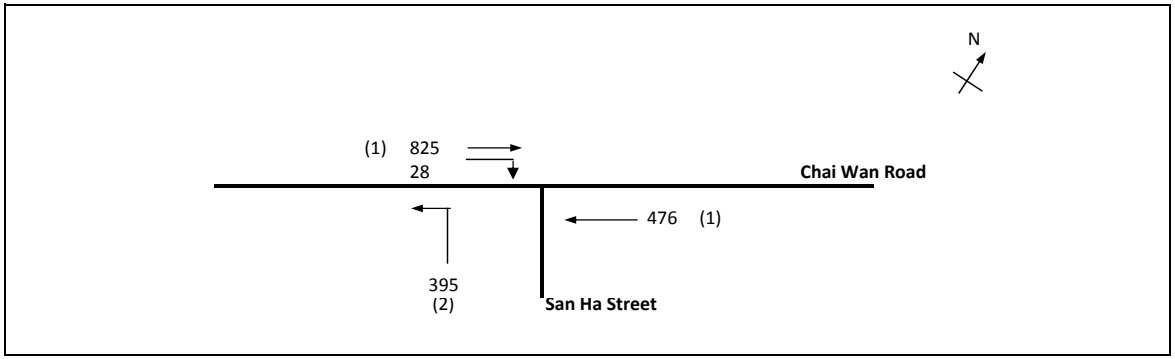
Q_{b-c}	=	764
Q_{c-b}	=	677
Q_{b-a}	=	357

COMPARISION OF DESIGN FLOW TO CAPACITY

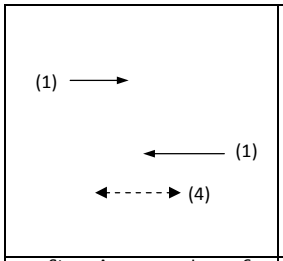
DFC_{b-a}	=	0.503
DFC_{b-c}	=	0.416
DFC_{c-b}	=	0.269

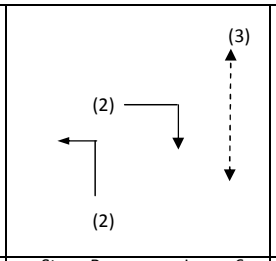
Critical DFC = 0.503

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.440
Loss time		L =	10 sec
Total Flow		=	1724 pcu
Co	= (1.5*L+5)/(1-Y)	=	35.7 sec
Cm	= L/(1-Y)	=	17.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	87.4 %
Cp	= 0.9*L/(0.9-Y)	=	19.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	84.0 %



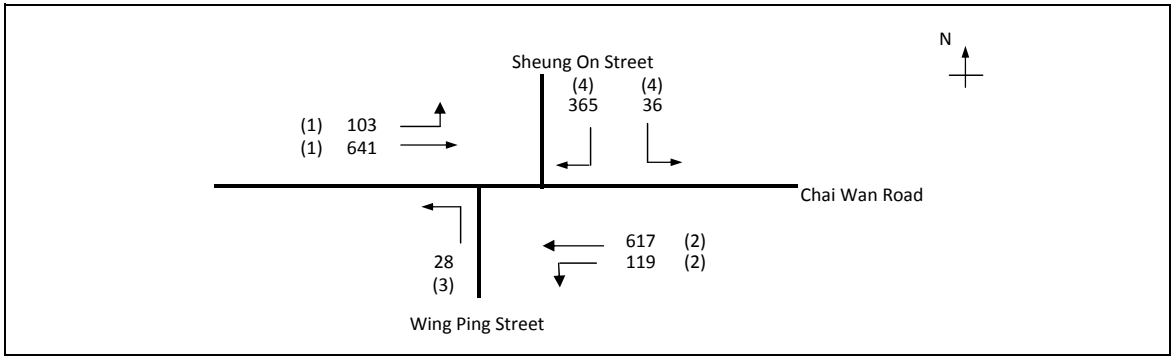


Stage A	I = 6	Stage B	I = 6	Stage C	I =

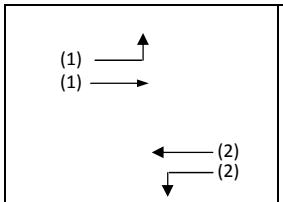
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		825		825	0.00	4070			4070	0.203	0.203		41	47	0.432	36	11
ST	A	3.50	1	2	10		N	4070		476		476	0.00	4070			4070	0.117			24	47	0.249	21	11
LT	B	3.00	2	1	10		N	1915	395			395	1.00	1665			1665	0.237	0.237		49	53	0.448	30	9
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015			3	53	0.028	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

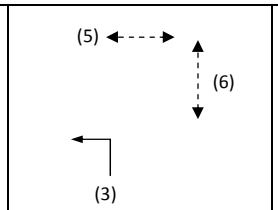
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



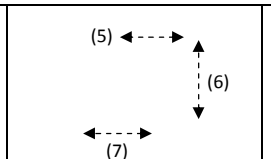
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.251
Loss time		L =	37 sec
Total Flow		=	1909 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.8 sec
Cm	= L/(1-Y)	=	49.4 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	147.8 %
Cp	= 0.9*L/(0.9-Y)	=	51.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	147.8 %



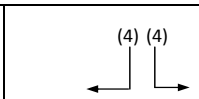
Stage A I = 8



Stage B I = 5



Stage C I = 7

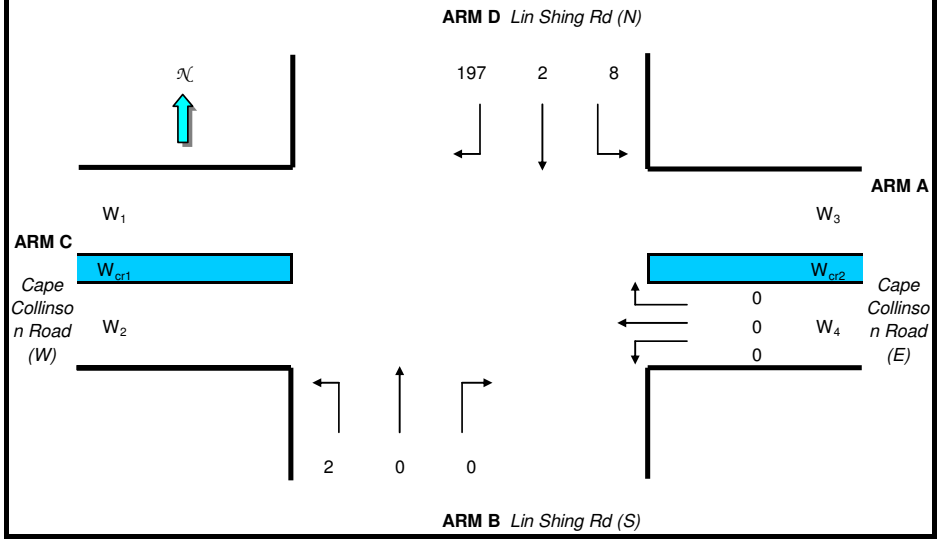


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	103	641		744	0.14	6070			6070	0.123			40		0.000	48	54
LT/ST	A	3.30	2	3	12		Y	6115	119	617		737	0.16	5994			5994	0.123	0.123		41		0.000	48	54
LT	B	3.50	3	1	9		Y	1965	28			28	1.00	1684			1684	0.016	0.016		5		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	36		365	401	1.00	3583			3583	0.112	0.112		37		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	197	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

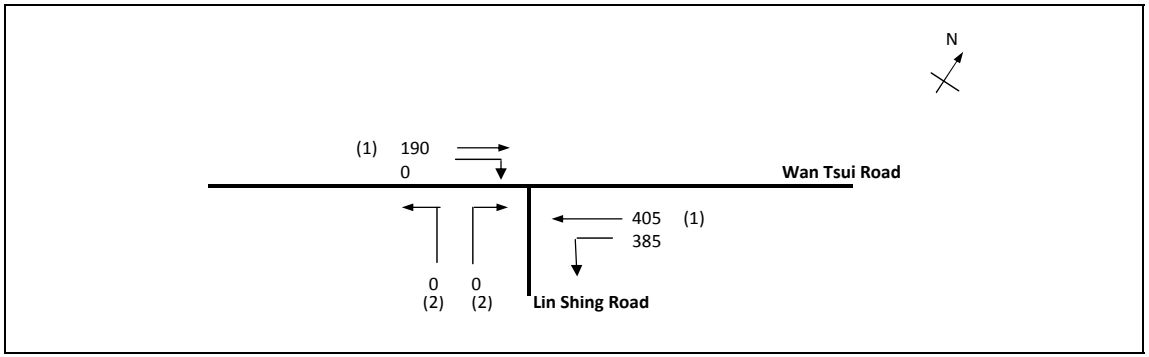
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

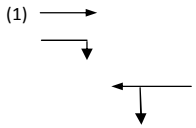
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.380
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.380

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011

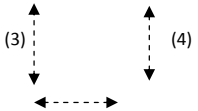


No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.421	
Loss time		L =	55	sec
Total Flow		=	980	pcu
Co	= (1.5*L+5)/(1-Y)	=	151.0	sec
Cm	= L/(1-Y)	=	94.9	sec
Yult		=	0.488	
R.C.ult	= (Yult-Y)/Y*100%	=	15.9	%
Cp	= 0.9*L/(0.9-Y)	=	103.3	sec
Ymax	= 1-L/C	=	0.542	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	15.9	%



Stage A I = 7

Stage B I =



Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		190		190	0.00	1915			1915	0.099			15	65	0.184	12	11
ST/LT	A	4.00	1	1	10		N	2015	385	405		790	0.49	1878			1878	0.421	0.421		65	65	0.777	72	12
Ped	B	6.0	3									5709		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

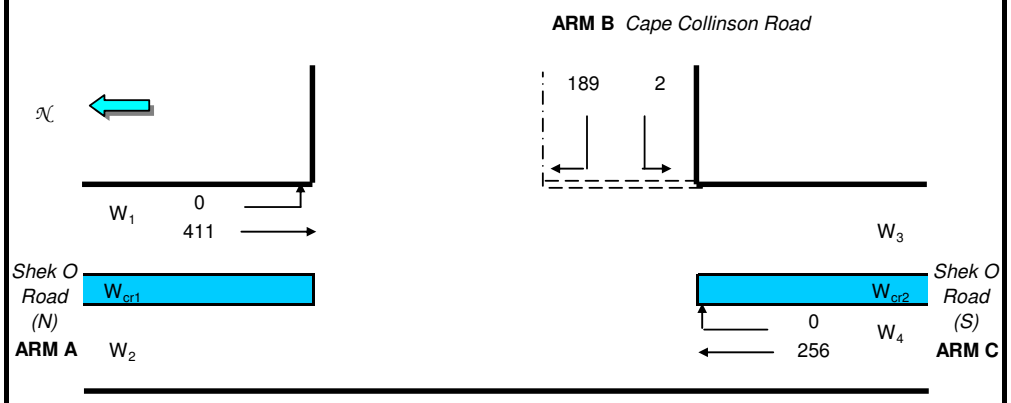
Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

Junction Capacity Analysis

Prepared By:	GK
Checked By:	

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	411	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	256	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	189	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	637
Q_{c-b}	=	709
Q_{b-a}	=	300

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.630
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.630

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 03:47:50 on Wednesday, 7 December 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_CM_S2_J4

DEMAND SET TITLE: 2016_CM_S2_J4

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.010	0.420	0.308	0.261
		10.0	405.0	297.0	252.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.727	0.031	0.073	0.169
		585.0	25.0	59.0	136.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.360	0.305	0.043	0.293
		59.0	50.0	7.0	48.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.280	0.467	0.249	0.004
		367.0	613.0	327.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									I
I ARM A	16.09	25.37	0.634	- -	-	0.0	1.7	49.8	-
0.106	I								
I ARM B	13.41	25.26	0.531	- -	-	0.0	1.1	33.0	-
0.084	I								
I ARM C	2.75	18.81	0.146	- -	-	0.0	0.2	5.1	-
0.062	I								
I ARM D	21.86	44.21	0.494	- -	-	0.0	1.0	28.9	-
0.045	I								
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									I
I ARM A	16.09	25.34	0.635	- -	-	1.7	1.7	51.8	-
0.108	I								
I ARM B	13.41	25.22	0.532	- -	-	1.1	1.1	33.9	-
0.085	I								
I ARM C	2.75	18.77	0.146	- -	-	0.2	0.2	5.1	-
0.062	I								
I ARM D	21.86	44.17	0.495	- -	-	1.0	1.0	29.3	-
0.045	I								
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

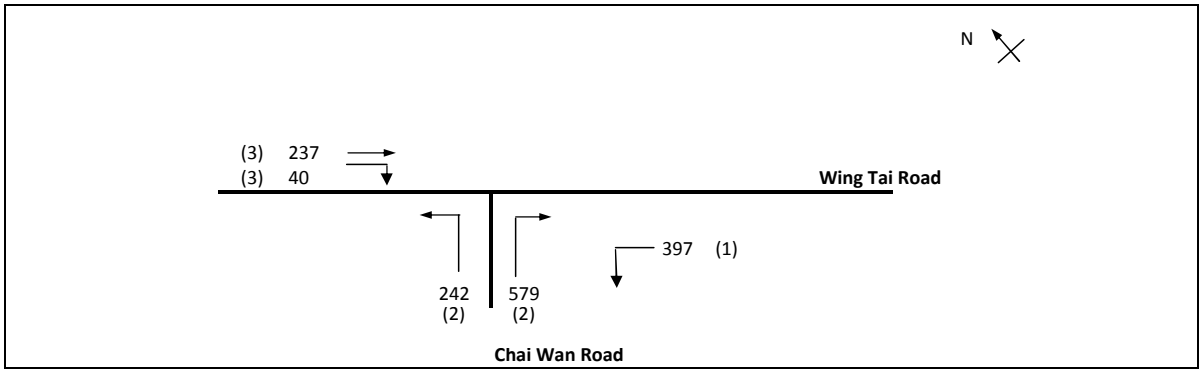
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	965.4	965.4	101.6	0.11	101.6	0.11
B	804.6	804.6	66.8	0.08	66.9	0.08
C	165.0	165.0	10.2	0.06	10.2	0.06
D	1311.6	1311.6	58.2	0.04	58.2	0.04
ALL	3246.6	3246.6	236.8	0.07	236.9	0.07

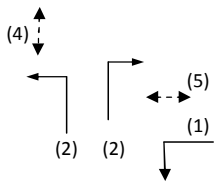
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

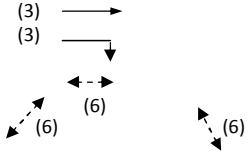
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.220
Loss time		L =	10 sec
Total Flow		=	1496 pcu
Co	= (1.5*L+5)/(1-Y)	=	25.6 sec
Cm	= L/(1-Y)	=	12.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	275.1 %
Cp	= 0.9*L/(0.9-Y)	=	13.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	268.3 %



Stage A I = 7

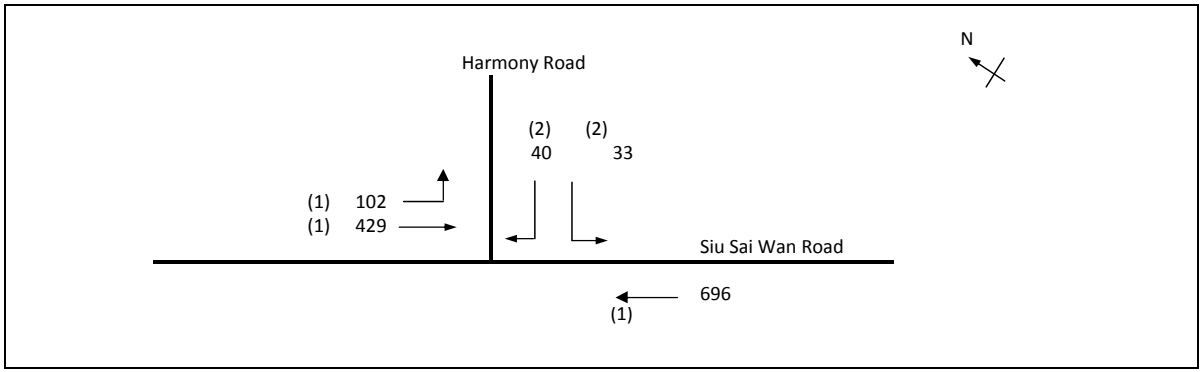


Stage B I = 5

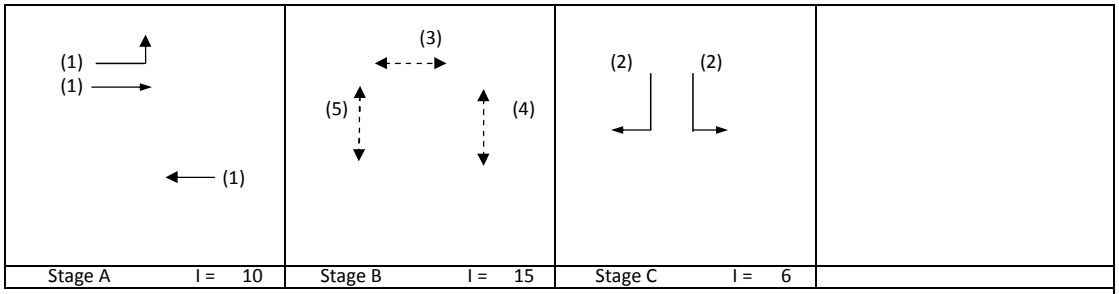
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	397			397	1.00	3857			3857	0.103			42	66	0.156	9	5
LT	A	4.00	2	2	24			4310	242			242	1.00	4056			4056	0.060			24	66	0.090	6	5
RT	A	3.50	2	2	11		y	4070			579	579	1.00	3582			3582	0.162	0.162		66	66	0.244	15	5
ST	B	3.50	3	2			y	4070		237		237	0.00	4070			4070	0.058	0.058		24	24	0.244	15	25
RT	B	4.50	3	2	13		y	4270			40	40	1.00	3828			3828	0.010			4	24	0.044	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.197
Loss time		L =	48 sec
Total Flow		=	1300 pcu
Co	= (1.5*L+5)/(1-Y)	=	95.8 sec
Cm	= L/(1-Y)	=	59.7 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	174.6 %
Cp	= 0.9*L/(0.9-Y)	=	61.4 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	138.0 %

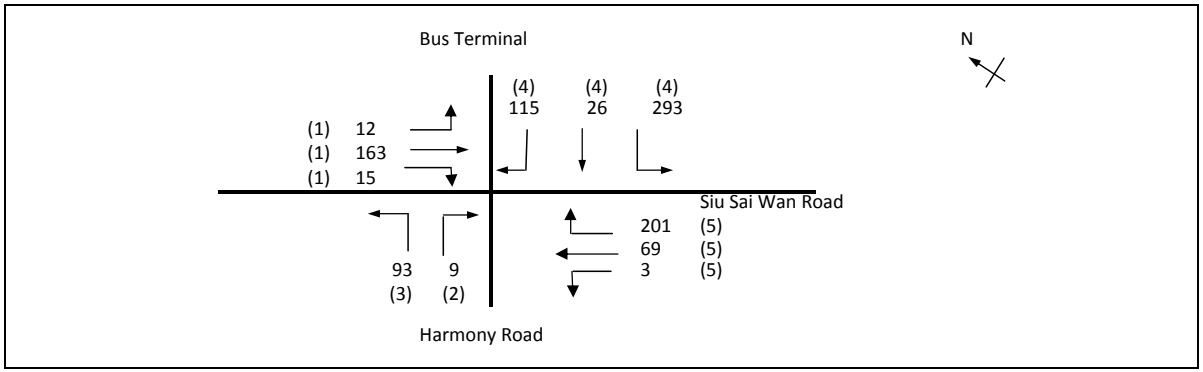


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

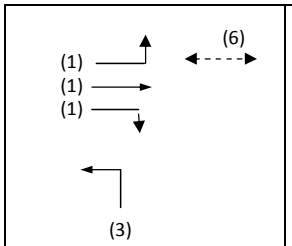
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	148		250	0.41	1843			1843	0.136			36	46	0.292	18	12
ST	A	3.20	1	1				2075		281		281	0.00	2075			2075	0.135			36	46	0.292	24	12
ST	A	3.00	1	2			y	3970		696		696	0.00	3970			3970	0.175	0.175		46	46	0.378	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.332	0	47
RT	C	3.75	2	1	12			2130			40	40	1.00	1893			1893	0.021	0.021		6	6	0.378	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

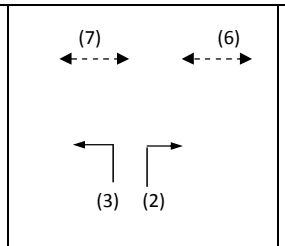
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



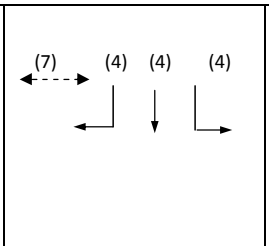
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.342
Loss time	L =	18 sec
Total Flow	=	999 pcu
Co = (1.5*L+5)/(1-Y)	=	48.6 sec
Cm = L/(1-Y)	=	27.3 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	124.0 %
Cp = 0.9*L/(0.9-Y)	=	29.0 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	118.4 %



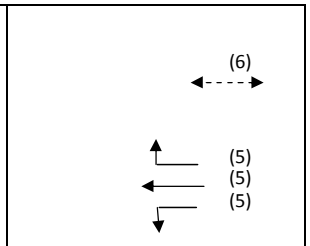
Stage A I = 5



Stage B I = 5



Stage C I = 6

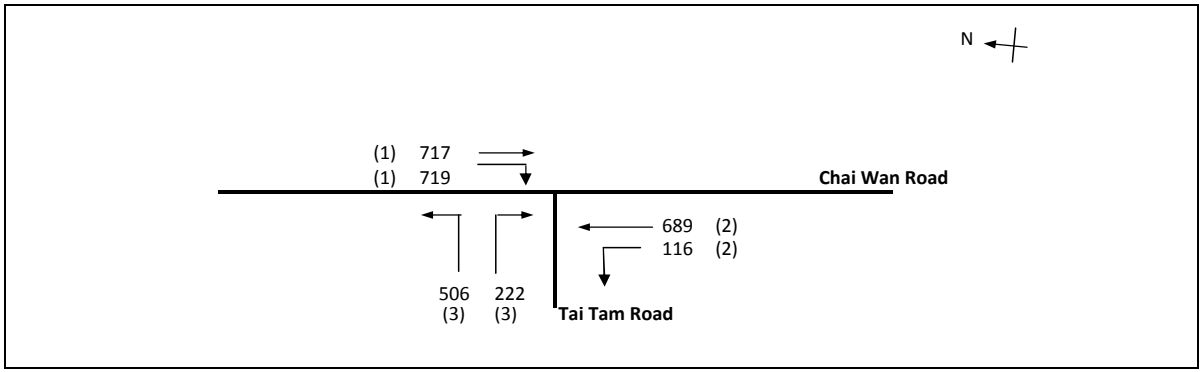


Stage C I = 6

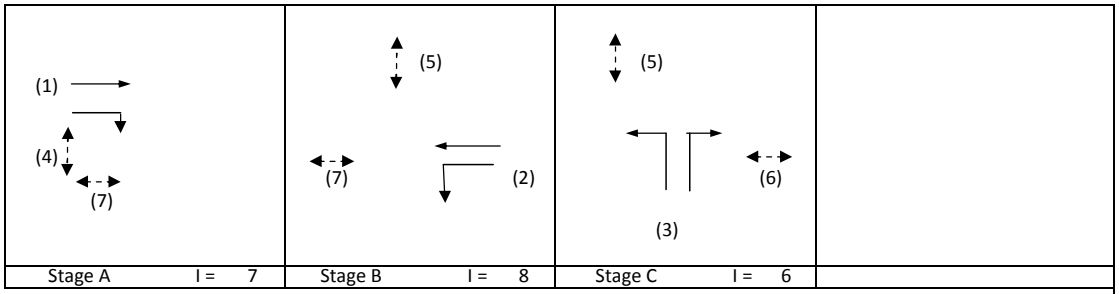
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.14	1910			1910	0.048			12	12	0.407	12	40
ST/RT	A	3.30	1	1	12			2085		84	15	99	0.16	2045			2045	0.048	0.048		12	12	0.412	12	40
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
LT	A,B	3.75	3	1	13		y	1990	93			93	1.00	1784			1784	0.052			13	19	0.293	12	32
RT	C	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.062			16	46	0.140	6	14
LT/ST	C	3.50	4	1	12		y	1965	293	26		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
ST/RT	D	3.50	5	1	12			2105		0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	69		72	0.04	1954			1954	0.037			9	9	0.412	6	44
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.736
Loss time		L =	18 sec
Total Flow		=	2968 pcu
Co	= (1.5*L+5)/(1-Y)	=	121.2 sec
Cm	= L/(1-Y)	=	68.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	3.9 %
Cp	= 0.9*L/(0.9-Y)	=	98.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	1.3 %

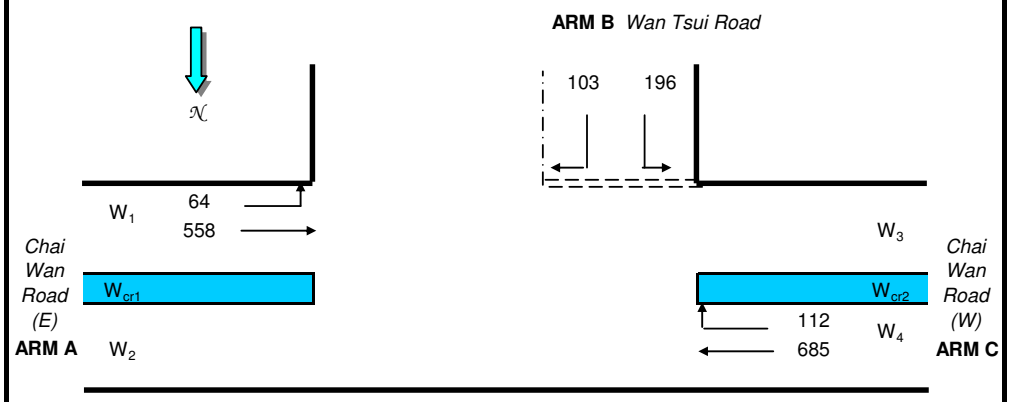


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		717		717	0.00	4070			4070	0.176			21	21	0.888	48	42
RT	A	3.50	1	1	13			2105			719	719	1.00	1887			1887	0.381	0.381		45	21	1.920	96	42
ST	B	3.50	2	2				4210		689		689	0.00	4210			4210	0.164	0.164		19	19	0.888	48	43
LT	B	3.10	2	1	12		y	1925	116			116	1.00	1711			1711	0.068			8	19	0.369	12	32
LT	C	4.00	3	1	15		y	2015	351			351	1.00	1832			1832	0.192	0.192		23	23	0.888	54	36
LT/RT	C	4.00	3	1	15			2155	155		222	377	1.00	1959			1959	0.192			23	23	0.892	60	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	64.1722	(pcu/hr)
q_{a-c}	=	558	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	685	(pcu/hr)
q_{c-b}	=	112.139	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	103	(pcu/hr)
q_{b-c}	=	196	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

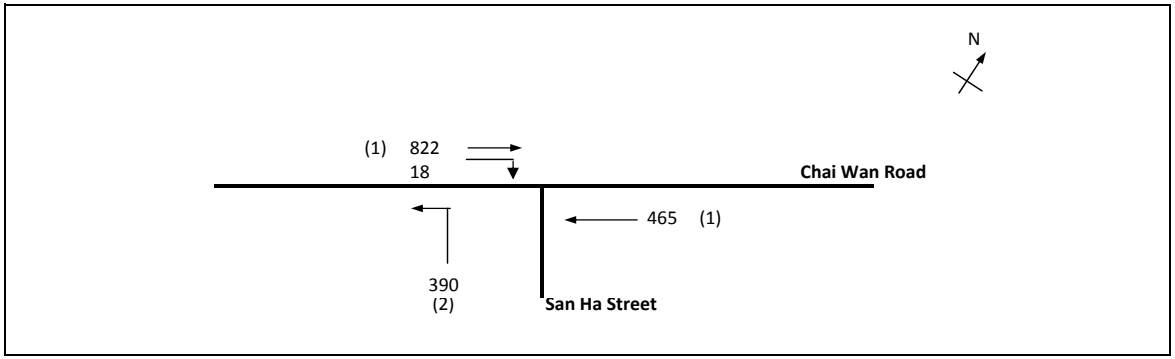
Q_{b-c}	=	751
Q_{c-b}	=	668
Q_{b-a}	=	358

COMPARISION OF DESIGN FLOW TO CAPACITY

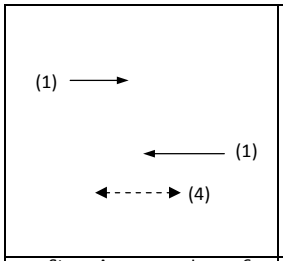
DFC_{b-a}	=	0.287
DFC_{b-c}	=	0.261
DFC_{c-b}	=	0.168

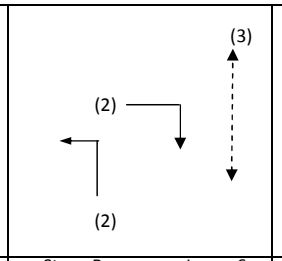
Critical DFC = 0.287

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.436
Loss time		L =	10 sec
Total Flow		=	1694 pcu
Co	= (1.5*L+5)/(1-Y)	=	35.4 sec
Cm	= L/(1-Y)	=	17.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	89.3 %
Cp	= 0.9*L/(0.9-Y)	=	19.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	85.9 %



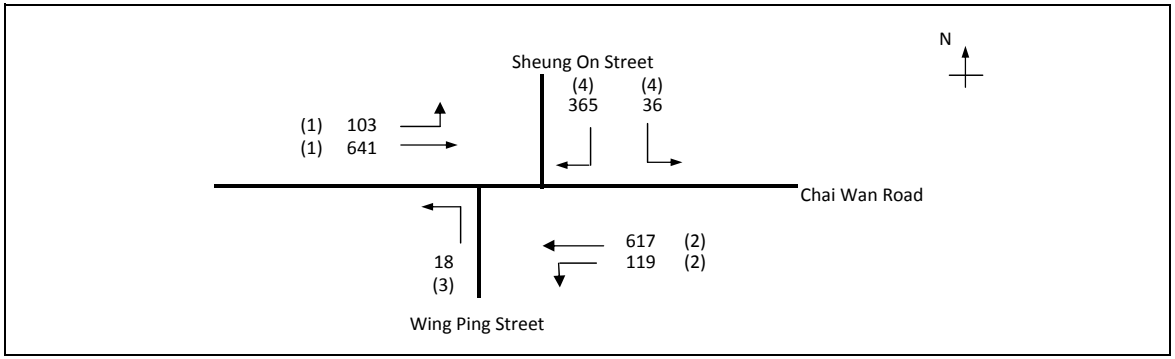


Stage A	I = 6	Stage B	I = 6	Stage C	I =

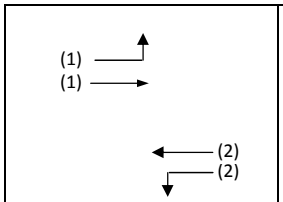
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		822		822	0.00	4070			4070	0.202	0.202		42	47	0.430	36	11
ST	A	3.50	1	2	10		N	4070		465		465	0.00	4070			4070	0.114			24	47	0.243	18	11
LT	B	3.00	2	1	10		N	1915	390			390	1.00	1665			1665	0.234	0.234		48	53	0.441	30	9
RT	B	3.50	2	1	12			2105			18	18	1.00	1871			1871	0.009			2	53	0.018	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

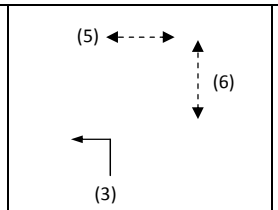
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



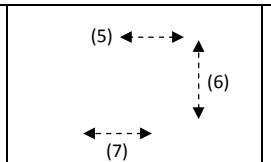
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.245
Loss time		L =	37 sec
Total Flow		=	1899 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.2 sec
Cm	= L/(1-Y)	=	49.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	153.7 %
Cp	= 0.9*L/(0.9-Y)	=	50.9 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	153.7 %



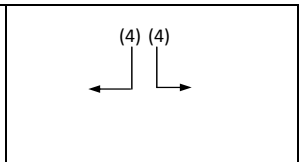
Stage A I = 8



Stage B I = 5



Stage C I = 7



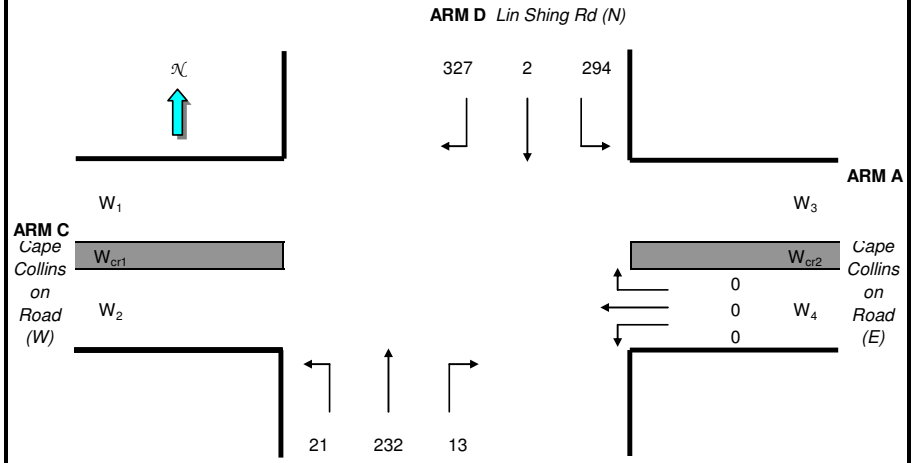
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	103	641		744	0.14	6070			6070	0.123			41		0.000	48	54
LT/ST	A	3.30	2	3	12		Y	6115	119	617		737	0.16	5994			5994	0.123	0.123		42		0.000	48	54
LT	B	3.50	3	1	9		Y	1965	18			18	1.00	1684			1684	0.010	0.010		4		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	36		365	401	1.00	3583			3583	0.112	0.112		38		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

2021 Weekend
Reference / Site I / Site II
Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Weekend - Reference Case
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	12.69	(pcu/hr)
q_{b-c}	=	20.507	(pcu/hr)
q_{b-d}	=	231.79	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	293.58	(pcu/hr)
q_{d-b}	=	1.6921	(pcu/hr)
q_{d-c}	=	326.79	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

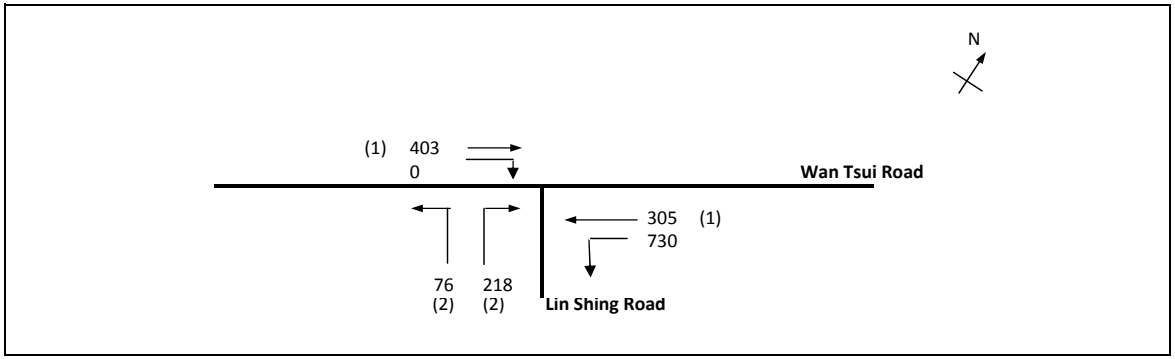
Q_{b-a}	=	514
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	457
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

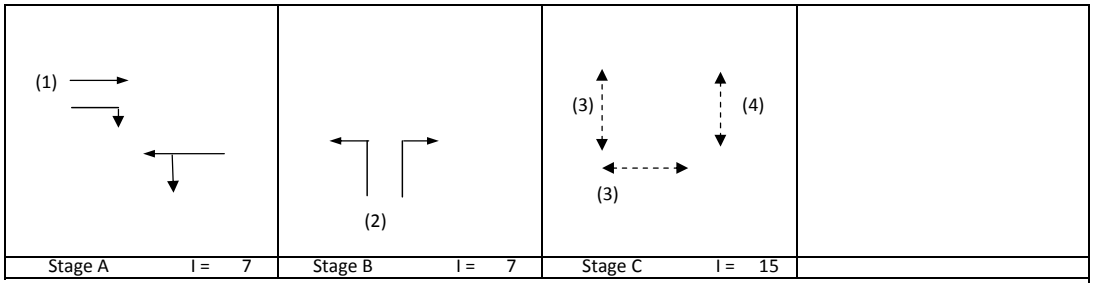
DFC_{b-a}	=	0.025
DFC_{b-c}	=	0.027
DFC_{b-d}	=	0.379
DFC_{d-a}	=	0.435
DFC_{d-b}	=	0.003
DFC_{d-c}	=	0.715
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.715

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.734
Loss time		L =	36 sec
Total Flow		=	1732 pcu
Co	= (1.5*L+5)/(1-Y)	=	221.9 sec
Cm	= L/(1-Y)	=	135.4 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-14.2 %
Cp	= 0.9*L/(0.9-Y)	=	195.3 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-14.2 %

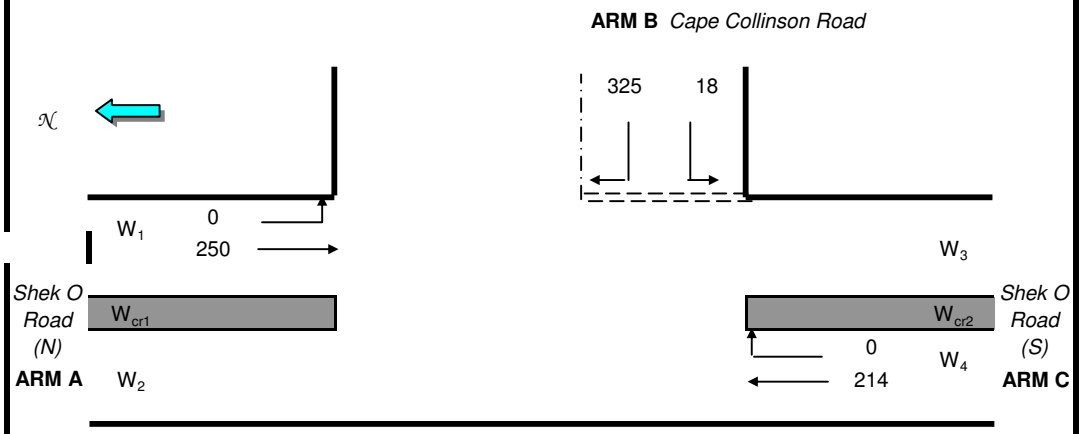


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		403		403	0.00	1915			1915	0.210			24	65	0.388	36	10
ST/LT	A	4.00	1	1	10		y	2015	730	305		1035	0.71	1822			1822	0.568	0.568		65	65	1.049	90	18
LT/RT	B	3.75	2	1	12		y	1990	76		218	294	1.00	1769			1769	0.166	0.166		19	19	1.049	48	46
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Weekend - Reference Case
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	250.449	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	214.142	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	325.237	(pcu/hr)
q_{b-c}	=	18.219	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	678
Q_{c-b}	=	755
Q_{b-a}	=	330

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.984
DFC_{b-c}	=	0.027
DFC_{c-b}	=	0.000

Critical DFC = 0.984

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Crowthorne House
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RG40 3GA,UK

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Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 09:51:18 on Monday, 22 August 2011

.FILE PROPERTIES
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RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
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 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_WE_J4_Ref


 DEMAND SET TITLE:  2021_WE_J4_Ref
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.016 I  0.274 I  0.505 I  0.205 I
 I                    I         I   14.0 I  242.0 I  445.0 I  181.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.520 I  0.010 I  0.317 I  0.152 I
 I                    I         I  560.0 I   11.0 I  341.0 I  164.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.546 I  0.389 I  0.015 I  0.050 I
 I                    I         I  327.0 I  233.0 I    9.0 I   30.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.354 I  0.338 I  0.305 I  0.003 I
 I                    I         I  462.0 I  441.0 I  398.0 I    4.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 07.45-08.15									
I ARM A	14.70	24.42	0.602	- -	-	0.0	1.5	43.6	
-	0.102	I							
I ARM B	17.94	23.27	0.771	- -	-	0.0	3.3	91.9	
-	0.180	I							
I ARM C	9.98	19.67	0.507	- -	-	0.0	1.0	29.9	
-	0.102	I							
I ARM D	21.75	37.06	0.587	- -	-	0.0	1.4	41.5	
-	0.065	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 08.15-08.45									
I ARM A	14.70	24.38	0.603	- -	-	1.5	1.5	45.2	
-	0.103	I							
I ARM B	17.94	23.23	0.772	- -	-	3.3	3.3	99.4	
-	0.189	I							
I ARM C	9.98	19.62	0.509	- -	-	1.0	1.0	30.8	
-	0.104	I							
I ARM D	21.75	36.97	0.588	- -	-	1.4	1.4	42.6	
-	0.066	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.5	*
08.45	1.5	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.3	***
08.45	3.3	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.4	*
08.45	1.4	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

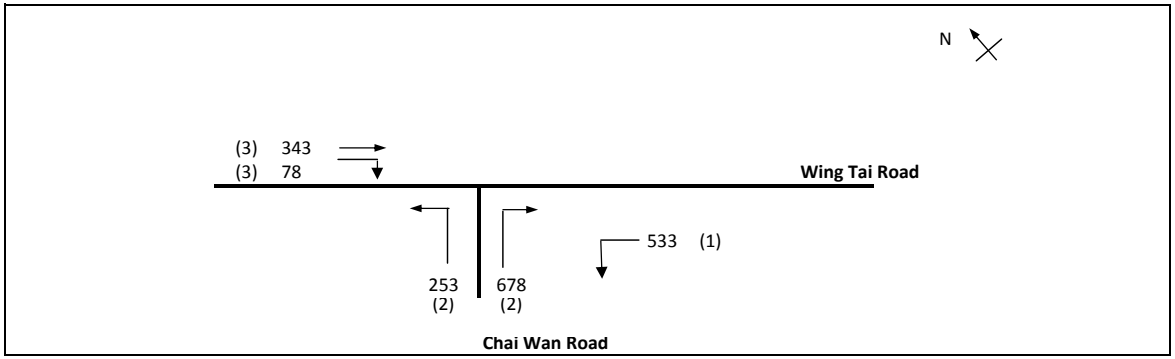
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	882.0	882.0	88.8	0.10	88.9	0.10
B	1076.4	1076.4	191.3	0.18	191.6	0.18
C	598.8	598.8	60.7	0.10	60.7	0.10
D	1305.0	1305.0	84.1	0.06	84.2	0.06
ALL	3862.2	3862.2	425.0	0.11	425.3	0.11

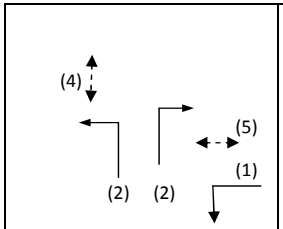
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

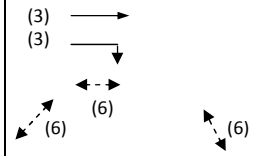
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.274
Loss time		L =	10 sec
Total Flow		=	1885 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.5 sec
Cm	= L/(1-Y)	=	13.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	201.6 %
Cp	= 0.9*L/(0.9-Y)	=	14.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	196.1 %



Stage A I = 7

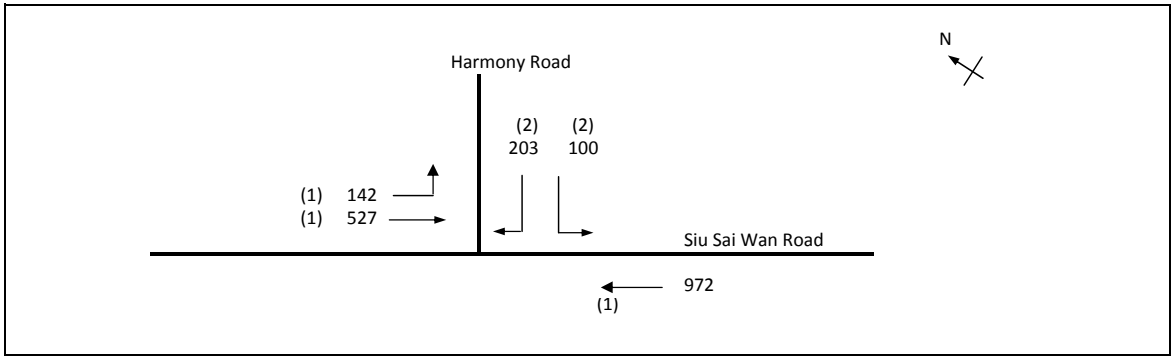


Stage B I = 5

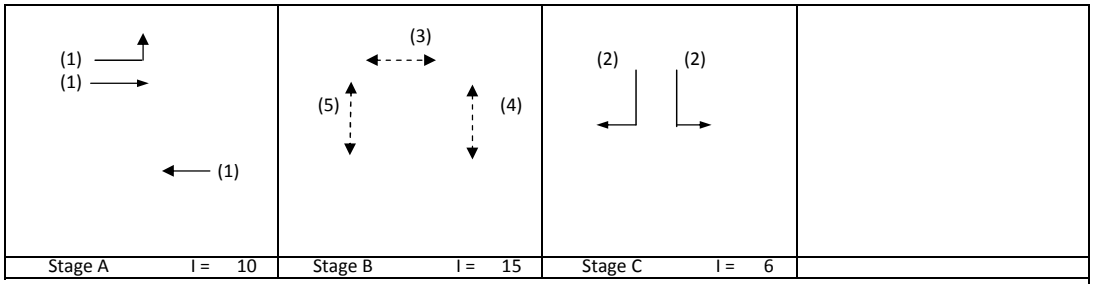
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	533			533	1.00	3857			3857	0.138			45	62	0.222	15	6
LT	A	4.00	2	2	24			4310	253			253	1.00	4056			4056	0.062			21	62	0.100	6	6
RT	A	3.50	2	2	11		y	4070			678	678	1.00	3582			3582	0.189	0.189		62	62	0.304	21	6
ST	B	3.50	3	2			y	4070		343		343	0.00	4070			4070	0.084	0.084		28	28	0.304	18	22
RT	B	4.50	3	2	13		y	4270			78	78	1.00	3828			3828	0.020			7	28	0.074	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.352	
Loss time	L =	48	sec
Total Flow	=	1944	pcu
Co = (1.5*L+5)/(1-Y)	=	118.8	sec
Cm = L/(1-Y)	=	74.1	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	53.5	%
Cp = 0.9*L/(0.9-Y)	=	78.8	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	33.0	%

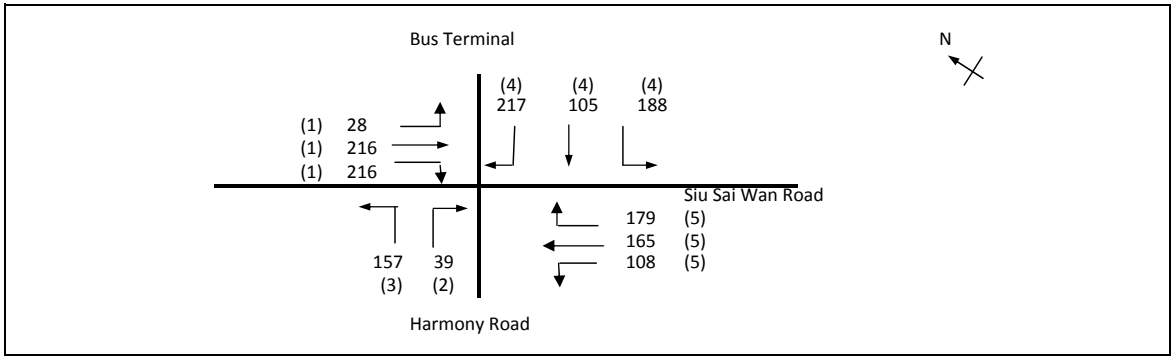


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

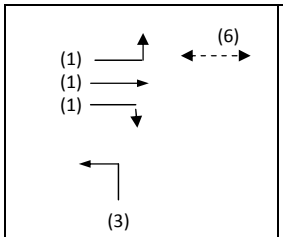
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	142	170		312	0.46	1831			1831	0.171			25	36	0.472	30	17
ST	A	3.20	1	1				2075		357		357	0.00	2075			2075	0.172			25	36	0.475	36	17
ST	A	3.00	1	2			y	3970		972		972	0.00	3970			3970	0.245	0.245		36	36	0.677	51	16
LT	C	3.75	2	1	12		y	1990	100			100	1.00	1769			1769	0.057			8	16	0.359	12	33
RT	C	3.75	2	1	12			2130			203	203	1.00	1893			1893	0.107	0.107		16	16	0.677	24	40
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

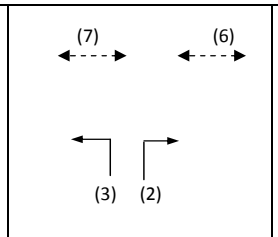
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



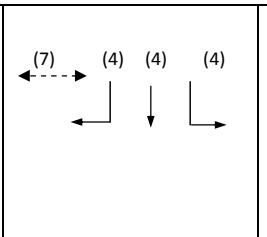
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.424
Loss time		L =	18 sec
Total Flow		=	1617 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.5 sec
Cm	= L/(1-Y)	=	31.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	80.5 %
Cp	= 0.9*L/(0.9-Y)	=	34.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	75.9 %



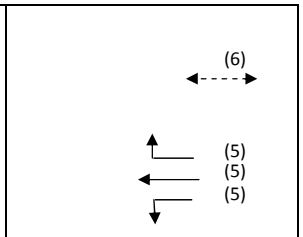
Stage A I = 5



Stage B I = 5



Stage C I = 6

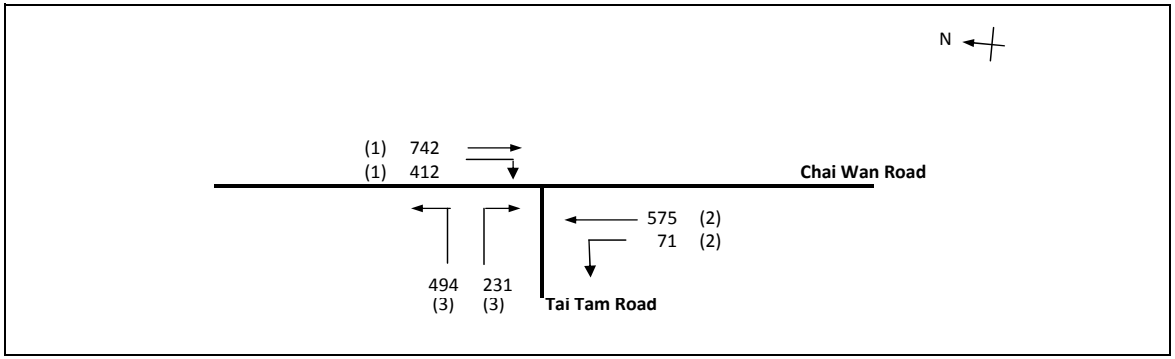


Stage C I = 6

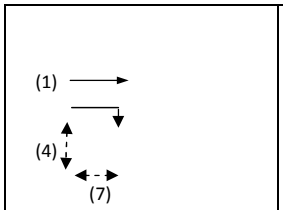
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	28	205		233	0.12	1914			1914	0.122			25	25	0.512	30	28
ST/RT	A	3.30	1	1	12			2085		11	216	227	0.95	1863			1863	0.122	0.122		25	25	0.512	30	28
RT	B	3.50	2	1	12			2105			39	39	1.00	1871			1871	0.021	0.021		4	4	0.512	6	65
LT	A,B	3.75	3	1	13		y	1990	157			157	1.00	1784			1784	0.088			18	34	0.270	18	21
RT	C	3.50	4	1	12			2105			217	217	1.00	1871			1871	0.116			24	33	0.368	24	21
LT/ST	C	3.50	4	1	12		y	1965	188	105		293	0.64	1819			1819	0.161	0.161		33	33	0.512	30	22
ST/RT	D	3.50	5	1	12			2105		52	179	231	0.77	1919			1919	0.120	0.120		25	25	0.512	30	28
LT/ST	D	3.50	5	1	11		y	1965	108	113		221	0.49	1842			1842	0.120			25	25	0.512	24	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

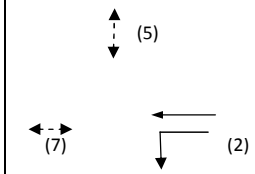
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



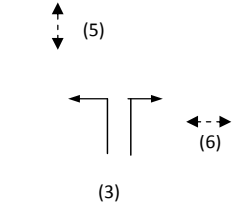
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.547
Loss time		L =	18 sec
Total Flow		=	2526 pcu
Co	= (1.5*L+5)/(1-Y)	=	70.6 sec
Cm	= L/(1-Y)	=	39.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	39.9 %
Cp	= 0.9*L/(0.9-Y)	=	45.9 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.4 %



Stage A I = 7



Stage B I = 8

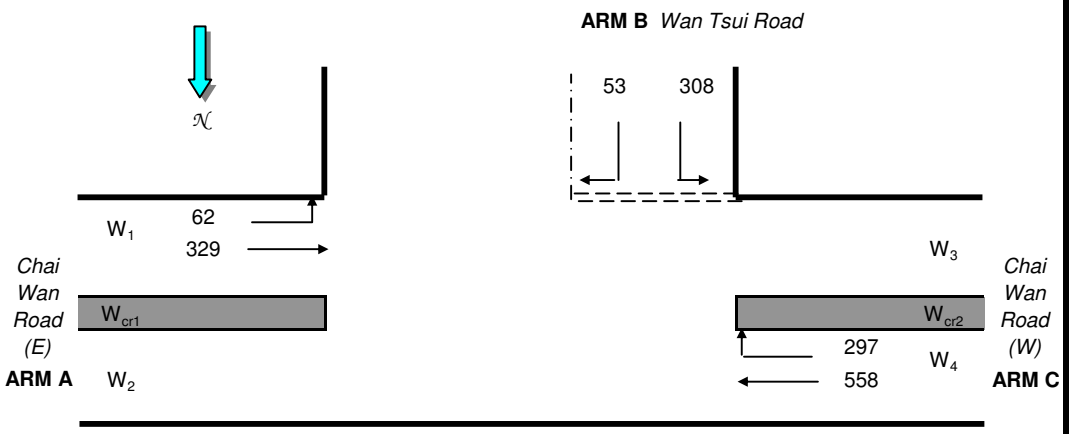


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		742		742	0.00	4070			4070	0.182			29	29	0.660	45	23
RT	A	3.50	1	1	13			2105			412	412	1.00	1887			1887	0.218	0.218		35	29	0.790	48	31
ST	B	3.50	2	2				4210		575		575	0.00	4210			4210	0.137	0.137		22	22	0.660	39	29
LT	B	3.10	2	1	12		y	1925	71			71	1.00	1711			1711	0.042			7	22	0.201	6	30
LT	C	4.00	3	1	15		y	2015	351			351	1.00	1832			1832	0.192	0.192		31	31	0.660	42	25
LT/RT	C	4.00	3	1	15			2155	143		231	374	1.00	1959			1959	0.191			30	31	0.657	42	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Weekend - Reference Case
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	61.5187	(pcu/hr)
q_{a-c}	=	329.156	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	558.466	(pcu/hr)
q_{c-b}	=	297.458	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	53.1889	(pcu/hr)
q_{b-c}	=	307.966	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

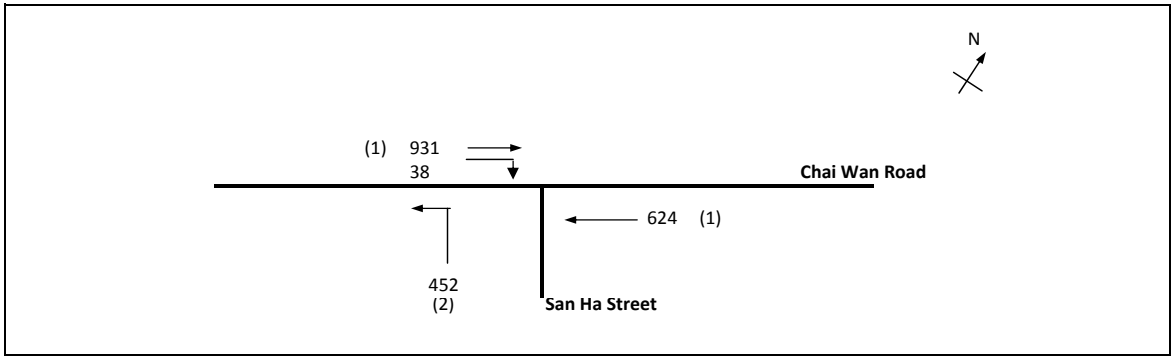
Q_{b-c}	=	781
Q_{c-b}	=	695
Q_{b-a}	=	362

COMPARISION OF DESIGN FLOW TO CAPACITY

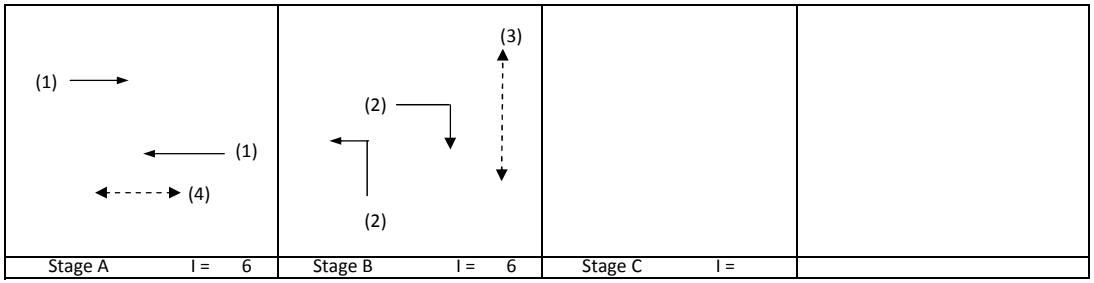
DFC_{b-a}	=	0.147
DFC_{b-c}	=	0.395
DFC_{c-b}	=	0.428

Critical DFC = 0.428

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.500
Loss time		L =	10 sec
Total Flow		=	2045 pcu
Co	= (1.5*L+5)/(1-Y)	=	40.0 sec
Cm	= L/(1-Y)	=	20.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	64.9 %
Cp	= 0.9*L/(0.9-Y)	=	22.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	61.9 %

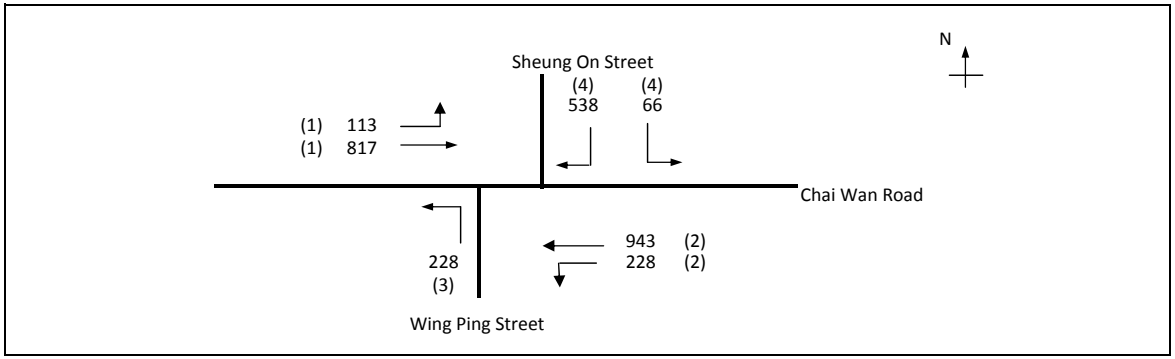


Stage A	I = 6	Stage B	I = 6	Stage C	I =

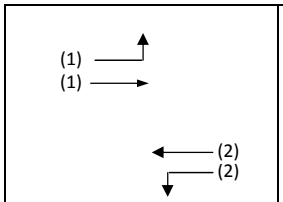
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		931		931	0.00	4070			4070	0.229	0.229		41	47	0.487	39	11
ST	A	3.50	1	2	10		N	4070		624		624	0.00	4070			4070	0.153			28	47	0.326	27	11
LT	B	3.00	2	1	10		N	1915	452			452	1.00	1665			1665	0.272	0.272		49	53	0.513	30	9
RT	B	3.50	2	1	12			2105			38	38	1.00	1871			1871	0.020			4	53	0.038	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

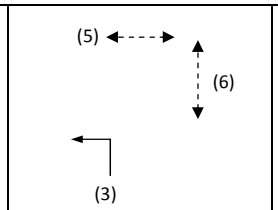
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



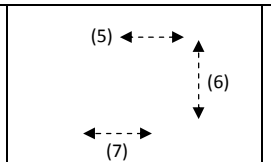
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.500
Loss time		L =	37 sec
Total Flow		=	2932 pcu
Co	= (1.5*L+5)/(1-Y)	=	120.9 sec
Cm	= L/(1-Y)	=	74.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	24.6 %
Cp	= 0.9*L/(0.9-Y)	=	83.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24.6 %



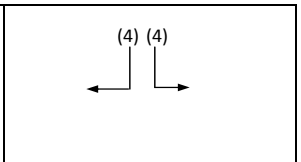
Stage A I = 8



Stage B I = 5



Stage C I = 7

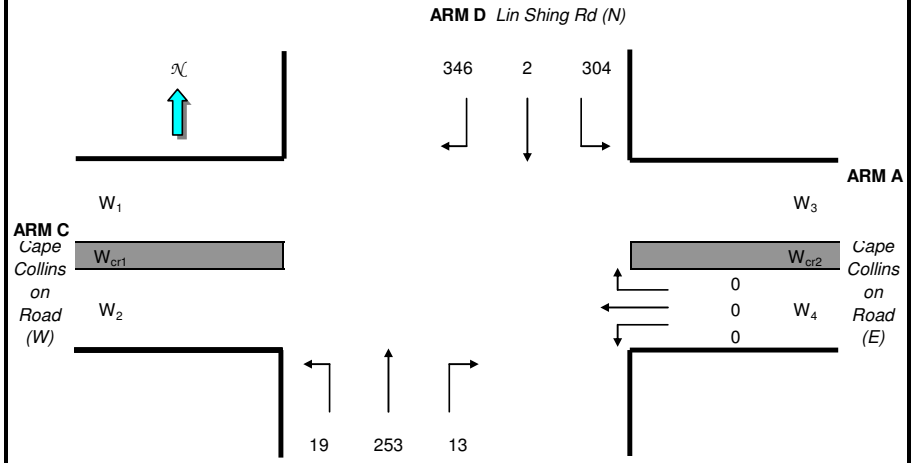


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	113	817		930	0.12	6083			6083	0.153			25		0.000	62	54
LT/ST	A	3.30	2	3	12		Y	6115	228	943		1170	0.19	5970			5970	0.196	0.196		33		0.000	78	54
LT	B	3.50	3	1	9		Y	1965	228			228	1.00	1684			1684	0.135	0.135		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	66		538	604	1.00	3583			3583	0.169	0.169		28		0.000	60	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	12.69	(pcu/hr)
q_{b-c}	=	19.096	(pcu/hr)
q_{b-d}	=	253.03	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	303.61	(pcu/hr)
q_{d-b}	=	2.3355	(pcu/hr)
q_{d-c}	=	345.61	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

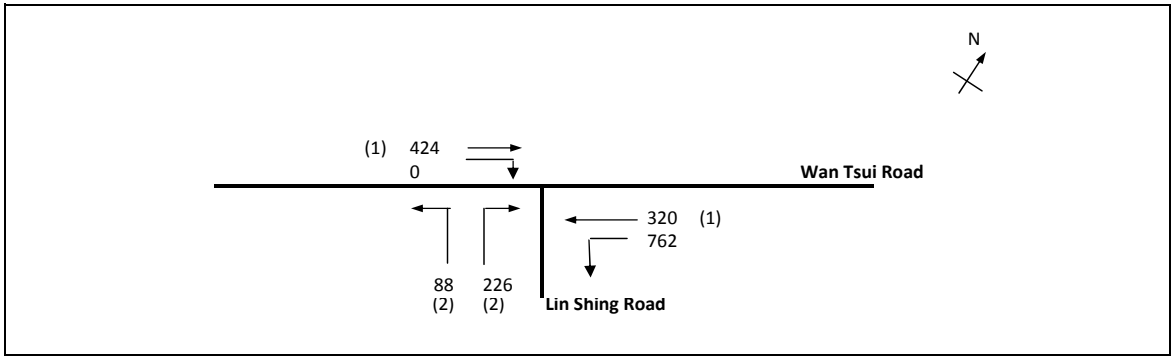
Q_{b-a}	=	508
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	452
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

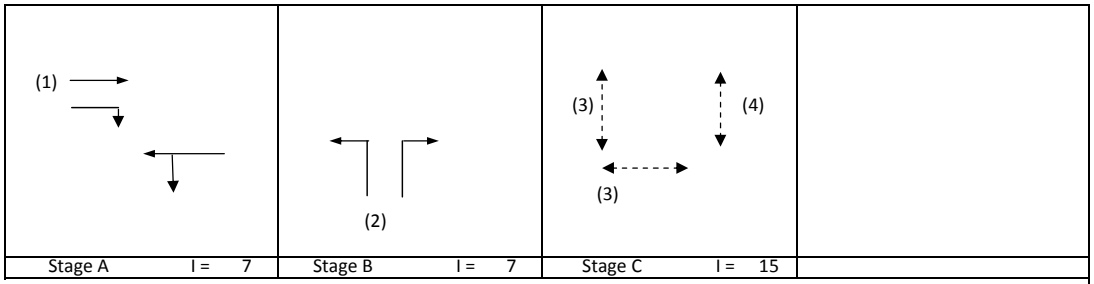
DFC_{b-a}	=	0.025
DFC_{b-c}	=	0.025
DFC_{b-d}	=	0.414
DFC_{d-a}	=	0.450
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.765
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.765

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.772
Loss time		L =	36 sec
Total Flow		=	1820 pcu
Co	= (1.5*L+5)/(1-Y)	=	258.2 sec
Cm	= L/(1-Y)	=	157.6 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-18.3 %
Cp	= 0.9*L/(0.9-Y)	=	252.2 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-18.3 %

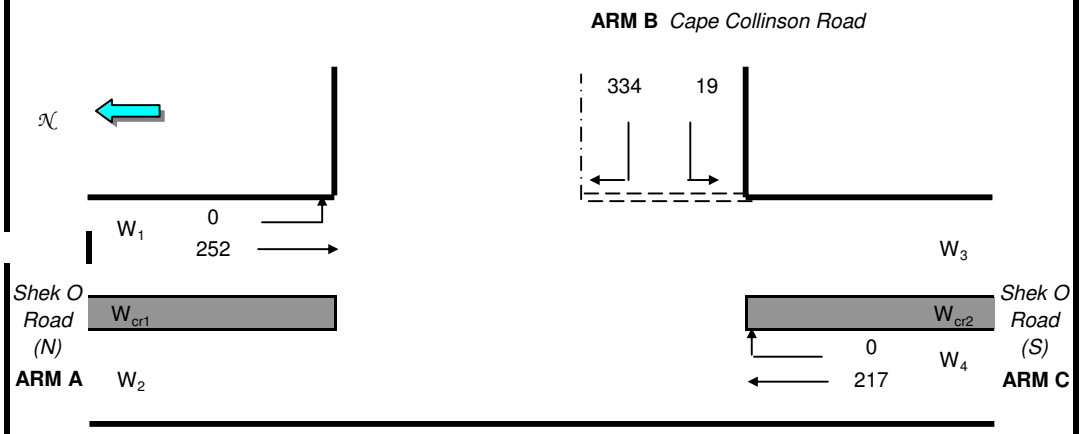


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		424		424	0.00	1915			1915	0.221			24	65	0.410	36	10
ST/LT	A	4.00	1	1	10		y	2015	762	320		1083	0.70	1823			1823	0.594	0.594		65	65	1.102	96	18
LT/RT	B	3.75	2	1	12		y	1990	88		226	314	1.00	1769			1769	0.177	0.177		19	19	1.102	48	46
Ped	C	6.00	3																	10					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Weekend - Site 1
Time - Weekend Peak Hour



GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	252.154	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	216.546	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	333.694	(pcu/hr)
q_{b-c}	=	18.9072	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	677
Q_{c-b}	=	754
Q_{b-a}	=	330

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.011
DFC_{b-c}	=	0.028
DFC_{c-b}	=	0.000

Critical DFC = 1.011

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
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Crowthorne House
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Wokingham, Berks.
RG40 3GA,UK

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Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 09:53:35 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	T5 SLOPE	INTERCEPT (PCU/MIN)
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_WE_J4_S1


 DEMAND SET TITLE:  2021_WE_J4_S1
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.015 I  0.267 I  0.515 I  0.202 I
 I                    I         I   14.0 I  242.0 I  466.0 I  183.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.516 I  0.010 I  0.323 I  0.151 I
 I                    I         I  560.0 I   11.0 I  351.0 I  164.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.555 I  0.382 I  0.014 I  0.049 I
 I                    I         I  352.0 I  242.0 I    9.0 I   31.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.351 I  0.333 I  0.313 I  0.003 I
 I                    I         I  472.0 I  447.0 I  420.0 I    4.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									I
I ARM A	15.08	23.91	0.631	- -	-	0.0	1.7	49.0	-
0.112	I								
I ARM B	18.09	22.70	0.797	- -	-	0.0	3.8	105.2	-
0.206	I								
I ARM C	10.58	19.67	0.538	- -	-	0.0	1.2	33.7	-
0.109	I								
I ARM D	22.37	36.48	0.613	- -	-	0.0	1.6	46.2	-
0.070	I								
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									I
I ARM A	15.08	23.87	0.632	- -	-	1.7	1.7	51.0	-
0.114	I								
I ARM B	18.09	22.65	0.799	- -	-	3.8	3.9	115.6	-
0.219	I								
I ARM C	10.58	19.61	0.540	- -	-	1.2	1.2	34.9	-
0.111	I								
I ARM D	22.37	36.37	0.615	- -	-	1.6	1.6	47.6	-
0.071	I								
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.8	****
08.45	3.9	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.2	*
08.45	1.2	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

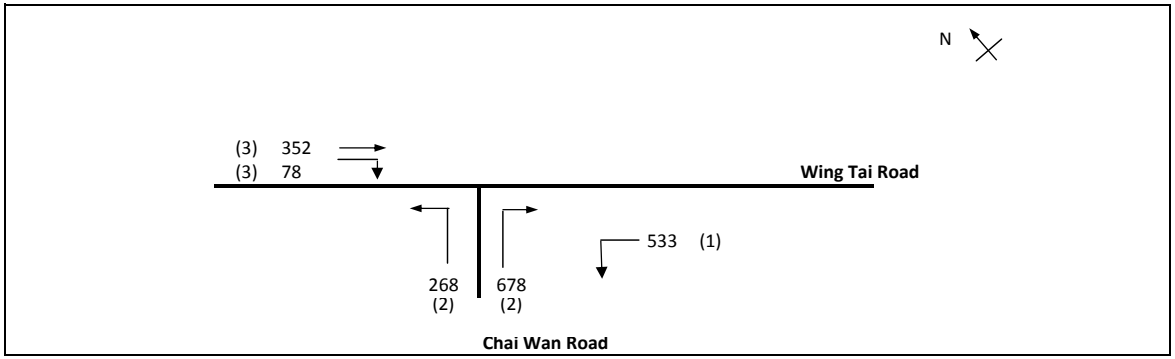
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	904.8	904.8	100.0	0.11	100.1	0.11
B	1085.4	1085.4	220.8	0.20	221.1	0.20
C	634.8	634.8	68.5	0.11	68.6	0.11
D	1342.2	1342.2	93.7	0.07	93.8	0.07
ALL	3967.2	3967.2	483.0	0.12	483.5	0.12

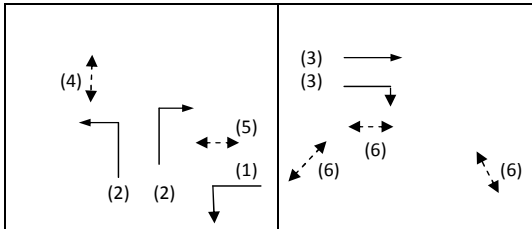
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.276
Loss time		L =	10 sec
Total Flow		=	1909 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.6 sec
Cm	= L/(1-Y)	=	13.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	199.0 %
Cp	= 0.9*L/(0.9-Y)	=	14.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	193.6 %



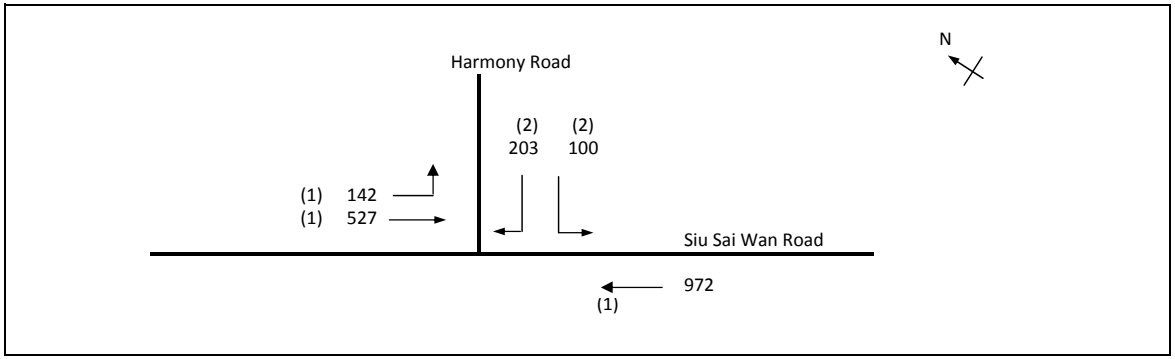
Stage A I = 7

Stage B I = 5

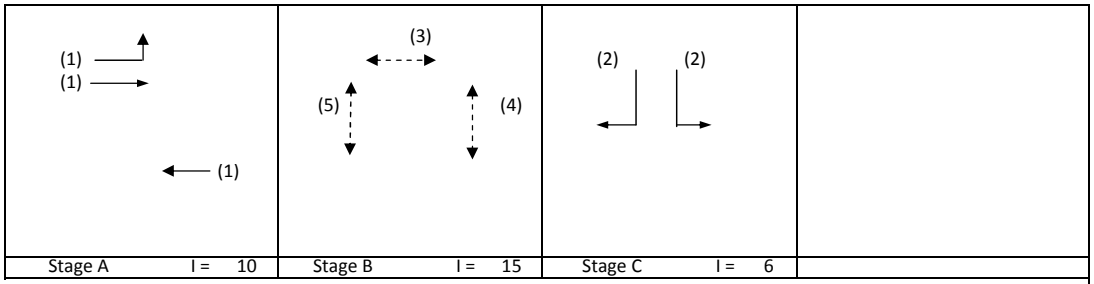
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	533			533	1.00	3857			3857	0.138			45	62	0.224	15	6
LT	A	4.00	2	2	24			4310	268			268	1.00	4056			4056	0.066			22	62	0.107	6	6
RT	A	3.50	2	2	11		y	4070			678	678	1.00	3582			3582	0.189	0.189		62	62	0.307	21	6
ST	B	3.50	3	2			y	4070		352		352	0.00	4070			4070	0.087	0.087		28	28	0.307	21	22
RT	B	4.50	3	2	13		y	4270			78	78	1.00	3828			3828	0.020			7	28	0.072	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.352	
Loss time	L =	48	sec
Total Flow	=	1944	pcu
Co = (1.5*L+5)/(1-Y)	=	118.8	sec
Cm = L/(1-Y)	=	74.1	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	53.5	%
Cp = 0.9*L/(0.9-Y)	=	78.8	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	33.0	%

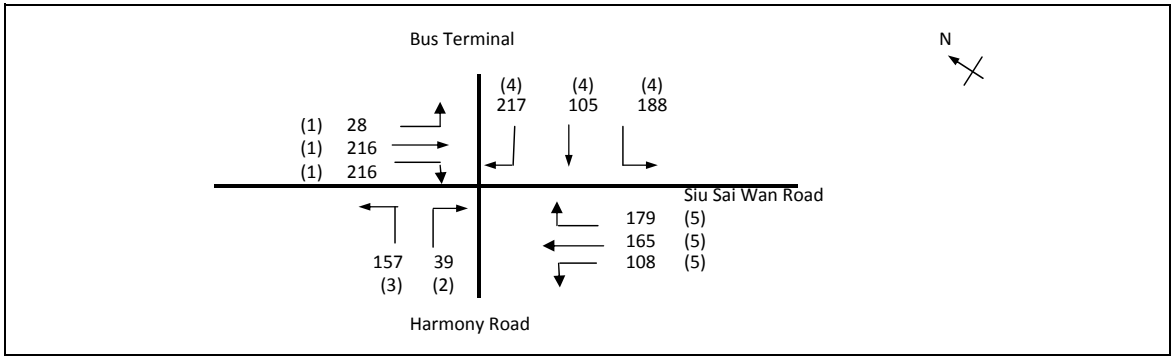


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

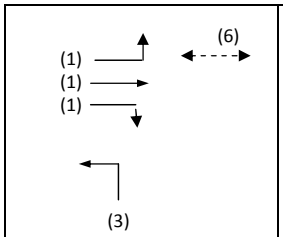
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	142	171		313	0.45	1832			1832	0.171			25	36	0.473	30	17
ST	A	3.20	1	1				2075		356		356	0.00	2075			2075	0.171			25	36	0.474	36	17
ST	A	3.00	1	2			y	3970		972		972	0.00	3970			3970	0.245	0.245		36	36	0.677	51	16
LT	C	3.75	2	1	12		y	1990	100			100	1.00	1769			1769	0.057			8	16	0.359	12	33
RT	C	3.75	2	1	12			2130			203	203	1.00	1893			1893	0.107	0.107		16	16	0.677	24	40
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

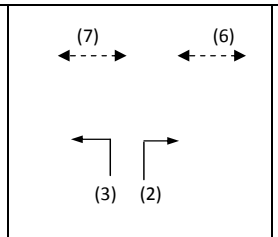
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



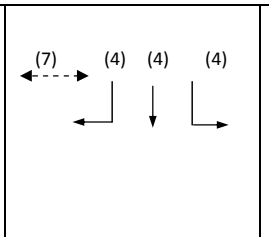
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.423	
Loss time	L =	18	sec
Total Flow	=	1617	pcu
Co = (1.5*L+5)/(1-Y)	=	55.5	sec
Cm = L/(1-Y)	=	31.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	80.7	%
Cp = 0.9*L/(0.9-Y)	=	34.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	76.1	%



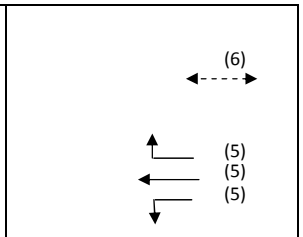
Stage A I = 5



Stage B I = 5



Stage C I = 6

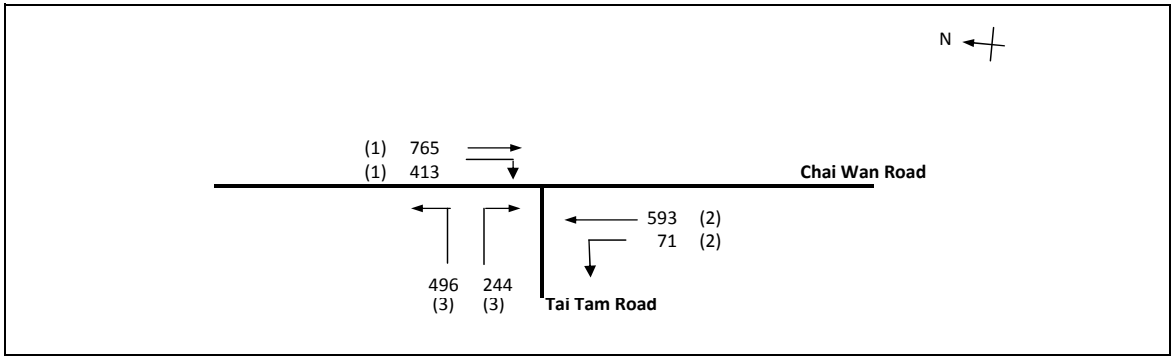


Stage C I = 6

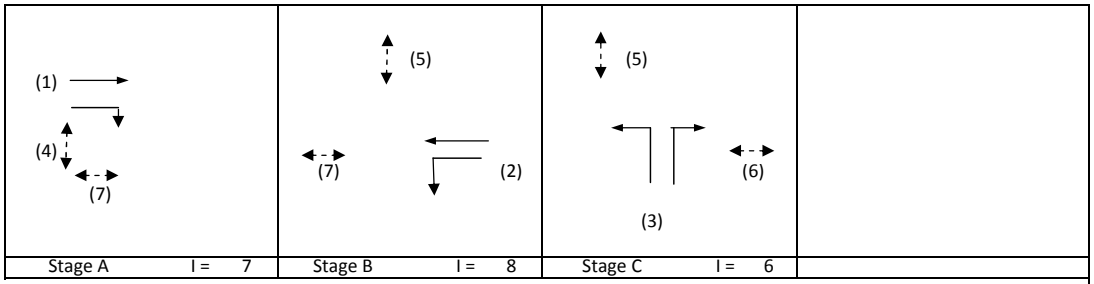
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	28	205		233	0.12	1914			1914	0.122			25	25	0.511	30	28
ST/RT	A	3.30	1	1	12			2085		11	216	227	0.95	1863			1863	0.122	0.122		25	25	0.511	30	28
RT	B	3.50	2	1	12			2105			39	39	1.00	1871			1871	0.021	0.021		4	4	0.511	6	65
LT	A,B	3.75	3	1	13		y	1990	157			157	1.00	1784			1784	0.088			18	34	0.270	18	21
RT	C	3.50	4	1	12			2105			217	217	1.00	1871			1871	0.116			24	33	0.367	24	21
LT/ST	C	3.50	4	1	12		y	1965	188	105		293	0.64	1819			1819	0.161	0.161		33	33	0.511	30	22
ST/RT	D	3.50	5	1	12			2105		51	179	230	0.78	1918			1918	0.120	0.120		25	25	0.511	30	28
LT/ST	D	3.50	5	1	11		y	1965	108	114		222	0.49	1843			1843	0.120			25	25	0.511	24	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.560
Loss time		L =	18 sec
Total Flow		=	2582 pcu
Co	= (1.5*L+5)/(1-Y)	=	72.8 sec
Cm	= L/(1-Y)	=	41.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	36.5 %
Cp	= 0.9*L/(0.9-Y)	=	47.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.1 %

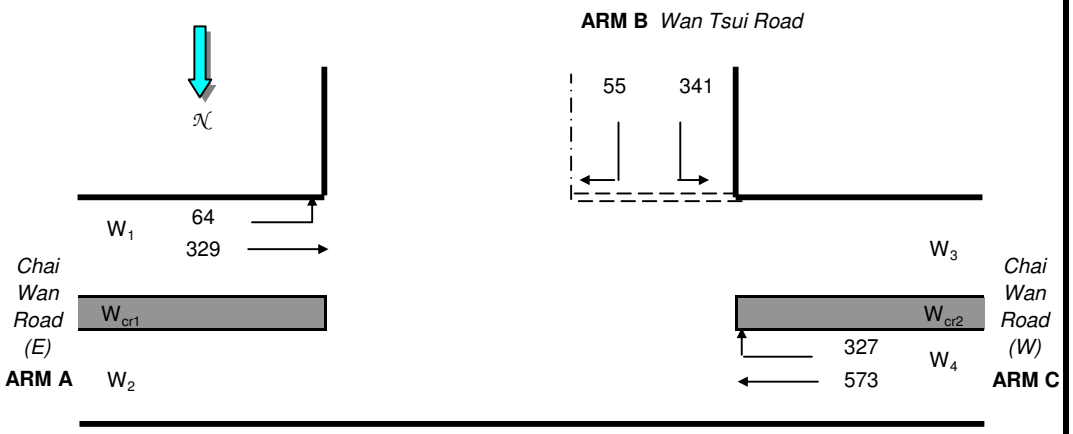


Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		765		765	0.00	4120			4120	0.186			29	29	0.676	48	23
RT	A	3.00	1	1	13			2055			413	413	1.00	1842			1842	0.224	0.224		35	29	0.818	48	34
ST	B	3.50	2	2				4210		593		593	0.00	4210			4210	0.141	0.141		22	22	0.676	39	29
LT	B	3.10	2	1	12		y	1925	71			71	1.00	1711			1711	0.042			6	22	0.200	6	30
LT	C	4.00	3	1	15		y	2015	358			358	1.00	1832			1832	0.195	0.195		30	30	0.676	42	26
LT/RT	C	4.00	3	1	15			2155	138		244	382	1.00	1959			1959	0.195			30	30	0.676	42	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	64.2578	(pcu/hr)
q_{a-c}	=	328.892	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	572.552	(pcu/hr)
q_{c-b}	=	326.723	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	55.0168	(pcu/hr)
q_{b-c}	=	340.989	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

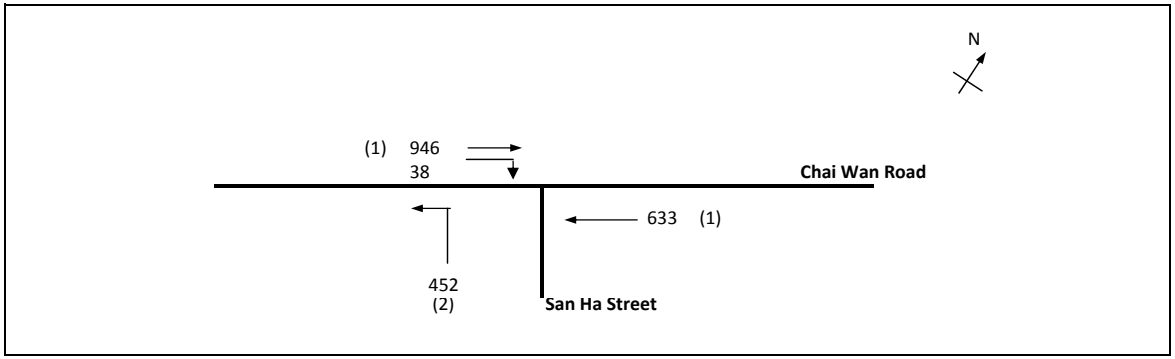
Q_{b-c}	=	780
Q_{c-b}	=	694
Q_{b-a}	=	357

COMPARISION OF DESIGN FLOW TO CAPACITY

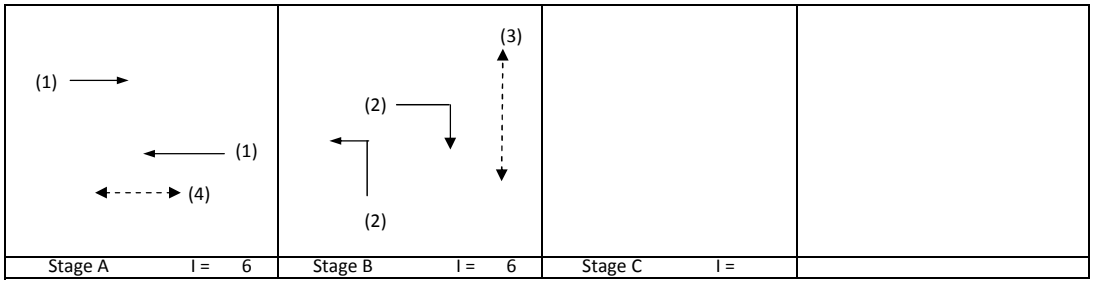
DFC_{b-a}	=	0.154
DFC_{b-c}	=	0.437
DFC_{c-b}	=	0.471

Critical DFC = 0.471

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.504
Loss time		L =	10 sec
Total Flow		=	2069 pcu
Co	= (1.5*L+5)/(1-Y)	=	40.3 sec
Cm	= L/(1-Y)	=	20.2 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	63.7 %
Cp	= 0.9*L/(0.9-Y)	=	22.7 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	60.7 %

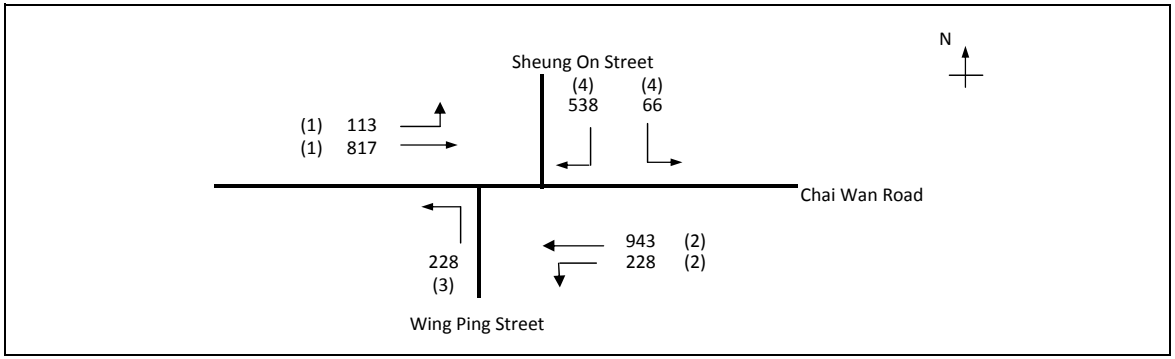


Stage A	I = 6	Stage B	I = 6	Stage C	I =

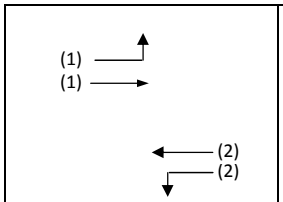
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		946		946	0.00	4070			4070	0.232	0.232		41	47	0.494	39	11
ST	A	3.50	1	2	10		N	4070		633		633	0.00	4070			4070	0.156			28	47	0.331	27	11
LT	B	3.00	2	1	10		N	1915	452			452	1.00	1665			1665	0.272	0.272		49	53	0.513	30	9
RT	B	3.50	2	1	12			2105			38	38	1.00	1871			1871	0.020			4	53	0.038	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

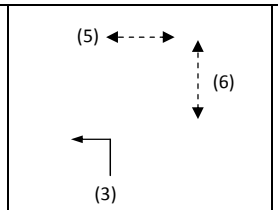
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



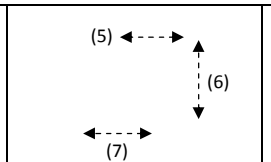
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.500
Loss time		L =	37 sec
Total Flow		=	2932 pcu
Co	= (1.5*L+5)/(1-Y)	=	120.9 sec
Cm	= L/(1-Y)	=	74.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	24.6 %
Cp	= 0.9*L/(0.9-Y)	=	83.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24.6 %



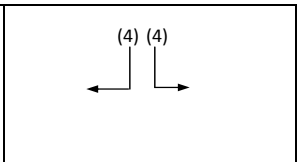
Stage A I = 8



Stage B I = 5



Stage C I = 7

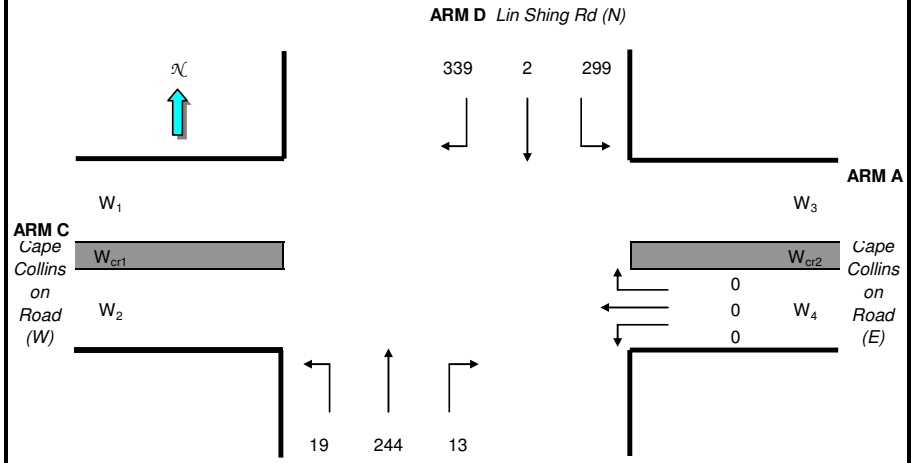


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	113	817		930	0.12	6083			6083	0.153			25		0.000	62	54
LT/ST	A	3.30	2	3	12		Y	6115	228	943		1170	0.19	5970			5970	0.196	0.196		33		0.000	78	54
LT	B	3.50	3	1	9		Y	1965	228			228	1.00	1684			1684	0.135	0.135		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	66		538	604	1.00	3583			3583	0.169	0.169		28		0.000	60	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	12.69	(pcu/hr)
q_{b-c}	=	18.963	(pcu/hr)
q_{b-d}	=	243.57	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	298.91	(pcu/hr)
q_{d-b}	=	2.2993	(pcu/hr)
q_{d-c}	=	339.02	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

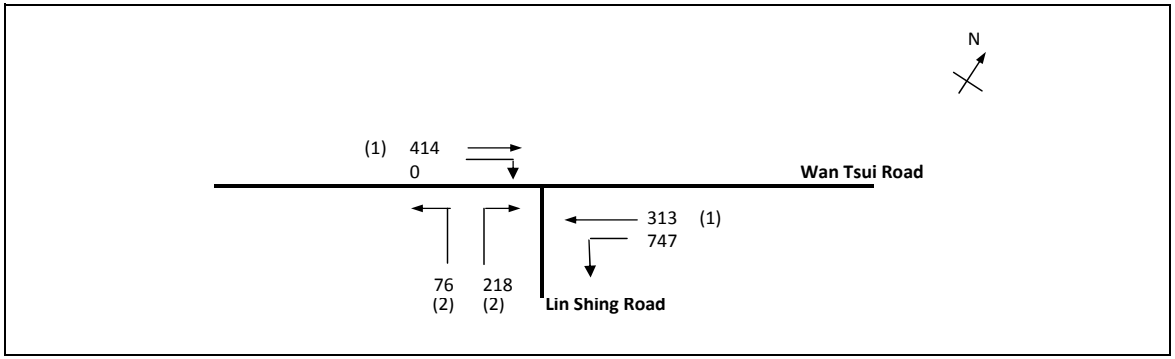
Q_{b-a}	=	510
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	454
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

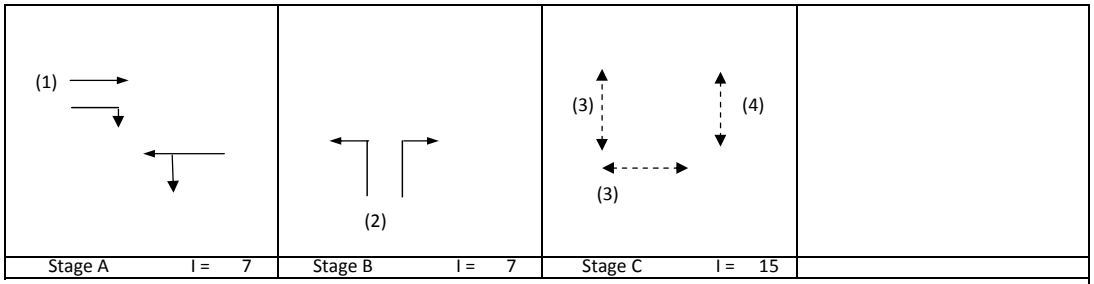
DFC_{b-a}	=	0.025
DFC_{b-c}	=	0.025
DFC_{b-d}	=	0.398
DFC_{d-a}	=	0.443
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.746
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.746

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.748
Loss time		L =	36 sec
Total Flow		=	1768 pcu
Co	= (1.5*L+5)/(1-Y)	=	234.0 sec
Cm	= L/(1-Y)	=	142.8 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-15.8 %
Cp	= 0.9*L/(0.9-Y)	=	212.9 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-15.8 %

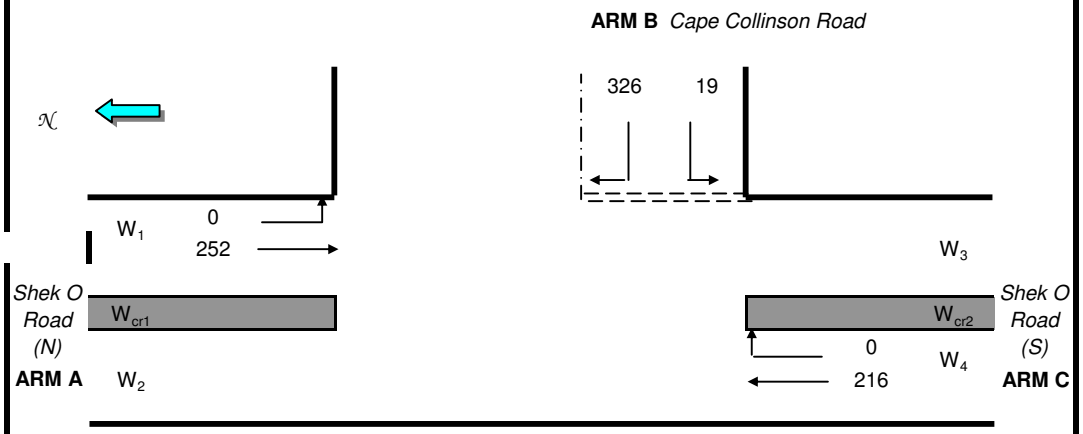


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		414		414	0.00	1915			1915	0.216			24	65	0.397	36	10
ST/LT	A	4.00	1	1	10		y	2015	747	313		1060	0.70	1822			1822	0.582	0.582		65	65	1.068	96	18
LT/RT	B	3.75	2	1	12		y	1990	76		218	294	1.00	1769			1769	0.166	0.166		19	19	1.068	48	47
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	251.794	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	216.146	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	326.349	(pcu/hr)
q_{b-c}	=	18.5688	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	678
Q_{c-b}	=	755
Q_{b-a}	=	330

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.989
DFC_{b-c}	=	0.027
DFC_{c-b}	=	0.000

Critical DFC = 0.989

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 09:55:17 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
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 V = approach half-width       L = effective flare length           D = inscribed circle
diameter
 E = entry width               R = entry radius                     PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_WE_J4_S2


 DEMAND SET TITLE:  2021_WE_J4_S2
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.016 I  0.271 I  0.510 I  0.204 I
 I                    I         I   14.0 I  242.0 I  456.0 I  182.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.518 I  0.010 I  0.320 I  0.152 I
 I                    I         I  560.0 I   11.0 I  346.0 I  164.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.552 I  0.385 I  0.015 I  0.049 I
 I                    I         I  341.0 I  238.0 I    9.0 I   30.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.352 I  0.335 I  0.309 I  0.003 I
 I                    I         I  467.0 I  444.0 I  410.0 I    4.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									I
I ARM A	14.91	24.14	0.618	- -	-	0.0	1.6	46.5	-
0.107	I								
I ARM B	18.20	22.96	0.793	- -	-	0.0	3.7	102.9	-
0.200	I								
I ARM C	10.30	19.59	0.526	- -	-	0.0	1.1	32.1	-
0.107	I								
I ARM D	22.09	36.64	0.603	- -	-	0.0	1.5	44.3	-
0.068	I								
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									I
I ARM A	14.91	24.10	0.619	- -	-	1.6	1.6	48.3	-
0.109	I								
I ARM B	18.20	22.91	0.794	- -	-	3.7	3.8	112.7	-
0.211	I								
I ARM C	10.30	19.53	0.527	- -	-	1.1	1.1	33.2	-
0.108	I								
I ARM D	22.09	36.54	0.605	- -	-	1.5	1.5	45.6	-
0.069	I								
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.7	****
08.45	3.8	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.5	**
08.45	1.5	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

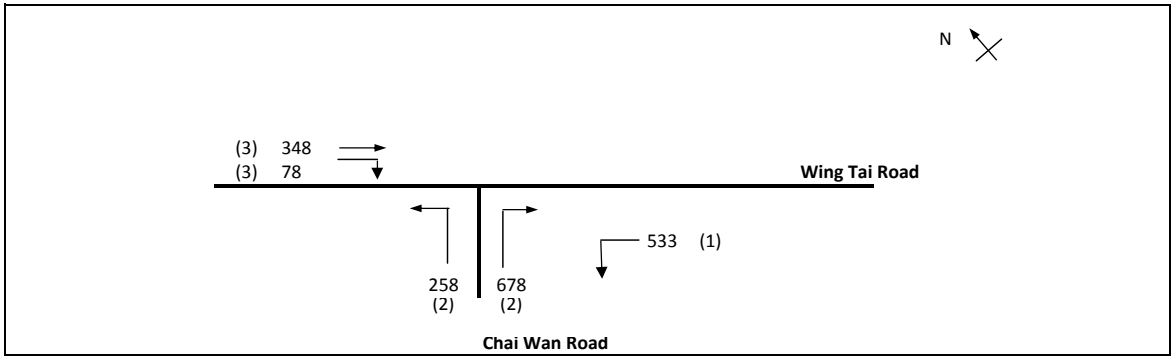
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	894.6	894.6	94.7	0.11	94.8	0.11
B	1092.0	1092.0	215.7	0.20	216.0	0.20
C	618.0	618.0	65.3	0.11	65.3	0.11
D	1325.4	1325.4	89.8	0.07	89.8	0.07
ALL	3930.0	3930.0	465.5	0.12	466.0	0.12

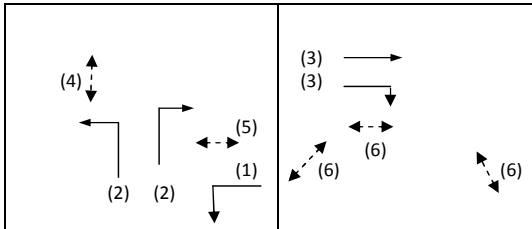
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.275	
Loss time		L =	10	sec
Total Flow		=	1896	pcu
Co	= (1.5*L+5)/(1-Y)	=	27.6	sec
Cm	= L/(1-Y)	=	13.8	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	200.2	%
Cp	= 0.9*L/(0.9-Y)	=	14.4	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	194.8	%



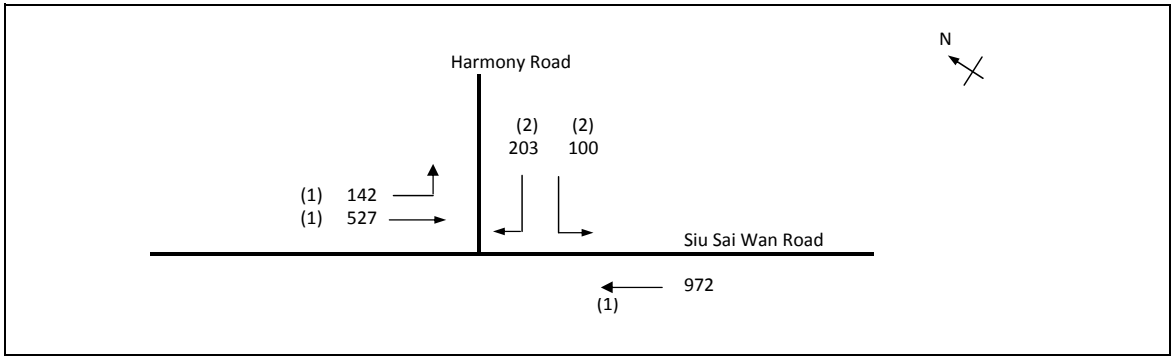
Stage A I = 7

Stage B I = 5

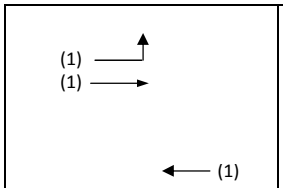
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	533			533	1.00	3857			3857	0.138			45	62	0.223	15	6
LT	A	4.00	2	2	24			4310	258			258	1.00	4056			4056	0.064			21	62	0.103	6	6
RT	A	3.50	2	2	11		y	4070			678	678	1.00	3582			3582	0.189	0.189		62	62	0.305	21	6
ST	B	3.50	3	2			y	4070		348		348	0.00	4070			4070	0.085	0.085		28	28	0.305	18	22
RT	B	4.50	3	2	13		y	4270			78	78	1.00	3828			3828	0.020			7	28	0.073	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

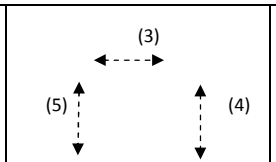
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



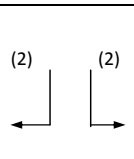
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.352	
Loss time	L =	48	sec
Total Flow	=	1944	pcu
Co = (1.5*L+5)/(1-Y)	=	118.8	sec
Cm = L/(1-Y)	=	74.1	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	53.5	%
Cp = 0.9*L/(0.9-Y)	=	78.8	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	33.0	%



Stage A I = 10



Stage B I = 15

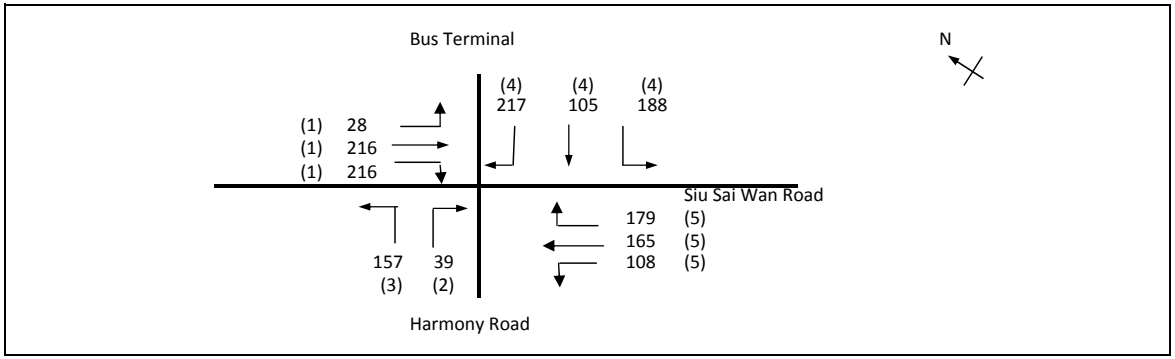


Stage C I = 6

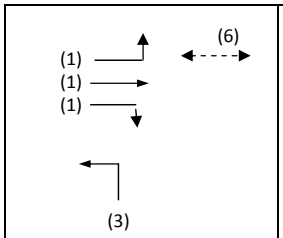
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	142	171		313	0.45	1832			1832	0.171			25	36	0.473	30	17
ST	A	3.20	1	1				2075		356		356	0.00	2075			2075	0.171			25	36	0.474	36	17
ST	A	3.00	1	2			y	3970		972		972	0.00	3970			3970	0.245	0.245		36	36	0.677	51	16
LT	C	3.75	2	1	12		y	1990	100			100	1.00	1769			1769	0.057			8	16	0.359	12	33
RT	C	3.75	2	1	12			2130			203	203	1.00	1893			1893	0.107	0.107		16	16	0.677	24	40
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

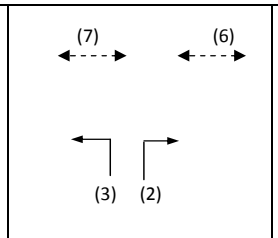
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



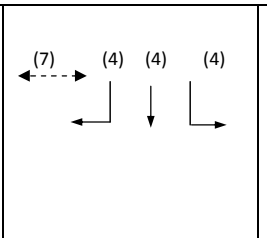
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.423	
Loss time	L =	18	sec
Total Flow	=	1617	pcu
Co = (1.5*L+5)/(1-Y)	=	55.5	sec
Cm = L/(1-Y)	=	31.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	80.7	%
Cp = 0.9*L/(0.9-Y)	=	34.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	76.1	%



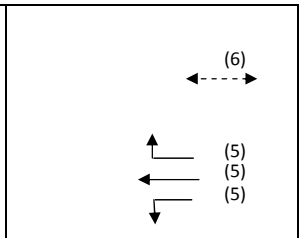
Stage A I = 5



Stage B I = 5



Stage C I = 6

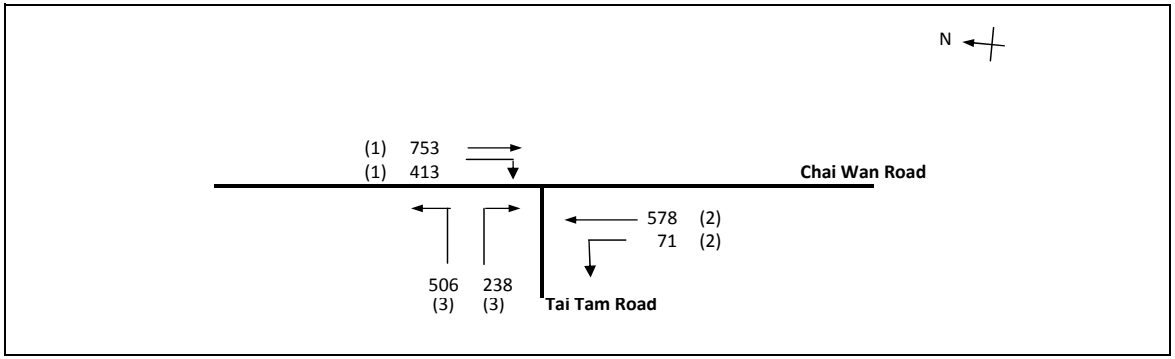


Stage C I = 6

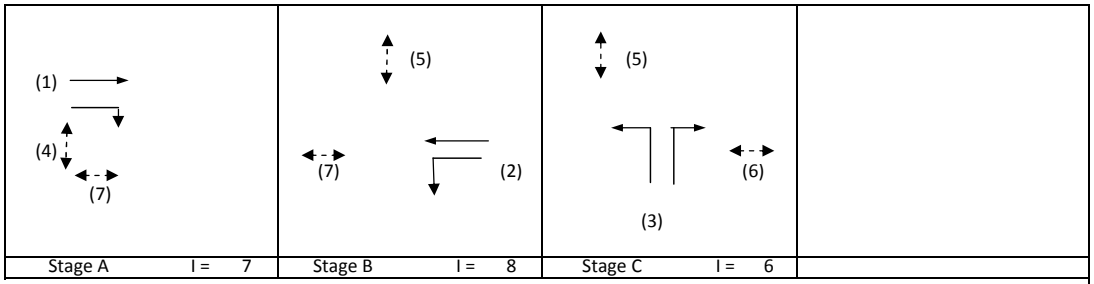
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	28	205		233	0.12	1914			1914	0.122			25	25	0.511	30	28
ST/RT	A	3.30	1	1	12			2085		11	216	227	0.95	1863			1863	0.122	0.122		25	25	0.511	30	28
RT	B	3.50	2	1	12			2105			39	39	1.00	1871			1871	0.021	0.021		4	4	0.511	6	65
LT	A,B	3.75	3	1	13		y	1990	157			157	1.00	1784			1784	0.088			18	34	0.270	18	21
RT	C	3.50	4	1	12			2105			217	217	1.00	1871			1871	0.116			24	33	0.367	24	21
LT/ST	C	3.50	4	1	12		y	1965	188	105		293	0.64	1819			1819	0.161	0.161		33	33	0.511	30	22
ST/RT	D	3.50	5	1	12			2105		51	179	230	0.78	1918			1918	0.120	0.120		25	25	0.511	30	28
LT/ST	D	3.50	5	1	11		y	1965	108	114		222	0.49	1843			1843	0.120			25	25	0.511	24	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.553
Loss time		L =	18 sec
Total Flow		=	2559 pcu
Co	= (1.5*L+5)/(1-Y)	=	71.5 sec
Cm	= L/(1-Y)	=	40.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	38.4 %
Cp	= 0.9*L/(0.9-Y)	=	46.6 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	34.9 %

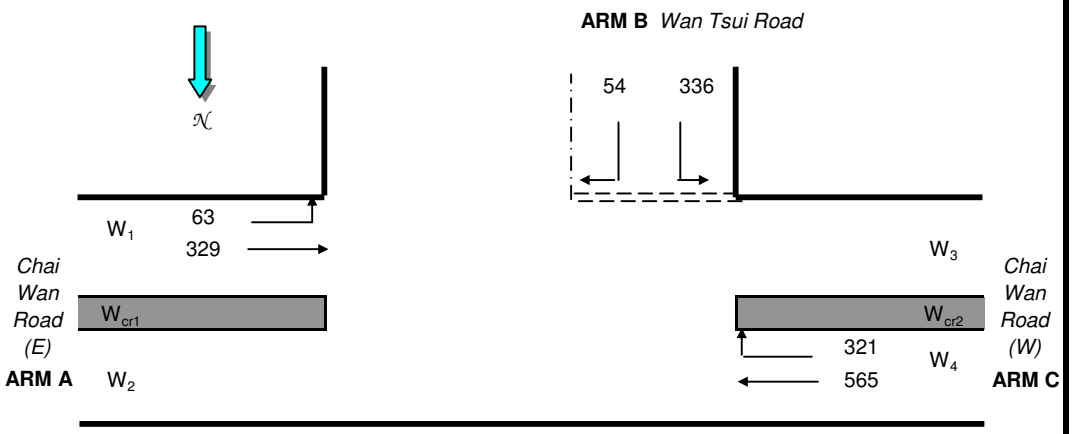


Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		753		753	0.00	4070			4070	0.185			29	29	0.667	45	23
RT	A	3.50	1	1	13			2105			413	413	1.00	1887			1887	0.219	0.219		34	29	0.789	48	31
ST	B	3.50	2	2				4210		578		578	0.00	4210			4210	0.137	0.137		22	22	0.667	39	29
LT	B	3.10	2	1	12		y	1925	71			71	1.00	1711			1711	0.042			7	22	0.203	6	30
LT	C	4.00	3	1	15		y	2015	360			360	1.00	1832			1832	0.197	0.197		31	31	0.667	42	25
LT/RT	C	4.00	3	1	15			2155	146		238	384	1.00	1959			1959	0.196			31	31	0.665	42	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	63.2022	(pcu/hr)
q_{a-c}	=	328.892	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	565.289	(pcu/hr)
q_{c-b}	=	320.956	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	54.1196	(pcu/hr)
q_{b-c}	=	335.562	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

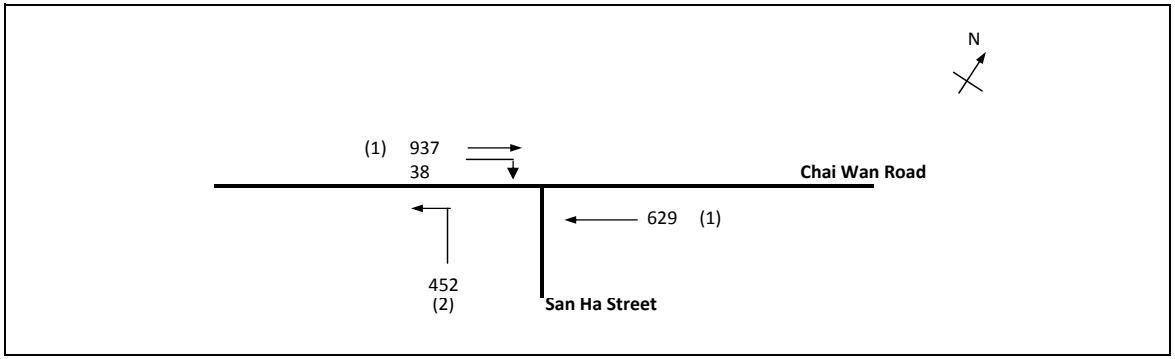
Q_{b-c}	=	780
Q_{c-b}	=	695
Q_{b-a}	=	359

COMPARISION OF DESIGN FLOW TO CAPACITY

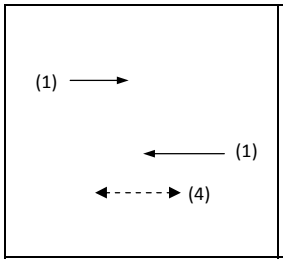
DFC_{b-a}	=	0.151
DFC_{b-c}	=	0.430
DFC_{c-b}	=	0.462

Critical DFC = 0.462

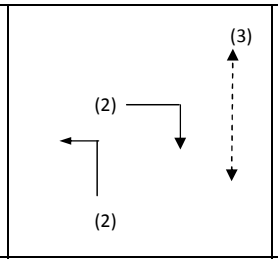
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.502
Loss time		L =	10 sec
Total Flow		=	2055 pcu
Co	= (1.5*L+5)/(1-Y)	=	40.1 sec
Cm	= L/(1-Y)	=	20.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	64.4 %
Cp	= 0.9*L/(0.9-Y)	=	22.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	61.4 %



Stage A I = 6



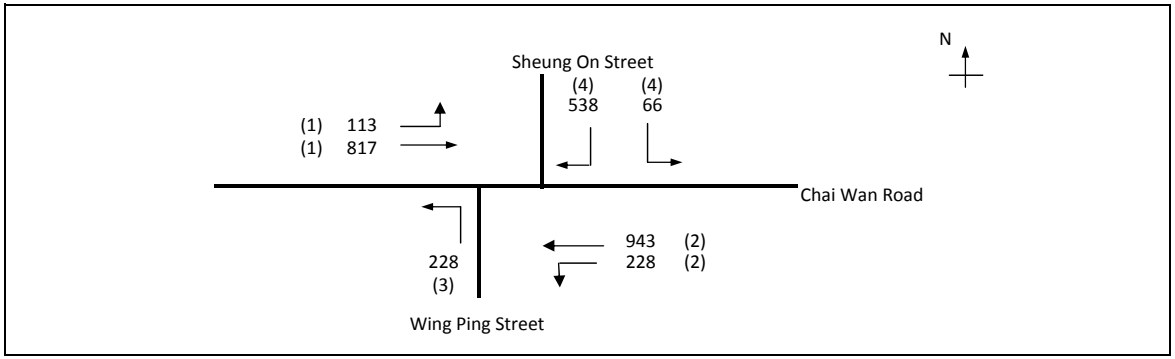
Stage B I = 6

Stage C I =

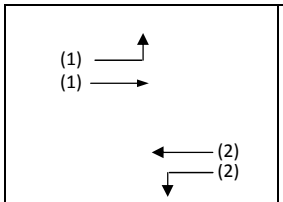
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		937		937	0.00	4070			4070	0.230	0.230		41	47	0.490	39	11
ST	A	3.50	1	2	10		N	4070		629		629	0.00	4070			4070	0.154			28	47	0.329	27	11
LT	B	3.00	2	1	10		N	1915	452			452	1.00	1665			1665	0.272	0.272		49	53	0.513	30	9
RT	B	3.50	2	1	12			2105			38	38	1.00	1871			1871	0.020			4	53	0.038	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

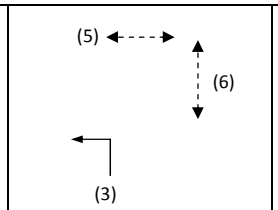
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



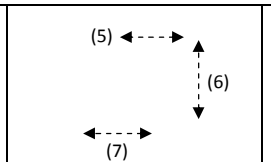
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.500
Loss time		L =	37 sec
Total Flow		=	2932 pcu
Co	= (1.5*L+5)/(1-Y)	=	120.9 sec
Cm	= L/(1-Y)	=	74.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	24.6 %
Cp	= 0.9*L/(0.9-Y)	=	83.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24.6 %



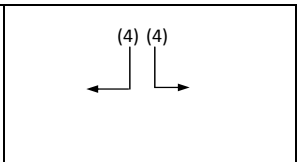
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

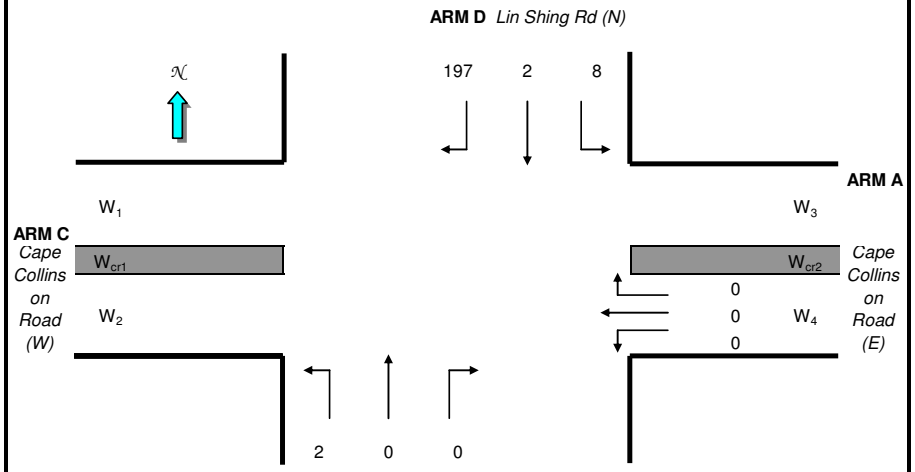
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	113	817		930	0.12	6083			6083	0.153			25		0.000	62	54
LT/ST	A	3.30	2	3	12		Y	6115	228	943		1170	0.19	5970			5970	0.196	0.196		33		0.000	78	54
LT	B	3.50	3	1	9		Y	1965	228			228	1.00	1684			1684	0.135	0.135		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	66		538	604	1.00	3583			3583	0.169	0.169		28		0.000	60	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

2021 Ching Ming
Reference / Site I / Site II
Calculation Sheets

Halcrow | **Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C** | **Prepared By:** GK
Junction Capacity Analysis | **Checked By:** OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	197	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

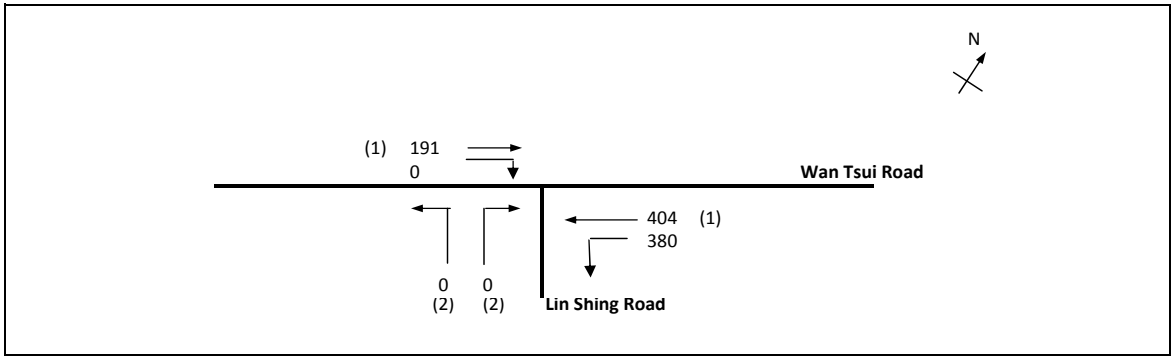
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

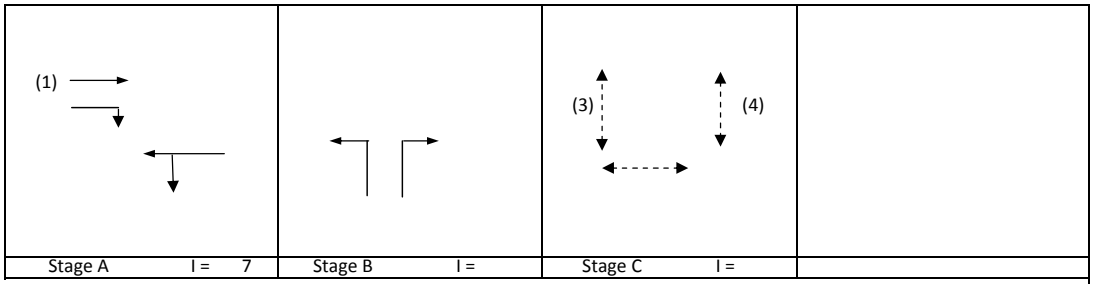
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.381
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.381

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.418	
Loss time	L =	55	sec
Total Flow	=	975	pcu
Co = (1.5*L+5)/(1-Y)	=	150.2	sec
Cm = L/(1-Y)	=	94.4	sec
Yult	=	0.488	
R.C.ult = (Yult-Y)/Y*100%	=	16.8	%
Cp = 0.9*L/(0.9-Y)	=	102.6	sec
Ymax = 1-L/C	=	0.542	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	16.8	%

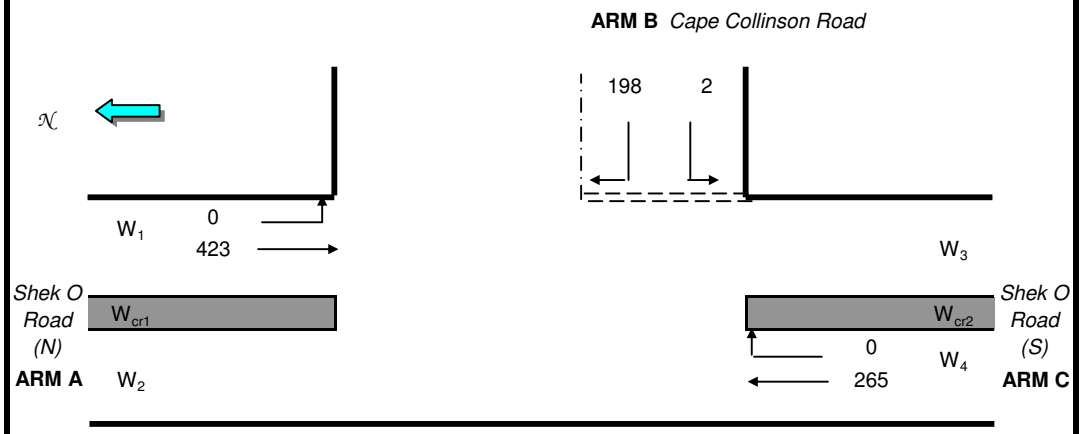


Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		191		191	0.00	1915			1915	0.100			15	65	0.184	12	11
ST/LT	A	4.00	1	1	10		N	2015	380	404		784	0.48	1879			1879	0.418	0.418		65	65	0.771	66	12
Ped	B	6.0	3									5709		60000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	423	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	265	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	198	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	298

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.665
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.665

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
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TRL Limited
Crowthorne House
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RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 03:51:43 on Wednesday, 7 December 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_Ref


 DEMAND SET TITLE:  2021_CM_J4_Ref
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.012 I  0.263 I  0.427 I  0.298 I
 I                    I         I   11.0 I  246.0 I  400.0 I  279.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.616 I  0.011 I  0.060 I  0.313 I
 I                    I         I  537.0 I   10.0 I   52.0 I  273.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.390 I  0.360 I  0.035 I  0.215 I
 I                    I         I   89.0 I   82.0 I    8.0 I   49.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.311 I  0.379 I  0.307 I  0.004 I
 I                    I         I  411.0 I  500.0 I  405.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	15.61	25.60	0.610	- -	-	0.0	1.6	45.1	
-	0.099	I							
I ARM B	14.52	22.52	0.645	- -	-	0.0	1.8	51.8	
-	0.123	I							
I ARM C	3.80	17.73	0.214	- -	-	0.0	0.3	8.0	
-	0.072	I							
I ARM D	22.03	44.22	0.498	- -	-	0.0	1.0	29.3	
-	0.045	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	15.61	25.57	0.610	- -	-	1.6	1.6	46.7	
-	0.100	I							
I ARM B	14.52	22.48	0.646	- -	-	1.8	1.8	54.2	
-	0.126	I							
I ARM C	3.80	17.68	0.215	- -	-	0.3	0.3	8.2	
-	0.072	I							
I ARM D	22.03	44.17	0.499	- -	-	1.0	1.0	29.8	
-	0.045	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.8	**
08.45	1.8	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.3	
08.45	0.3	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

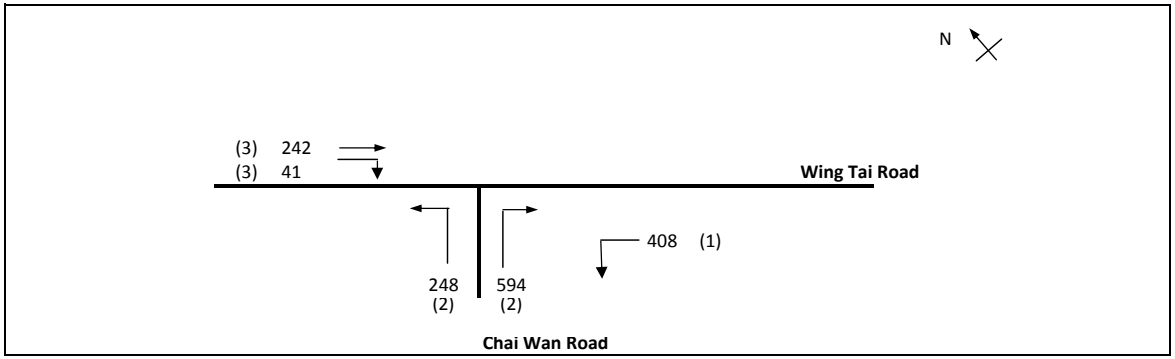
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	936.6	936.6	91.8	0.10	91.8	0.10
B	871.2	871.2	106.0	0.12	106.0	0.12
C	228.0	228.0	16.2	0.07	16.2	0.07
D	1321.8	1321.8	59.0	0.04	59.1	0.04
ALL	3357.6	3357.6	273.0	0.08	273.2	0.08

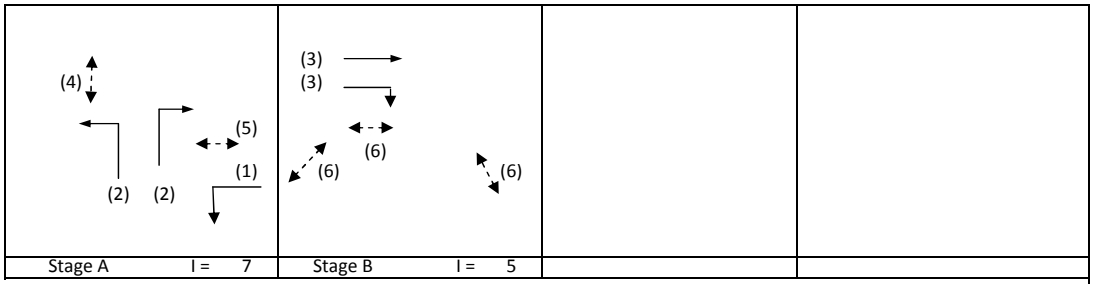
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



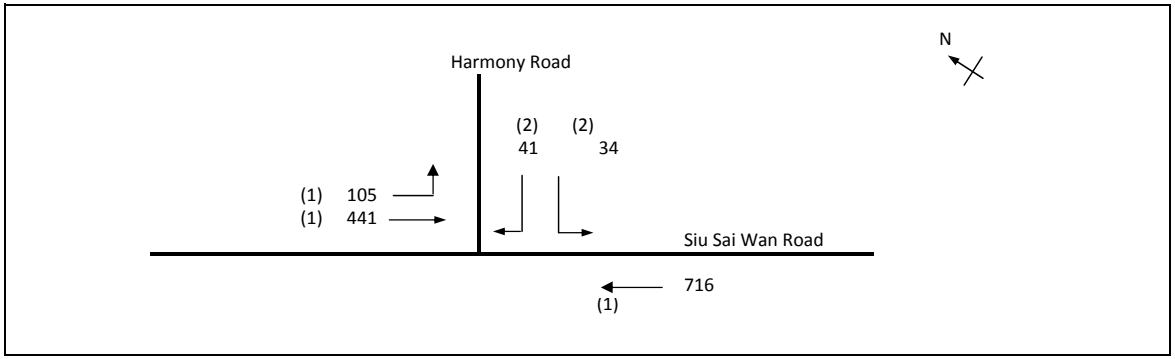
No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.226	
Loss time	L =	10	sec
Total Flow	=	1535	pcu
Co = (1.5*L+5)/(1-Y)	=	25.8	sec
Cm = L/(1-Y)	=	12.9	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	265.8	%
Cp = 0.9*L/(0.9-Y)	=	13.3	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	259.2	%



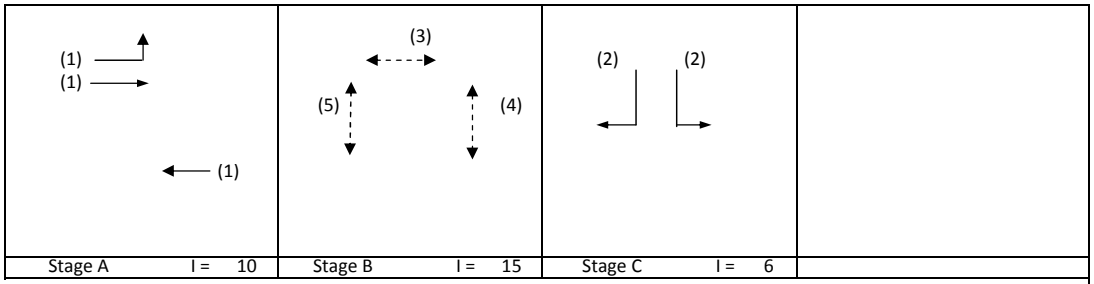
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	408			408	1.00	3857			3857	0.106			42	66	0.160	9	5
LT	A	4.00	2	2	24			4310	248			248	1.00	4056			4056	0.061			24	66	0.092	6	5
RT	A	3.50	2	2	11		y	4070			594	594	1.00	3582			3582	0.166	0.166		66	66	0.251	15	5
ST	B	3.50	3	2			y	4070		242		242	0.00	4070			4070	0.060	0.060		24	24	0.251	15	25
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			4	24	0.045	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	96.5	sec
Cm = L/(1-Y)	=	60.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	167.2	%
Cp = 0.9*L/(0.9-Y)	=	61.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	131.5	%

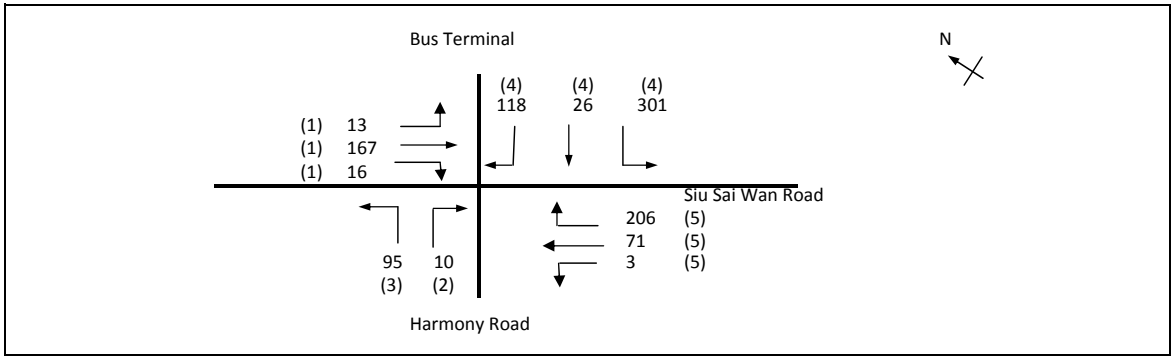


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

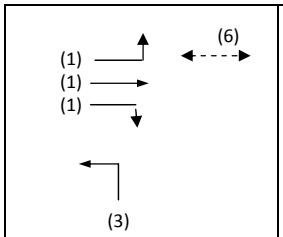
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1843			1843	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.300	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.341	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

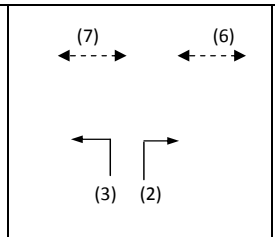
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



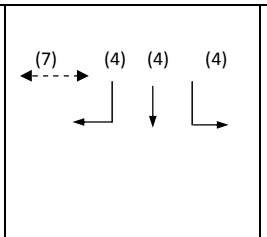
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.351	
Loss time	L =	18	sec
Total Flow	=	1027	pcu
Co = (1.5*L+5)/(1-Y)	=	49.3	sec
Cm = L/(1-Y)	=	27.7	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	117.9	%
Cp = 0.9*L/(0.9-Y)	=	29.5	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	112.4	%



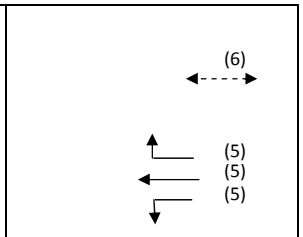
Stage A I = 5



Stage B I = 5



Stage C I = 6

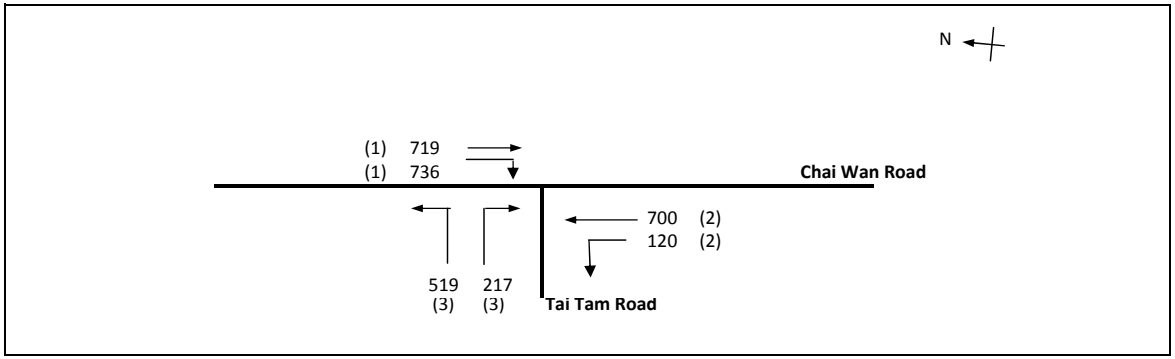


Stage C I = 6

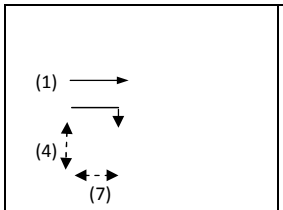
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.417	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	102	0.16	2045			2045	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	32
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	301	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105		0	206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1954			1954	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

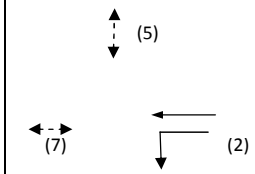
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



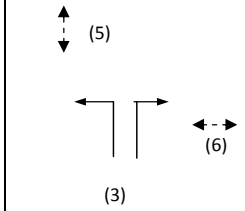
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.751
Loss time		L =	18 sec
Total Flow		=	3010 pcu
Co	= (1.5*L+5)/(1-Y)	=	128.4 sec
Cm	= L/(1-Y)	=	72.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	1.9 %
Cp	= 0.9*L/(0.9-Y)	=	108.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-0.7 %



Stage A I = 7



Stage B I = 8

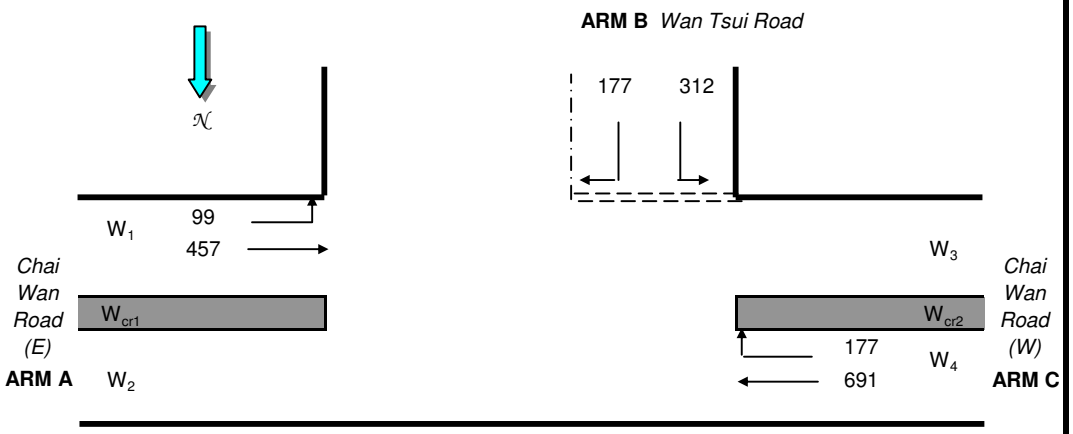


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		719		719	0.00	4070			4070	0.177			20	20	0.906	51	43
RT	A	3.50	1	1	13			2105			736	736	1.00	1887			1887	0.390	0.390		45	20	2.002	102	43
ST	B	3.50	2	2				4210		700		700	0.00	4210			4210	0.166	0.166		19	19	0.906	51	43
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			8	19	0.381	12	32
LT	C	4.00	3	1	15		y	2015	356			356	1.00	1832			1832	0.194	0.194		23	23	0.906	60	36
LT/RT	C	4.00	3	1	15			2155	163		217	380	1.00	1959			1959	0.194			22	23	0.905	60	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	98.5439	(pcu/hr)
q_{a-c}	=	457	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	691	(pcu/hr)
q_{c-b}	=	177.137	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	177	(pcu/hr)
q_{b-c}	=	312	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

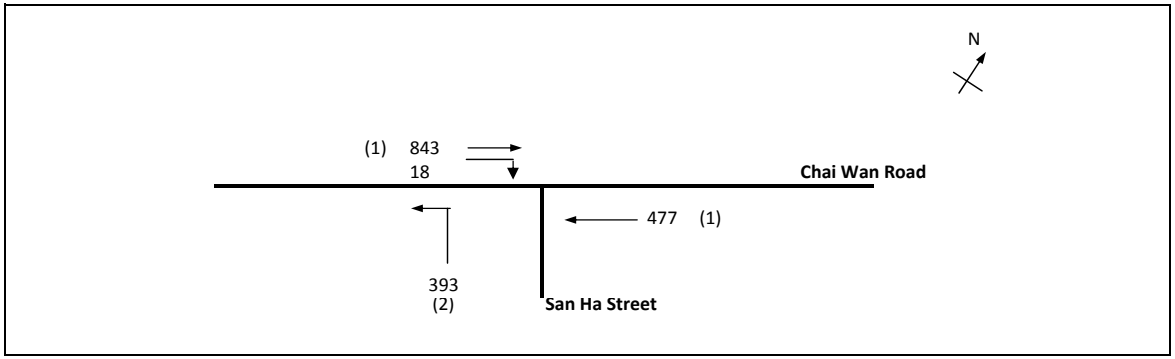
Q_{b-c}	=	762
Q_{c-b}	=	676
Q_{b-a}	=	357

COMPARISION OF DESIGN FLOW TO CAPACITY

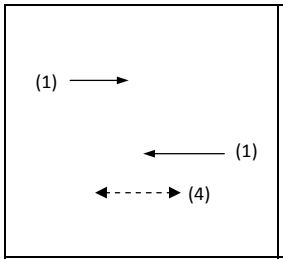
DFC_{b-a}	=	0.496
DFC_{b-c}	=	0.409
DFC_{c-b}	=	0.262

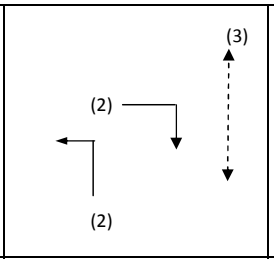
Critical DFC = 0.496

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.443	
Loss time		L =	10	sec
Total Flow		=	1731	pcu
Co	= (1.5*L+5)/(1-Y)	=	35.9	sec
Cm	= L/(1-Y)	=	18.0	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	86.2	%
Cp	= 0.9*L/(0.9-Y)	=	19.7	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	82.8	%



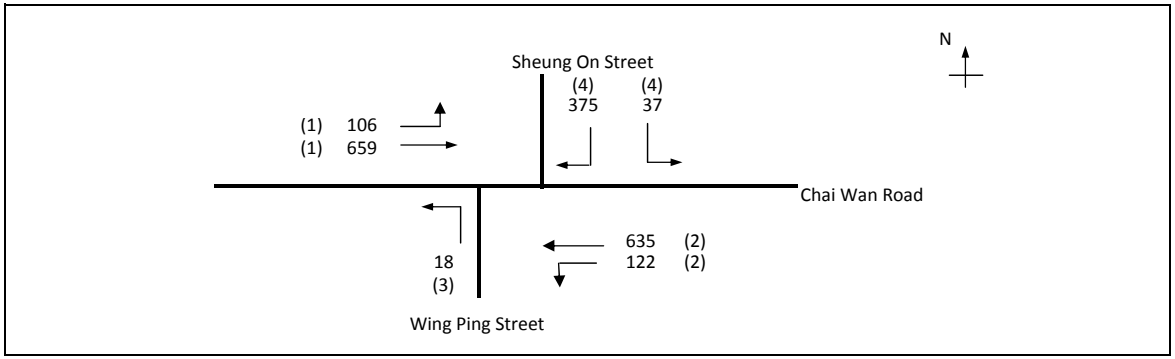


Stage A	I = 6	Stage B	I = 6	Stage C	I =

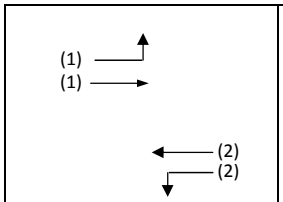
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		843		843	0.00	4070			4070	0.207	0.207		42	47	0.441	36	11
ST	A	3.50	1	2	10		N	4070		477		477	0.00	4070			4070	0.117			24	47	0.249	21	11
LT	B	3.00	2	1	10		N	1915	393			393	1.00	1665			1665	0.236	0.236		48	53	0.445	30	9
RT	B	3.50	2	1	12			2105			18	18	1.00	1871			1871	0.010			2	53	0.018	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

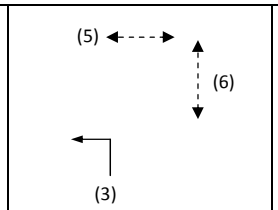
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



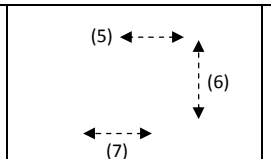
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.252
Loss time		L =	37 sec
Total Flow		=	1952 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.9 sec
Cm	= L/(1-Y)	=	49.5 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	146.8 %
Cp	= 0.9*L/(0.9-Y)	=	51.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	146.8 %



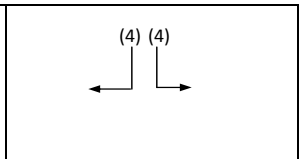
Stage A I = 8



Stage B I = 5



Stage C I = 7



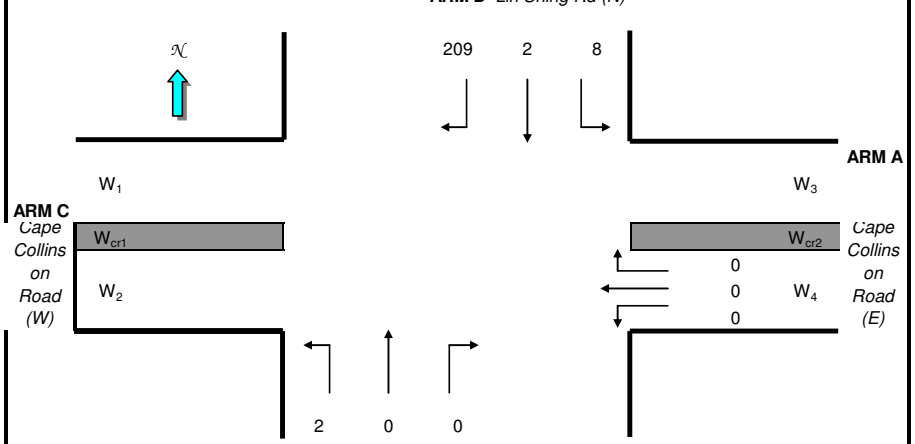
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	106	659		765	0.14	6070			6070	0.126			41		0.000	50	54
LT/ST	A	3.30	2	3	12		Y	6115	122	635		757	0.16	5994			5994	0.126	0.126		42		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	18			18	1.00	1684			1684	0.011	0.011		4		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	37		375	412	1.00	3583			3583	0.115	0.115		38		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow | **Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape Co** | **Prepared By:** | **GK**
Junction Capacity Analysis | **Checked By:** | **OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1151	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4602	(pcu/hr)
q_{d-b}	=	2.1151	(pcu/hr)
q_{d-c}	=	209.18	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

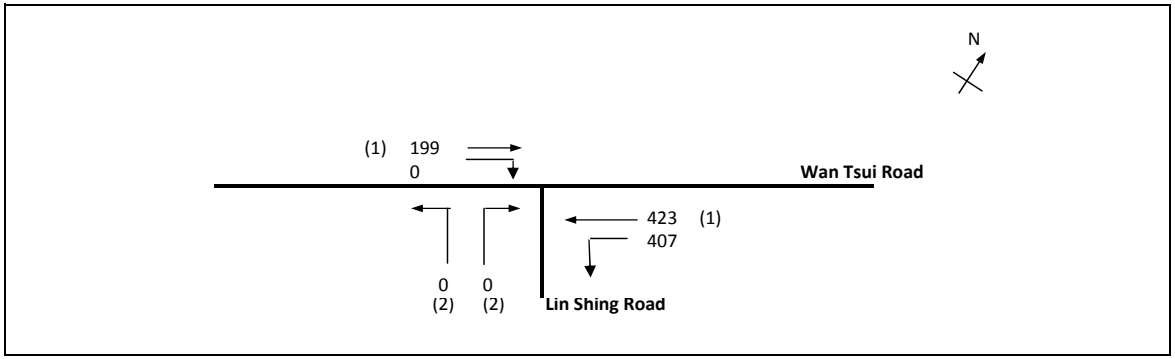
Q_{b-a}	=	617
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

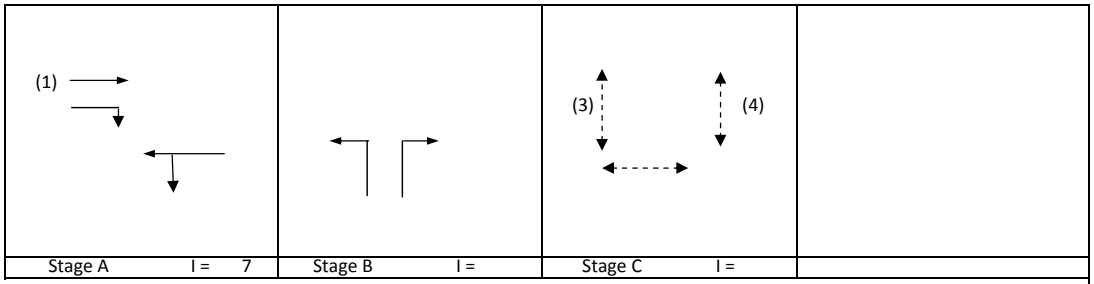
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.404
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.404

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.442	
Loss time		L =	55	sec
Total Flow		=	1029	pcu
Co	= (1.5*L+5)/(1-Y)	=	156.9	sec
Cm	= L/(1-Y)	=	98.6	sec
Yult		=	0.488	
R.C.ult	= (Yult-Y)/Y*100%	=	10.2	%
Cp	= 0.9*L/(0.9-Y)	=	108.2	sec
Ymax	= 1-L/C	=	0.542	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10.2	%

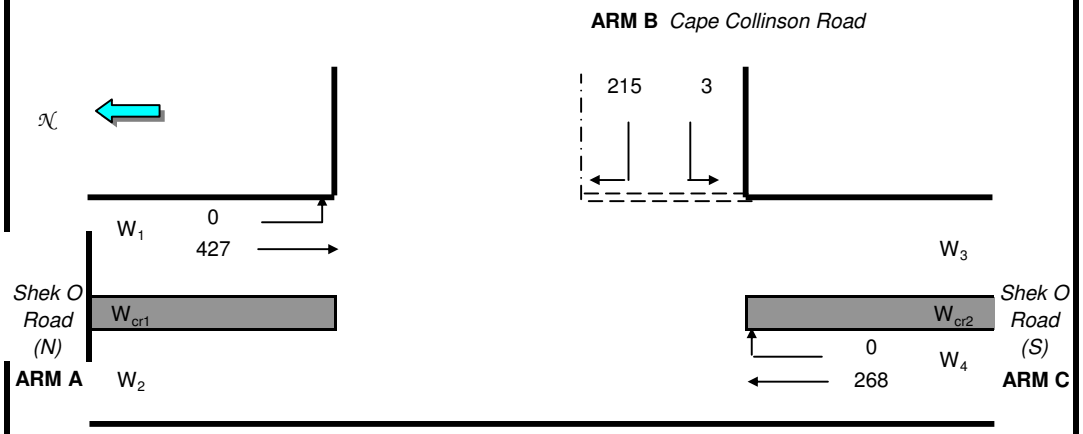


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		199		199	0.00	1915			1915	0.104			15	65	0.192	18	11
ST/LT	A	4.00	1	1	10		N	2015	407	423		830	0.49	1877			1877	0.442	0.442		65	65	0.817	72	13
Ped	B	6.0	3									5709		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	427.492	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	267.783	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	215.406	(pcu/hr)
q_{b-c}	=	2.54106	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	633
Q_{c-b}	=	705
Q_{b-a}	=	297

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.726
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.726

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
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TRL Limited
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RG40 3GA,UK

Tel: +44 (0) 1344 770758
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Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 09:58:00 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S1

DEMAND SET TITLE: 2021_CM_J4_S1

.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 08.45		TURNING PROPORTIONS			
		TURNING COUNTS			
		(PERCENTAGE OF H.V.S)			
	ARM A	0.011	0.256	0.438	0.295
		11.0	246.0	421.0	284.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.619	0.011	0.061	0.308
		548.0	10.0	54.0	273.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.404	0.355	0.033	0.208
		99.0	87.0	8.0	51.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.310	0.369	0.317	0.004
		418.0	497.0	427.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 07.45-08.15									
I									
I ARM A	16.03	25.28	0.634	- -	-	0.0	1.7	49.8	
-	0.107	I							
I ARM B	14.74	21.91	0.673	- -	-	0.0	2.0	58.2	
-	0.137	I							
I ARM C	4.07	17.56	0.232	- -	-	0.0	0.3	8.9	
-	0.074	I							
I ARM D	22.44	43.78	0.513	- -	-	0.0	1.0	31.0	
-	0.047	I							
I									
I									

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I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 08.15-08.45									
I									
I ARM A	15.88	24.99	0.636	- -	-	1.7	1.7	51.8	
-	0.110	I							
I ARM B	14.17	21.87	0.648	- -	-	2.0	1.9	56.7	
-	0.130	I							
I ARM C	4.37	17.88	0.244	- -	-	0.3	0.3	9.6	
-	0.074	I							
I ARM D	22.75	43.86	0.519	- -	-	1.0	1.1	32.1	
-	0.047	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.0	**
08.45	1.9	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.1	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

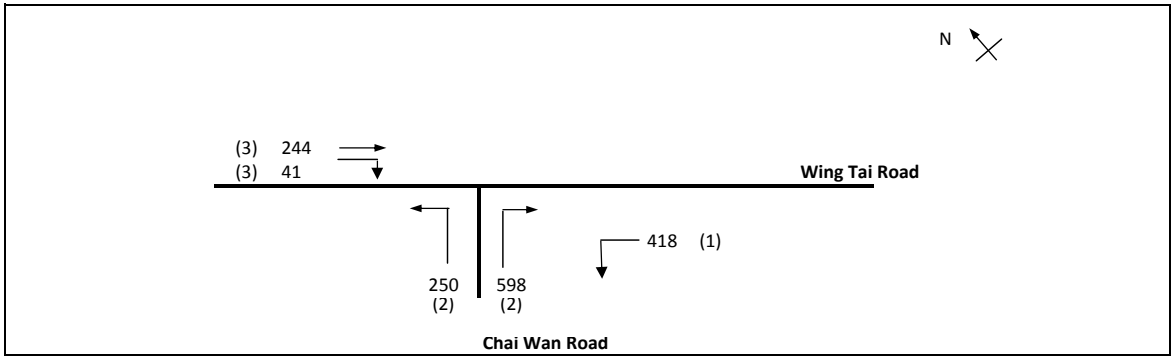
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	957.3	957.3	101.6	0.11	101.7	0.11
B	867.3	867.3	114.9	0.13	115.0	0.13
C	253.2	253.2	18.5	0.07	18.5	0.07
D	1355.7	1355.7	63.1	0.05	63.1	0.05
ALL	3433.5	3433.5	298.1	0.09	298.3	0.09

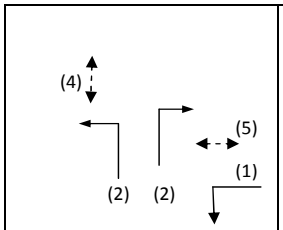
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

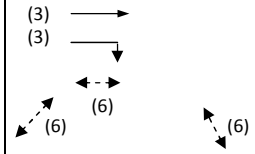
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.227
Loss time		L =	10 sec
Total Flow		=	1552 pcu
Co	= (1.5*L+5)/(1-Y)	=	25.9 sec
Cm	= L/(1-Y)	=	12.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	263.5 %
Cp	= 0.9*L/(0.9-Y)	=	13.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	256.9 %



Stage A I = 7

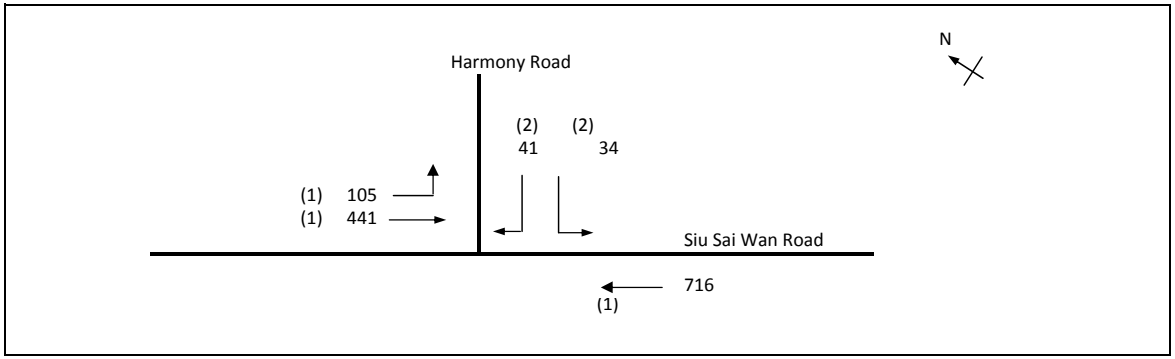


Stage B I = 5

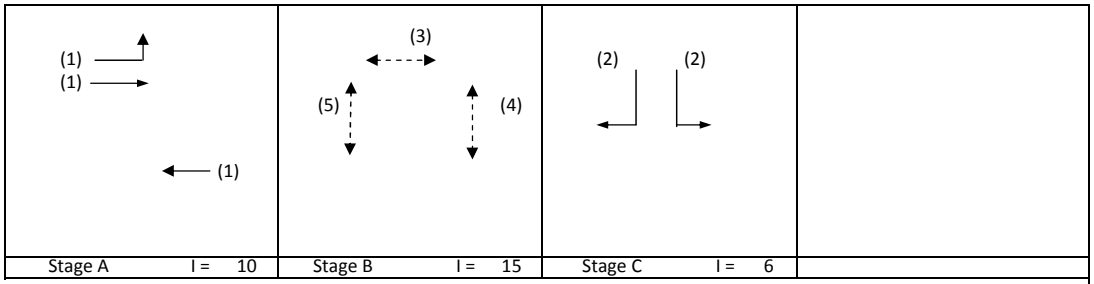
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	418			418	1.00	3857			3857	0.108			43	66	0.164	9	5
LT	A	4.00	2	2	24			4310	250			250	1.00	4056			4056	0.062			24	66	0.093	6	5
RT	A	3.50	2	2	11		y	4070			598	598	1.00	3582			3582	0.167	0.167		66	66	0.252	15	5
ST	B	3.50	3	2			y	4070		244		244	0.00	4070			4070	0.060	0.060		24	24	0.252	15	25
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			4	24	0.045	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	96.5	sec
Cm = L/(1-Y)	=	60.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	167.2	%
Cp = 0.9*L/(0.9-Y)	=	61.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	131.5	%

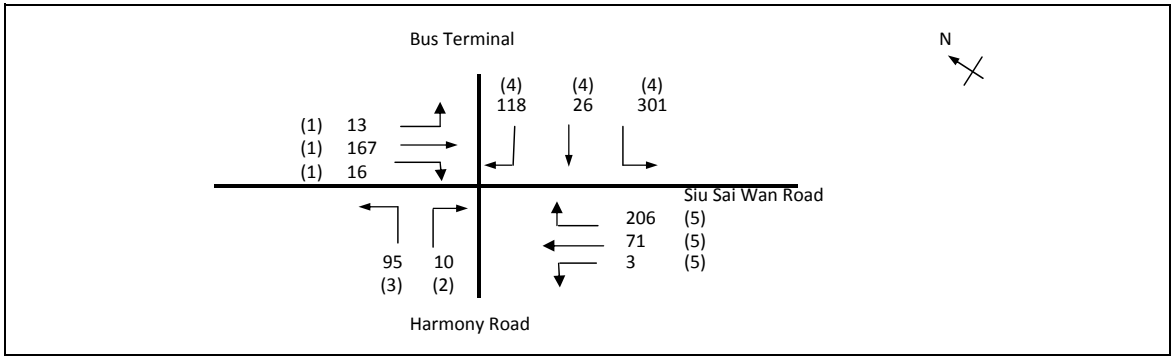


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

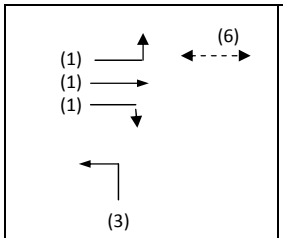
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1843			1843	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.300	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.341	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

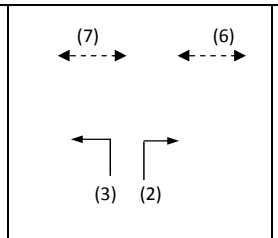
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



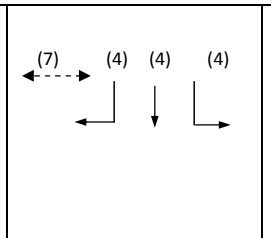
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.351	
Loss time	L =	18	sec
Total Flow	=	1027	pcu
Co = (1.5*L+5)/(1-Y)	=	49.3	sec
Cm = L/(1-Y)	=	27.7	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	117.9	%
Cp = 0.9*L/(0.9-Y)	=	29.5	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	112.4	%



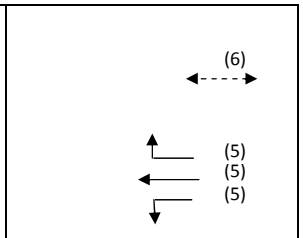
Stage A I = 5



Stage B I = 5



Stage C I = 6

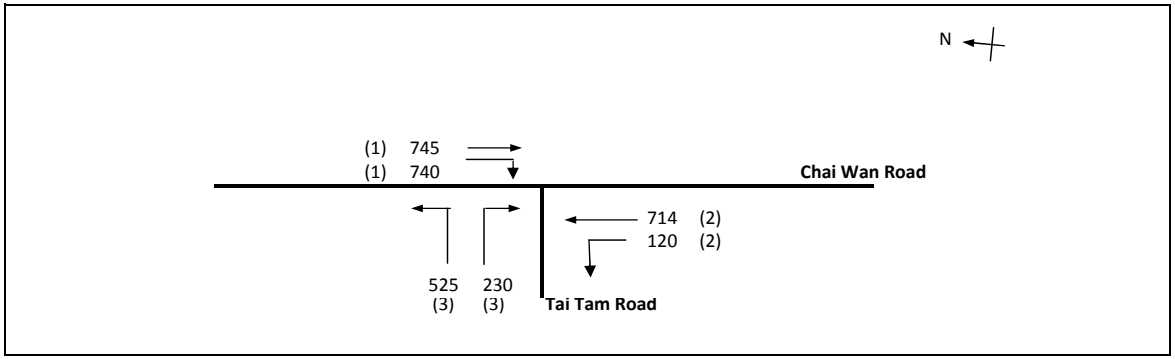


Stage C I = 6

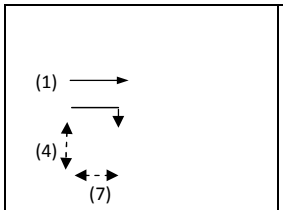
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.417	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	102	0.16	2045			2045	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	32
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	301	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1954			1954	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

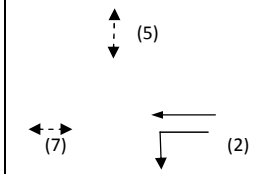
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



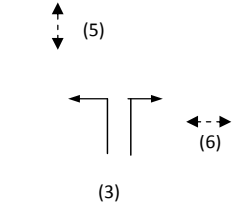
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.761
Loss time		L =	18 sec
Total Flow		=	3073 pcu
Co	= (1.5*L+5)/(1-Y)	=	133.9 sec
Cm	= L/(1-Y)	=	75.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	0.5 %
Cp	= 0.9*L/(0.9-Y)	=	116.6 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-2.0 %



Stage A I = 7



Stage B I = 8



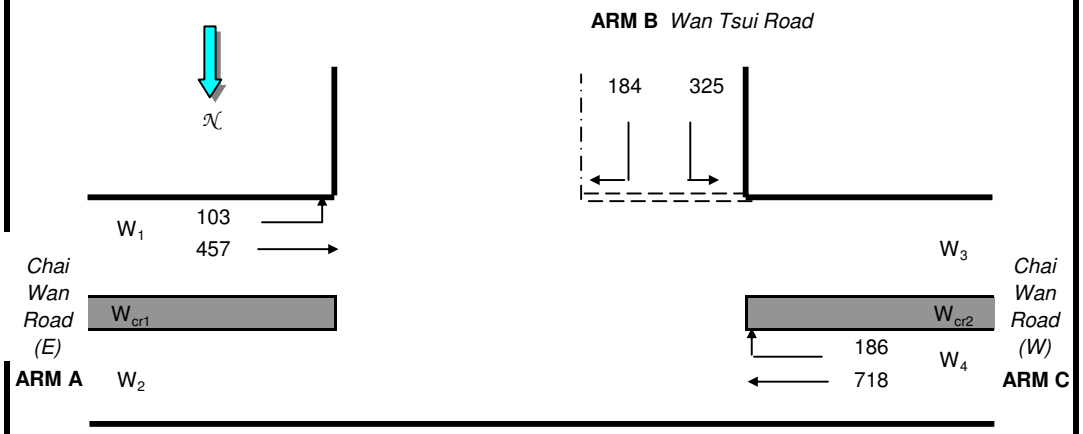
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		745		745	0.00	4120			4120	0.181			21	21	0.919	54	43
RT	A	3.00	1	1	13			2055			740	740	1.00	1842			1842	0.402	0.402		46	21	2.042	102	43
ST	B	3.50	2	2				4210		714		714	0.00	4210			4210	0.169	0.169		19	19	0.919	54	44
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			8	19	0.378	12	32
LT	C	4.00	3	1	15		y	2015	383			383	1.00	1832			1832	0.209			24	24	0.919	66	35
LT/RT	C	4.00	3	1	15			2155	142		230	372	1.00	1959			1959	0.190	0.190		22	24	0.833	48	41
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C	Prepared By:	GK
	Junction Capacity Analysis	Checked By:	

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	103.367	(pcu/hr)
q_{a-c}	=	456.853	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	717.887	(pcu/hr)
q_{c-b}	=	186.307	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	184	(pcu/hr)
q_{b-c}	=	325.389	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

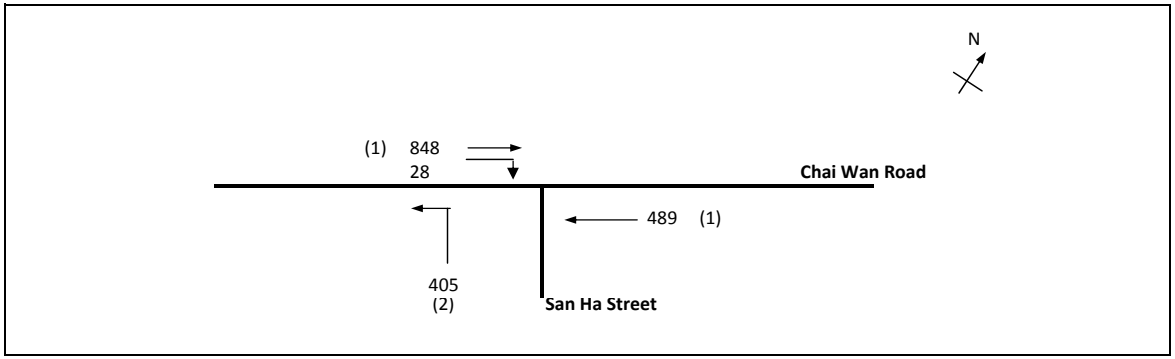
Q_{b-c}	=	762
Q_{c-b}	=	675
Q_{b-a}	=	355

COMPARISION OF DESIGN FLOW TO CAPACITY

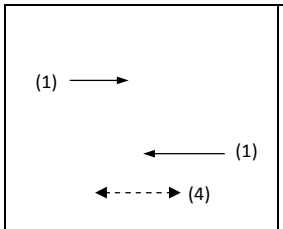
DFC_{b-a}	=	0.519
DFC_{b-c}	=	0.427
DFC_{c-b}	=	0.276

Critical DFC = 0.519

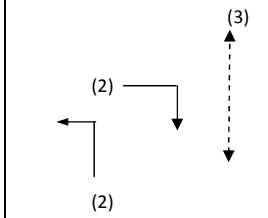
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.452
Loss time		L =	10 sec
Total Flow		=	1771 pcu
Co	= (1.5*L+5)/(1-Y)	=	36.5 sec
Cm	= L/(1-Y)	=	18.2 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	82.6 %
Cp	= 0.9*L/(0.9-Y)	=	20.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	79.3 %



Stage A I = 6



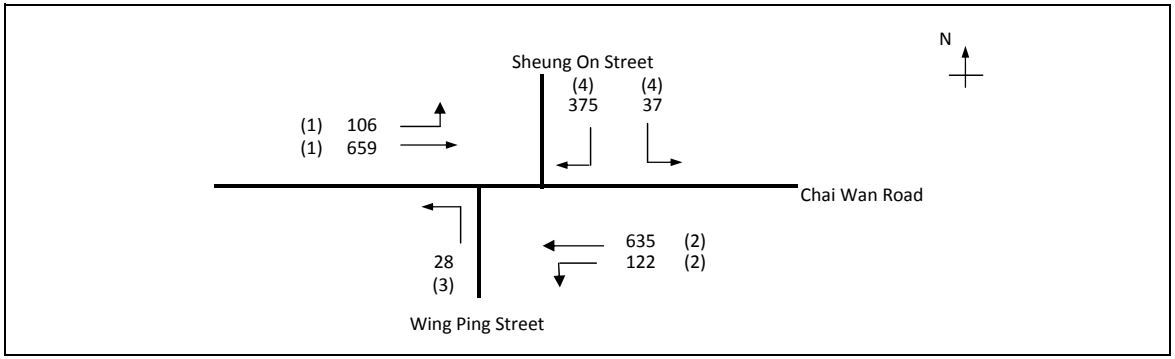
Stage B I = 6

Stage C I =

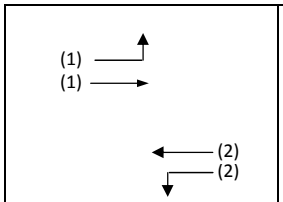
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		848		848	0.00	4070			4070	0.208	0.208		42	47	0.443	36	11
ST	A	3.50	1	2	10		N	4070		489		489	0.00	4070			4070	0.120			24	47	0.256	21	11
LT	B	3.00	2	1	10		N	1915	405			405	1.00	1665			1665	0.243	0.243		48	53	0.459	30	9
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015			3	53	0.028	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

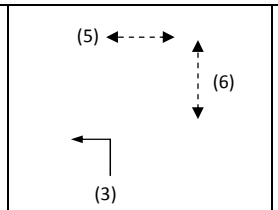
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



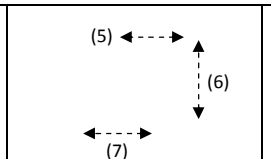
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.258
Loss time		L =	37 sec
Total Flow		=	1962 pcu
Co	= (1.5*L+5)/(1-Y)	=	81.5 sec
Cm	= L/(1-Y)	=	49.9 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	141.2 %
Cp	= 0.9*L/(0.9-Y)	=	51.9 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	141.2 %



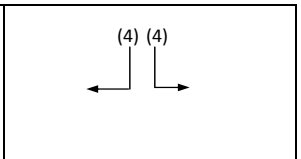
Stage A I = 8



Stage B I = 5



Stage C I = 7

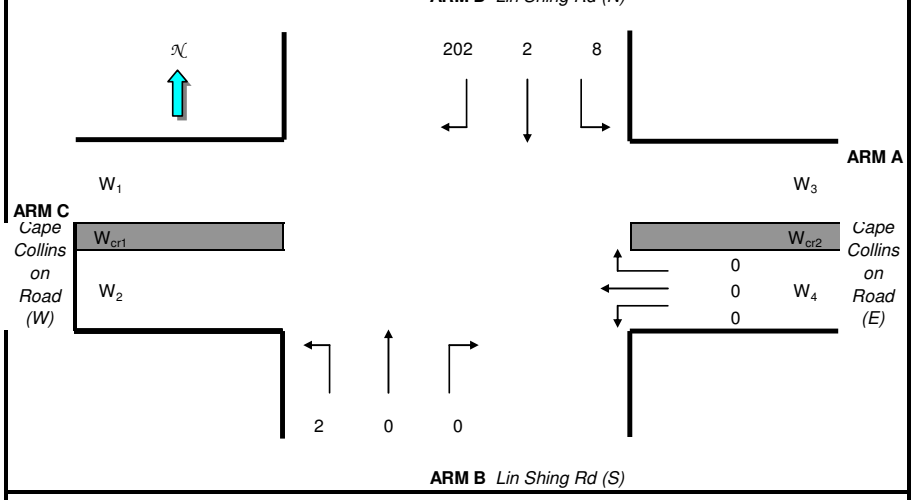


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	106	659		765	0.14	6070			6070	0.126			41		0.000	50	54
LT/ST	A	3.30	2	3	12		Y	6115	122	635		757	0.16	5994			5994	0.126	0.126		41		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	28			28	1.00	1684			1684	0.017	0.017		5		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	37		375	412	1.00	3583			3583	0.115	0.115		37		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1151	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4602	(pcu/hr)
q_{d-b}	=	2.1151	(pcu/hr)
q_{d-c}	=	201.87	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

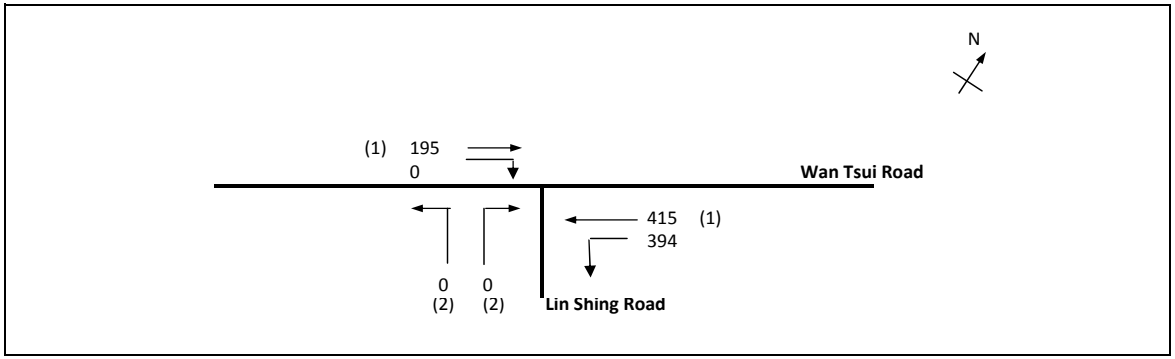
Q_{b-a}	=	618
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

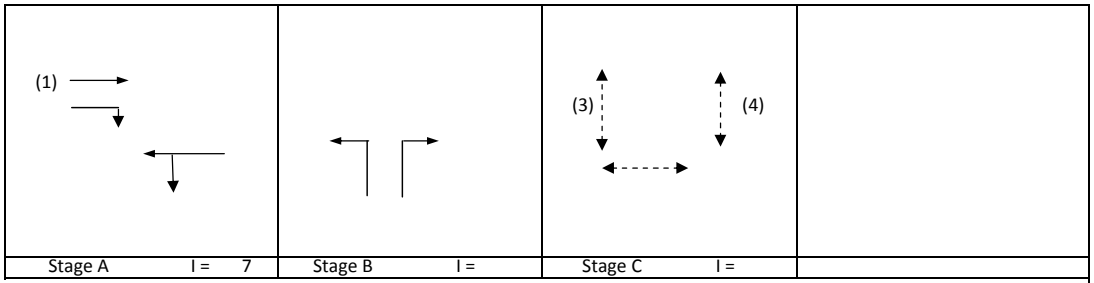
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.390
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.390

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.431	
Loss time		L =	55	sec
Total Flow		=	1004	pcu
Co	= (1.5*L+5)/(1-Y)	=	153.7	sec
Cm	= L/(1-Y)	=	96.6	sec
Yult		=	0.488	
R.C.ult	= (Yult-Y)/Y*100%	=	13.1	%
Cp	= 0.9*L/(0.9-Y)	=	105.5	sec
Ymax	= 1-L/C	=	0.542	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	13.1	%

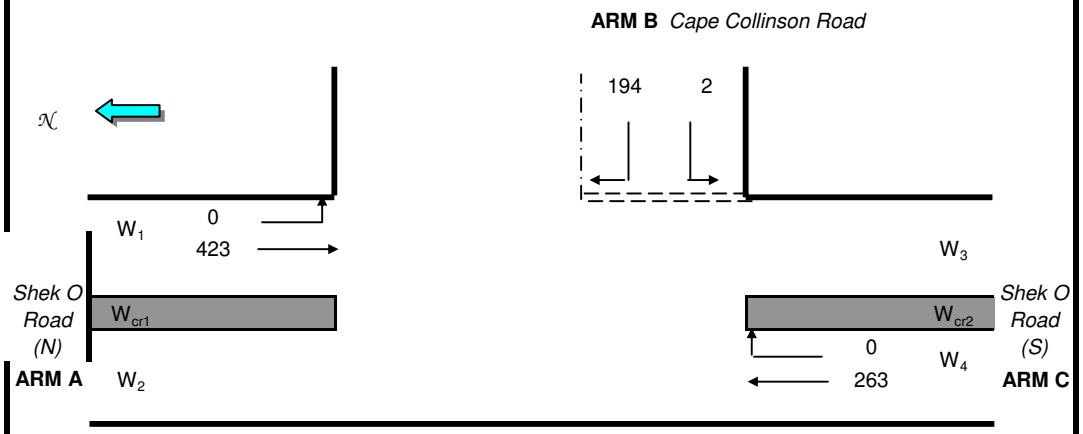


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		195		195	0.00	1915			1915	0.102			15	65	0.188	12	11
ST/LT	A	4.00	1	1	10		N	2015	394	415		809	0.49	1878			1878	0.431	0.431		65	65	0.795	72	13
Ped	B	6.0	3									5709		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	422.712	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	262.886	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	193.74	(pcu/hr)
q_{b-c}	=	1.92629	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	298

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.650
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.650

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 09:59:16 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S2

DEMAND SET TITLE: 2021_CM_J4_S2

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.012	0.259	0.434	0.296
		11.0	246.0	412.0	281.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.617	0.011	0.060	0.311
		542.0	10.0	53.0	273.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.403	0.349	0.034	0.214
		96.0	83.0	8.0	51.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.309	0.372	0.315	0.004
		413.0	496.0	421.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	15.83	25.43	0.623	- -	-	0.0	1.6	47.5	
-	0.103	I							
I ARM B	14.63	22.14	0.661	- -	-	0.0	1.9	55.3	
-	0.131	I							
I ARM C	3.97	17.65	0.225	- -	-	0.0	0.3	8.5	
-	0.073	I							
I ARM D	22.24	43.99	0.506	- -	-	0.0	1.0	30.2	
-	0.046	I							
I									
I									

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I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	15.83	25.40	0.623	- -	-	1.6	1.6	49.2	
-	0.104	I							
I ARM B	14.63	22.10	0.662	- -	-	1.9	1.9	58.1	
-	0.134	I							
I ARM C	3.97	17.61	0.225	- -	-	0.3	0.3	8.7	
-	0.073	I							
I ARM D	22.24	43.94	0.506	- -	-	1.0	1.0	30.7	
-	0.046	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.9	**
08.45	1.9	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

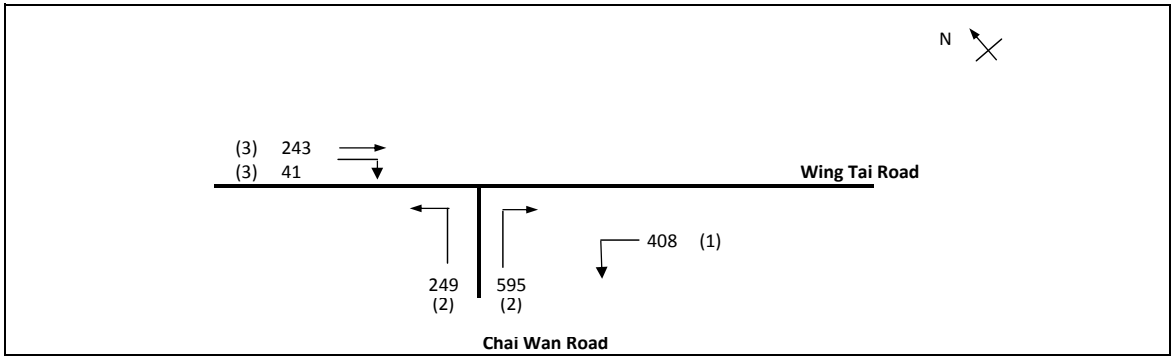
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	949.8	949.8	96.7	0.10	96.8	0.10
B	877.8	877.8	113.4	0.13	113.5	0.13
C	238.2	238.2	17.3	0.07	17.3	0.07
D	1334.4	1334.4	60.8	0.05	60.8	0.05
ALL	3400.2	3400.2	288.2	0.08	288.3	0.08

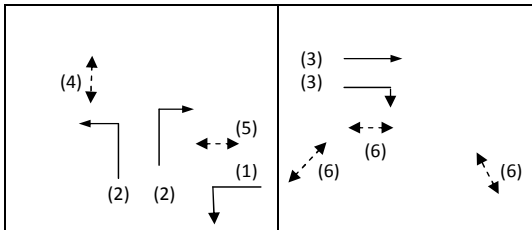
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME 1M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.226
Loss time		L =	10 sec
Total Flow		=	1786 pcu
Co	= (1.5*L+5)/(1-Y)	=	25.8 sec
Cm	= L/(1-Y)	=	12.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	265.0 %
Cp	= 0.9*L/(0.9-Y)	=	13.4 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	265.0 %



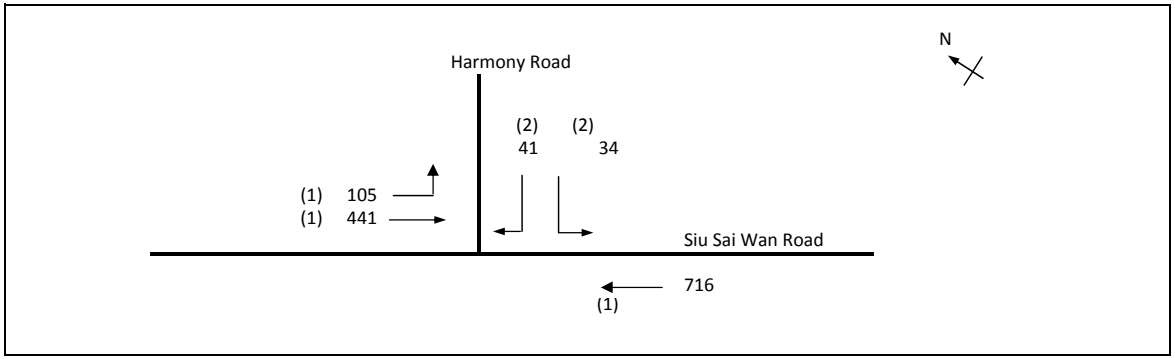
Stage A I = 7

Stage B I = 5

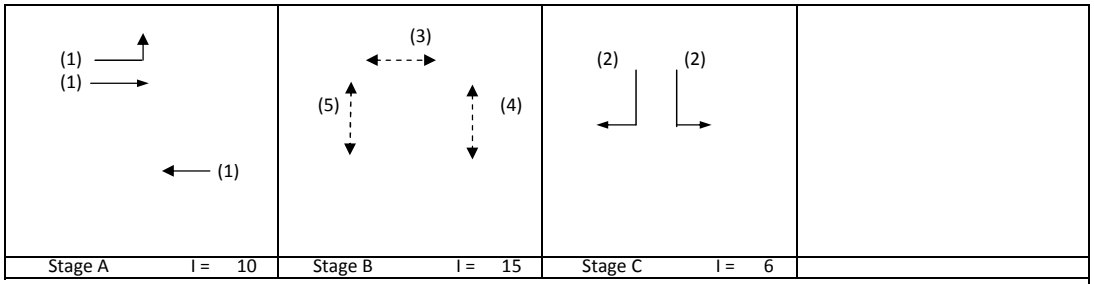
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.50	1	2	22		y	4070	408			408	1.00	3810			3810	0.107			52	81	0.159	12	5
LT	A	3.50	2	2	24			4210	249			249	1.00	3962			3962	0.063			31	81	0.093	6	5
RT	A	3.50	2	2	11		y	4070			595	595	1.00	3582			3582	0.166	0.166		81	81	0.247	18	5
ST	B	3.50	3	2			y	4070		243		243	0.00	4070			4070	0.060	0.060		29	29	0.247	18	30
RT	B	4.50	3	2	13		y	4270	85		41	126	1.00	3828			3828	0.033			16	29	0.136	9	30
									164																
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.116	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	87.1	sec
Cm = L/(1-Y)	=	54.3	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	367.5	%
Cp = 0.9*L/(0.9-Y)	=	55.1	sec
Ymax = 1-L/C	=	0.600	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	367.5	%

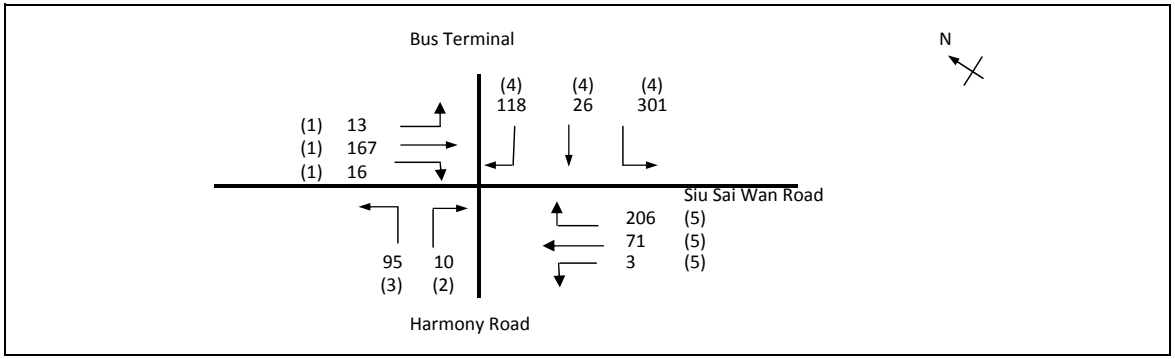


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

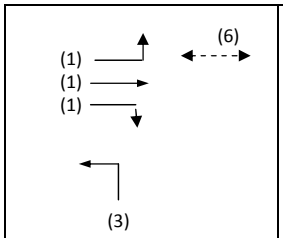
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.50	1	1	11		y	1965	105	152		257	0.41	1861			1861	0.138			86	112	0.147	0	0
ST	A	3.50	1	1				2105		289		289	0.00	2105			2105	0.137			86	112	0.147	0	0
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		112	112	0.193	3	0
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			12	-40	-0.057	6	95
RT	C	3.75	2	1	12			2130	-164		41	-123	1.00	1893			1893	-0.065	-0.065		-40	-40	0.193	-36	102
									164																
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

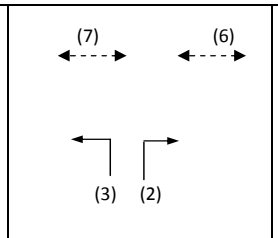
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



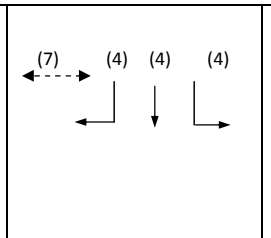
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.223
Loss time		L =	18 sec
Total Flow		=	725 pcu
Co	= (1.5*L+5)/(1-Y)	=	41.2 sec
Cm	= L/(1-Y)	=	23.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	243.6 %
Cp	= 0.9*L/(0.9-Y)	=	23.9 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	243.6 %



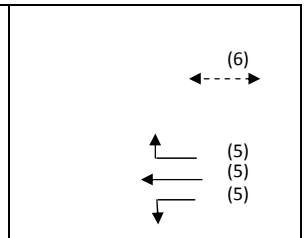
Stage A I = 5



Stage B I = 5



Stage C I = 6

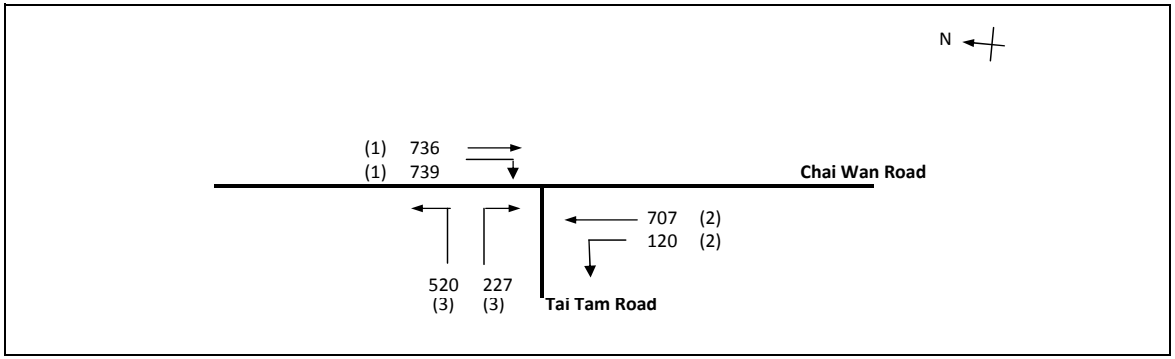


Stage C I = 6

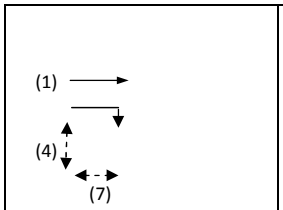
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.50	1	1	11		y	1965	13	81		94	0.14	1929			1929	0.049			22	23	0.258	12	35
ST/RT	A	3.50	1	1	12			2105		86	16	102	0.16	2065			2065	0.049			23	23	0.262	12	35
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		2	2	0.262	0	67
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			24	30	0.214	12	30
RT	C	3.50	4	1	12			2105	-164		118	-46	1.00	1871			1871	-0.024			-11	49	-0.059	-6	19
LT/ST	C	3.50	4	1	12		y	1965	164	26		190	0.86	1774			1774	0.107	0.107		49	49	0.262	18	18
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		50	50	0.262	18	17
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1954			1954	0.038			17	17	0.262	12	40
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

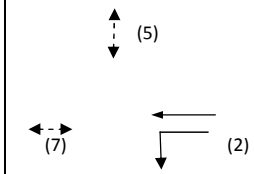
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 1M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



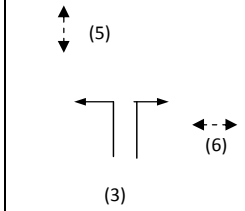
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.756
Loss time		L =	18 sec
Total Flow		=	3048 pcu
Co	= (1.5*L+5)/(1-Y)	=	131.3 sec
Cm	= L/(1-Y)	=	73.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	1.2 %
Cp	= 0.9*L/(0.9-Y)	=	112.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-1.4 %



Stage A I = 7



Stage B I = 8

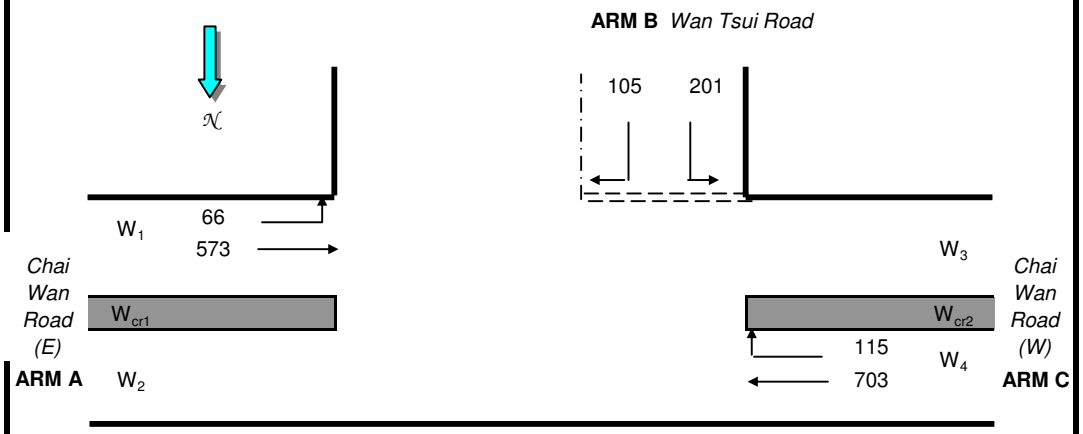


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		736		736	0.00	4070			4070	0.181			21	21	0.913	51	42
RT	A	3.50	1	1	13			2105			739	739	1.00	1887			1887	0.391	0.391		45	21	1.976	102	42
ST	B	3.50	2	2				4210		707		707	0.00	4210			4210	0.168	0.168		19	19	0.913	51	43
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			8	19	0.379	12	32
LT	C	4.00	3	1	15		y	2015	361			361	1.00	1832			1832	0.197	0.197		23	23	0.913	60	36
LT/RT	C	4.00	3	1	15			2155	159		227	386	1.00	1959			1959	0.197			23	23	0.914	66	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	65.7297	(pcu/hr)
q_{a-c}	=	573.262	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	702.52	(pcu/hr)
q_{c-b}	=	114.883	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	105.15	(pcu/hr)
q_{b-c}	=	200.575	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

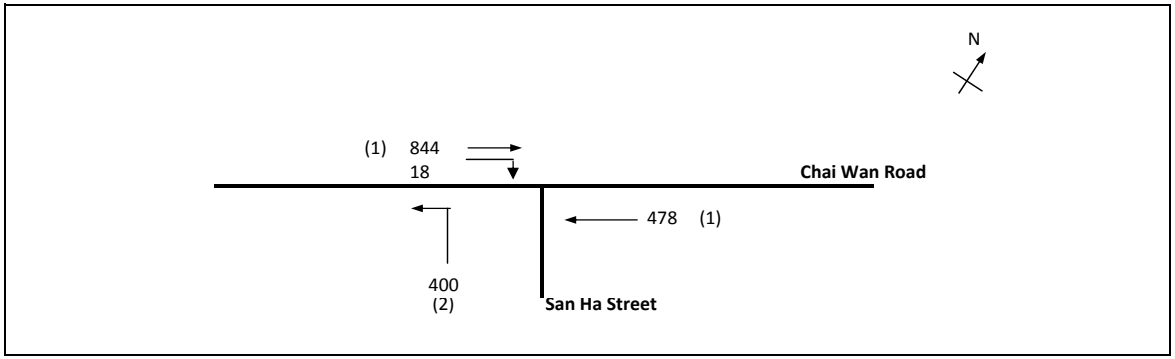
Q_{b-c}	=	749
Q_{c-b}	=	666
Q_{b-a}	=	356

COMPARISION OF DESIGN FLOW TO CAPACITY

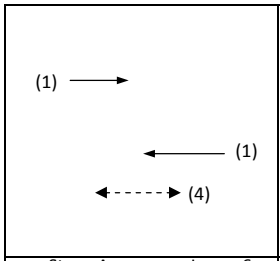
DFC_{b-a}	=	0.296
DFC_{b-c}	=	0.268
DFC_{c-b}	=	0.173

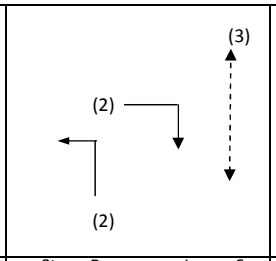
Critical DFC = 0.296

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.447
Loss time		L =	10 sec
Total Flow		=	1740 pcu
Co	= (1.5*L+5)/(1-Y)	=	36.2 sec
Cm	= L/(1-Y)	=	18.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	84.4 %
Cp	= 0.9*L/(0.9-Y)	=	19.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	81.0 %



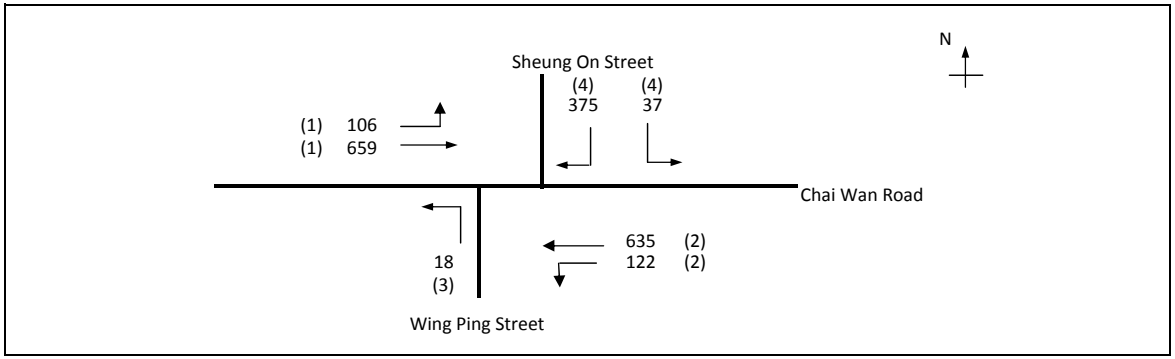


Stage A I = 6 | Stage B I = 6 | Stage C I =

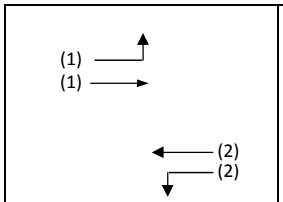
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		844		844	0.00	4070			4070	0.207	0.207		42	47	0.441	36	11
ST	A	3.50	1	2	10		N	4070		478		478	0.00	4070			4070	0.118			24	47	0.250	21	11
LT	B	3.00	2	1	10		N	1915	400			400	1.00	1665			1665	0.240	0.240		48	53	0.453	30	9
RT	B	3.50	2	1	12			2105			18	18	1.00	1871			1871	0.010			2	53	0.018	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

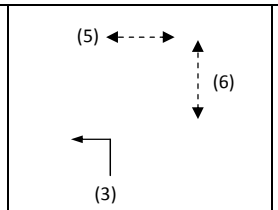
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



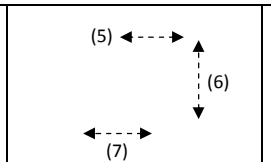
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.252
Loss time		L =	37 sec
Total Flow		=	1952 pcu
Co	= (1.5*L+5)/(1-Y)	=	80.9 sec
Cm	= L/(1-Y)	=	49.5 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	146.8 %
Cp	= 0.9*L/(0.9-Y)	=	51.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	146.8 %



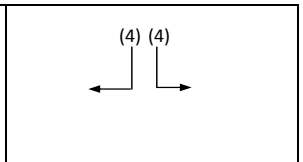
Stage A I = 8



Stage B I = 5



Stage C I = 7



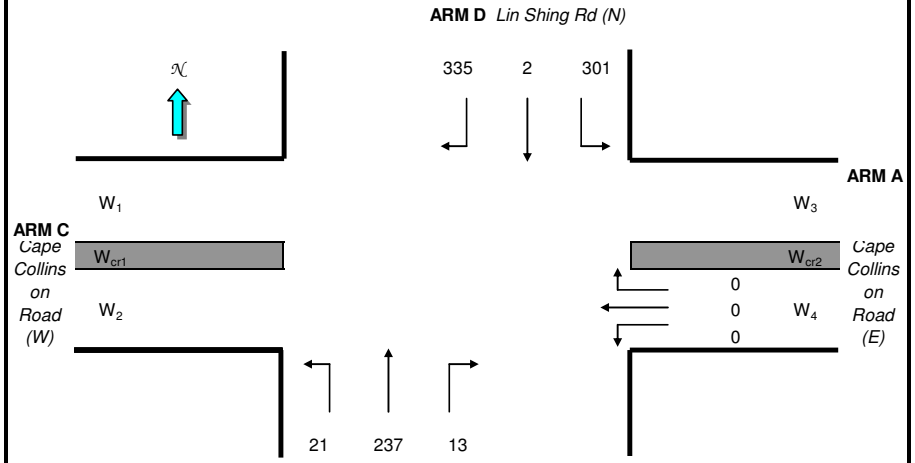
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	106	659		765	0.14	6070			6070	0.126			41		0.000	50	54
LT/ST	A	3.30	2	3	12		Y	6115	122	635		757	0.16	5994			5994	0.126	0.126		42		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	18			18	1.00	1684			1684	0.011	0.011		4		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	37		375	412	1.00	3583			3583	0.115	0.115		38		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

2026 Weekend
Reference / Site I / Site II
Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Weekend - Reference Case
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	13.045	(pcu/hr)
q_{b-c}	=	21.024	(pcu/hr)
q_{b-d}	=	237.28	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	301.28	(pcu/hr)
q_{d-b}	=	1.7365	(pcu/hr)
q_{d-c}	=	334.88	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

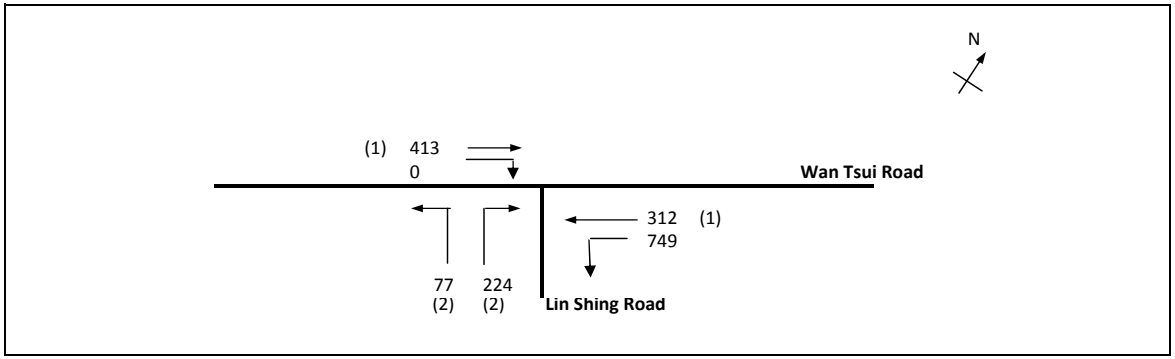
Q_{b-a}	=	510
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	455
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

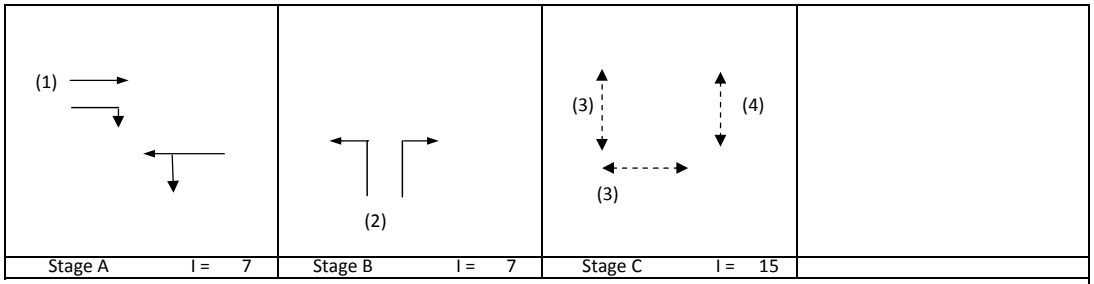
DFC_{b-a}	=	0.026
DFC_{b-c}	=	0.028
DFC_{b-d}	=	0.388
DFC_{d-a}	=	0.447
DFC_{d-b}	=	0.003
DFC_{d-c}	=	0.736
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.736

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.753
Loss time		L =	36 sec
Total Flow		=	1776 pcu
Co	= (1.5*L+5)/(1-Y)	=	238.7 sec
Cm	= L/(1-Y)	=	145.6 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-16.3 %
Cp	= 0.9*L/(0.9-Y)	=	220.1 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-16.3 %

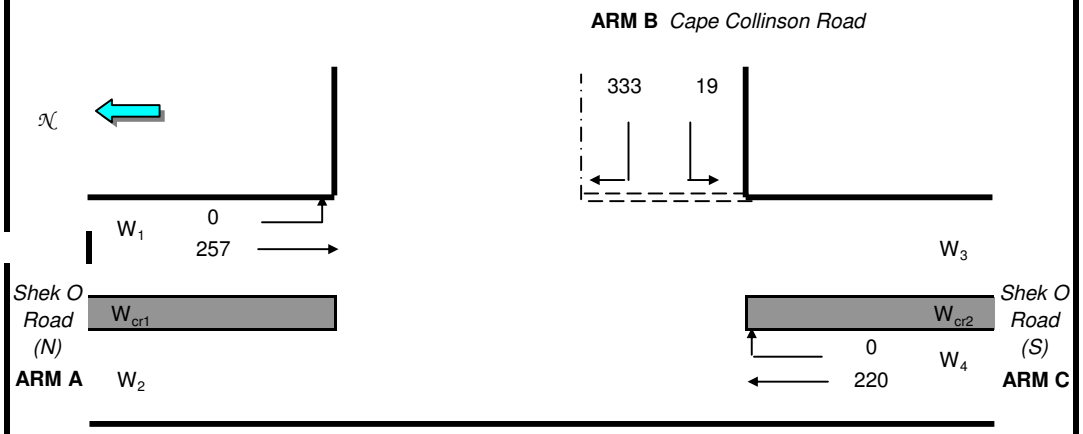


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		413		413	0.00	1915			1915	0.216			24	65	0.398	36	10
ST/LT	A	4.00	1	1	10		y	2015	749	312		1062	0.71	1822			1822	0.583	0.583		65	65	1.075	96	18
LT/RT	B	3.75	2	1	12		y	1990	77		224	301	1.00	1769			1769	0.170	0.170		19	19	1.075	48	46
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Weekend - Reference Case
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	257.346	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	220.048	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	333.11	(pcu/hr)
q_{b-c}	=	18.6921	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	676
Q_{c-b}	=	753
Q_{b-a}	=	329

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.013
DFC_{b-c}	=	0.028
DFC_{c-b}	=	0.000

Critical DFC = 1.013

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

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Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 10:14:23 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_WE_J4_Ref

DEMAND SET TITLE: 2026_WE_J4_Ref

.---------- T33

TIME		TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 08.45		ARM A	0.015	0.275	0.504	0.206
			14.0	249.0	456.0	186.0
			(10.0)	(10.0)	(10.0)	(10.0)
		ARM B	0.521	0.010	0.316	0.153
			576.0	11.0	350.0	169.0
			(10.0)	(10.0)	(10.0)	(10.0)
		ARM C	0.546	0.390	0.015	0.049
			335.0	239.0	9.0	30.0
			(10.0)	(10.0)	(10.0)	(10.0)
		ARM D	0.354	0.338	0.305	0.003
			474.0	453.0	408.0	4.0
			(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	15.10	24.03	0.628	- -	-	0.0	1.7	48.6	
-	0.111	I							
I ARM B	18.43	22.93	0.804	- -	-	0.0	4.0	109.2	
-	0.211	I							
I ARM C	10.23	19.41	0.527	- -	-	0.0	1.1	32.3	
-	0.108	I							
I ARM D	22.32	36.55	0.611	- -	-	0.0	1.6	45.7	
-	0.070	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	15.10	23.98	0.630	- -	-	1.7	1.7	50.5	
-	0.113	I							
I ARM B	18.43	22.88	0.805	- -	-	4.0	4.1	120.4	
-	0.224	I							
I ARM C	10.23	19.34	0.529	- -	-	1.1	1.1	33.4	
-	0.110	I							
I ARM D	22.32	36.44	0.613	- -	-	1.6	1.6	47.1	
-	0.071	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	4.0	****
08.45	4.1	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

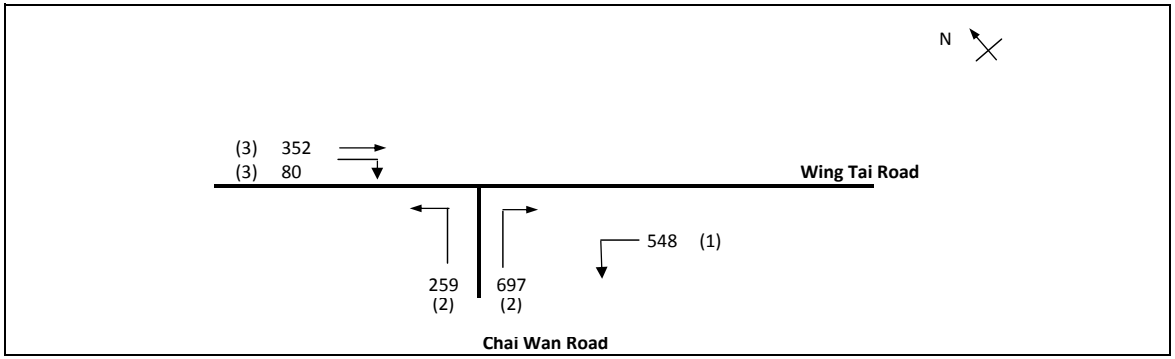
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	906.0	906.0	99.1	0.11	99.1	0.11
B	1105.8	1105.8	229.7	0.21	230.0	0.21
C	613.8	613.8	65.7	0.11	65.7	0.11
D	1339.2	1339.2	92.8	0.07	92.8	0.07
ALL	3964.8	3964.8	487.2	0.12	487.7	0.12

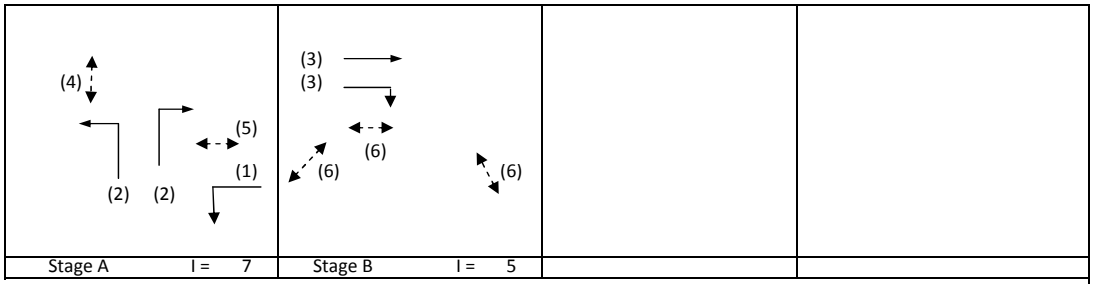
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.281
Loss time		L =	10 sec
Total Flow		=	1937 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.8 sec
Cm	= L/(1-Y)	=	13.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	193.5 %
Cp	= 0.9*L/(0.9-Y)	=	14.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	188.1 %

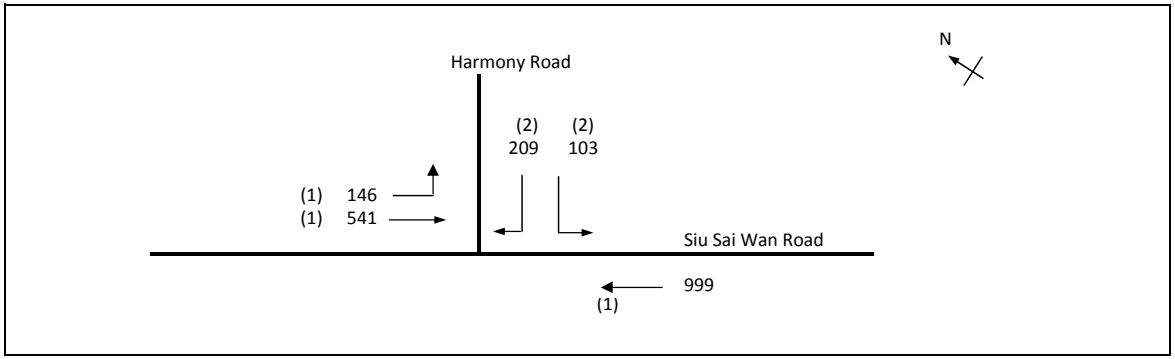


Stage A I = 7 Stage B I = 5

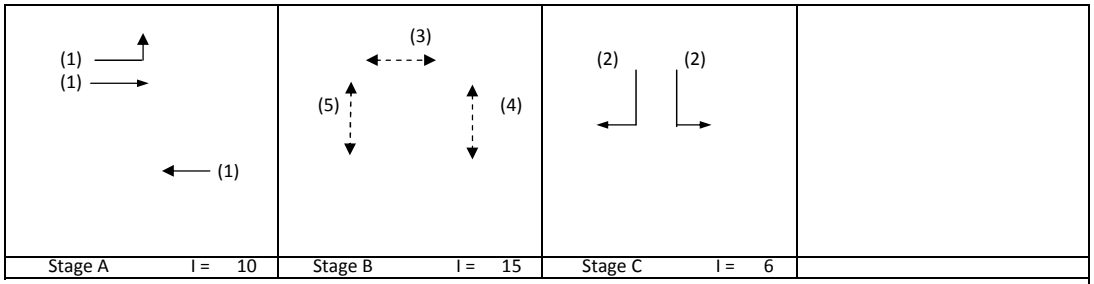
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	548			548	1.00	3857			3857	0.142			46	62	0.228	15	6
LT	A	4.00	2	2	24			4310	259			259	1.00	4056			4056	0.064			20	62	0.103	6	6
RT	A	3.50	2	2	11		y	4070			697	697	1.00	3582			3582	0.195	0.195		62	62	0.312	21	5
ST	B	3.50	3	2			y	4070		352		352	0.00	4070			4070	0.086	0.086		28	28	0.312	21	22
RT	B	4.50	3	2	13		y	4270			80	80	1.00	3828			3828	0.021			7	28	0.076	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.362	
Loss time	L =	48	sec
Total Flow	=	1998	pcu
Co = (1.5*L+5)/(1-Y)	=	120.6	sec
Cm = L/(1-Y)	=	75.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	49.3	%
Cp = 0.9*L/(0.9-Y)	=	80.2	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29.4	%

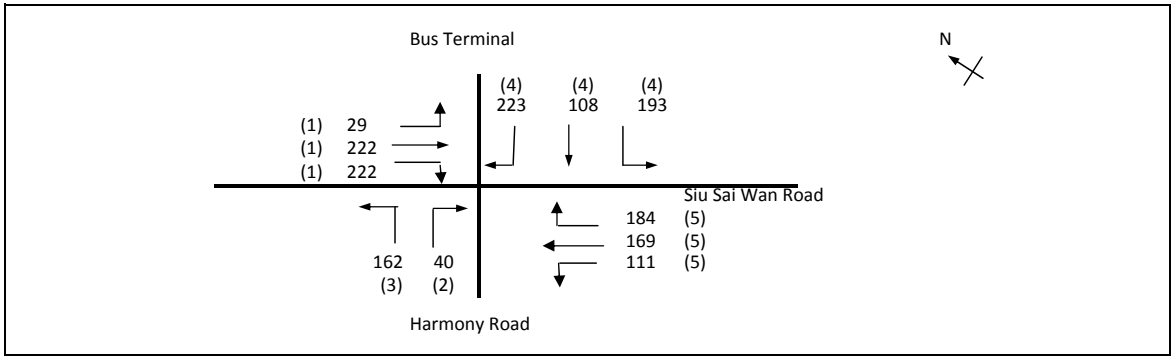


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

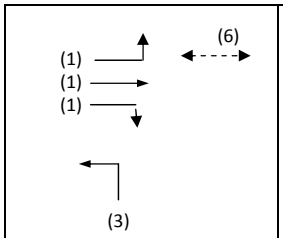
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	146	176		322	0.45	1832			1832	0.176			25	36	0.487	30	17
ST	A	3.20	1	1				2075		365		365	0.00	2075			2075	0.176			25	36	0.487	36	17
ST	A	3.00	1	2			y	3970		999		999	0.00	3970			3970	0.252	0.252		36	36	0.696	51	16
LT	C	3.75	2	1	12		y	1990	103			103	1.00	1769			1769	0.058			8	16	0.369	12	33
RT	C	3.75	2	1	12			2130			209	209	1.00	1893			1893	0.110	0.110		16	16	0.696	24	41
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

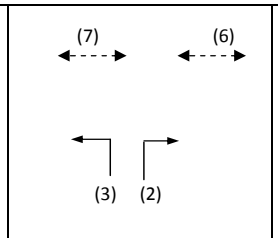
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



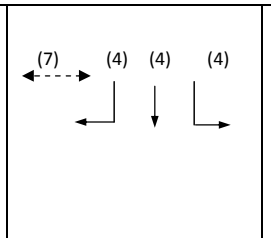
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.436
Loss time		L =	18 sec
Total Flow		=	1662 pcu
Co	= (1.5*L+5)/(1-Y)	=	56.7 sec
Cm	= L/(1-Y)	=	31.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	75.5 %
Cp	= 0.9*L/(0.9-Y)	=	34.9 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	71.1 %



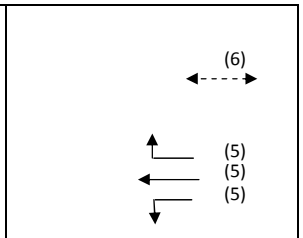
Stage A I = 5



Stage B I = 5



Stage C I = 6

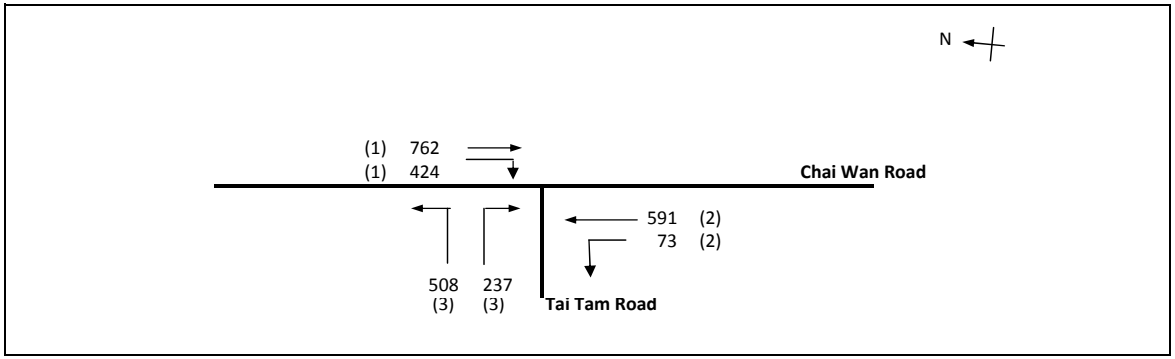


Stage C I = 6

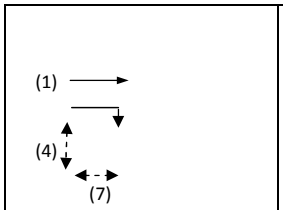
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	29	210		239	0.12	1914			1914	0.125			25	25	0.523	30	28
ST/RT	A	3.30	1	1	12			2085		12	222	234	0.95	1864			1864	0.125	0.125		25	25	0.526	30	28
RT	B	3.50	2	1	12			2105			40	40	1.00	1871			1871	0.021	0.021		4	4	0.526	6	66
LT	A,B	3.75	3	1	13		y	1990	162			162	1.00	1784			1784	0.091			18	34	0.277	18	21
RT	C	3.50	4	1	12			2105			223	223	1.00	1871			1871	0.119			24	33	0.378	24	21
LT/ST	C	3.50	4	1	12		y	1965	193	108		301	0.64	1819			1819	0.166	0.166		33	33	0.526	36	22
ST/RT	D	3.50	5	1	12			2105		53	184	237	0.78	1919			1919	0.123	0.123		25	25	0.526	30	28
LT/ST	D	3.50	5	1	11		y	1965	111	116		227	0.49	1842			1842	0.123			25	25	0.526	30	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

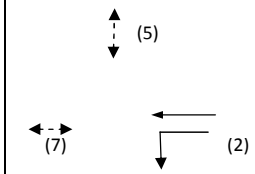
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



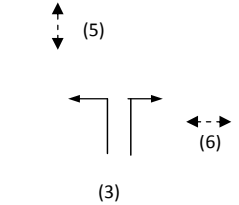
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.562
Loss time		L =	18 sec
Total Flow		=	2594 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.0 sec
Cm	= L/(1-Y)	=	41.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	36.2 %
Cp	= 0.9*L/(0.9-Y)	=	47.9 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	32.7 %



Stage A I = 7



Stage B I = 8

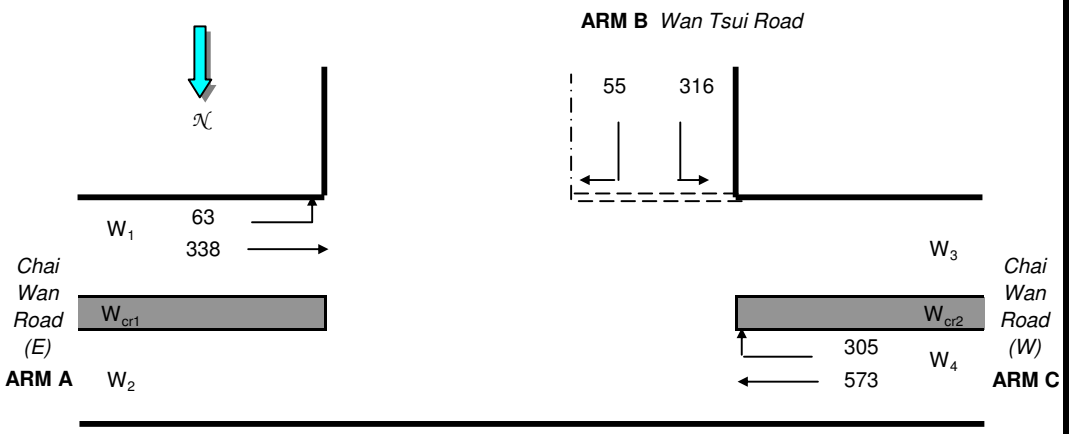


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		762		762	0.00	4070			4070	0.187			29	29	0.678	48	23
RT	A	3.50	1	1	13			2105			424	424	1.00	1887			1887	0.224	0.224		35	29	0.813	48	33
ST	B	3.50	2	2				4210		591		591	0.00	4210			4210	0.140	0.140		22	22	0.678	39	29
LT	B	3.10	2	1	12		y	1925	73			73	1.00	1711			1711	0.043			7	22	0.207	6	30
LT	C	4.00	3	1	15		y	2015	361			361	1.00	1832			1832	0.197	0.197		31	31	0.678	42	26
LT/RT	C	4.00	3	1	15			2155	147		237	384	1.00	1959			1959	0.196			30	31	0.674	42	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Weekend - Reference Case
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	63.1228	(pcu/hr)
q_{a-c}	=	338.359	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	573.036	(pcu/hr)
q_{c-b}	=	304.983	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	54.5786	(pcu/hr)
q_{b-c}	=	315.802	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

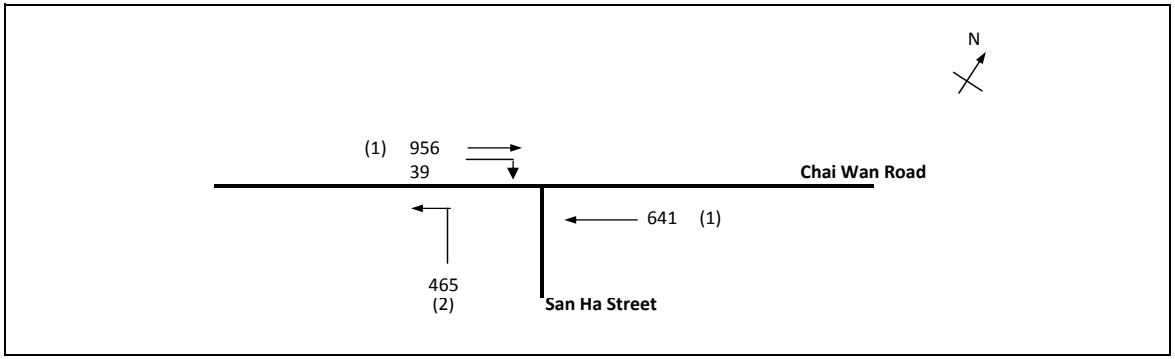
Q_{b-c}	=	779
Q_{c-b}	=	693
Q_{b-a}	=	359

COMPARISION OF DESIGN FLOW TO CAPACITY

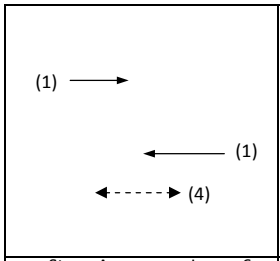
DFC_{b-a}	=	0.152
DFC_{b-c}	=	0.405
DFC_{c-b}	=	0.440

Critical DFC = 0.440

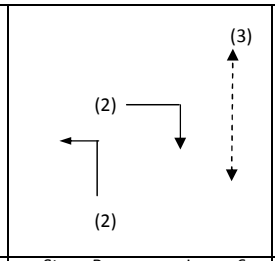
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.514
Loss time		L =	10 sec
Total Flow		=	2101 pcu
Co	= (1.5*L+5)/(1-Y)	=	41.2 sec
Cm	= L/(1-Y)	=	20.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	60.4 %
Cp	= 0.9*L/(0.9-Y)	=	23.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	57.5 %



Stage A I = 6



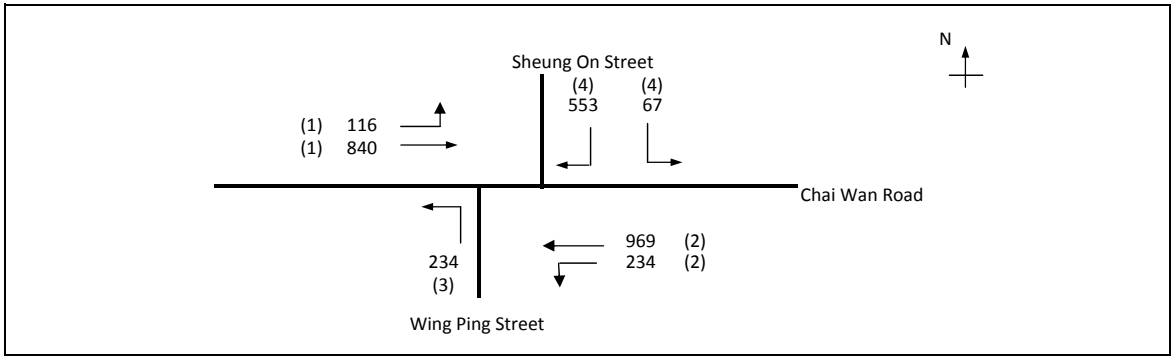
Stage B I = 6

Stage C I =

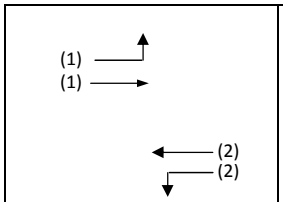
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		956		956	0.00	4070			4070	0.235	0.235		41	47	0.500	42	11
ST	A	3.50	1	2	10		N	4070		641		641	0.00	4070			4070	0.157			28	47	0.335	27	11
LT	B	3.00	2	1	10		N	1915	465			465	1.00	1665			1665	0.279	0.279		49	53	0.527	36	9
RT	B	3.50	2	1	12			2105			39	39	1.00	1871			1871	0.021			4	53	0.039	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

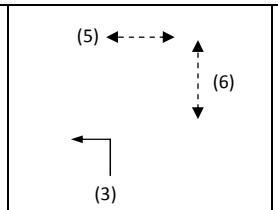
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME £_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



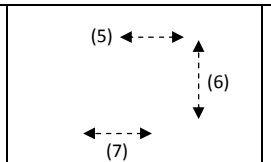
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.514
Loss time		L =	37 sec
Total Flow		=	3014 pcu
Co	= (1.5*L+5)/(1-Y)	=	124.4 sec
Cm	= L/(1-Y)	=	76.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	21.2 %
Cp	= 0.9*L/(0.9-Y)	=	86.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21.2 %



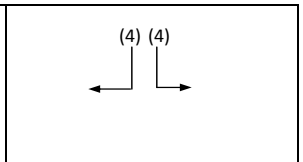
Stage A I = 8



Stage B I = 5



Stage C I = 7

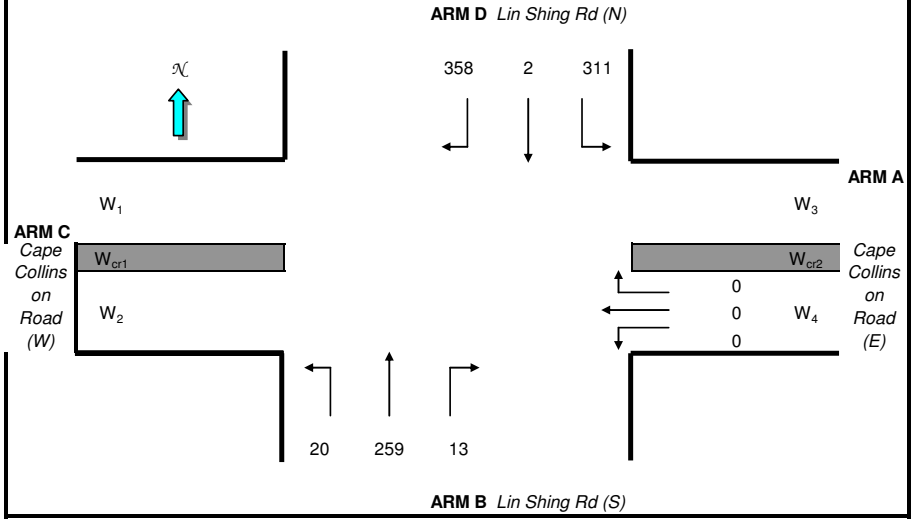


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	116	840		956	0.12	6083			6083	0.157			25		0.000	62	54
LT/ST	A	3.30	2	3	12		Y	6115	234	969		1203	0.19	5970			5970	0.202	0.202		33		0.000	80	54
LT	B	3.50	3	1	9		Y	1965	234			234	1.00	1684			1684	0.139	0.139		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	67		553	621	1.00	3583			3583	0.173	0.173		28		0.000	60	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	13.045	(pcu/hr)
q_{b-c}	=	19.628	(pcu/hr)
q_{b-d}	=	258.53	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	311.3	(pcu/hr)
q_{d-b}	=	2.3946	(pcu/hr)
q_{d-c}	=	357.52	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

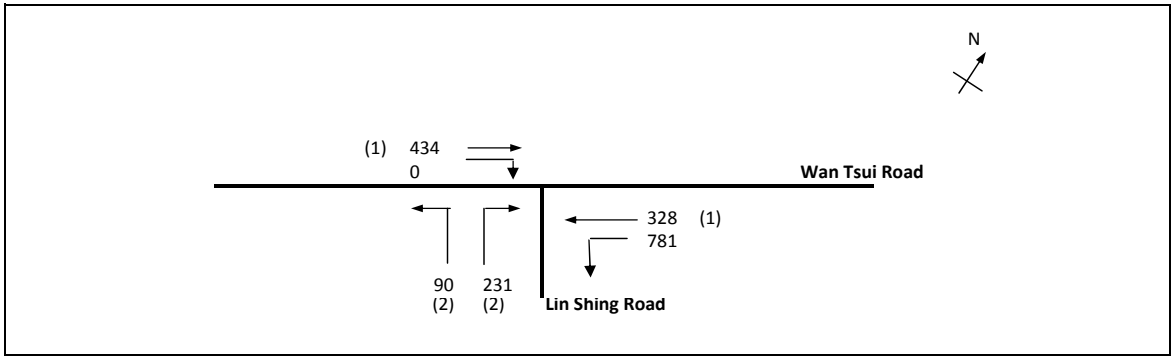
Q_{b-a}	=	504
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	451
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

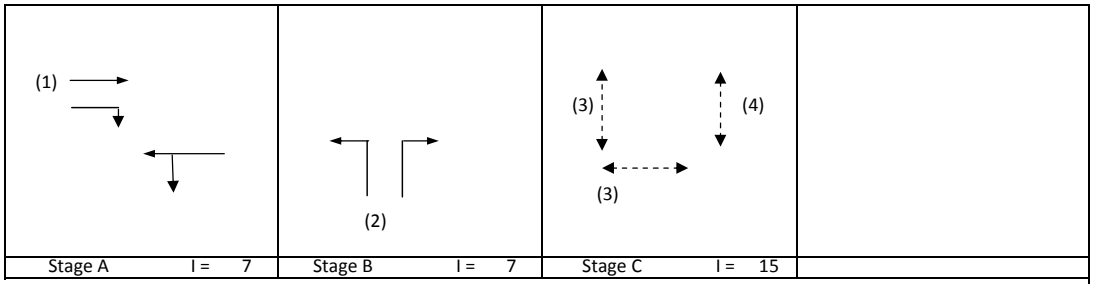
DFC_{b-a}	=	0.026
DFC_{b-c}	=	0.026
DFC_{b-d}	=	0.423
DFC_{d-a}	=	0.462
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.794
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.794

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME : E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.790
Loss time		L =	36 sec
Total Flow		=	1864 pcu
Co	= (1.5*L+5)/(1-Y)	=	281.2 sec
Cm	= L/(1-Y)	=	171.6 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-20.3 %
Cp	= 0.9*L/(0.9-Y)	=	295.0 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-20.3 %

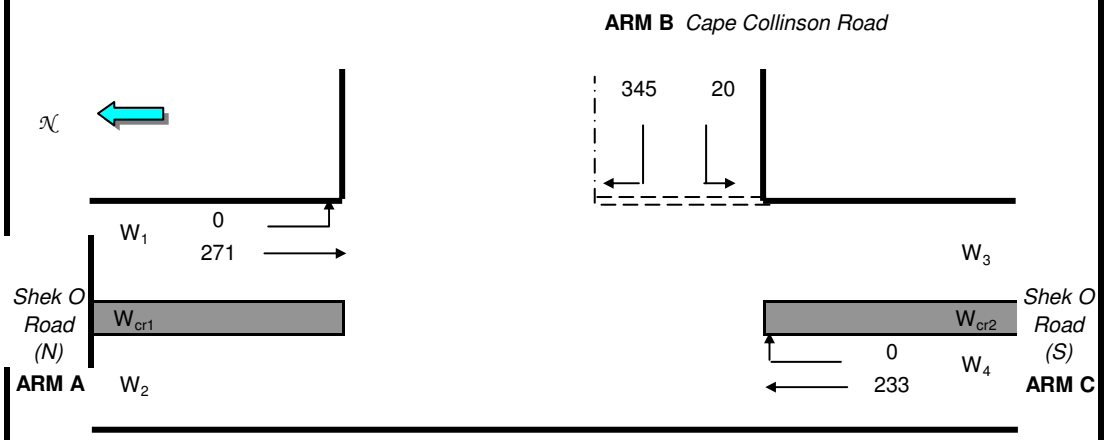


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		434		434	0.00	1915			1915	0.227			24	65	0.420	36	10
ST/LT	A	4.00	1	1	10		y	2015	781	328		1109	0.70	1822			1822	0.609	0.609		65	65	1.129	102	18
LT/RT	B	3.75	2	1	12		y	1990	90		231	321	1.00	1769			1769	0.182	0.182		19	19	1.129	48	46
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	271.45	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	232.561	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	345.39	(pcu/hr)
q_{b-c}	=	19.9952	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	673
Q_{c-b}	=	749
Q_{b-a}	=	325

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.062
DFC_{b-c}	=	0.030
DFC_{c-b}	=	0.000

Critical DFC = 1.062

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 10:15:55 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
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 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_WE_J4_S1


 DEMAND SET TITLE:  2026_WE_J4_S1
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.015 I  0.268 I  0.514 I  0.203 I
 I                    I         I   14.0 I  249.0 I  477.0 I  188.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.516 I  0.010 I  0.323 I  0.151 I
 I                    I         I  576.0 I   11.0 I  360.0 I  169.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.555 I  0.382 I  0.015 I  0.048 I
 I                    I         I  360.0 I  248.0 I   10.0 I   31.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.351 I  0.333 I  0.312 I  0.003 I
 I                    I         I  484.0 I  459.0 I  430.0 I    4.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									I
I ARM A	15.47	23.51	0.658	- -	-	0.0	1.9	54.9	-
0.122	I								
I ARM B	18.59	22.34	0.832	- -	-	0.0	4.7	128.0	-
0.247	I								
I ARM C	10.82	19.40	0.558	- -	-	0.0	1.2	36.3	-
0.116	I								
I ARM D	22.95	35.98	0.638	- -	-	0.0	1.7	51.1	-
0.076	I								
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									I
I ARM A	15.47	23.46	0.659	- -	-	1.9	1.9	57.5	-
0.125	I								
I ARM B	18.59	22.29	0.834	- -	-	4.7	4.9	144.5	-
0.269	I								
I ARM C	10.82	19.33	0.560	- -	-	1.2	1.3	37.8	-
0.118	I								
I ARM D	22.95	35.85	0.640	- -	-	1.7	1.8	52.9	-
0.077	I								
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.9	**
08.45	1.9	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	4.7	*****
08.45	4.9	*****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.2	*
08.45	1.3	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.8	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

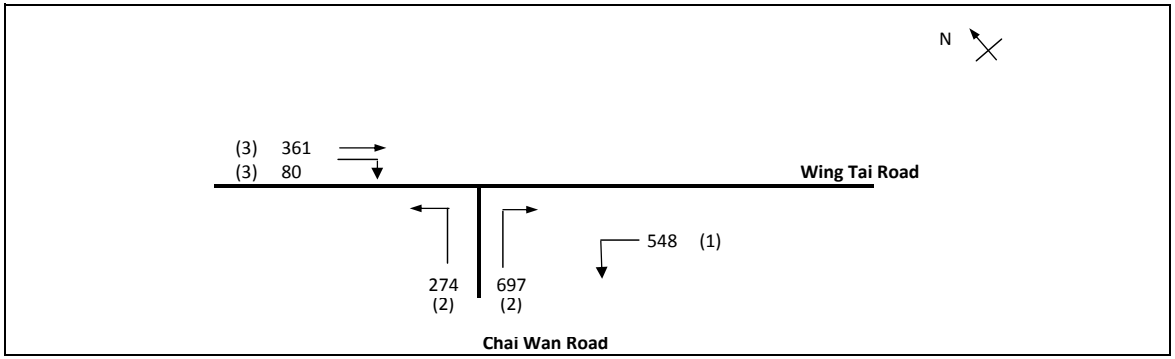
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	928.2	928.2	112.3	0.12	112.4	0.12
B	1115.4	1115.4	272.5	0.24	273.0	0.24
C	649.2	649.2	74.1	0.11	74.2	0.11
D	1377.0	1377.0	104.0	0.08	104.1	0.08
ALL	4069.8	4069.8	563.0	0.14	563.7	0.14

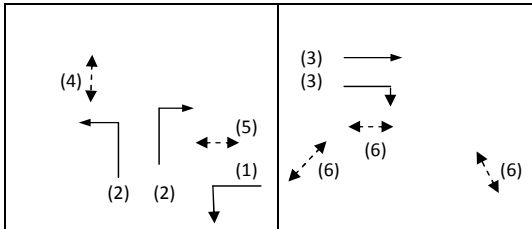
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME : E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.283
Loss time		L =	10 sec
Total Flow		=	1961 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.9 sec
Cm	= L/(1-Y)	=	14.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	191.1 %
Cp	= 0.9*L/(0.9-Y)	=	14.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	185.8 %



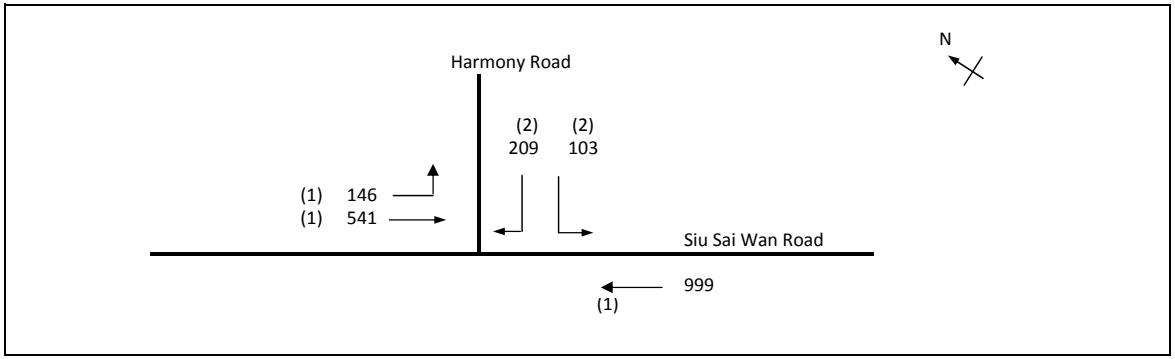
Stage A I = 7

Stage B I = 5

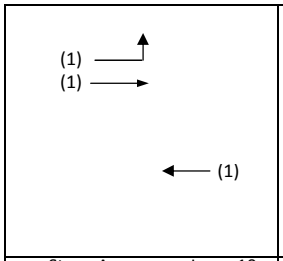
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	548			548	1.00	3857			3857	0.142			45	62	0.230	15	6
LT	A	4.00	2	2	24			4310	274			274	1.00	4056			4056	0.068			21	62	0.109	6	6
RT	A	3.50	2	2	11		y	4070			697	697	1.00	3582			3582	0.195	0.195		62	62	0.315	21	6
ST	B	3.50	3	2			y	4070		361		361	0.00	4070			4070	0.089	0.089		28	28	0.315	21	22
RT	B	4.50	3	2	13		y	4270			80	80	1.00	3828			3828	0.021			7	28	0.074	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

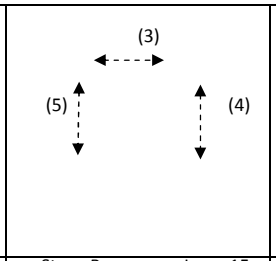
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



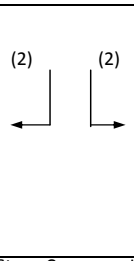
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.362	
Loss time	L =	48	sec
Total Flow	=	1998	pcu
Co = (1.5*L+5)/(1-Y)	=	120.6	sec
Cm = L/(1-Y)	=	75.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	49.3	%
Cp = 0.9*L/(0.9-Y)	=	80.2	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29.4	%



Stage A I = 10



Stage B I = 15

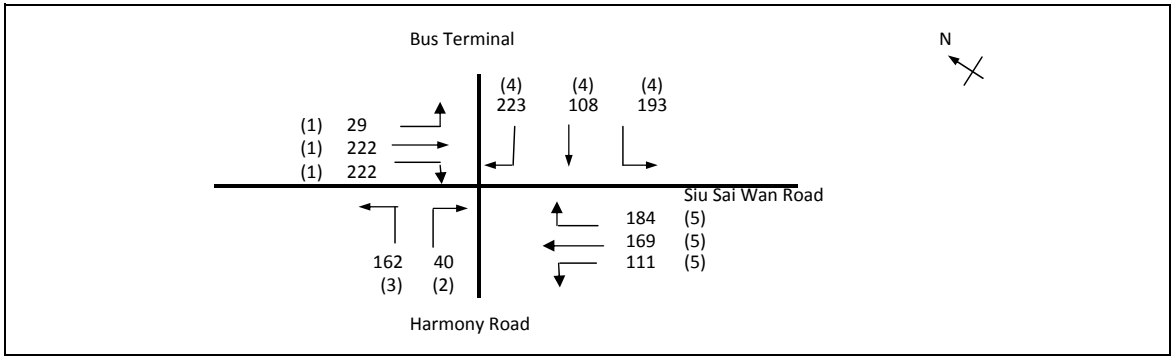


Stage C I = 6

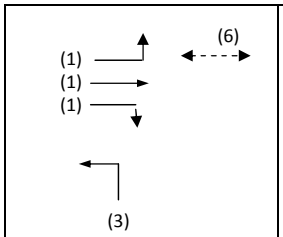
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	146	176		322	0.45	1832			1832	0.176			25	36	0.487	30	17
ST	A	3.20	1	1				2075		365		365	0.00	2075			2075	0.176			25	36	0.487	36	17
ST	A	3.00	1	2			y	3970		999		999	0.00	3970			3970	0.252	0.252		36	36	0.696	51	16
LT	C	3.75	2	1	12		y	1990	103			103	1.00	1769			1769	0.058			8	16	0.369	12	33
RT	C	3.75	2	1	12			2130			209	209	1.00	1893			1893	0.110	0.110		16	16	0.696	24	41
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

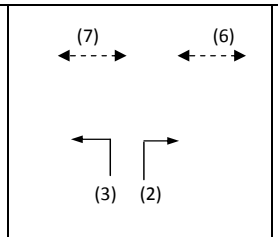
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



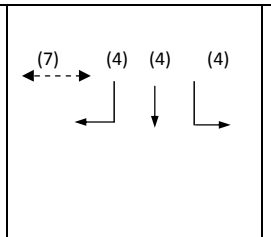
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.436	
Loss time	L =	18	sec
Total Flow	=	1662	pcu
Co = (1.5*L+5)/(1-Y)	=	56.7	sec
Cm = L/(1-Y)	=	31.9	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	75.5	%
Cp = 0.9*L/(0.9-Y)	=	34.9	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	71.1	%



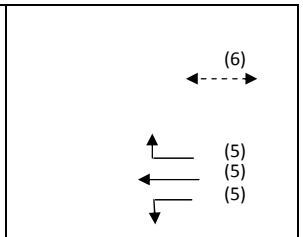
Stage A I = 5



Stage B I = 5



Stage C I = 6

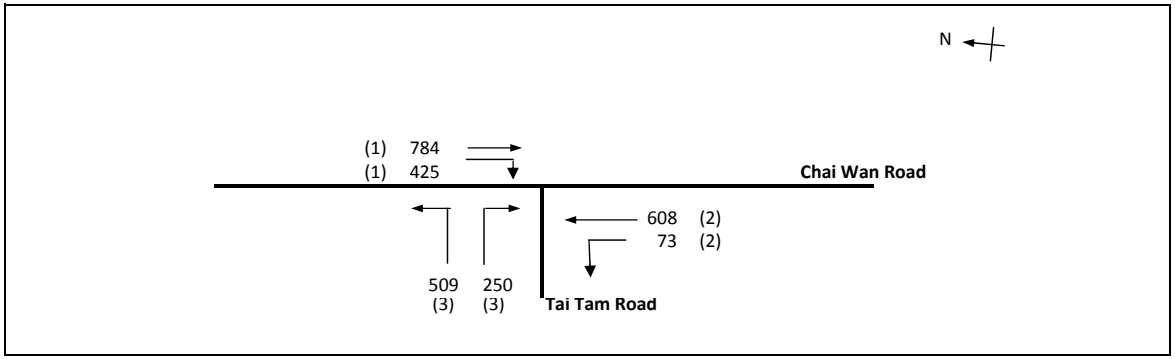


Stage C I = 6

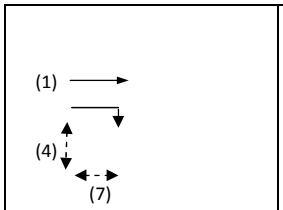
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	29	210		239	0.12	1914			1914	0.125			25	25	0.523	30	28
ST/RT	A	3.30	1	1	12			2085		12	222	234	0.95	1864			1864	0.125	0.125		25	25	0.526	30	28
RT	B	3.50	2	1	12			2105			40	40	1.00	1871			1871	0.021	0.021		4	4	0.526	6	66
LT	A,B	3.75	3	1	13		y	1990	162			162	1.00	1784			1784	0.091			18	34	0.277	18	21
RT	C	3.50	4	1	12			2105			223	223	1.00	1871			1871	0.119			24	33	0.378	24	21
LT/ST	C	3.50	4	1	12		y	1965	193	108		301	0.64	1819			1819	0.166	0.166		33	33	0.526	36	22
ST/RT	D	3.50	5	1	12			2105		53	184	237	0.78	1919			1919	0.123	0.123		25	25	0.526	30	28
LT/ST	D	3.50	5	1	11		y	1965	111	116		227	0.49	1842			1842	0.123			25	25	0.526	30	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

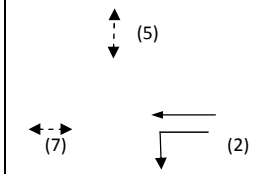
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



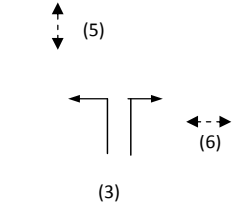
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.570
Loss time		L =	18 sec
Total Flow		=	2650 pcu
Co	= (1.5*L+5)/(1-Y)	=	74.4 sec
Cm	= L/(1-Y)	=	41.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	34.3 %
Cp	= 0.9*L/(0.9-Y)	=	49.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	30.9 %



Stage A I = 7



Stage B I = 8

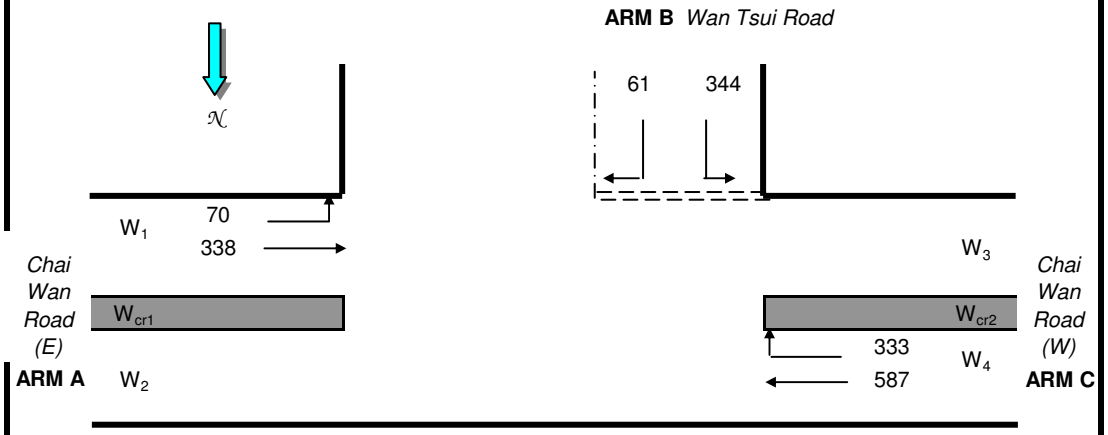


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		784		784	0.00	4070			4070	0.193			29	29	0.687	48	23
RT	A	3.50	1	1	13			2105			425	425	1.00	1887			1887	0.225	0.225		34	29	0.803	48	31
ST	B	3.50	2	2				4210		608		608	0.00	4210			4210	0.144	0.144		22	22	0.687	42	29
LT	B	3.10	2	1	12		y	1925	73			73	1.00	1711			1711	0.043			7	22	0.204	6	29
LT	C	4.00	3	1	15		y	2015	366			366	1.00	1832			1832	0.200	0.200		31	31	0.687	42	26
LT/RT	C	4.00	3	1	15			2155	143		250	393	1.00	1959			1959	0.200			31	31	0.689	48	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Weekend - Site 1
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	70.46	(pcu/hr)
q_{a-c}	=	338.088	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	586.779	(pcu/hr)
q_{c-b}	=	332.728	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	61.0276	(pcu/hr)
q_{b-c}	=	344.092	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

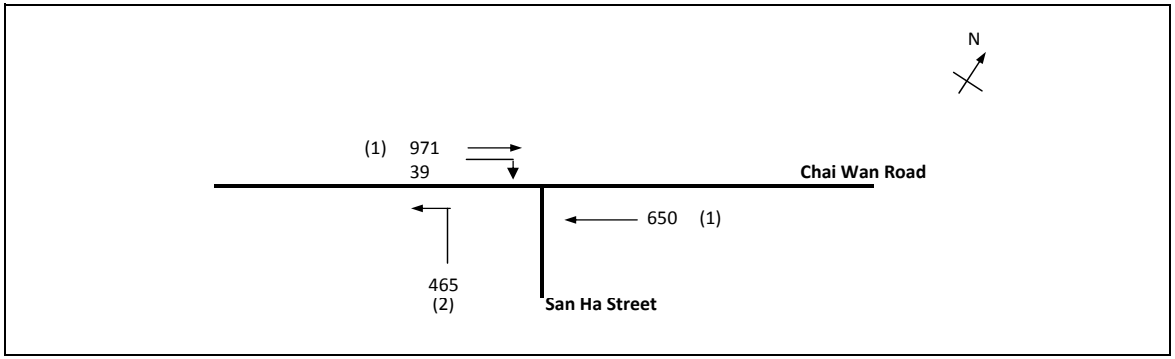
Q_{b-c}	=	779
Q_{c-b}	=	693
Q_{b-a}	=	355

COMPARISION OF DESIGN FLOW TO CAPACITY

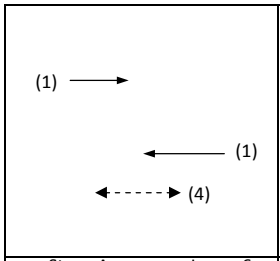
DFC_{b-a}	=	0.172
DFC_{b-c}	=	0.442
DFC_{c-b}	=	0.480

Critical DFC = 0.480

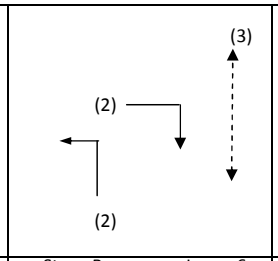
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.518
Loss time		L =	10 sec
Total Flow		=	2125 pcu
Co	= (1.5*L+5)/(1-Y)	=	41.5 sec
Cm	= L/(1-Y)	=	20.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	59.3 %
Cp	= 0.9*L/(0.9-Y)	=	23.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	56.4 %



Stage A I = 6



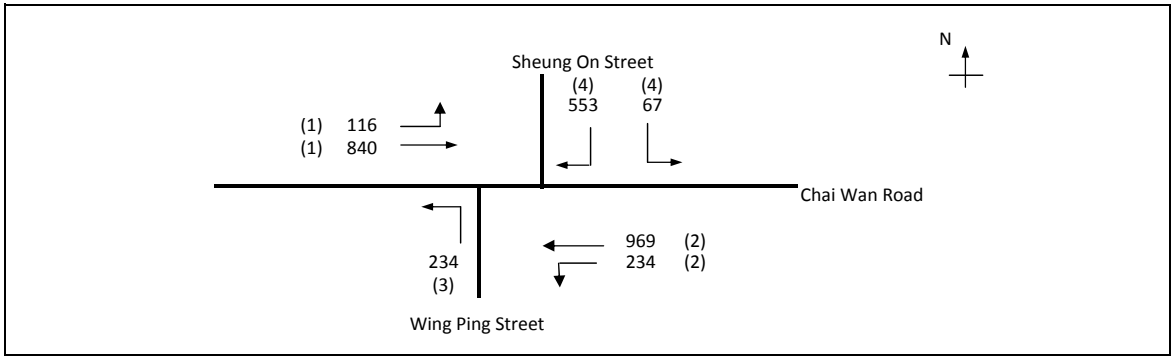
Stage B I = 6

Stage C I =

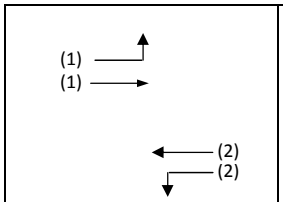
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		971		971	0.00	4070			4070	0.239	0.239		41	47	0.508	42	10
ST	A	3.50	1	2	10		N	4070		650		650	0.00	4070			4070	0.160			28	47	0.340	27	11
LT	B	3.00	2	1	10		N	1915	465			465	1.00	1665			1665	0.279	0.279		49	53	0.527	36	9
RT	B	3.50	2	1	12			2105			39	39	1.00	1871			1871	0.021			4	53	0.039	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

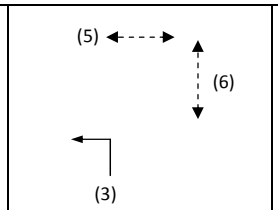
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME :E_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



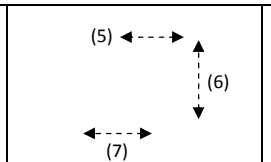
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.514
Loss time		L =	37 sec
Total Flow		=	3014 pcu
Co	= (1.5*L+5)/(1-Y)	=	124.4 sec
Cm	= L/(1-Y)	=	76.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	21.2 %
Cp	= 0.9*L/(0.9-Y)	=	86.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21.2 %



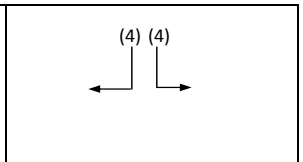
Stage A I = 8



Stage B I = 5



Stage C I = 7

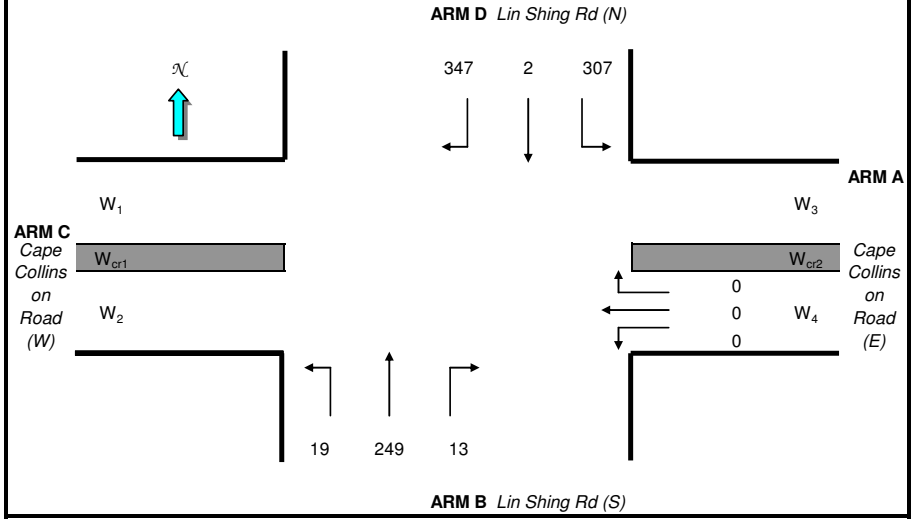


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	116	840		956	0.12	6083			6083	0.157			25		0.000	62	54
LT/ST	A	3.30	2	3	12		Y	6115	234	969		1203	0.19	5970			5970	0.202	0.202		33		0.000	80	54
LT	B	3.50	3	1	9		Y	1965	234			234	1.00	1684			1684	0.139	0.139		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	67		553	621	1.00	3583			3583	0.173	0.173		28		0.000	60	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	13.045	(pcu/hr)
q_{b-c}	=	19.495	(pcu/hr)
q_{b-d}	=	249.07	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	306.6	(pcu/hr)
q_{d-b}	=	2.3585	(pcu/hr)
q_{d-c}	=	347.12	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

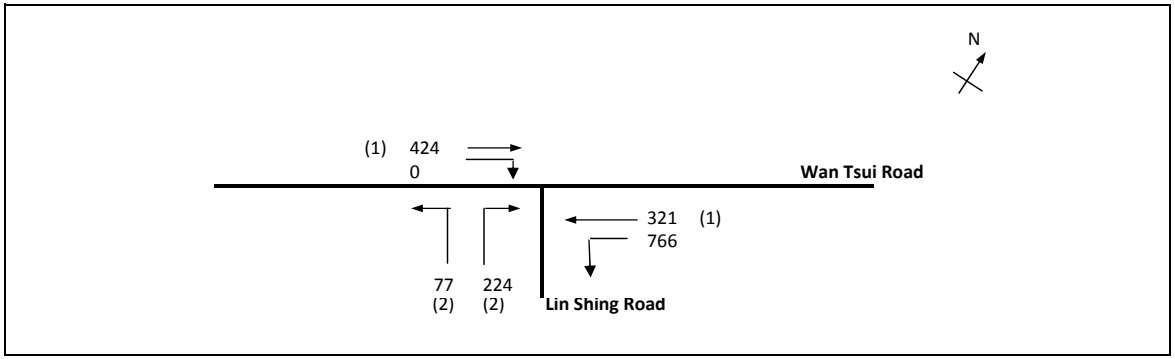
Q_{b-a}	=	507
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	453
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

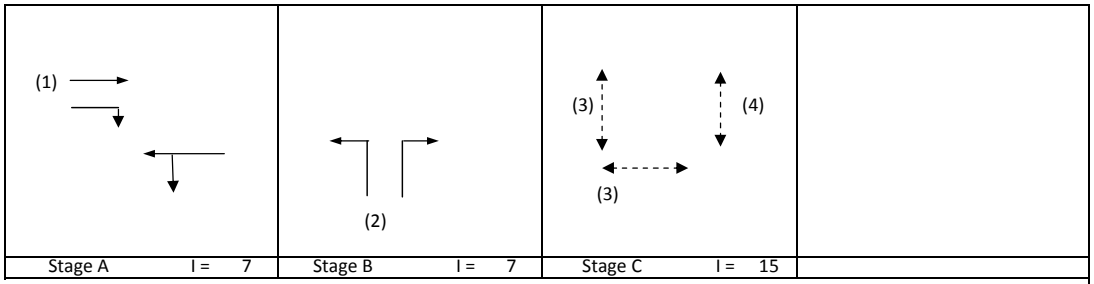
DFC_{b-a}	=	0.026
DFC_{b-c}	=	0.026
DFC_{b-d}	=	0.407
DFC_{d-a}	=	0.455
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.767
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.767

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.767
Loss time		L =	36 sec
Total Flow		=	1812 pcu
Co	= (1.5*L+5)/(1-Y)	=	252.7 sec
Cm	= L/(1-Y)	=	154.2 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	-17.8 %
Cp	= 0.9*L/(0.9-Y)	=	242.7 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-17.8 %

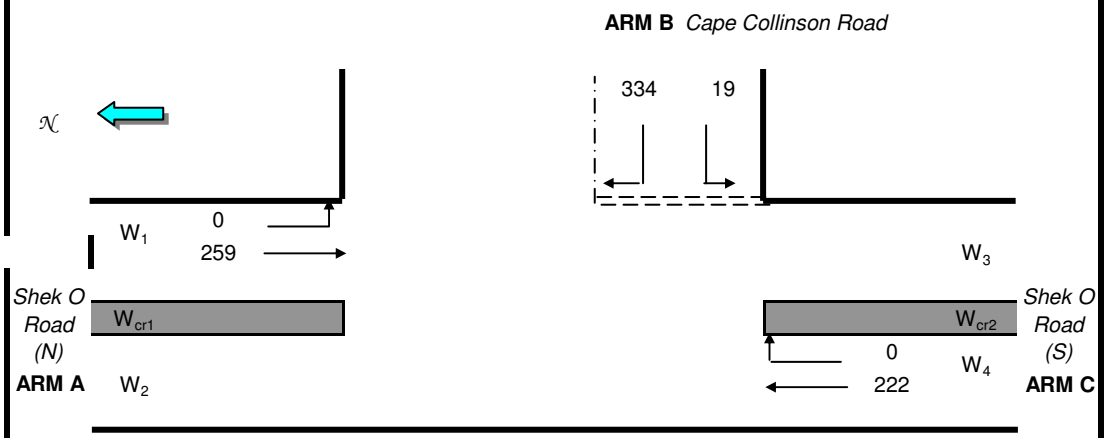


Stage A	I = 7	Stage B	I = 7	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				26					
ST	A	3.00	1	1			y	1915		424		424	0.00	1915			1915	0.221			24	65	0.407	36	10
ST/LT	A	4.00	1	1	10		y	2015	766	321		1087	0.70	1822			1822	0.596	0.596		65	65	1.095	96	18
LT/RT	B	3.75	2	1	12		y	1990	77		224	301	1.00	1769			1769	0.170	0.170		19	19	1.095	48	47
Ped	C	6.00	3																	10					
Ped	C	11.00	4																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	258.684	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	222.06	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	334.214	(pcu/hr)
q_{b-c}	=	19.0419	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	676
Q_{c-b}	=	753
Q_{b-a}	=	328

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.018
DFC_{b-c}	=	0.028
DFC_{c-b}	=	0.000

Critical DFC = 1.018

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 10:17:20 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	T5 SLOPE	T5 INTERCEPT (PCU/MIN)
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
I A	100
I B	100
I C	100
I D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_WE_J4_S2

DEMAND SET TITLE: 2026_WE_J4_S2

.---------- T33

I TIME	I FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
I 07.45 - 08.45	I ARM A	I 0.015	I 0.271	I 0.510	I 0.204
I	I	I 14.0	I 249.0	I 468.0	I 187.0
I	I	I (10.0)	I (10.0)	I (10.0)	I (10.0)
I	I ARM B	I 0.518	I 0.010	I 0.320	I 0.152
I	I	I 576.0	I 11.0	I 355.0	I 169.0
I	I	I (10.0)	I (10.0)	I (10.0)	I (10.0)
I	I ARM C	I 0.550	I 0.385	I 0.016	I 0.049
I	I	I 349.0	I 244.0	I 10.0	I 31.0
I	I	I (10.0)	I (10.0)	I (10.0)	I (10.0)
I	I ARM D	I 0.352	I 0.336	I 0.309	I 0.003
I	I	I 479.0	I 456.0	I 420.0	I 4.0
I	I	I (10.0)	I (10.0)	I (10.0)	I (10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 07.45-08.15									
I ARM A	15.30	23.74	0.644	- -	-	0.0	1.8	51.8	
-	0.117	I							
I ARM B	18.52	22.60	0.819	- -	-	0.0	4.3	119.1	
-	0.229	I							
I ARM C	10.55	19.40	0.544	- -	-	0.0	1.2	34.4	
-	0.112	I							
I ARM D	22.66	36.24	0.625	- -	-	0.0	1.7	48.5	
-	0.073	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 08.15-08.45									
I ARM A	15.30	23.70	0.646	- -	-	1.8	1.8	54.1	
-	0.119	I							
I ARM B	18.52	22.55	0.821	- -	-	4.3	4.5	132.9	
-	0.247	I							
I ARM C	10.55	19.33	0.546	- -	-	1.2	1.2	35.7	
-	0.114	I							
I ARM D	22.66	36.12	0.627	- -	-	1.7	1.7	50.1	
-	0.074	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.8	**
08.45	1.8	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	4.3	****
08.45	4.5	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.2	*
08.45	1.2	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

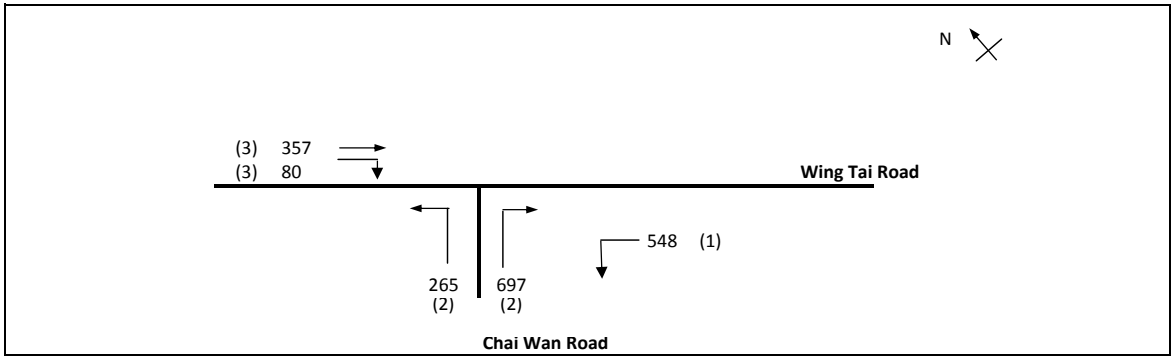
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	918.0	918.0	105.9	0.12	106.0	0.12
B	1111.2	1111.2	252.0	0.23	252.4	0.23
C	633.0	633.0	70.1	0.11	70.2	0.11
D	1359.6	1359.6	98.6	0.07	98.7	0.07
ALL	4021.8	4021.8	526.7	0.13	527.3	0.13

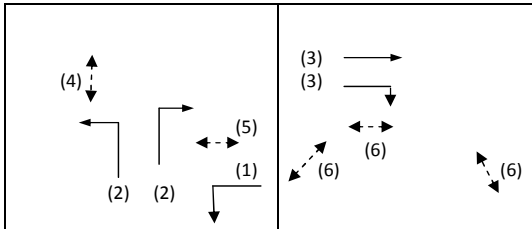
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5WE - Peak Hour Traffic Flows	FILENAME : E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.282
Loss time		L =	10 sec
Total Flow		=	1947 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.9 sec
Cm	= L/(1-Y)	=	13.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	192.2 %
Cp	= 0.9*L/(0.9-Y)	=	14.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	186.9 %



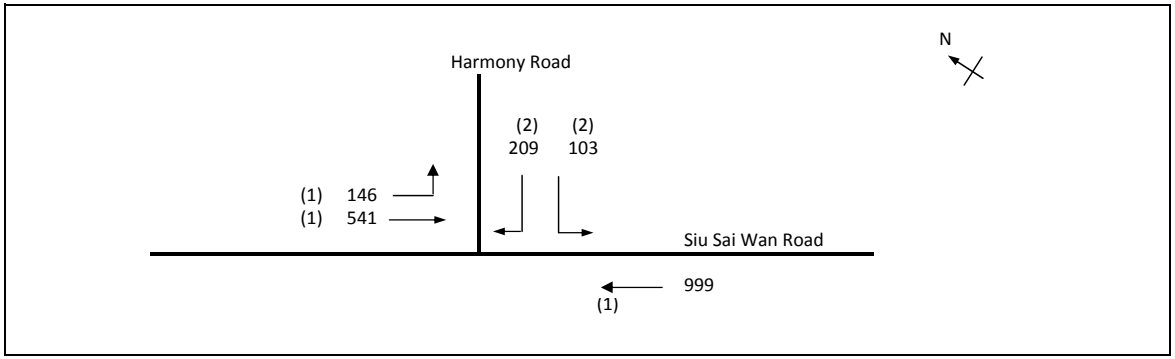
Stage A I = 7

Stage B I = 5

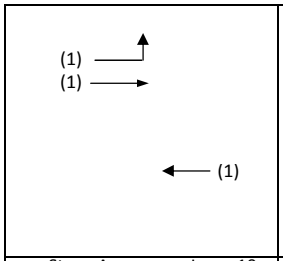
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	548			548	1.00	3857			3857	0.142			45	62	0.229	15	6
LT	A	4.00	2	2	24			4310	265			265	1.00	4056			4056	0.065			21	62	0.105	6	6
RT	A	3.50	2	2	11		y	4070			697	697	1.00	3582			3582	0.195	0.195		62	62	0.314	21	6
ST	B	3.50	3	2			y	4070		357		357	0.00	4070			4070	0.088	0.088		28	28	0.314	21	22
RT	B	4.50	3	2	13		y	4270			80	80	1.00	3828			3828	0.021			7	28	0.075	3	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

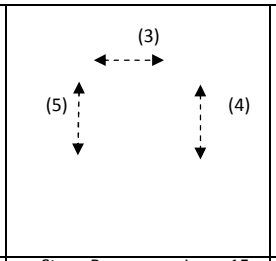
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



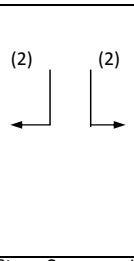
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.362	
Loss time	L =	48	sec
Total Flow	=	1998	pcu
Co = (1.5*L+5)/(1-Y)	=	120.6	sec
Cm = L/(1-Y)	=	75.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	49.3	%
Cp = 0.9*L/(0.9-Y)	=	80.2	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29.4	%



Stage A I = 10



Stage B I = 15

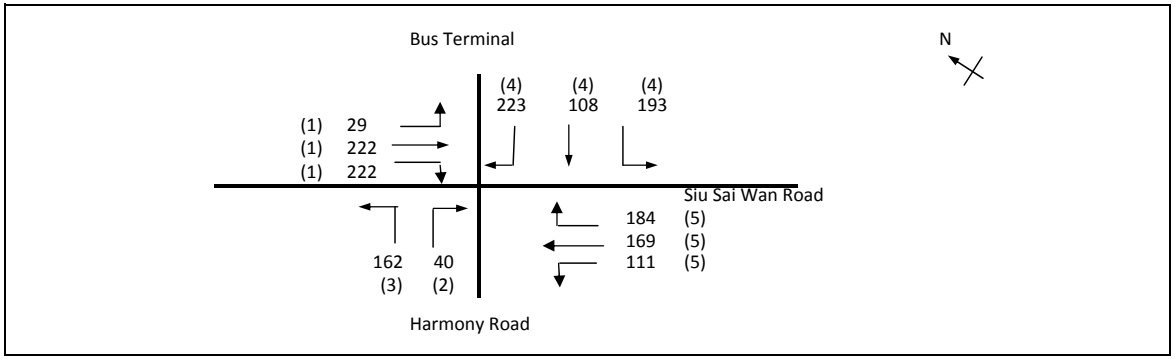


Stage C I = 6

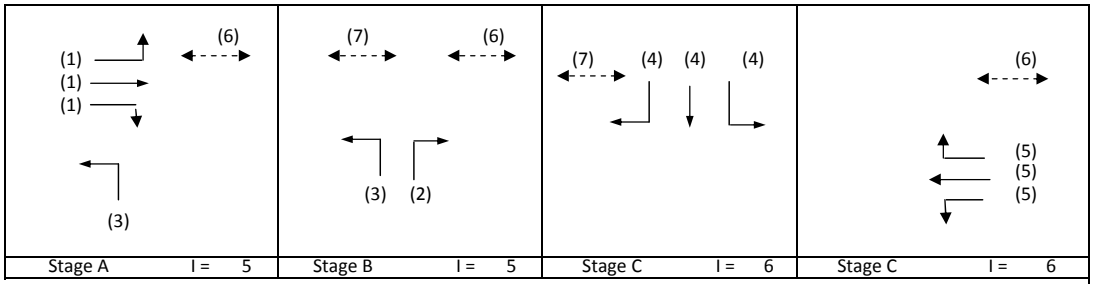
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	146	176		322	0.45	1832			1832	0.176			25	36	0.487	30	17
ST	A	3.20	1	1				2075		365		365	0.00	2075			2075	0.176			25	36	0.487	36	17
ST	A	3.00	1	2			y	3970		999		999	0.00	3970			3970	0.252	0.252		36	36	0.696	51	16
LT	C	3.75	2	1	12		y	1990	103			103	1.00	1769			1769	0.058			8	16	0.369	12	33
RT	C	3.75	2	1	12			2130			209	209	1.00	1893			1893	0.110	0.110		16	16	0.696	24	41
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.436	
Loss time	L =	18	sec
Total Flow	=	1662	pcu
Co = (1.5*L+5)/(1-Y)	=	56.7	sec
Cm = L/(1-Y)	=	31.9	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	75.5	%
Cp = 0.9*L/(0.9-Y)	=	34.9	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	71.1	%

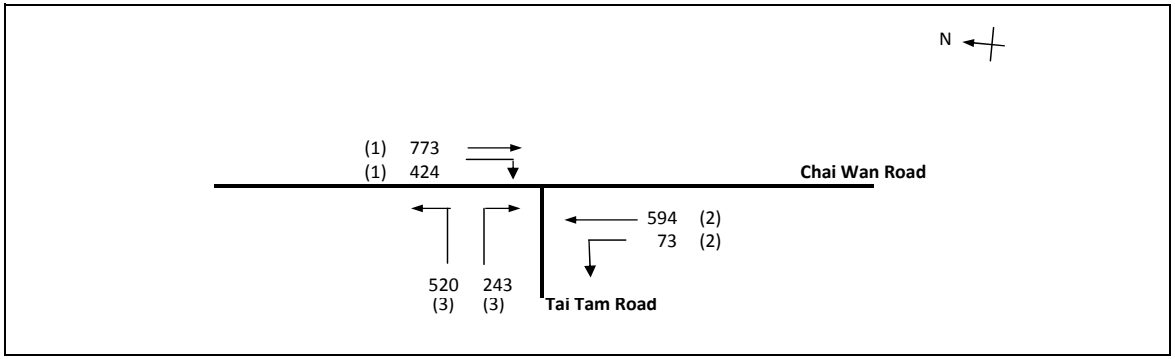


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

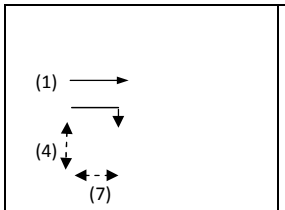
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	29	210		239	0.12	1914			1914	0.125			25	25	0.523	30	28
ST/RT	A	3.30	1	1	12			2085		12	222	234	0.95	1864			1864	0.125	0.125		25	25	0.526	30	28
RT	B	3.50	2	1	12			2105			40	40	1.00	1871			1871	0.021	0.021		4	4	0.526	6	66
LT	A,B	3.75	3	1	13		y	1990	162			162	1.00	1784			1784	0.091			18	34	0.277	18	21
RT	C	3.50	4	1	12			2105			223	223	1.00	1871			1871	0.119			24	33	0.378	24	21
LT/ST	C	3.50	4	1	12		y	1965	193	108		301	0.64	1819			1819	0.166	0.166		33	33	0.526	36	22
ST/RT	D	3.50	5	1	12			2105		53	184	237	0.78	1919			1919	0.123	0.123		25	25	0.526	30	28
LT/ST	D	3.50	5	1	11		y	1965	111	116		227	0.49	1842			1842	0.123			25	25	0.526	30	28
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

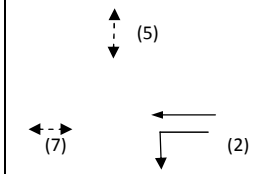
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



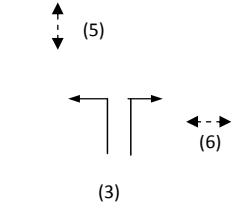
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.568
Loss time		L =	18 sec
Total Flow		=	2627 pcu
Co	= (1.5*L+5)/(1-Y)	=	74.0 sec
Cm	= L/(1-Y)	=	41.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	34.8 %
Cp	= 0.9*L/(0.9-Y)	=	48.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	31.4 %



Stage A I = 7



Stage B I = 8

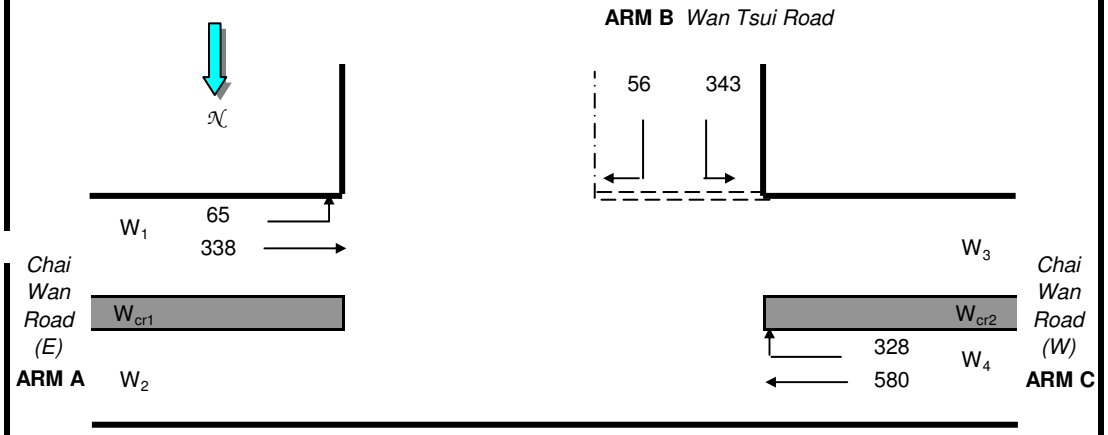


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		773		773	0.00	4070			4070	0.190			29	29	0.685	48	23
RT	A	3.50	1	1	13			2105			424	424	1.00	1887			1887	0.225	0.225		34	29	0.811	48	32
ST	B	3.50	2	2				4210		594		594	0.00	4210			4210	0.141	0.141		22	22	0.685	39	30
LT	B	3.10	2	1	12		y	1925	73			73	1.00	1711			1711	0.043			7	22	0.208	6	30
LT	C	4.00	3	1	15		y	2015	370			370	1.00	1832			1832	0.202	0.202		31	31	0.685	42	25
LT/RT	C	4.00	3	1	15			2155	150		243	393	1.00	1959			1959	0.201			31	31	0.682	48	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Weekend - Site 2
Time - Weekend Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	64.7989	(pcu/hr)
q_{a-c}	=	338.088	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	579.867	(pcu/hr)
q_{c-b}	=	328.496	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	55.5093	(pcu/hr)
q_{b-c}	=	343.398	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

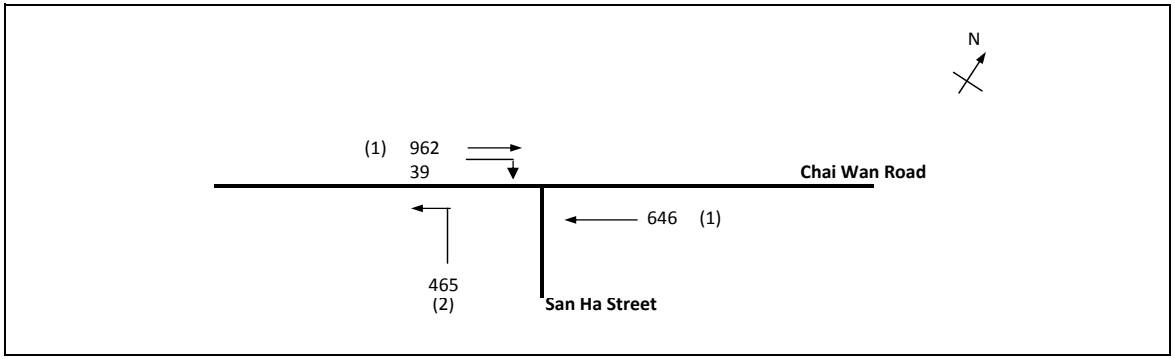
Q_{b-c}	=	779
Q_{c-b}	=	693
Q_{b-a}	=	356

COMPARISION OF DESIGN FLOW TO CAPACITY

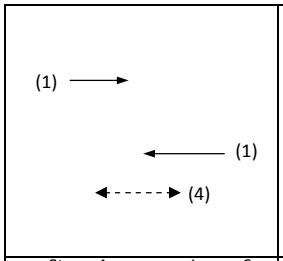
DFC_{b-a}	=	0.156
DFC_{b-c}	=	0.441
DFC_{c-b}	=	0.474

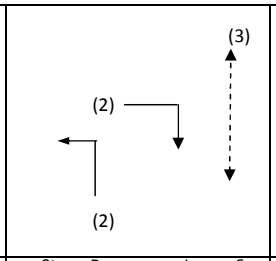
Critical DFC = 0.474

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.516
Loss time		L =	10 sec
Total Flow		=	2111 pcu
Co	= (1.5*L+5)/(1-Y)	=	41.3 sec
Cm	= L/(1-Y)	=	20.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	60.0 %
Cp	= 0.9*L/(0.9-Y)	=	23.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	57.1 %



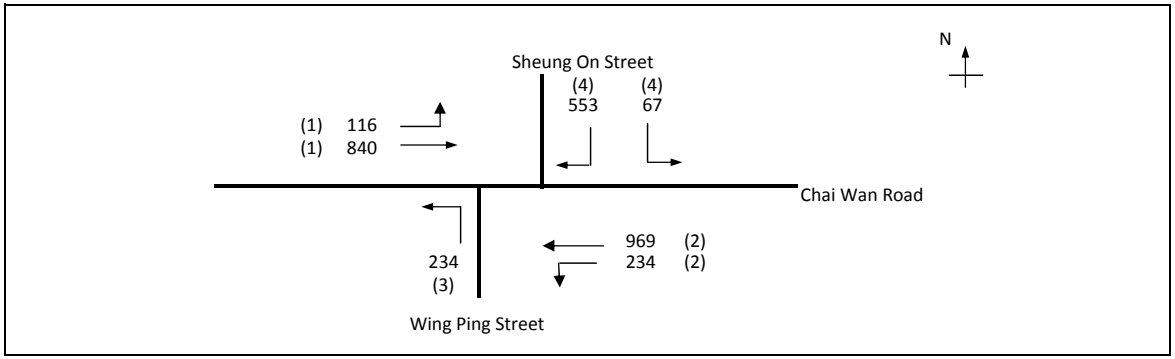


Stage A	I = 6	Stage B	I = 6	Stage C	I =

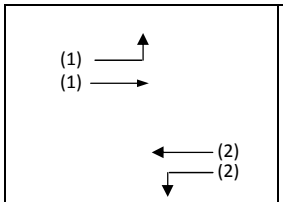
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		962		962	0.00	4070			4070	0.236	0.236		41	47	0.503	42	11
ST	A	3.50	1	2	10		N	4070		646		646	0.00	4070			4070	0.159			28	47	0.338	27	11
LT	B	3.00	2	1	10		N	1915	465			465	1.00	1665			1665	0.279	0.279		49	53	0.527	36	9
RT	B	3.50	2	1	12			2105			39	39	1.00	1871			1871	0.021			4	53	0.039	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

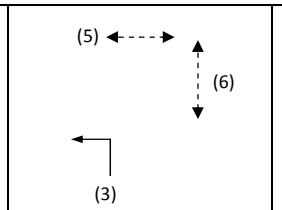
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11WE - Peak Hour Traffic Flows	FILENAME :E_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Weekend Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



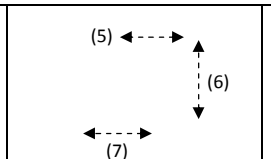
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.514
Loss time		L =	37 sec
Total Flow		=	3014 pcu
Co	= (1.5*L+5)/(1-Y)	=	124.4 sec
Cm	= L/(1-Y)	=	76.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	21.2 %
Cp	= 0.9*L/(0.9-Y)	=	86.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21.2 %



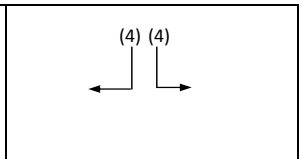
Stage A I = 8



Stage B I = 5



Stage C I = 7



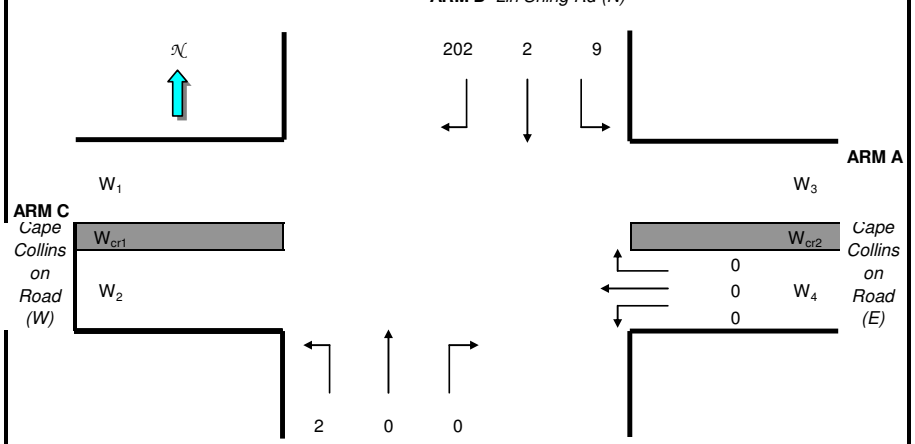
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	116	840		956	0.12	6083			6083	0.157			25		0.000	62	54
LT/ST	A	3.30	2	3	12		Y	6115	234	969		1203	0.19	5970			5970	0.202	0.202		33		0.000	80	54
LT	B	3.50	3	1	9		Y	1965	234			234	1.00	1684			1684	0.139	0.139		22		0.000	42	54
LT/RT	D	3.75	4	2	10		y	4120	67		553	621	1.00	3583			3583	0.173	0.173		28		0.000	60	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

2026 Ching Ming
Reference / Site I / Site II
Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1742	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.6968	(pcu/hr)
q_{d-b}	=	2.1742	(pcu/hr)
q_{d-c}	=	202.19	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

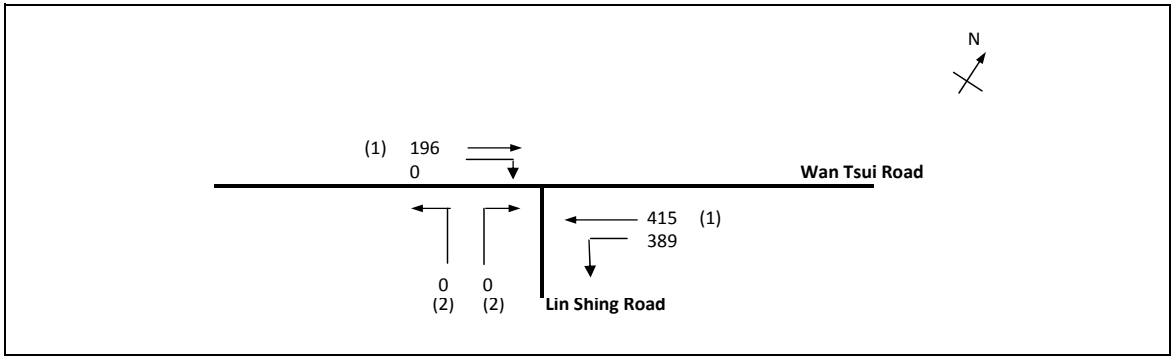
Q_{b-a}	=	618
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

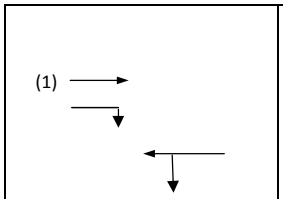
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.390
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.390

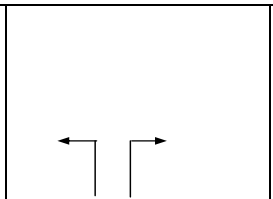
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



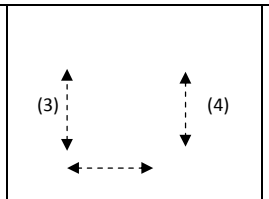
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.428
Loss time		L =	55 sec
Total Flow		=	1000 pcu
Co	= (1.5*L+5)/(1-Y)	=	153.0 sec
Cm	= L/(1-Y)	=	96.2 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	13.9 %
Cp	= 0.9*L/(0.9-Y)	=	104.9 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	13.9 %



Stage A I = 7



Stage B I =

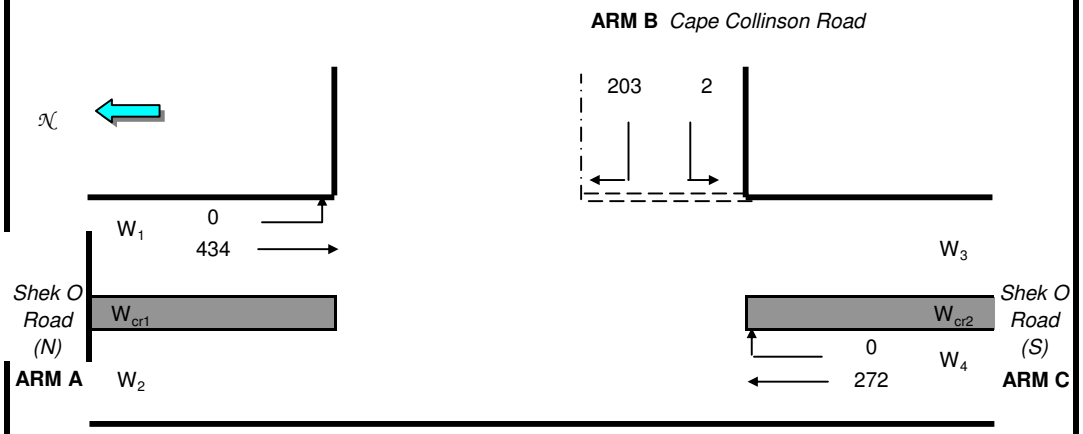


Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		196		196	0.00	1915			1915	0.102			16	65	0.189	12	11
ST/LT	A	4.00	1	1	10		N	2015	389	415		804	0.48	1879			1879	0.428	0.428		65	65	0.790	72	12
Ped	B	6.0	3									5709		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	434.343	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	271.909	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	202.712	(pcu/hr)
q_{b-c}	=	2.44826	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	631
Q_{c-b}	=	703
Q_{b-a}	=	295

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.687
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.687

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
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TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 03:59:19 on Wednesday, 7 December 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_CM_J4_Ref

DEMAND SET TITLE: 2026_CM_J4_Ref

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.011	0.263	0.427	0.298
		11.0	253.0	411.0	287.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.616	0.011	0.059	0.313
		551.0	10.0	53.0	280.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.391	0.357	0.034	0.217
		92.0	84.0	8.0	51.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.311	0.379	0.307	0.004
		422.0	514.0	416.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	16.02	25.23	0.635	- -	-	0.0	1.7	49.9	
-	0.107	I							
I ARM B	14.91	22.15	0.673	- -	-	0.0	2.0	58.4	
-	0.136	I							
I ARM C	3.90	17.42	0.224	- -	-	0.0	0.3	8.5	
-	0.074	I							
I ARM D	22.62	43.89	0.515	- -	-	0.0	1.1	31.3	
-	0.047	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	16.02	25.21	0.636	- -	-	1.7	1.7	51.9	
-	0.109	I							
I ARM B	14.91	22.11	0.674	- -	-	2.0	2.1	61.4	
-	0.139	I							
I ARM C	3.90	17.36	0.225	- -	-	0.3	0.3	8.7	
-	0.074	I							
I ARM D	22.62	43.84	0.516	- -	-	1.1	1.1	31.9	
-	0.047	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.0	**
08.45	2.1	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

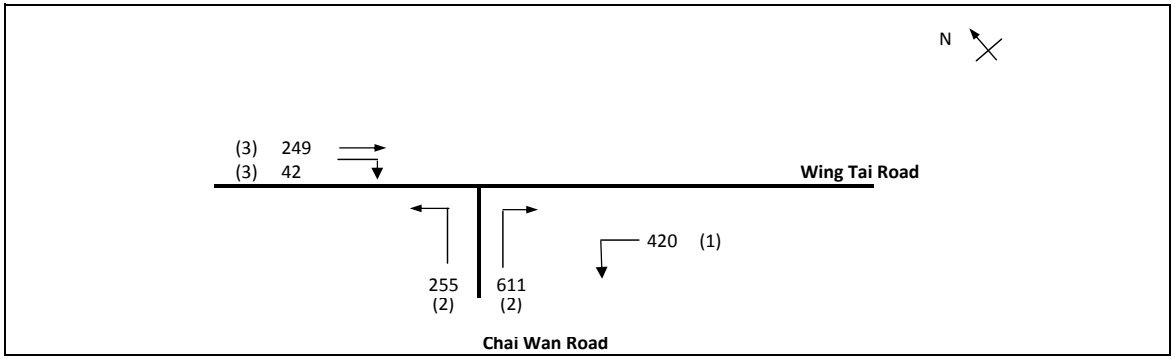
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	961.2	961.2	101.8	0.11	101.9	0.11
B	894.6	894.6	119.8	0.13	119.9	0.13
C	234.0	234.0	17.2	0.07	17.2	0.07
D	1357.2	1357.2	63.2	0.05	63.2	0.05
ALL	3447.0	3447.0	302.0	0.09	302.1	0.09

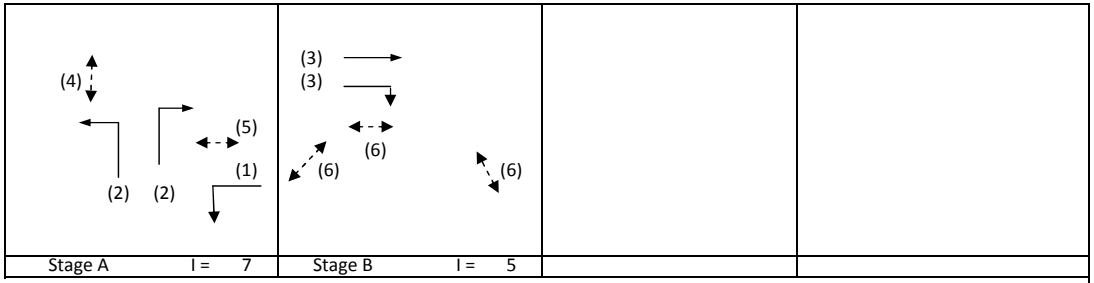
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.232	
Loss time	L =	10	sec
Total Flow	=	1577	pcu
Co = (1.5*L+5)/(1-Y)	=	26.0	sec
Cm = L/(1-Y)	=	13.0	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	256.0	%
Cp = 0.9*L/(0.9-Y)	=	13.5	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	249.5	%

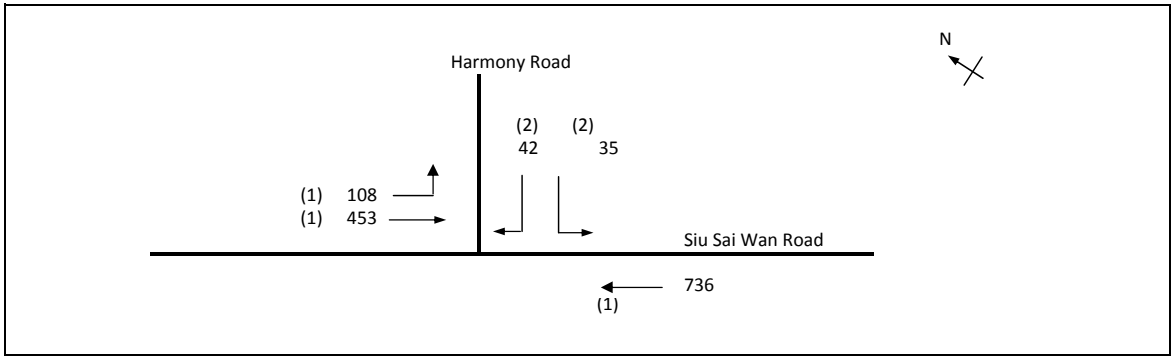


Stage A I = 7 Stage B I = 5

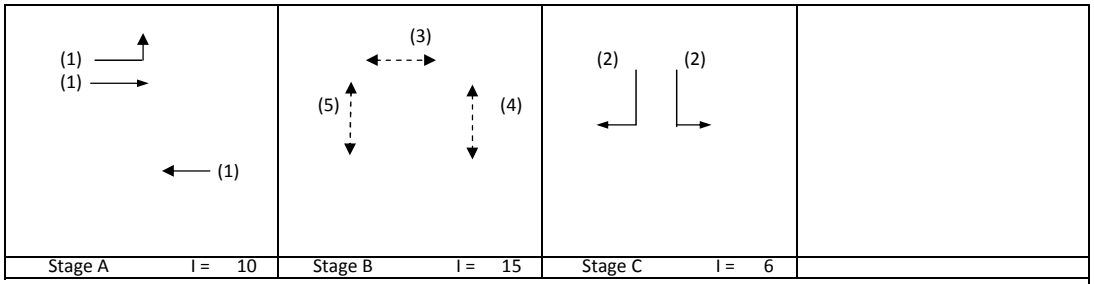
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	420			420	1.00	3857			3857	0.109			42	66	0.164	9	5
LT	A	4.00	2	2	24			4310	255			255	1.00	4056			4056	0.063			24	66	0.095	6	5
RT	A	3.50	2	2	11		y	4070			611	611	1.00	3582			3582	0.171	0.171		66	66	0.258	15	4
ST	B	3.50	3	2			y	4070		249		249	0.00	4070			4070	0.061	0.061		24	24	0.258	15	25
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			4	24	0.047	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.208	
Loss time	L =	48	sec
Total Flow	=	1374	pcu
Co = (1.5*L+5)/(1-Y)	=	97.2	sec
Cm = L/(1-Y)	=	60.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	159.9	%
Cp = 0.9*L/(0.9-Y)	=	62.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	125.2	%

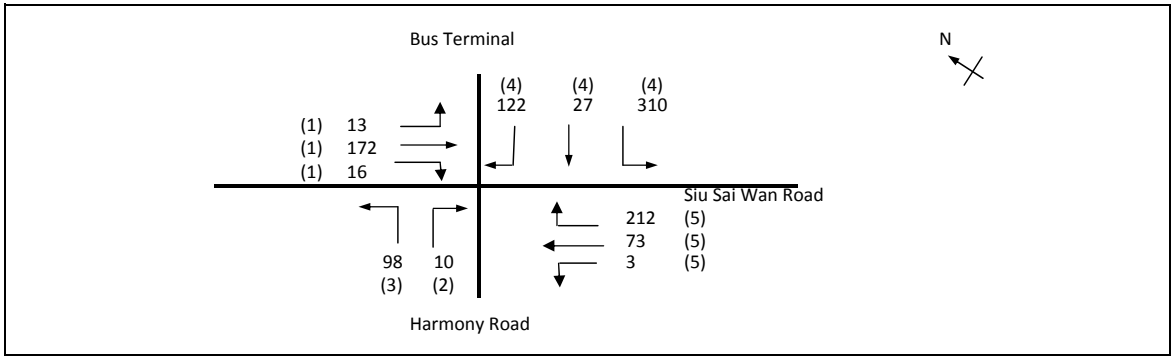


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

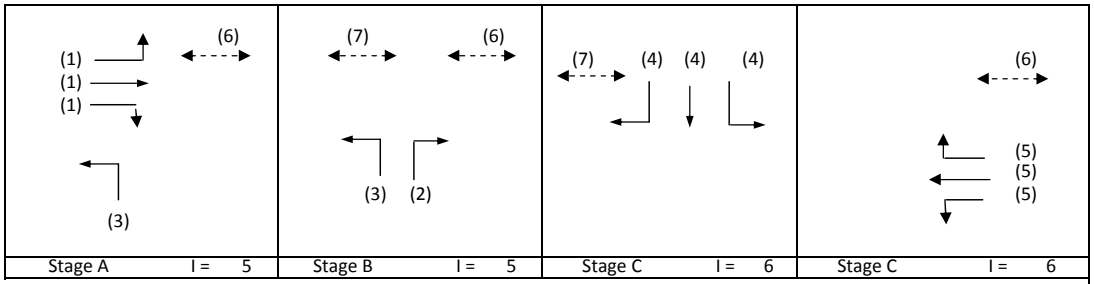
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	108	156		264	0.41	1842			1842	0.143			36	46	0.308	18	12
ST	A	3.20	1	1				2075		297		297	0.00	2075			2075	0.143			36	46	0.309	24	12
ST	A	3.00	1	2			y	3970		736		736	0.00	3970			3970	0.185	0.185		46	46	0.400	30	11
LT	C	3.75	2	1	12		y	1990	35			35	1.00	1769			1769	0.020			5	6	0.351	0	48
RT	C	3.75	2	1	12			2130			42	42	1.00	1893			1893	0.022	0.022		6	6	0.400	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.361	
Loss time	L =	18	sec
Total Flow	=	1056	pcu
Co = (1.5*L+5)/(1-Y)	=	50.0	sec
Cm = L/(1-Y)	=	28.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	112.1	%
Cp = 0.9*L/(0.9-Y)	=	30.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	106.8	%

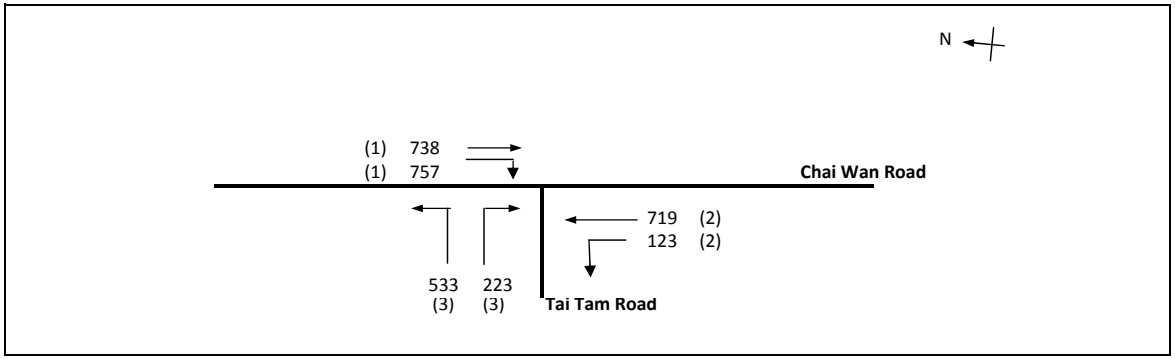


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

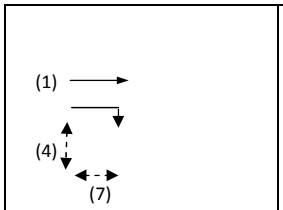
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	13	84		97	0.13	1910			1910	0.051			12	12	0.435	12	41
ST/RT	A	3.30	1	1	12			2085		88	16	104	0.16	2045			2045	0.051	0.051		12	12	0.435	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.435	0	101
LT	A,B	3.75	3	1	13		y	1990	98			98	1.00	1784			1784	0.055			13	19	0.311	12	33
RT	C	3.50	4	1	12			2105			122	122	1.00	1871			1871	0.065			16	46	0.148	6	14
LT/ST	C	3.50	4	1	12		y	1965	310	27		337	0.92	1762			1762	0.191	0.191		46	46	0.435	30	14
ST/RT	D	3.50	5	1	12			2105		0	212	212	1.00	1871			1871	0.113	0.113		27	27	0.435	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	73		76	0.04	1954			1954	0.039			9	9	0.435	12	45
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

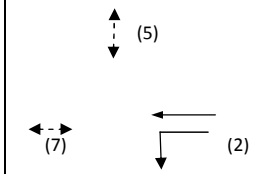
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 71_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



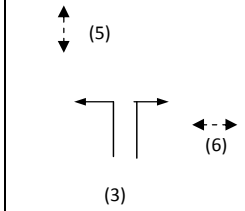
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.771
Loss time		L =	18 sec
Total Flow		=	3092 pcu
Co	= (1.5*L+5)/(1-Y)	=	139.7 sec
Cm	= L/(1-Y)	=	78.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-0.8 %
Cp	= 0.9*L/(0.9-Y)	=	125.6 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-3.3 %



Stage A I = 7



Stage B I = 8

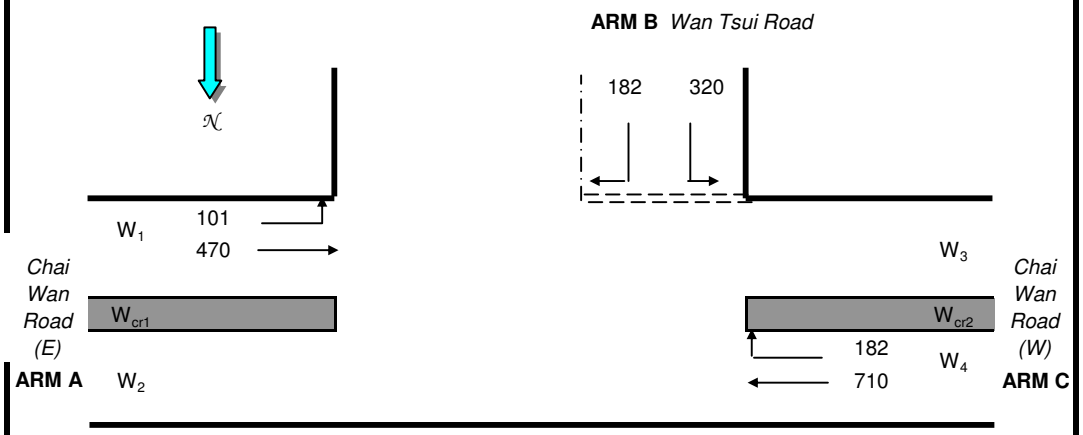


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		738		738	0.00	4070			4070	0.181			20	20	0.931	57	43
RT	A	3.50	1	1	13			2105			757	757	1.00	1887			1887	0.401	0.401		45	20	2.059	102	43
ST	B	3.50	2	2				4210		719		719	0.00	4210			4210	0.171	0.171		19	19	0.931	57	44
LT	B	3.10	2	1	12		y	1925	123			123	1.00	1711			1711	0.072			8	19	0.391	12	33
LT	C	4.00	3	1	15		y	2015	365			365	1.00	1832			1832	0.199	0.199		22	22	0.931	72	36
LT/RT	C	4.00	3	1	15			2155	168		223	391	1.00	1959			1959	0.199			22	22	0.931	72	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	101.057	(pcu/hr)
q_{a-c}	=	469.627	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	709.654	(pcu/hr)
q_{c-b}	=	181.632	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	181.794	(pcu/hr)
q_{b-c}	=	319.923	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

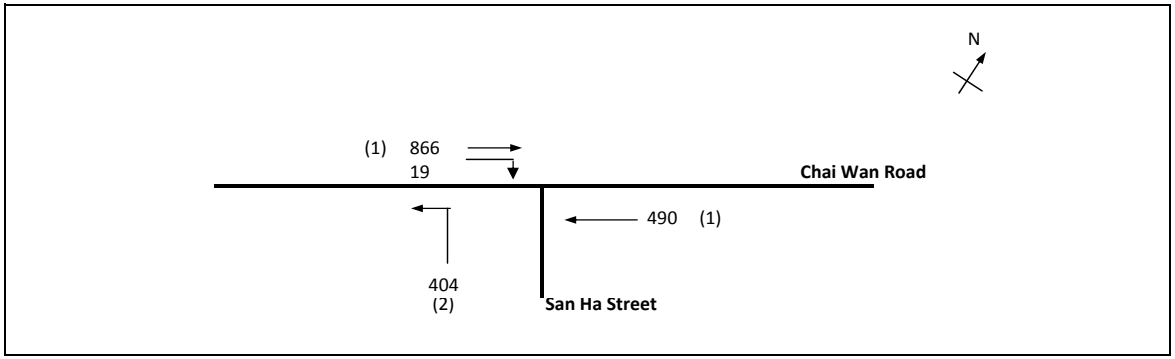
Q_{b-c}	=	760
Q_{c-b}	=	674
Q_{b-a}	=	355

COMPARISION OF DESIGN FLOW TO CAPACITY

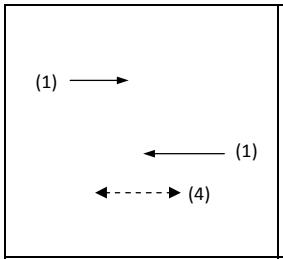
DFC_{b-a}	=	0.512
DFC_{b-c}	=	0.421
DFC_{c-b}	=	0.270

Critical DFC = 0.512

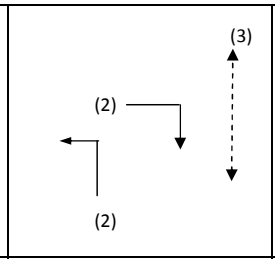
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.455	
Loss time		L =	10	sec
Total Flow		=	1779	pcu
Co	= (1.5*L+5)/(1-Y)	=	36.7	sec
Cm	= L/(1-Y)	=	18.4	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	81.3	%
Cp	= 0.9*L/(0.9-Y)	=	20.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	78.0	%



Stage A I = 6



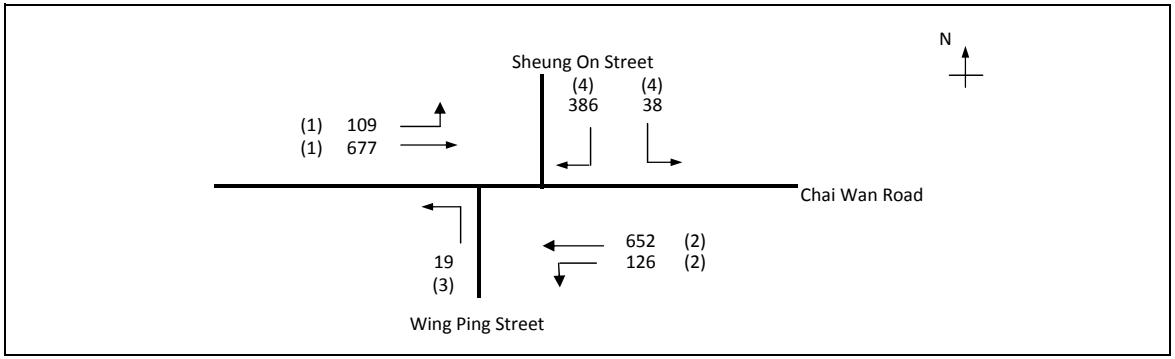
Stage B I = 6

Stage C I =

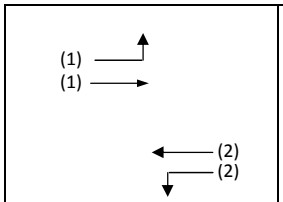
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		866		866	0.00	4070			4070	0.213	0.213		42	47	0.453	36	11
ST	A	3.50	1	2	10		N	4070		490		490	0.00	4070			4070	0.121			24	47	0.256	21	11
LT	B	3.00	2	1	10		N	1915	404			404	1.00	1665			1665	0.242	0.242		48	53	0.457	30	9
RT	B	3.50	2	1	12			2105			19	19	1.00	1871			1871	0.010			2	53	0.019	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

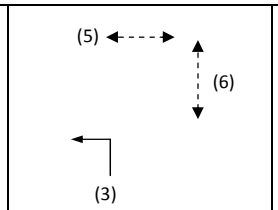
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



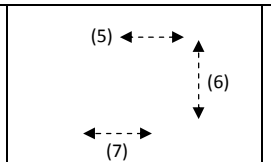
No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.259	
Loss time		L =	37	sec
Total Flow		=	2007	pcu
Co	= (1.5*L+5)/(1-Y)	=	81.7	sec
Cm	= L/(1-Y)	=	49.9	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	140.1	%
Cp	= 0.9*L/(0.9-Y)	=	52.0	sec
Ymax	= 1-L/C	=	0.692	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	140.1	%



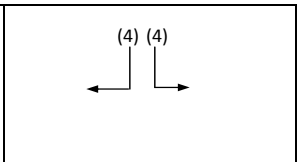
Stage A I = 8



Stage B I = 5



Stage C I = 7

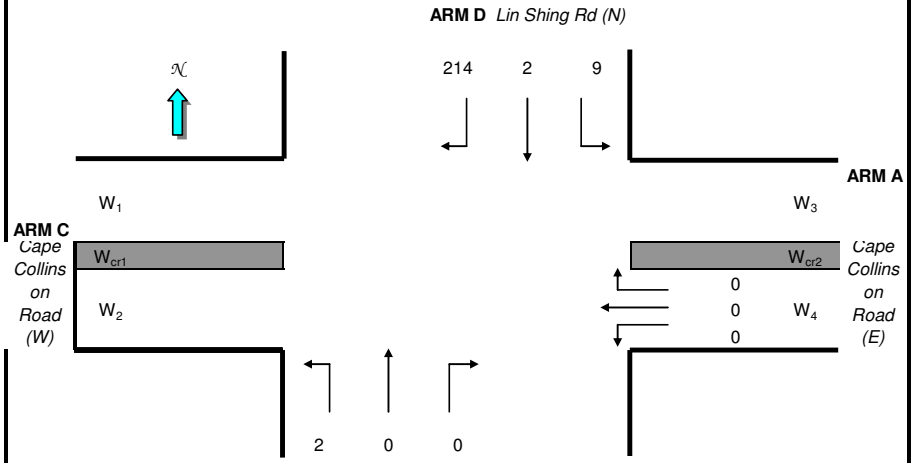


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	109	677		786	0.14	6070			6070	0.129			41		0.000	52	54
LT/ST	A	3.30	2	3	12		Y	6115	126	652		778	0.16	5994			5994	0.130	0.130		42		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	19			19	1.00	1684			1684	0.011	0.011		4		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	38		386	424	1.00	3583			3583	0.118	0.118		38		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM B-C
X_D	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Y	=	GEOMETRIC PARAMETERS FOR STREAM D-A
		(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1742	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.6968	(pcu/hr)
q_{d-b}	=	2.1742	(pcu/hr)
q_{d-c}	=	214.12	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

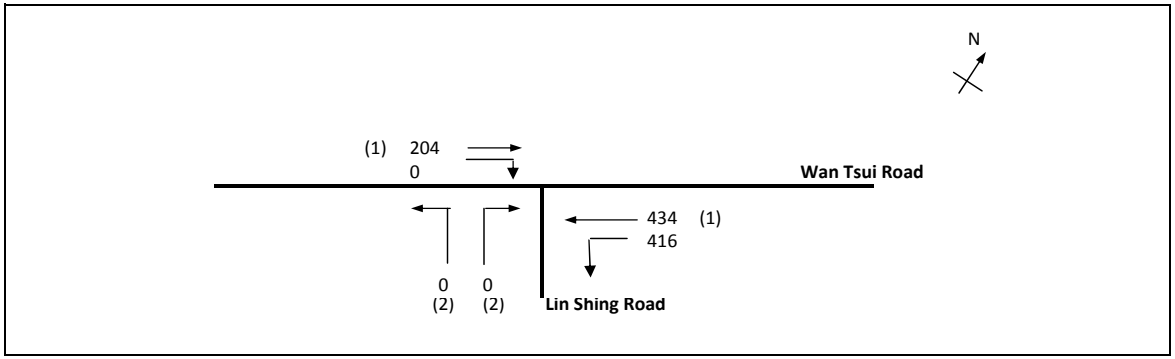
Q_{b-a}	=	616
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

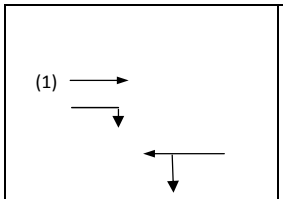
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.413
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.413

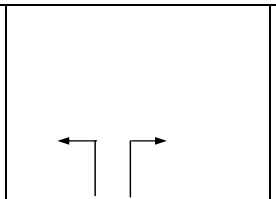
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



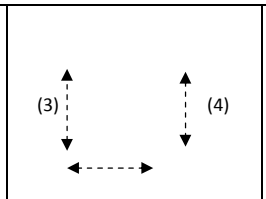
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.453
Loss time		L =	55 sec
Total Flow		=	1054 pcu
Co	= (1.5*L+5)/(1-Y)	=	159.9 sec
Cm	= L/(1-Y)	=	100.5 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	7.7 %
Cp	= 0.9*L/(0.9-Y)	=	110.7 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	7.7 %



Stage A I = 7



Stage B I =

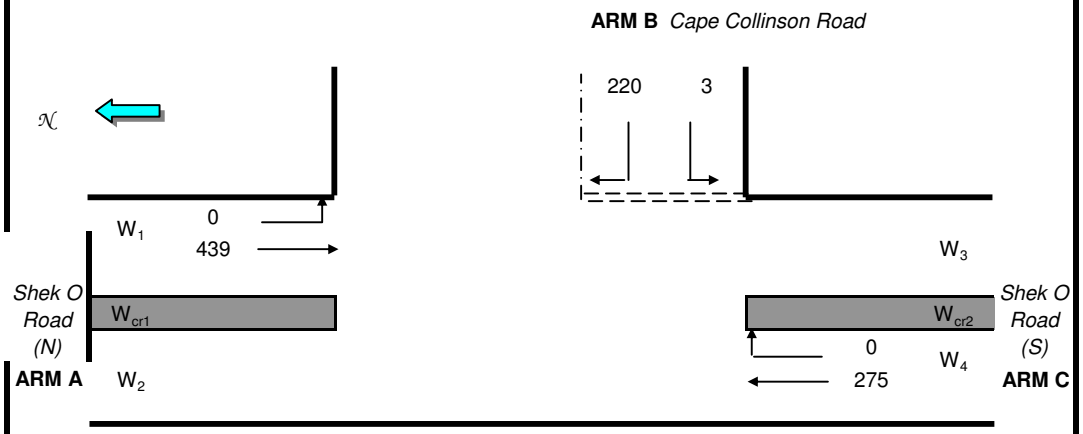


Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		204		204	0.00	1915			1915	0.106			15	65	0.197	18	11
ST/LT	A	4.00	1	1	10		N	2015	416	434		850	0.49	1877			1877	0.453	0.453		65	65	0.836	72	14
Ped	B	6.0	3									5709		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	439.083	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	275.027	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	220.078	(pcu/hr)
q_{b-c}	=	2.6002	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	630
Q_{c-b}	=	701
Q_{b-a}	=	294

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.748
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.748

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 10:19:44 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

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 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_CM_J4_S1


 DEMAND SET TITLE:  2026_CM_J4_S1
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.011 I  0.257 I  0.437 I  0.295 I
 I                    I         I   11.0 I  253.0 I  431.0 I  291.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.620 I  0.011 I  0.061 I  0.308 I
 I                    I         I  563.0 I   10.0 I   55.0 I  280.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.404 I  0.356 I  0.032 I  0.208 I
 I                    I         I  101.0 I   89.0 I    8.0 I   52.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.311 I  0.369 I  0.316 I  0.004 I
 I                    I         I  429.0 I  510.0 I  437.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	16.44	24.92	0.660	- -	-	0.0	1.9	55.4	
-	0.116	I							
I ARM B	15.14	21.55	0.702	- -	-	0.0	2.3	66.2	
-	0.152	I							
I ARM C	4.17	17.25	0.242	- -	-	0.0	0.3	9.4	
-	0.076	I							
I ARM D	23.02	43.44	0.530	- -	-	0.0	1.1	33.2	
-	0.049	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	16.44	24.89	0.660	- -	-	1.9	1.9	57.8	
-	0.118	I							
I ARM B	15.14	21.51	0.704	- -	-	2.3	2.4	70.3	
-	0.157	I							
I ARM C	4.17	17.19	0.243	- -	-	0.3	0.3	9.6	
-	0.077	I							
I ARM D	23.02	43.38	0.531	- -	-	1.1	1.1	33.8	
-	0.049	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.9	**
08.45	1.9	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.3	**
08.45	2.4	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

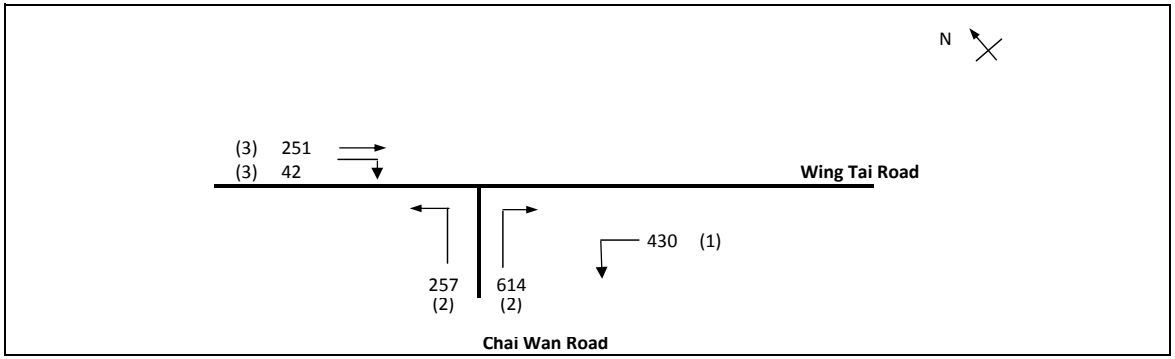
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	986.4	986.4	113.2	0.11	113.2	0.11
B	908.4	908.4	136.5	0.15	136.6	0.15
C	250.2	250.2	19.0	0.08	19.0	0.08
D	1381.2	1381.2	67.0	0.05	67.0	0.05
ALL	3526.2	3526.2	335.6	0.10	335.8	0.10

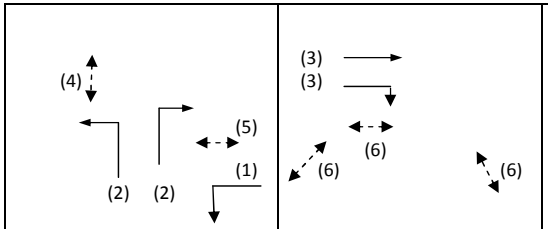
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.233
Loss time		L =	10 sec
Total Flow		=	1595 pcu
Co	= (1.5*L+5)/(1-Y)	=	26.1 sec
Cm	= L/(1-Y)	=	13.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	253.7 %
Cp	= 0.9*L/(0.9-Y)	=	13.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	247.3 %



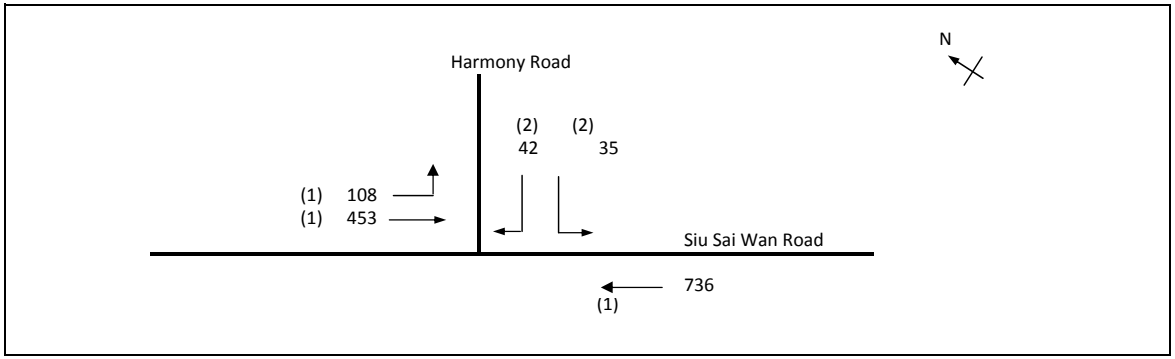
Stage A I = 7

Stage B I = 5

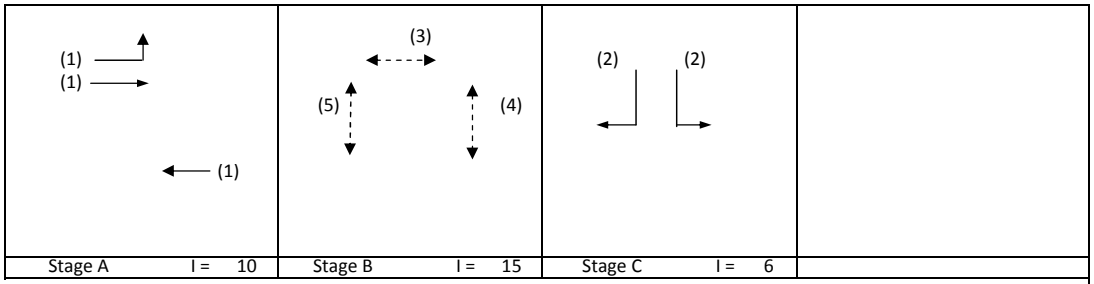
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	430			430	1.00	3857			3857	0.111			43	66	0.168	12	5
LT	A	4.00	2	2	24			4310	257			257	1.00	4056			4056	0.063			24	66	0.096	6	5
RT	A	3.50	2	2	11		y	4070			614	614	1.00	3582			3582	0.172	0.172		66	66	0.259	15	4
ST	B	3.50	3	2			y	4070		251		251	0.00	4070			4070	0.062	0.062		24	24	0.259	15	25
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			4	24	0.047	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.208	
Loss time	L =	48	sec
Total Flow	=	1374	pcu
Co = (1.5*L+5)/(1-Y)	=	97.2	sec
Cm = L/(1-Y)	=	60.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	159.9	%
Cp = 0.9*L/(0.9-Y)	=	62.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	125.2	%

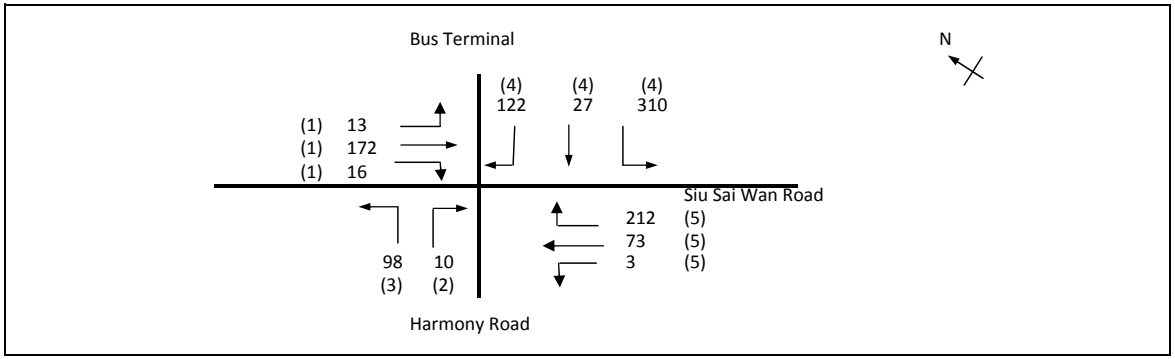


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

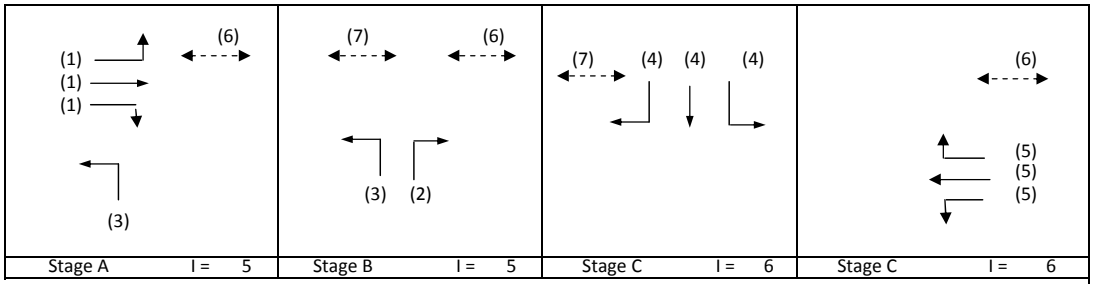
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	108	156		264	0.41	1842			1842	0.143			36	46	0.308	18	12
ST	A	3.20	1	1				2075		297		297	0.00	2075			2075	0.143			36	46	0.309	24	12
ST	A	3.00	1	2			y	3970		736		736	0.00	3970			3970	0.185	0.185		46	46	0.400	30	11
LT	C	3.75	2	1	12		y	1990	35			35	1.00	1769			1769	0.020			5	6	0.351	0	48
RT	C	3.75	2	1	12			2130			42	42	1.00	1893			1893	0.022	0.022		6	6	0.400	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.361	
Loss time	L =	18	sec
Total Flow	=	1056	pcu
Co = (1.5*L+5)/(1-Y)	=	50.0	sec
Cm = L/(1-Y)	=	28.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	112.1	%
Cp = 0.9*L/(0.9-Y)	=	30.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	106.8	%

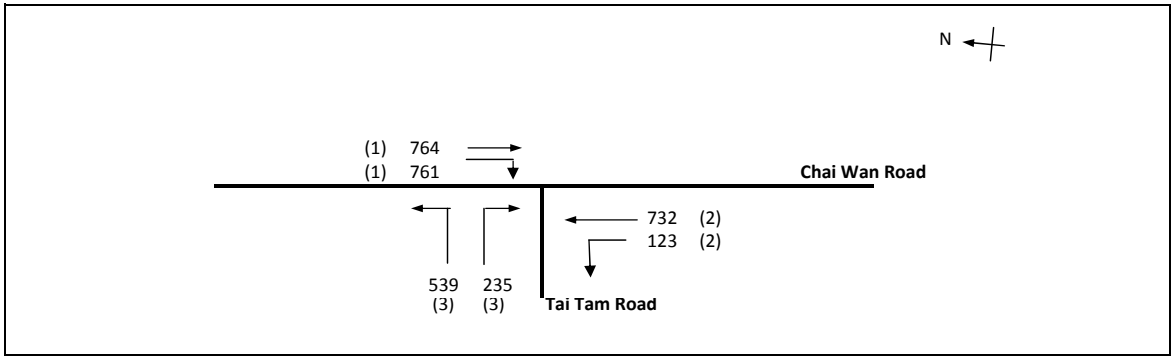


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

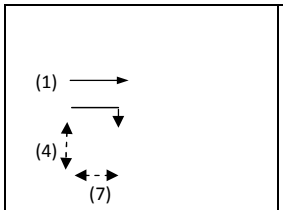
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	13	84		97	0.13	1910			1910	0.051			12	12	0.435	12	41
ST/RT	A	3.30	1	1	12			2085		88	16	104	0.16	2045			2045	0.051	0.051		12	12	0.435	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.435	0	101
LT	A,B	3.75	3	1	13		y	1990	98			98	1.00	1784			1784	0.055			13	19	0.311	12	33
RT	C	3.50	4	1	12			2105			122	122	1.00	1871			1871	0.065			16	46	0.148	6	14
LT/ST	C	3.50	4	1	12		y	1965	310	27		337	0.92	1762			1762	0.191	0.191		46	46	0.435	30	14
ST/RT	D	3.50	5	1	12			2105		0	212	212	1.00	1871			1871	0.113	0.113		27	27	0.435	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	73		76	0.04	1954			1954	0.039			9	9	0.435	12	45
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

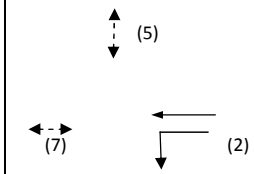
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



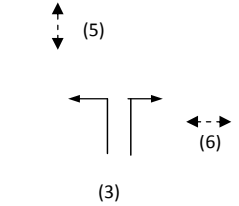
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.782
Loss time		L =	18 sec
Total Flow		=	3154 pcu
Co	= (1.5*L+5)/(1-Y)	=	146.9 sec
Cm	= L/(1-Y)	=	82.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-2.2 %
Cp	= 0.9*L/(0.9-Y)	=	137.4 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-4.7 %



Stage A I = 7



Stage B I = 8

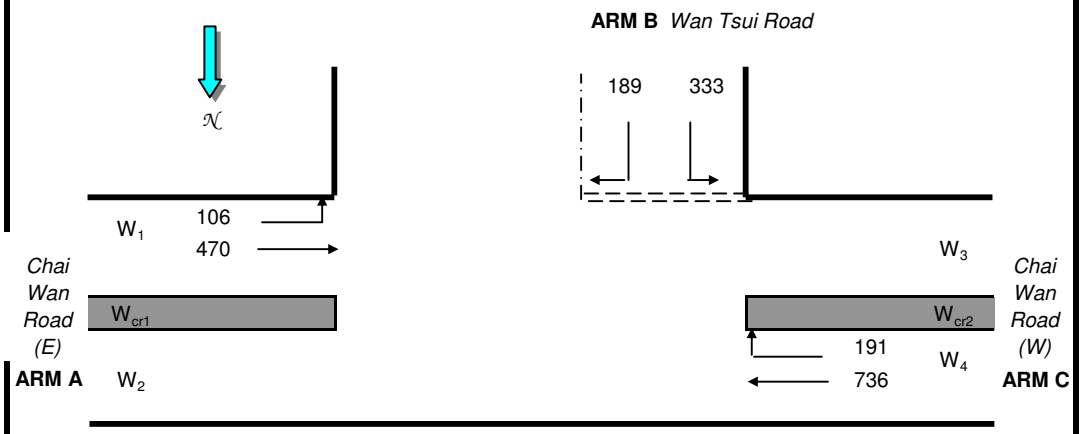


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		764		764	0.00	4070			4070	0.188			21	21	0.944	63	43
RT	A	3.75	1	1	13			2130			761	761	1.00	1910			1910	0.398	0.398		44	21	2.003	102	43
ST	B	3.50	2	2				4210		732		732	0.00	4210			4210	0.174	0.174		19	19	0.944	63	44
LT	B	3.10	2	1	12		y	1925	123			123	1.00	1711			1711	0.072			8	19	0.390	12	32
LT	C	4.00	3	1	15		y	2015	384			384	1.00	1832			1832	0.210	0.210		23	23	0.944	78	36
LT/RT	C	4.00	3	1	15			2155	155		235	390	1.00	1959			1959	0.199			22	23	0.896	60	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	105.881	(pcu/hr)
q_{a-c}	=	469.627	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	736.161	(pcu/hr)
q_{c-b}	=	190.802	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	188.613	(pcu/hr)
q_{b-c}	=	333.432	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

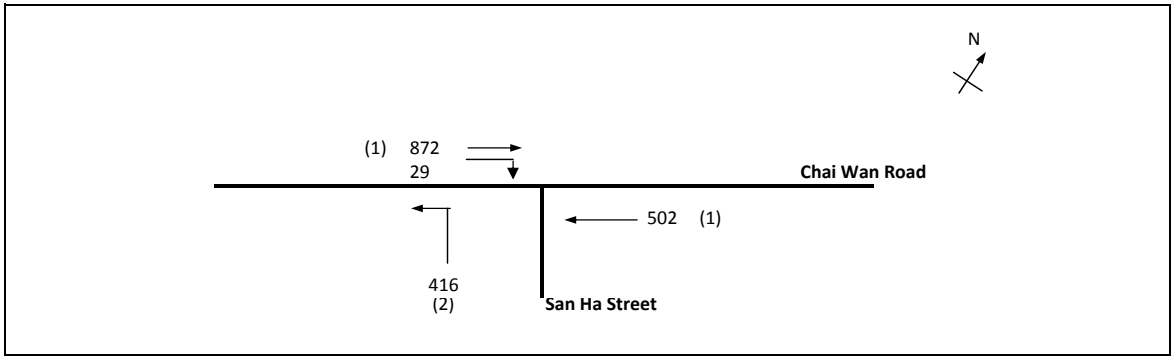
Q_{b-c}	=	760
Q_{c-b}	=	673
Q_{b-a}	=	352

COMPARISION OF DESIGN FLOW TO CAPACITY

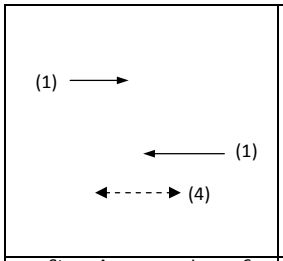
DFC_{b-a}	=	0.535
DFC_{b-c}	=	0.439
DFC_{c-b}	=	0.283

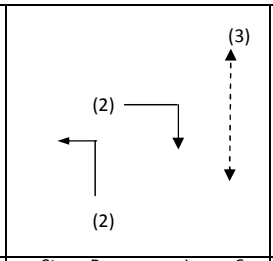
Critical DFC = 0.535

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.464
Loss time		L =	10 sec
Total Flow		=	1818 pcu
Co	= (1.5*L+5)/(1-Y)	=	37.3 sec
Cm	= L/(1-Y)	=	18.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	77.9 %
Cp	= 0.9*L/(0.9-Y)	=	20.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	74.6 %



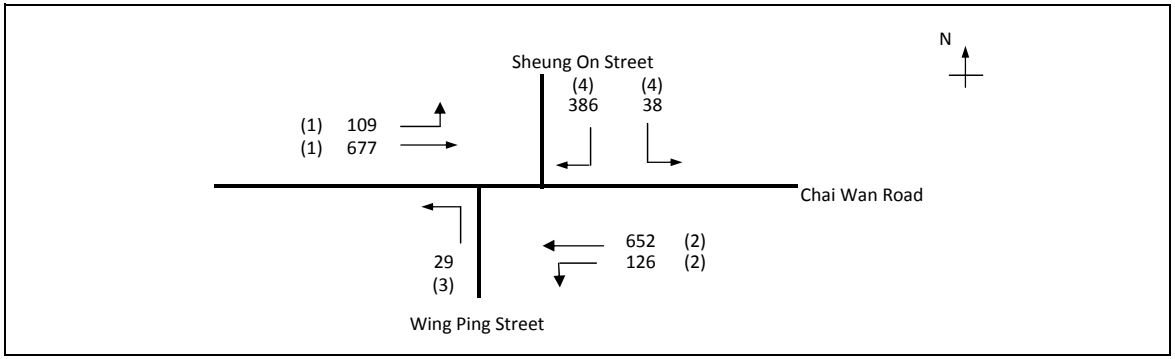


Stage A	I = 6	Stage B	I = 6	Stage C	I =

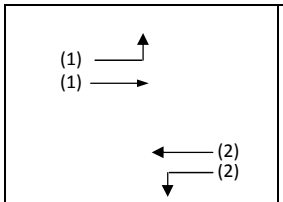
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		872		872	0.00	4070			4070	0.214	0.214		42	47	0.456	36	11
ST	A	3.50	1	2	10		N	4070		502		502	0.00	4070			4070	0.123			24	47	0.263	21	11
LT	B	3.00	2	1	10		N	1915	416			416	1.00	1665			1665	0.250	0.250		48	53	0.471	30	9
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.015			3	53	0.029	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

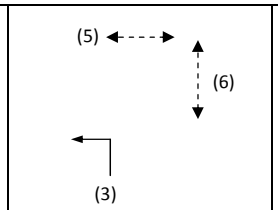
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1M_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



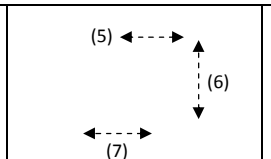
No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.265	
Loss time	L =	37	sec
Total Flow	=	2017	pcu
Co = (1.5*L+5)/(1-Y)	=	82.3	sec
Cm = L/(1-Y)	=	50.3	sec
Yult	=	0.623	
R.C.ult = (Yult-Y)/Y*100%	=	134.8	%
Cp = 0.9*L/(0.9-Y)	=	52.5	sec
Ymax = 1-L/C	=	0.692	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	134.8	%



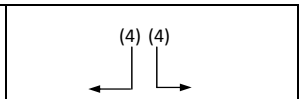
Stage A I = 8



Stage B I = 5



Stage C I = 7

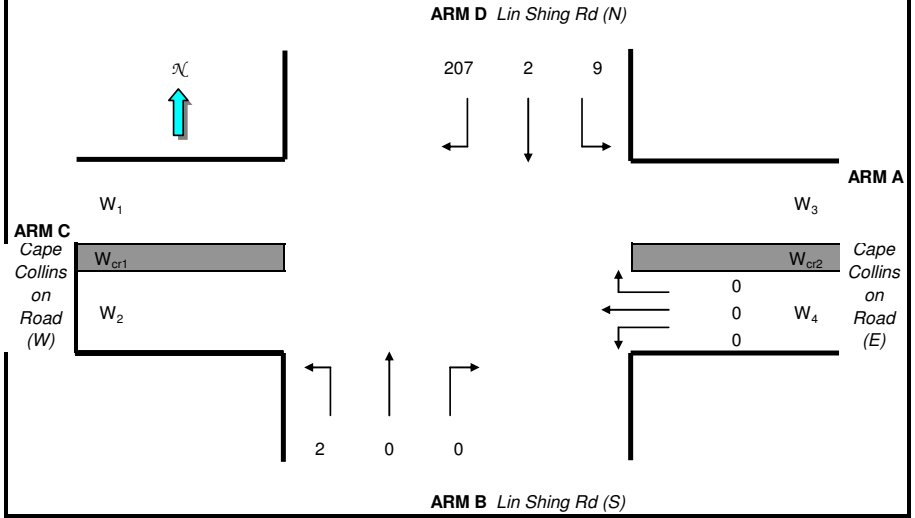


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	109	677		786	0.14	6070			6070	0.129			41		0.000	52	54
LT/ST	A	3.30	2	3	12		Y	6115	126	652		778	0.16	5994			5994	0.130	0.130		41		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	29			29	1.00	1684			1684	0.017	0.017		5		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	38		386	424	1.00	3583			3583	0.118	0.118		37		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1742	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.6968	(pcu/hr)
q_{d-b}	=	2.1742	(pcu/hr)
q_{d-c}	=	206.81	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

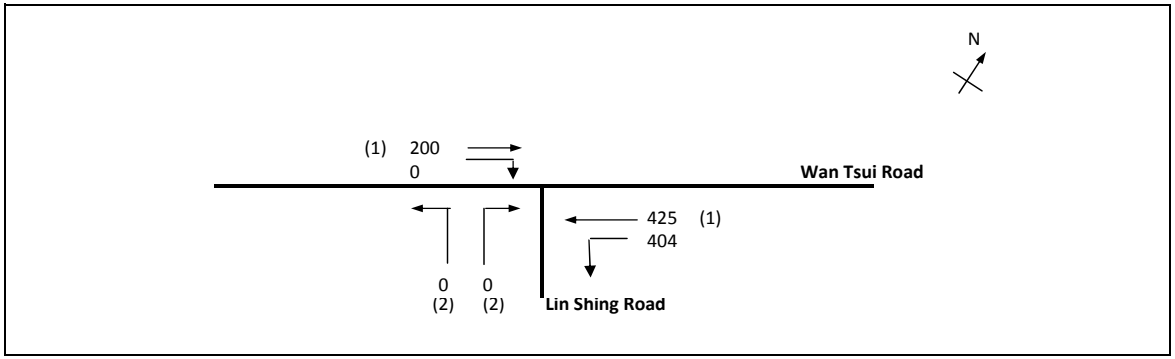
Q_{b-a}	=	617
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

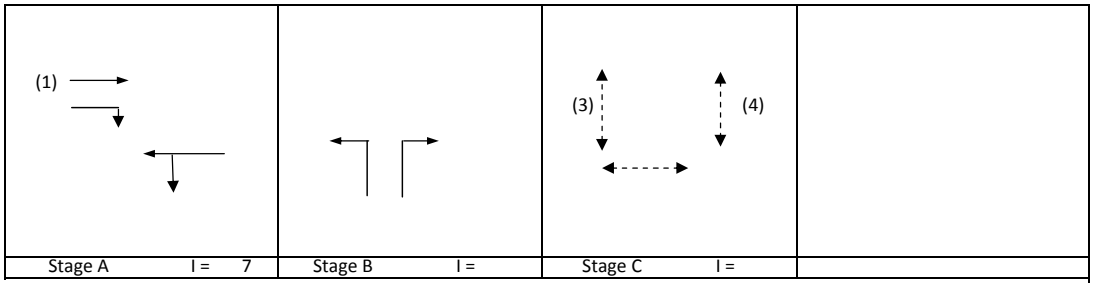
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.399
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.399

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.441	
Loss time		L =	55	sec
Total Flow		=	1029	pcu
Co	= (1.5*L+5)/(1-Y)	=	156.6	sec
Cm	= L/(1-Y)	=	98.5	sec
Yult		=	0.488	
R.C.ult	= (Yult-Y)/Y*100%	=	10.5	%
Cp	= 0.9*L/(0.9-Y)	=	107.9	sec
Ymax	= 1-L/C	=	0.542	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10.5	%

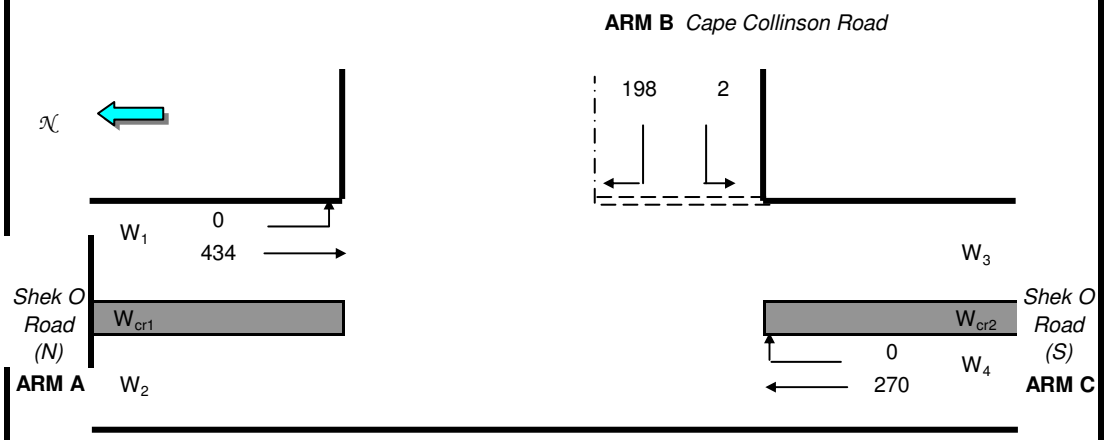


Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		200		200	0.00	1915			1915	0.104			15	65	0.193	18	11
ST/LT	A	4.00	1	1	10		N	2015	404	425		829	0.49	1878			1878	0.441	0.441		65	65	0.815	72	13
Ped	B	6.0	3									5709		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Site 2
Time - Ching Ming Peak Hour



GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	434.303	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	270.116	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	198.412	(pcu/hr)
q_{b-c}	=	1.97065	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	631
Q_{c-b}	=	703
Q_{b-a}	=	295

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.672
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.672

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
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RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 10:20:49 on Monday, 22 August 2011

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
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 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_CM_J4_S2


 DEMAND SET TITLE:  2026_CM_J4_S2
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.011 I  0.259 I  0.433 I  0.296 I
 I                    I         I   11.0 I  253.0 I  422.0 I  289.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.618 I  0.011 I  0.061 I  0.310 I
 I                    I         I  557.0 I   10.0 I   55.0 I  280.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.402 I  0.348 I  0.033 I  0.217 I
 I                    I         I   98.0 I   85.0 I    8.0 I   53.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.309 I  0.372 I  0.315 I  0.004 I
 I                    I         I  423.0 I  509.0 I  431.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

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. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 07.45-08.15									I
I ARM A	16.24	25.06	0.648	- -	-	0.0	1.8	52.7	-
	0.112	I							
I ARM B	15.03	21.78	0.690	- -	-	0.0	2.2	62.8	-
	0.145	I							
I ARM C	4.07	17.34	0.235	- -	-	0.0	0.3	9.0	-
	0.075	I							
I ARM D	22.82	43.67	0.523	- -	-	0.0	1.1	32.2	-
	0.048	I							
I									I

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 08.15-08.45									I
I ARM A	16.24	25.04	0.649	- -	-	1.8	1.8	54.9	-
	0.114	I							
I ARM B	15.03	21.73	0.692	- -	-	2.2	2.2	66.3	-
	0.149	I							
I ARM C	4.07	17.28	0.235	- -	-	0.3	0.3	9.2	-
	0.076	I							
I ARM D	22.82	43.61	0.523	- -	-	1.1	1.1	32.8	-
	0.048	I							
I									I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.8	**
08.45	1.8	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.2	**
08.45	2.2	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.3	
08.45	0.3	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

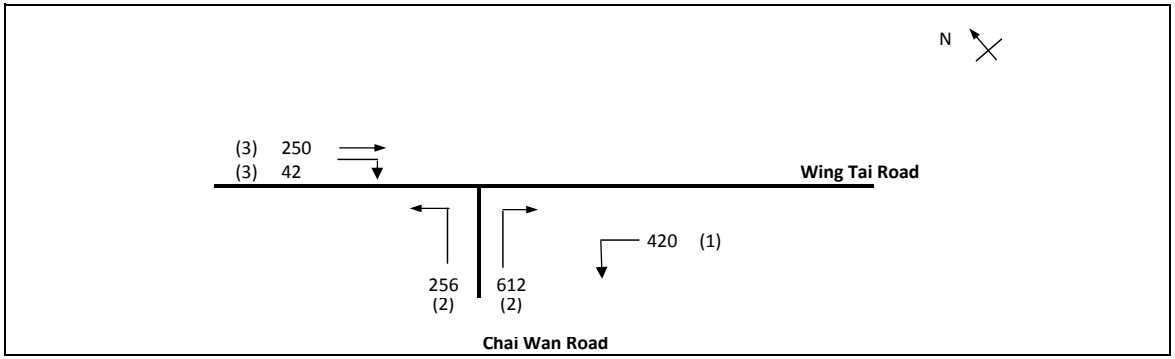
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	974.4	974.4	107.6	0.11	107.7	0.11
B	901.8	901.8	129.1	0.14	129.2	0.14
C	244.2	244.2	18.2	0.07	18.2	0.07
D	1369.2	1369.2	65.1	0.05	65.1	0.05
ALL	3489.6	3489.6	320.0	0.09	320.2	0.09

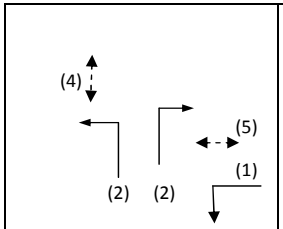
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

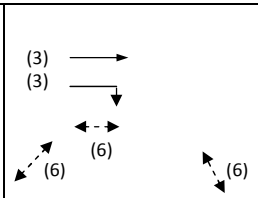
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME 1M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.232
Loss time		L =	10 sec
Total Flow		=	1580 pcu
Co	= (1.5*L+5)/(1-Y)	=	26.1 sec
Cm	= L/(1-Y)	=	13.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	255.2 %
Cp	= 0.9*L/(0.9-Y)	=	13.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	248.7 %



Stage A I = 7

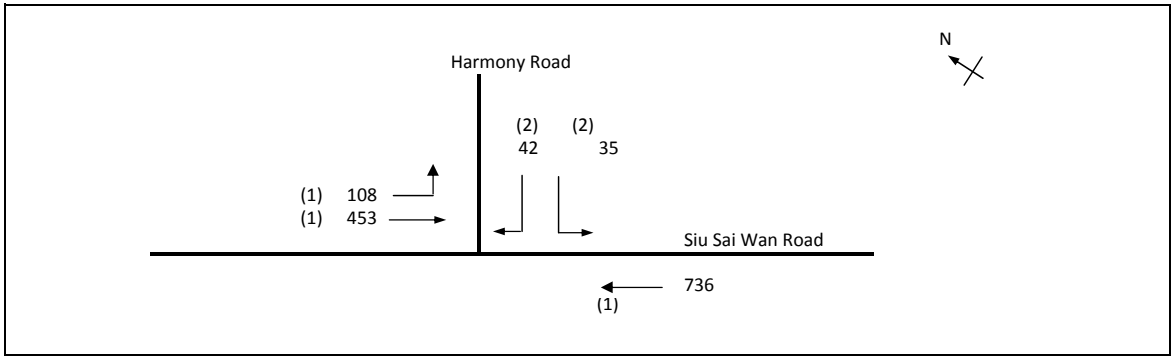


Stage B I = 5

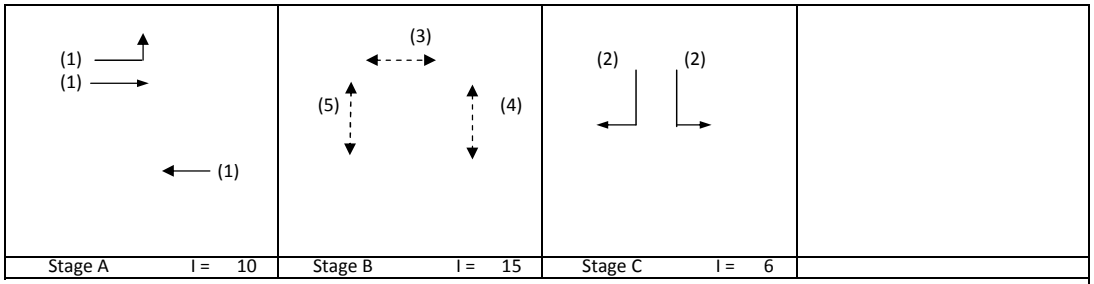
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	420			420	1.00	3857			3857	0.109			42	66	0.164	9	5
LT	A	4.00	2	2	24			4310	256			256	1.00	4056			4056	0.063			24	66	0.095	6	5
RT	A	3.50	2	2	11		y	4070			612	612	1.00	3582			3582	0.171	0.171		66	66	0.258	15	5
ST	B	3.50	3	2			y	4070		250		250	0.00	4070			4070	0.061	0.061		24	24	0.258	15	25
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			4	24	0.047	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.208	
Loss time	L =	48	sec
Total Flow	=	1374	pcu
Co = (1.5*L+5)/(1-Y)	=	97.2	sec
Cm = L/(1-Y)	=	60.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	159.9	%
Cp = 0.9*L/(0.9-Y)	=	62.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	125.2	%

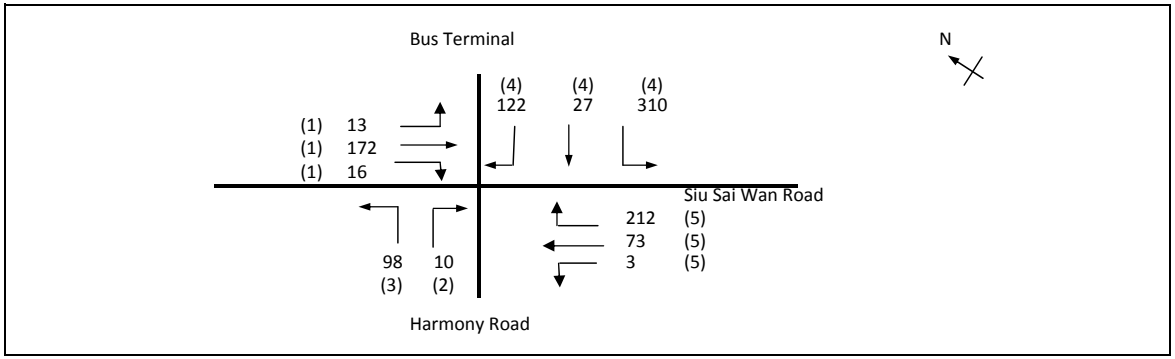


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

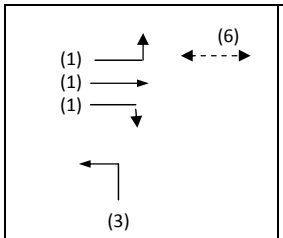
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	108	156		264	0.41	1842			1842	0.143			36	46	0.308	18	12
ST	A	3.20	1	1				2075		297		297	0.00	2075			2075	0.143			36	46	0.309	24	12
ST	A	3.00	1	2			y	3970		736		736	0.00	3970			3970	0.185	0.185		46	46	0.400	30	11
LT	C	3.75	2	1	12		y	1990	35			35	1.00	1769			1769	0.020			5	6	0.351	0	48
RT	C	3.75	2	1	12			2130			42	42	1.00	1893			1893	0.022	0.022		6	6	0.400	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

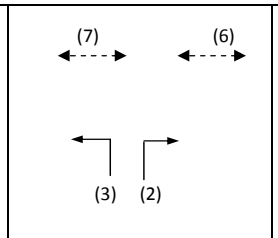
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



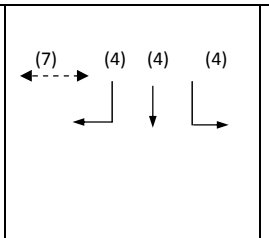
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.361
Loss time		L =	18 sec
Total Flow		=	1056 pcu
Co	= (1.5*L+5)/(1-Y)	=	50.0 sec
Cm	= L/(1-Y)	=	28.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	112.1 %
Cp	= 0.9*L/(0.9-Y)	=	30.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	106.8 %



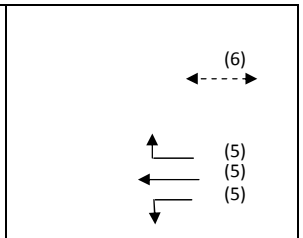
Stage A I = 5



Stage B I = 5



Stage C I = 6

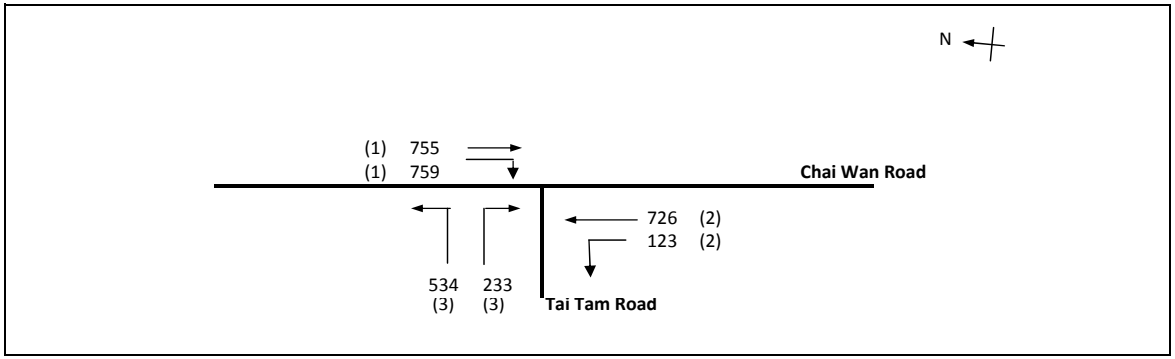


Stage C I = 6

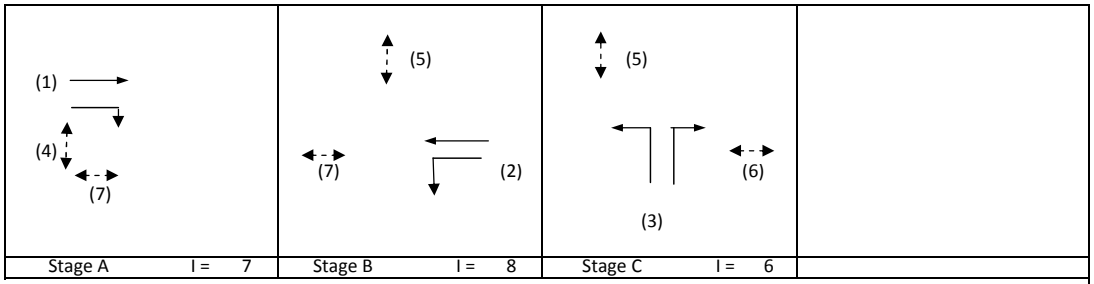
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	84		97	0.13	1910			1910	0.051			12	12	0.435	12	41
ST/RT	A	3.30	1	1	12			2085		88	16	104	0.16	2045			2045	0.051	0.051		12	12	0.435	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.435	0	101
LT	A,B	3.75	3	1	13		y	1990	98			98	1.00	1784			1784	0.055			13	19	0.311	12	33
RT	C	3.50	4	1	12			2105			122	122	1.00	1871			1871	0.065			16	46	0.148	6	14
LT/ST	C	3.50	4	1	12		y	1965	310	27		337	0.92	1762			1762	0.191	0.191		46	46	0.435	30	14
ST/RT	D	3.50	5	1	12			2105		0	212	212	1.00	1871			1871	0.113	0.113		27	27	0.435	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	73		76	0.04	1954			1954	0.039			9	9	0.435	12	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 1M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.777
Loss time		L =	18 sec
Total Flow		=	3129 pcu
Co	= (1.5*L+5)/(1-Y)	=	143.6 sec
Cm	= L/(1-Y)	=	80.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-1.6 %
Cp	= 0.9*L/(0.9-Y)	=	131.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-4.0 %

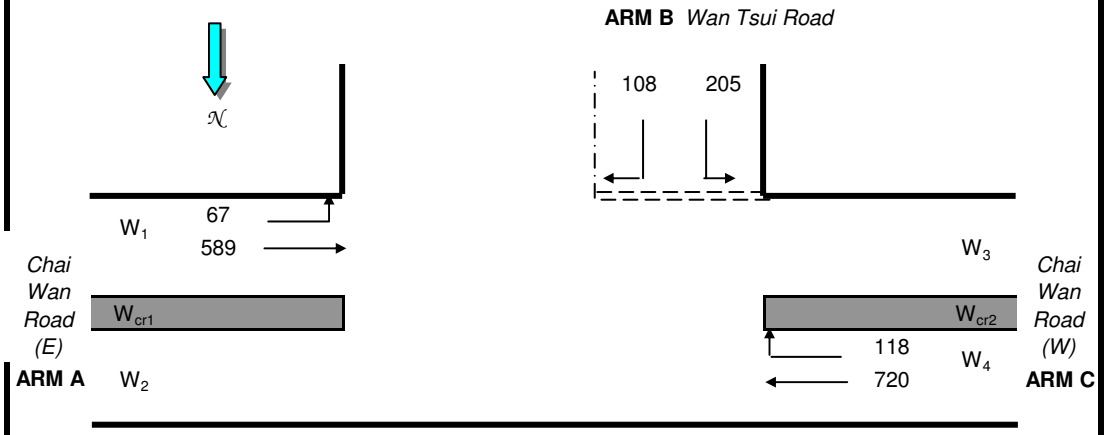


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		755		755	0.00	4070			4070	0.185			21	21	0.938	60	43
RT	A	3.50	1	1	13			2105			759	759	1.00	1887			1887	0.402	0.402		45	21	2.034	102	43
ST	B	3.50	2	2				4210		726		726	0.00	4210			4210	0.172	0.172		19	19	0.938	60	44
LT	B	3.10	2	1	12		y	1925	123			123	1.00	1711			1711	0.072			8	19	0.390	12	33
LT	C	4.00	3	1	15		y	2015	371			371	1.00	1832			1832	0.202	0.202		23	23	0.938	72	36
LT/RT	C	4.00	3	1	15			2155	163		233	396	1.00	1959			1959	0.202			23	23	0.936	78	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Ching Ming - Site 2
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	67.3307	(pcu/hr)
q_{a-c}	=	589.291	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	720.204	(pcu/hr)
q_{c-b}	=	117.704	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	107.65	(pcu/hr)
q_{b-c}	=	205.348	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

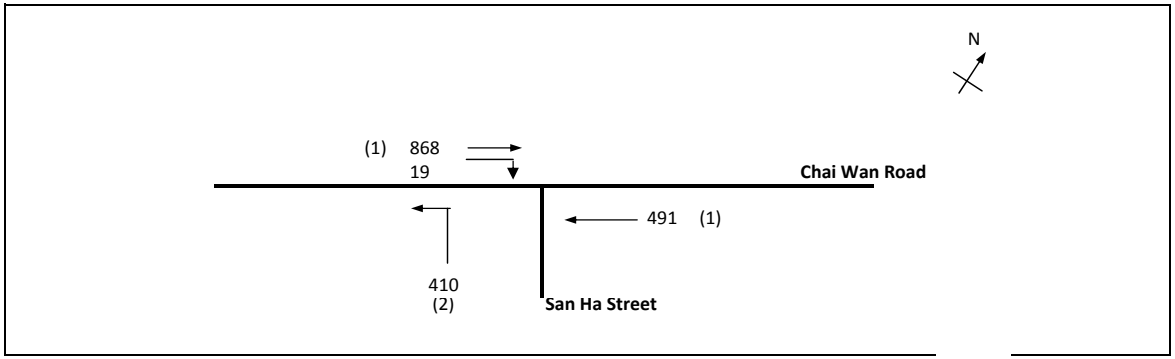
Q_{b-c}	=	747
Q_{c-b}	=	664
Q_{b-a}	=	353

COMPARISION OF DESIGN FLOW TO CAPACITY

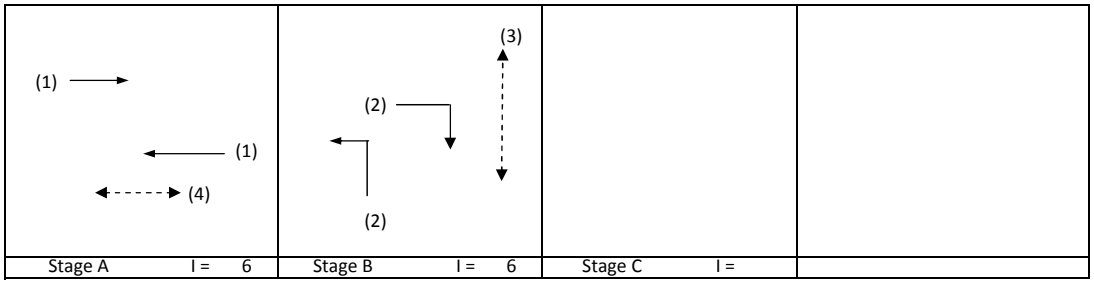
DFC_{b-a}	=	0.305
DFC_{b-c}	=	0.275
DFC_{c-b}	=	0.177

Critical DFC = 0.305

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.459
Loss time		L =	10 sec
Total Flow		=	1788 pcu
Co	= (1.5*L+5)/(1-Y)	=	37.0 sec
Cm	= L/(1-Y)	=	18.5 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	79.6 %
Cp	= 0.9*L/(0.9-Y)	=	20.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	76.3 %

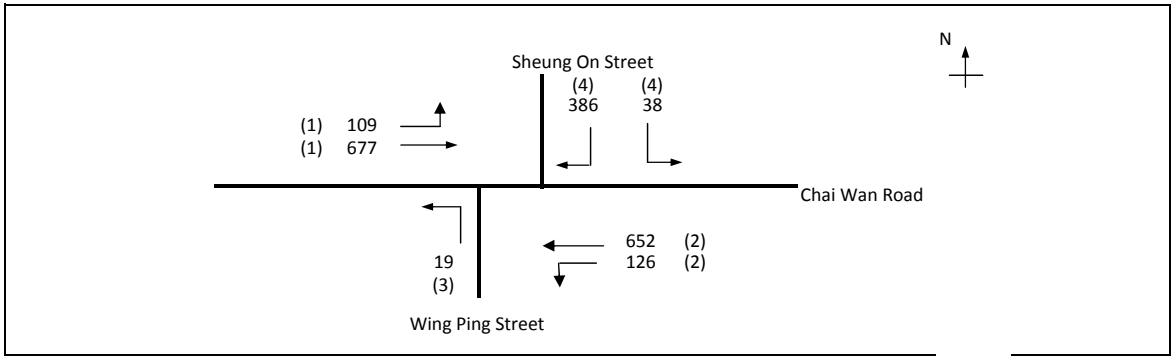


Stage A	I = 6	Stage B	I = 6	Stage C	I =

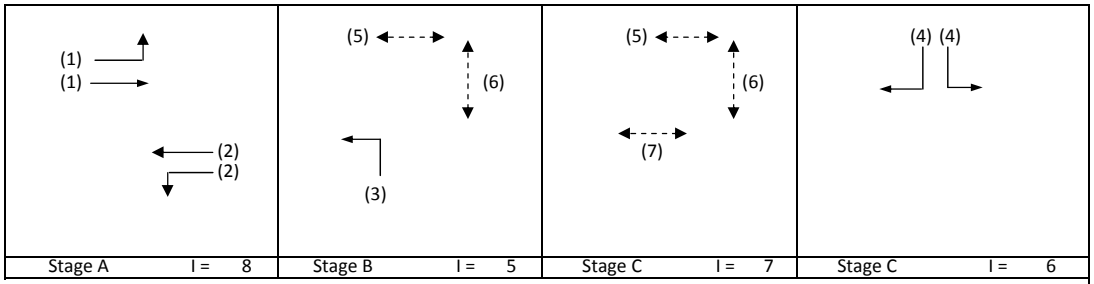
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		868		868	0.00	4070			4070	0.213	0.213		42	47	0.454	36	11
ST	A	3.50	1	2	10		N	4070		491		491	0.00	4070			4070	0.121			24	47	0.257	21	11
LT	B	3.00	2	1	10		N	1915	410			410	1.00	1665			1665	0.246	0.246		48	53	0.465	30	9
RT	B	3.50	2	1	12			2105			19	19	1.00	1871			1871	0.010			2	53	0.019	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1M_S2_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 2		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.259	
Loss time		L =	37	sec
Total Flow		=	2007	pcu
Co	= (1.5*L+5)/(1-Y)	=	81.7	sec
Cm	= L/(1-Y)	=	49.9	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	140.1	%
Cp	= 0.9*L/(0.9-Y)	=	52.0	sec
Ymax	= 1-L/C	=	0.692	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	140.1	%



Stage A	I = 8	Stage B	I = 5	Stage C	I = 7	Stage C	I = 6

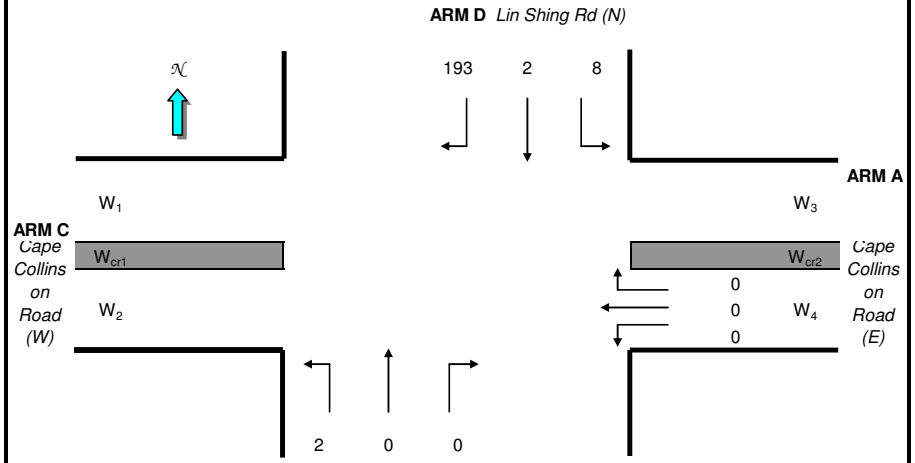
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22				
LT/ST	A	3.50	1	3	12		y	6175	109	677		786	0.14	6070			6070	0.129			41		0.000	52	54
LT/ST	A	3.30	2	3	12		Y	6115	126	652		778	0.16	5994			5994	0.130	0.130		42		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	19			19	1.00	1684			1684	0.011	0.011		4		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	38		386	424	1.00	3583			3583	0.118	0.118		38		0.000	42	54
Ped	B,C	4.00	5																					
Ped	B,C	5.00	6																					
Ped	C	3.00	7																	15				

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix J3
2016, 2021, 2026
Option 1 & 2 Special
Traffic Plan Calculation Sheets

2016, 2021, 2026
Option 1 Special
Traffic Plan Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.0575	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.2301	(pcu/hr)
q_{d-b}	=	2.0575	(pcu/hr)
q_{d-c}	=	192.89	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

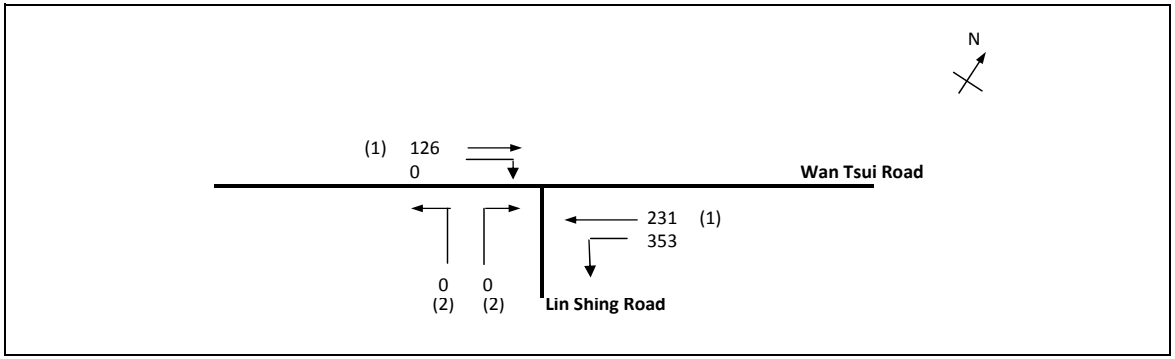
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

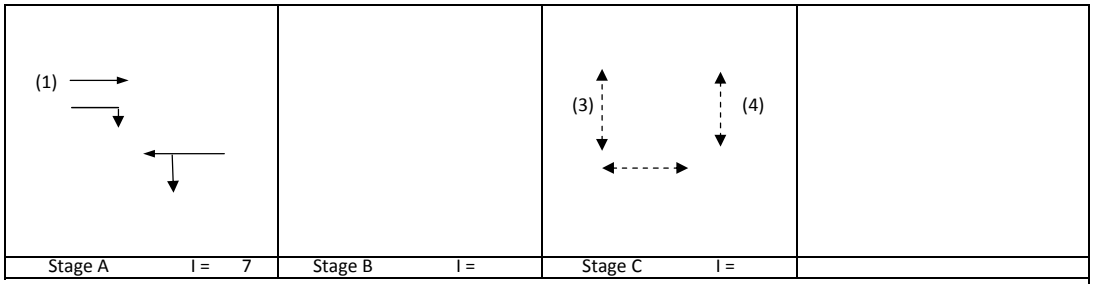
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.372
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.372

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME 7_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.316	
Loss time		L =	65	sec
Total Flow		=	710	pcu
Co	= (1.5*L+5)/(1-Y)	=	149.9	sec
Cm	= L/(1-Y)	=	95.0	sec
Yult		=	0.413	
R.C.ult	= (Yult-Y)/Y*100%	=	30.5	%
Cp	= 0.9*L/(0.9-Y)	=	100.2	sec
Ymax	= 1-L/C	=	0.458	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	30.5	%



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		126		126	0.00	1915			1915	0.066			11	55	0.143	12	15
ST/LT	A	4.00	1	1	10		N	2015	353	231		584	0.60	1848			1848	0.316	0.316		55	55	0.690	60	15
Ped	B	6.0	3									5709		7200						60					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

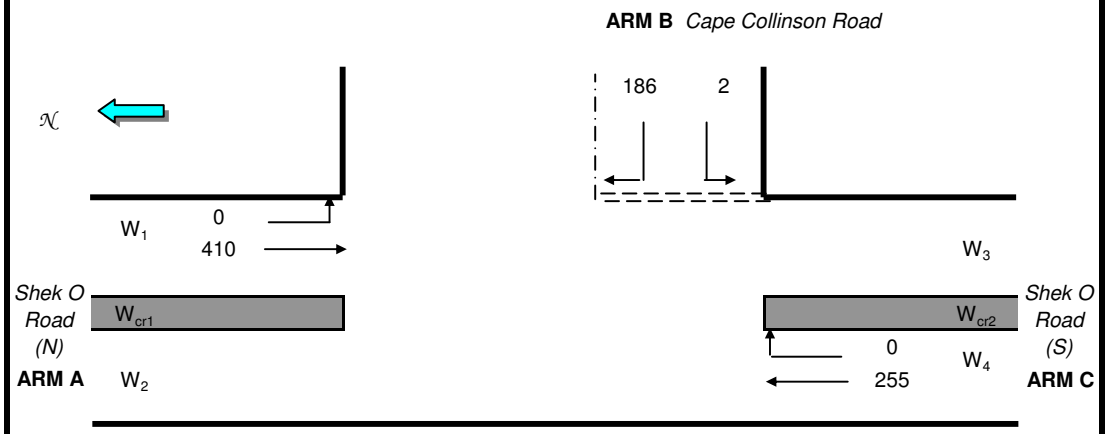
Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape Co

Junction Capacity Analysis

Prepared By:	**GK**
Checked By:	

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	255	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	186	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	637
Q_{c-b}	=	710
Q_{b-a}	=	301

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.617
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.617

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
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RG40 3GA,UK

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Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 09:26:36 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_CM_S1_J4 (100%SanHaSt)


 DEMAND SET TITLE:  2016_CM_S1_J4 (100%SanHaSt)
.------------------------------------------------------------------- T33
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ---------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.012 I  0.320 I  0.359 I  0.309 I
 I                    I         I   10.0 I  266.0 I  298.0 I  257.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.599 I  0.018 I  0.043 I  0.340 I
 I                    I         I  688.0 I   21.0 I   49.0 I  390.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.366 I  0.304 I  0.043 I  0.286 I
 I                    I         I   59.0 I   49.0 I    7.0 I   46.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.300 I  0.440 I  0.256 I  0.004 I
 I                    I         I  362.0 I  531.0 I  309.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING	I
I 07.45-08.15										
I ARM A	13.84	26.83	0.516	- -	-	0.0	1.1	31.1	0.077	I
I ARM B	19.12	25.42	0.752	- -	-	0.0	3.0	84.2	0.154	I
I ARM C	2.69	15.01	0.179	- -	-	0.0	0.2	6.4	0.081	I
I ARM D	20.11	42.56	0.472	- -	-	0.0	0.9	26.4	0.044	I
I										
I										

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING	I
I 08.15-08.45										
I ARM A	13.84	26.81	0.516	- -	-	1.1	1.1	31.9	0.077	I
I ARM B	19.12	25.40	0.753	- -	-	3.0	3.0	89.9	0.159	I
I ARM C	2.69	14.94	0.180	- -	-	0.2	0.2	6.6	0.082	I
I ARM D	20.11	42.49	0.473	- -	-	0.9	0.9	26.9	0.045	I
I										
I										

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.0	***
08.45	3.0	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.9	*
08.45	0.9	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

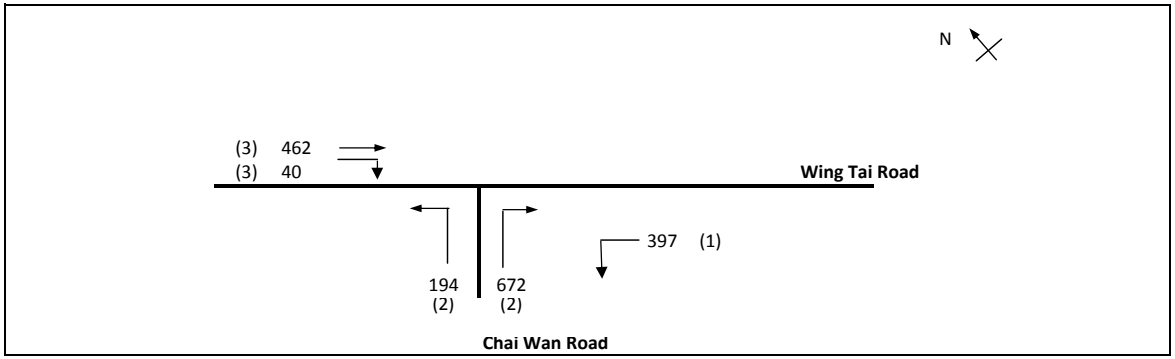
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	830.4	830.4	63.0	0.08	63.0	0.08
B	1147.2	1147.2	174.1	0.15	174.3	0.15
C	161.4	161.4	13.0	0.08	13.0	0.08
D	1206.6	1206.6	53.3	0.04	53.3	0.04
ALL	3345.6	3345.6	303.4	0.09	303.6	0.09

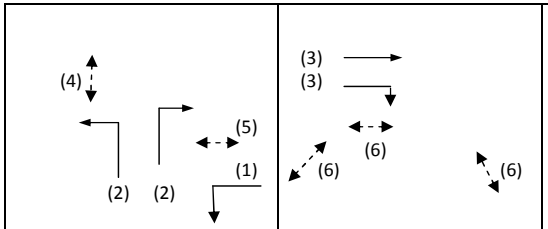
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME J5CM_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.301	
Loss time		L =	10	sec
Total Flow		=	1766	pcu
Co	= (1.5*L+5)/(1-Y)	=	28.6	sec
Cm	= L/(1-Y)	=	14.3	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	173.9	%
Cp	= 0.9*L/(0.9-Y)	=	15.0	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	168.9	%



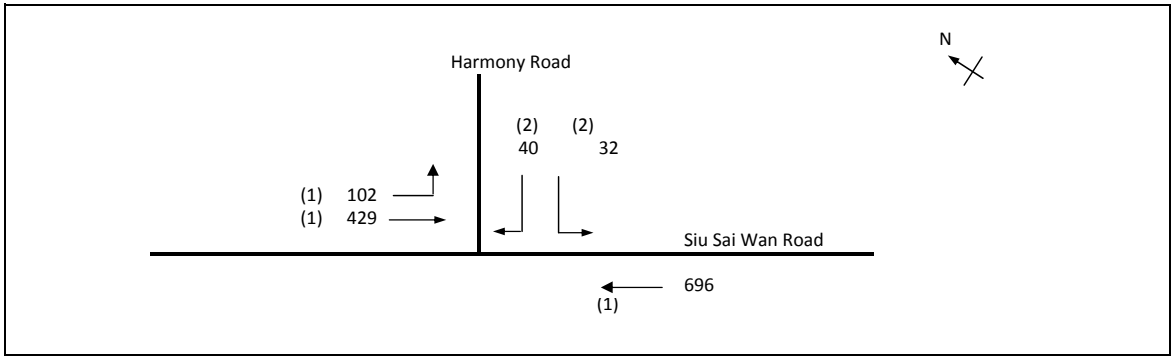
Stage A I = 7

Stage B I = 5

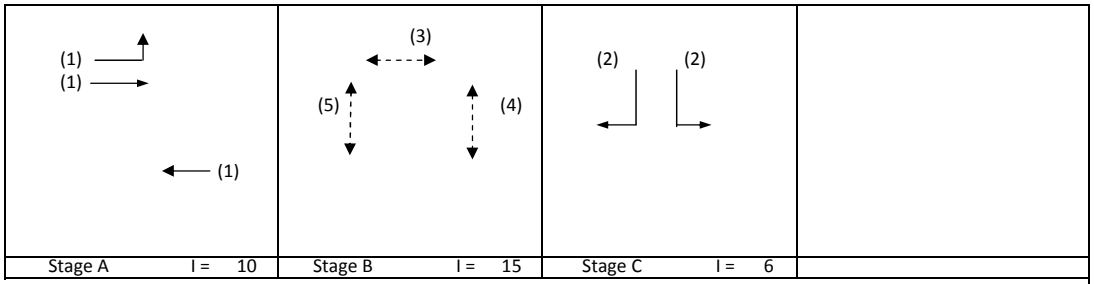
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	397			397	1.00	3857			3857	0.103			31	56	0.184	12	8
LT	A	4.00	2	2	24			4310	194			194	1.00	4056			4056	0.048			14	56	0.085	6	8
RT	A	3.50	2	2	11		y	4070			672	672	1.00	3582			3582	0.188	0.188		56	56	0.335	24	7
ST	B	3.50	3	2			y	4070		462		462	0.00	4070			4070	0.114	0.114		34	34	0.335	24	18
RT	B	4.50	3	2	13		y	4270			40	40	1.00	3828			3828	0.010			3	34	0.031	0	19
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.197	
Loss time	L =	48	sec
Total Flow	=	1300	pcu
Co = (1.5*L+5)/(1-Y)	=	95.8	sec
Cm = L/(1-Y)	=	59.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	174.7	%
Cp = 0.9*L/(0.9-Y)	=	61.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	138.1	%

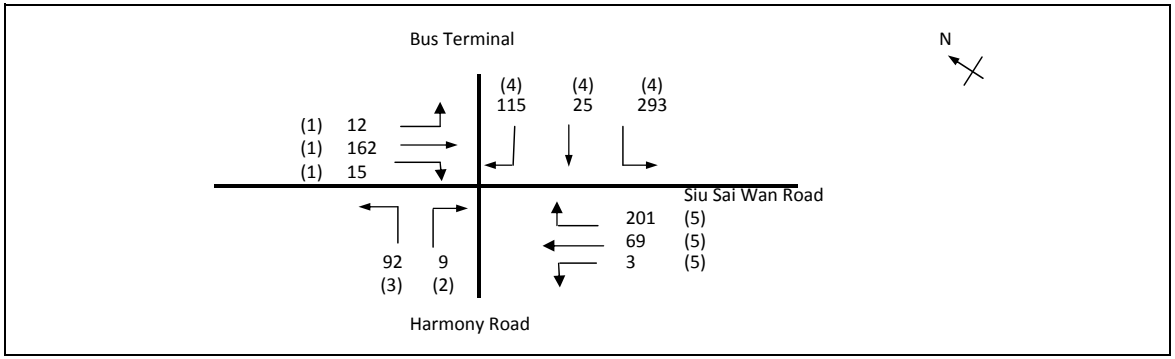


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

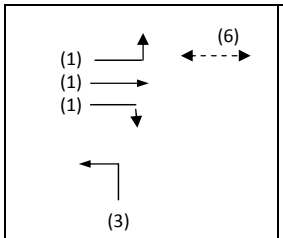
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	148		250	0.41	1843			1843	0.136			36	46	0.292	18	12
ST	A	3.20	1	1				2075		281		281	0.00	2075			2075	0.135			36	46	0.292	24	12
ST	A	3.00	1	2			y	3970		696		696	0.00	3970			3970	0.175	0.175		46	46	0.378	30	11
LT	C	3.75	2	1	12		y	1990	32			32	1.00	1769			1769	0.018			5	6	0.327	0	47
RT	C	3.75	2	1	12			2130			40	40	1.00	1893			1893	0.021	0.021		6	6	0.378	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

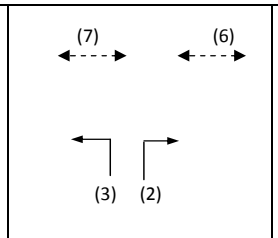
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME J7_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



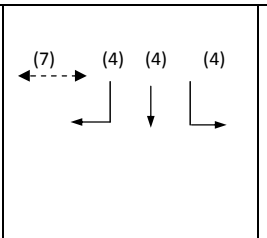
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.341	
Loss time	L =	18	sec
Total Flow	=	997	pcu
Co = (1.5*L+5)/(1-Y)	=	48.6	sec
Cm = L/(1-Y)	=	27.3	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	124.3	%
Cp = 0.9*L/(0.9-Y)	=	29.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	118.7	%



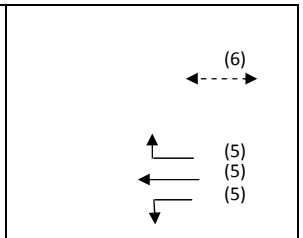
Stage A I = 5



Stage B I = 5



Stage C I = 6

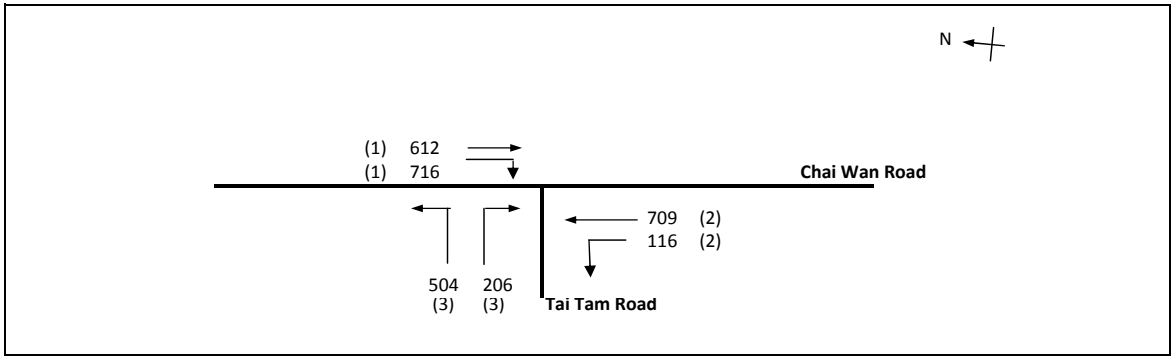


Stage C I = 6

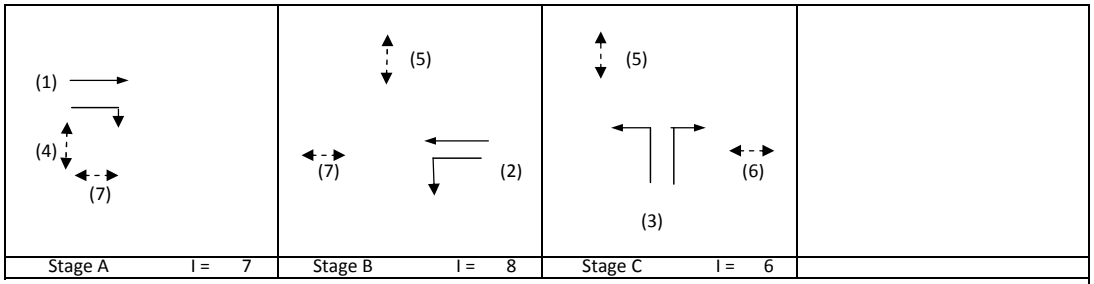
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.14	1910			1910	0.048			12	12	0.410	12	40
ST/RT	A	3.30	1	1	12			2085		83	15	98	0.15	2045			2045	0.048	0.048		12	12	0.412	12	40
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
LT	A,B	3.75	3	1	13		y	1990	92			92	1.00	1784			1784	0.052			13	19	0.293	12	33
RT	C	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.061			16	46	0.140	6	14
LT/ST	C	3.50	4	1	12		y	1965	293	25		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
ST/RT	D	3.50	5	1	12			2105		0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	69		71	0.04	1955			1955	0.037			9	9	0.412	6	44
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME ? _J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.736
Loss time		L =	18 sec
Total Flow		=	2864 pcu
Co	= (1.5*L+5)/(1-Y)	=	121.0 sec
Cm	= L/(1-Y)	=	68.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	4.0 %
Cp	= 0.9*L/(0.9-Y)	=	98.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	1.4 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		612		612	0.00	4070			4070	0.150			18	18	0.888	45	44
RT	A	3.50	1	1	13			2105			716	716	1.00	1887			1887	0.380	0.380		45	18	2.241	102	45
ST	B	3.50	2	2				4210		709		709	0.00	4210			4210	0.168	0.168		20	20	0.888	48	43
LT	B	3.10	2	1	12		y	1925	116			116	1.00	1711			1711	0.068			8	20	0.358	12	32
LT	C	4.00	3	1	15		y	2015	343			343	1.00	1832			1832	0.187			22	22	0.888	54	36
LT/RT	C	4.00	3	1	15			2155	161		206	367	1.00	1959			1959	0.187	0.187		22	22	0.888	54	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

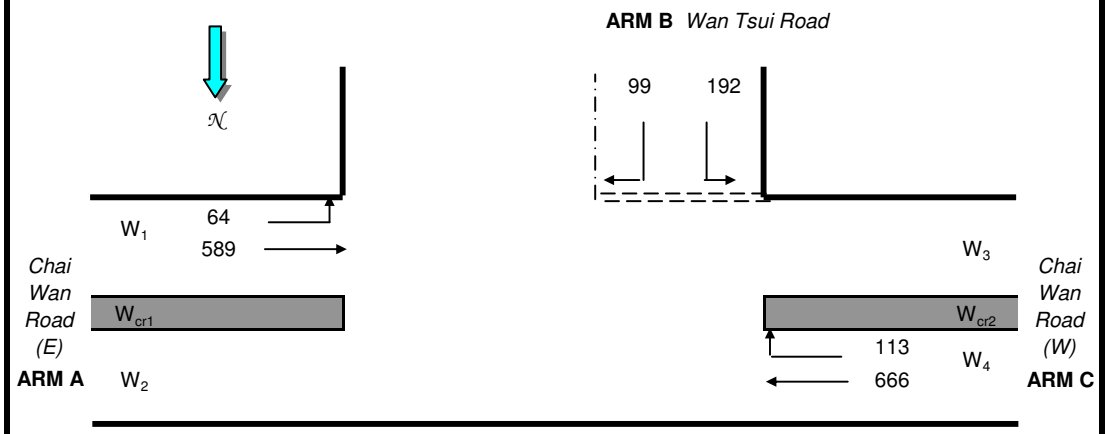
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape Collinson Road, Chai Wan - Junction Capacity Analysis

Prepared By:	**GK**
Checked By:	**OC**

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	63.9622	(pcu/hr)
q_{a-c}	=	589.052	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	666.26	(pcu/hr)
q_{c-b}	=	112.539	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	99.4771	(pcu/hr)
q_{b-c}	=	191.966	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

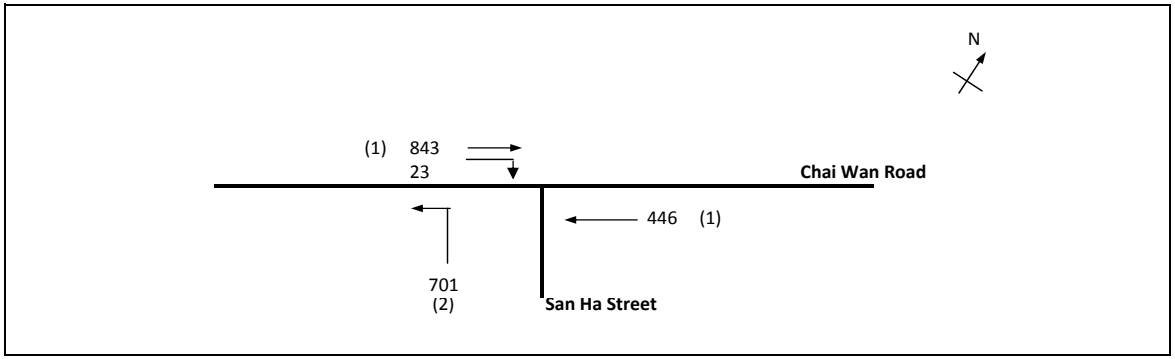
Q_{b-c}	=	747
Q_{c-b}	=	664
Q_{b-a}	=	356

COMPARISION OF DESIGN FLOW TO CAPACITY

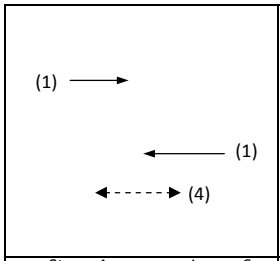
DFC_{b-a}	=	0.279
DFC_{b-c}	=	0.257
DFC_{c-b}	=	0.169

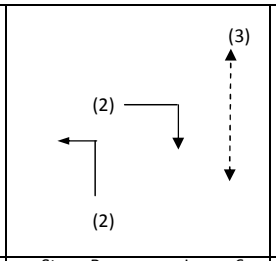
Critical DFC = 0.279

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.628
Loss time		L =	10 sec
Total Flow		=	2014 pcu
Co	= (1.5*L+5)/(1-Y)	=	53.8 sec
Cm	= L/(1-Y)	=	26.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	31.3 %
Cp	= 0.9*L/(0.9-Y)	=	33.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.9 %



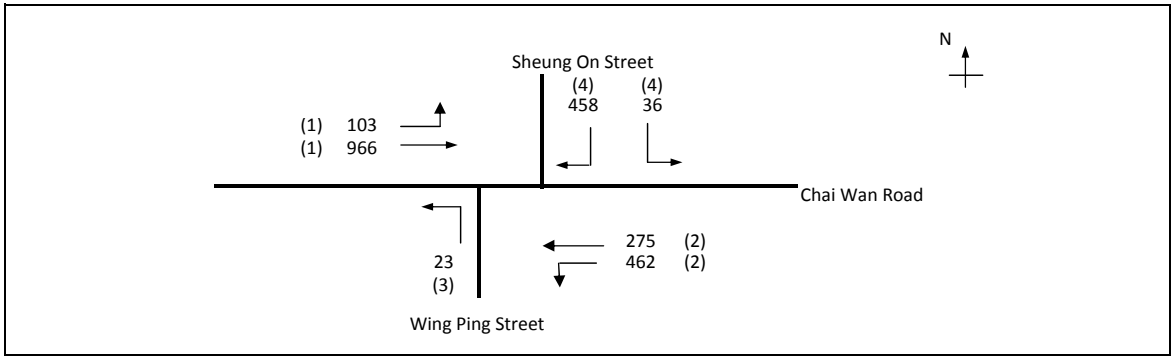


Stage A	I = 6	Stage B	I = 6	Stage C	I =

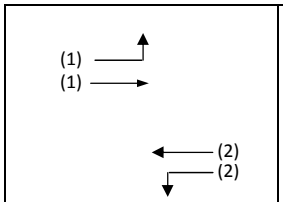
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		843		843	0.00	4070			4070	0.207	0.207		30	47	0.441	36	11
ST	A	3.50	1	2	10		N	4070		446		446	0.00	4070			4070	0.110			16	47	0.233	18	12
LT	B	3.00	2	1	10		N	1915	701			701	1.00	1665			1665	0.421	0.421		60	53	0.794	54	13
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

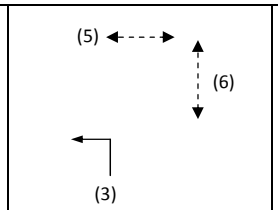
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME	J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:		Reviewed By:	OC	3-5-2011



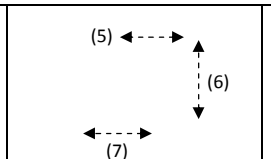
No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.349	
Loss time	L =	37	sec
Total Flow	=	2323	pcu
Co = (1.5*L+5)/(1-Y)	=	92.9	sec
Cm = L/(1-Y)	=	56.8	sec
Yult	=	0.623	
R.C.ult = (Yult-Y)/Y*100%	=	78.6	%
Cp = 0.9*L/(0.9-Y)	=	60.4	sec
Ymax = 1-L/C	=	0.692	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	78.6	%



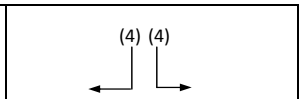
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

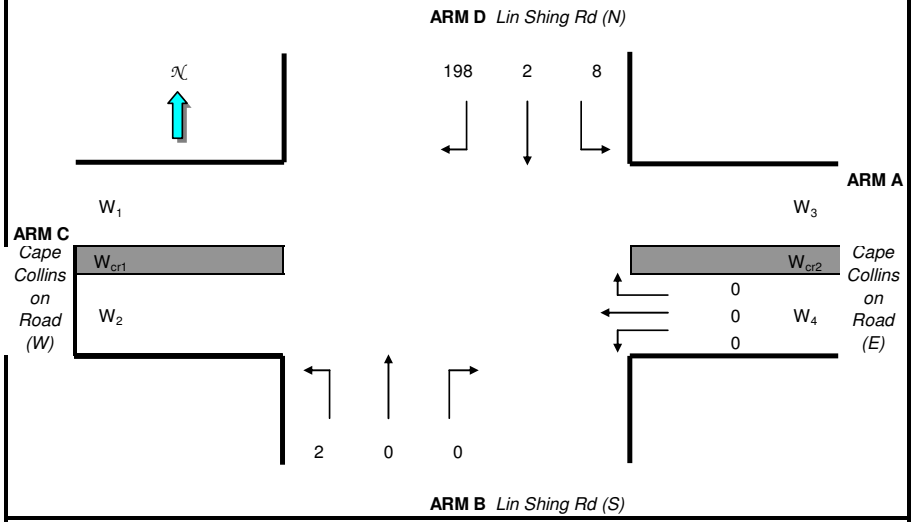
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	103	966		1070	0.10	6101			6101	0.175			42		0.000	70	54
LT/ST	A	3.30	2	2	12		Y	4030	462	275		736	0.63	3737			3737	0.197	0.197		47		0.000	72	54
LT	B	3.50	3	1	9		Y	1965	23			23	1.00	1684			1684	0.014	0.014		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	36		458	493	1.00	3583			3583	0.138	0.138		33		0.000	48	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow | **Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C** | **Prepared By:** GK

Junction Capacity Analysis | **Checked By:** OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1167	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4669	(pcu/hr)
q_{d-b}	=	2.1167	(pcu/hr)
q_{d-c}	=	197.84	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

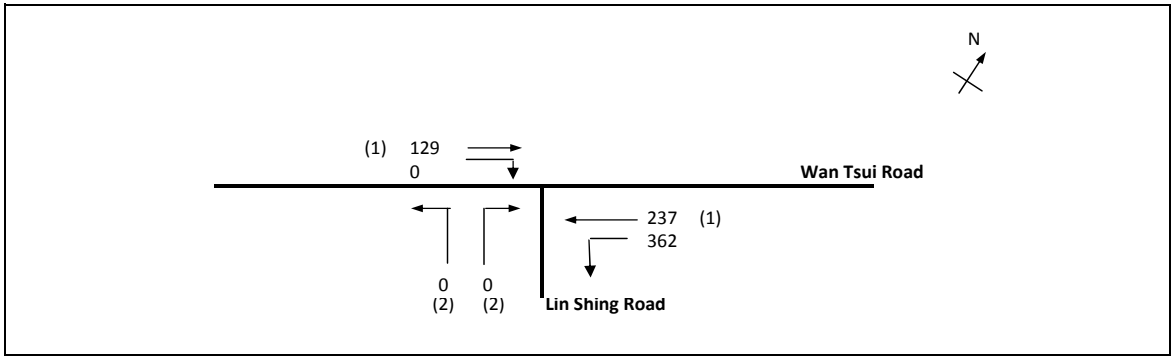
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

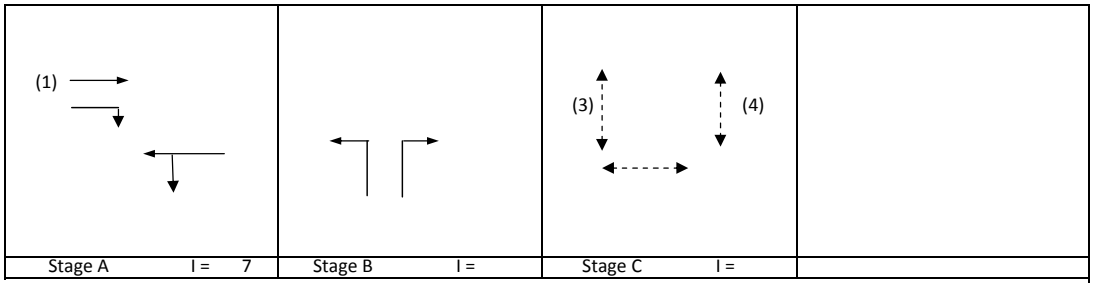
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.382
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.382

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME ?_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.324	
Loss time		L =	65	sec
Total Flow		=	728	pcu
Co	= (1.5*L+5)/(1-Y)	=	151.7	sec
Cm	= L/(1-Y)	=	96.2	sec
Yult		=	0.413	
R.C.ult	= (Yult-Y)/Y*100%	=	27.2	%
Cp	= 0.9*L/(0.9-Y)	=	101.6	sec
Ymax	= 1-L/C	=	0.458	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	27.2	%

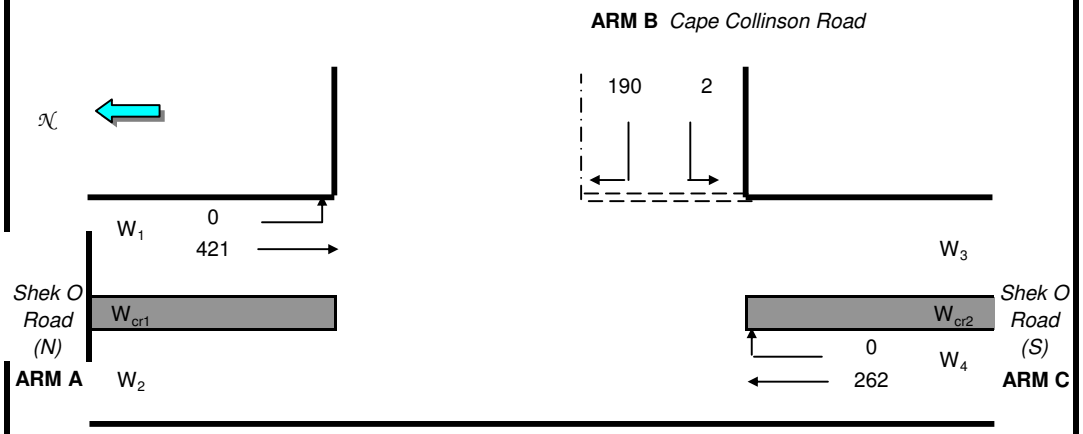


Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		129		129	0.00	1915			1915	0.067			11	55	0.147	12	15
ST/LT	A	4.00	1	1	10		N	2015	362	237		599	0.60	1848			1848	0.324	0.324		55	55	0.708	60	15
Ped	B	6.0	3									5709		7200						60					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	421.116	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	262.128	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	190.217	(pcu/hr)
q_{b-c}	=	1.99061	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	298

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.638
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.638

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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RG40 3GA,UK

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Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 09:37:00 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	I V (M)	I E (M)	I L (M)	I R (M)	I D (M)	I PHI (DEG)	I SLOPE	I INTERCEPT (PCU/MIN)	I T5
I ARM A	I 7.11	I 8.45	I 57.00	I 45.00	I 39.50	I 28.0	I 0.837	I 43.638	I

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S1 (100%SanHaSt)

DEMAND SET TITLE: 2021_CM_J4_S1 (100%SanHaSt)

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.013	0.319	0.359	0.309
		11.0	272.0	306.0	264.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.600	0.018	0.042	0.340
		706.0	21.0	50.0	400.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.370	0.303	0.042	0.285
		61.0	50.0	7.0	47.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.300	0.440	0.256	0.004
		372.0	545.0	317.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									I
I ARM A	14.22	26.51	0.536	- -	-	0.0	1.2	33.7	-
	0.081	I							
I ARM B	19.63	25.10	0.782	- -	-	0.0	3.5	97.9	-
	0.175	I							
I ARM C	2.75	14.61	0.188	- -	-	0.0	0.2	6.8	-
	0.084	I							
I ARM D	20.65	42.18	0.490	- -	-	0.0	1.0	28.3	-
	0.046	I							
I									I

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									I
I ARM A	14.22	26.49	0.537	- -	-	1.2	1.2	34.6	-
	0.082	I							
I ARM B	19.63	25.07	0.783	- -	-	3.5	3.6	105.9	-
	0.184	I							
I ARM C	2.75	14.53	0.189	- -	-	0.2	0.2	7.0	-
	0.085	I							
I ARM D	20.65	42.10	0.490	- -	-	1.0	1.0	28.8	-
	0.047	I							
I									I

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.2	*
08.45	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.5	***
08.45	3.6	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

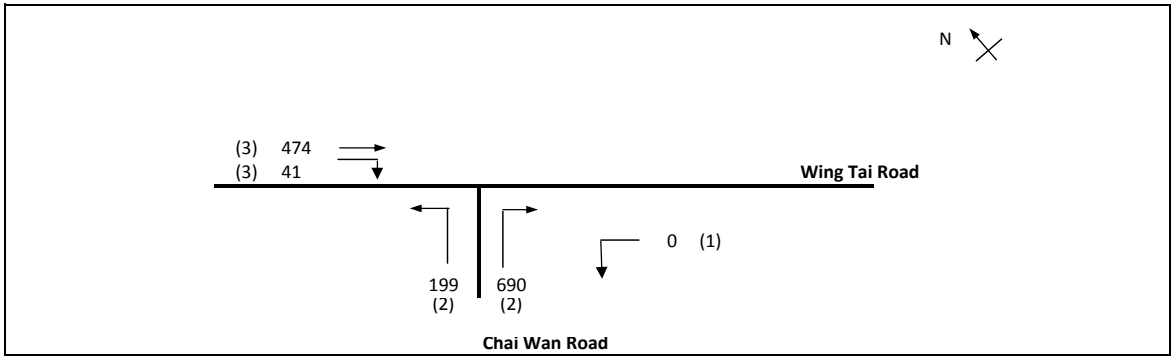
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	853.2	853.2	68.3	0.08	68.3	0.08
B	1177.8	1177.8	203.8	0.17	204.0	0.17
C	165.0	165.0	13.8	0.08	13.8	0.08
D	1239.0	1239.0	57.1	0.05	57.1	0.05
ALL	3435.0	3435.0	343.0	0.10	343.2	0.10

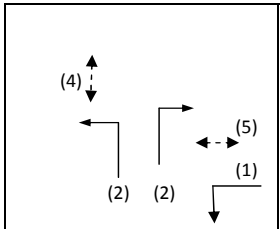
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

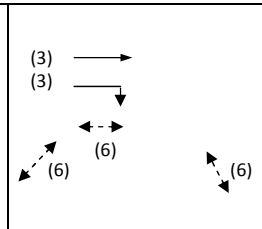
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME J5CM_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.309	
Loss time		L =	10	sec
Total Flow		=	1405	pcu
Co	= (1.5*L+5)/(1-Y)	=	29.0	sec
Cm	= L/(1-Y)	=	14.5	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	166.8	%
Cp	= 0.9*L/(0.9-Y)	=	15.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	162.0	%



Stage A I = 7

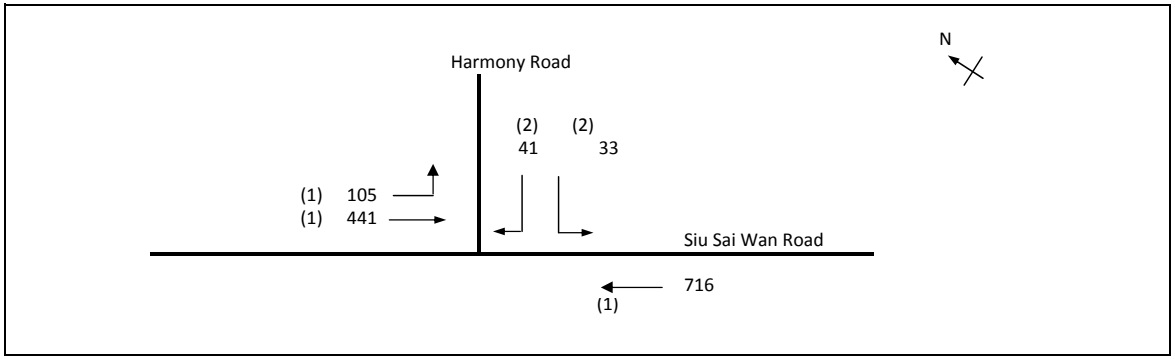


Stage B I = 5

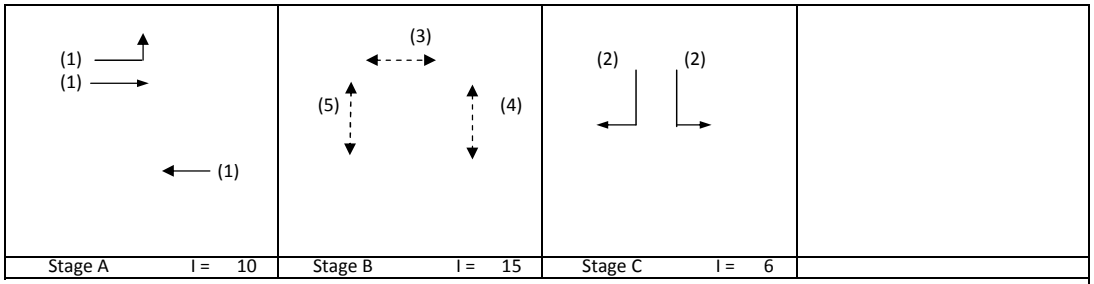
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	0			0	#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!			#DIV/0!	56	#DIV/0!	#DIV/0!	#DIV/0!
LT	A	4.00	2	2	24			4310	199			199	1.00	4056			4056	0.049			14	56	0.088	6	8
RT	A	3.50	2	2	11		y	4070			690	690	1.00	3582			3582	0.193	0.193		56	56	0.344	24	7
ST	B	3.50	3	2			y	4070		474		474	0.00	4070			4070	0.116	0.116		34	34	0.344	24	18
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			3	34	0.032	0	19
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	96.5	sec
Cm = L/(1-Y)	=	60.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	167.0	%
Cp = 0.9*L/(0.9-Y)	=	61.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	131.4	%

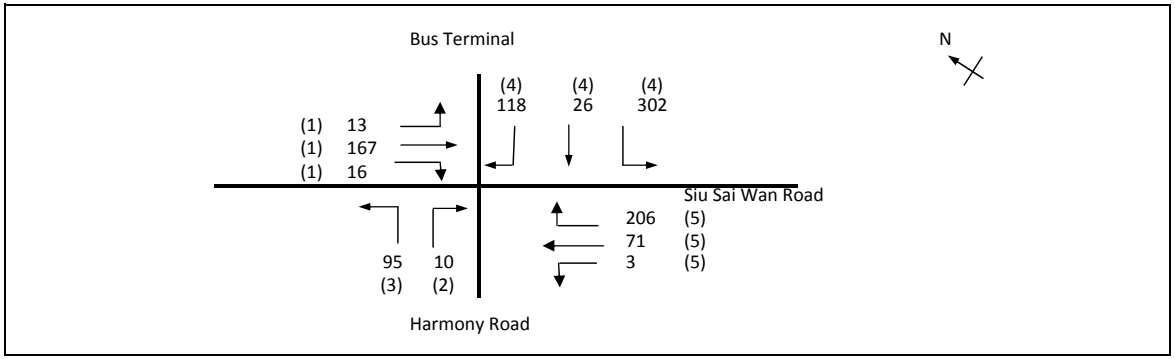


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

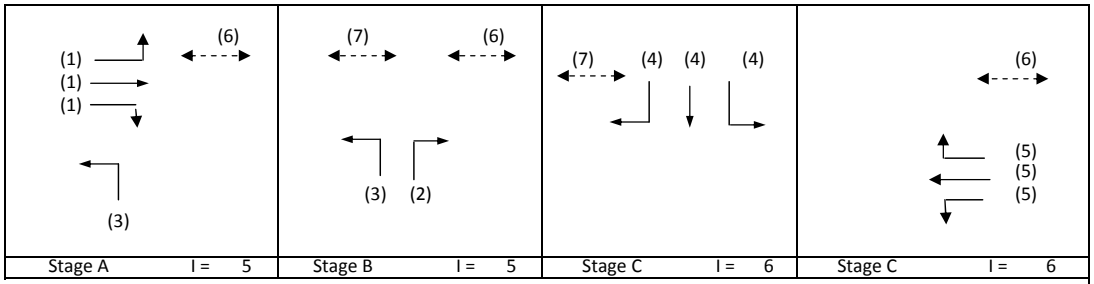
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1842			1842	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.301	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.336	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME J7_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.351	
Loss time	L =	18	sec
Total Flow	=	1025	pcu
Co = (1.5*L+5)/(1-Y)	=	49.3	sec
Cm = L/(1-Y)	=	27.7	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	118.0	%
Cp = 0.9*L/(0.9-Y)	=	29.5	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	112.5	%

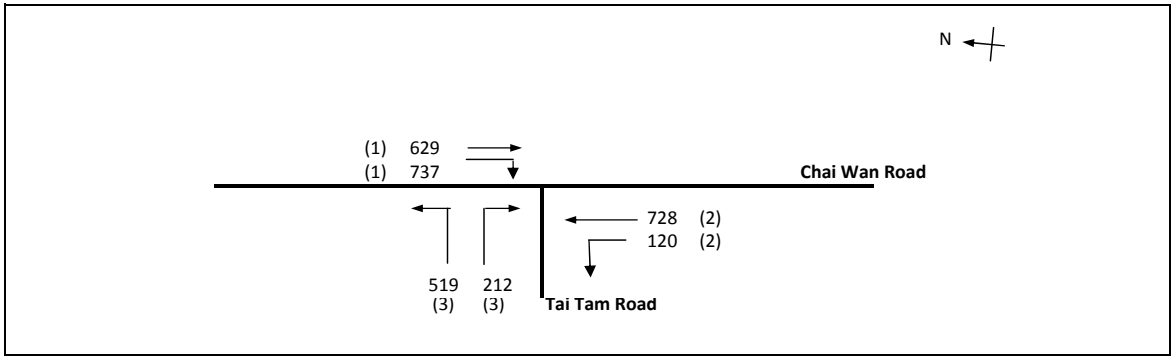


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

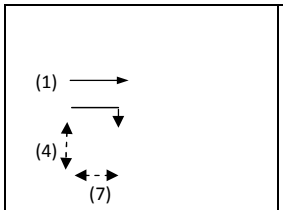
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.420	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	101	0.15	2046			2046	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	33
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	302	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1955			1955	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

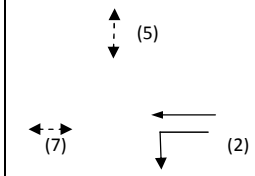
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME : J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



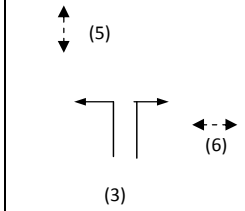
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.756
Loss time		L =	18 sec
Total Flow		=	2944 pcu
Co	= (1.5*L+5)/(1-Y)	=	131.3 sec
Cm	= L/(1-Y)	=	73.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	1.2 %
Cp	= 0.9*L/(0.9-Y)	=	112.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-1.4 %



Stage A I = 7



Stage B I = 8



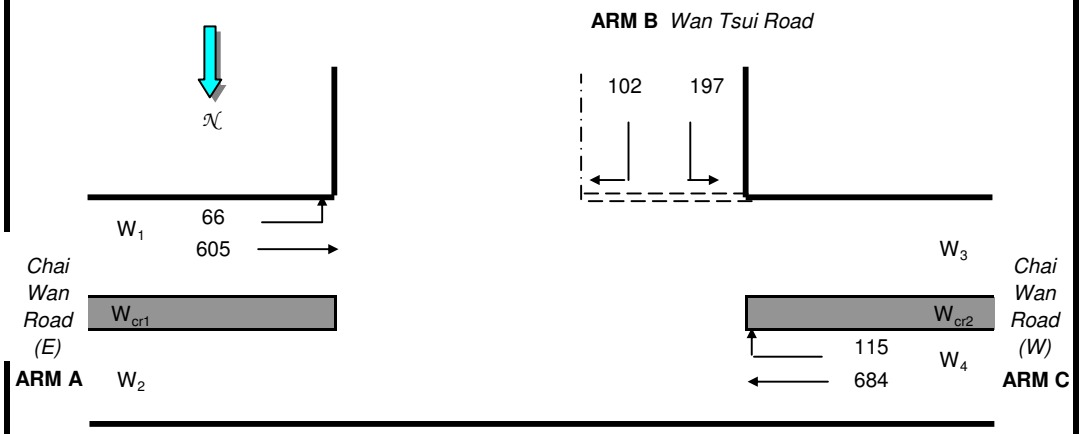
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		629		629	0.00	4070			4070	0.154			18	18	0.913	48	44
RT	A	3.50	1	1	13			2105			737	737	1.00	1887			1887	0.390	0.390		45	18	2.306	102	46
ST	B	3.50	2	2				4210		728		728	0.00	4210			4210	0.173	0.173		20	20	0.913	54	43
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			8	20	0.369	12	32
LT	C	4.00	3	1	15		y	2015	353			353	1.00	1832			1832	0.192			22	22	0.913	60	36
LT/RT	C	4.00	3	1	15			2155	166		212	378	1.00	1959			1959	0.193	0.193		22	22	0.914	66	37
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C	Prepared By:	GK
	Junction Capacity Analysis	Checked By:	OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	65.5645	(pcu/hr)
q_{a-c}	=	605.093	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	683.958	(pcu/hr)
q_{c-b}	=	115.362	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	101.979	(pcu/hr)
q_{b-c}	=	196.743	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

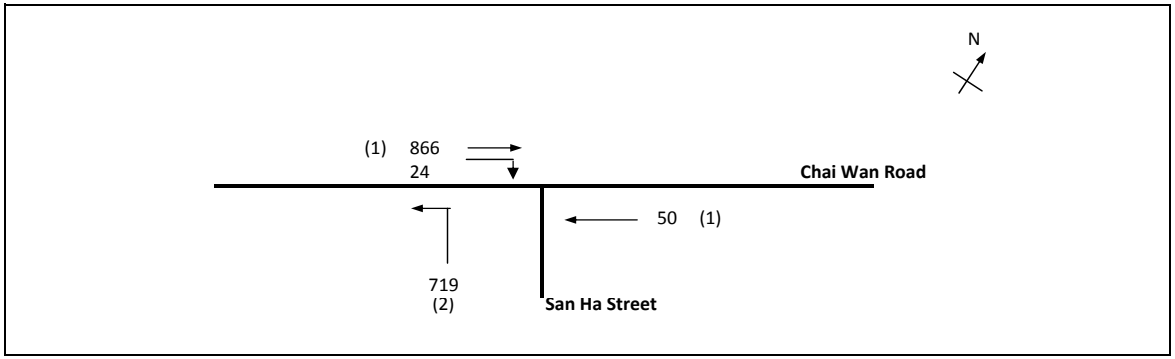
Q_{b-c}	=	745
Q_{c-b}	=	662
Q_{b-a}	=	354

COMPARISION OF DESIGN FLOW TO CAPACITY

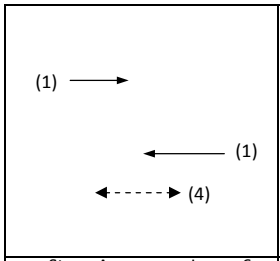
DFC_{b-a}	=	0.288
DFC_{b-c}	=	0.264
DFC_{c-b}	=	0.174

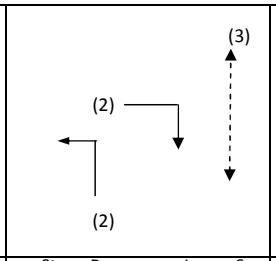
Critical DFC = 0.288

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME 7_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.644
Loss time		L =	10 sec
Total Flow		=	1659 pcu
Co	= (1.5*L+5)/(1-Y)	=	56.2 sec
Cm	= L/(1-Y)	=	28.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	28.1 %
Cp	= 0.9*L/(0.9-Y)	=	35.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	25.7 %



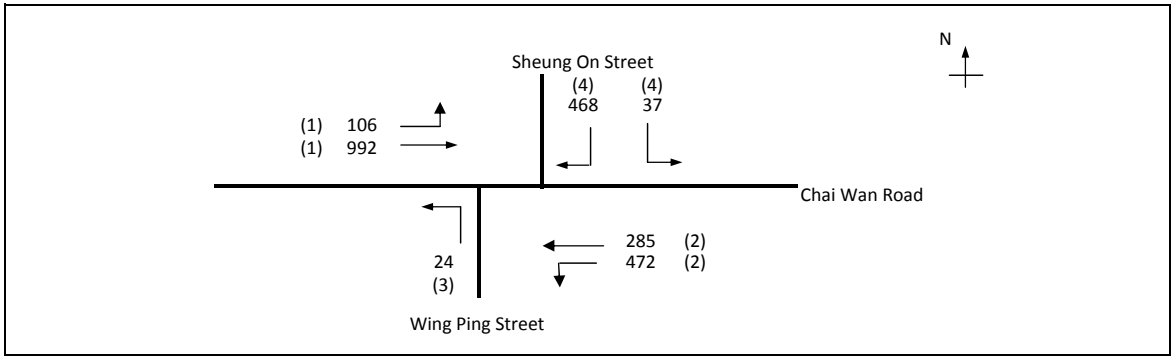


Stage A	I = 6	Stage B	I = 6	Stage C	I =

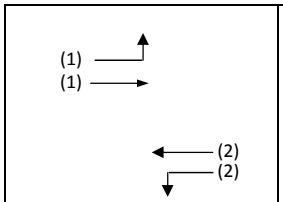
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		866		866	0.00	4070			4070	0.213	0.213		30	47	0.453	36	11
ST	A	3.50	1	2	10		N	4070		50		50	0.00	4070			4070	0.012			2	47	0.026	0	13
LT	B	3.00	2	1	10		N	1915	719			719	1.00	1665			1665	0.432	0.432		60	53	0.814	54	14
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.024	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

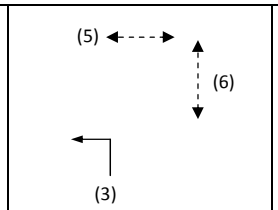
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME	J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:		Reviewed By:	OC	3-5-2011



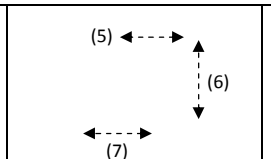
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.358
Loss time		L =	37 sec
Total Flow		=	2385 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.2 sec
Cm	= L/(1-Y)	=	57.6 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	74.0 %
Cp	= 0.9*L/(0.9-Y)	=	61.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	74.0 %



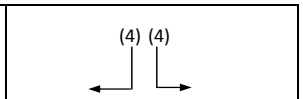
Stage A I = 8



Stage B I = 5



Stage C I = 7

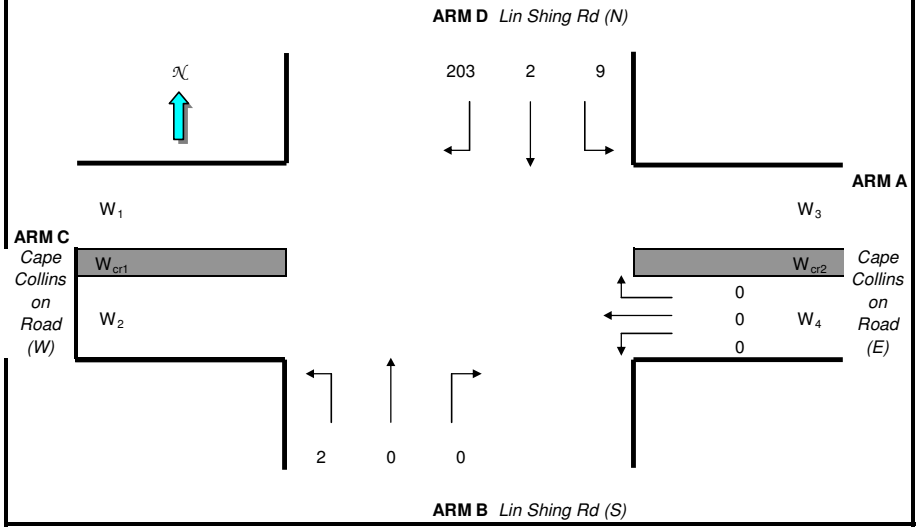


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	106	992		1098	0.10	6101			6101	0.180			42		0.000	72	54
LT/ST	A	3.30	2	2	12		Y	4030	472	285		758	0.62	3739			3739	0.203	0.203		47		0.000	75	54
LT	B	3.50	3	1	9		Y	1965	24			24	1.00	1684			1684	0.014	0.014		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	37		468	505	1.00	3583			3583	0.141	0.141		33		0.000	48	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1776	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.7104	(pcu/hr)
q_{d-b}	=	2.1776	(pcu/hr)
q_{d-c}	=	202.92	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

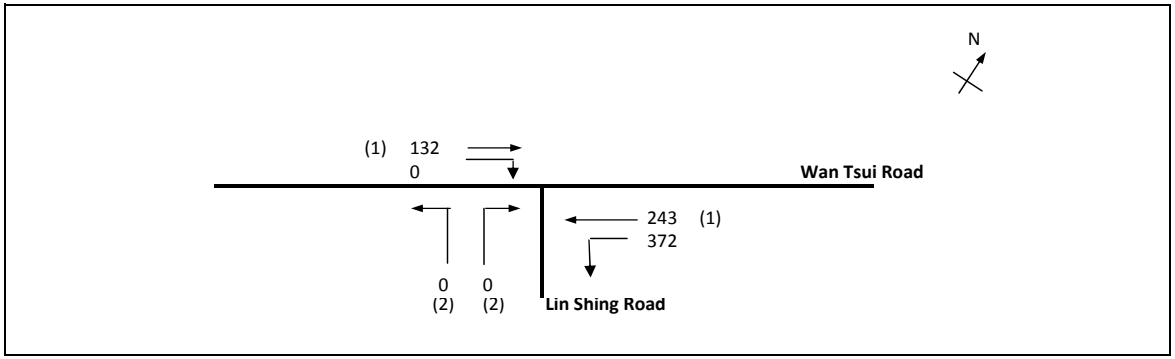
Q_{b-a}	=	618
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

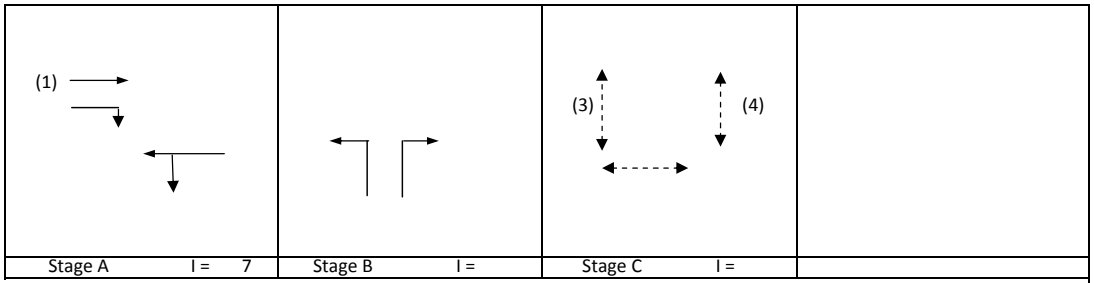
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.392
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.392

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME 7_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.333	
Loss time		L =	65	sec
Total Flow		=	747	pcu
Co	= (1.5*L+5)/(1-Y)	=	153.6	sec
Cm	= L/(1-Y)	=	97.4	sec
Yult		=	0.413	
R.C.ult	= (Yult-Y)/Y*100%	=	24.0	%
Cp	= 0.9*L/(0.9-Y)	=	103.1	sec
Ymax	= 1-L/C	=	0.458	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24.0	%



Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		132		132	0.00	1915			1915	0.069			11	55	0.150	12	15
ST/LT	A	4.00	1	1	10		N	2015	372	243		615	0.60	1848			1848	0.333	0.333		55	55	0.726	66	16
Ped	B	6.0	3									5709		7200						60					
		11.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

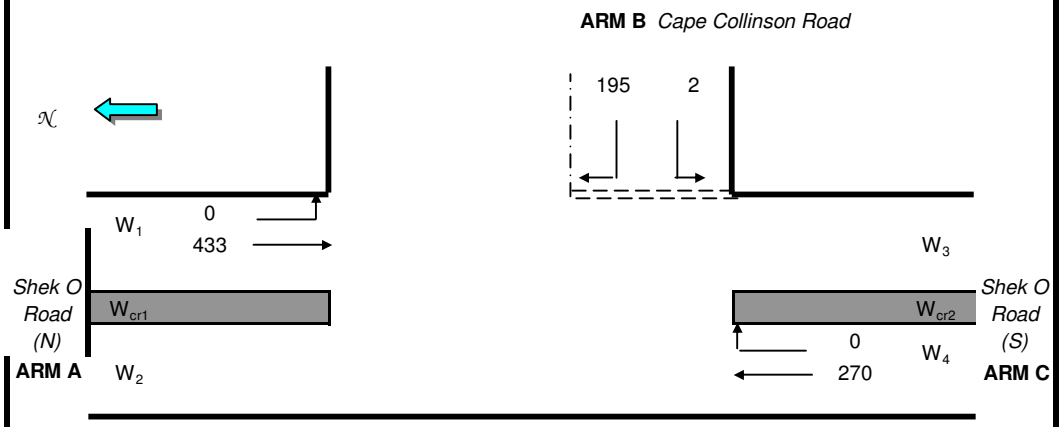
Junction Capacity Analysis

Prepared By:	GK
Checked By:	

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2026 Ching Ming - Site 1

Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	433.05	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	269.57	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	195.03	(pcu/hr)
q_{b-c}	=	2.0363	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	631
Q_{c-b}	=	703
Q_{b-a}	=	296

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.660
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.660

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 10:08:05 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
ARM A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
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 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_CM_J4_S1 (100%SanHaSt)


 DEMAND SET TITLE:  2026_CM_J4_S1 (100%SanHaSt)
.------------------------------------------------------------------- T33
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ---------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.013 I  0.318 I  0.358 I  0.311 I
 I                    I         I   11.0 I  279.0 I  314.0 I  272.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.599 I  0.018 I  0.043 I  0.340 I
 I                    I         I  725.0 I   22.0 I   52.0 I  411.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.365 I  0.300 I  0.047 I  0.288 I
 I                    I         I   62.0 I   51.0 I    8.0 I   49.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.300 I  0.440 I  0.256 I  0.004 I
 I                    I         I  382.0 I  560.0 I  325.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	14.60	26.15	0.558	- -	-	0.0	1.3	36.7	
-	0.086	I							
I ARM B	20.15	24.78	0.813	- -	-	0.0	4.2	115.9	
-	0.204	I							
I ARM C	2.83	14.23	0.199	- -	-	0.0	0.2	7.3	
-	0.088	I							
I ARM D	21.20	41.82	0.507	- -	-	0.0	1.0	30.3	
-	0.048	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	14.60	26.13	0.559	- -	-	1.3	1.3	37.8	
-	0.087	I							
I ARM B	20.15	24.75	0.814	- -	-	4.2	4.3	127.7	
-	0.217	I							
I ARM C	2.83	14.13	0.200	- -	-	0.2	0.2	7.5	
-	0.088	I							
I ARM D	21.20	41.73	0.508	- -	-	1.0	1.0	30.9	
-	0.049	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.3	*
08.45	1.3	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	4.2	****
08.45	4.3	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

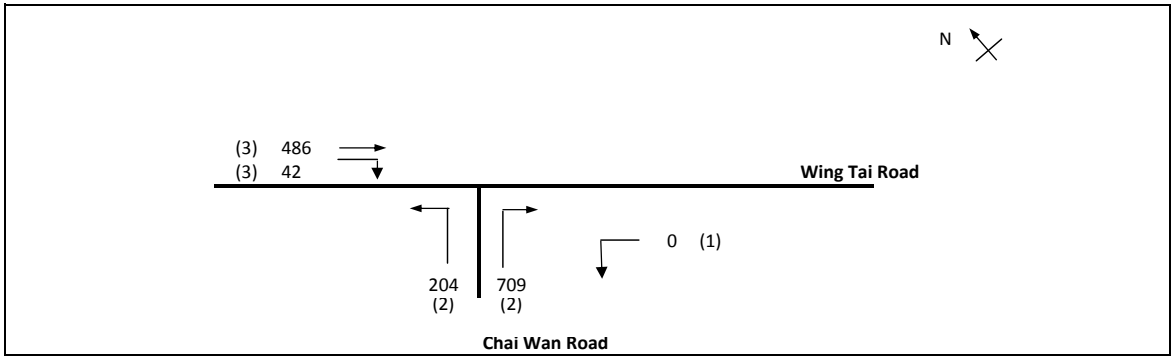
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	876.0	876.0	74.5	0.09	74.6	0.09
B	1209.0	1209.0	243.6	0.20	243.9	0.20
C	169.8	169.8	14.8	0.09	14.8	0.09
D	1272.0	1272.0	61.1	0.05	61.2	0.05
ALL	3526.8	3526.8	394.0	0.11	394.4	0.11

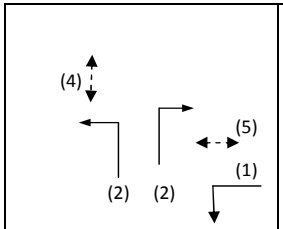
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

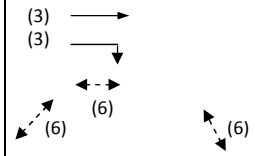
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME J5CM_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.317	
Loss time		L =	10	sec
Total Flow		=	1442	pcu
Co	= (1.5*L+5)/(1-Y)	=	29.3	sec
Cm	= L/(1-Y)	=	14.6	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	159.9	%
Cp	= 0.9*L/(0.9-Y)	=	15.4	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	155.2	%



Stage A I = 7

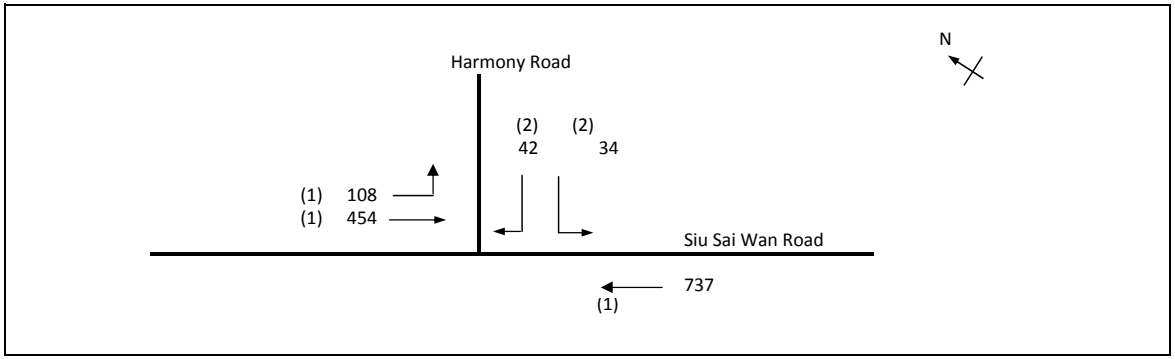


Stage B I = 5

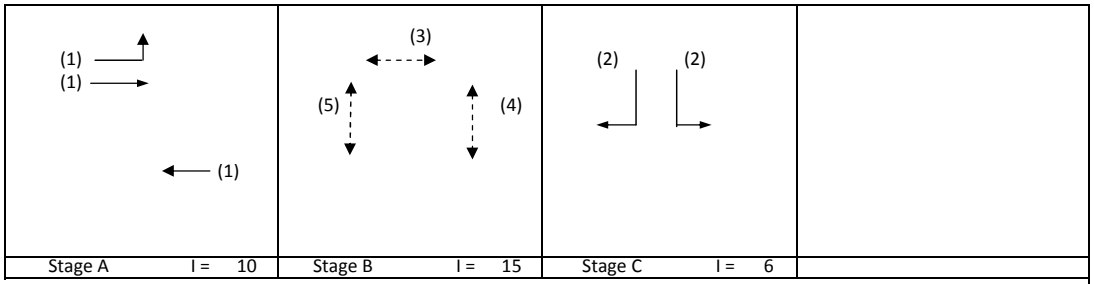
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	0			0	#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!			#DIV/0!	56	#DIV/0!	#DIV/0!	#DIV/0!
LT	A	4.00	2	2	24			4310	204			204	1.00	4056			4056	0.050			14	56	0.090	6	8
RT	A	3.50	2	2	11		y	4070			709	709	1.00	3582			3582	0.198	0.198		56	56	0.353	24	7
ST	B	3.50	3	2			y	4070		486		486	0.00	4070			4070	0.119	0.119		34	34	0.353	24	18
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			3	34	0.033	0	20
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.208	
Loss time	L =	48	sec
Total Flow	=	1375	pcu
Co = (1.5*L+5)/(1-Y)	=	97.2	sec
Cm = L/(1-Y)	=	60.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	159.6	%
Cp = 0.9*L/(0.9-Y)	=	62.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	125.0	%

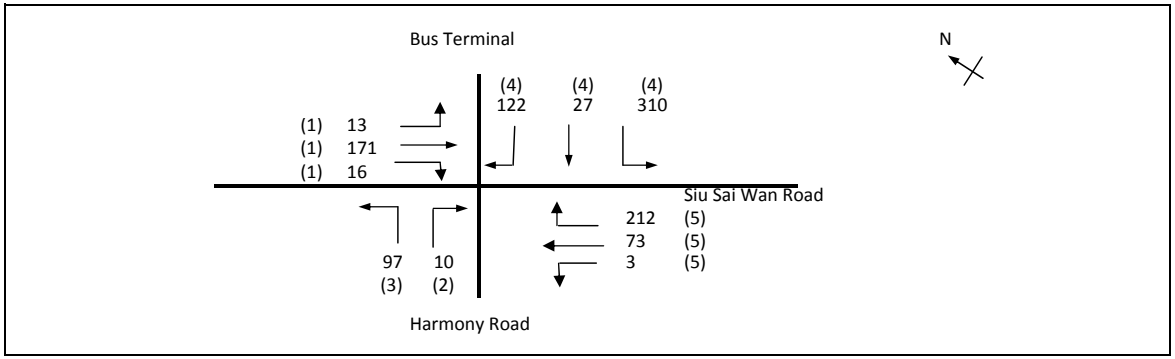


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

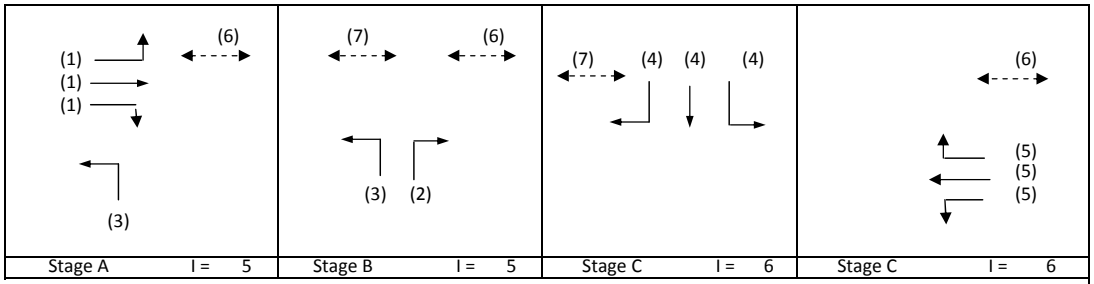
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	108	156		264	0.41	1842			1842	0.143			36	46	0.309	18	12
ST	A	3.20	1	1				2075		298		298	0.00	2075			2075	0.144			36	46	0.310	24	12
ST	A	3.00	1	2			y	3970		737		737	0.00	3970			3970	0.186	0.186		46	46	0.400	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.346	0	48
RT	C	3.75	2	1	12			2130			42	42	1.00	1893			1893	0.022	0.022		6	6	0.400	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME J7_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.361	
Loss time	L =	18	sec
Total Flow	=	1055	pcu
Co = (1.5*L+5)/(1-Y)	=	50.1	sec
Cm = L/(1-Y)	=	28.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	112.1	%
Cp = 0.9*L/(0.9-Y)	=	30.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	106.7	%

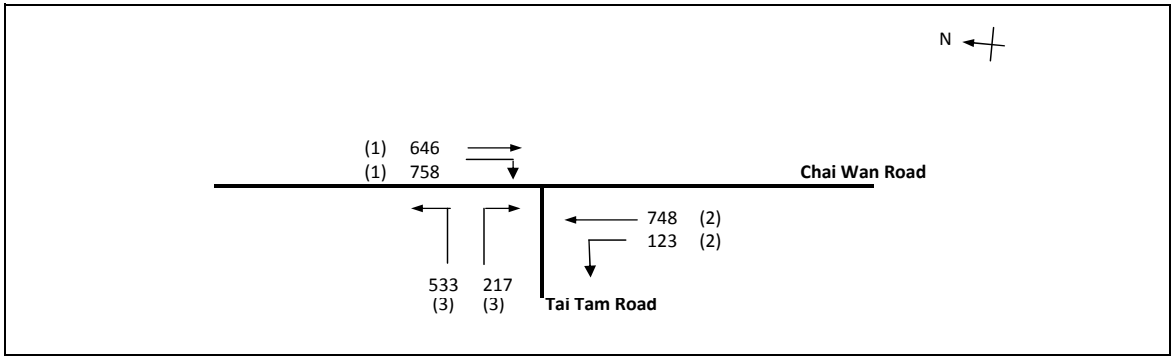


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

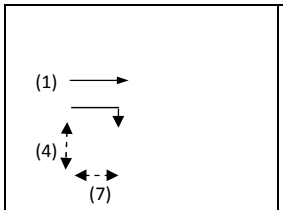
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	13	84		97	0.13	1910			1910	0.051			12	12	0.437	12	41
ST/RT	A	3.30	1	1	12			2085		87	16	104	0.16	2045			2045	0.051	0.051		12	12	0.435	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.435	0	101
LT	A,B	3.75	3	1	13		y	1990	97			97	1.00	1784			1784	0.055			13	18	0.310	12	33
RT	C	3.50	4	1	12			2105			122	122	1.00	1871			1871	0.065			16	46	0.148	6	14
LT/ST	C	3.50	4	1	12		y	1965	310	27		337	0.92	1762			1762	0.191	0.191		46	46	0.435	30	14
ST/RT	D	3.50	5	1	12			2105		0	212	212	1.00	1871			1871	0.113	0.113		27	27	0.435	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	73		76	0.04	1955			1955	0.039			9	9	0.435	12	45
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

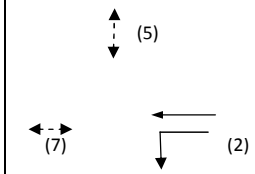
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



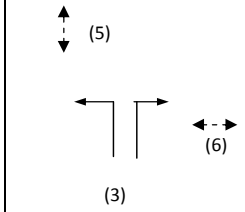
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.777
Loss time		L =	18 sec
Total Flow		=	3025 pcu
Co	= (1.5*L+5)/(1-Y)	=	143.7 sec
Cm	= L/(1-Y)	=	80.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-1.6 %
Cp	= 0.9*L/(0.9-Y)	=	132.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-4.1 %



Stage A I = 7



Stage B I = 8



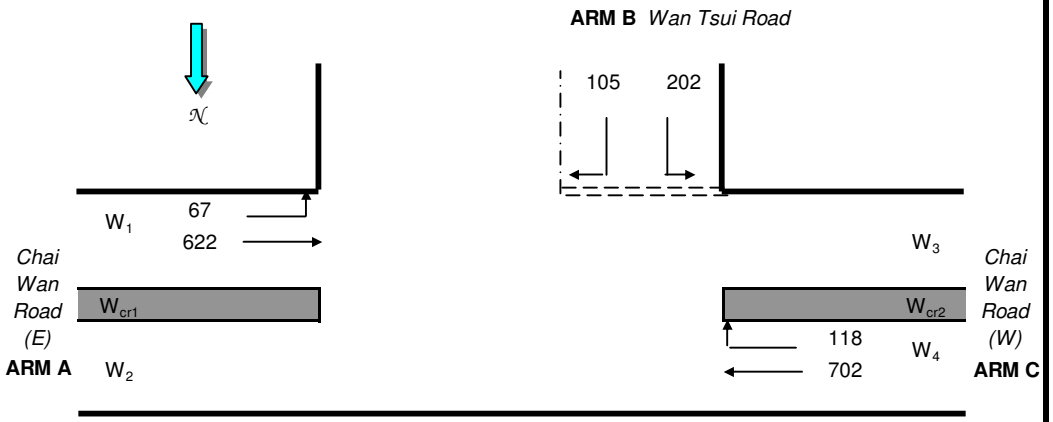
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		646		646	0.00	4070			4070	0.159			18	18	0.938	57	44
RT	A	3.50	1	1	13			2105			758	758	1.00	1887			1887	0.402	0.402		45	18	2.373	108	46
ST	B	3.50	2	2				4210		748		748	0.00	4210			4210	0.178	0.178		20	20	0.938	60	44
LT	B	3.10	2	1	12		y	1925	123			123	1.00	1711			1711	0.072			8	20	0.380	12	32
LT	C	4.00	3	1	15		y	2015	363			363	1.00	1832			1832	0.198	0.198		22	22	0.938	72	36
LT/RT	C	4.00	3	1	15			2155	170		217	387	1.00	1959			1959	0.198			22	22	0.936	78	37
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C	Prepared By:	GK
	Junction Capacity Analysis	Checked By:	

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	67.213	(pcu/hr)
q_{a-c}	=	621.6	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	702.17	(pcu/hr)
q_{c-b}	=	118.27	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	104.55	(pcu/hr)
q_{b-c}	=	201.66	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

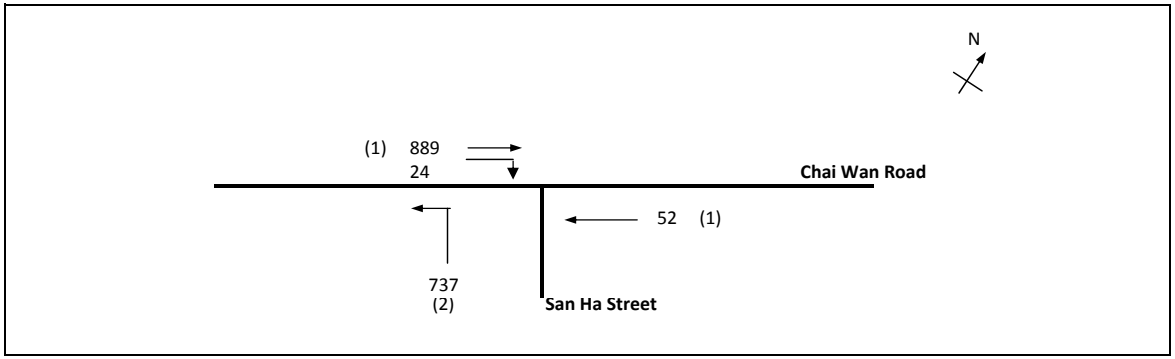
Q_{b-c}	=	742
Q_{c-b}	=	660
Q_{b-a}	=	351

COMPARISION OF DESIGN FLOW TO CAPACITY

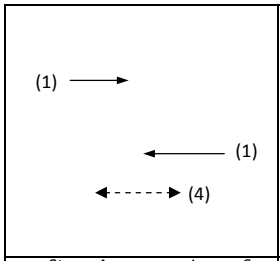
DFC_{b-a}	=	0.298
DFC_{b-c}	=	0.272
DFC_{c-b}	=	0.179

Critical DFC = 0.298

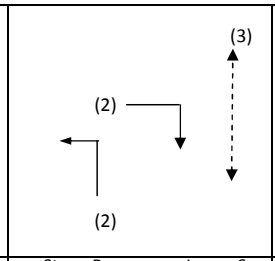
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME 7_J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.661
Loss time		L =	10 sec
Total Flow		=	1702 pcu
Co	= (1.5*L+5)/(1-Y)	=	59.0 sec
Cm	= L/(1-Y)	=	29.5 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	24.8 %
Cp	= 0.9*L/(0.9-Y)	=	37.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22.6 %



Stage A I = 6



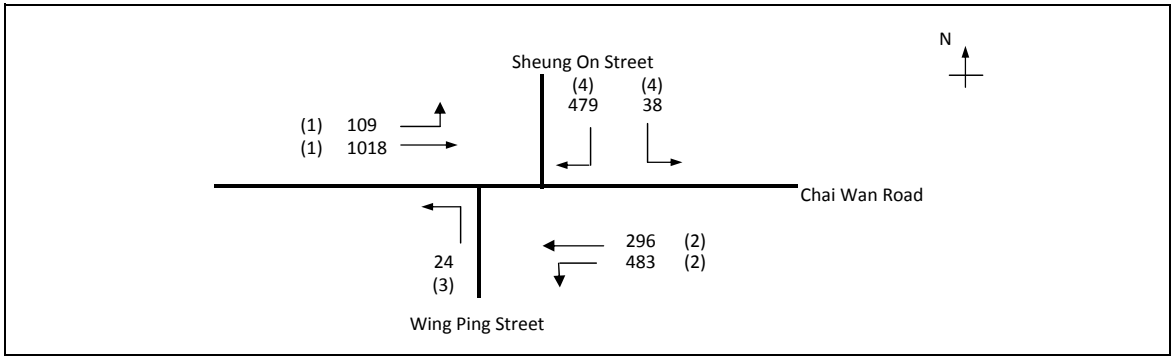
Stage B I = 6

Stage C I =

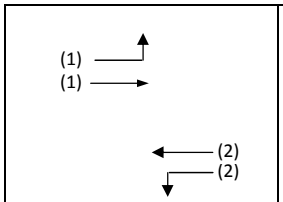
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		889		889	0.00	4070			4070	0.218	0.218		30	47	0.465	39	11
ST	A	3.50	1	2	10		N	4070		52		52	0.00	4070			4070	0.013			2	47	0.027	0	13
LT	B	3.00	2	1	10		N	1915	737			737	1.00	1665			1665	0.442	0.442		60	53	0.835	54	15
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.025	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

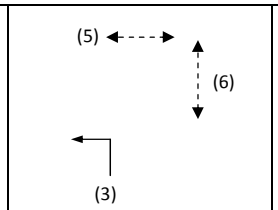
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME	J8(3)(100%SanHaSt).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:		Reviewed By:	OC	3-5-2011



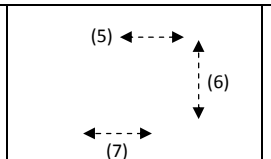
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.367
Loss time		L =	37 sec
Total Flow		=	2448 pcu
Co	= (1.5*L+5)/(1-Y)	=	95.6 sec
Cm	= L/(1-Y)	=	58.5 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	69.5 %
Cp	= 0.9*L/(0.9-Y)	=	62.5 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	69.5 %



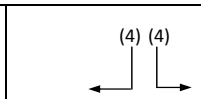
Stage A I = 8



Stage B I = 5



Stage C I = 7



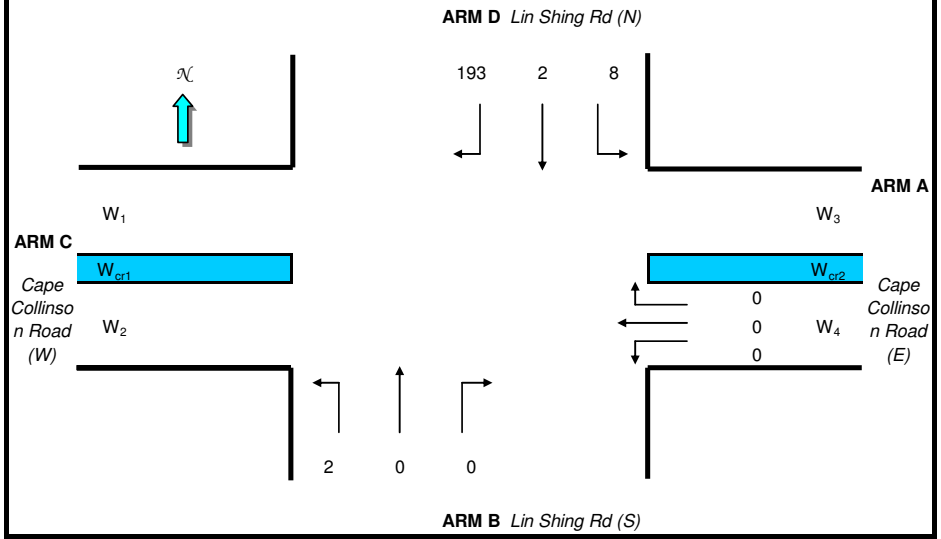
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	109	1018		1128	0.10	6101			6101	0.185			42		0.000	74	54
LT/ST	A	3.30	2	2	12		Y	4030	483	296		779	0.62	3740			3740	0.208	0.208		47		0.000	75	54
LT	B	3.50	3	1	9		Y	1965	24			24	1.00	1684			1684	0.015	0.015		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	38		479	517	1.00	3583			3583	0.144	0.144		33		0.000	51	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

2016, 2021, 2026
Option 2 Special
Traffic Plan Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.05753	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.23012	(pcu/hr)
q_{d-b}	=	2.05753	(pcu/hr)
q_{d-c}	=	192.894	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

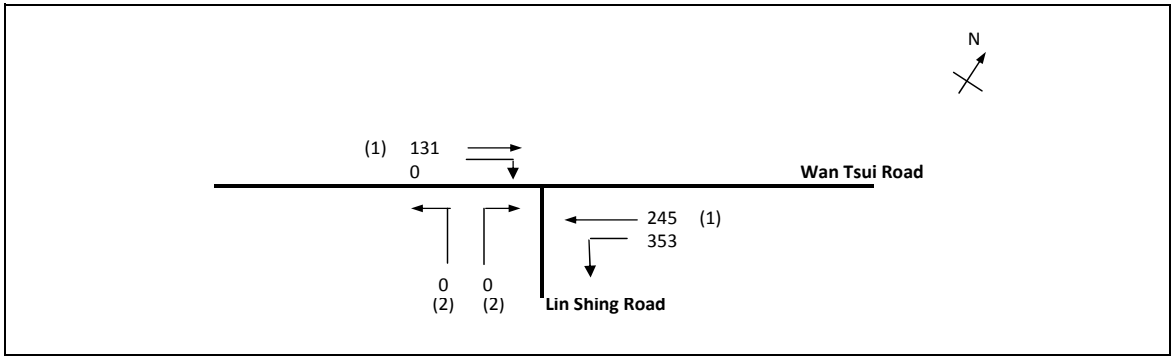
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

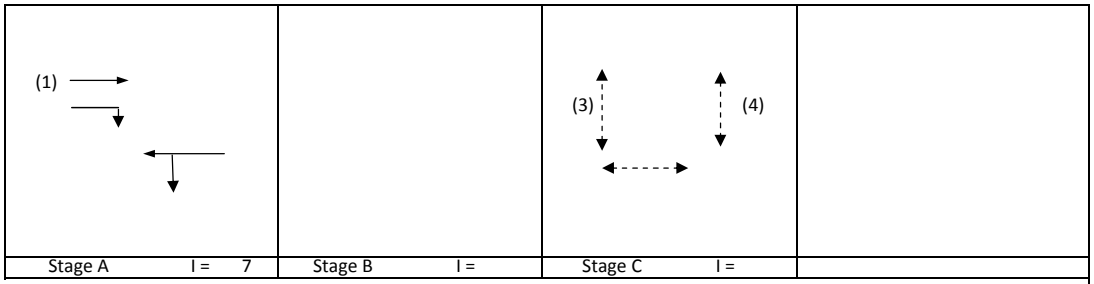
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.372
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.372

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.323	
Loss time		L =	65	sec
Total Flow		=	728	pcu
Co	= (1.5*L+5)/(1-Y)	=	151.3	sec
Cm	= L/(1-Y)	=	96.0	sec
Yult		=	0.413	
R.C.ult	= (Yult-Y)/Y*100%	=	27.9	%
Cp	= 0.9*L/(0.9-Y)	=	101.3	sec
Ymax	= 1-L/C	=	0.458	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	27.9	%



Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		131		131	0.00	1915			1915	0.068			12	55	0.149	12	15
ST/LT	A	4.00	1	1	10		N	2015	353	245		597	0.59	1851			1851	0.323	0.323		55	55	0.704	60	15
Ped	B	6.0	3									5709		7200						60					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

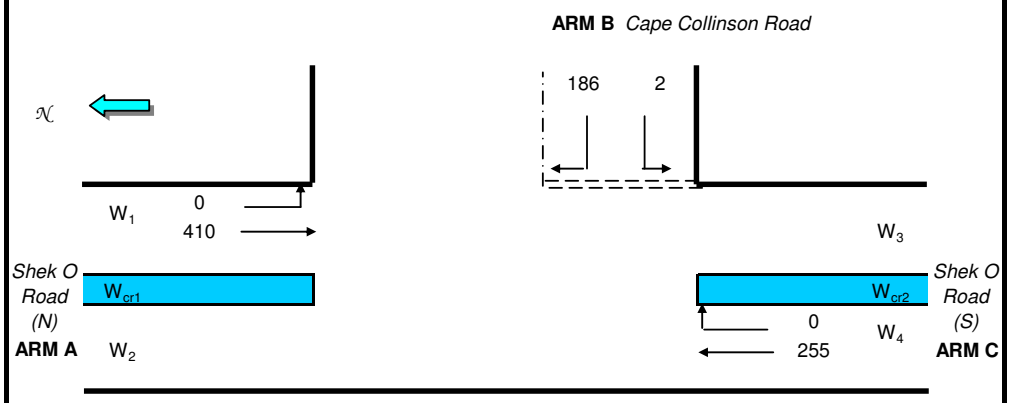
Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

Junction Capacity Analysis

Prepared By:	GK
Checked By:	

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	255	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	186	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	637
Q_{c-b}	=	710
Q_{b-a}	=	301

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.617
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.617

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

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Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

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Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2016\2016_J4.vai"
(drive-on-the-left) at 09:22:38 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2016_CM_S1_J4

DEMAND SET TITLE: 2016_CM_S1_J4

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.012	0.305	0.368	0.315
		10.0	252.0	304.0	260.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.598	0.019	0.044	0.340
		674.0	21.0	50.0	383.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.373	0.307	0.042	0.277
		62.0	51.0	7.0	46.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.299	0.438	0.259	0.004
		364.0	534.0	315.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	13.76	26.67	0.516	- -	-	0.0	1.1	31.1	
-	0.077	I							
I ARM B	18.79	25.22	0.745	- -	-	0.0	2.9	81.3	
-	0.151	I							
I ARM C	2.77	15.19	0.182	- -	-	0.0	0.2	6.6	
-	0.080	I							
I ARM D	20.31	42.72	0.475	- -	-	0.0	0.9	26.8	
-	0.044	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	13.76	26.65	0.516	- -	-	1.1	1.1	31.9	
-	0.078	I							
I ARM B	18.79	25.20	0.746	- -	-	2.9	2.9	86.6	
-	0.156	I							
I ARM C	2.77	15.13	0.183	- -	-	0.2	0.2	6.7	
-	0.081	I							
I ARM D	20.31	42.65	0.476	- -	-	0.9	0.9	27.2	
-	0.045	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.1	*
08.45	1.1	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.9	***
08.45	2.9	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.9	*
08.45	0.9	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

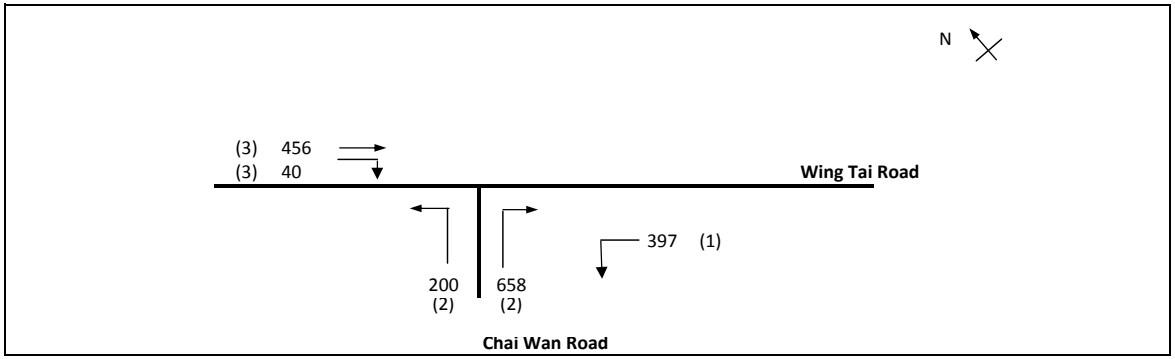
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	825.6	825.6	63.0	0.08	63.0	0.08
B	1127.4	1127.4	167.9	0.15	168.1	0.15
C	166.2	166.2	13.3	0.08	13.3	0.08
D	1218.6	1218.6	53.9	0.04	54.0	0.04
ALL	3337.8	3337.8	298.2	0.09	298.4	0.09

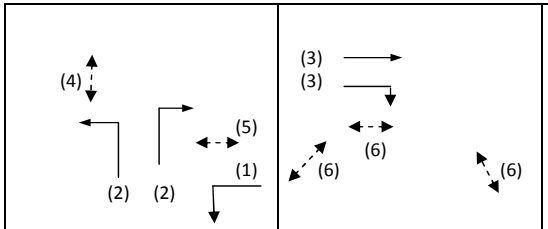
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.296
Loss time		L =	10 sec
Total Flow		=	1752 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.4 sec
Cm	= L/(1-Y)	=	14.2 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	178.8 %
Cp	= 0.9*L/(0.9-Y)	=	14.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	173.7 %



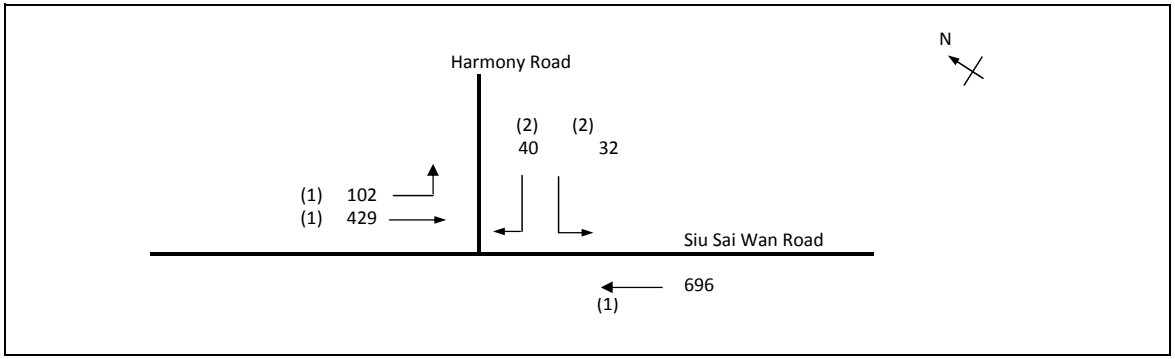
Stage A I = 7

Stage B I = 5

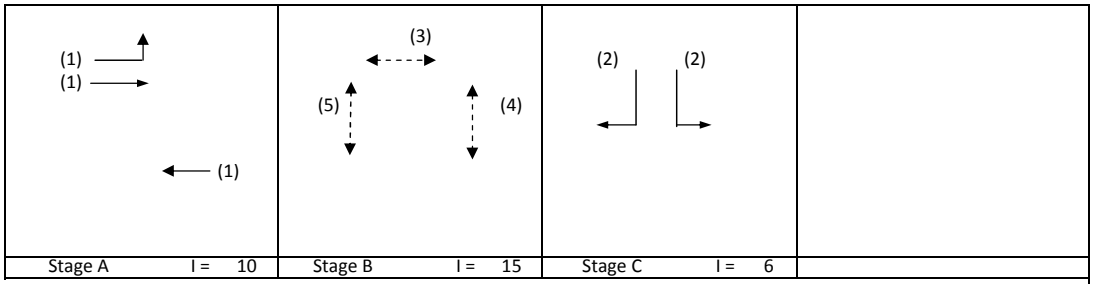
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	397			397	1.00	3857			3857	0.103			31	56	0.184	12	8
LT	A	4.00	2	2	24			4310	200			200	1.00	4056			4056	0.049			15	56	0.088	6	8
RT	A	3.50	2	2	11		y	4070			658	658	1.00	3582			3582	0.184	0.184		56	56	0.329	24	8
ST	B	3.50	3	2			y	4070		456		456	0.00	4070			4070	0.112	0.112		34	34	0.329	24	18
RT	B	4.50	3	2	13		y	4270			40	40	1.00	3828			3828	0.010			3	34	0.031	0	19
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.197	
Loss time	L =	48	sec
Total Flow	=	1300	pcu
Co = (1.5*L+5)/(1-Y)	=	95.8	sec
Cm = L/(1-Y)	=	59.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	174.7	%
Cp = 0.9*L/(0.9-Y)	=	61.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	138.1	%

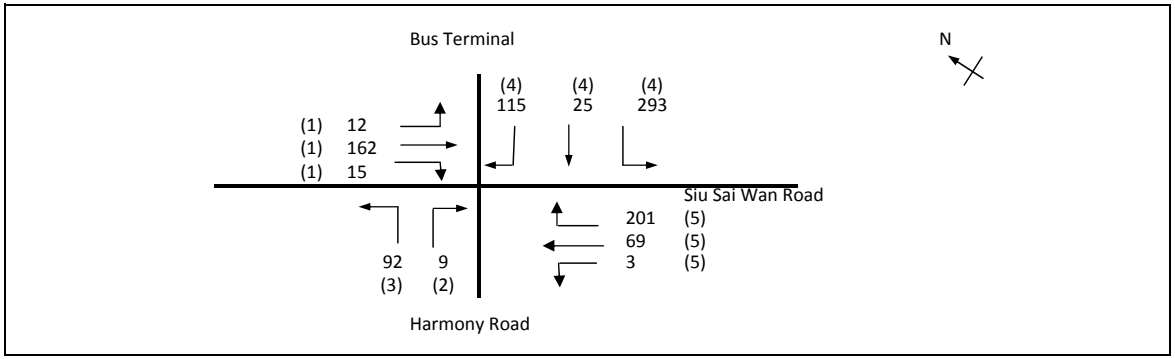


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

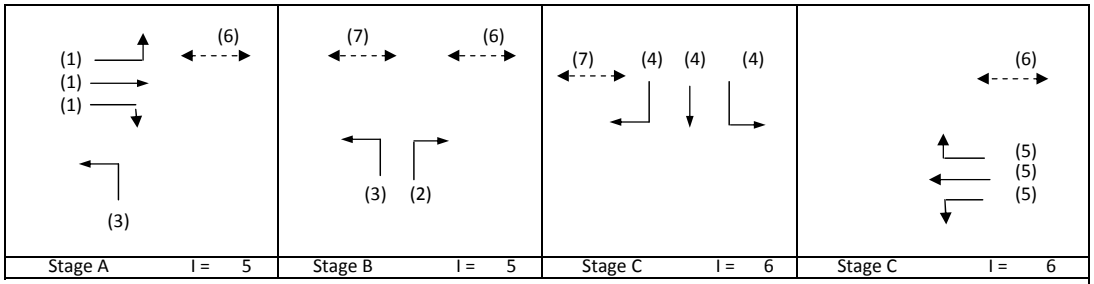
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	148		250	0.41	1843			1843	0.136			36	46	0.292	18	12
ST	A	3.20	1	1				2075		281		281	0.00	2075			2075	0.135			36	46	0.292	24	12
ST	A	3.00	1	2			y	3970		696		696	0.00	3970			3970	0.175	0.175		46	46	0.378	30	11
LT	C	3.75	2	1	12		y	1990	32			32	1.00	1769			1769	0.018			5	6	0.327	0	47
RT	C	3.75	2	1	12			2130			40	40	1.00	1893			1893	0.021	0.021		6	6	0.378	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



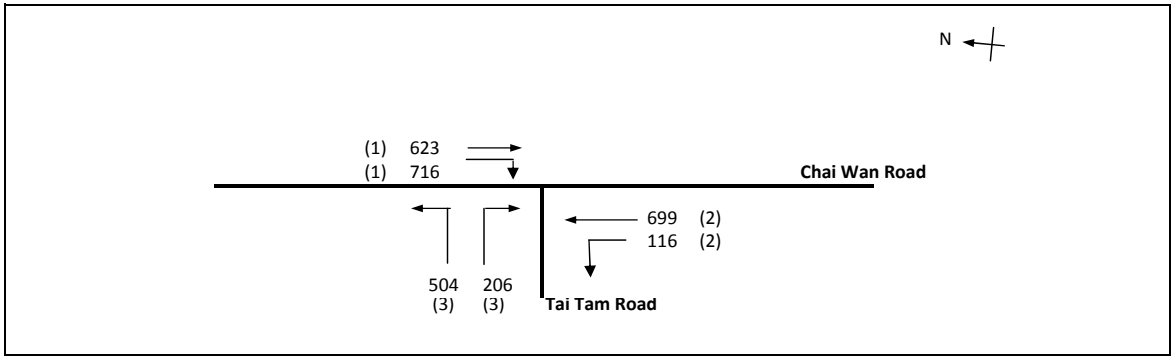
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.341	
Loss time	L =	18	sec
Total Flow	=	997	pcu
Co = (1.5*L+5)/(1-Y)	=	48.6	sec
Cm = L/(1-Y)	=	27.3	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	124.3	%
Cp = 0.9*L/(0.9-Y)	=	29.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	118.7	%



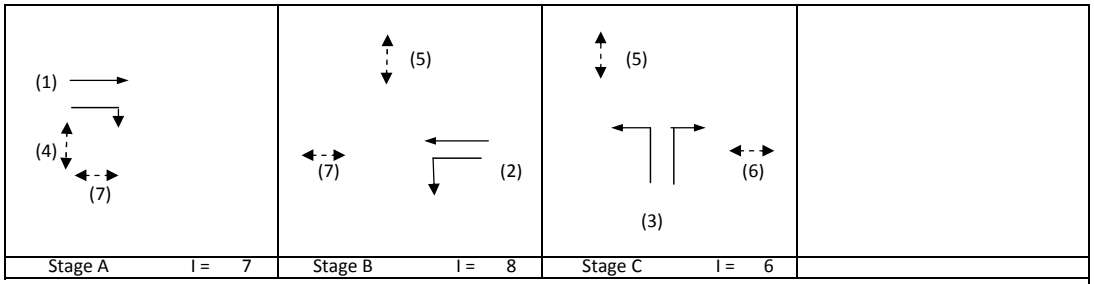
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.14	1910			1910	0.048			12	12	0.410	12	40
ST/RT	A	3.30	1	1	12			2085		83	15	98	0.15	2045			2045	0.048	0.048		12	12	0.412	12	40
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
LT	A,B	3.75	3	1	13		y	1990	92			92	1.00	1784			1784	0.052			13	19	0.293	12	33
RT	C	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.061			16	46	0.140	6	14
LT/ST	C	3.50	4	1	12		y	1965	293	25		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
ST/RT	D	3.50	5	1	12			2105		0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	69		71	0.04	1955			1955	0.037			9	9	0.412	6	44
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.734
Loss time		L =	18 sec
Total Flow		=	2866 pcu
Co	= (1.5*L+5)/(1-Y)	=	120.4 sec
Cm	= L/(1-Y)	=	67.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	4.2 %
Cp	= 0.9*L/(0.9-Y)	=	97.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	1.6 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		623		623	0.00	4070			4070	0.153			18	18	0.886	45	43
RT	A	3.50	1	1	13			2105			716	716	1.00	1887			1887	0.380	0.380		45	18	2.198	102	45
ST	B	3.50	2	2				4210		699		699	0.00	4210			4210	0.166	0.166		20	20	0.886	48	43
LT	B	3.10	2	1	12		y	1925	116			116	1.00	1711			1711	0.068			8	20	0.362	12	32
LT	C	4.00	3	1	15		y	2015	341			341	1.00	1832			1832	0.186			22	22	0.886	54	36
LT/RT	C	4.00	3	1	15			2155	163		206	369	1.00	1959			1959	0.189	0.189		22	22	0.896	60	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

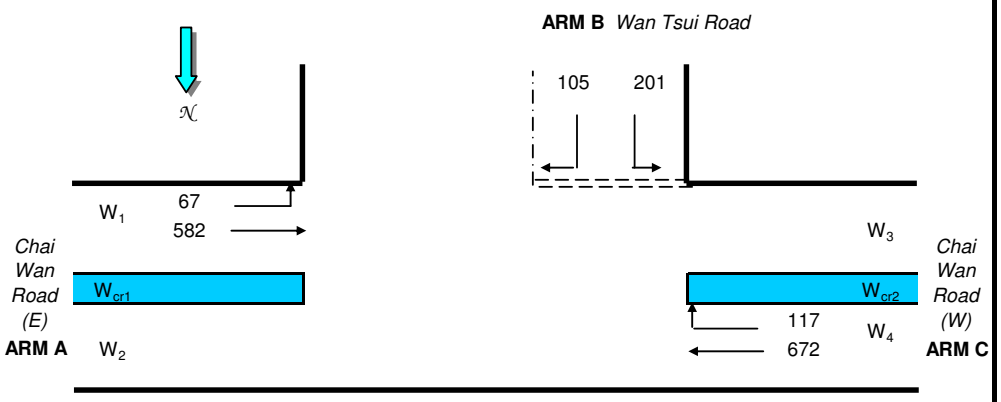
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape Collinson Road, Chai Wan - Junction Capacity Analysis

Prepared By:	GK
Checked By:	OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	66.6272	(pcu/hr)
q_{a-c}	=	581.966	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	672.41	(pcu/hr)
q_{c-b}	=	117.459	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	105.403	(pcu/hr)
q_{b-c}	=	201.162	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

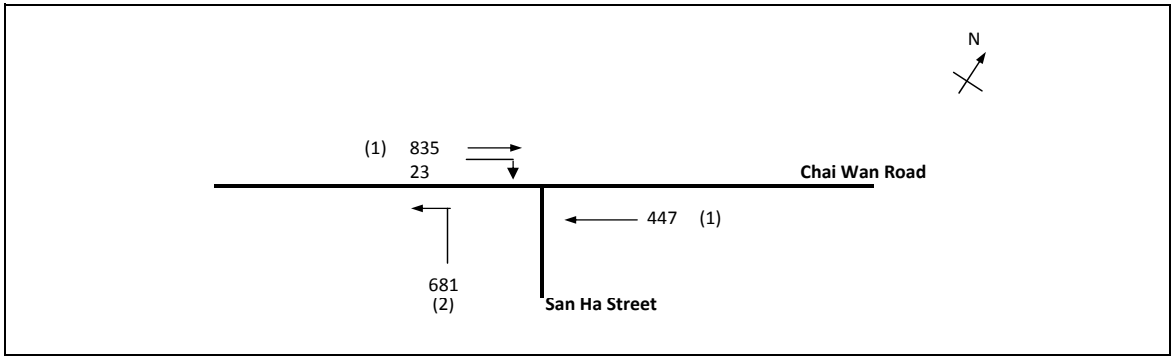
Q_{b-c}	=	748
Q_{c-b}	=	665
Q_{b-a}	=	356

COMPARISION OF DESIGN FLOW TO CAPACITY

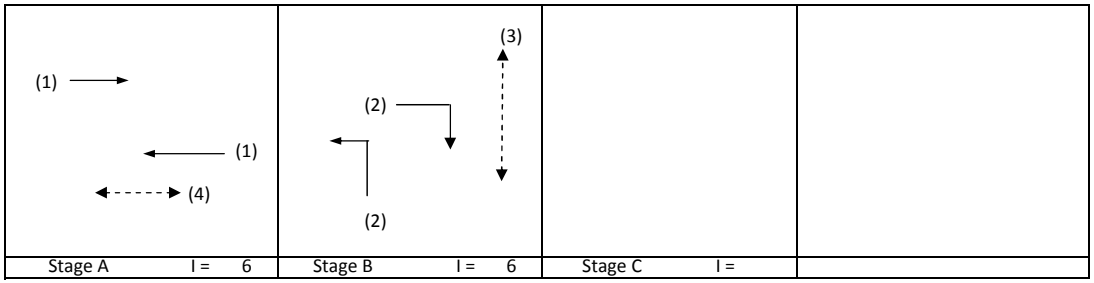
DFC_{b-a}	=	0.296
DFC_{b-c}	=	0.269
DFC_{c-b}	=	0.177

Critical DFC = 0.296

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.614
Loss time		L =	10 sec
Total Flow		=	1986 pcu
Co	= (1.5*L+5)/(1-Y)	=	51.8 sec
Cm	= L/(1-Y)	=	25.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	34.4 %
Cp	= 0.9*L/(0.9-Y)	=	31.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	31.9 %

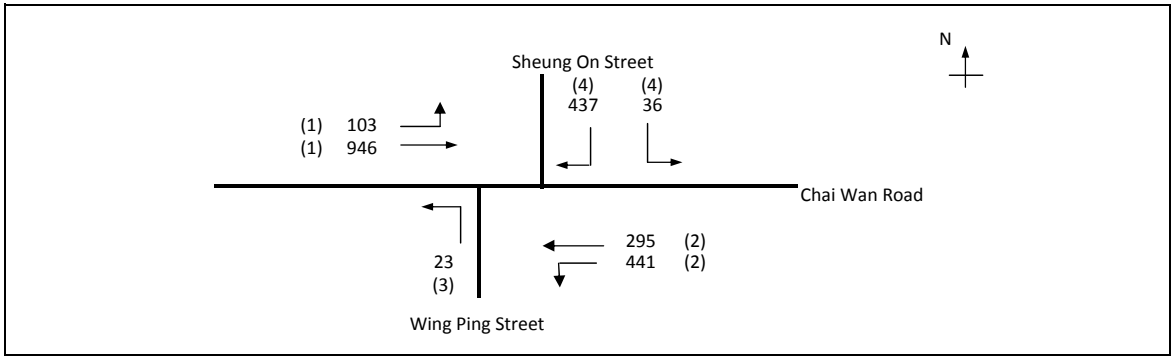


Stage A	I = 6	Stage B	I = 6	Stage C	I =

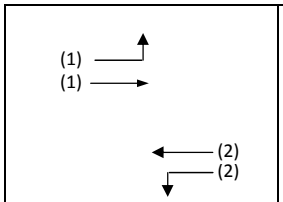
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		835		835	0.00	4070			4070	0.205	0.205		30	47	0.437	36	11
ST	A	3.50	1	2	10		N	4070		447		447	0.00	4070			4070	0.110			16	47	0.234	18	12
LT	B	3.00	2	1	10		N	1915	681			681	1.00	1665			1665	0.409	0.409		60	53	0.771	48	12
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

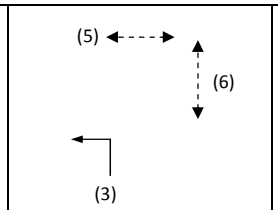
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2016 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



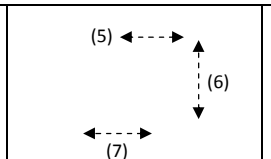
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.342
Loss time		L =	37 sec
Total Flow		=	2282 pcu
Co	= (1.5*L+5)/(1-Y)	=	92.0 sec
Cm	= L/(1-Y)	=	56.2 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	81.9 %
Cp	= 0.9*L/(0.9-Y)	=	59.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	81.9 %



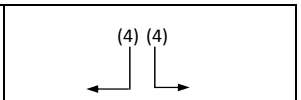
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

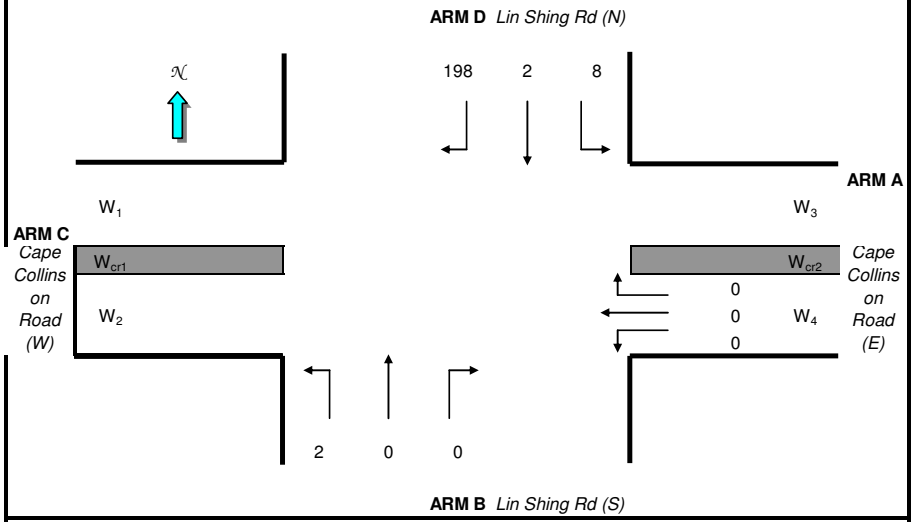
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	103	946		1049	0.10	6100			6100	0.172			42		0.000	68	54
LT/ST	A	3.30	2	2	12		Y	4030	441	295		736	0.60	3749			3749	0.196	0.196		48		0.000	72	54
LT	B	3.50	3	1	9		Y	1965	23			23	1.00	1684			1684	0.014	0.014		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	36		437	473	1.00	3583			3583	0.132	0.132		32		0.000	45	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow | **Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C** | **Prepared By:** GK

Junction Capacity Analysis | **Checked By:** OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1167	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4669	(pcu/hr)
q_{d-b}	=	2.1167	(pcu/hr)
q_{d-c}	=	197.84	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

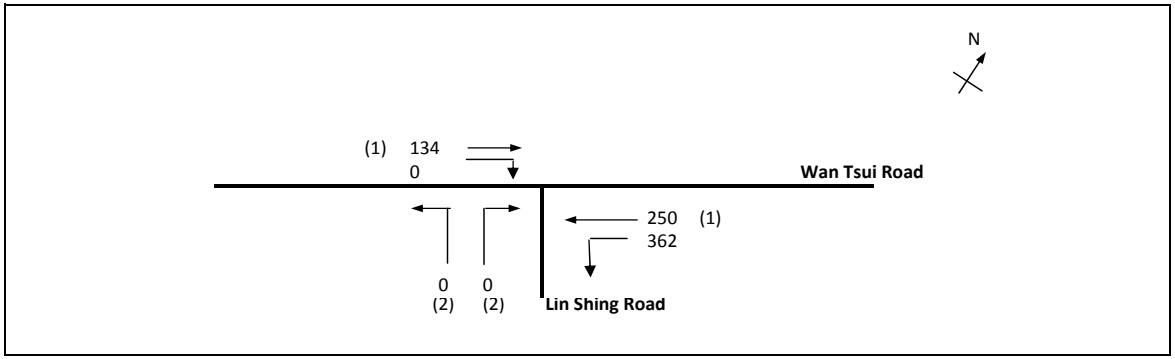
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

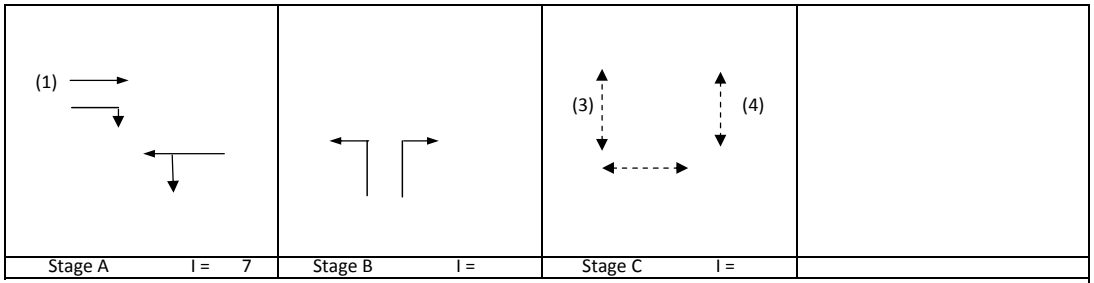
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.382
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.382

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.331	
Loss time		L =	65	sec
Total Flow		=	746	pcu
Co	= (1.5*L+5)/(1-Y)	=	153.2	sec
Cm	= L/(1-Y)	=	97.1	sec
Yult		=	0.413	
R.C.ult	= (Yult-Y)/Y*100%	=	24.7	%
Cp	= 0.9*L/(0.9-Y)	=	102.8	sec
Ymax	= 1-L/C	=	0.458	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24.7	%

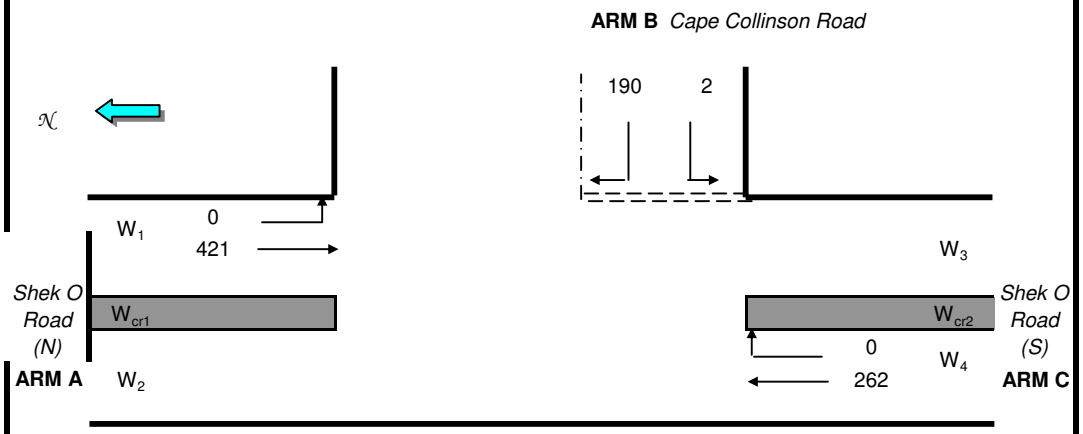


Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		134		134	0.00	1915			1915	0.070			12	55	0.152	12	15
ST/LT	A	4.00	1	1	10		N	2015	362	250		612	0.59	1851			1851	0.331	0.331		55	55	0.722	66	16
Ped	B	6.0	3									5709		7200						60					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	421.116	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	262.128	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	190.217	(pcu/hr)
q_{b-c}	=	1.99061	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	298

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.638
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.638

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4.vai"
(drive-on-the-left) at 09:35:31 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S1


 DEMAND SET TITLE:  2021_CM_J4_S1
.------------------------------------------------------------------------ T33
 I                    I         TURNING PROPORTIONS                      I
 I                    I         TURNING COUNTS                           I
 I                    I        (PERCENTAGE OF H.V.S)                     I
 I                    ---------------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.013 I  0.305 I  0.367 I  0.314 I
 I                    I         I   11.0 I  259.0 I  312.0 I  267.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.598 I  0.018 I  0.044 I  0.339 I
 I                    I         I  693.0 I   21.0 I   51.0 I  393.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.373 I  0.308 I  0.041 I  0.278 I
 I                    I         I   63.0 I   52.0 I    7.0 I   47.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.299 I  0.438 I  0.258 I  0.004 I
 I                    I         I  374.0 I  548.0 I  323.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	14.13	26.34	0.536	- -	-	0.0	1.2	33.7	
-	0.081	I							
I ARM B	19.30	24.91	0.775	- -	-	0.0	3.4	94.2	
-	0.172	I							
I ARM C	2.84	14.80	0.192	- -	-	0.0	0.2	7.0	
-	0.084	I							
I ARM D	20.85	42.33	0.493	- -	-	0.0	1.0	28.6	
-	0.046	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	14.13	26.32	0.537	- -	-	1.2	1.2	34.6	
-	0.082	I							
I ARM B	19.30	24.89	0.776	- -	-	3.4	3.4	101.6	
-	0.179	I							
I ARM C	2.84	14.73	0.193	- -	-	0.2	0.2	7.1	
-	0.084	I							
I ARM D	20.85	42.25	0.494	- -	-	1.0	1.0	29.1	
-	0.047	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.2	*
08.45	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.4	***
08.45	3.4	***

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.2	
08.45	0.2	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

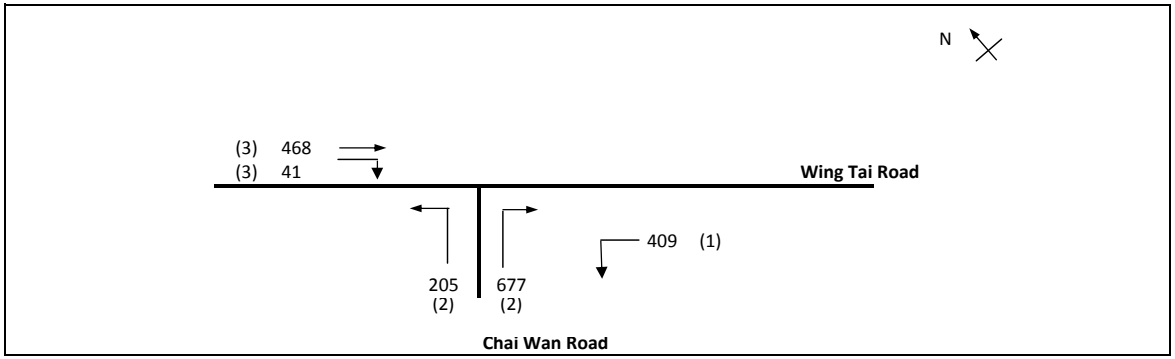
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	847.8	847.8	68.3	0.08	68.4	0.08
B	1158.0	1158.0	195.7	0.17	196.0	0.17
C	170.4	170.4	14.1	0.08	14.1	0.08
D	1251.0	1251.0	57.8	0.05	57.8	0.05
ALL	3427.2	3427.2	335.9	0.10	336.2	0.10

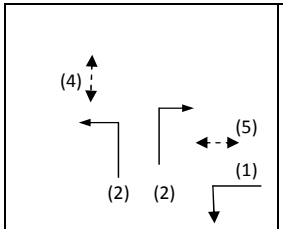
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

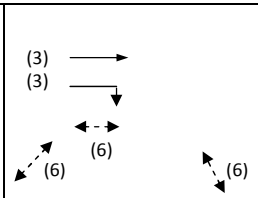
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.304
Loss time		L =	10 sec
Total Flow		=	1799 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.7 sec
Cm	= L/(1-Y)	=	14.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	171.5 %
Cp	= 0.9*L/(0.9-Y)	=	15.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	166.5 %



Stage A I = 7

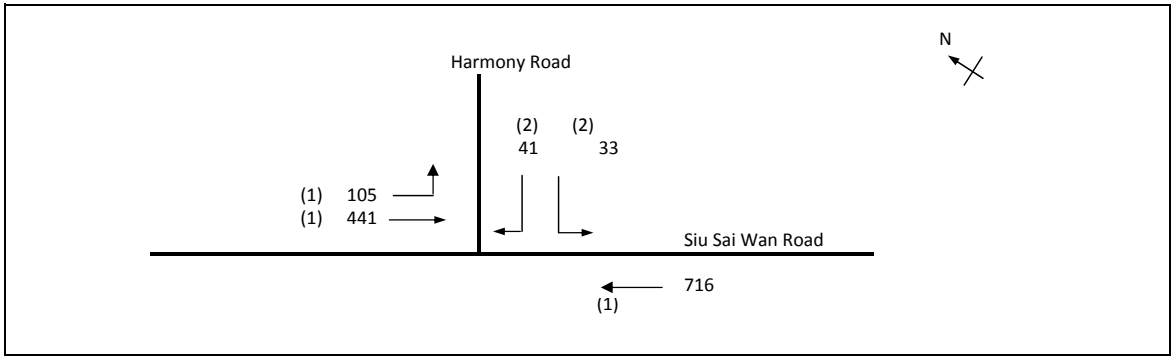


Stage B I = 5

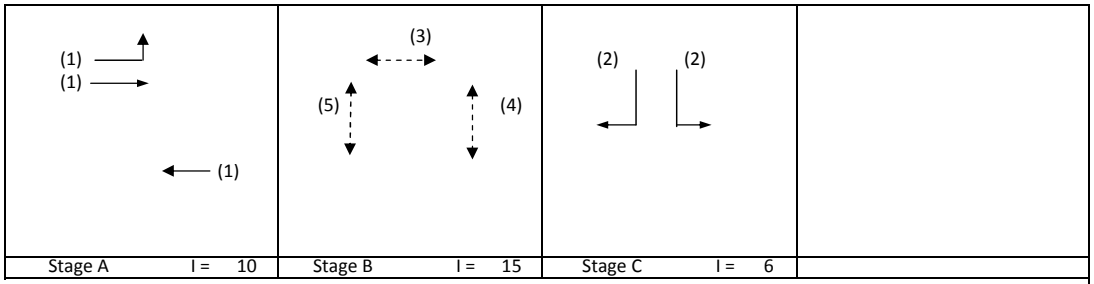
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	409			409	1.00	3857			3857	0.106			31	56	0.189	12	8
LT	A	4.00	2	2	24			4310	205			205	1.00	4056			4056	0.051			15	56	0.090	6	8
RT	A	3.50	2	2	11		y	4070			677	677	1.00	3582			3582	0.189	0.189		56	56	0.338	24	7
ST	B	3.50	3	2			y	4070		468		468	0.00	4070			4070	0.115	0.115		34	34	0.338	24	18
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			3	34	0.032	0	19
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	96.5	sec
Cm = L/(1-Y)	=	60.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	167.0	%
Cp = 0.9*L/(0.9-Y)	=	61.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	131.4	%

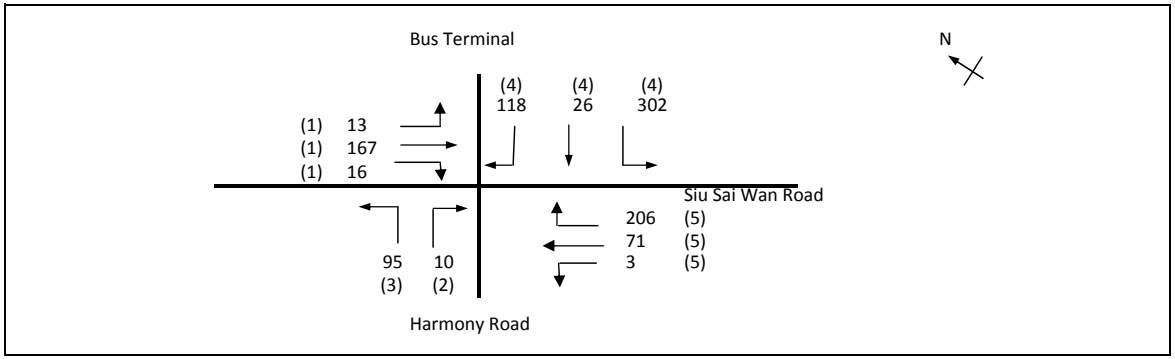


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

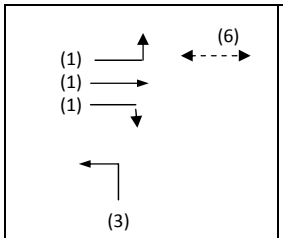
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1842			1842	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.301	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.336	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

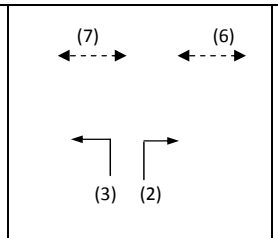
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



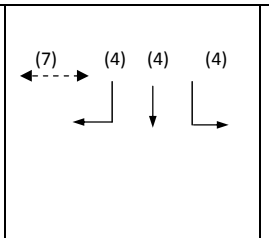
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.351
Loss time		L =	18 sec
Total Flow		=	1025 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.3 sec
Cm	= L/(1-Y)	=	27.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	118.0 %
Cp	= 0.9*L/(0.9-Y)	=	29.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	112.5 %



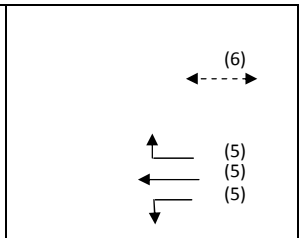
Stage A I = 5



Stage B I = 5



Stage C I = 6

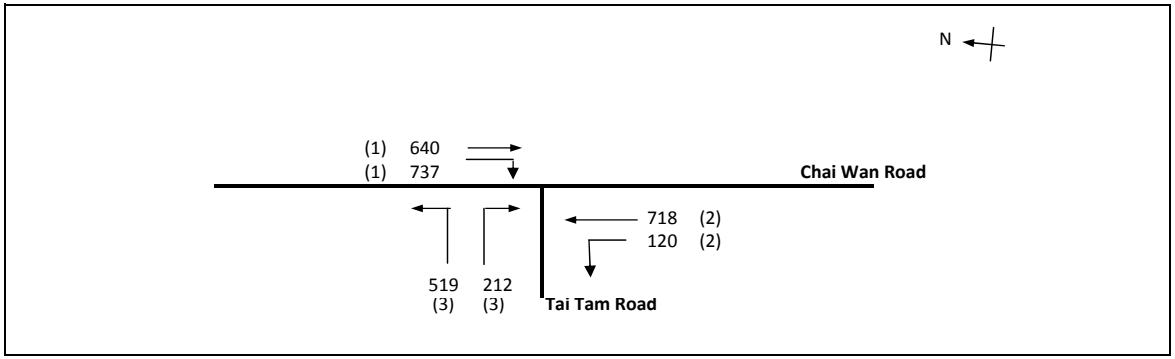


Stage C I = 6

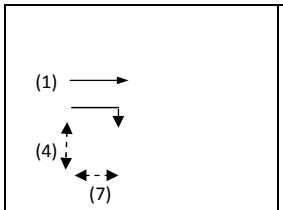
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.420	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	101	0.15	2046			2046	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	33
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	302	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1955			1955	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

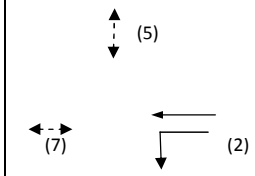
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



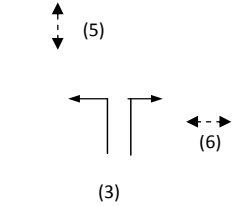
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.754
Loss time		L =	18 sec
Total Flow		=	2945 pcu
Co	= (1.5*L+5)/(1-Y)	=	130.0 sec
Cm	= L/(1-Y)	=	73.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	1.5 %
Cp	= 0.9*L/(0.9-Y)	=	110.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-1.1 %



Stage A I = 7



Stage B I = 8

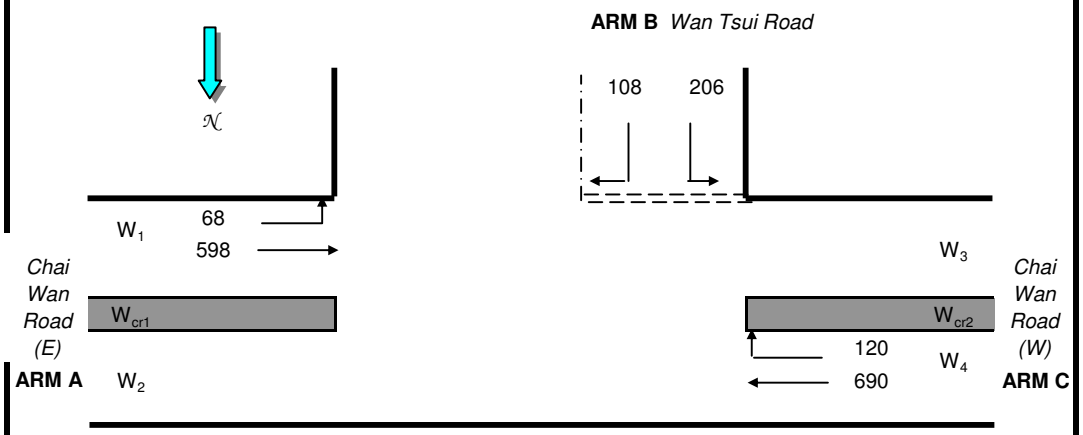


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		640		640	0.00	4070			4070	0.157			18	18	0.910	48	44
RT	A	3.50	1	1	13			2105			737	737	1.00	1887			1887	0.390	0.390		45	18	2.259	102	45
ST	B	3.50	2	2				4210		718		718	0.00	4210			4210	0.171	0.171		20	20	0.910	51	43
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			8	20	0.373	12	32
LT	C	4.00	3	1	15		y	2015	353			353	1.00	1832			1832	0.192			22	22	0.910	60	36
LT/RT	C	4.00	3	1	15			2155	166		212	378	1.00	1959			1959	0.193	0.193		22	22	0.912	66	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	68.2295	(pcu/hr)
q_{a-c}	=	598.007	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	690.108	(pcu/hr)
q_{c-b}	=	120.282	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	107.905	(pcu/hr)
q_{b-c}	=	205.939	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	745
Q_{c-b}	=	663
Q_{b-a}	=	354

COMPARISION OF DESIGN FLOW TO CAPACITY

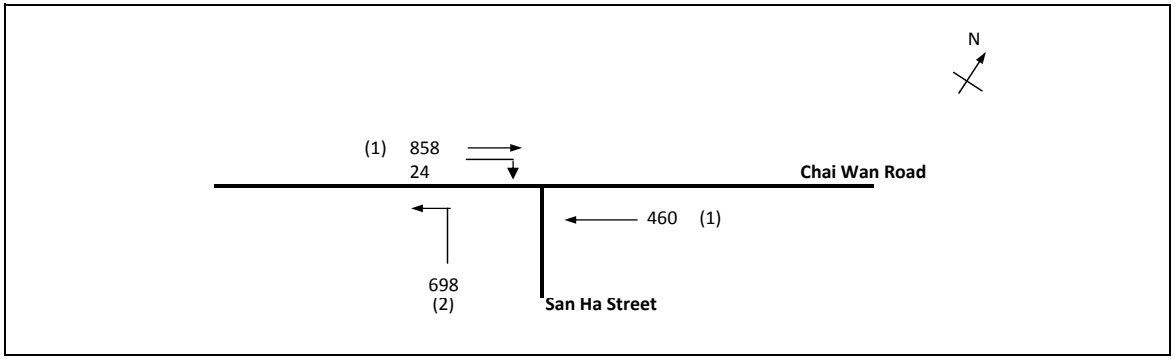
DFC_{b-a}	=	0.305
DFC_{b-c}	=	0.276
DFC_{c-b}	=	0.181

Critical DFC = 0.305

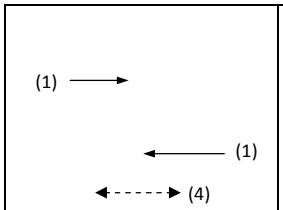
REMARK: (GEOMETRIC INPUT DATA)

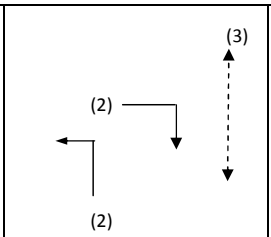
W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.630	
Loss time		L =	10	sec
Total Flow		=	2040	pcu
Co	= (1.5*L+5)/(1-Y)	=	54.1	sec
Cm	= L/(1-Y)	=	27.0	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	30.9	%
Cp	= 0.9*L/(0.9-Y)	=	33.3	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.6	%



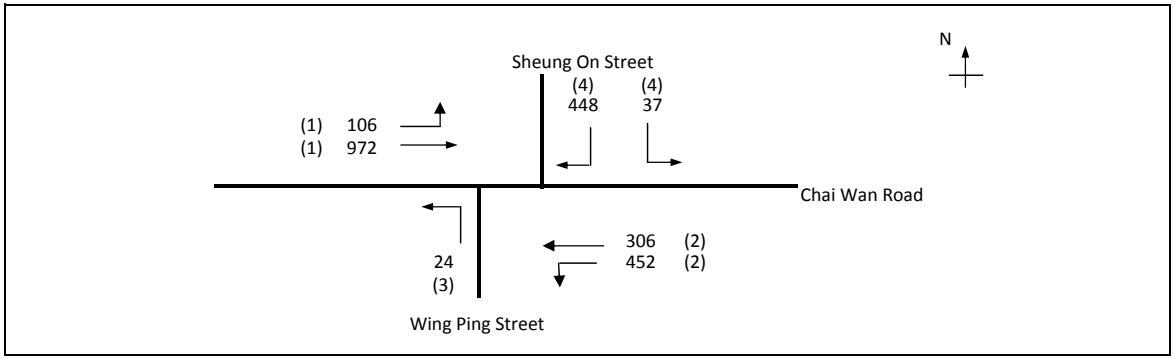


Stage A	I = 6	Stage B	I = 6	Stage C	I =

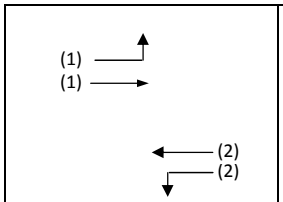
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		858		858	0.00	4070			4070	0.211	0.211		30	47	0.448	36	11
ST	A	3.50	1	2	10		N	4070		460		460	0.00	4070			4070	0.113			16	47	0.240	18	11
LT	B	3.00	2	1	10		N	1915	698			698	1.00	1665			1665	0.419	0.419		60	53	0.791	54	13
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.024	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

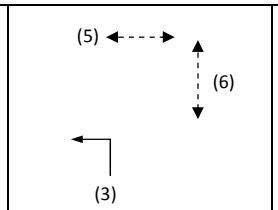
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



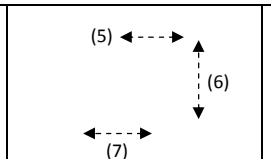
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.351
Loss time		L =	37 sec
Total Flow		=	2344 pcu
Co	= (1.5*L+5)/(1-Y)	=	93.3 sec
Cm	= L/(1-Y)	=	57.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	77.2 %
Cp	= 0.9*L/(0.9-Y)	=	60.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	77.2 %



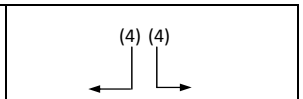
Stage A I = 8



Stage B I = 5



Stage C I = 7

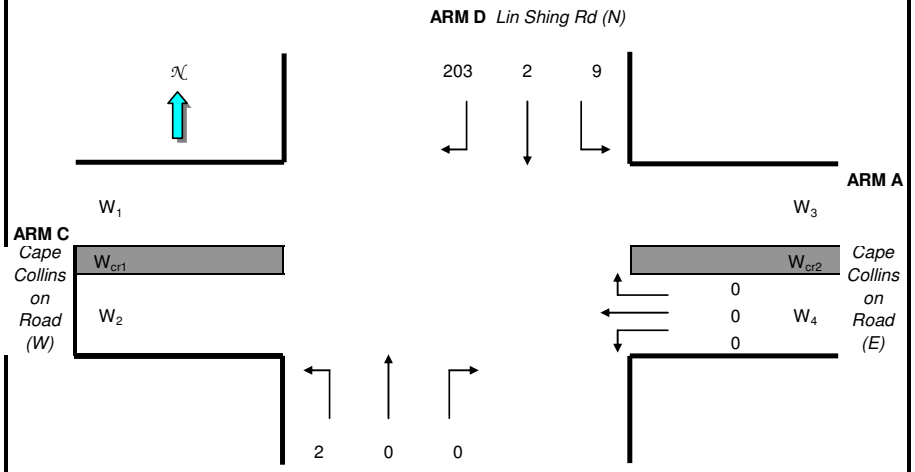


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	106	972		1078	0.10	6100			6100	0.177			42		0.000	70	54
LT/ST	A	3.30	2	2	12		Y	4030	452	306		758	0.60	3750			3750	0.202	0.202		48		0.000	75	54
LT	B	3.50	3	1	9		Y	1965	24			24	1.00	1684			1684	0.014	0.014		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	37		448	485	1.00	3583			3583	0.135	0.135		32		0.000	48	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1776	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.7104	(pcu/hr)
q_{d-b}	=	2.1776	(pcu/hr)
q_{d-c}	=	202.92	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

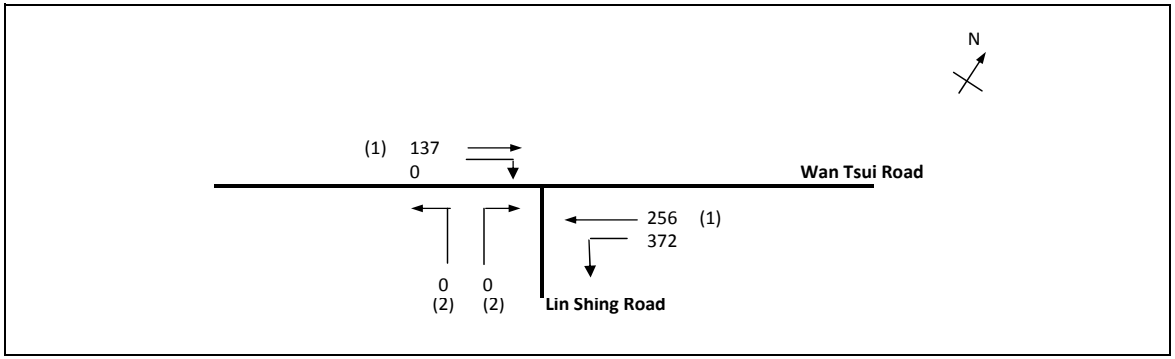
Q_{b-a}	=	618
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

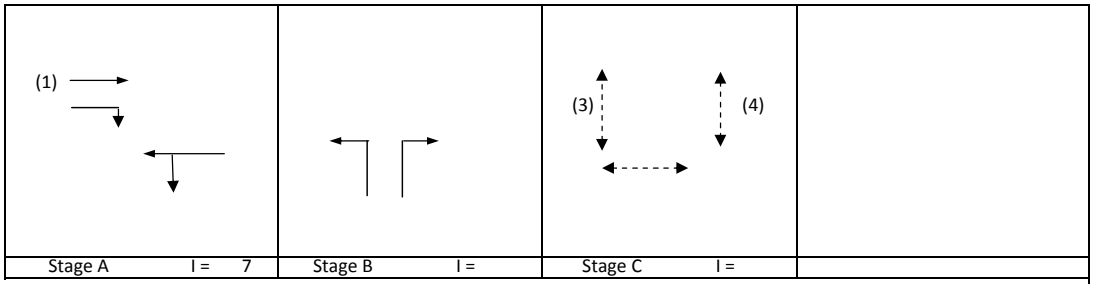
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.392
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.392

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.339	
Loss time		L =	65	sec
Total Flow		=	765	pcu
Co	= (1.5*L+5)/(1-Y)	=	155.1	sec
Cm	= L/(1-Y)	=	98.4	sec
Yult		=	0.413	
R.C.ult	= (Yult-Y)/Y*100%	=	21.6	%
Cp	= 0.9*L/(0.9-Y)	=	104.3	sec
Ymax	= 1-L/C	=	0.458	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21.6	%

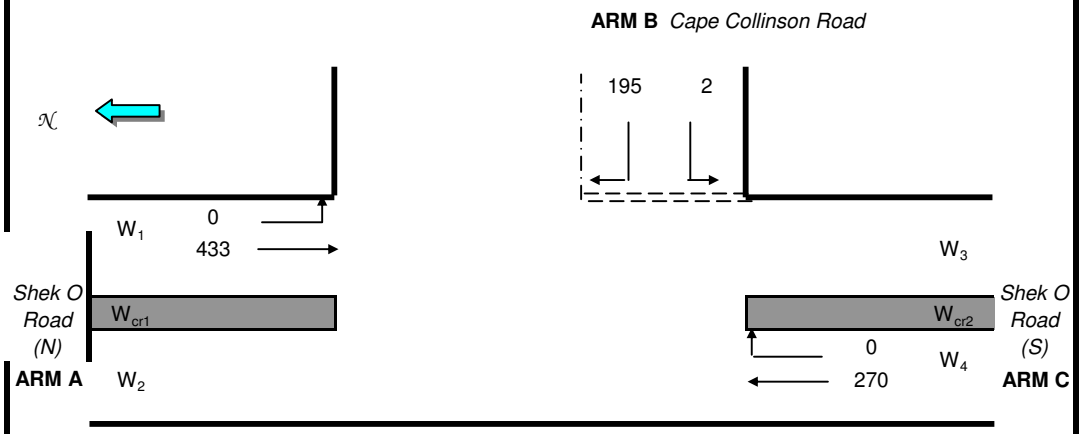


Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		137		137	0.00	1915			1915	0.072			12	55	0.156	12	15
ST/LT	A	4.00	1	1	10		N	2015	372	256		628	0.59	1851			1851	0.339	0.339		55	55	0.740	66	16
Ped	B	6.0	3									5709		7200						60					
		11.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	433.05	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	269.572	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	195.027	(pcu/hr)
q_{b-c}	=	2.03628	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	631
Q_{c-b}	=	703
Q_{b-a}	=	296

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.660
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.660

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2026\2026_J4.vai"
(drive-on-the-left) at 10:05:17 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2026_CM_J4_S1

DEMAND SET TITLE: 2026_CM_J4_S1

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.013	0.305	0.367	0.315
		11.0	266.0	320.0	274.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.598	0.019	0.044	0.340
		711.0	22.0	52.0	404.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.369	0.307	0.045	0.278
		65.0	54.0	8.0	49.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.299	0.439	0.258	0.004
		384.0	563.0	331.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 07.45-08.15									
I									
I ARM A	14.52	25.98	0.559	- -	-	0.0	1.3	36.8	
-	0.087	I							
I ARM B	19.82	24.59	0.806	- -	-	0.0	4.0	111.2	
-	0.199	I							
I ARM C	2.91	14.41	0.202	- -	-	0.0	0.3	7.4	
-	0.087	I							
I ARM D	21.40	41.96	0.510	- -	-	0.0	1.0	30.7	
-	0.048	I							
I									
I									

.----------

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 08.15-08.45									
I									
I ARM A	14.52	25.95	0.559	- -	-	1.3	1.3	37.9	
-	0.087	I							
I ARM B	19.82	24.56	0.807	- -	-	4.0	4.1	122.0	
-	0.210	I							
I ARM C	2.91	14.33	0.203	- -	-	0.3	0.3	7.6	
-	0.088	I							
I ARM D	21.40	41.87	0.511	- -	-	1.0	1.0	31.2	
-	0.049	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.3	*
08.45	1.3	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	4.0	****
08.45	4.1	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.3
08.45	0.3

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

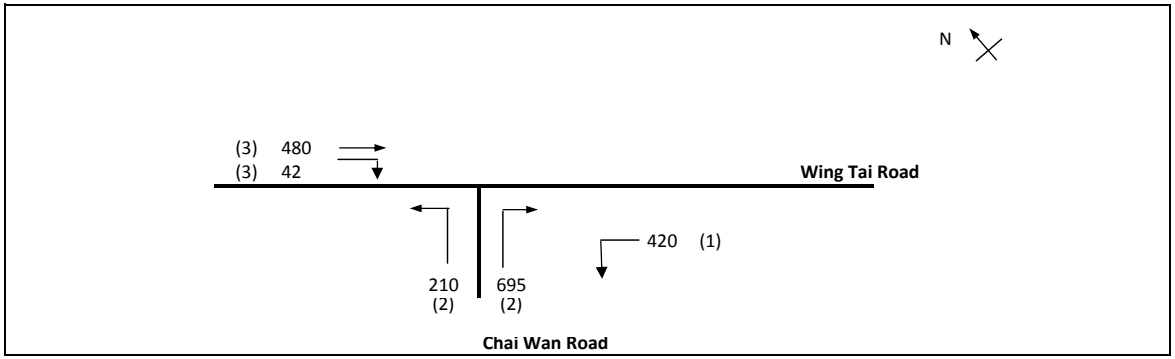
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	871.2	871.2	74.7	0.09	74.7	0.09
B	1189.2	1189.2	233.2	0.20	233.5	0.20
C	174.6	174.6	15.0	0.09	15.0	0.09
D	1284.0	1284.0	61.9	0.05	61.9	0.05
ALL	3519.0	3519.0	384.9	0.11	385.2	0.11

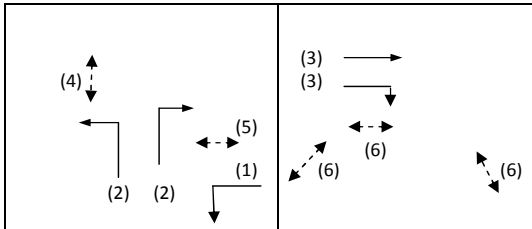
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.312
Loss time		L =	10 sec
Total Flow		=	1848 pcu
Co	= (1.5*L+5)/(1-Y)	=	29.1 sec
Cm	= L/(1-Y)	=	14.5 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	164.3 %
Cp	= 0.9*L/(0.9-Y)	=	15.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	159.5 %



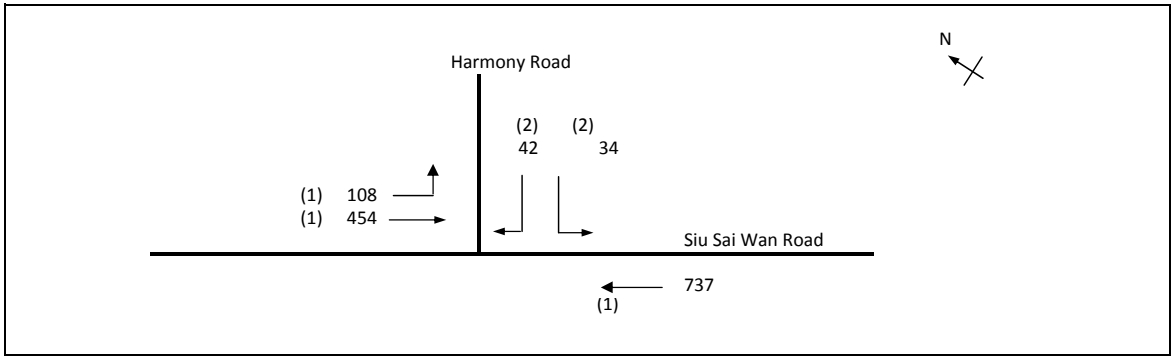
Stage A I = 7

Stage B I = 5

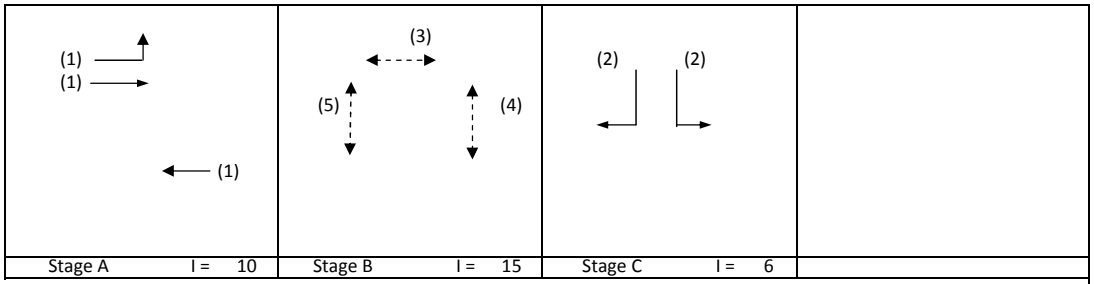
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	420			420	1.00	3857			3857	0.109			31	56	0.195	15	8
LT	A	4.00	2	2	24			4310	210			210	1.00	4056			4056	0.052			15	56	0.092	6	8
RT	A	3.50	2	2	11		y	4070			695	695	1.00	3582			3582	0.194	0.194		56	56	0.347	24	7
ST	B	3.50	3	2			y	4070		480		480	0.00	4070			4070	0.118	0.118		34	34	0.347	24	18
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			3	34	0.033	0	19
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.208	
Loss time	L =	48	sec
Total Flow	=	1375	pcu
Co = (1.5*L+5)/(1-Y)	=	97.2	sec
Cm = L/(1-Y)	=	60.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	159.6	%
Cp = 0.9*L/(0.9-Y)	=	62.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	125.0	%

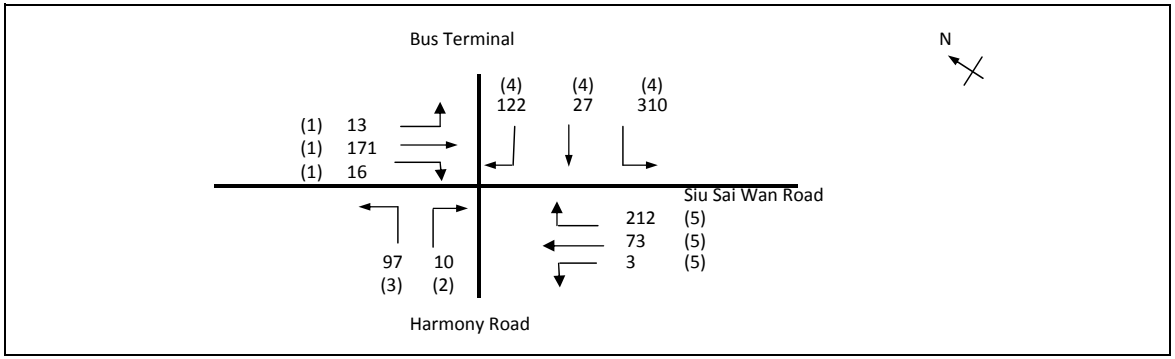


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

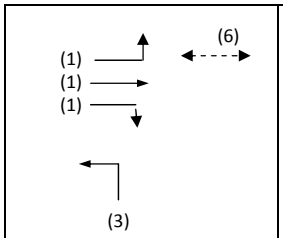
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	108	156		264	0.41	1842			1842	0.143			36	46	0.309	18	12
ST	A	3.20	1	1				2075		298		298	0.00	2075			2075	0.144			36	46	0.310	24	12
ST	A	3.00	1	2			y	3970		737		737	0.00	3970			3970	0.186	0.186		46	46	0.400	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.346	0	48
RT	C	3.75	2	1	12			2130			42	42	1.00	1893			1893	0.022	0.022		6	6	0.400	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

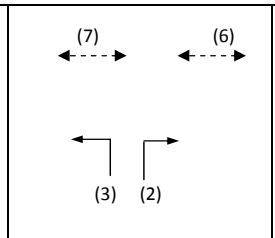
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



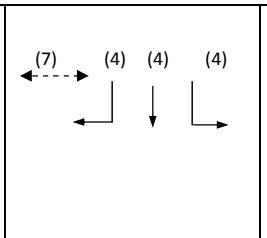
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.361
Loss time		L =	18 sec
Total Flow		=	1055 pcu
Co	= (1.5*L+5)/(1-Y)	=	50.1 sec
Cm	= L/(1-Y)	=	28.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	112.1 %
Cp	= 0.9*L/(0.9-Y)	=	30.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	106.7 %



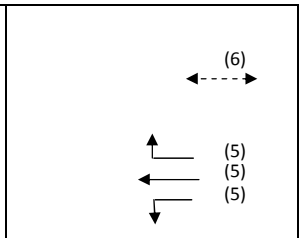
Stage A I = 5



Stage B I = 5



Stage C I = 6

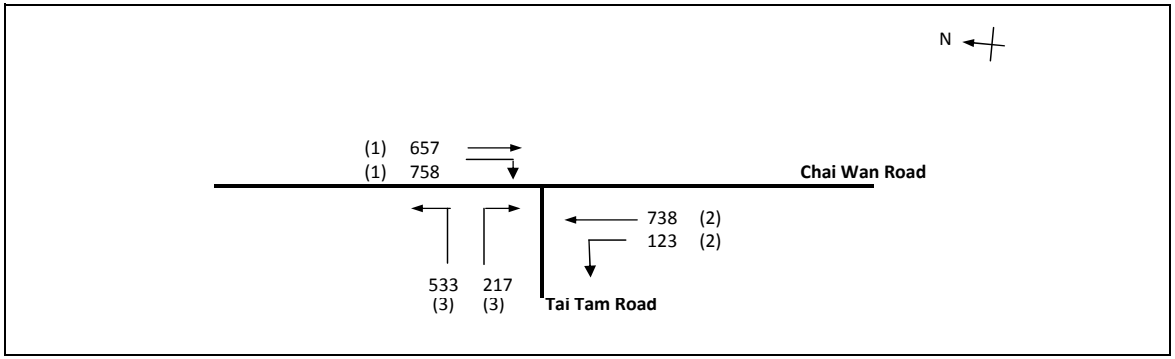


Stage C I = 6

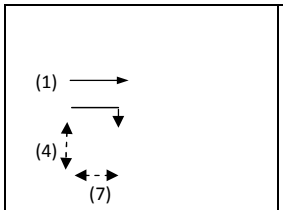
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	84		97	0.13	1910			1910	0.051			12	12	0.437	12	41
ST/RT	A	3.30	1	1	12			2085		87	16	104	0.16	2045			2045	0.051	0.051		12	12	0.435	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.435	0	101
LT	A,B	3.75	3	1	13		y	1990	97			97	1.00	1784			1784	0.055			13	18	0.310	12	33
RT	C	3.50	4	1	12			2105			122	122	1.00	1871			1871	0.065			16	46	0.148	6	14
LT/ST	C	3.50	4	1	12		y	1965	310	27		337	0.92	1762			1762	0.191	0.191		46	46	0.435	30	14
ST/RT	D	3.50	5	1	12			2105		0	212	212	1.00	1871			1871	0.113	0.113		27	27	0.435	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	73		76	0.04	1955			1955	0.039			9	9	0.435	12	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

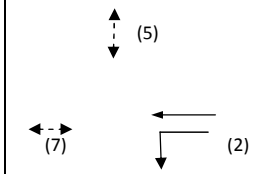
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



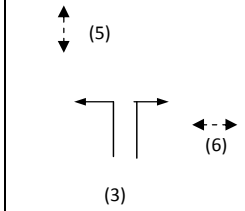
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.775
Loss time		L =	18 sec
Total Flow		=	3026 pcu
Co	= (1.5*L+5)/(1-Y)	=	142.2 sec
Cm	= L/(1-Y)	=	80.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-1.3 %
Cp	= 0.9*L/(0.9-Y)	=	129.6 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-3.8 %



Stage A I = 7



Stage B I = 8

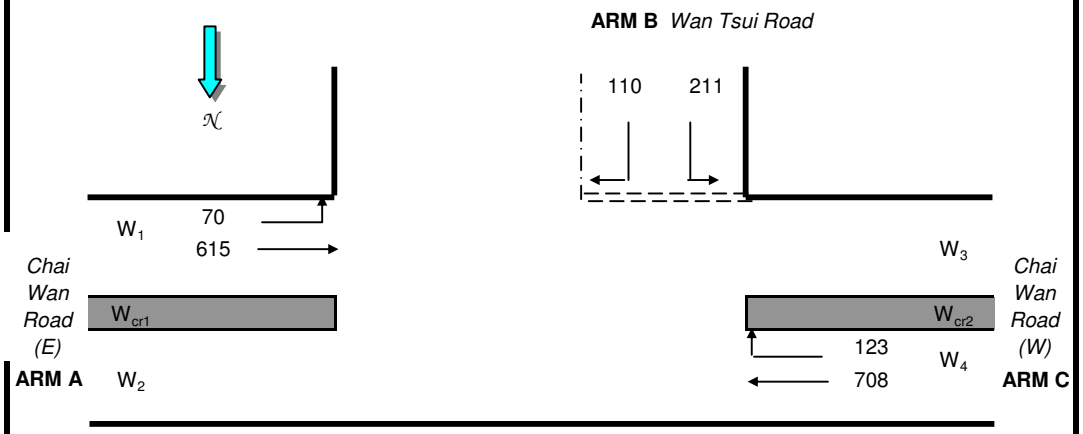


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		657		657	0.00	4070			4070	0.161			18	18	0.935	54	44
RT	A	3.50	1	1	13			2105			758	758	1.00	1887			1887	0.402	0.402		45	18	2.326	108	46
ST	B	3.50	2	2				4210		738		738	0.00	4210			4210	0.175	0.175		20	20	0.935	60	44
LT	B	3.10	2	1	12		y	1925	123			123	1.00	1711			1711	0.072			8	20	0.384	12	32
LT	C	4.00	3	1	15		y	2015	363			363	1.00	1832			1832	0.198	0.198		22	22	0.935	72	36
LT/RT	C	4.00	3	1	15			2155	170		217	387	1.00	1959			1959	0.198			22	22	0.933	72	37
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	69.8778	(pcu/hr)
q_{a-c}	=	614.51	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	708.316	(pcu/hr)
q_{c-b}	=	123.186	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	110.478	(pcu/hr)
q_{b-c}	=	210.853	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

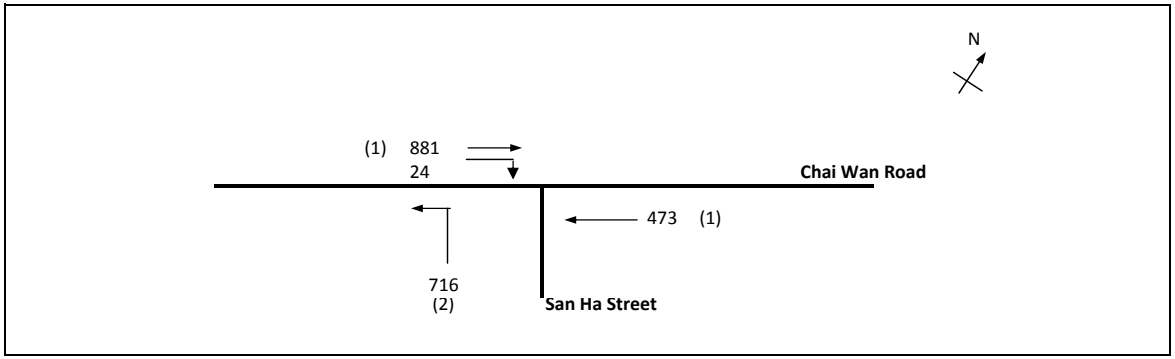
Q_{b-c}	=	743
Q_{c-b}	=	661
Q_{b-a}	=	351

COMPARISION OF DESIGN FLOW TO CAPACITY

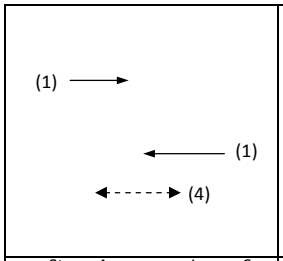
DFC_{b-a}	=	0.315
DFC_{b-c}	=	0.284
DFC_{c-b}	=	0.186

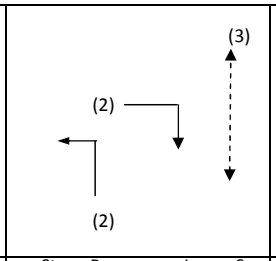
Critical DFC = 0.315

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.647
Loss time		L =	10 sec
Total Flow		=	2095 pcu
Co	= (1.5*L+5)/(1-Y)	=	56.6 sec
Cm	= L/(1-Y)	=	28.3 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	27.6 %
Cp	= 0.9*L/(0.9-Y)	=	35.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	25.3 %



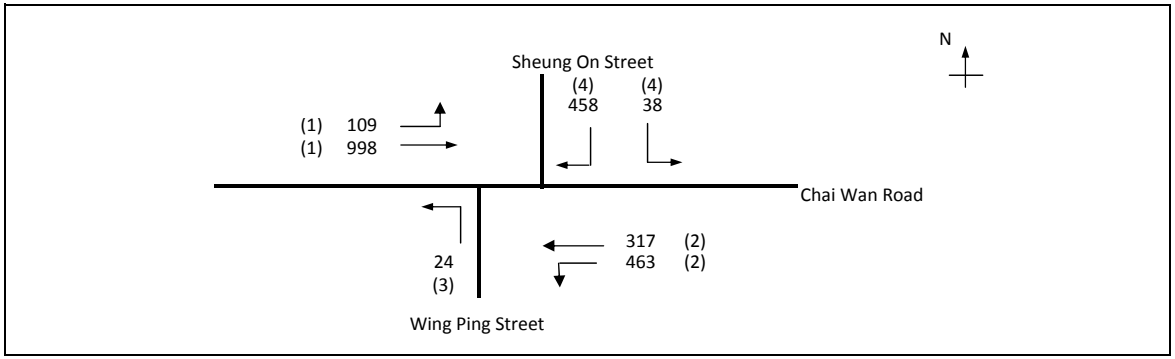


Stage A	I = 6	Stage B	I = 6	Stage C	I =

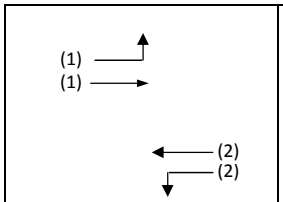
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		881		881	0.00	4070			4070	0.216	0.216		30	47	0.461	36	11
ST	A	3.50	1	2	10		N	4070		473		473	0.00	4070			4070	0.116			16	47	0.247	18	11
LT	B	3.00	2	1	10		N	1915	716			716	1.00	1665			1665	0.430	0.430		60	53	0.812	54	14
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.025	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

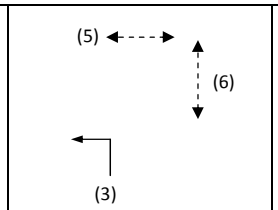
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2026 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



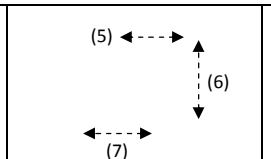
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.361
Loss time		L =	37 sec
Total Flow		=	2407 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.7 sec
Cm	= L/(1-Y)	=	57.9 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	72.5 %
Cp	= 0.9*L/(0.9-Y)	=	61.8 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	72.5 %



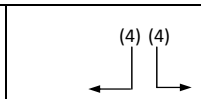
Stage A I = 8



Stage B I = 5



Stage C I = 7



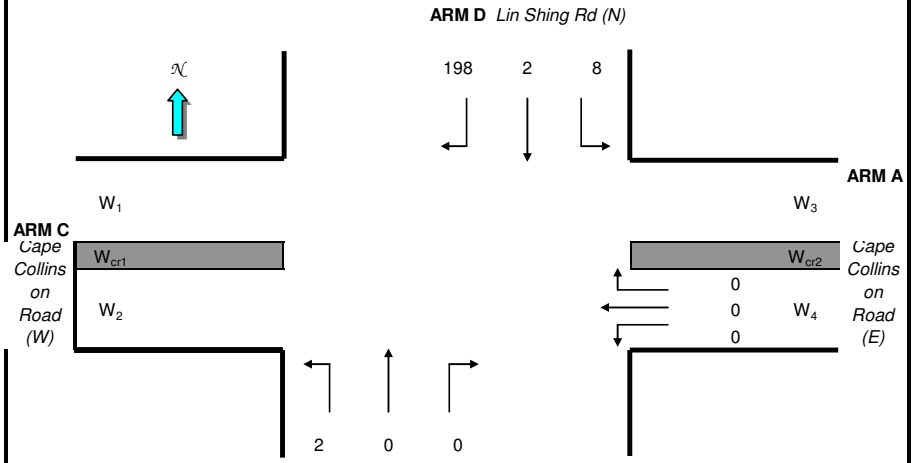
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	109	998		1107	0.10	6100			6100	0.181			42		0.000	72	54
LT/ST	A	3.30	2	2	12		Y	4030	463	317		779	0.59	3752			3752	0.208	0.208		48		0.000	75	54
LT	B	3.50	3	1	9		Y	1965	24			24	1.00	1684			1684	0.015	0.015		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	38		458	496	1.00	3583			3583	0.139	0.139		32		0.000	48	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix J4
2021 Sensitivity Test
Junction Capacity Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1167	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4669	(pcu/hr)
q_{d-b}	=	2.1167	(pcu/hr)
q_{d-c}	=	197.84	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

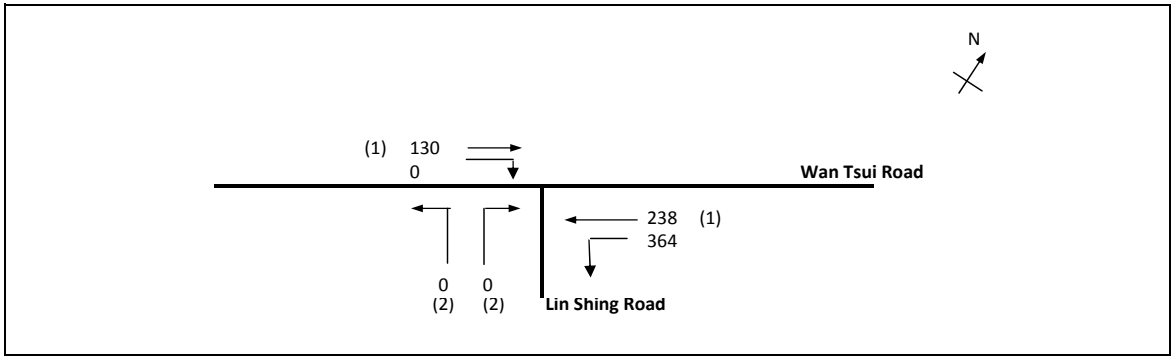
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

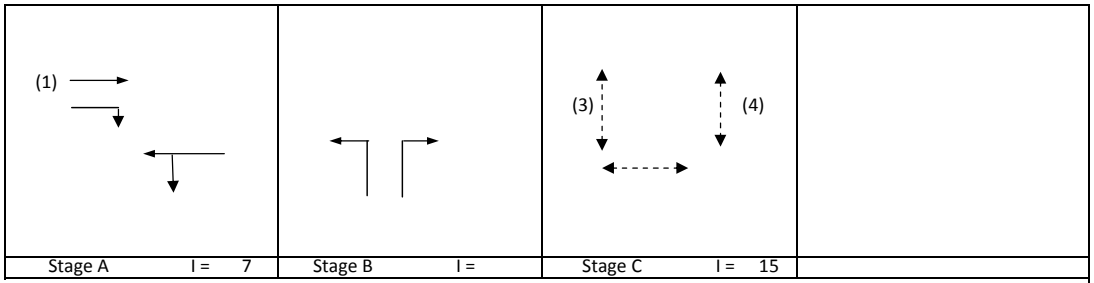
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.382
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.382

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test Scenario 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	75	sec
Sum(y)		Y =	0.326	
Loss time		L =	36	sec
Total Flow		=	731	pcu
Co	= (1.5*L+5)/(1-Y)	=	87.5	sec
Cm	= L/(1-Y)	=	53.4	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	93.5	%
Cp	= 0.9*L/(0.9-Y)	=	56.4	sec
Ymax	= 1-L/C	=	0.520	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	43.7	%

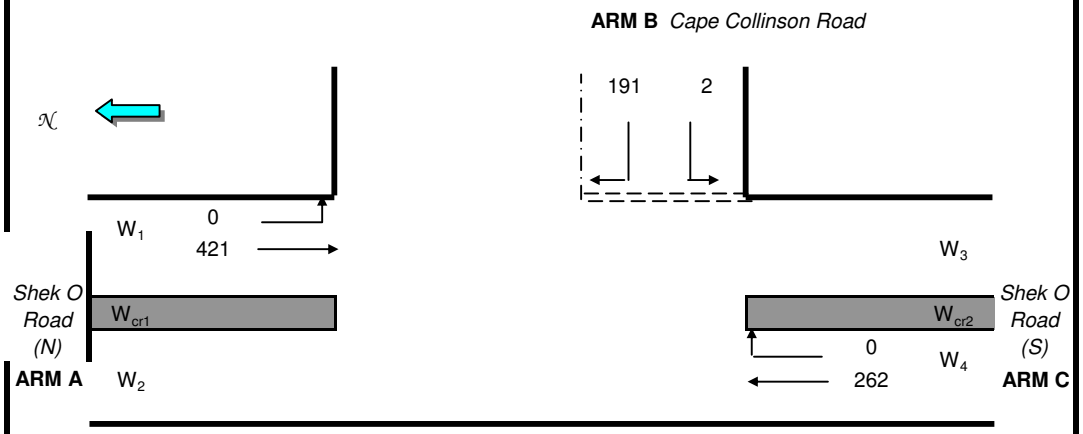


Stage A	I = 7	Stage B	I =	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
ST	A	3.00	1	1			N	1915		130		130	0.00	1915			1915	0.068			8	39	0.131	6	7
ST/LT	A	4.00	1	1	10		N	2015	364	238		601	0.60	1848			1848	0.326	0.326		39	39	0.626	36	8
Ped	B	6.0	3									5709		3072						16					
		11.0	4											4224						12					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	421.116	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	262.128	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	191.276	(pcu/hr)
q_{b-c}	=	2.04784	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	298

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.641
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.641

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham, Berks.
RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4_niche.vai"
(drive-on-the-left) at 09:45:52 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
A	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

```
 I ARM  B I    6.40   I     7.60   I    21.00   I    65.00   I   48.00   I     15.0     I
0.784  I       40.660        I
 I ARM  C I    5.50   I     7.00   I    25.00   I    19.00   I   50.00   I     42.0     I
0.645  I       32.621        I
 I ARM  D I   10.30   I    12.60   I    28.00   I    60.00   I   45.00   I     33.0     I
1.036  I       62.571        I

-------------------------------------------------------------------------------------------
------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle
diameter
 E = entry width               R = entry radius                      PHI = entry angle

 **WARNING** ARM A Effective flare length is outside normal range.
  Treat capacities with increasing caution.



.TRAFFIC DEMAND DATA
 -------------------

 Only sets included in the current run are shown

.SCALING FACTORS

.----------------------- T13
 IARM  I FLOW SCALE(%) I
 ----------------------
 I A   I      100      I
 I B   I      100      I
 I C   I      100      I
 I D   I      100      I
 ----------------------

 TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(  60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S1_niche  (100%SanHaStreet)


 DEMAND SET TITLE:  2021_CM_J4_S1_niche  (100%SanHaStreet)
.------------------------------------------------------------------- T33
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS                      I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ---------------------------------------------
 I       TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
.-------------------------------------------------------------------
 I   07.45 - 08.45    I         I        I        I        I        I
 I                    I  ARM  A I  0.013 I  0.324 I  0.356 I  0.307 I
 I                    I         I   11.0 I  278.0 I  306.0 I  264.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  B I  0.598 I  0.022 I  0.042 I  0.339 I
 I                    I         I  717.0 I   26.0 I   50.0 I  406.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  C I  0.373 I  0.301 I  0.042 I  0.283 I
 I                    I         I   62.0 I   50.0 I    7.0 I   47.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM  D I  0.300 I  0.439 I  0.257 I  0.004 I
 I                    I         I  373.0 I  545.0 I  319.0 I    5.0 I
 I                    I         I ( 10.0)I ( 10.0)I ( 10.0)I ( 10.0)I
 I                    I         I        I        I        I        I
```

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 07.45-08.15									
I ARM A	14.31	26.41	0.542	- -	-	0.0	1.2	34.4	
-	0.082	I							
I ARM B	19.99	25.08	0.797	- -	-	0.0	3.8	106.0	
-	0.187	I							
I ARM C	2.77	14.39	0.193	- -	-	0.0	0.2	7.0	
-	0.086	I							
I ARM D	20.70	41.90	0.494	- -	-	0.0	1.0	28.8	
-	0.047	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 08.15-08.45									
I ARM A	14.31	26.39	0.542	- -	-	1.2	1.2	35.4	
-	0.083	I							
I ARM B	19.99	25.05	0.798	- -	-	3.8	3.9	115.6	
-	0.197	I							
I ARM C	2.77	14.30	0.194	- -	-	0.2	0.2	7.2	
-	0.087	I							
I ARM D	20.70	41.81	0.495	- -	-	1.0	1.0	29.3	
-	0.047	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.2	*
08.45	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.8	****
08.45	3.9	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

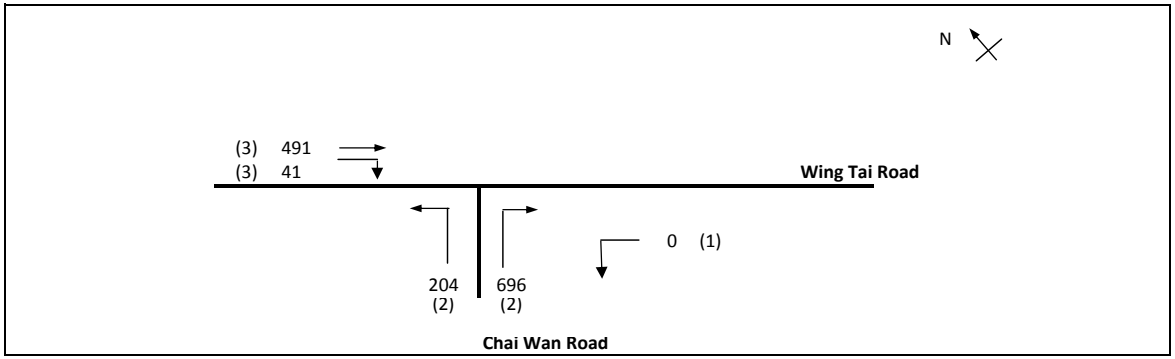
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	858.6	858.6	69.8	0.08	69.8	0.08
B	1199.4	1199.4	221.6	0.18	221.9	0.19
C	166.2	166.2	14.2	0.09	14.2	0.09
D	1242.0	1242.0	58.1	0.05	58.1	0.05
ALL	3466.2	3466.2	363.7	0.10	364.0	0.11

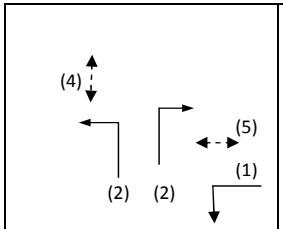
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

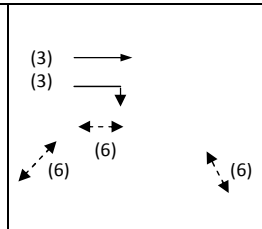
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.315
Loss time		L =	10 sec
Total Flow		=	1432 pcu
Co	= (1.5*L+5)/(1-Y)	=	29.2 sec
Cm	= L/(1-Y)	=	14.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	162.0 %
Cp	= 0.9*L/(0.9-Y)	=	15.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	157.2 %



Stage A I = 7

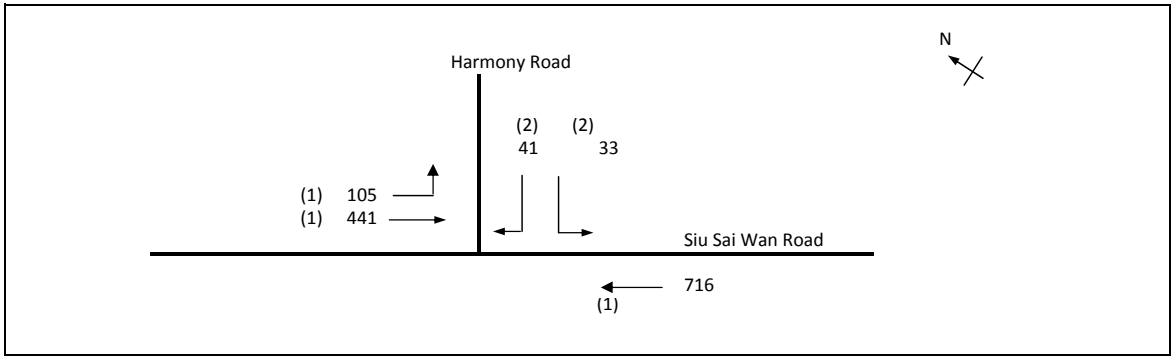


Stage B I = 5

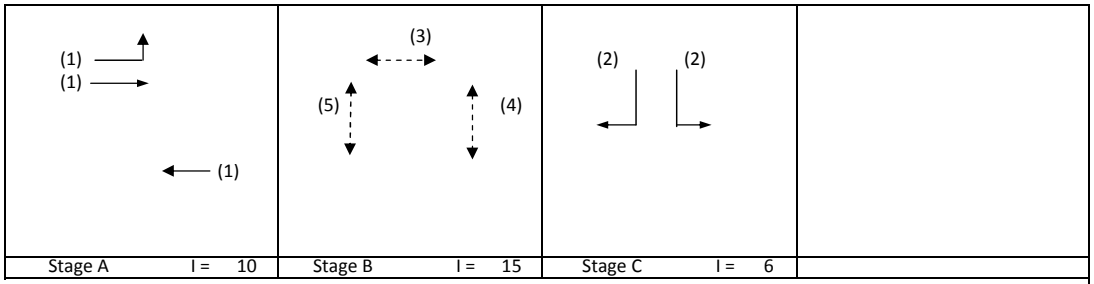
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	0			0	#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!			#DIV/0!	56	#DIV/0!	#DIV/0!	#DIV/0!
LT	A	4.00	2	2	24			4310	204			204	1.00	4056			4056	0.050			14	56	0.091	6	9
RT	A	3.50	2	2	11		y	4070			696	696	1.00	3582			3582	0.194	0.194		56	56	0.350	24	8
ST	B	3.50	3	2			y	4070		491		491	0.00	4070			4070	0.121	0.121		34	34	0.350	24	18
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			3	34	0.031	0	19
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	96.5	sec
Cm = L/(1-Y)	=	60.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	167.0	%
Cp = 0.9*L/(0.9-Y)	=	61.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	131.4	%

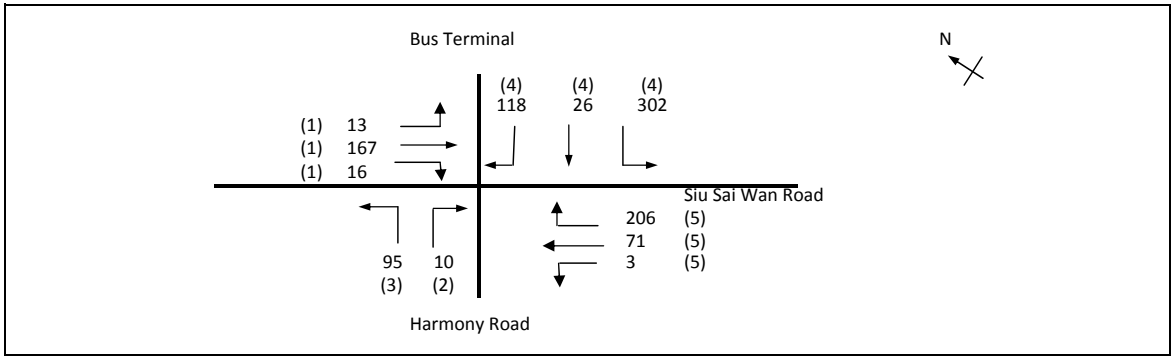


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

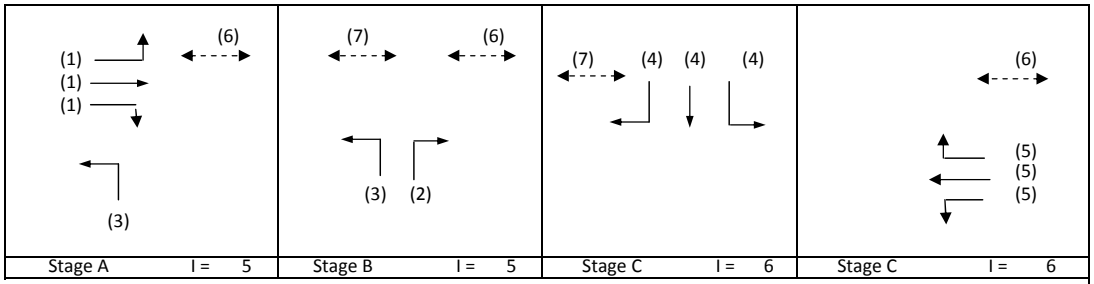
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1842			1842	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.301	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.336	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.351
Loss time		L =	18 sec
Total Flow		=	1025 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.3 sec
Cm	= L/(1-Y)	=	27.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	118.0 %
Cp	= 0.9*L/(0.9-Y)	=	29.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	112.5 %

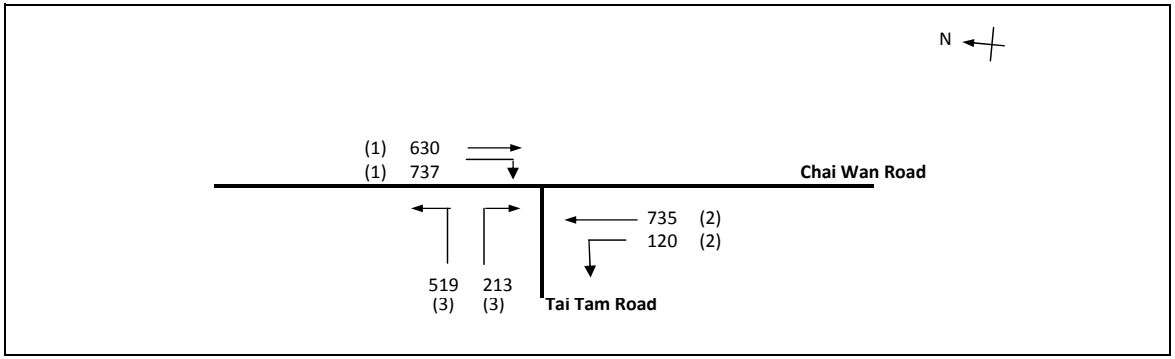


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

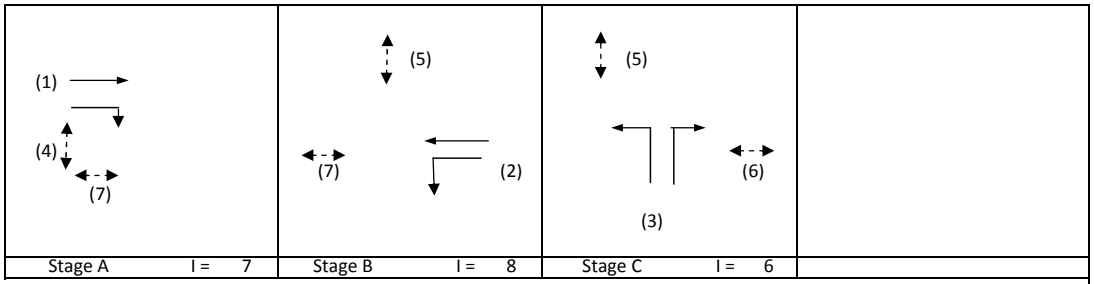
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.420	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	101	0.15	2046			2046	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	33
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	302	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1955			1955	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.858
Loss time		L =	18 sec
Total Flow		=	2952 pcu
Co	= (1.5*L+5)/(1-Y)	=	224.7 sec
Cm	= L/(1-Y)	=	126.4 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-10.8 %
Cp	= 0.9*L/(0.9-Y)	=	381.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-13.0 %



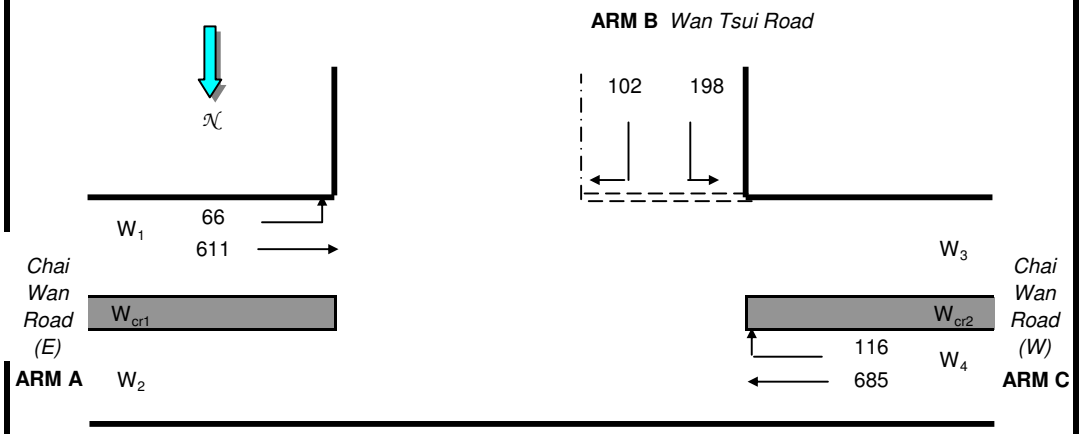
Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		630		630	0.00	4120			4120	0.153			16	16	1.035	45	46
RT	A	3.00	1	1	13			2055			737	737	1.00	1842			1842	0.400	0.400		41	16	2.709	108	48
ST	B	3.50	2	2				4210		735		735	0.00	4210			4210	0.175	0.175		18	18	1.035	51	46
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			7	18	0.414	12	34
LT	C	4.00	3	1	15		y	2015	519			519	1.00	1832			1832	0.283	0.283		29	29	1.035	60	32
LT/RT	C	4.00	3	1	15			2155			213	213	1.00	1959			1959	0.109			11	29	0.397	24	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C	Prepared By:	GK
	Junction Capacity Analysis Sensitivity Test 1 & 2	Checked By:	OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	66.0005	(pcu/hr)
q_{a-c}	=	610.762	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	685.043	(pcu/hr)
q_{c-b}	=	116.146	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	102.13	(pcu/hr)
q_{b-c}	=	197.905	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

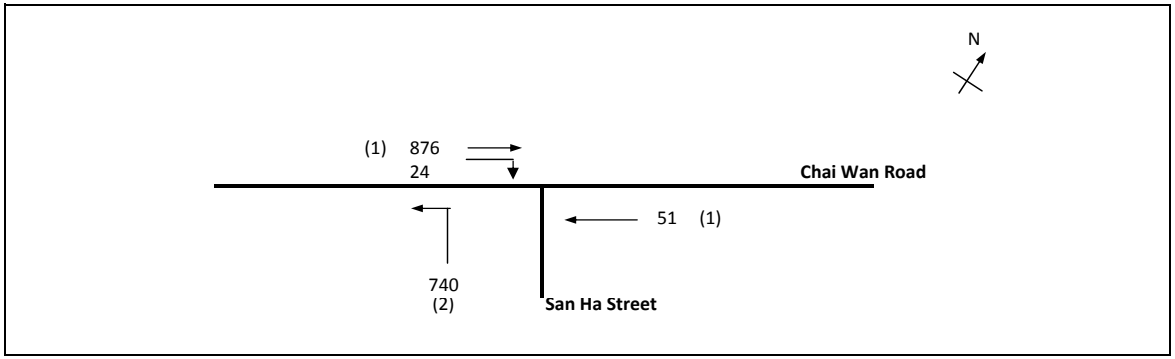
Q_{b-c}	=	744
Q_{c-b}	=	662
Q_{b-a}	=	353

COMPARISION OF DESIGN FLOW TO CAPACITY

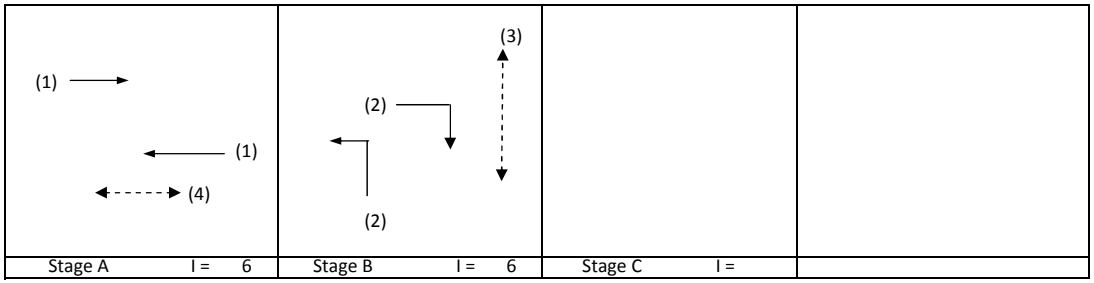
DFC_{b-a}	=	0.289
DFC_{b-c}	=	0.266
DFC_{c-b}	=	0.176

Critical DFC = 0.289

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.660
Loss time		L =	10 sec
Total Flow		=	1690 pcu
Co	= (1.5*L+5)/(1-Y)	=	58.8 sec
Cm	= L/(1-Y)	=	29.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	25.1 %
Cp	= 0.9*L/(0.9-Y)	=	37.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22.8 %

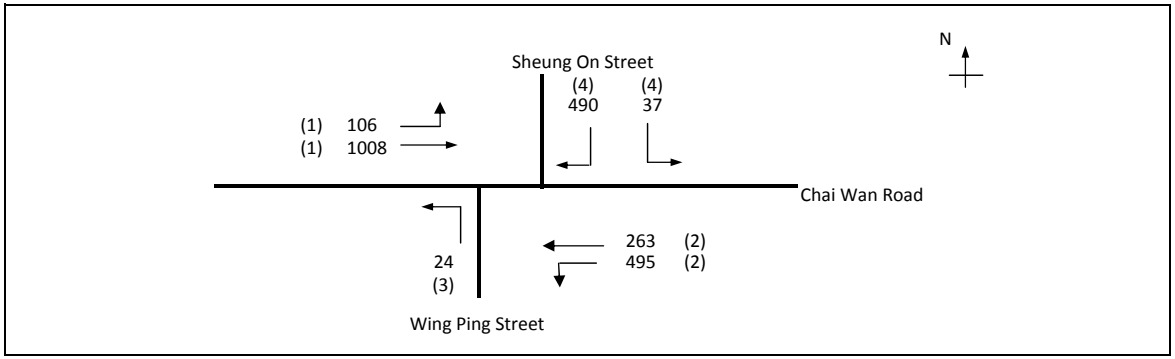


Stage A	I = 6	Stage B	I = 6	Stage C	I =

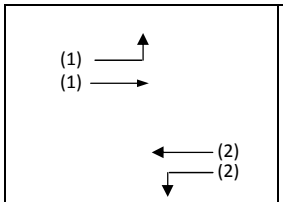
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		876		876	0.00	4070			4070	0.215	0.215		29	47	0.458	36	11
ST	A	3.50	1	2	10		N	4070		51		51	0.00	4070			4070	0.012			2	47	0.026	0	13
LT	B	3.00	2	1	10		N	1915	740			740	1.00	1665			1665	0.444	0.444		61	53	0.839	54	15
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.024	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

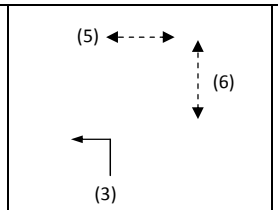
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



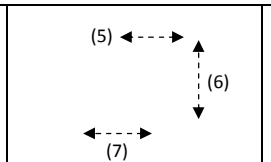
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.365
Loss time		L =	37 sec
Total Flow		=	2423 pcu
Co	= (1.5*L+5)/(1-Y)	=	95.2 sec
Cm	= L/(1-Y)	=	58.2 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	70.7 %
Cp	= 0.9*L/(0.9-Y)	=	62.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	70.7 %



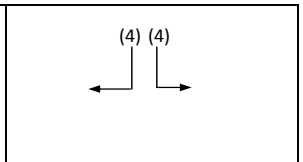
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

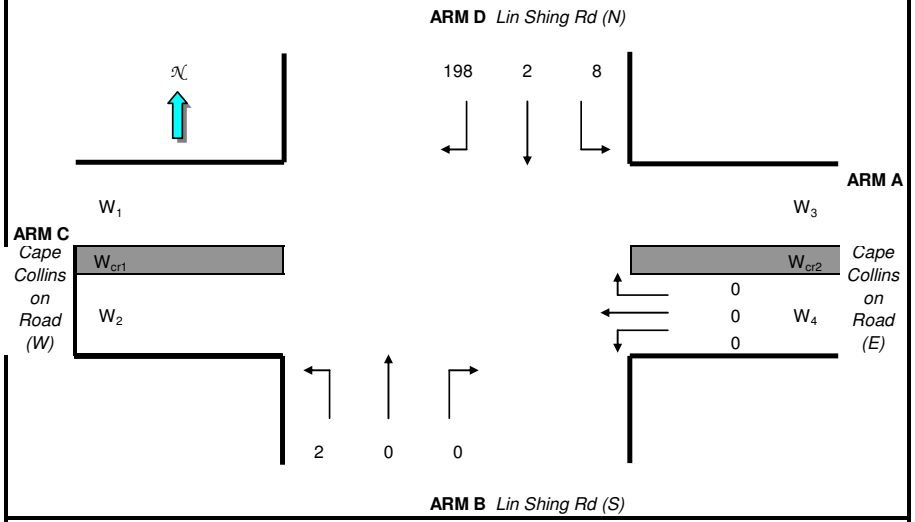
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	106	1008		1115	0.10	6102			6102	0.183			42		0.000	74	54
LT/ST	A	3.30	2	2	12		Y	4030	495	263		758	0.65	3726			3726	0.203	0.203		46		0.000	75	54
LT	B	3.50	3	1	9		Y	1965	24			24	1.00	1684			1684	0.014	0.014		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	37		490	527	1.00	3583			3583	0.147	0.147		34		0.000	51	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow | **Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C** | **Prepared By:** GK

Junction Capacity Analysis | **Checked By:** OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1167	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4669	(pcu/hr)
q_{d-b}	=	2.1167	(pcu/hr)
q_{d-c}	=	197.84	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

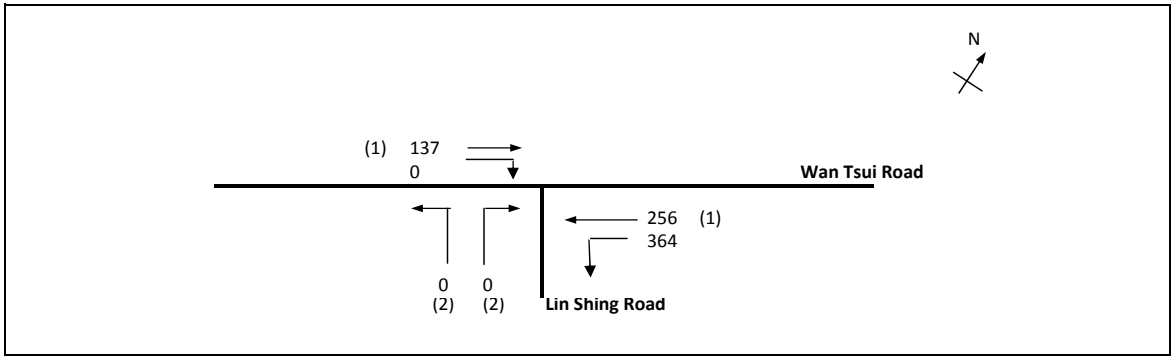
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

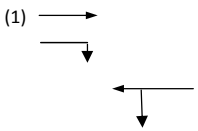
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.382
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

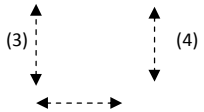
Critical DFC = 0.382

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test Scenario 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	75	sec
Sum(y)		Y =	0.335	
Loss time		L =	36	sec
Total Flow		=	757	pcu
Co	= (1.5*L+5)/(1-Y)	=	88.7	sec
Cm	= L/(1-Y)	=	54.1	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	88.2	%
Cp	= 0.9*L/(0.9-Y)	=	57.3	sec
Ymax	= 1-L/C	=	0.520	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	39.8	%



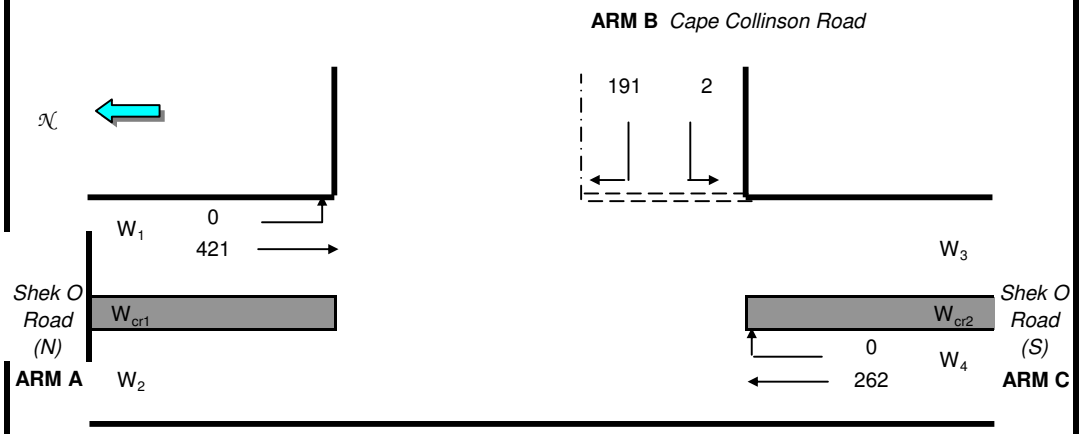


Stage A	I = 7	Stage B	I =	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
ST	A	3.00	1	1			N	1915		137		137	0.00	1915			1915	0.072			8	39	0.138	6	7
ST/LT	A	4.00	1	1	10		N	2015	364	256		620	0.59	1852			1852	0.335	0.335		39	39	0.644	36	8
Ped	B	6.0	3									5709		3072						16					
		11.0	4											4224						12					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	421.116	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	262.128	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	191.276	(pcu/hr)
q_{b-c}	=	2.04784	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	298

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.641
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.641

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
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RG40 3GA,UK

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Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4_niche.vai"
(drive-on-the-left) at 09:44:20 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S1_niche

DEMAND SET TITLE: 2021_CM_J4_S1_niche

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.013	0.304	0.369	0.314
		11.0	259.0	315.0	268.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.596	0.022	0.044	0.338
		698.0	26.0	51.0	396.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.378	0.308	0.041	0.273
		65.0	53.0	7.0	47.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.299	0.437	0.261	0.004
		376.0	550.0	328.0	5.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 07.45-08.15									
I									
I ARM A	14.20	26.17	0.543	- -	-	0.0	1.2	34.5	
-	0.083	I							
I ARM B	19.53	24.80	0.787	- -	-	0.0	3.6	100.7	
-	0.181	I							
I ARM C	2.89	14.65	0.197	- -	-	0.0	0.2	7.2	
-	0.085	I							
I ARM D	20.98	42.10	0.498	- -	-	0.0	1.0	29.3	
-	0.047	I							
I									
I									

.----------

I TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC DELAY	AVERAGE DELAY I
I	(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/	PER ARRIVING I
I			(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)	VEHICLE (MIN) I
-									
-									
I 08.15-08.45									
I									
I ARM A	14.20	26.15	0.543	- -	-	1.2	1.2	35.5	
-	0.084	I							
I ARM B	19.53	24.77	0.788	- -	-	3.6	3.7	109.3	
-	0.190	I							
I ARM C	2.89	14.57	0.198	- -	-	0.2	0.2	7.4	
-	0.086	I							
I ARM D	20.98	42.02	0.499	- -	-	1.0	1.0	29.8	
-	0.048	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.2	*
08.45	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	3.6	****
08.45	3.7	****

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.2
08.45	0.2

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.0	*
08.45	1.0	*

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

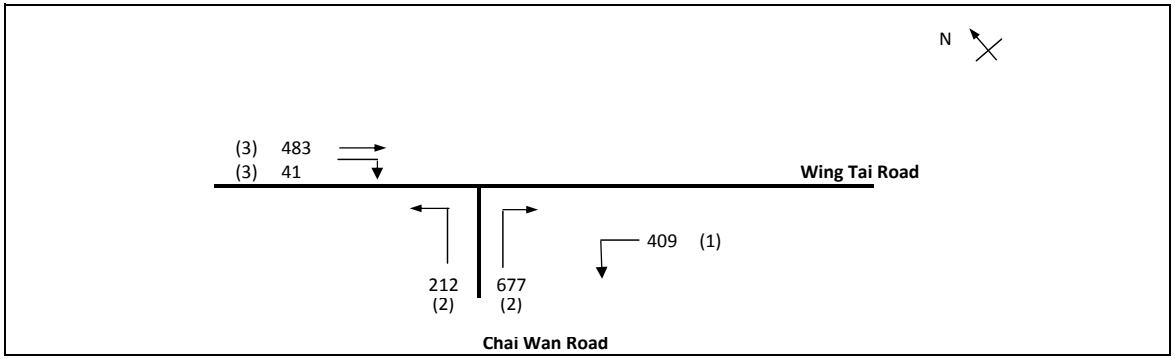
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	852.0	852.0	70.0	0.08	70.0	0.08
B	1171.8	1171.8	209.9	0.18	210.2	0.18
C	173.4	173.4	14.6	0.08	14.6	0.08
D	1258.8	1258.8	59.1	0.05	59.1	0.05
ALL	3456.0	3456.0	353.6	0.10	354.0	0.10

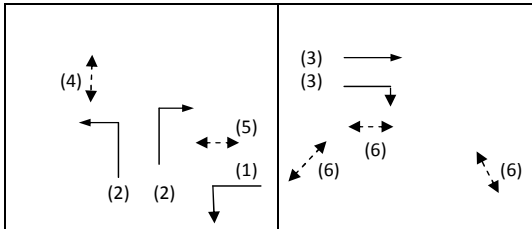
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.307	
Loss time		L =	10	sec
Total Flow		=	1821	pcu
Co	= (1.5*L+5)/(1-Y)	=	28.9	sec
Cm	= L/(1-Y)	=	14.4	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	168.3	%
Cp	= 0.9*L/(0.9-Y)	=	15.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	163.4	%



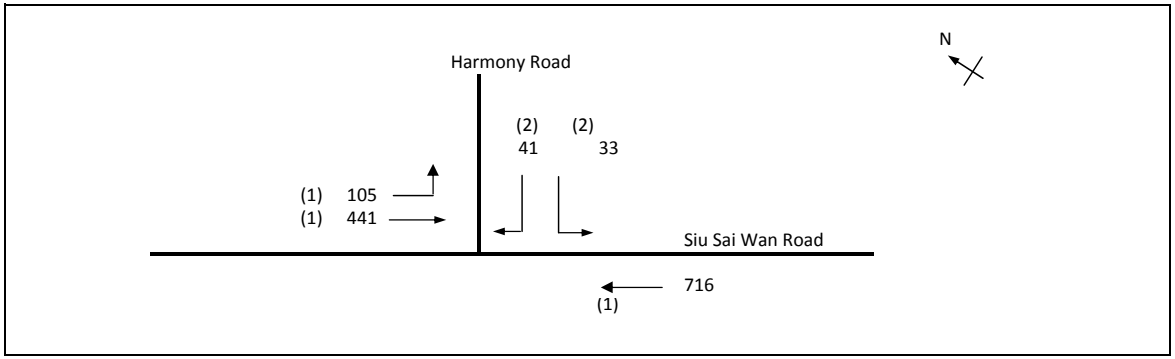
Stage A I = 7

Stage B I = 5

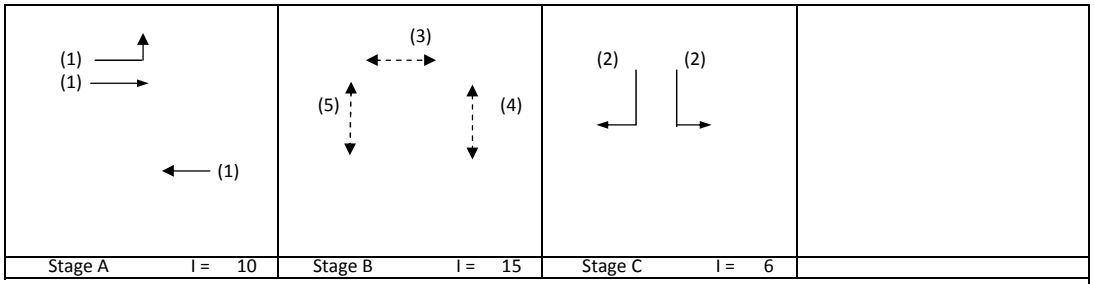
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	409			409	1.00	3857			3857	0.106			31	55	0.192	15	8
LT	A	4.00	2	2	24			4310	212			212	1.00	4056			4056	0.052			15	55	0.095	6	9
RT	A	3.50	2	2	11		y	4070			677	677	1.00	3582			3582	0.189	0.189		55	55	0.342	24	8
ST	B	3.50	3	2			y	4070		483		483	0.00	4070			4070	0.119	0.119		35	35	0.342	24	18
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			3	35	0.031	0	19
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	96.5	sec
Cm = L/(1-Y)	=	60.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	167.0	%
Cp = 0.9*L/(0.9-Y)	=	61.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	131.4	%

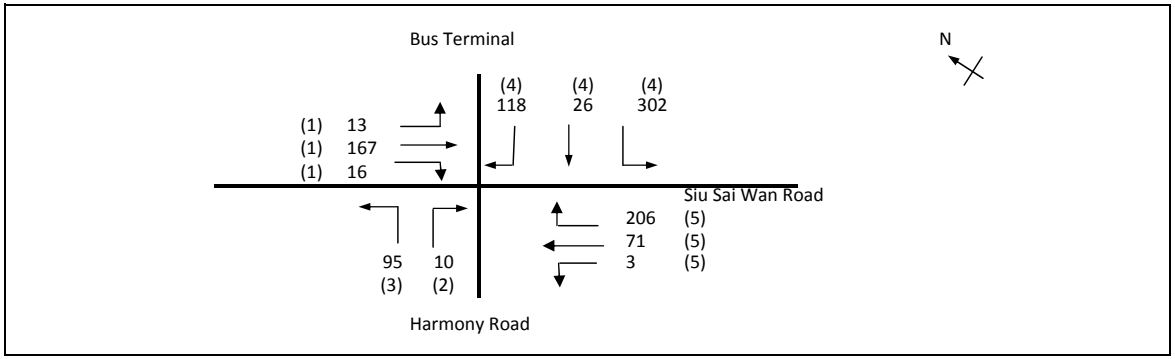


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

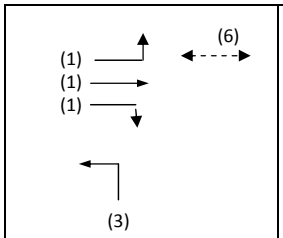
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1842			1842	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.301	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.336	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

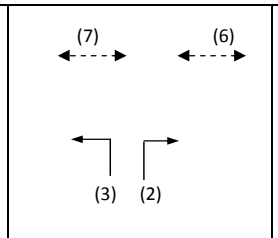
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



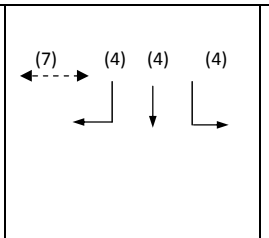
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.351
Loss time		L =	18 sec
Total Flow		=	1025 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.3 sec
Cm	= L/(1-Y)	=	27.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	118.0 %
Cp	= 0.9*L/(0.9-Y)	=	29.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	112.5 %



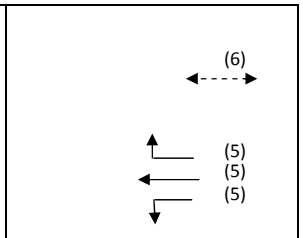
Stage A I = 5



Stage B I = 5



Stage C I = 6

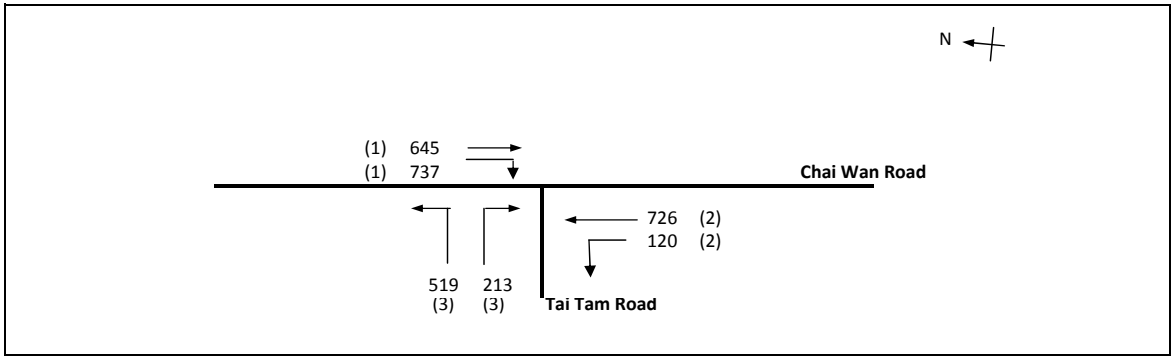


Stage C I = 6

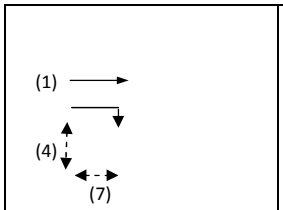
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.420	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	101	0.15	2046			2046	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	33
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	302	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1955			1955	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

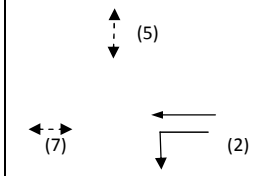
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 1	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



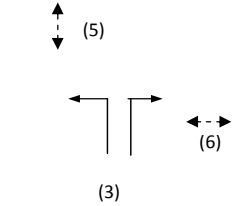
No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.855	
Loss time	L =	18	sec
Total Flow	=	2959	pcu
Co = (1.5*L+5)/(1-Y)	=	221.3	sec
Cm = L/(1-Y)	=	124.5	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	-10.6	%
Cp = 0.9*L/(0.9-Y)	=	363.4	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	-12.8	%



Stage A I = 7



Stage B I = 8



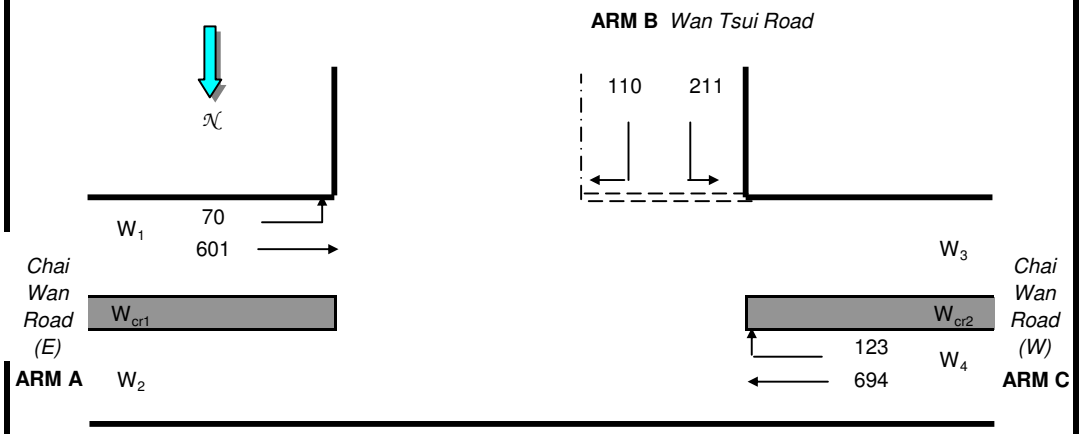
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		645		645	0.00	4120			4120	0.157			16	16	1.032	45	46
RT	A	3.00	1	1	13			2055			737	737	1.00	1842			1842	0.400	0.400		41	16	2.637	108	48
ST	B	3.50	2	2				4210		726		726	0.00	4210			4210	0.172	0.172		18	18	1.032	51	46
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			7	18	0.419	12	35
LT	C	4.00	3	1	15		y	2015	519			519	1.00	1832			1832	0.283	0.283		29	29	1.032	60	32
LT/RT	C	4.00	3	1	15			2155			213	213	1.00	1959			1959	0.109			11	29	0.396	24	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C	Prepared By:	GK
	Junction Capacity Analysis Sensitivity Test 1 & 2	Checked By:	OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	69.7315	(pcu/hr)
q_{a-c}	=	600.842	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	693.653	(pcu/hr)
q_{c-b}	=	123.034	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	110.427	(pcu/hr)
q_{b-c}	=	210.778	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

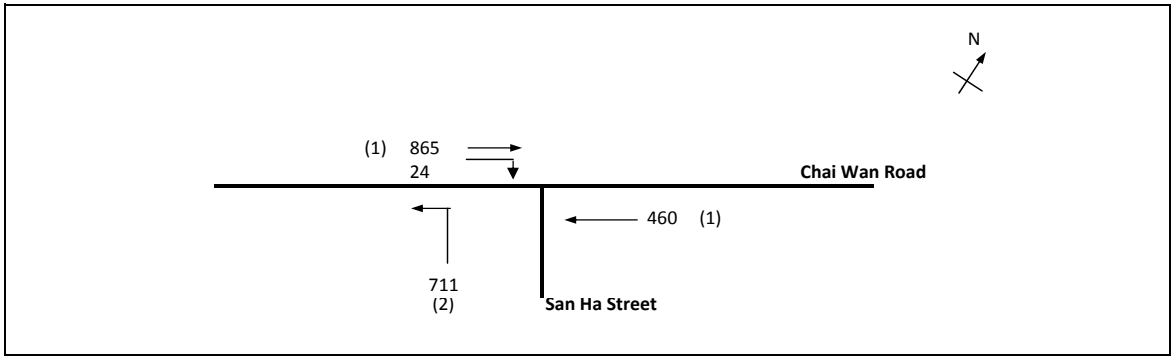
Q_{b-c}	=	745
Q_{c-b}	=	662
Q_{b-a}	=	353

COMPARISION OF DESIGN FLOW TO CAPACITY

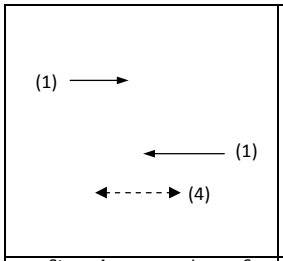
DFC_{b-a}	=	0.313
DFC_{b-c}	=	0.283
DFC_{c-b}	=	0.186

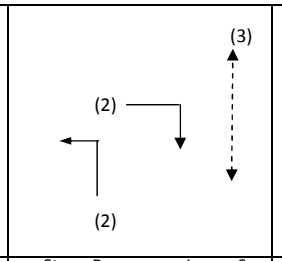
Critical DFC = 0.313

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.640
Loss time		L =	10 sec
Total Flow		=	2060 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.5 sec
Cm	= L/(1-Y)	=	27.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	29.0 %
Cp	= 0.9*L/(0.9-Y)	=	34.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	26.6 %



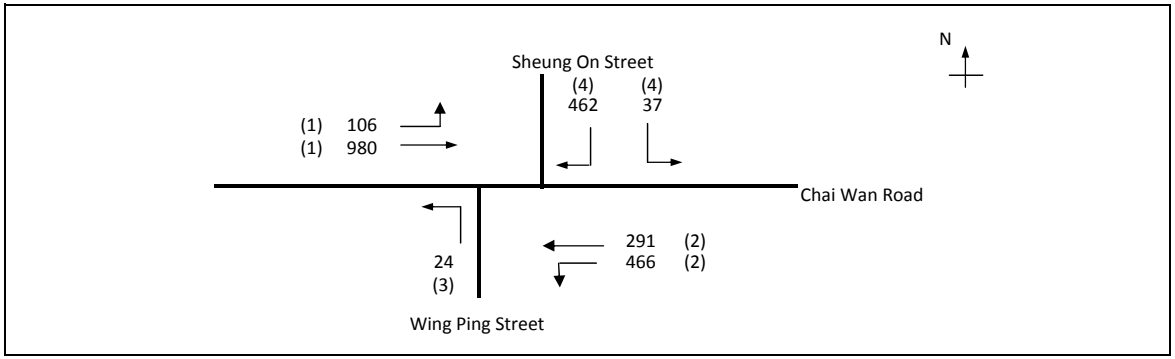


Stage A	I = 6	Stage B	I = 6	Stage C	I =

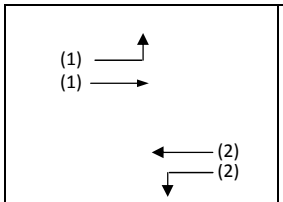
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		865		865	0.00	4070			4070	0.212	0.212		30	47	0.452	36	11
ST	A	3.50	1	2	10		N	4070		460		460	0.00	4070			4070	0.113			16	47	0.241	18	11
LT	B	3.00	2	1	10		N	1915	711			711	1.00	1665			1665	0.427	0.427		60	53	0.806	54	13
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.024	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

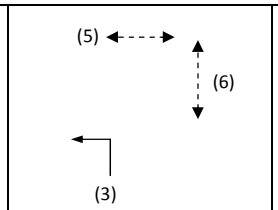
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



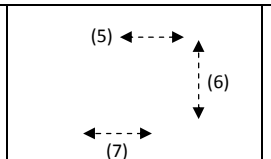
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.356
Loss time		L =	37 sec
Total Flow		=	2366 pcu
Co	= (1.5*L+5)/(1-Y)	=	93.9 sec
Cm	= L/(1-Y)	=	57.4 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	75.0 %
Cp	= 0.9*L/(0.9-Y)	=	61.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	75.0 %



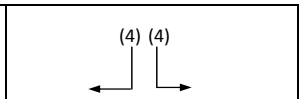
Stage A I = 8



Stage B I = 5



Stage C I = 7

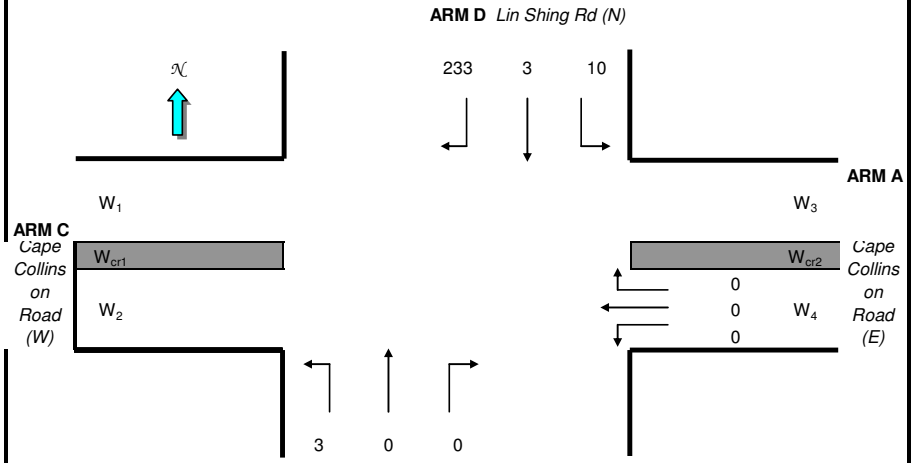


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	106	980		1086	0.10	6100			6100	0.178			42		0.000	72	54
LT/ST	A	3.30	2	2	12		Y	4030	466	291		758	0.62	3742			3742	0.202	0.202		47		0.000	75	54
LT	B	3.50	3	1	9		Y	1965	24			24	1.00	1684			1684	0.014	0.014		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	37		462	499	1.00	3583			3583	0.139	0.139		32		0.000	48	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM B-C
X_D	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Y	=	GEOMETRIC PARAMETERS FOR STREAM D-A
		(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.5381	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	10.152	(pcu/hr)
q_{d-b}	=	2.5381	(pcu/hr)
q_{d-c}	=	232.57	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

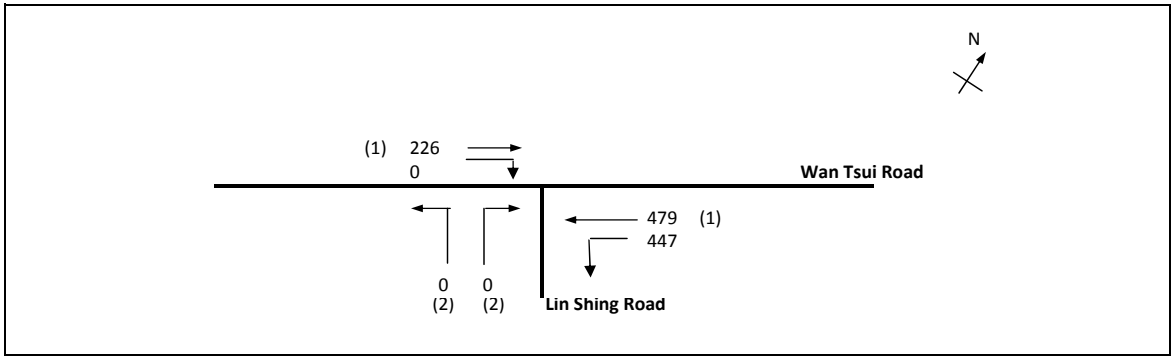
THE CAPACITY OF MOVEMENT

Q_{b-a}	=	613
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

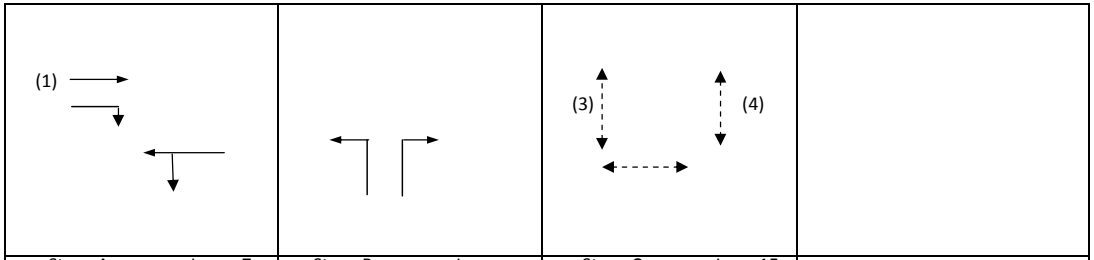
COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.015
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.449
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000
Critical DFC	=	**0.449**

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case	Sensitivity Test Scenario 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	75	sec
Sum(y)		Y =	0.492	
Loss time		L =	36	sec
Total Flow		=	1151	pcu
Co	= (1.5*L+5)/(1-Y)	=	116.2	sec
Cm	= L/(1-Y)	=	70.9	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	27.9	%
Cp	= 0.9*L/(0.9-Y)	=	79.5	sec
Ymax	= 1-L/C	=	0.520	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-5.0	%

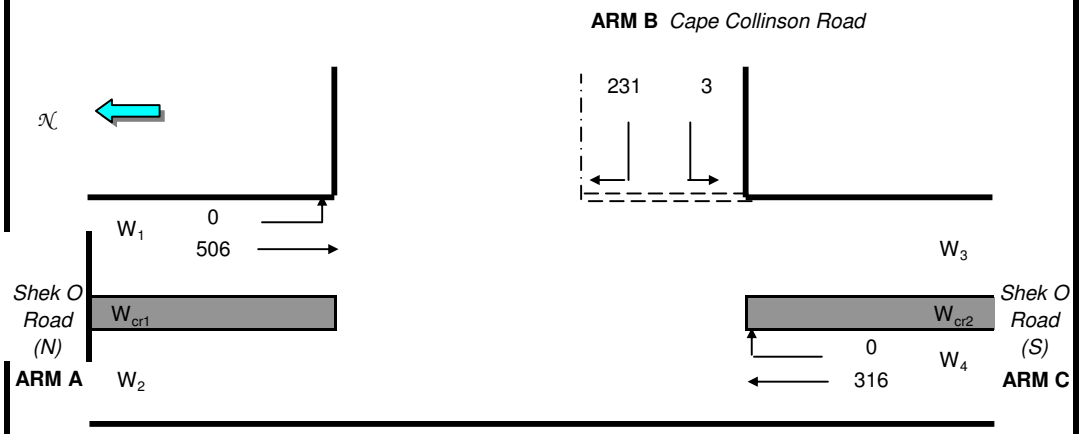


Stage A	I = 7	Stage B	I =	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
ST	A	3.00	1	1			N	1915		226		226	0.00	1915			1915	0.118			9	39	0.227	12	7
ST/LT	A	4.00	1	1	10		N	2015	447	479		925	0.48	1879			1879	0.492	0.492		39	39	0.947	78	12
Ped	B	6.0	3									5709		3072						16					
		11.0	4											4224						12					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	505.662	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	316.484	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	231.458	(pcu/hr)
q_{b-c}	=	2.81213	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	613
Q_{c-b}	=	682
Q_{b-a}	=	279

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.829
DFC_{b-c}	=	0.005
DFC_{c-b}	=	0.000

Critical DFC = 0.829

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
Crowthorne House
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RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4_20%.vai"
(drive-on-the-left) at 10:51:00 on Thursday, 23 February 2012

.FILE PROPERTIES

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA

WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_WE_J4_Ref+20%

DEMAND SET TITLE: 2021_WE_J4_Ref+20%

T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.012	0.265	0.424	0.299
		13.0	296.0	473.0	334.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.615	0.011	0.060	0.315
		639.0	11.0	62.0	327.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.391	0.358	0.033	0.218
		106.0	97.0	9.0	59.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.311	0.381	0.304	0.004
		488.0	599.0	478.0	6.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

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---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	18.59	22.96	0.810	- -	-	0.0	4.1	112.9	0.216 I
I ARM B	17.32	19.91	0.870	- -	-	0.0	6.1	160.2	0.337 I
I ARM C	4.51	15.52	0.291	- -	-	0.0	0.4	12.0	0.091 I
I ARM D	26.20	41.93	0.625	- -	-	0.0	1.7	48.6	0.063 I
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	18.59	22.92	0.811	- -	-	4.1	4.2	124.8	0.230 I
I ARM B	17.32	19.82	0.874	- -	-	6.1	6.6	191.8	0.393 I
I ARM C	4.51	15.38	0.293	- -	-	0.4	0.4	12.4	0.092 I
I ARM D	26.20	41.80	0.627	- -	-	1.7	1.7	50.0	0.064 I
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	4.1	****
08.45	4.2	****

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	6.1	******
08.45	6.6	*******

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.4
08.45	0.4

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.7	**
08.45	1.7	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

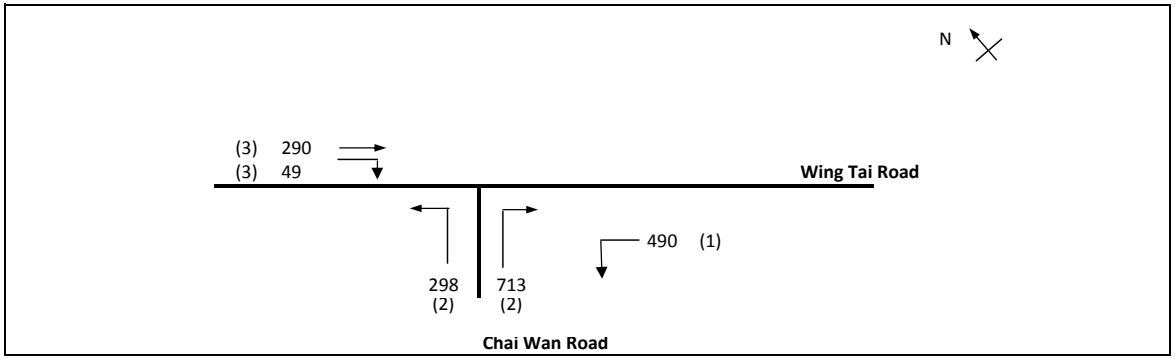
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1115.4	1115.4	237.6	0.21	238.0	0.21
B	1039.2	1039.2	352.0	0.34	353.1	0.34
C	270.6	270.6	24.4	0.09	24.4	0.09
D	1572.0	1572.0	98.6	0.06	98.6	0.06
ALL	3997.2	3997.2	712.6	0.18	714.1	0.18

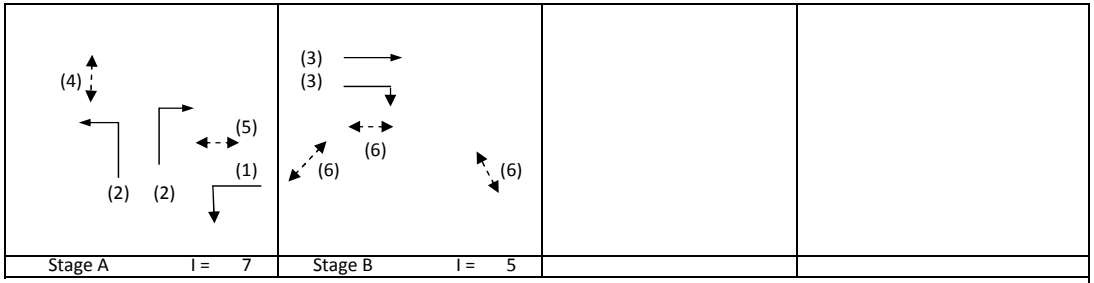
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.270
Loss time		L =	10 sec
Total Flow		=	1840 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.4 sec
Cm	= L/(1-Y)	=	13.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	205.3 %
Cp	= 0.9*L/(0.9-Y)	=	14.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	199.7 %

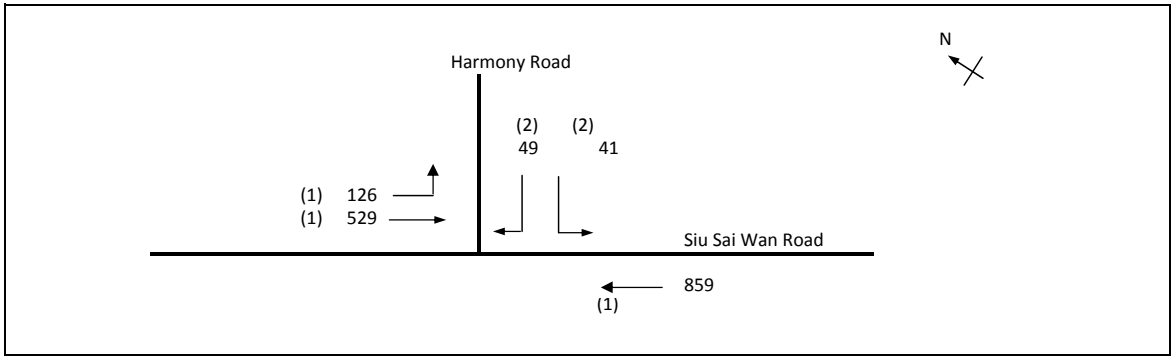


Stage A I = 7 Stage B I = 5

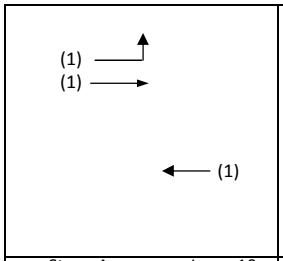
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	490			490	1.00	3857			3857	0.127			42	66	0.192	12	5
LT	A	4.00	2	2	24			4310	298			298	1.00	4056			4056	0.073			24	66	0.111	6	5
RT	A	3.50	2	2	11		y	4070			713	713	1.00	3582			3582	0.199	0.199		66	66	0.300	18	4
ST	B	3.50	3	2			y	4070		290		290	0.00	4070			4070	0.071	0.071		24	24	0.300	18	25
RT	B	4.50	3	2	13		y	4270			49	49	1.00	3828			3828	0.013			4	24	0.054	3	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

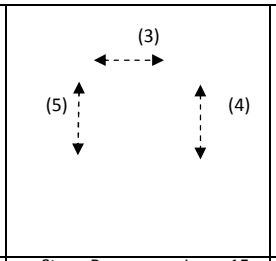
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



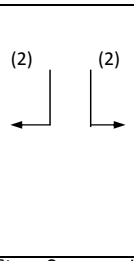
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.243	
Loss time	L =	48	sec
Total Flow	=	1604	pcu
Co = (1.5*L+5)/(1-Y)	=	101.7	sec
Cm = L/(1-Y)	=	63.4	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	122.6	%
Cp = 0.9*L/(0.9-Y)	=	65.7	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	93.0	%



Stage A I = 10



Stage B I = 15

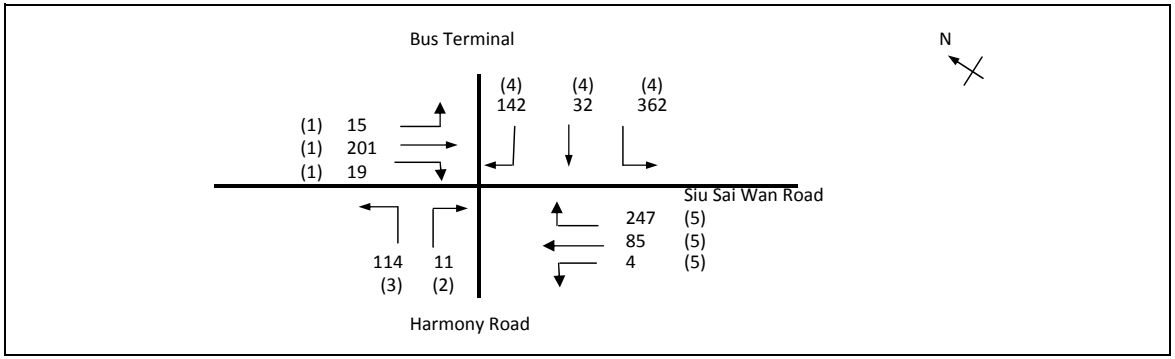


Stage C I = 6

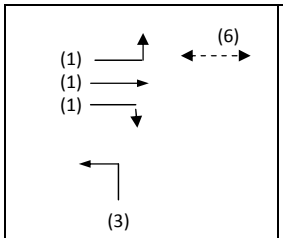
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	126	182		308	0.41	1842			1842	0.167			36	46	0.360	24	12
ST	A	3.20	1	1				2075		347		347	0.00	2075			2075	0.167			36	46	0.361	30	12
ST	A	3.00	1	2			y	3970		859		859	0.00	3970			3970	0.216	0.216		46	46	0.466	36	11
LT	C	3.75	2	1	12		y	1990	41			41	1.00	1769			1769	0.023			5	6	0.410	6	51
RT	C	3.75	2	1	12			2130			49	49	1.00	1893			1893	0.026	0.026		6	6	0.466	6	52
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

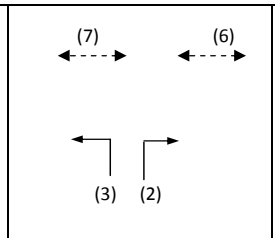
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



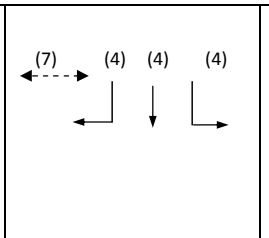
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.421
Loss time		L =	18 sec
Total Flow		=	1232 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.3 sec
Cm	= L/(1-Y)	=	31.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	81.7 %
Cp	= 0.9*L/(0.9-Y)	=	33.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	77.1 %



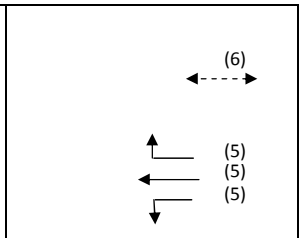
Stage A I = 5



Stage B I = 5



Stage C I = 6

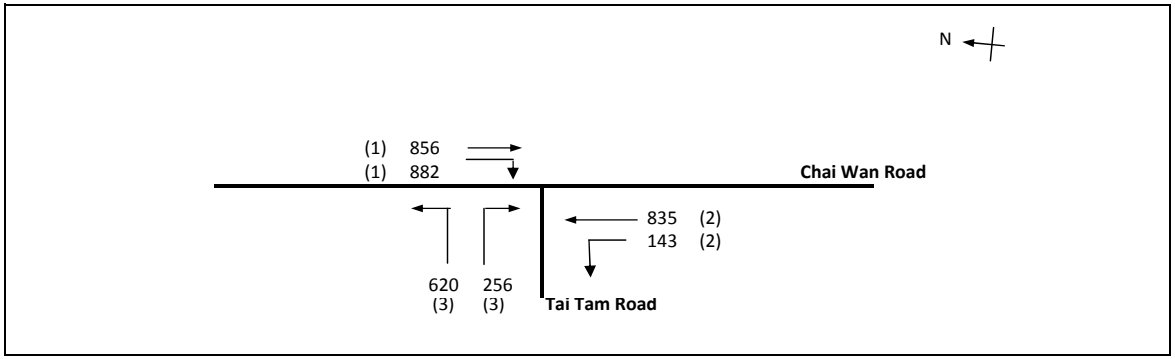


Stage C I = 6

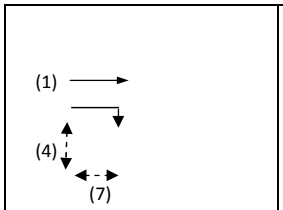
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	15	98		113	0.13	1910			1910	0.059			12	12	0.507	12	42
ST/RT	A	3.30	1	1	12			2085		103	19	122	0.16	2045			2045	0.059	0.059		12	12	0.508	18	42
RT	B	3.50	2	1	12			2105			11	11	1.00	1871			1871	0.006	0.006		1	1	0.508	0	120
LT	A,B	3.75	3	1	13		y	1990	114			114	1.00	1784			1784	0.064			13	19	0.362	12	33
RT	C	3.50	4	1	12			2105			142	142	1.00	1871			1871	0.076			16	46	0.173	12	14
LT/ST	C	3.50	4	1	12		y	1965	362	32		393	0.92	1762			1762	0.223	0.223		46	46	0.508	36	14
ST/RT	D	3.50	5	1	12			2105		0	247	247	1.00	1871			1871	0.132	0.132		27	27	0.508	30	26
LT/ST	D	3.50	5	1	11		y	1965	4	85		89	0.04	1954			1954	0.045			9	9	0.508	12	47
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

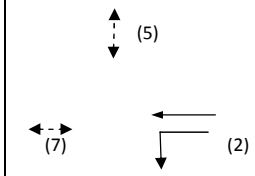
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Reference Case	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



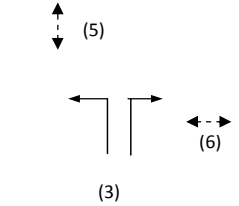
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	1.016
Loss time		L =	18 sec
Total Flow		=	3593 pcu
Co	= (1.5*L+5)/(1-Y)	=	-2010.9 sec
Cm	= L/(1-Y)	=	-1131.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-24.7 %
Cp	= 0.9*L/(0.9-Y)	=	-139.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-26.6 %



Stage A I = 7



Stage B I = 8

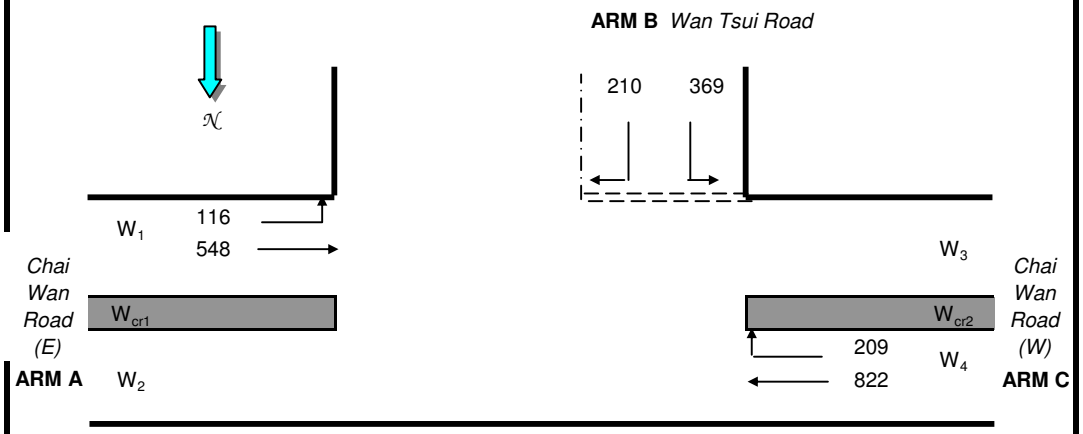


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		856		856	0.00	4120			4120	0.208			18	18	1.226	60	48
RT	A	3.00	1	1	13			2055			882	882	1.00	1842			1842	0.479	0.479		41	18	2.827	126	48
ST	B	3.50	2	2				4210		835		835	0.00	4210			4210	0.198	0.198		17	17	1.226	60	48
LT	B	3.10	2	1	12		y	1925	143			143	1.00	1711			1711	0.084			7	17	0.518	18	37
LT	C	4.00	3	1	15		y	2015	620			620	1.00	1832			1832	0.339	0.339		29	29	1.226	78	33
LT/RT	C	4.00	3	1	15			2155			256	256	1.00	1959			1959	0.131			11	29	0.474	30	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	116.428	(pcu/hr)
q_{a-c}	=	548.223	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	821.749	(pcu/hr)
q_{c-b}	=	209.118	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	210.176	(pcu/hr)
q_{b-c}	=	369.41	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

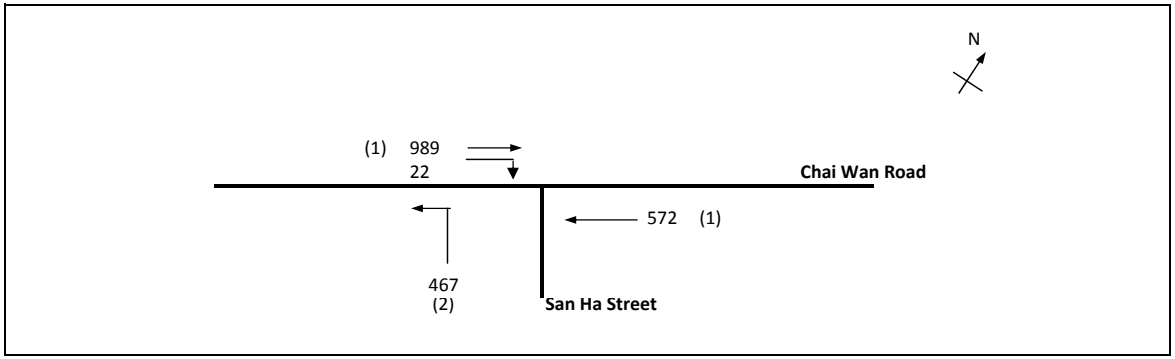
Q_{b-c}	=	749
Q_{c-b}	=	663
Q_{b-a}	=	339

COMPARISION OF DESIGN FLOW TO CAPACITY

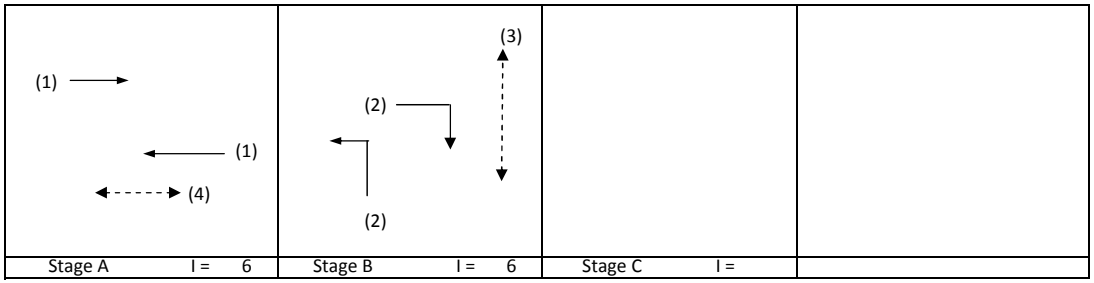
DFC_{b-a}	=	0.619
DFC_{b-c}	=	0.493
DFC_{c-b}	=	0.315

Critical DFC = 0.619

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



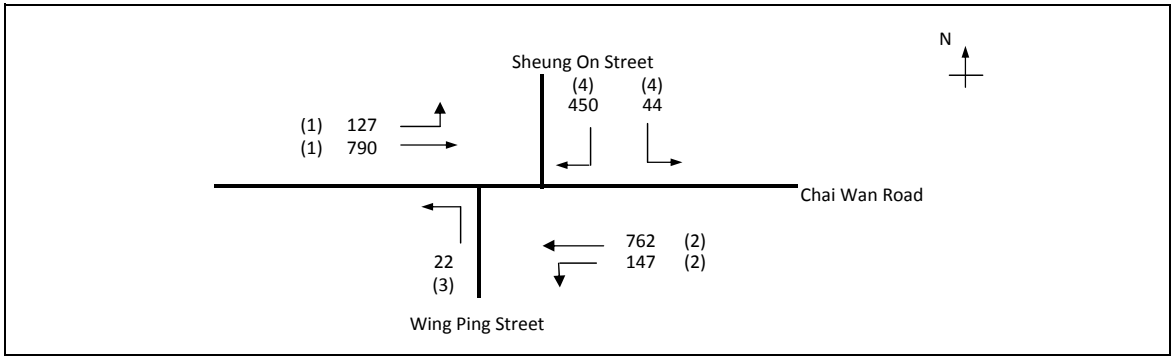
No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.524	
Loss time		L =	10	sec
Total Flow		=	2050	pcu
Co	= (1.5*L+5)/(1-Y)	=	42.0	sec
Cm	= L/(1-Y)	=	21.0	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	57.6	%
Cp	= 0.9*L/(0.9-Y)	=	23.9	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	54.7	%



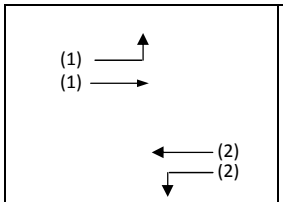
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		989		989	0.00	4070			4070	0.243	0.243		42	47	0.517	42	10
ST	A	3.50	1	2	10		N	4070		572		572	0.00	4070			4070	0.141			24	47	0.299	24	11
LT	B	3.00	2	1	10		N	1915	467			467	1.00	1665			1665	0.281	0.281		48	53	0.530	36	9
RT	B	3.50	2	1	12			2105			22	22	1.00	1871			1871	0.012			2	53	0.022	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

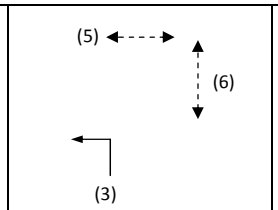
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



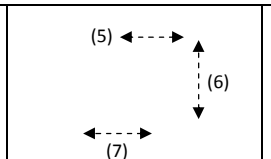
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.381
Loss time		L =	37 sec
Total Flow		=	2343 pcu
Co	= (1.5*L+5)/(1-Y)	=	97.7 sec
Cm	= L/(1-Y)	=	59.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	63.4 %
Cp	= 0.9*L/(0.9-Y)	=	64.2 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	63.4 %



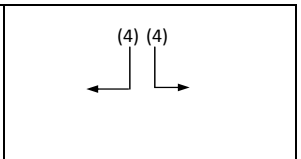
Stage A I = 8



Stage B I = 5



Stage C I = 7

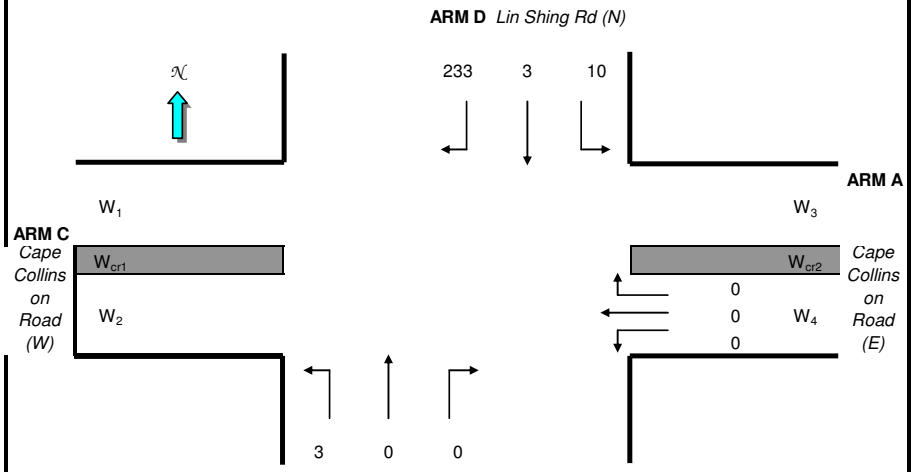


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	127	790		918	0.14	6070			6070	0.151			33		0.000	60	54
LT/ST	A	3.30	2	2	12		Y	4030	147	762		909	0.16	3950			3950	0.230	0.230		50		0.000	90	54
LT	B	3.50	3	1	9		Y	1965	22			22	1.00	1684			1684	0.013	0.013		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	44		450	495	1.00	3583			3583	0.138	0.138		30		0.000	48	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.5401	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	10.16	(pcu/hr)
q_{d-b}	=	2.5401	(pcu/hr)
q_{d-c}	=	233.18	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

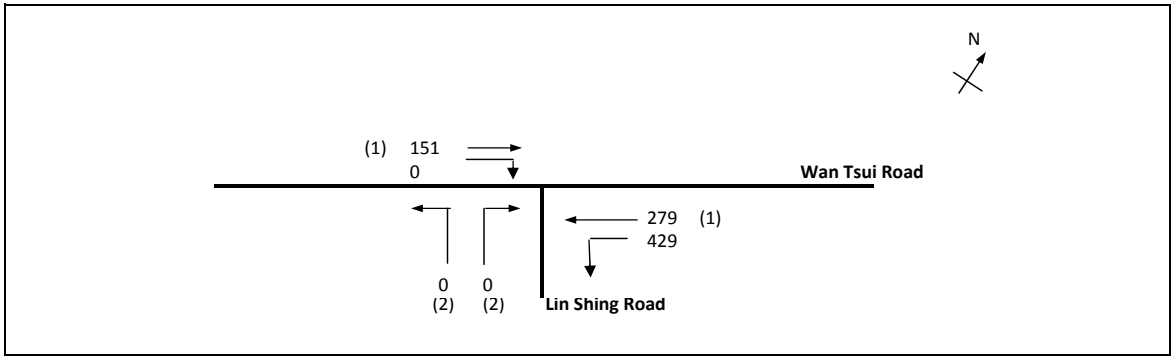
Q_{b-a}	=	613
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

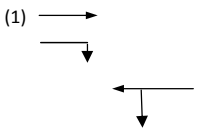
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.015
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.450
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

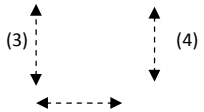
Critical DFC = 0.450

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test Scenario 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	75	sec
Sum(y)		Y =	0.383	
Loss time		L =	36	sec
Total Flow		=	858	pcu
Co	= (1.5*L+5)/(1-Y)	=	95.6	sec
Cm	= L/(1-Y)	=	58.4	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	64.5	%
Cp	= 0.9*L/(0.9-Y)	=	62.7	sec
Ymax	= 1-L/C	=	0.520	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22.2	%



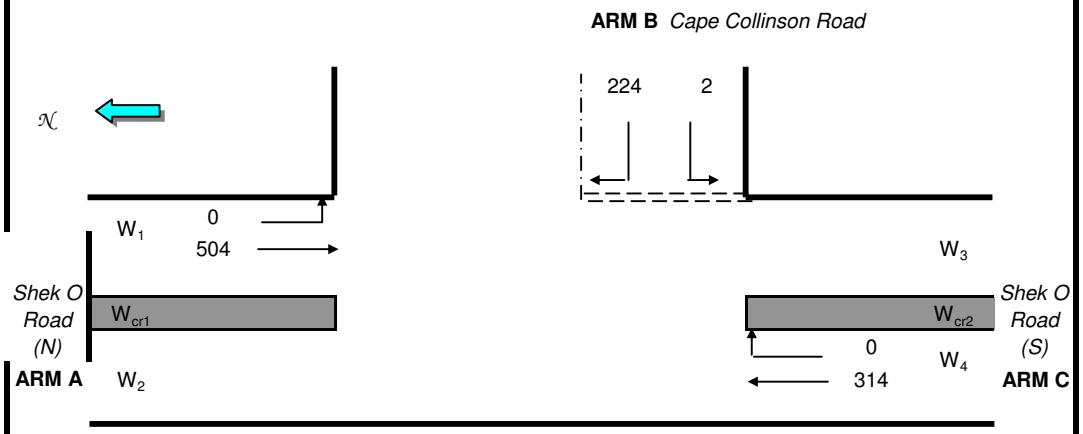


Stage A	I = 7	Stage B	I =	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
ST	A	3.00	1	1			N	1915		151		151	0.00	1915			1915	0.079			8	39	0.151	6	7
ST/LT	A	4.00	1	1	10		N	2015	429	279		708	0.61	1847			1847	0.383	0.383		39	39	0.737	42	10
Ped	B	6.0	3									5709		3072						16					
		11.0	4											4224						12					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	504.091	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	313.882	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	223.661	(pcu/hr)
q_{b-c}	=	2.30812	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	613
Q_{c-b}	=	683
Q_{b-a}	=	280

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.800
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.800

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
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RG40 3GA,UK

Tel: +44 (0) 1344 770758
Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4_20%.vai"
(drive-on-the-left) at 09:53:35 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S1+20%(100%SanHaSt)

DEMAND SET TITLE: 2021_CM_J4_S1+20%(100%SanHaSt)

.---------- T33

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
		TURNING PROPORTIONS			
		TURNING COUNTS			
		(PERCENTAGE OF H.V.S)			
07.45 - 08.45	ARM A	0.013	0.318	0.358	0.312
		13.0	322.0	363.0	316.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.600	0.016	0.043	0.341
		837.0	23.0	60.0	475.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.359	0.303	0.046	0.292
		70.0	59.0	9.0	57.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.301	0.441	0.254	0.004
		442.0	648.0	374.0	6.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 07.45-08.15									
I ARM A	16.88	24.11	0.700	- -	-	0.0	2.3	65.9	
-	0.135	I							
I ARM B	23.25	22.91	1.015	- -	-	0.0	31.5	594.7	
-	0.955	I							
I ARM C	3.25	12.38	0.262	- -	-	0.0	0.4	10.4	
-	0.109	I							
I ARM D	24.49	40.11	0.611	- -	-	0.0	1.6	45.8	
-	0.064	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ VEHICLE (MIN)	AVERAGE DELAY PER ARRIVING I
I 08.15-08.45									
I ARM A	16.88	24.08	0.701	- -	-	2.3	2.3	69.5	
-	0.139	I							
I ARM B	23.25	22.86	1.017	- -	-	31.5	49.6	1224.6	
-	2.004	I							
I ARM C	3.25	12.09	0.269	- -	-	0.4	0.4	10.9	
-	0.113	I							
I ARM D	24.49	39.81	0.615	- -	-	1.6	1.6	47.5	
-	0.065	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.3	**
08.45	2.3	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	31.5	******************************
08.45	49.6	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.15	0.4
08.45	0.4

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

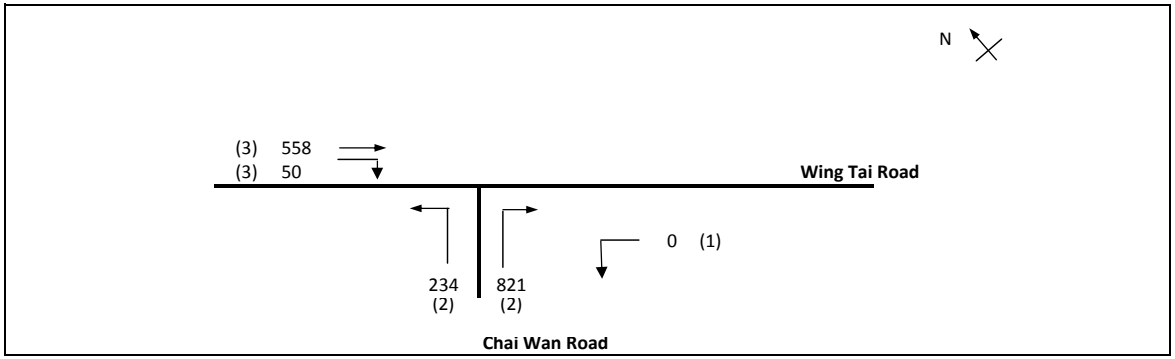
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1012.8	1012.8	135.3	0.13	135.4	0.13
B	1395.0	1395.0	1819.3	1.30	1873.1	1.34
C	195.0	195.0	21.3	0.11	21.3	0.11
D	1469.4	1469.4	93.3	0.06	93.3	0.06
ALL	4072.2	4072.2	2069.2	0.51	2123.2	0.52

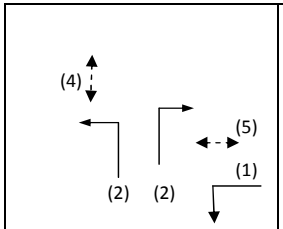
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

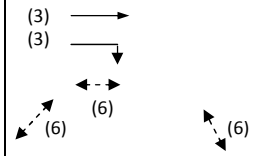
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.366	
Loss time		L =	10	sec
Total Flow		=	1662	pcu
Co	= (1.5*L+5)/(1-Y)	=	31.6	sec
Cm	= L/(1-Y)	=	15.8	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	125.3	%
Cp	= 0.9*L/(0.9-Y)	=	16.9	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	121.2	%



Stage A I = 7

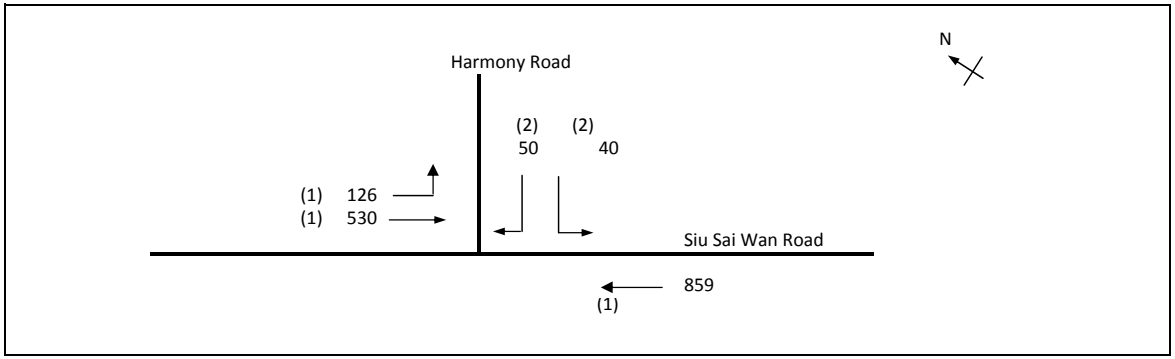


Stage B I = 5

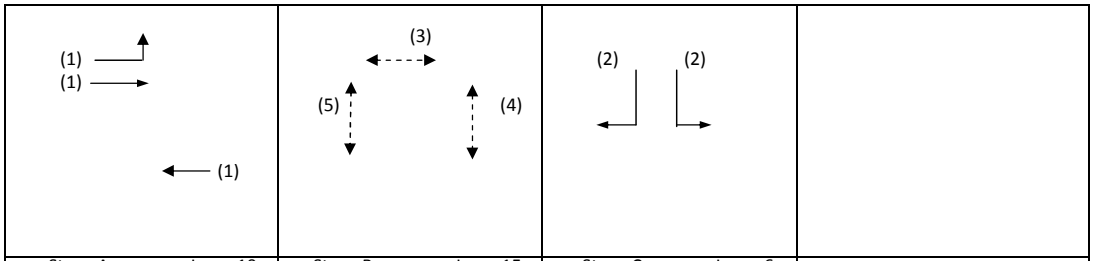
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	0			0	#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!			#DIV/0!	56	#DIV/0!	#DIV/0!	#DIV/0!
LT	A	4.00	2	2	24			4310	234			234	1.00	4056			4056	0.058			14	56	0.103	6	8
RT	A	3.50	2	2	11		y	4070			821	821	1.00	3582			3582	0.229	0.229		56	56	0.407	27	7
ST	B	3.50	3	2			y	4070		558		558	0.00	4070			4070	0.137	0.137		34	34	0.407	30	18
RT	B	4.50	3	2	13		y	4270			50	50	1.00	3828			3828	0.013			3	34	0.038	0	20
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.243	
Loss time	L =	48	sec
Total Flow	=	1604	pcu
Co = (1.5*L+5)/(1-Y)	=	101.7	sec
Cm = L/(1-Y)	=	63.4	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	122.5	%
Cp = 0.9*L/(0.9-Y)	=	65.7	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	92.9	%

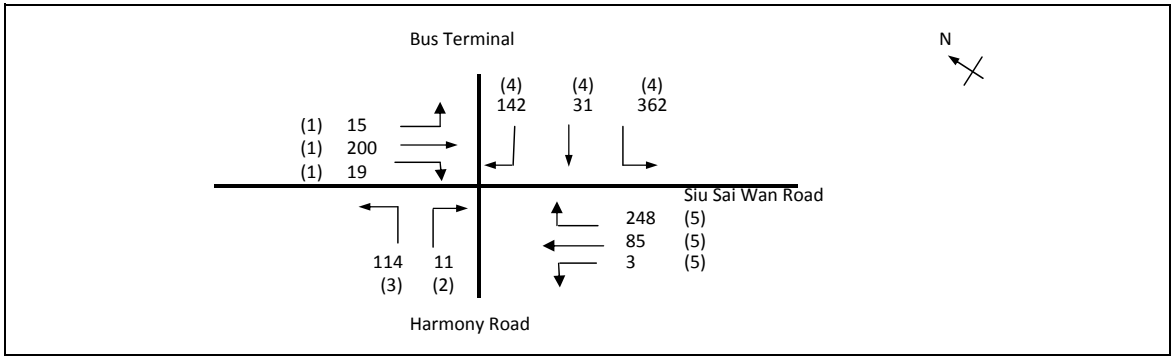


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

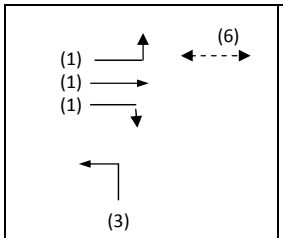
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	126	182		308	0.41	1842			1842	0.167			36	46	0.360	24	12
ST	A	3.20	1	1				2075		348		348	0.00	2075			2075	0.168			36	46	0.361	30	12
ST	A	3.00	1	2			y	3970		859		859	0.00	3970			3970	0.216	0.216		46	46	0.467	36	11
LT	C	3.75	2	1	12		y	1990	40			40	1.00	1769			1769	0.023			5	6	0.403	6	50
RT	C	3.75	2	1	12			2130			50	50	1.00	1893			1893	0.026	0.026		6	6	0.467	6	52
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

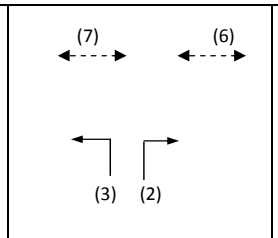
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



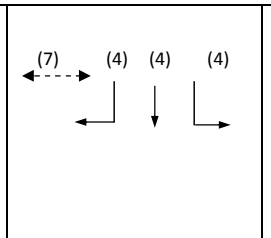
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.421
Loss time		L =	18 sec
Total Flow		=	1230 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.2 sec
Cm	= L/(1-Y)	=	31.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	81.8 %
Cp	= 0.9*L/(0.9-Y)	=	33.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	77.2 %



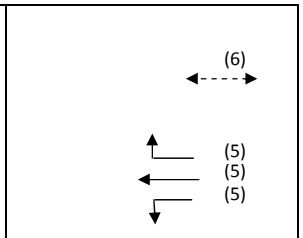
Stage A I = 5



Stage B I = 5



Stage C I = 6

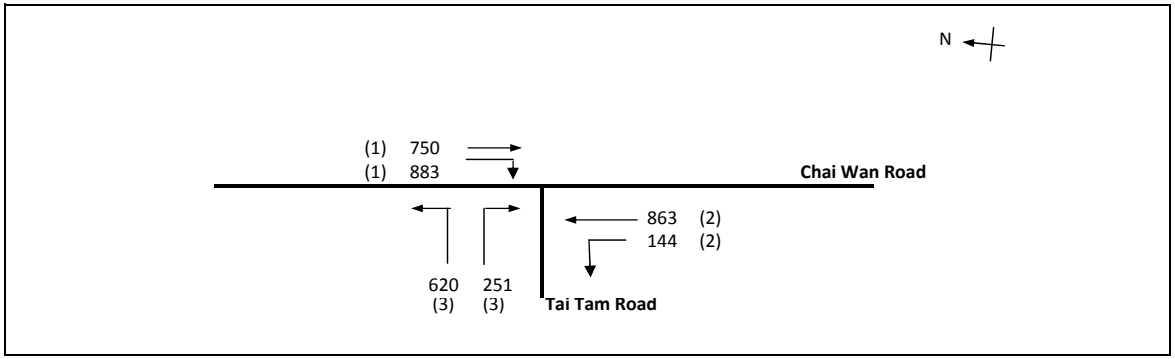


Stage C I = 6

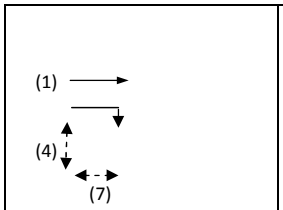
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	15	98		113	0.13	1910			1910	0.059			12	12	0.510	12	42
ST/RT	A	3.30	1	1	12			2085		102	19	121	0.16	2045			2045	0.059	0.059		12	12	0.508	18	42
RT	B	3.50	2	1	12			2105			11	11	1.00	1871			1871	0.006	0.006		1	1	0.508	0	120
LT	A,B	3.75	3	1	13		y	1990	114			114	1.00	1784			1784	0.064			13	18	0.362	12	33
RT	C	3.50	4	1	12			2105			142	142	1.00	1871			1871	0.076			16	46	0.173	12	14
LT/ST	C	3.50	4	1	12		y	1965	362	31		393	0.92	1762			1762	0.223	0.223		46	46	0.508	36	14
ST/RT	D	3.50	5	1	12			2105			248	248	1.00	1871			1871	0.132	0.132		27	27	0.508	30	26
LT/ST	D	3.50	5	1	11		y	1965	3	85		88	0.04	1955			1955	0.045			9	9	0.508	12	47
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

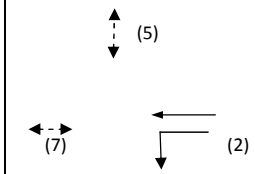
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



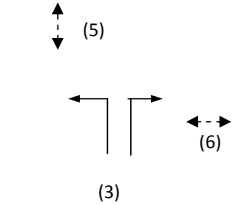
No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	1.023	
Loss time	L =	18	sec
Total Flow	=	3511	pcu
Co = (1.5*L+5)/(1-Y)	=	-1404.9	sec
Cm = L/(1-Y)	=	-790.3	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	-25.2	%
Cp = 0.9*L/(0.9-Y)	=	-131.9	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	-27.1	%



Stage A I = 7



Stage B I = 8



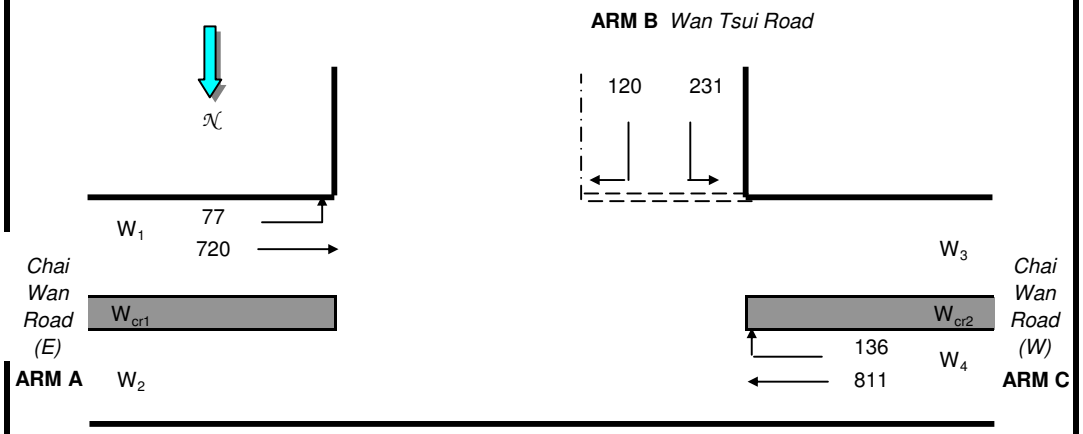
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		750		750	0.00	4120			4120	0.182			15	15	1.234	54	48
RT	A	3.00	1	1	13			2055			883	883	1.00	1842			1842	0.479	0.479		41	15	3.251	126	51
ST	B	3.50	2	2				4210		863		863	0.00	4210			4210	0.205	0.205		17	17	1.234	60	48
LT	B	3.10	2	1	12		y	1925	144			144	1.00	1711			1711	0.084			7	17	0.505	18	36
LT	C	4.00	3	1	15		y	2015	620			620	1.00	1832			1832	0.339	0.339		29	29	1.234	78	33
LT/RT	C	4.00	3	1	15			2155			251	251	1.00	1959			1959	0.128			11	29	0.467	30	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C	Prepared By:	GK
	Junction Capacity Analysis Sensitivity Test Scenario 3	Checked By:	OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	77.0254	(pcu/hr)
q_{a-c}	=	719.835	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	810.553	(pcu/hr)
q_{c-b}	=	135.553	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	119.874	(pcu/hr)
q_{b-c}	=	230.912	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

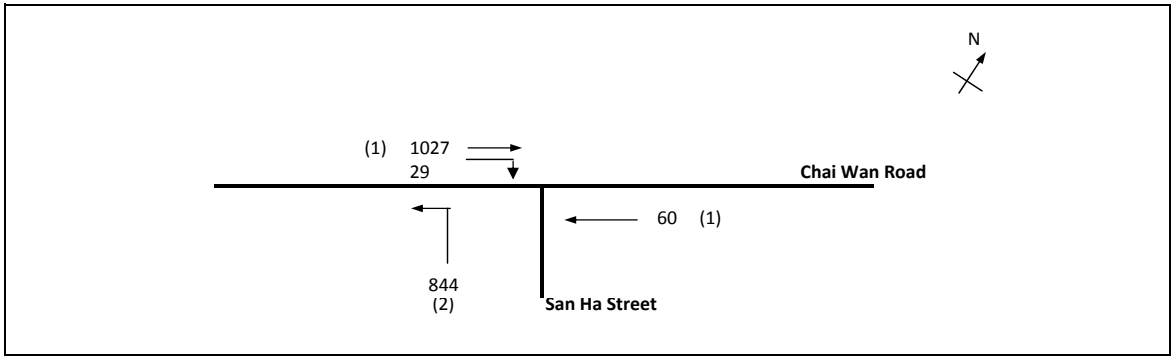
Q_{b-c}	=	729
Q_{c-b}	=	648
Q_{b-a}	=	336

COMPARISION OF DESIGN FLOW TO CAPACITY

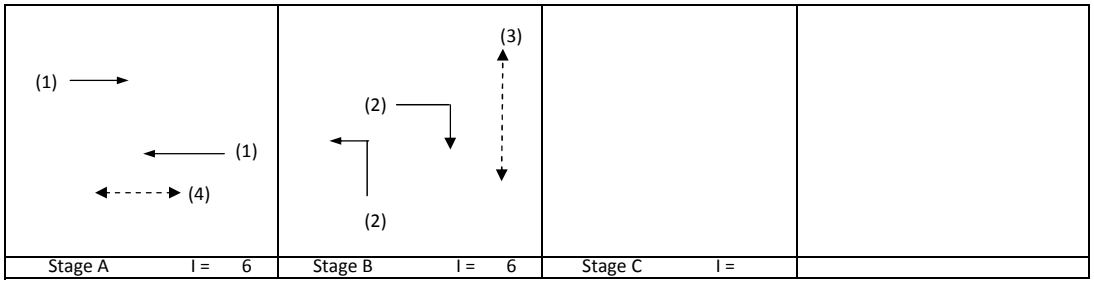
DFC_{b-a}	=	0.357
DFC_{b-c}	=	0.317
DFC_{c-b}	=	0.209

Critical DFC = 0.357

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.759
Loss time		L =	10 sec
Total Flow		=	1960 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.1 sec
Cm	= L/(1-Y)	=	41.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	8.6 %
Cp	= 0.9*L/(0.9-Y)	=	64.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	6.7 %

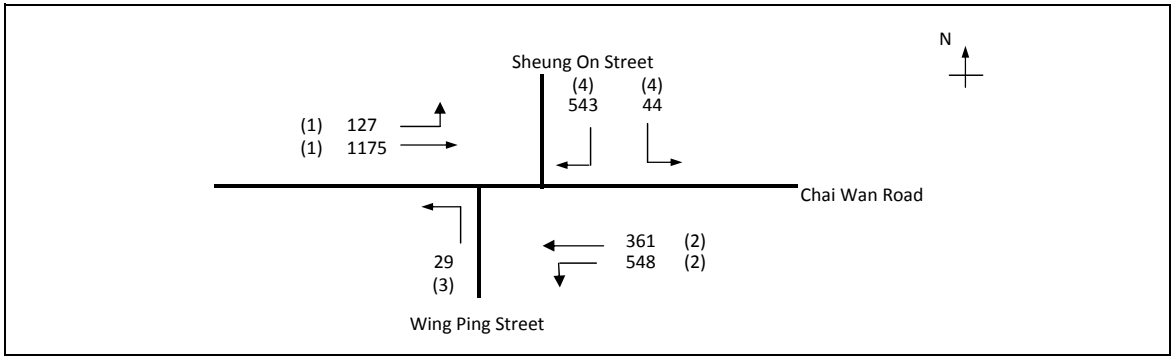


Stage A	I = 6	Stage B	I = 6	Stage C	I =

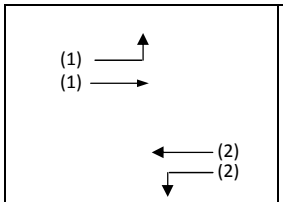
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1027		1027	0.00	4070			4070	0.252	0.252		30	47	0.537	45	10
ST	A	3.50	1	2	10		N	4070		60		60	0.00	4070			4070	0.015			2	47	0.032	0	12
LT	B	3.00	2	1	10		N	1915	844			844	1.00	1665			1665	0.507	0.507		60	53	0.957	96	14
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.015			2	53	0.029	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

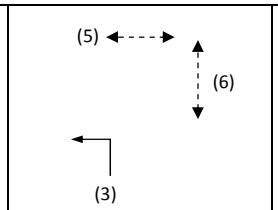
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :J5_J6_J7_J8(3)(100%).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



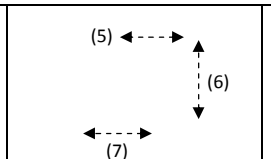
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.424
Loss time		L =	37 sec
Total Flow		=	2828 pcu
Co	= (1.5*L+5)/(1-Y)	=	105.0 sec
Cm	= L/(1-Y)	=	64.2 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	47.0 %
Cp	= 0.9*L/(0.9-Y)	=	69.9 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	47.0 %



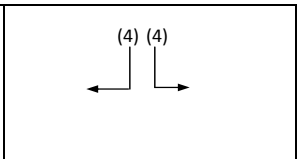
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	127	1175		1302	0.10	6100			6100	0.213			42		0.000	86	54
LT/ST	A	3.30	2	2	12		Y	4030	548	361		909	0.60	3747			3747	0.243	0.243		48		0.000	90	54
LT	B	3.50	3	1	9		Y	1965	29			29	1.00	1684			1684	0.017	0.017		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	44		543	588	1.00	3583			3583	0.164	0.164		32		0.000	57	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C

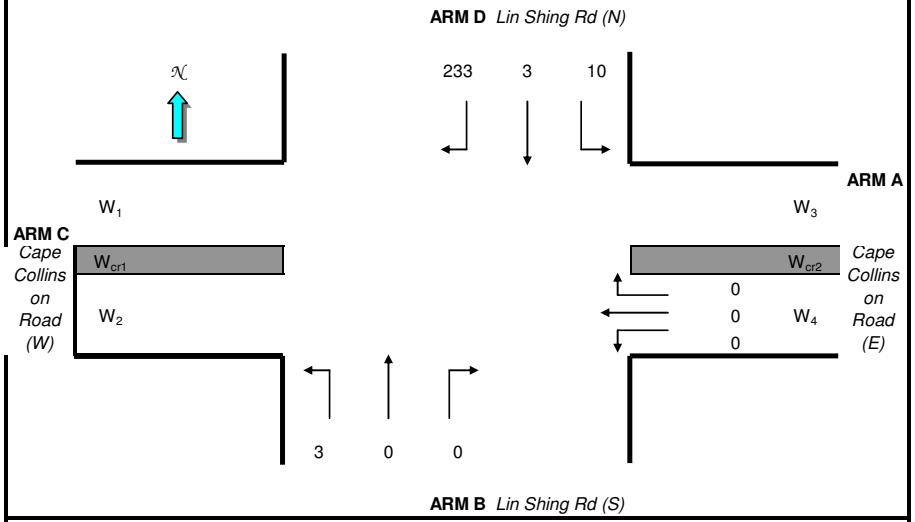
Junction Capacity Analysis

Prepared By:	**GK**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Ching Ming - Site 1

Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	3	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	10.16	(pcu/hr)
q_{d-b}	=	2.5401	(pcu/hr)
q_{d-c}	=	233.18	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

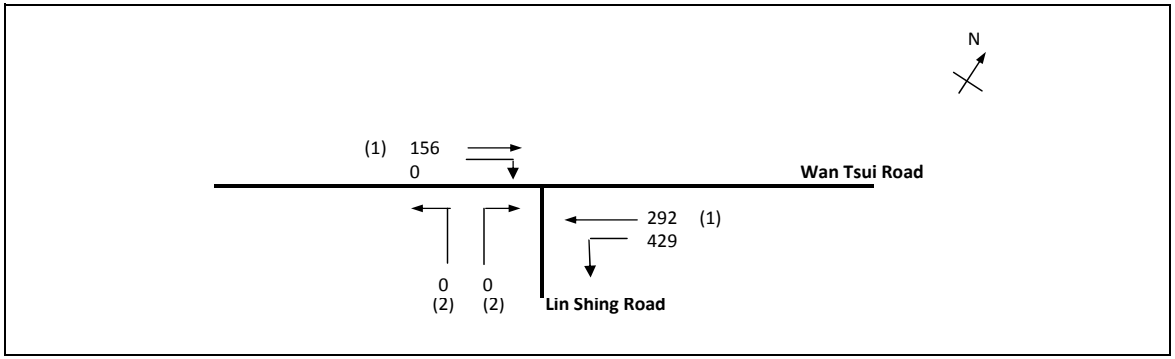
Q_{b-a}	=	613
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

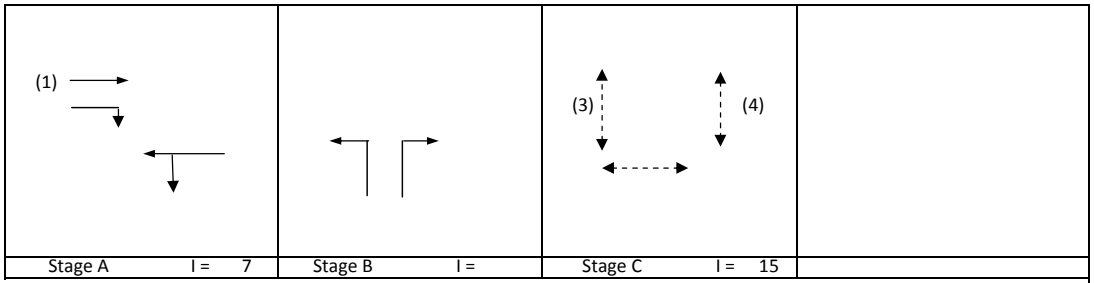
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.015
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.450
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.450

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test Scenario 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	75	sec
Sum(y)		Y =	0.390	
Loss time		L =	36	sec
Total Flow		=	877	pcu
Co	= (1.5*L+5)/(1-Y)	=	96.7	sec
Cm	= L/(1-Y)	=	59.0	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	61.7	%
Cp	= 0.9*L/(0.9-Y)	=	63.5	sec
Ymax	= 1-L/C	=	0.520	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20.1	%

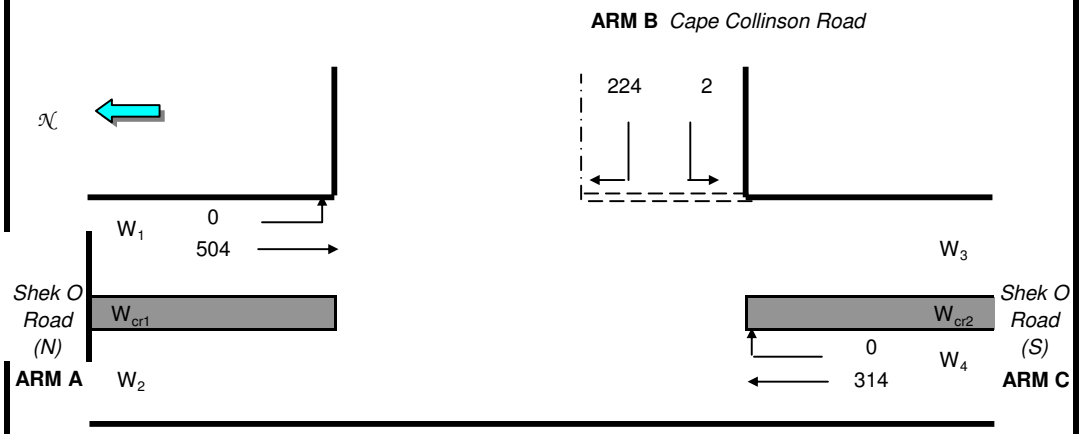


Stage A	I = 7	Stage B	I =	Stage C	I = 15

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
ST	A	3.00	1	1			N	1915		156		156	0.00	1915			1915	0.081			8	39	0.157	6	7
ST/LT	A	4.00	1	1	10		N	2015	429	292		721	0.59	1850			1850	0.390	0.390		39	39	0.749	42	10
Ped	B	6.0	3									5709		3072						16					
		11.0	4											4224						12					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	504	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	314	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	224	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	613
Q_{c-b}	=	683
Q_{b-a}	=	280

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.800
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.800

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 5.0 (JANUARY 2009)

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited
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Fax: +44 (0) 1344 770356
Email: software@trl.co.uk
Web: www.trlsoftware.co.uk

Run with file:-
"C:\Documents and Settings\chank1\Desktop\chaiwan\2021\2021_J4_20%.vai"
(drive-on-the-left) at 09:51:36 on Tuesday, 21 February 2012

.FILE PROPERTIES
****

RUN TITLE: 2011_WD_J4_AM
LOCATION:
DATE: 29/04/11
CLIENT:
ENUMERATOR: ChanK1 [D010034]
JOB NUMBER:
STATUS:
DESCRIPTION:

.INPUT DATA
****
WARNING Segment length greater than 15 minutes

ARM A - IEC N
ARM B - Chai Wan Road E
ARM C - Wan Tsui Road S
ARM D - Chai Wan Road W

.GEOMETRIC DATA

I ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)	T5
I ARM A I	7.11	8.45	57.00	45.00	39.50	28.0	0.837	43.638	

I ARM B I	6.40	I 7.60	I 21.00	I 65.00	I 48.00	I 15.0	I 0.784	I 40.660	I
I ARM C I	5.50	I 7.00	I 25.00	I 19.00	I 50.00	I 42.0	I 0.645	I 32.621	I
I ARM D I	10.30	I 12.60	I 28.00	I 60.00	I 45.00	I 33.0	I 1.036	I 62.571	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

.TRAFFIC DEMAND DATA

Only sets included in the current run are shown

.SCALING FACTORS

.---------- T13

IARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

TIME PERIOD BEGINS(07.45)AND ENDS(08.45)
.LENGTH OF TIME PERIOD -(60) MINUTES
.LENGTH OF TIME SEGMENT - (30) MINUTES

.DEMAND FLOW PROFILES ARE INPUT DIRECTLY.
.DEMAND SET TITLE: 2021_CM_J4_S1+20%

DEMAND SET TITLE: 2021_CM_J4_S1+20%

.---------- T33

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 08.45	ARM A	0.013	0.306	0.366	0.315
		13.0	308.0	369.0	318.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM B	0.599	0.017	0.044	0.340
		824.0	23.0	61.0	468.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM C	0.365	0.305	0.045	0.285
		73.0	61.0	9.0	57.0
		(10.0)	(10.0)	(10.0)	(10.0)
	ARM D	0.300	0.440	0.257	0.004
		444.0	651.0	380.0	6.0
		(10.0)	(10.0)	(10.0)	(10.0)

.----------

. QUEUE AND DELAY INFORMATION FOR EACH 30 MIN TIME SEGMENT

.----------

---------- T70

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 07.45-08.15									
I ARM A	16.80	23.95	0.702	- -	-	0.0	2.3	66.3	
-	0.137	I							
I ARM B	22.92	22.71	1.009	- -	-	0.0	29.0	558.2	
-	0.907	I							
I ARM C	3.33	12.53	0.266	- -	-	0.0	0.4	10.6	
-	0.108	I							
I ARM D	24.70	40.21	0.614	- -	-	0.0	1.6	46.5	
-	0.064	I							
I									
I									

.----------

I TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN) I
I 08.15-08.45									
I ARM A	16.80	23.91	0.703	- -	-	2.3	2.3	70.0	
-	0.141	I							
I ARM B	22.92	22.66	1.012	- -	-	29.0	44.5	1112.1	
-	1.860	I							
I ARM C	3.33	12.23	0.272	- -	-	0.4	0.4	11.1	
-	0.112	I							
I ARM D	24.70	39.90	0.619	- -	-	1.6	1.6	48.3	
-	0.066	I							
I									
I									

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	2.3	**
08.45	2.3	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	29.0	******************************
08.45	44.5	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	0.4	
08.45	0.4	

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.15	1.6	**
08.45	1.6	**

.QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

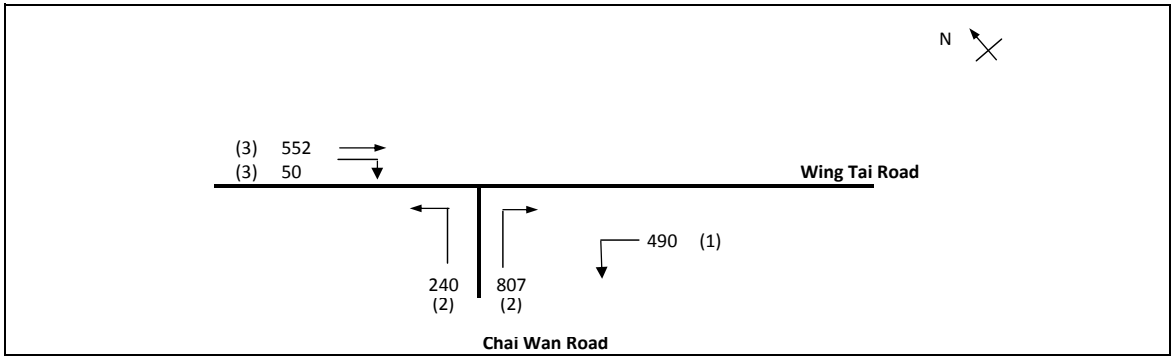
T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1008.0	1008.0	136.3	0.14	136.4	0.14
B	1375.2	1375.2	1670.3	1.21	1714.0	1.25
C	199.8	199.8	21.7	0.11	21.7	0.11
D	1482.0	1482.0	94.7	0.06	94.8	0.06
ALL	4065.0	4065.0	1923.0	0.47	1966.8	0.48

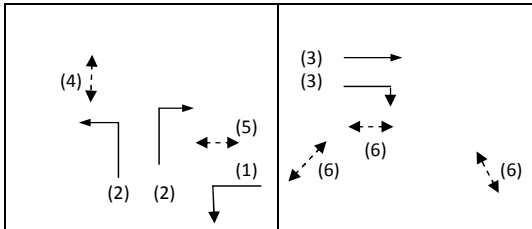
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.361	
Loss time		L =	10	sec
Total Flow		=	2139	pcu
Co	= (1.5*L+5)/(1-Y)	=	31.3	sec
Cm	= L/(1-Y)	=	15.6	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	128.6	%
Cp	= 0.9*L/(0.9-Y)	=	16.7	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	124.5	%



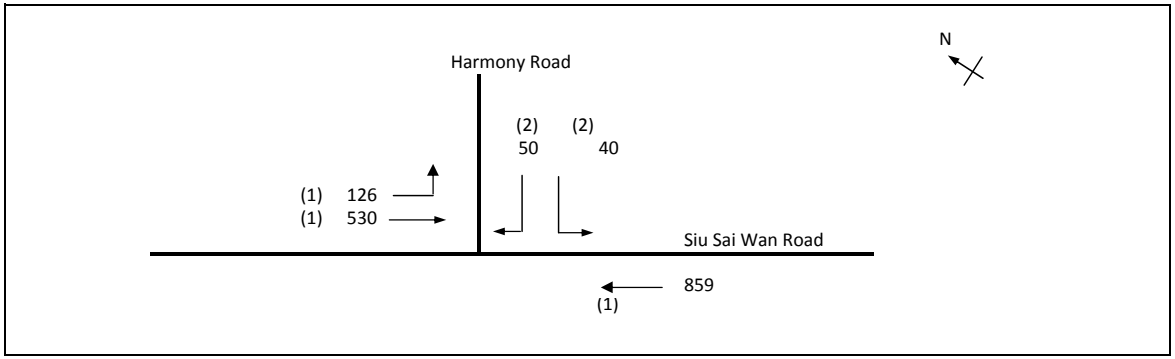
Stage A I = 7

Stage B I = 5

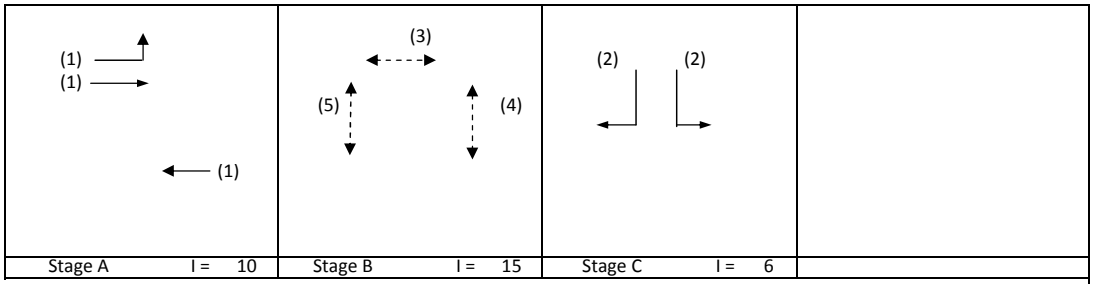
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	490			490	1.00	3857			3857	0.127			32	56	0.226	15	8
LT	A	4.00	2	2	24			4310	240			240	1.00	4056			4056	0.059			15	56	0.105	6	8
RT	A	3.50	2	2	11		y	4070			807	807	1.00	3582			3582	0.225	0.225		56	56	0.401	27	7
ST	B	3.50	3	2			y	4070		552		552	0.00	4070			4070	0.136	0.136		34	34	0.401	30	18
RT	B	4.50	3	2	13		y	4270			50	50	1.00	3828			3828	0.013			3	34	0.038	0	20
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.243	
Loss time	L =	48	sec
Total Flow	=	1604	pcu
Co = (1.5*L+5)/(1-Y)	=	101.7	sec
Cm = L/(1-Y)	=	63.4	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	122.5	%
Cp = 0.9*L/(0.9-Y)	=	65.7	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	92.9	%

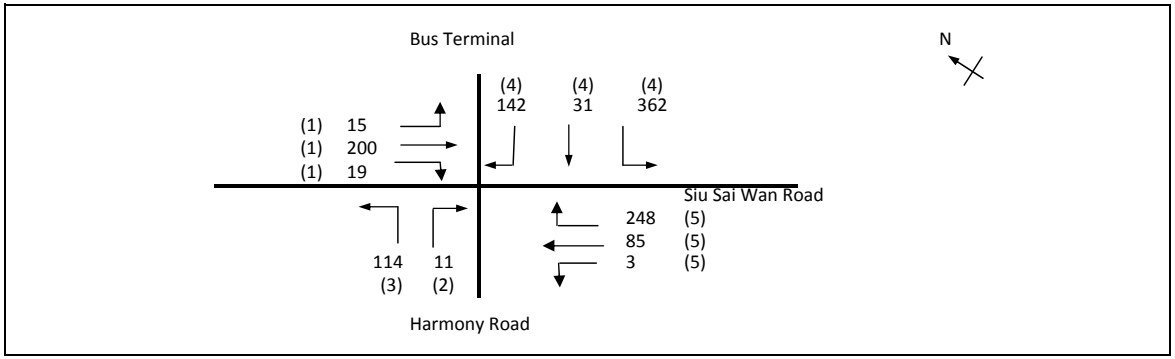


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

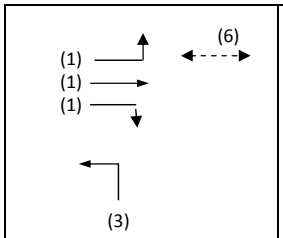
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	126	182		308	0.41	1842			1842	0.167			36	46	0.360	24	12
ST	A	3.20	1	1				2075		348		348	0.00	2075			2075	0.168			36	46	0.361	30	12
ST	A	3.00	1	2			y	3970		859		859	0.00	3970			3970	0.216	0.216		46	46	0.467	36	11
LT	C	3.75	2	1	12		y	1990	40			40	1.00	1769			1769	0.023			5	6	0.403	6	50
RT	C	3.75	2	1	12			2130			50	50	1.00	1893			1893	0.026	0.026		6	6	0.467	6	52
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

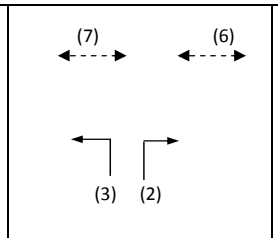
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



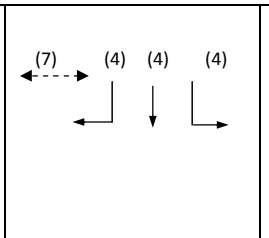
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.421
Loss time		L =	18 sec
Total Flow		=	1230 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.2 sec
Cm	= L/(1-Y)	=	31.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	81.8 %
Cp	= 0.9*L/(0.9-Y)	=	33.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	77.2 %



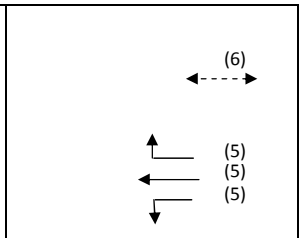
Stage A I = 5



Stage B I = 5



Stage C I = 6

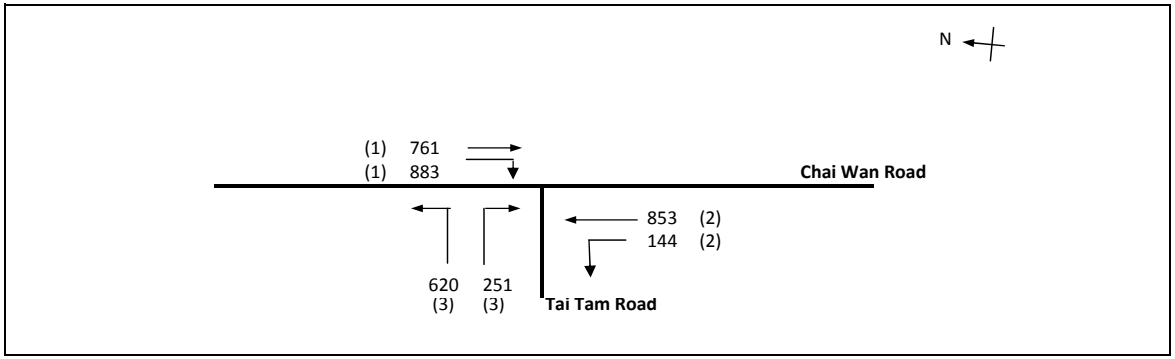


Stage C I = 6

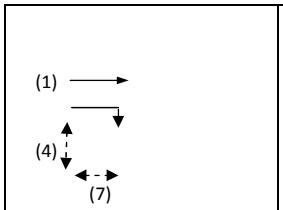
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	15	98		113	0.13	1910			1910	0.059			12	12	0.510	12	42
ST/RT	A	3.30	1	1	12			2085		102	19	121	0.16	2045			2045	0.059	0.059		12	12	0.508	18	42
RT	B	3.50	2	1	12			2105			11	11	1.00	1871			1871	0.006	0.006		1	1	0.508	0	120
LT	A,B	3.75	3	1	13		y	1990	114			114	1.00	1784			1784	0.064			13	18	0.362	12	33
RT	C	3.50	4	1	12			2105			142	142	1.00	1871			1871	0.076			16	46	0.173	12	14
LT/ST	C	3.50	4	1	12		y	1965	362	31		393	0.92	1762			1762	0.223	0.223		46	46	0.508	36	14
ST/RT	D	3.50	5	1	12			2105			248	248	1.00	1871			1871	0.132	0.132		27	27	0.508	30	26
LT/ST	D	3.50	5	1	11		y	1965	3	85		88	0.04	1955			1955	0.045			9	9	0.508	12	47
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

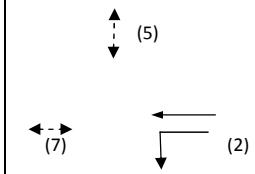
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1	Sensitivity Test 3	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



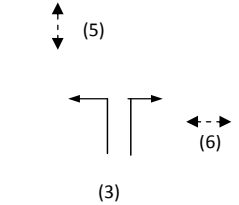
No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	1.020	
Loss time	L =	18	sec
Total Flow	=	3512	pcu
Co = (1.5*L+5)/(1-Y)	=	-1566.5	sec
Cm = L/(1-Y)	=	-881.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	-25.0	%
Cp = 0.9*L/(0.9-Y)	=	-134.5	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	-26.9	%



Stage A I = 7



Stage B I = 8



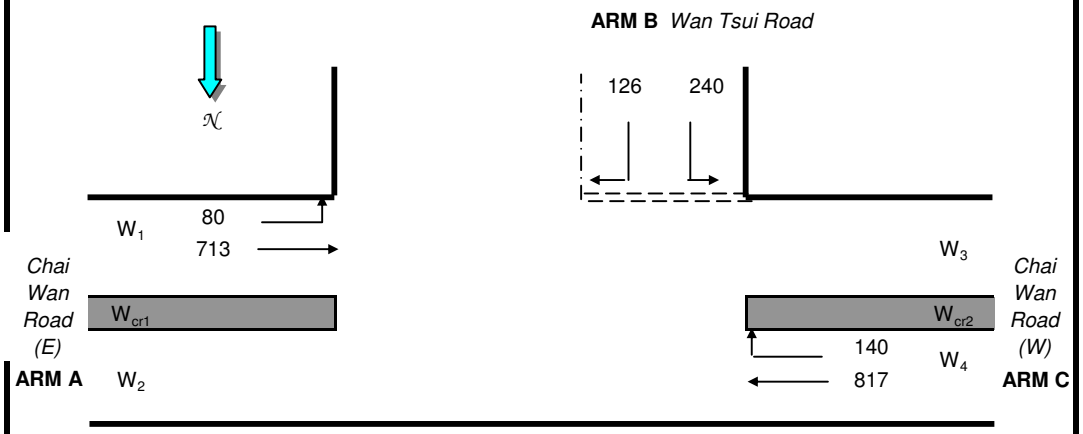
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		761		761	0.00	4120			4120	0.185			16	16	1.232	54	48
RT	A	3.00	1	1	13			2055			883	883	1.00	1842			1842	0.479	0.479		41	16	3.196	126	50
ST	B	3.50	2	2				4210		853		853	0.00	4210			4210	0.203	0.203		17	17	1.232	60	48
LT	B	3.10	2	1	12		y	1925	144			144	1.00	1711			1711	0.084			7	17	0.510	18	36
LT	C	4.00	3	1	15		y	2015	620			620	1.00	1832			1832	0.339	0.339		29	29	1.232	78	33
LT/RT	C	4.00	3	1	15			2155			251	251	1.00	1959			1959	0.128			11	29	0.466	30	24
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C	Prepared By:	GK
	Junction Capacity Analysis Sensitivity Test Scenario 3	Checked By:	OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Ching Ming - Site 1
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	79.6904	(pcu/hr)
q_{a-c}	=	713	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	817	(pcu/hr)
q_{c-b}	=	140	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	126	(pcu/hr)
q_{b-c}	=	240	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

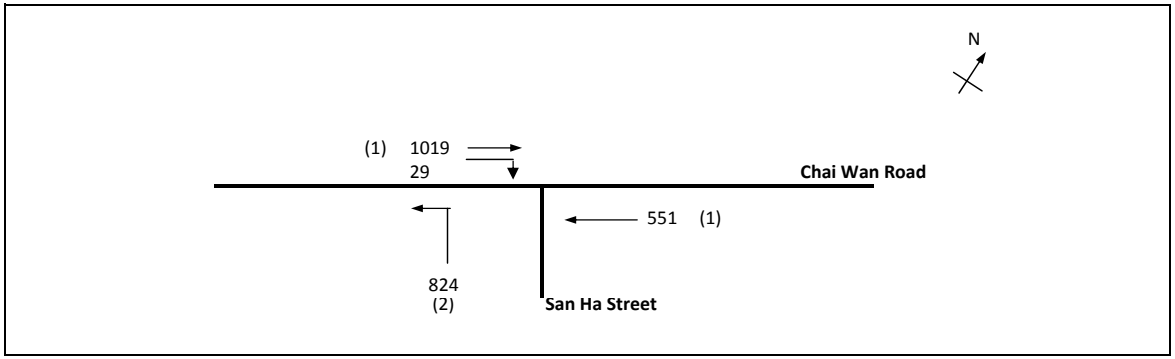
Q_{b-c}	=	730
Q_{c-b}	=	648
Q_{b-a}	=	336

COMPARISION OF DESIGN FLOW TO CAPACITY

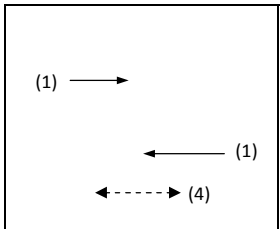
DFC_{b-a}	=	0.375
DFC_{b-c}	=	0.329
DFC_{c-b}	=	0.217

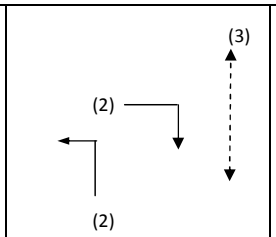
Critical DFC = 0.375

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
Junction of Chai Wan Road and San Ha Street	J10CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.745
Loss time		L =	10 sec
Total Flow		=	2423 pcu
Co	= (1.5*L+5)/(1-Y)	=	78.5 sec
Cm	= L/(1-Y)	=	39.2 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	10.7 %
Cp	= 0.9*L/(0.9-Y)	=	58.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8.7 %



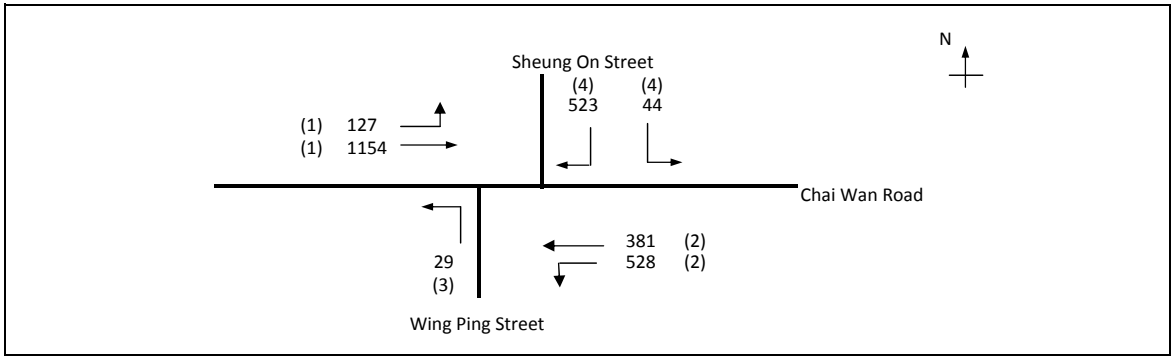


Stage A	I = 6	Stage B	I = 6	Stage C	I =

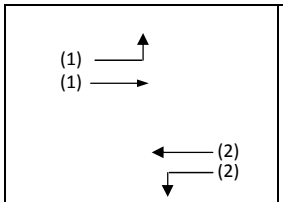
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1019		1019	0.00	4070			4070	0.250	0.250		30	47	0.533	42	10
ST	A	3.50	1	2	10		N	4070		551		551	0.00	4070			4070	0.135			16	47	0.288	24	11
LT	B	3.00	2	1	10		N	1915	824			824	1.00	1665			1665	0.495	0.495		60	53	0.934	72	14
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.015			2	53	0.029	0	10
Ped	B	19.0	3																						
		8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

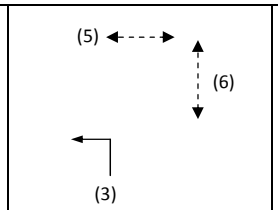
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11CM - Peak Hour Traffic Flows	FILENAME :S1_J2_J5_J6_J7_J8(3).xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



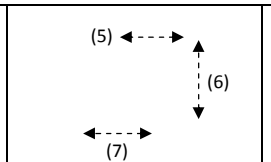
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.417
Loss time		L =	37 sec
Total Flow		=	2787 pcu
Co	= (1.5*L+5)/(1-Y)	=	103.8 sec
Cm	= L/(1-Y)	=	63.5 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	49.2 %
Cp	= 0.9*L/(0.9-Y)	=	69.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	49.2 %



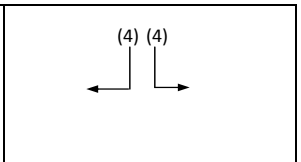
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	127	1154		1282	0.10	6099			6099	0.210			42		0.000	84	54
LT/ST	A	3.30	2	2	12		Y	4030	528	381		909	0.58	3757			3757	0.242	0.242		48		0.000	90	54
LT	B	3.50	3	1	9		Y	1965	29			29	1.00	1684			1684	0.017	0.017		3		0.000	0	54
LT/RT	D	3.75	4	2	10		y	4120	44		523	567	1.00	3583			3583	0.158	0.158		31		0.000	54	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

附件
Annex

Halcrow China Ltd

Traffic Impact Assessment Study for
Columbarium Development
at Cape Collinson Road, Chai Wan
Final Traffic Review Study Report
February 2014

Architectural Services Department

Halcrow China Ltd

Traffic Impact Assessment Study for
Columbarium Development
at Cape Collinson Road, Chai Wan
Final Traffic Review Study Report
February 2014

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Architectural Services Department

Traffic Impact Assessment Study for Columbarium Development at Cape Collinson Road, Chai Wan
Final Traffic Review Study Report

February 2014

DOC No.
Serial No.

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Signed
1	0	Draft	Sept 2013	OC/PS
1	0	Final	19/9/2013	OC/PS
1	1	Final	19/11/2013	OC/PS
1	2	Final	14/2/2014	OC/PS

Contents

List of Tables

List of Figures

Appendices

1 Introduction

1.1 General

Halcrow China Limited (HCL) has been commissioned by Architectural Services Department (ArchSD) of the Government of the Hong Kong Special Administrative Region to undertake a Traffic Review Study (hereafter called "the Study") for the proposed revised provision of new niches at the Columbarium Development at Cape Collinson Road, Chai Wan.

1.2 Background

In order to meet the public demand for niches, the Government has been exploring various potential sites in the territory for columbarium development. Amongst the potential sites, two sites (Site I and Site II) on Cape Collinson Road have been identified for development of multi-storey columbarium blocks, as shown in Figure 1.1. Site I is planned for the construction of a multi-storey columbarium building, providing about 15,000 niches with ancillary facilities while Site II will provide 8,000 niches. As only one of the 2 sites would be developed, Site I was selected having regard to its potential of providing a larger number of niches. The proposed development at Site I is tentatively scheduled to commence construction in 2015 for completion in 2018.

A Traffic Impact Assessment (TIA) Study was conducted and completed in May 2012 (2012 Study) with the findings and recommended traffic and transport improvements endorsed by HKPF and TD, relating to the provision of 15,000 niches at Site I. The 2012 Study had already taken reference to the planned niche development in the vicinity in the forthcoming years in the analyses. For better utilisation of the site, a preliminary study was conducted to increase the niches by 10,000, making the total provision to 25,000 niches. In this connection, it was considered appropriate to conduct a review on the 2012 Study Report to assess the likely impact on the traffic and transport arrangements arising from the revised provision of 25,000 niches at Site I.

1.3 Objectives of the Review Study

The main objectives of this Review Study are to:

(i) Carry out a TIA review study for the revised provision of 25,000 niches based on the findings and recommendations in the 2012 Study Report .

(ii) Identify traffic impacts within the study area for the assessment years 2011, 2016, 2021 and 2026 with updated information.

(iii) Propose solutions to the traffic impact and problems identified in the review study.

1.4 Scope of the Study

The main scope of the Assignment is to conduct a review study to assess the adequacy of the recommendations put forward in the 2012 Study in coping with the demand induced by the revised development proposal of 25,000 niches at Site I.

Specific scope of work includes:

(i) To review the traffic demand by taking into account the historic data of grave sweepers visiting cemeteries in the Chai Wan area (Chai Wan Cemeteries) and to forecast the traffic flow in the study area under different traffic conditions during Ching Ming festive period in order to assess the traffic requirements of the project.

(ii) To conduct a review on the special traffic arrangement and public transport service arrangement (including bus, taxi, pick-up/ drop-off operation) proposed in the 2012 Study Report and recommend further improvements as appropriate.

(iii) To review the public transport arrangement for Ching Ming festive period, such as the stacking of buses, passenger queuing arrangement, pick up and set down of passengers for services operating between the MTR stations and San Ha Street.

(iv) To undertake sensitivity tests for Ching Ming Festival and at immediate Saturdays and Sundays prior to and after Ching Ming in 2021 and recommend contingency traffic management measures.

(a) the trip generation and attraction rate assumed for Site I is underestimated by 20% during the critical days;

(b) the proposed number of niches at Site I is increased by 20%; and

(c) the background traffic at the road network within the study area is underestimated by 20%.

1.5 Structure of the Report

This Review Study Report contains the following chapters:

Chapter 2 - Existing Conditions of the Site;

Chapter 3 - Forecast Development Traffic;

Chapter 4 - Review of Proposed Improvement Schemes;

Chapter 5 - Traffic Assessment;

Chapter 6 - Sensitivity Tests; and

Chapter 7 - Conclusion.

2 Existing Conditions of the Site

2.1 *Site Location*

Figure 1.1 shows the proposed development site (Site I), which is located within the cluster of cemeteries in the Chai Wan area , and the road network in the Chai Wan district and the Study Area of the 2012 Study. Details of existing transport network and transport facilities in the study area are given in Chapter 2 of the 2012 Study Report. Table 2-1 and Figure 2.1 show the public transport services serving the Chai Wan area.

Table 2-1 Franchised Bus and GMB Services Serving Chai Wan District

Service	Route No.	Terminating Points		Remarks
Franchised Bus	8	Heng Fa Chuen	Wan Chai Ferry Pier	Daily services every 10-15 minutes
	8S	Siu Sai Wan (Island Resort)	Happy Valley Race Course	Services on horse racing day only
	8X	Siu Sai Wan (Island Resort)	Happy Valley (Lower)	Daily services every 7-25 minutes
	8P	Siu Sai Wan (Island Resort)	Wan Chai Ferry	Daily express services every 3-7 minutes
	19	Siu Sai Wan (Island Resort)	Happy Valley (Upper)	Daily services every 10-30 minutes
	81	Chai Wan (Hing Wah Estate)	Lai Tak Tsuen	Daily services every 15-20 minutes
	81A	Hing Wah Estate	Lai Tak Tsuen	Services on school days morning & evening peaks only
	81S	Siu Sai Wan (Harmony Garden)	Braemar Hill	Services on school days mornings only
	82	North Point Ferry Pier	Siu Sai Wan (Island Resort)	Daily services every 5-15 minutes
	82M	Chai Wan Station	Siu Sai Wan (Island Resort) (Circular)	Services on weekday every 20-40 minutes; special departure during morning peak between 07:00 - 08:40 every 25 minutes on Mondays to Fridays
	82S	Yiu Tung (Wai Hang Street)	Siu Sai Wan (Island Resort)	Services on school day mornings only
	82X	Siu Sai Wan (Island Resort)	Quarry Bay	Daily express services every 10-20 minutes. Special departure during morning peak at 07:12 on School days.
	85	Siu Sai Wan (Island Reort)	Braemar Hill (Circular)/ North Point Ferry Pier	Daily services every 10-20 minutes, Departures from Siu Sai Wan after 21:50 daily will be terminated at North Point Ferry Pier every 20 minutes
	85P	Siu Sai Wan (Island Resort)	Braemar Hill	Services on school days morning & evening peaks only
	106	Wong Tai Sin	Siu Sai Wan (Island Resort)	Daily services every 4-10 minutes
	106P	Siu Sai Wan (Island Resort)	Wong Tai Sin	Services on Monday to Friday at 06:45, 07:00, 07:12, 07:25, 07:40, 07:55 and 18:00, 18:15.

Service	Route No.	Terminating Points		Remarks
Franchised Bus	314	Siu Sai Wan (Island Resort)	Stanley (Beach / Market) (Circular)	Services on Sunday and Public Holidays during Swimming Season from June to September every 30 minutes only.
	388	Chai Wan MTR Station	Chai Wan Cemeteries / Cape Collinson(Circular)	Services on specified day, circular.
	389	Shau Kei Wan MTR Station	Chai Wan Cemeteries / Cape Collinson	Services on specified day, circular.
	118	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)	Daily services every 4-10 minutes; Special departures on Monday to Saturday morning peak services.
	118P	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)/ Mong Kok (Bute Street)	Monday to Saturday express morning and evening peak services
	606	Choi Wan (Fung Shing Street)	Siu Sai Wan (Island Resort)	Daily services every 11-22 minutes
	606A	Choi Wan	Yiu Tung Estate	Daily morning services every 15-22 minutes except Sundays and public holidays
	698R	Siu Sai Wan (Island Resort)	Sai Kung (Wong Shek Pier)	Sunday and public holidays morning and evening limited services
	682	Lee On	Chai Wan (East)	Daily services every 8-20 minutes
	682P	Lee On Wu Kai Sha Station	Chai Wan (East) Chai Wan (East)	Monday to Saturday morning peak only Monday to Friday morning peak only
	682A	Ma On Shan Town Centre	Siu Sai Wan	Monday to Friday morning peak express services at 07:20 and 07:40
	682B	Shui Chuen O -	Siu Sai Wan	Monday to Friday Morning peak only
	694	Tiu Keng Leng PTI	Siu Sai Wan	Daily express services every 15-25 minutes
	780	Chai Wan (East)	Central(Central Ferry Piers)	Daily express services every 12-17minutes
	780P	Hing Wah (via Causeway Bay)	Central (Ferry Piers)	Services on Monday to Saturday morning every 20 minutes.
	788	Central (Macau Ferry)	Siu Sai Wan (Island Resort)	Daily express services every 4-15 minutes
	789	Admiralty (Rodney Street)	Siu Sai Wan (Island Resort)	Daily express services every 4-15 minutes
	802	Shatin Racecourse	Siu Sai Wan (Island Resort)	Service on specified day, horse racing.
	9	Shau Kei Wan	Shek O	Daily services every 6-30 minutes.
	14	Grand Promenade	Stanley Fort(Gate) (Circular)/ Stanley Plaza (Ma Hang) / Stanley Fort (Gate) (omit Ma Hang)	Daily services every 10-20 minutes.
	A12	Siu Sai Wan (Island Resort)	Airport (Ground Transportation Centre)	Cityflyer services daily every 20-25 minutes; Special departure during morning and evening peaks.
Franchised Bus	N8	Wan Chai Ferry Pier	Heng Fa Chuen	Daily over-night services every 30 minutes.

Service	Route No.	Terminating Points		Remarks
	N8X	Siu Sai Wan (Island Resort)	Central (Macau Ferry)	Daily over-night services every 30 minutes.
	N8P	Siu Sai Wan (Island Resort)	Wan Chai (Harbour Road)	Daily over-night services every 15 minutes.
	N118	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)	Daily over-night services every 15-20 minutes.
GMB	16A(1)	Chai Wan Station	Chung Hom Kok (Circular)	Daily services from Chai Wan Station at 10:05, 12:05, 12:40, 17:15 and 19:35; from Chung Hom Kok at 10:35, 12:35, 13:05, 17:45 and 20:05
	16M(1)	Chai Wan Station	Chung Hom Kok	Daily services every 5-15 minutes
	16X(1)	Chai Wan Station	Stanley Beach Road	Daily services every 5-15 minutes
	18M(1)	Chai Wan Station	Cape Collinson (Correctional Institution)	Monday to Sunday(except Wednesday and public holidays) from 08:00 to 18:30, every 90-120 minutes
	20	Grand Promenade	Chai Wan Ind City	Daily services every 7 minutes
	20M	Hing Man Estate	Chai Wan Ind City	Daily services every 6-9 minutes
	43M(1)	Chai Wan Station	Fung Wah Estate (Circular)	Daily service every 5-15 minutes
	44M	Chai Wan Station	Siu San Wan Estate (Circular)	Daily over-night services every 15 minutes.
	47E	Siu Sai Wan Estate	Eastern Hospital(Circular)	Services on Monday to Saturday every 20 minutes
	47M	Chai Wan Station	Siu Sai Wan Estate (Circular)/Hiu Tsui Court/ Chai Wan (Wing Ping St)	Daily services every 3-10 minutes; Short Working services on Monday to Saturday morning every 10-15 minutes. Special services on Monday to Saturday every 20 minutes.
	47S	Chai Wan Station	Harmony Garden(Circular)/ Chai Wan (Wing Ping St)	Daily services every 10-20 minutes. Special services on Monday to Saturday morning every 10 minutes.
	48M	Chai Wan Station (Lee Chung Street)	Pamela Youde Nethersole Eastern Hospital	Daily services every 3-10 minutes
	61	Siu Sai Wan(Island Resort)	Mong Kok(Fife St)	Daily over-night services every 30 minutes.
	62	Heng Fa Chuen	Cheerful Garden(Circular)	Daily services every 6-8 minutes
	62A	Heng Fa Chuen	Island Resort	Daily services every 8-10 minutes
	65	Eastern Hospital	North Point (Fort St)	Daily services every 5-6 minutes
	65A	Chai Wan(Hong Man St)	Quarry Bay(Circular)	Services on Monday to Saturday every 10-15 minutes
	66(1)	Chai Wan (Wan Tsui Road)	Aldrich Bay (Circular)	Daily service every 8-10 minutes
	66A	Eastern Hospital	Aldrich Bay(Circular)	Daily service every 8 minutes

Note: (1) Refer to Figure 2.1 for locations of GMB terminus, T2 – Terminus of Route 66 and T1 – Terminus for all other routes

2.2 Observed Traffic and Pedestrian Data

2.2.1 2011 Ching Ming Festive Period Traffic and Pedestrian Survey

Figure 2.2 shows the locations of the traffic and pedestrian traffic surveys undertaken in the area during the Ching Ming festive period in 2011 and details of the surveys are given in the 2012 Study Report. Table 2-2 summarises the survey periods and the identified peak hour on each survey day.

Table 2-2 Traffic and Pedestrian Peak Hours During Ching Ming Period

Survey Date	HKPF Traffic Plan	Traffic Survey		Pedestrian Survey	
		Survey Period	Peak Hour	Survey Period	Peak Hour
2 April 2011, Saturday	Level 2	0700-1800	1045 – 1145	0700-1800	1050 -1150
3 April 2011, Sunday	Level 3	0700-1800	1015 – 1115	0700-1800	1045 – 1145
5 April 2011, Tuesday (Ching Ming Day)	Level 3	0700-1800	1015 – 1115	0700-1800	1045 – 1145
9 April 2011, Saturday	Level 2	0700-1800	1115 – 1215	0700-1800	1110 – 1210
10 April 2011, Sunday	Level 2	0700-1800	1030 – 1130	0700-1800	1205 – 1305

It is noted that the peak hour for the vehicular traffic on the road network in the study area and the peak hour for grave sweeper person trips differed slightly. For conservative estimates, respective peak hour figures are adopted to derive the peak hour person trip rates and vehicle trip rates in the subsequent assessment.

Table 2-2 also shows the associated traffic plans (Level 1, 2 or 3) implemented by the Police on each survey day. In general, Level 1 is implemented when inflow of visitors starting to build up until around 3000-4000 visitors per hour, and change to Level 2 when visitor inflow continues to build up and Level 3 will be adopted with the highest level of visitor inflow such as the situation on Ching Ming Day.

During Level 2 (i.e. on 2, 9 and 10 April 2011), vehicular traffic on Cape Collinson Road east of Lin Shing Road are re-routed for one-way clockwise traffic for cars and taxis. General traffic are also allowed to travel along Cape Collinson Road west of Lin Shing Road leading to Shek O Road. Special franchised buses (Nos. 388, 389) and authorised GMB routes (Routes 16A, 16M, 16X, 18M) travelled on Lin Shing Road to Cape Collinson Road to Shek O Road, which was running one way in westbound direction.

Implementation of Level 3 on 3 April and 5 April (i.e. Ching Ming Day) involved the following traffic diversion and road closures due to heavy pedestrian flows.

(a) Cape Collinson Road east of Lin Shing Road;
(b) the slip road leading from Cape Collinson Road to Garden of Remembrance and Crematorium, except hearses and vehicle carrying passengers to service at the Crematorium (crematorium was closed on Ching Ming Day);
(c) the slip road leading to Chai Wan Chinese Permanent Cemetery;
(d) Wan Tsui Lane
(e) Cape Collinson Road west of Lin Shing Road and Lin Shing Road were closed to all vehicular traffic except franchised buses, GMB routes 16A, 16M, 16X, 18M and hearses.

2.2.2 *Daily and Peak Hour Grave Sweepers Inflows*

Table 2-3 shows the daily grave sweeper inflows by different modes observed by the TIA Consultant during the Ching Ming festive period in 2011. The total no. of visitors is calculated based on the followings:

- Accessing pedestrians on Lin Shing Road Footpath (Location P1 of Figure 2.2)
  - When Level 2 was implemented on 2, 9 and 10 April, pedestrians on Lin Shing Road included those from MTR Chai Wan station, bus passengers from Chai Wan Road and other walk modes.
  - When Level 3 was implemented on 3 and 5 April, pedestrians on Lin Shing Road also included visitors by car/taxi from Wan Tsui Road pick up/drop off areas as Lin Shing Road was closed for general traffic.
- Incoming bus traffic for Special Route 388 and 389 and occupancy rates observed at Location J2 and also visitors by Route No. 9 on Shek O Road at Location J3 of Figure 2.2.
- Incoming GMB vehicle traffic and occupancy rates observed at Location J2 of Figure 2.2.
- Incoming car and taxi vehicle traffic and an assumed occupancy rate of 2.5 persons per vehicle.

Table 2-3 2011 Daily Grave Sweeper Flows by Modes during Ching Ming Festive Period

Date	Traffic Plan Level	Lin Shing Road Footpath	Bus (Routes 388/389/9)			GMB			Car/Taxi			Total Visitors
		No. of visitors	No. of vehicles	Ave Occ*	No. of visitors	No. of vehicles	Ave Occ*	No. of visitors	No. of vehicles	Ave Occ*	No. of visitors	
2/4/2011, Saturday	2	3,805	216	61	13176	325	9	2925	3042	2.5	7605	27511
3/4/2011, Sunday	3	15,682	301	78	23478	397	12	4764	-	-	**	43924
5/4/2011, Ching Ming Day	3	37,907	507	83	42081	375	13	4875	-	-	**	84863
9/4/2011, Saturday	2	2,740	184	38	6992	307	6	1842	2992	2.5	7480	19054
10/4/2011, Sunday	2	7,719	292	57	16644	345	9	3105	4235	2.5	10588	38056

Notes: * Ave Occ = Average Occupancy (persons per vehicle) observed on-site

** Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

Table 2-4 shows the daily grave sweepers provided by the Hong Kong Police Force between 2009 and 2013 and with details given in Appendix A. The table also includes the 2011 daily grave sweeper flows collected by the TIA Consultant as detailed in Table 2-3.

Table 2-4 Comparisons of Daily Grave Sweeper Inflows

Day	**2009**	**2010**	**2011**	**2012**	**2013**	**2011 Traffic and Pedestrian Surveys**
Preceding Saturday	3940	5900	16635	8920	14380	27511
Preceding Sunday	14930	8035	43565	43050	18260	43924
Ching Ming Day	102800	40070	70920	45400	93600	84863
Following Saturday	6590	5120	13875	6600	7720	19054
Following Sunday	3060	22135	28990	9800	32240	38056

Table 2-5 shows the peak hour visitor flows by modes collected by the TIA Consultant on Ching Ming Day and the preceding and following Saturday and Sunday in 2011 and Table 2-6 compares the corresponding figures in 2012 and 2013 provided by the Police. The tables also show the associated traffic plans implemented by the Police during the respective peak hours.

Table 2-5 2011 Peak Hour Grave Sweeper Flows by Modes

Date	Level	No. of Visitors				
		Lin Shing Road Footpath	Bus	GMB	Car/ Taxi	Total
Preceding Saturday (2/4/2011)	2	744	3426	492	1101	5763
Preceding Sunday (3/4/2011)	3	2544	6507	400	*	9451
Ching Ming Day (5/4/2011)	3	8879	9882	504	*	19265
Following Saturday (9/4/2011)	2	431	2553	396	957	4337
Following Sunday (10/4/2011)	2	1178	4377	672	1354	7581

Notes: * Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

Table 2-6 Comparison of Peak Hour Grave Sweeper Inflows

Day	2011 Traffic and Pedestrian Surveys		2012		2013	
	Level	No. of Visitors	Level	No. of Visitors	Level	No. of Visitors
Preceding Saturday	2	5763	2	2250	2	3800
Preceding Sunday	3	9451	2	9600	2	3710
Ching Ming Day	3	19265	3	8100	3	24000
Following Saturday	2	4337	2	1250	2	1650
Following Sunday	2	7581	2	2110	2	7500

It is noted in Table 2-4 and Table 2-6 that the daily and peak hour visitor flows recorded in the 2011 traffic and pedestrian count survey fall in the upper range of the historic data provided by the Police. As the survey data provide detailed information on modal splits, hence, the 2011 survey data are adopted in the subsequent analysis. In addition, a sensitivity test with an increase of the trip rates by 20% is included in Section 6.

To assess the traffic impact under different levels of traffic conditions, the peak hour flows on 9/4/2011, 10/4/2011 and 5/4/2011 are adopted for the assessment of Level 1, Level 2 and Level 3 traffic conditions respectively. As no data for the Level 1 traffic condition is available, despite Level 2 was implemented on 9/4/2011, the peak hour traffic on 9/4/2011 which is less busy and condition of traffic is close to Level 1 situation is adopted to represent Level 1.

2.2.3 *Existing Peak Hour Trip Generations by Vehicular Modes*

Based on the observed vehicle flows collected on different days during the 2011 Ching Ming festive period, Table 4-2 in the 2012 Study Report which shows the peak hour vehicle flows (in pcu's) and associated trip generation rates induced by the existing facilities in Chai Wan Cemeteries on Ching Ming Day (i.e. Level 3) is updated to include the peak hour traffic conditions at Level 1 (9/4/2011) and Level 2 (10/4/2011). The results are shown in Table 2-7. All vehicle flows in the subsequent analysis are converted to passenger car unit (PCU) based on the PCU factors indicated below.

Vehicle Type	**PCU Factor**
Private Car/Taxi/Passenger Van	1.0
Public Light Bus including GMB and RMB	1.5
Medium Good Vehicle	1.75
Heavy Goods Vehicle	2.0
Bus and Coach	3.0

The existing vehicle trip generation rates will be used to estimate the additional vehicular traffic to be generated by the committed and proposed future developments in Chai Wan Cemeteries for assessment of the potential traffic impact to the road network in the study area.

Table 2-7 2011 Peak Hour Generation Rates by Vehicular Modes

	Peak Hour Traffic Flow (PCU)								
	Level 1 (9/4/2011)			Level 2 (10/4/2011)			Level 3 (Ching Ming,5/4/2011)		
	In	Out	Total	In	Out	Total	In	Out	Total
Car/Taxi	338	329	667	610	428	1038	552	557	1109
Bus	75	57	132	123	78	201	198	162	360
GMB	68	68	136	65	66	131	92	98	190
Others	18	5	23	9	2	11	25	29	54
Total	499	459	958	807	574	1381	867	846	1713
	Peak Hour Trip Rate (PCU per 100 graves/ urn graves/ niches)								
Car/Taxi	0.165	0.161	0.326	0.298	0.209	0.508	0.270	0.272	0.542
Bus	0.037	0.028	0.065	0.060	0.038	0.098	0.097	0.079	0.176
GMB	0.033	0.033	0.067	0.032	0.032	0.064	0.045	0.048	0.093
Others	0.009	0.003	0.011	0.006	0.001	0.005	0.012	0.014	0.026
Total	0.244	0.224	0.469	0.395	0.281	0.675	0.424	0.413	0.837

Note: 2011 total number of graves/ urn graves/ niches = 204,437

2.2.4 *Peak Hour Traffic Conditions*

Table 2-8 shows the existing peak hour junction performance at the key junctions in the study area. Detailed calculation sheets are given in Appendix B.

The calculation of the reserve capacities (RC) of signal controlled junctions and design flow/capacity ratio (DFC) of priority junctions and roundabout are carried out in accordance with the Transport Planning and Design Manual (TPDM) Volumes 2 and 4. A RC value of 10% or >10% for signal controlled junctions is considered within acceptable level without causing undue delay to motorists passing through the concerned junction. Likewise, a DFC value of 0.85 or <0.85 for priority and roundabout junction is considered satisfactory.

Table 2-8 2011 Peak Hour Junction Performance during Different Traffic Plan Levels

Jn No.	Location	Junction Type	Level 1 (9/4/2011)	Level 2 (10/4/2011)	Level 3 (Ching Ming, 5/4/2011)
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.50	0.77	0.32
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	36.6%	6.4%	37.7%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.61	1.47	0.52
J4	J/O Chai Wan Road Roundabout	Roundabout	0.66	0.55	0.60
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	187.5%	315.2%	282.8%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	91.6%	95.7%	144.9%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	103.8%	108.8%	184.1%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	46.8%	18.5%	**7.7%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.35	0.24	0.43

*Notes: Reserve Capacity (RC) for signal controlled junction;
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout
J1/J2/J3 are for information only (on-site manual traffic control implemented by the HKPF)

During the Ching Ming Period, special traffic arrangements had been implemented as described in Section 2.2.1 and traffic control was carried out by the HKPF at the junctions along Cape Collinson Road and Lin Shing Road, i.e. J1, J2 and J3. Hence, calculation of RC and DFC at these junctions as shown in Table 2-7 is for reference only and does not truly reflect the actual traffic condition as extensive traffic control and management measures were implemented by HKPF aimed to balance the demand of vehicular and pedestrian traffic and ensure road safety.

With the exception of J8 (J/O Chai Wan Road and Tai Tam Road), all other key junctions in the area performed satisfactorily during the peak hours at Level 1, 2 and 3. For J8, heavy right turn movements from Chai Wan Road (N) to Tai Tam Road were recorded and the junction was found to approach capacity during the peak hour under Level 3, i.e. on Ching Ming Day.

2.2.5 *Traffic Analysis of Key Pedestrian Routes*

Table 2-9 presents the peak hour pedestrian flows at the critical links recorded at Level 1, 2 and 3 during Ching Ming festive period. Figure 2.3 shows the locations of the critical footpath links and these are:

- P1: the footpaths on Cape Collinson Road east of Lin Shing Road
- P2: the footpaths on Lin Shing Road
- P3: the footpaths on Cape Collinson Road east of Shek O Road junction
- P4: the footpaths on Cape Collinson Road near the Second Columbarium.

Table 2-9 2011 Peak Hour Pedestrian Flows at Critical Lnks during Ching Ming Festive Period

Route	**P1**		**P2**			**P3**		**P4**		**Total**
Link	A	B	C	D	E	F	G	H	I	
Level 1 (9/4/2011 11:10-12:10)	437	507	273	431	675	562	1495	197	99	4676
Level 2 (10/4/2011 12:05-13:05)	1884	2258	1079	1178	2122	1913	2909	938	946	15227
Level 3 (5/4/2011 10:45-11:45)	7584	6029	5709	8879	3634	3673	6113	4082	2110	47813

Note: Refer to Figure 2.3 for locations of footpaths and direction of movements

2.2.6 *Traffic Analysis of Key Pedestrian Routes*

In order to assess the performance of these critical pedestrian links, the level of service (LOS) of the links is calculated. The definitions of different levels of LOS in accordance with the Highway Capacity Manual (HCM) 2000 are given in Appendix C for easy reference. In general, LOS D is considered the minimum threshold from a comfort and safety point of view.

The LOS at the critical links is calculated using the observed peak-5 minute pedestrian flows along the links. It is noted that the actual widths along the critical links such as D and E along Lin Shing Road are widened by the special traffic management implemented on-site. For all footpath widths, 0.5m "shy zone" is deducted from the actual width to derive the effective width for the calculation. The calculations of the pedestrian LOS for Ching Ming Day at critical links for the peak 5-mins flows are shown in Table 2-10.

Table 2-10 2011 LOS of Critical Links in Level 1, 2 and 3 during Ching Ming Festive Period

Level 1						
Route	Critical Link	Actual Width	Effective Width(1)	Peak 5-min flows	Ped/min/m	LOS
P1	A+B	3.0	2.5	113	9	A
	C(3)	3.0	2.5	49	4	A
	D	3.0	2.5	72	6	A
P2	E	2.3	1.8	108	12	A
P3	F+G(5)	2.8	2.3	205	18	B
P4	H+I(2)	2.5	2.0	50	5	A
Level 2						
Route	Critical Link	Actual Width	Effective Width(1)	Peak 5-min flows	Ped/min/m	LOS
P1	A+B	3.0	2.5	455	36	D
	C(3)	3.0	2.5	218	-	-
	D	3.0	2.5	325	26	C
P2	E	2.3	1.8	329	37	D
P3	F+G(5)	2.8	2.3	785	68	**E**
P4	H+I(2)	2.5	2.0	213	21	B
Level 3						
Route	Critical Link	Actual Width	Effective Width(1)	Peak 5-min flows	Ped/min/m	LOS
P1	A+B(2)	10.9	9.9	1620	33	C
	C(3)	3.0	2.5	354	-	-
	D(4)	4.5	4.0	1026	51	**E**
P2	E(4)	3.3	2.8	719	52	**E**
P3	F+G(5)	2.8	2.3	1322	115	**F**
P4	H+I(2)	5.9	4.9	1063	44	D

Notes: (1) Effective width = Actual width – 0.5m (one side or both sides)
(2) Carriageway without traffic being used as footway
(3) Management and crowd control by the HKPF at pedestrian crossings to control flows
(4) Footway width includes 1.0m temporary footway widening
(5) Footway at Link G only, no footway at Link F

As indicated in Table 2-10, the walking conditions at the critical links at Level 1 are generally within acceptable level as the pedestrian flows are relatively lighter than Level 2 and much less than Level 3. The condition at Level 3, i.e. on Ching Ming Day, is most critical as pedestrian demand is very high. An undesirable LOS value of E is calculated on the footpaths on both sides of Lin Shing Road, i.e. Link D and Link E at P2, which is the main pedestrian route to/from Chai Wan Cemeteries.

The other main entrance to Chai Wan Cemeteries is situated at the western end of Cape Collinson Road, i.e. Links F and G at P3. A high volume of bus passengers accessed the cemeteries after alighting at the bus stops on Shek O Road. Likewise, a large amount of leaving grave sweepers either taking Routes 388 or 389 on Cape Collinson Road, or other bus services on Shek O Road. It is concerned that there is actually no footpath at Link F, instead, bus passengers were queuing along the edge of carriageway and high level of vehicular/pedestrian conflicts were observed during the peak period. Due to the narrow width of the available footpath and the high intensity of conflicting vehicular and pedestrian activities in the area, observations revealed that in reality, pedestrian were found to spill over and walked along the trafficked carriageway and required high demand of management and control by the HKPF.

3 Forecast Development Traffic

3.1 Columbarium and Graves Facilities

The existing and planned columbarium and graves facilities in Chai Wan Cemeteries are summarized in Table 3-1.

Table 3-1 Existing and Planned Columbarium and Graves Facilities

Completion	Management	Type	No.	Total
Existing (as at 2011)	Cape Collinson Columbarium	Niches	61,615	204,437
	Chinese Permanent Cemeteries	Coffin Graves	22,715	
		Urns	1409	
		Niches	66,229	
		Ossuaries	8849	
	Roman Catholic Cemetery; Muslim Cemetery; Buddhist Cemetery	Coffin Graves	10,506	
		Urns	710	
		Niches	31,090	
		Ossuaries	1314	
2011-12	Chinese Permanent Cemeteries	Niches	8205	28,554
2014		Niches	17,129	
2013	Buddhist Cemetery	Niches	3220	
2018	Site I	Niches	25,000	25,000
Total				257,991

At present, Chai Wan Cemeteries provide a total of 204,437 niches/ urn/ graves/ ossuaries. BMCPC plans to provide additional 8,205 niches in 2011-12 and 17.129 niches in 2014 and the Buddhist Cemetery also plans to provide additional 3,220 niches in 2013, giving a total of 28,554 new niches by 2014. Together with the currently proposed 25,000 at Site 1, there would be a total of 257,991 columbarium and graves facilities in Chan Wan Cemeteries.

3.2 Vehicular Traffic Generations from Committed and Proposed Developments

Based on the existing trip rates described in Table 2-7 and the committed and proposed provisions detailed in Table 3-1, Table 3-2 summarises the peak hour vehicular trips to be induced by the committed development and Site I development for Level 1, 2 and 3.

Table 3-2 Forecast Peak Hour Development Vehicular Traffic

		Peak Hour Traffic Flow (PCU)								
		Level 1			Level 2			Level 3		
		In	Out	Total	In	Out	Total	In	Out	Total
Committed Development (28,554 niches)	Car/Taxi	47	46	93	85	60	145	77	78	155
	Bus	10	8	18	17	11	28	28	23	51
	GMB	9	9	18	9	9	18	13	14	27
	Others	2	1	3	1	0	1	4	4	8
	Total	68	64	132	112	80	192	122	119	241
Site I (25,000 niches)	Car/Taxi	41	40	81	75	52	127	68	68	136
	Bus	9	7	16	15	10	25	24	20	44
	GMB	8	8	16	8	8	16	11	12	23
	Others	2	1	3	1	0	1	3	4	7
	Total	60	56	116	99	70	169	106	104	210

The committed developments (28,554 niches) are expected to induce two-way traffic flows of 132, 192 and 241 pcu's during the peak hour in Level 1, 2 and 3 respectively. The corresponding figures for Site 1 (25,000 niches) are 116, 169 and 210 respectively.

The additional development will be added to the background traffic, taking into account the proposed improvement and special traffic arrangements, to assess the traffic impact to the road network in the Study Area.

3.3 Person Trip Generations from Committed and Proposed Developments

Based on the observed peak hour trips described in Table 2-5 and the committed and proposed provisions detailed in Table 3-1, Table 3-3 summarises the peak hour person trips to be induced by the committed development and Site I development for Level 1, 2 and 3.

Table 3-3 Forecast Peak Hour Arriving Grave Sweeper Flows by Modes

	Committed Provisions (28,554 nos)			Site I (25,000 nos.)		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
MTR/Walk	60	165	1240	53	144	1086
Other Bus	58	171	272	50	149	238
388, 389	299	441	1109	262	386	971
GMB	55	94	70	48	82	62
Taxi/ Car	134	189	*	117	166	*
TOTAL	606	1060	2691	530	927	2357

* Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

For the most critical peak hour in Level 3, i.e. on Ching Ming Day, the committed development would attract 2,691 visitors and Site I would attract another 2,357 visitors, giving a total increase 5,048 visitors.

3.4 Review of Forecast Bus Passenger Demand

Based on the daily patronage figures provided by Transport Department, on 2013 Ching Ming Day, there were 29,044 and 25,550 passengers on board of Route No. 388 and No. 389 respectively, giving a daily patronage of 54,594 passengers. However, as there is no data regarding the peak hour patronage, the 2013 grave sweeper data provided by the Police are adopted to derive the peak hour patronage as detailed below:

2013 Routes 388 & 389 bus patronage = 29044 + 25550 = 54594 ……..(a)

Refer to Table 2-4: 2013 Daily Grave Sweeper Flows = 93,600 and

Table 2-6: 2013 Peak Hour Grave Sweeper Flows = 24,000

⇨ Peak Hour Factor = 24,000 / 93,600 = 0.256……...(b)

Hence, the 2013 peak hour trip generation rate by bus is:

⇨ 54594 (a) x 0.256 (b) / 204437 = 0.0684 trip per grave/urn…..……. (c)

The peak hour bus demand for Site I development is:

⇨ 0.0684 (c) x 25,000 = 1,709 bus passengers per hour…….(d)

Refer to Table 2-7, according to the 2011 observed Ching Ming Day peak hour data, the ratio between arriving bus trips (198 pcus) and departing bus trips (162 pcus) was 55:45. To provide conservative estimates, a ratio of 60:40 split between arriving and departing bus trips are assumed. Hence, the derived 2013 peak hour bus passenger demand for Site I development is:

- ⇨ 1,709 (d) x 60% = 1025 arriving bus passengers
- ⇨ 1,709 (d) x 40% (e) = 684 departing bus passenger

Based on the above, the forecast bus passenger demand by Route 388 and 389 during the peak hour on Ching Ming Day (Level 3) in Table 3-3 is adjusted to 1025 accordingly as indicated in Table 3-4. Similarly, the peak hour bus demand for the committed provisions is increased to 1172.

Table 3-4 Adjusted Peak Hour Arriving Grave Sweeper Flows by Modes

	Committed Provisions (28,554 nos)			**Site I (25,000 nos.)**		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
MTR/Walk	60	165	1240	53	144	1086
Other Bus	58	171	272	50	149	238
388, 389	299	441	1172	262	386	1025
GMB	55	94	70	48	82	62
Taxi/ Car	134	189	*	117	166	*
TOTAL	606	1060	2754	530	927	2411

* Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

4 Proposed Improvements

4.1 *Review of Proposed Improvement Schemes*

4.1.1 The following improvement schemes are recommended in the 2012 Report:

1. Provision of new pedestrian Access Route with escalators and stairways linking Cape Collinson Road and San Ha Street, with associated footpath and carriageway widening on Cape Collinson Road and special traffic plan.
2. Junction improvement at J/O Cape Collinson Road and Lin Shing Road.

4.1.2 To facilitate visitors to access the new pedestrian access route, new special bus services from MTR Shau Kei Wan Station and from MTR Heng Fa Chuen Station to San Ha Street and strengthening of existing bus services running along Chai Wan Road are proposed to cope with the anticipated demand.

4.1.3 The following special traffic arrangements are also proposed to facilitate the operation of the hillside escalators.

- Conversion of San Ha Street to one-way westbound direction in order to free up space for visitors.
- Closure of existing metered car parking spaces on the southern carriageway for temporary bus stand and/or pick up/drop off layby for car/taxi.
- Temporary bus stand for special bus services from MTR Heng Fa Chuen Station to San Ha Street and MTR Shau Kei Wan Station to San Ha Street and some existing bus services diverted from Chai Wan Road to San Ha Street.
- Temporarily closing the nearside lane of Chai Wan Road to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street.
- The existing GMB service on San Ha Street westbound is to be maintained.
- The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street, and San Ha Street are to be maintained.

- The arrangement for guiding pedestrians for access from MTR Chai Wan Station to escalators on San Ha Street via Chai Wan Park and Yee Shun Street and pedestrian egress route from San Ha Street to MTR Chai Wan Station via Chai Wan Road southern footpaths and the footbridges across Chai Wan Road Roundabout may be considered.

4.2 Proposed Changes to Original Improvement Schemes

4.2.1 The proposed improvement schemes as described in Section 4.1 above are reviewed by taking into account the forecast additional traffic flows detailed in Table 3-2 and additional grave sweeper flows given in Table 3-4. Table 4-1 discusses the proposed changes to the original improvement proposal.

Table 4-1 Summary of Proposed Changes to Original Improvement Proposal

Original Proposals in TIA Report	Proposed Changes	Reasons for Proposed Change
Provision of new pedestrian Access Route with escalators and stairways linking Cape Collinson Road and San Ha Street, with associated footpath and carriageway widening on Cape Collinson Road and improvement plan.	No change	(Figure 5.2a of the 2012 Study Report is attached in Appendix D for reference)
Junction improvement at J/O Cape Collinson Road and Lin Shing Road.	No change	(Figure 5.3a and Figure 5.3b of the 2012 Study Report are attached in Appendix D for reference)
New special bus services from MTR Shau Kei Wan Station and from MTR Heng Fa Chuen Station to San Ha Street	New special bus service from Heng Fa Chuen to San Ha Street only. (Figures 4.1 to 4.4)	- With clearer information to bus passengers - All bus bays and passenger queuing platforms are fully occupied at Shau Kei Wan bus terminus, with a new bus route NWFB18X started providing service to passengers between Shau Kei Wan Bus Terminus and Kennedy Town in July 2013.
Strengthening of existing bus services running along Chai Wan Road are proposed to cope with the anticipated demand	Minor changes of bus frequency to suit forecast demand.	
Divert some existing bus services on Chai Wan Road to San Ha Street	Maintain all existing franchised bus services on Chai Wan Road, the major corridor in Chai Wan, without diversion of bus routes onto San Ha Street.	
Conversion of San Ha Street to one-way westbound direction in order to free up space for visitors.	No change	
Closure of existing metered car parking spaces on the southern carriageway for temporary bus stand and/or pick up/drop off layby for car/taxi.	8 nos. of metered car parking spaces, 2 nos. of disabled parking spaces and 16 nos. of motorcycle parking spaces will need to be closed temporarily. (Fig 4.1)	To allow special bus services only at San Ha Street and visitors by car/taxi will use the pick up/drop off facilities on Wan Tsui Road same as the existing situation to minimize traffic flows and simplify crowd management and traffic control on San Ha Street.
Temporary bus stand for special bus services from MTR Heng Fa Chuen Station to san Ha Street and some existing bus services diverted from Chai Wan Road to San Ha Street.	All existing bus services on Chai Wan Road will be maintained without any diversion.	To minimize traffic flows on San Ha Street.
Temporarily closing the nearside lane of Chai Wan Road to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street.	In addition, minor modification of the traffic island at Wing Ping Street approach is required (Figure 4.6)	To allow sufficient space for left turning bus.
The existing GMB service on San Ha Street westbound is to be maintained.	No change	
The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street, and San Ha Street are to be maintained.	No change	
The arrangement for guiding pedestrians for	No change	

Original Proposals in TIA Report	Proposed Changes	Reasons for Proposed Change
access from MTR Chai Wan Station to escalators on San Ha Street via Chai Wan Park and Yee Shun Street and pedestrian egress route from San Ha Street to MTR Chai Wan Station via Chai Wan Road southern footpaths and the footbridges across Chai Wan Road Roundabout.		

4.2.2 Taking into account that the amount of visitors to Site I by car/taxi is relatively small, and also to minimize the amount of traffic flows on San Ha Street for more efficient crowd management, it is proposed that pick up/ drop off facilities for special bus service only be provided on San Ha Street. Visitors to Site I by car/taxi can use the pick up / drop off facilities on Wan Tsui Road same as the existing condition.

4.2.3 It is also proposed to provide only the special bus service between San Ha Street and Heng Fa Chuen as there is very limited scope for providing additional queuing area for the new special bus services in Shau Kei Wan bus terminus. The journey time for the proposed special bus route to travel between Heng Fa Chuen and San Ha Street, around 30 minutes (round trip time) is less that that of the journey time for another proposed special bus route to travel between Shau Kei Wan and San Ha Street of around 40 minutes (round trip time). Given the shorter turnaround time, the special bus route between Heng Fa Chuen and San Ha Street can provide a more frequent service to the passengers with a higher hourly carrying capacity.

4.2.4 The feasibility of providing additional bus services at the bus terminus at MTR Chai Wan Station is considered not viable due to lack of available vacant spaces for loading/unloading activities of buses and passenger queues. Also, the distance between MTR Chai Wan Station and Site I is not significant, visitors taking MTR to Chai Wan Station would likely to continue their journey by foot to the western part of Chai Wan Cemeteries similar to majority of the existing visitors.

4.2.5 The proposed special traffic arrangement on San Ha Street are shown in Figure 4.1 and detailed below:

- 4 no. of bus stacking spaces are provided (2 boarding bay + 1 layover bay + 1 alighting bay) and flexibility is available if additional bay is required by suspended a few more metered parking spaces.
- Since only one-way westbound traffic is allowed, westbound traffic will be diverted onto the eastbound carriageway while a short section of the westbound carriageway will be converted as bus bays for the special bus services.

- 8 nos. of existing metered car parking spaces, 2 nos. of disable parking and 16 motor-cycle parking spaces will need to be suspended temporarily and converted to become footpath and queuing area.
- A minimum length of 100m will be reserved for passenger queuing sufficient for 200 waiting passengers with an average waiting space of 0.5m^2 per passenger to a maximum of 300 waiting passengers with an average space of 0.3m^2 per passenger. Based on a peak hour demand of around 2400 bus passengers and a service headway of 3 minute, a maximum queue of 120 passengers per 3 minutes (which equivalent to the bus service headway) is expected. The queuing area is sufficient to accommodate the passenger queue with flexibility to hold a longer queue.
- For grave sweepers to and from Chai Wan Road, a one-way circulation system is proposed to minimize conflicting movements. The resulting Level of Services along the footpaths on San Ha Street are presented in Figure 4.2.

4.2.6 Figure 4.3 and Figure 4.4 shows two options for the provision of the temporary bus stand for the special bus service at Heng Fa Chuen. The proposed special traffic arrangements for Option 1 (Figure 4.3) are detailed below:

- The temporary bus stand will be provided at the layby next to the Heng Fa Chuen bus terminus. The lay-by, around 40m in length, can allow a stacking of 3 buses for 2 loading bays and 1 unloading bay.
- The pedestrian routes for arriving and departing bus passengers are segregated to minimize conflicting movements.
- A queuing area with the flexibility to arrange one queue or two different queues with a total length of around 120m would be sufficient to accommodate around 240 waiting passengers with an average waiting space of 0.5m^2 per passenger to a maximum of 360 waiting passengers with an average space of 0.3m^2 per passenger. Based on a peak hour demand of 2400 passengers and a service headway of 3 minute, a maximum queue of 120 passengers is expected and hence the queuing area would be sufficient to accommodate the expected queue.
- A temporary pedestrian crossing will be provided for the departing passengers after alighting from the bus. As the amount of vehicles entering the bus terminus is not high (less than 30 vehicles per hour), there would be sufficient crossing time available for the departing passengers.

4.2.7 The proposed special traffic arrangements for Option 2 (Figure 4.4) are detailed below:

- It is proposed to re-locate the existing GMB stand to the lay-by adjacent to the bus terminus and convert the GMB stand for the special bus service to

San Ha Street. The existing GMB stand can allow a stacking of 2 buses and 2 unloading bays will be provided within the bus terminus.

- A queuing area with a total length of around 83m would be sufficient to accommodate around 166 waiting passengers with an average waiting space of 0.5m^2 per passenger to a maximum of 250 waiting passengers with an average space of 0.3m^2 per passenger. The arriving and departing passengers do not need to walk across the crossing points.
- The existing lay-by can accommodate 5 no. of GMB. While GMB passengers are required to walk across the crossing points, the amount of passengers is much less than the special bus service. The footway adjacent to the lay-by which is about 50m in length would allow for a queuing area for at least 100 GMB passengers.

4.2.8 The requirement for bus stacking area in Heng Fa Chuen bus terminus and San Ha Street to accommodate a peak hour demand of 20 bus trips (refer to Table 5-3) is detailed below:

Peak Bus Allocation	= 12
Peak Frequency	= 3 mins
Journey Time	= 15 mins
Peak Bus Allocation x peak frequency	= 12 x 3 = 36
Total round trip (journey time x 2)	= 15 x 2 = 30 mins
Total excess time (layover)	= (36-30) mins
	= 6 mins (3 mins at each end)

Since the layover time is equal to the frequency, this should mean only one bus is on the stand at any one time. In Heng Fa Chuen bus terminus, 3 nos. stacking bays are provided for boarding, alighting and layover. At San Ha Street, 4 nos. of stacking bays are provided to allow for greater flexibility.

4.2.9 The routing of the special bus service between Heng Fa Chuen and San Ha Street is shown in Figure 4.5.

4.2.10 To allow for the special bus from Heng Fa Chuen to San Ha Street, it is required to temporarily closing the nearside lane of the Chai Wan Road approach at J11 (the junction of Chai Wan Road and Wing Ping Street) to allow buses left turn from Chai Wan Road to Wing Ping Street. In addition, minor modification of the traffic island which places the traffic lights at the approach of Wing Ping Street is required. The size of the traffic island needs to be reduced slightly as shown in Figure 4.6.

5 Traffic Assessment

5.1 Traffic and Transport Requirements to Complement the Proposed Escalators

5.1.1 Peak Hour Grave Sweeper Flows using Escalators

Table 5-1 shows the estimated amount of pedestrians who would use the proposed escalators during the peak hour in Level 1, 2 and 3.

Table 5-1 Assumed Peak Hour Usage of the Proposed Escalators

	Access Mode	Level 1	Level 2	Level 3
Site I Visitors	New Special Bus	530	927	2,411
	Car/Taxi	-	-	-
Other visitors	Diverted from No. 388/389 to existing bus services to access escalators	100	200	800
	Diverted from MTR to existing bus services to access escalators	100	200	800
	Continue to use existing bus services to access escalators	100	200	800
TOTAL		**830**	**1,527**	**4,811**

The following assumptions are adopted in deriving the usage of the proposed escalators:

- In reality, some of the Site I visitors will use other public transport modes such as MTR to access Chai Wan and then walk to Site I via Lin Shing Road, or taking other bus services on Chai Wan Road. Since, the basic principle of the usage assumptions is that the proposed escalator will serve not only the Site I visitors, but also to be shared use by all other visitors to the cemeteries. Hence, if some of the Site I visitors use other modes instead of using the new special bus and escalator to access Site I, the spare capacity will be filled by other visitors until the capacity of the escalator is reached.

  To take a conservative approach, therefore, it is assumed that all Site I visitors as shown in Table 3-4 would use the new special bus from Heng Fa Chuen to San Ha Street for accessing the proposed escalator. For Level 3, for example, around 2,411 Site I visitors are expected to use the new special bus service.

- Site I visitors by car/taxi will use the pick up /drop off facilities on Wan Tsui Road and then walk to Site I via Lin Shing Road same as the existing visitors.

- It is assumed around 800 of the existing Routes 388 and 389 bus passengers currently boarding and/or alighting at the bus stop near the junction of Cape Collinson Road and Lin Shing Road would be attracted by the proposed escalators, and hence will be diverted to use the existing bus service passing through Chai Wan Road for accessing the escalators on San Ha Street.

- It is assumed that a similar amount of the existing MTR passengers (800) would be attracted by the escalators. As the access route from MTR Chai Wan Station to San Ha Street via Chai Wan Park and Yee Shun Street is detour and indirect, majority of the accessing MTR visitors attracted by the escalators are expected to be diverted to use the existing bus services on Chai Wan Road for accessing the escalators instead of walking directly from MTR Chai Wan Station to San Ha Street. Hence, for the sake of simplicity, it is assumed no accessing visitors diverted directly from MTR to the escalators.

- Another 800 existing bus passengers currently using the various bus services on Chai Wan Road would be attracted to use the escalators instead of walking to Lin Shing Road. In this case, they would continue to use the existing bus services.

As a result, Table 5-1 shows that around 4,811 pedestrians are estimated to use the escalator in peak direction which is about 80-90% of the capacity of the escalator of around 5,000 – 5,500 pedestrians/hour. Among these pedestrians, around 50% (2,411 pedestrians) are visitors to Site I and about 50% (2,400 pedestrians) are "other visitors" to the nearby cemeteries.

Based on the above assumptions, Table 5-2 compares the existing peak hour flows and the future Reference, i.e. with committed developments but no improvement schemes, and the Design flows, i.e. with Site I and the proposed new special bus services and escalator provisions.

Table 5-2 Comparisons of Peak Hour Visitors by Modes With and Without Site I and Escalators

	Existing Provisions (204,437 nos.)			Reference Scenario (232,991nos)			Design Scenario (257,991 nos)		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
MTR/Walk	431	1178	8879	491	1343	10119	391	1143	9319
9	412	1221	1944	469	1392	2216	469	1392	2216
388, 389	2141	3155	7938	2440	3596	9110	2340	3396	8310
GMB	396	672	504	451	766	574	451	766	574
Taxi/ Car	957	1355	0	1091	1544	*	1208	1709	*
Special Bus	-	-	-	-	-	-	530	927	2411
Additional Existing Bus	-	-	-	-	-	-	200	400	1600
TOTAL	4337	7581	19265	4943	8640	22019	5589	9733	24430

* Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

Comparing the Reference and Design Scenarios in Level 3, around 2,411 Site 1 visitors would use the new special bus services and 1600 visitors will be diverted from other modes to use the existing bus services on Chai Wan Road to access the escalator. On the other hand, the amount of incoming visitors by MTR and Routes 388 and 389 would be reduced.

5.1.2 *Peak Hour Bus Passenger Demand and Bus Fleet Requirements*

(a) Special Bus Services

Based on Table 5-2 above, the estimated demand for the new special bus service is around 2,411. The additional bus trips and fleet requirement is shown in Table 5-3 for Level 3 (Ching Ming Day) which is the most critical stage. The recorded daily no. of bus trips and recorded patronage for Route 388 and 389 are 190 and 186, and 29,044 and 25,550 respectively on the Ching Ming Day in 2013. To provide conservative estimates, an average occupancy of 135 passengers is assumed in estimating the bus trips and fleet requirement as indicated in Table 5.3.

Table 5-3 Special Bus Services Requirements for Ching Ming Peak Hour (Level 3)

Bus Route	Journey* Time	Peak Hour Passengers			Peak Hour Bus Trips			No. of Bus		
		Existing	Reference	Design	Existing	Reference	Design	Existing	Reference	Design
No. 388	50-60 min	4366	5010	4570	33	37	34	33	37	34
No. 389	60-70 min	3572	4100	3740	27	31	28	32	36	33
Special Bus Service: Heng Fa Chuen MTR Station - San Ha Street	30-35 Min	-	-	2,411	-	-	18	-	-	12
TOTAL		7938	9110	10,721	60	68	80	65	73	79

Note: * Journey time = circular trip travelling time plus loading and unloading time
** Full bus occupancy = 135 passengers per bus

In summary, comparing the Reference (i.e. without Site I and escalators) and Design (with Site I and escalators) scenarios:

- An increase of 18 nos. of bus trips during the peak hour for the new bus services between Heng Fa Chuen and San Ha Street and a reduction of 6 bus trips for Nos. 388 and 389, giving a net increase of 12 bus trips in the peak hour.

- An increase of 12 nos. of bus is required during the peak hour for the new bus services and a reduction of 6 nos. of bus for Nos. 388 and 389, giving a net increase of 6 nos. of bus.

(b) Strengthening of Existing Bus Services

From Table 5-2, the additional bus passengers on other bus services from Design scenario to Reference scenario is 1,600 (diverted from 388, 389 and MTR).

To accommodate this increase in demand, it is proposed to strengthen some of existing bus routes on Chai Wan Road to accommodate the increased demand due to passengers attracted from other modes to access the escalators. An addition of 6 bus trips is required for the Reference scenario and about 13 nos. of bus trips for the Design Scenario. Table 5-4 shows the proposed strengthening of bus services.

Table 5-4 Strengthening of Existing Bus Services on Chai Wan Road

Bus Route	Terminating Points	Published Frequency	Existing	Reference	Design
8P	Siu Sai Wan - Wan Chai Ferry	3 – 7 min	10	11	11
8X	Siu Sai Wan - Happy Valley	7 – 25 min	10	10	11
82	North Point Ferry Pier - Siu Sai Wan	5 – 15 min	10	11	12
82X	North Point - Siu Sai Wan	10 - 20 min	4	4	5
106	Wong Tai Sin - Siu Sai Wan	4 - 10 min	10	11	12
118	Sham Shui Po - Siu Sai Wan	4 – 10 min	10	11	11
606	Siu Sai Wan - Choi Hung	11 - 22 min	6	7	7
682	Lee On - Chai Wan (East)	8 - 20 min	6	6	7
694	Siu Sai Wan - Tiu Keng Leng PTI	15 - 25 min	4	4	5
780	Chai Wan (East) - Central	12 - 17 min	9	10	11
TOTAL			**79**	**85**	**92**

5.2 Traffic Impact Assessment with the proposed Special Traffic Plan

Tables 5-5, 5-6 and 5-7 compare the junction capacity assessment results for 2016, 2021 and 2026 respectively for the following scenarios:

- Reference – no Site I and Escalators
- Design - Site I with Escalators and Revised Special Traffic Plan (car/taxi pick up / drop off remains on Wan Tsui Street).

In addition to the data collected during the Ching Ming festive period in 2011, additional traffic surveys at the Junction of Chai Wan Road and San Ha Street (J10), and the Junction of Chai Wan Road, Sheung On Street and Wing Ping Street (J11) have also been conducted during weekday morning and afternoon peak hours, and derived for the Ching Ming peak hour based on the travel pattern observed on the Ching Ming festive period in 2011. This additional data are collected in response to the recommendations and proposed improvement schemes. The peak hour junction performances for Reference and Design scenarios described above for all the design years of 2016, 2021 and 2026 are presented in Table 5-5 to 5-7 respectively and detailed junction calculation sheets are given in Appendix B.

Table 5-5 Comparisons of 2016 Peak Hour Junction Performance

Jn No.	Location	Junction Type	Year 2016		
			Level 1	Level 2	Level 3
Reference Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.62	0.87	0.41
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	37.2%	17.3%	13.6%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.75	1.75	0.66
J4	J/O Chai Wan Road Roundabout	Roundabout	0.73	0.61	0.67
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	178.6%	300.4%	269.3%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	86.2%	90.2%	138.0%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	97.6%	102.3%	118.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	37.5%	**9.6%**	**3.1%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.36	0.25	0.48
J10	J/O Chai Wan Road and San Ha Street	Signal	74.6%	169.6%	142.5%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	120.0%	128.5%	142.5%
Design Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.65	0.94	0.36
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	32.4%	11.2%	58.1%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.78	1.85	0.58
J4	J/O Chai Wan Road Roundabout	Roundabout	0.75	0.63	0.72
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	177.4%	293.9%	260.1%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	86.0%	89.4%	135.2%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	97.6%	102.3%	118.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	35.5%	**6.8%**	**1.9%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.36	0.26	0.53
J10	J/O Chai Wan Road and San Ha Street	Signal	72.4%	154.6%	62.9%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	120.0%	127.9%	141.1%

*Notes: Reserve Capacity (RC) for signal controlled junction
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

Table 5-6 Comparisons of 2021 Peak Hour Junction Performance

Jn No.	Location	Junction Type	Year 2021		
			Level 1	Level 2	Level 3
Reference Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.64	0.89	0.42
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	33.7%	14.4%	58.7%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.77	1.81	0.68
J4	J/O Chai Wan Road Roundabout	Roundabout	0.76	0.63	0.70
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	171.1%	289.6%	259.0%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	81.2%	85.1%	131.5%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	99.1%	130.6%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	33.8%	**6.7%**	**-0.3%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.50
J10	J/O Chai Wan Road and San Ha Street	Signal	69.9%	162.3%	132.8%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	126.4%	122.3%	132.8%
Design Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.67	0.97	0.37
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	29.1%	8.6%	54.6%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.80	1.91	0.60
J4	J/O Chai Wan Road Roundabout	Roundabout	0.78	0.65	0.74
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	169.9%	283.4%	250.6%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	81.0%	84.3%	128.9%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	99.1%	130.6%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	38.9%	**8.7%**	**-0.8%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.54
J10	J/O Chai Wan Road and San Ha Street	Signal	67.8%	148.1%	59.2%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	126.4%	122.3%	135.9%

*Notes: Reserve Capacity (RC) for signal controlled junction
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

Table 5-7 Comparisons of 2026 Peak Hour Junction Performance

Jn No.	Location	Junction Type	Year 2026		
			Level 1	Level 2	Level 3
Reference Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.66	0.92	0.43
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	30.4%	11.6%	58.4%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.79	1.87	0.70
J4	J/O Chai Wan Road Roundabout	Roundabout	0.79	0.65	0.72
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	163.7%	279.0%	249.7%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	76.2%	80.0%	125.2%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	93.8%	91.6%	106.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	30.3%	**3.9%**	**-2.3%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.38	0.27	0.52
J10	J/O Chai Wan Road and San Ha Street	Signal	0.65	155.1%	129.5%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	120.2%	116.2%	129.5%
Design Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.69	0.99	0.38
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	26.0%	6.1%	51.2%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.83	1.97	0.62
J4	J/O Chai Wan Road Roundabout	Roundabout	0.81	0.67	0.77
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	162.6%	273.2%	241.4%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	76.0%	79.3%	122.8%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	87.1%	91.6%	106.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	28.0%	**1.3%**	**-2.2%**
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.38	0.27	0.56
J10	J/O Chai Wan Road and San Ha Street	Signal	63.3%	141.7%	55.5%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	108.2%	116.2%	129.5%

*Notes: Reserve Capacity (RC) for signal controlled junction
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

As indicated in the above tables, it should be noted that the calculation of junction capacity for J1, J2 and J3 is for information only as extensive crowd management and control are required at these locations due to heavy pedestrian flow particularly during Level 2 and Level 3.

In general, the traffic impact to be induced by the proposed Site I development is within acceptable level. With the exception of J8 (J/O Chai Wan Road and Tai Tam Road), the reserve capacity of all other key junctions would be sufficient to cope with the anticipated increase. Similar to the existing situation, J8 would be overloaded slightly under Level 3 i.e. on Ching Ming Day even without the Site I development. It can be seen that the proposed Site I development will only induce limited negative impact to J8.

5.3 Peak Hour Main Pedestrian Route Assessments

Figure 5.1 shows the amount of pedestrians along the major pedestrian routes for the Reference Case (i.e. no escalator) and Design Case (i.e. with Site I and escalators) during the most critical hour in Level 3, i.e.Ching Ming Day. As shown in the figure, the amount of pedestrians on Lin Shing Road would be reduced in the Design scenario due to diversion of MTR and 388/389 visitors to other bus services on Chai Wan Road for access of the escalators.

Table 5-8 shows the LOS assessment results on the critical pedestrian links on Cape Collinson Road (P1) and Lin Shing Road (P2). The LOS on Lin Shing Road would be improved slightly due to the diversion of pedestrian flows to the escalators.

Table 5-8 Peak Hour LOS of Critical Links

Route[1]	Critical Links	Effective Width[3]	Reference		Site I	
			PMM[2]	LOS	PMM[2]	LOS
Proposed Improvement			No improvement		With Escalators	
P1	A+B[5]	9.9	37.4	D	34.9	D
P2	C	2.5	Flow management and control by HKPF			
	D[4]	4.0	59.8	**E**	42.2	D
	E[5]	2.8	54.5	**E**	47.3	D

Notes:
(1) Refer to Figure 2.3 for locations of Routes and Links
(2) PMM = Pedestrian/ min/ meter
(3) Assume effective width same as existing
(4) Based on uphill direction busiest hour flow
(5) Based on downhill direction busiest hour flow

6 Sensitivity Tests

6.1 Test Scenarios

Sensitivity tests have been conducted to assess the traffic impact in 2021 due to:

Test 1 - The trip generation and attraction rates are underestimated by 20% OR The proposed no. of niches is increased by 20%

Test 2 - The background traffic is underestimated by 20%.

6.2 Test 1

Table 6-1 shows the junction performances in 2021 for Site I development for Level 1, 2 and 3. The results indicate that all key junctions in the study area would perform satisfactorily during the peak hour even with the 20% increase of development flows. It is noted that Junction of Chai Wan Road and Tai Tam Road (J8) would be overloaded slightly in Level 3.

Table 6-1 Test 1 - Comparisons of 2021 Peak Hour Junction Performance

Jn No.	Location	Junction Type	Year 2021		
			Level 1	Level 2	Level 3
Reference Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.66	0.91	0.43
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	31.8%	12.1%	57.5%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.79	1.85	0.70
J4	J/O Chai Wan Road Roundabout	Roundabout	0.76	0.63	0.71
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	170.9%	289.0%	258.8%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	81.2%	85.1%	131.5%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	99.1%	96.8%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	33.0%	5.8%	0.1%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.51
J10	J/O Chai Wan Road and San Ha Street	Signal	69.8%	162.3%	79.5%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	126.4%	122.3%	135.9%
Design Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.70	1.00	0.37
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	26.5%	5.4%	49.0%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.83	1.97	0.61
J4	J/O Chai Wan Road Roundabout	Roundabout	0.79	0.66	0.77
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	169.5%	281.7%	248.5%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	80.9%	84.1%	128.4%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	92.1%	96.8%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	27.7%	0.4%	-1.4%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.56
J10	J/O Chai Wan Road and San Ha Street	Signal	67.3%	145.4%	54.3%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	114.0%	122.3%	135.9%

*Notes: Reserve Capacity (RC) for signal controlled junction
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

6.3 Test 2

6.3.1 Traffic Assessment

For this sensitivity test, the 2021 background traffic is underestimated by 20% before adding the new development traffic (committed developments and Site I development). Table 6-2 shows the junction performance results and detailed calculation sheets are given in Appendix B.

Table 6-2 Test 2 - Comparisons of 2021 Peak Hour Junction Performance

Jn No.	Location	Junction Type	Year 2021		
			Level 1	Level 2	Level 3
Reference Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.77	1.05	0.49
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	12.8%	-3.0%	38.5%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.93	2.28	0.84
J4	J/O Chai Wan Road Roundabout	Roundabout	1.01	0.77	0.87
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	126.0%	225.0%	199.8%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	51.0%	54.2%	93.0%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	57.5%	88.4%	73.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	9.2%	-12.3%	-19.2%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.45	0.32	0.62
J10	J/O Chai Wan Road and San Ha Street	Signal	41.6%	118.6%	51.9%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	78.3%	85.2%	96.6%
Design Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.80	1.00	0.43
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	9.6%	-7.2%	33.0%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.96	1.97	0.76
J4	J/O Chai Wan Road Roundabout	Roundabout	1.04	0.80	0.93
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	125.2%	220.8%	193.7%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	50.8%	53.7%	91.1%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	57.5%	88.4%	73.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	5.6%	-7.6%	-15.6%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.45	0.26	0.67
J10	J/O Chai Wan Road and San Ha Street	Signal	40.2%	108.6%	36.2%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	78.3%	85.2%	96.6%

*Notes: Reserve Capacity (RC) for signal controlled junction
Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.
J1/J2/J3 are for information only, on-site crowd management and traffic control is required

The results indicate that J4 and J8 would be overloaded under the Reference Case, i.e. even without the proposed Site I development due to a significant increase of background traffic in the future.

6.3.2 *Pedestrian Assessment*

Similarly, the change in pedestrian traffic under Test 1 and 2 above will provide the same amount of future pedestrian flows to be generated by the proposed Site I development. Based on the increased pedestrian demand, the LOS of the critical pedestrian routes P1 and P2 are assessed for both the Reference and Design scenarios, i.e. "without" and "with improvement schemes" respectively. The results are shown in Table 6-3.

Table 6-3 Sensitivity Test - Peak Hour LOS of Critical Links

Route(1)	**Critical Links**	**Effective Width**(3)	**Reference**		**Site I**	
			PMM(2)	LOS	PMM(2)	LOS
Proposed Improvement			No improvement		With Escalators	
P1	A+B(5)	9.9	44.9	D	41.9	D
P2	C	2.5	Flow management and control by HKPF			
	D(4)	4.0	71.7	**E**	50.6	E
	E(5)	2.8	65.4	**E**	56.8	E

Notes:
(1) Refer to Figure 2.3 for locations of Routes and Links
(2) PMM = Pedestrian/ min/ meter
(3) Assume effective width same as existing
(4) Based on uphill direction busiest hour flow
(5) Based on downhill direction busiest hour flow

7 Conclusion

7.1 Summary of Findings

7.1.1 Halcrow are commissioned by Architectural Services Department to undertake a traffic review for the proposed revision of development intensity at Site I from 15,000 niches to 25,000 niches.

7.1.2 Estimation of trip generations are reviewed by taking into account the observed data collected during the Ching Ming period in 2011 and on-site historical data provided by the Hong Kong Police Force. The observed pedestrian data obtained from the surveys in 2011 fall in the upper range of the historical data and hence are considered appropriate for the assessment study.

7.1.3 Peak hour junction capacity assessments are carried out for all the key junctions within the Study Area for the different traffic plans being implemented by the Police - Level 1, Level 2 and Level 3.

7.1.4 Based on the updated traffic forecasts, the proposed improvement schemes proposed in the TIA report are reviewed. The proposed improvement schemes are:

- Provision of new pedestrian route with escalators and stairways linking Cape Collinson Road and San Ha Street, with associated footpath and carriageway widening on Cape Collinson Road and special traffic plan.
- Junction improvement at J/O Cape Collinson Road and Lin Shing Road.

7.1.5 The results of the Review Study indicate that the proposed development at Site I with 25,000 niches would not create adverse vehicular traffic impact to the road network in Chai Wan area. Additional pedestrian facilities and associated bus services proposed in the 2012 Study report should be maintained in order to minimise the pedestrian impact induced by the proposed Site I development.

7.1.6 Sensitivity tests have been carried out and it is identified that most of the roads and pedestrian networks (with improvement schemes) in the area would be able to cope with a further increase of development traffic by 20% and the background traffic underestimated by 20%.

7.2 Conclusion

7.2.1 To complement the proposed pedestrian link at San Ha Street, the following Special Traffic Plan and special bus services are proposed:

- To maintain one way westbound only on San Ha Street.
- Temporary closure of about 8 nos. of existing metered car parking spaces, 2 nos. of disabled car parking spaces and 16 nos. of motorcycle parking spaces on the southern carriageway in order to provide temporary footway and queuing area for bus passengers.
- Convert a section of the westbound carriageway as bus bays for the special bus services from Heng Fa Chuen to San Ha Street.
- Temporarily closing the nearside lane of Chai Wan Road and minor modification of the junction layout at the junction of Chai Wan Road and Wing Ping Street is required to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street.
- The existing GMB service on San Ha Street westbound is to be maintained.
- The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street, and San Ha Street are to be maintained.
- The arrangement for guiding pedestrians for access from MTR Chai Wan Station to the escalators on San Ha Street via Chai Wan Park and Yee Shun Street and pedestrian egress route from San Ha Street to MTR Chai Wan Station via Chai Wan Road southern footpaths and the footbridges across Chai Wan Road Roundabout may be considered.

7.2.2 New bus service from MTR Heng Fa Chuen Station to San Ha Street is proposed with a service headway of 3 minutes during peak hours. Strengthening of existing bus services running along Chai Wan Road are also required to cope with the anticipated demand.

7.2.3 Bus stacking and passenger queuing arrangements at both San Ha Street and Heng Fa Chuen bus terminus are proposed.

Figures

LEGEND:

POTENTIAL SITE LOCATION FOR COLUMBARIUM DEVELOPMENT

INFLUENCED AREA FOR TIA

842000E

843000E

844000E

814000N

813000N

INFLUENCED AREA FOR TIA

PROJECT SITE I

PROJECT SITE II

CHAI WAN

柴灣

CHAI WAN KOK

柴灣角

CHAI WAN AU

柴灣坳

SIU SAI WAN

小西灣

SIU SAI WAN ROAD

CHAI WAN ROAD

TAI TAM ROAD

SHEK O ROAD

WING TAI ROAD

SAN WAN STREET

CAPE COLLINSON ROAD

FEI TSUI ROAD

WAN TSUI ROAD

LIN SHING ROAD

ISLAND EASTERN CORRIDOR

CHAI WAN MTR STATION

CREMATORIUM

CHINESE PERMANENT CEMETERY

POTTINGER PEAK

TAI TAM GAP

POTTINGER GAP

Cargo Handling Basin

Sewage Treatment Works

Chai Wan Swimming Pool

Lok Kang Po

Siu Sai Wan Estate

Island Resort

Cheerful Garden

Fullview Garden

Harmony Garden

Hing Man Estate

Yue Wan Estate

Tsui Wan Estate

Hing Wah (1) Estate

Hing Wah (2) Estate

Lok Wah South Estate

Shan Tsui Court

Hiu Tsui Court

Kai Tsui Court

King Tsui Court

Yan Tsui Court

Wan Tsui Estate

Eung Wah Estate

Greenwood Terrace

Pamela Youde Nethersole Eastern Hospital

Dolphin

Bus Depot

Public Cargo Working Area

Works in progress

0 75 150 225 300 375

METRES

SCALE 1 : 7500

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	FIGURE 1.1	
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SITE LOCATION PLAN AND INFLUENCED AREA FOR TIA	Checked: OC	Scale: 1: 7500 @ A3 / Rev.: 0
				Designed: YC	Drawn: PF / Date: 27/04/2011

phillpF 11/05/2011

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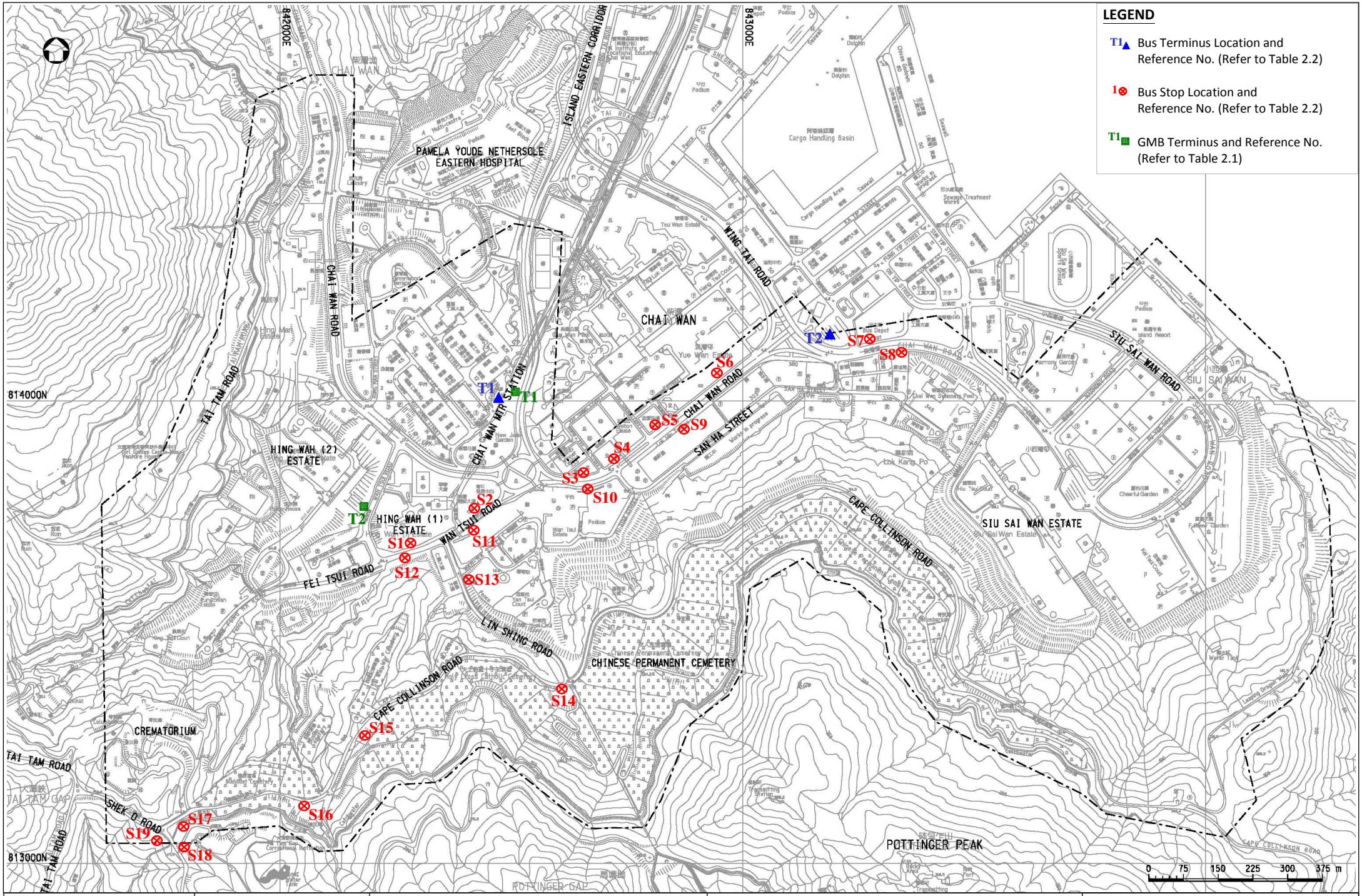

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: LOCATIONS OF BUS STOP / TERMINUS AND GMB TERMINUS IN THE VICINITY OF CHAI WAN CEMETERIES

FIGURE 2.1

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Designed	**Drawn**	**Date**
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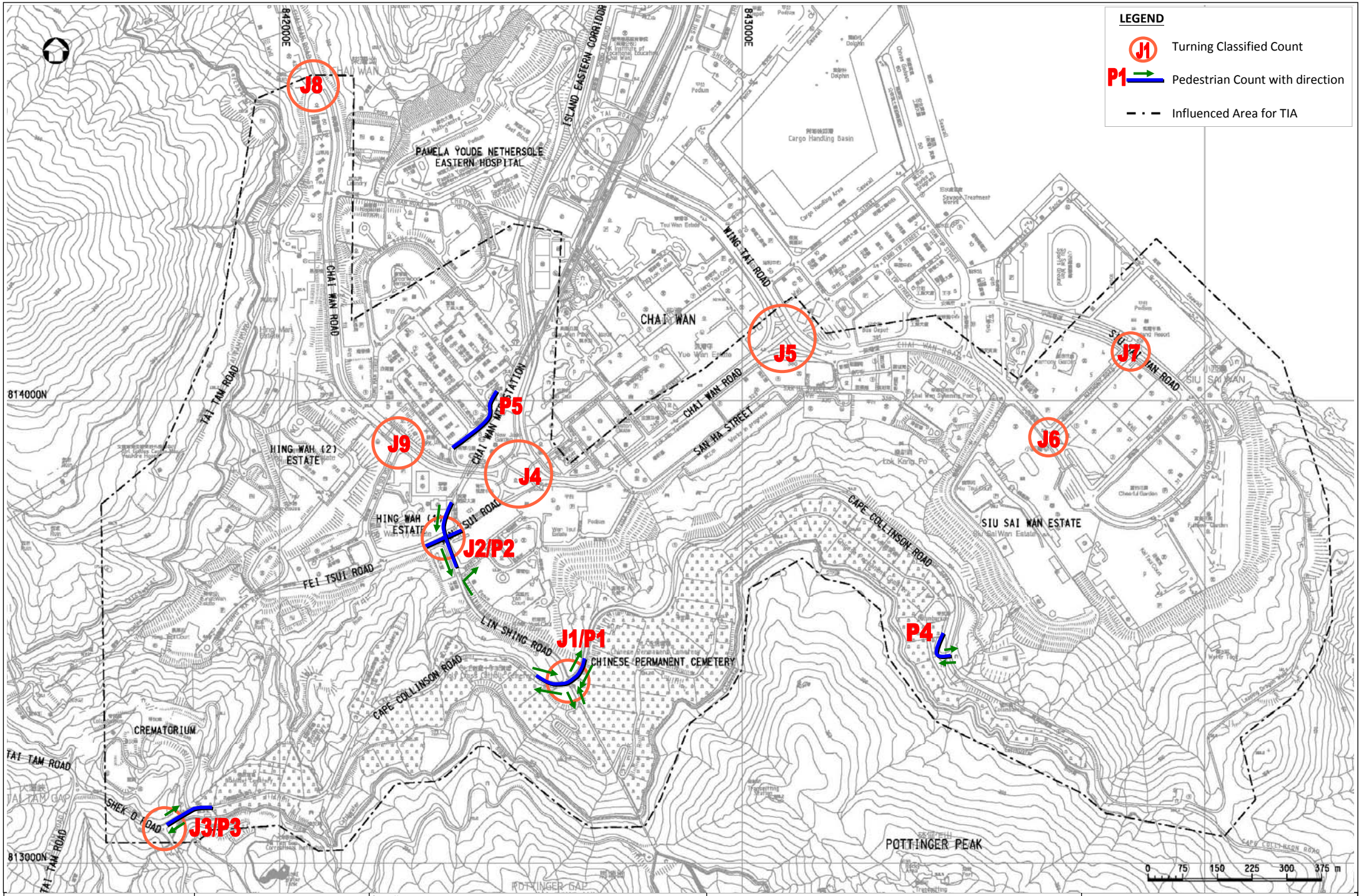

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		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: LOCATIONS OF TRAFFIC AND PEDESTRIANS SURVEY (SHEET 1 OF 2)

FIGURE 2.2

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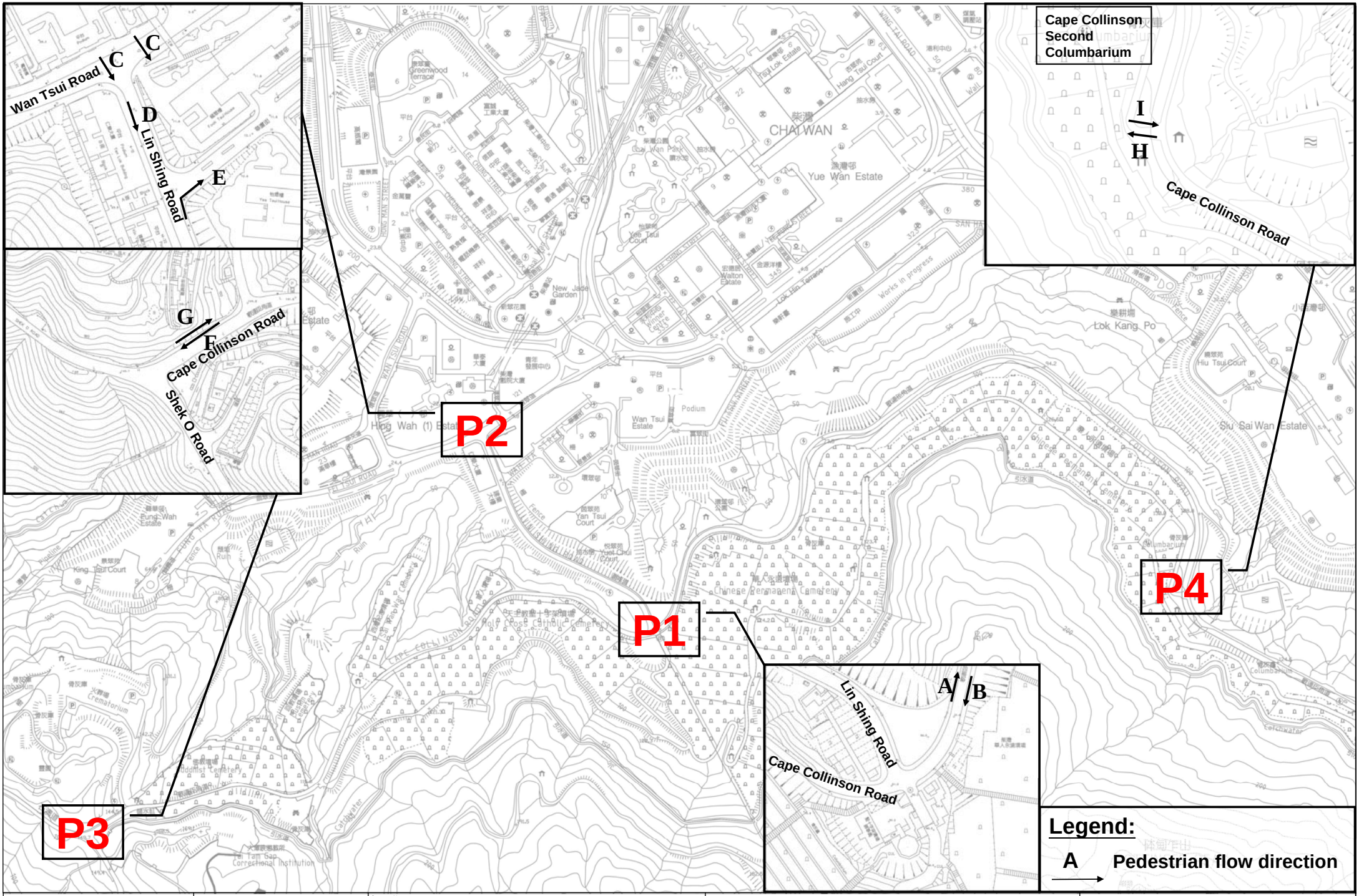

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		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: 2011 OBSERVED PEDESTRIAN FLOWS CRITICAL LOCATION

FIGURE 2.3

Checked	Scale	Rev.
OC	-	1
Designed	Drawn	Date
YC	-	17/08/2011

4 nos. of Bus Bays

Alighting Passenger

Bus Stop

Boarding Passenger Queue

8 nos. Metered Parking Spaces,
16 nos. Motorcycle Parking Spaces
and 2 nos. Disabled Parking Spaces
to be Temporarily Suspended

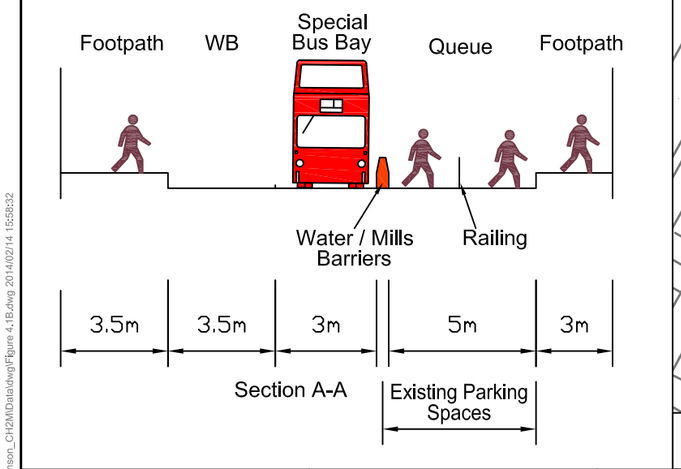
To/From MTR

To/From Other Bus Stops

To/From Other Bus Stops

Escalators Tower

Chai Wan Road



Legend:
- WALKING DIRECTION
- QUEUEING DIRECTION
- WATER-FILLED BARRIER
- RAILING
- TRAFFIC DIRECTION

0 10 20 30 40

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC REVIEW REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SPECIAL BUS SERVICES AT SAN HA STREET

FIGURE 4.1

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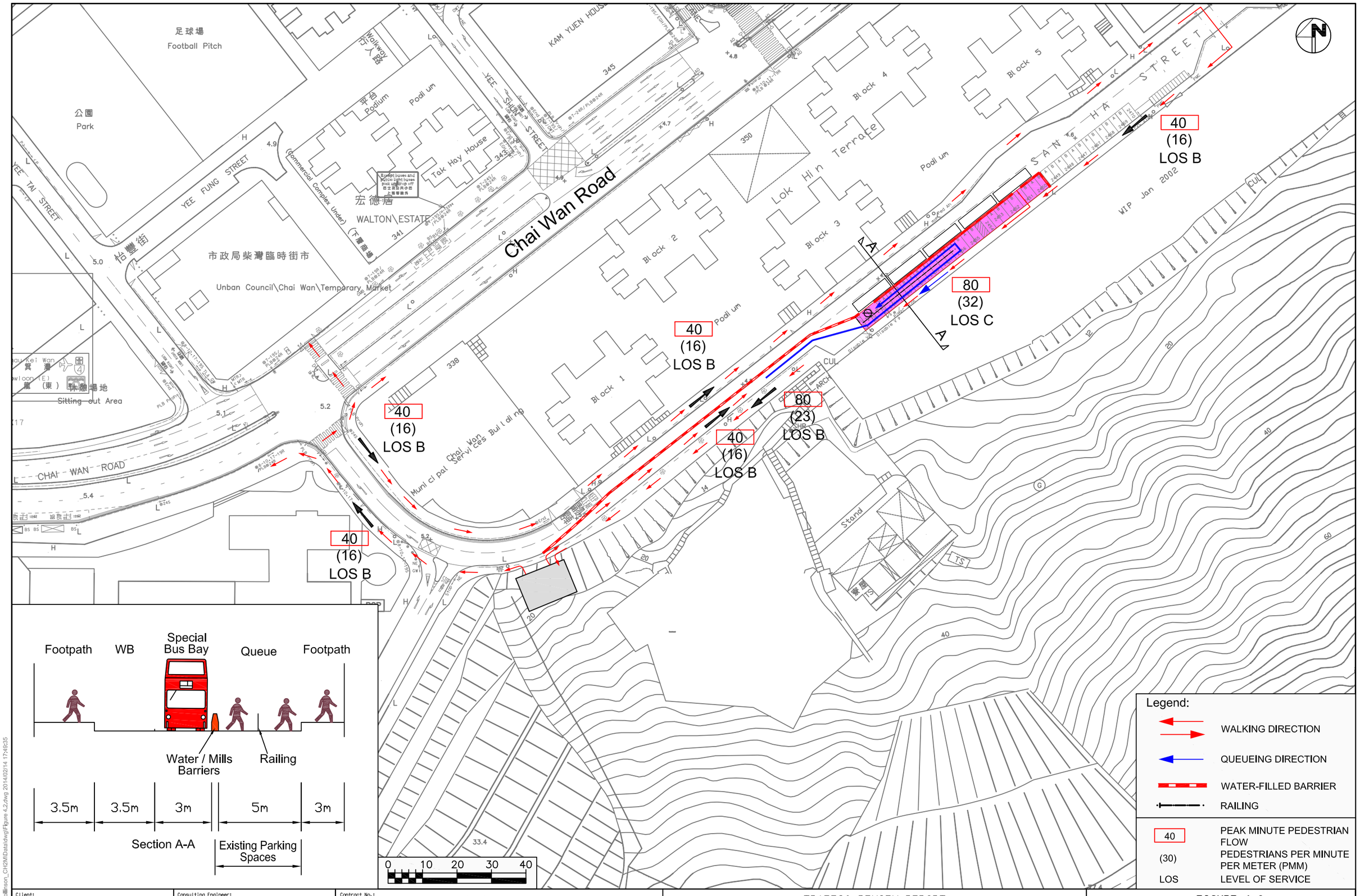

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		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: LEVEL OF SERVICES AT FOOTPATHS ALONG SAN HA STREET

FIGURE 4.2

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$USERNAME$ $$$$DATE$TIME$$$$

$$$$$$$$$$$$$$$$FILENAME$$$$$$$$$$$$$$$$

X:\Ozzo\80510_Cape Collinson_CH2M\Data\dwg\Figure 4.2.dwg 2014/02/14 17:49:35

To/From MTR

Bus Stop

Special Bus Bay
2 Loading Bays
1 Unloading Bay

Temporary
Pedestrian Crossing

0 6 12 18 24

1 Queue

352 nos. of Waiting Pedestrians can be accommodated

2 Queues

152 nos. of Waiting Pedestrians can be accommodated

167 nos. of Waiting Pedestrians can be accommodated

Legend:
- WALKING DIRECTION
- QUEUEING DIRECTION
- ALIGHTING PASSENGERS
- RAILING

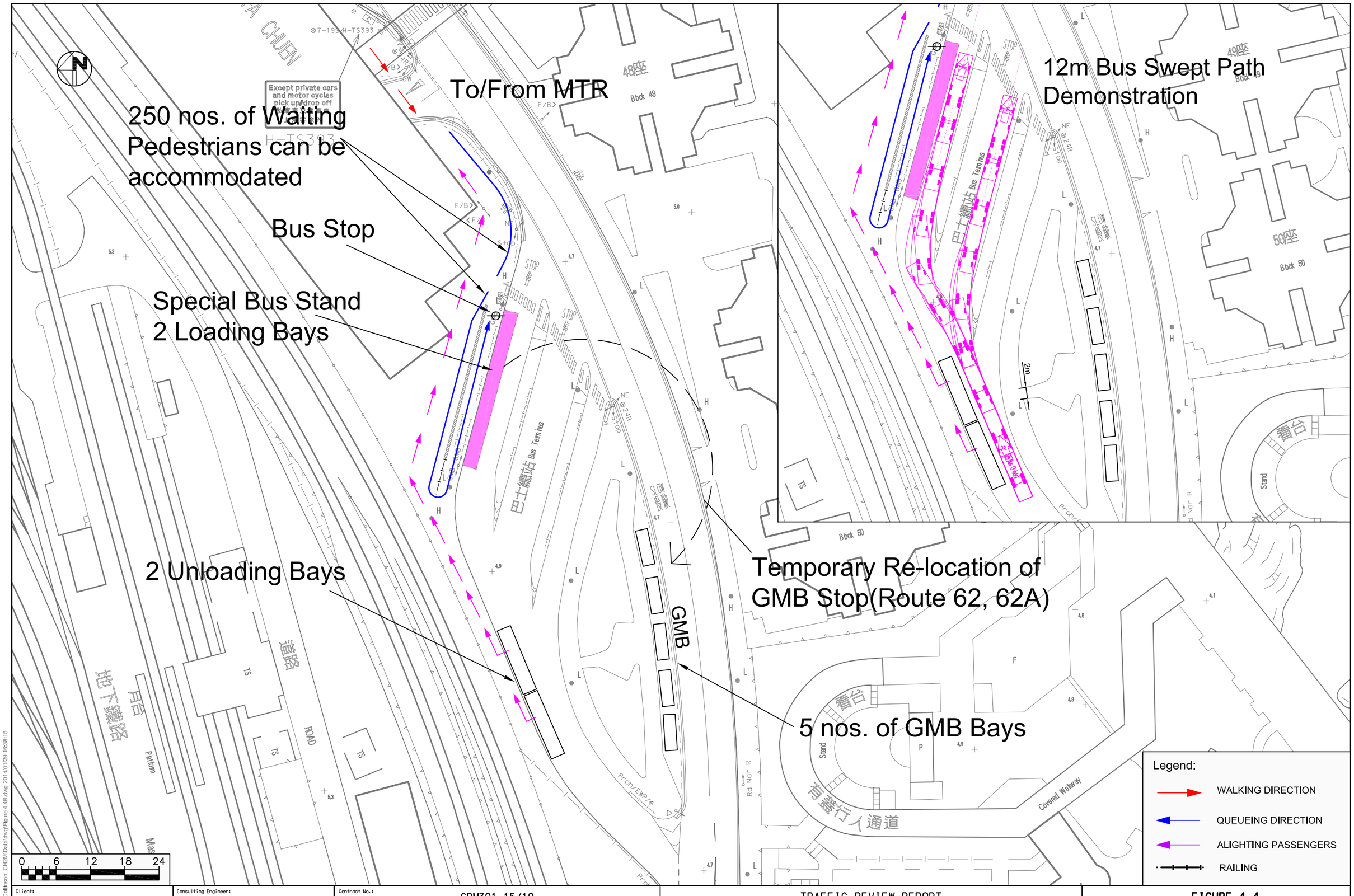
Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC REVIEW REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SPECIAL BUS SERVICES AT HENG FA CHUEN - OPTION 1

FIGURE 4.3

Checked	Scale	Rev.
OC	1: 600	B
Designed: JZ	Drawn: SX	Date: 28/01/2014

$USERNAME$ $$$$DATE$TIME$$$$
$$$$$$$$$$$$$$$$FILENAME$$$$$$$$$$$$$$$$

X:\Dzzs\60510_Cape Collinson_CH2M\Data\dwg\Figure 4.3B.dwg 2014/01/29 16:40:25



Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC REVIEW REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: SPECIAL BUS SERVICES AT HENG FA CHUEN – OPTION 2

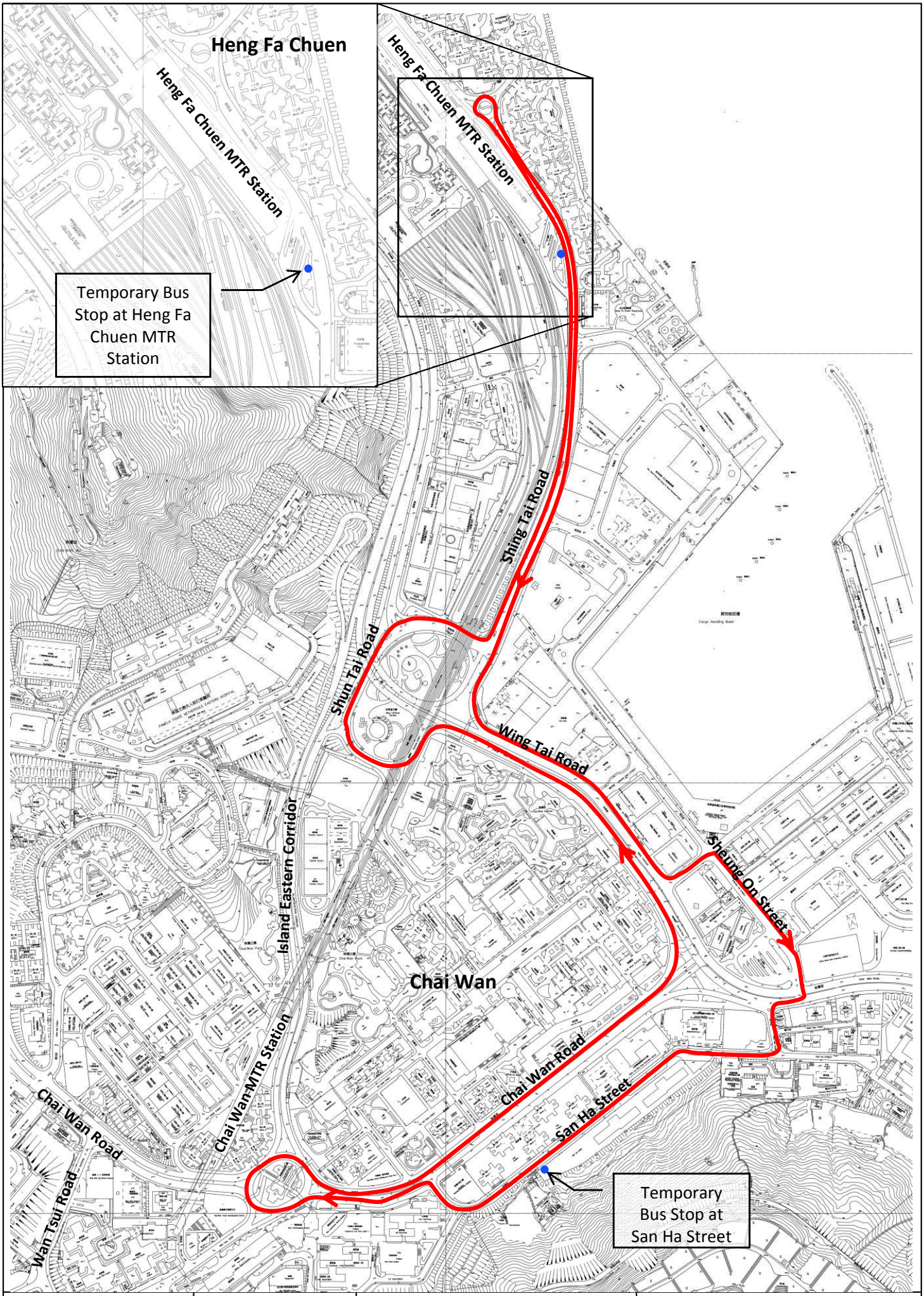
FIGURE 4.4

Checked	Scale	Rev.
OC	1: 600	B
Designed: JZ	Drawn: SX	Date: 28/01/2014

$USERNAME$ $$$$DATE$TIME$$$$

$$$$$$$$$$$$$$$$FILENAME$$$$$$$$$$$$$$$$

X:\Ozzo\80510_Cape Collinson_CH2M\Data\dwg\Figure 4.4B.dwg 2014/01/29 16:38:15



Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Agreement No.: CPM301_15/10	FIGURE 4.5
		TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	POSSIBLE NEW SPECIAL BUS ROUTE (HENG FA CHUEN – SAN HA STREET)

Existing Island to be Modified

TS417
600mm

TS494
600mm

1000mmx1500mm

TS491
600mm
TS767
350mm
x375mm

11m HGV Swept Path Demonstration

12m Bus Swept Path Demonstration

TS110
600mm

TS504

F.A.S

TS491
600mm
TS767
350mm
x375mm

Legend:

TEMPORARY TRAFFIC SIGN WITH ITS FACING DIRECTION

TRAFFIC CONES

0 5 10 15 20

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC REVIEW REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: MODIFICATION AT JUNCTION OF CHAI WAN ROAD AND WING PING STREET

FIGURE 4.6

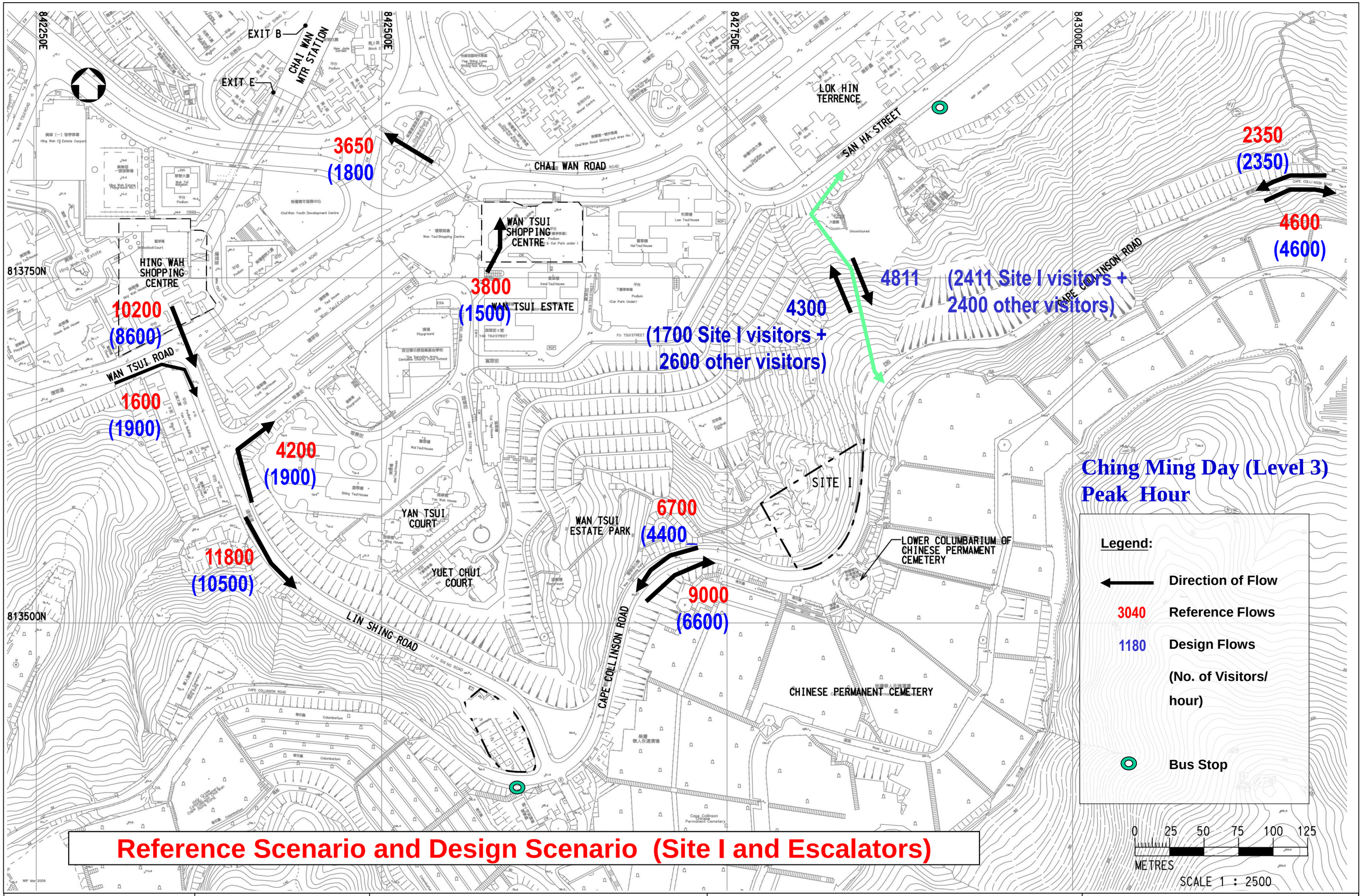
Checked	Scale	Rev.
OC	1: 500	-
Designed: JZ	Drawn: SX	Date: 14/11/2013

$USERNAME$

$$$$$$$$$$$$$$$$FILENAME$$$$$$$$$$$$$$$$

$$$$DATE$TIME$$$$

X:\Dzzo\80510_Cape Collinson_CH2M\Data\dwg\Figure 4.6.dwg 2013/11/15 19:37:46



Reference Scenario and Design Scenario (Site I and Escalators)

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	FIGURE 5.1
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Figure Title: **Peak Hour Pedestrian Flows on Ching Ming Day Reference and Design Flows**	Checked: OC; Scale: -; Rev.: 0; Designed: YC; Drawn: -; Date: 21/11/2011

Appendix A

Hong Kong Police Force – Historic Grave Sweeper Data visiting Chai Wan Cemeteries

清明節掃墓人數

Ching Ming 2009		
2009-03-15 (SUN)	Level 1	4,920
2009-03-21 (SAT)	Level 1	4,020
2009-03-22 (SUN)	Level 1	15,940
2009-03-28 (SAT)	Level 1	3,940
2009-03-29 (SUN)	Level 2	14,930
2009-04-04 (SAT) Ching Ming Festival	Level 3	102,800
2009-04-05 (SUN)	Level 2	6,590
2009-04-10 (FRI) Easter Festival	Level 1	4,950
2009-04-11 (SAT) Easter Festival	Level 1	3,060
2009-04-12 (SUN) Easter Festival	Level 1	6,400
2009-04-13 (MON) Easter Festival	Level 1	1,995
2009-04-18 (SAT)	Level 1	5,075
2009-04-19 (SUN)	Level 1	11,145
2009-04-26 (SAT)	STA	6,100
	Total:	**191,865**

Ching Ming 2010		
2010-03-14 (SUN)	Level 1	3,955
2010-03-20 (SAT)	Level 1	3,480
2010-03-21 (SUN)	Level 1	11,960
2010-03-27 (SAT)	Level 1	5,320
2010-03-28 (SUN)	Level 1	23,470
2010-04-02 (FRI) Easter Festival	Level 2	7,300
2010-04-03 (SAT) Easter Festival	Level 2	5,900
2010-04-04 (SUN) Easter Festival	Level 2	8,035
2010-04-05 (MON) Ching Ming Festival	Level 3	40,070
2010-04-06 (TUE) Easter Festival	Level 2	8,540
2010-04-10 (SAT)	Level 1	5,120
2010-04-11 (SUN)	Level 1	22,135
2010-04-17 (SAT)	Level 1	4,135
2010-04-18 (SUN)	Level 1	15,185
2010-04-24 (SAT)	Level 1	3,392
2010-04-25 (SUN)	Level 1	17,320
2010-05-01 (SAT)	Level 1	4,038
2010-05-02 (SUN)	Level 1	2,680
2010-05-08 (SAT)	STA	500
2010-05-09 (SUN)	STA	800
2010-05-15 (SAT)	STA	80
	Total:	**193,415**

Ching Ming 2011		
2011-03-06 (SUN)	Level 1	3,336
2011-03-12 (SAT)	Level 1	3,345
2011-03-13 (SUN)	Level 2	18,250
2011-03-19 (SAT)	Level 1	4,035
2011-03-20 (SUN)	Level 2	13,140
2011-03-26 (SAT)	Level 1	5,990
2011-03-27 (SUN)	Level 2	19,320
2011-04-02 (SAT)	Level 2	16,635
2011-04-03 (SUN)	Level 3	43,565
2011-04-05 (TUE) Ching Ming Festival	Level 3	70,920
2011-04-09 (SAT)	Level 2	13,875
2011-04-10 (SUN)	Level 2	28,990
2011-04-16 (SAT)	Level 1	4180
2011-04-17 (SUN)	Level 2	16,609
2011-04-22 (FRI)	Level 1	4,720
2011-04-23 (SAT)	Level 1	4,485
2011-04-24 (SUN)	Level 1	12,145
2011-04-25 (MON)	Level 1	4,245
2011-04-30 (SAT)	Level 1	6,225
2011-05-01 (SUN)	Level 1	12,685
2011-05-02 (MON)	Level 1	3,355
	Total :	**310,050**

Ching Ming 2012		
2012-03-04 (SUN)	Level 1	7,280
2012-03-10 (SAT)	Level 1	1,325
2012-03-11 (SUN)	Level 2	4,005
2012-03-17 (SAT)	Level 1	2,220
2012-03-18 (SUN)	Level 2	9,005
2012-03-24 (SAT)	Level 1	5,266
2012-03-25 (SUN)	Level 2	12,100
2012-03-31 (SAT)	Level 2	8,920
2012-04-01 (SUN)	Level 3	43,050
2012-04-04 (WED) Ching Ming Festival	Level 3	45,400
2012-04-06 (FRI) Easter Festival	Level 2	7,100
2011-04-07 (SAT) Easter Festival	Level 2	6,600
2012-04-08 (SUN) Easter Festival	Level 2	9,800
2012-04-09 (MON) Easter Festival	Level 2	8,050
2012-04-14 (SAT)	Level 2	6,330
2012-04-15 (SUN)	Level 2	19,290
2012-04-21 (SAT)	Level 1	1,830
2012-04-22 (SUN)	Level 2	14,000
2012-04-28 (SAT)	Level 1	4,670
2012-04-29 (SUN)	Level 1	2,460
	Total :	**218,701**

Ching Ming 2013			
2013-03-10 (SUN)	Level 1	4,080	
2013-03-16 (SAT)	Level 1	6,015	
2013-03-17 (SUN)	Level 1	15,220	
2013-03-23 (SAT)	Level 1	6,330	
2013-03-24 (SUN)	Level 2	19,550	
2013-03-29 (FRI) Easter Festival	Level 2	17,940	
2013-03-30 (SAT) Easter Festival	Level 2	14,380	
2013-03-31 (SUN)	Level 2	18,260	
2013-04-01 (MON) Easter Festival	Level 3	14,750	
2013-04-04 (THU) Ching Ming Festival	Level 3	93,600	
2013-04-06 (SAT)	Level 2	7,720	1615 hrs down to Level 1
2013-04-07 (SUN)	Level 2	32,240	
2013-04-13 (SAT)	Level 2	13,450	1620 hrs down to Level 1
2013-04-14 (SUN)	Level 2	27,640	1630 hrs down to Level 1
2013-04-20 (SAT)	Level 1	6,930	
2013-04-21 (SUN)	Level 1	20,800	Bet 0945 & 1615 hrs up to Level 2
2013-04-27 (SAT)	Level 1	8,510	
2013-04-28 (SUN)	Level 1	22,830	Bet 0945 & 1530 hrs up to Level 2
	Total :	**350,245**	

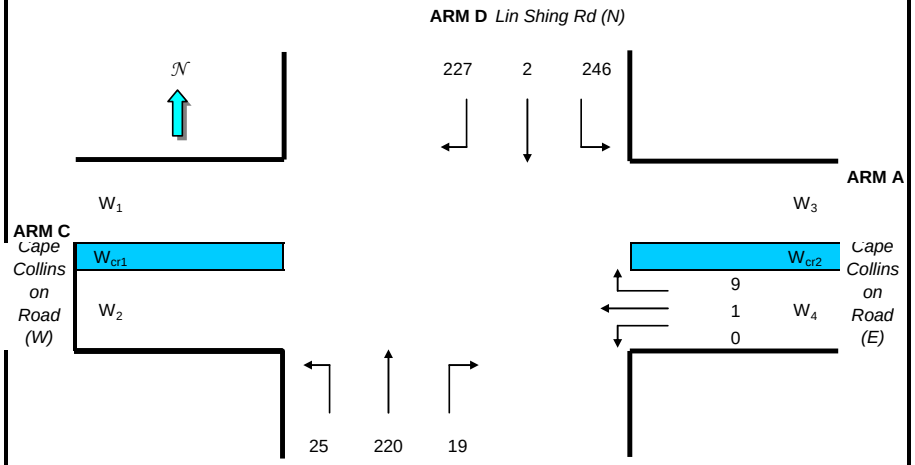
Ching Ming 2012 (4/3 - 29/4)					
Date	Week	Phase	Peak Time	/Grave sweepers	Total Grave sweepers
04-03-2012	SUN	I	1200 hrs	/1600	7280
10-03-2012	SAT	I	1300 hrs	/250	1325
11-03-2012	SUN	II	1200 hrs	/940	4005
17-03-2012	SAT	I	1200 hrs	/550	2220
18-03-2012	SUN	II	1200 hrs	/1810	9005
24-03-2012	SAT	I	1100 hrs	/930	5266
25-03-2012	SUN	II	1200 hrs	/3300	12100
31-03-2012	SAT	II	1200 hrs	/2250	8920
01-04-2012	SUN	II	1300 hrs	/9600	43050
04-04-2012	WED	III	1400 hrs	/8100	45400
06-04-2012	FRI	II	1200 hrs	/1680	7100
07-04-2012	SAT	II	1200 hrs	/1250	6600
08-04-2012	SUN	II	1300 hrs	/2110	9800
09-04-2012	MON	II	1200 hrs	/2550	8050
14-04-2012	SAT	II	1300 hrs	/1020	6330
15-04-2012	SUN	II	1200 hrs	/4000	19290
21-04-2012	SAT	I	1200 hrs	/320	1830
22-04-2012	SUN	II	1200 hrs	/3340	14000
28-04-2012	SAT	I	1300 hrs	/1210	4670
29-04-2012	SUN	I	1200 hrs	/530	2460
					218701

Ching Ming 2013 (10/3 - 28/4)					
Date	Week	Phase	Peak Time	/Grave sweepers	Total Grave sweepers
10-03-2013	SUN	I	1200 hrs	/900	4080
16-03-2013	SAT	I	1300 hrs	/1275	6015
17-03-2013	SUN	I ✓	1300 hrs	/4080	15220
23-03-2013	SAT	I	1300 hrs	/1105	6330
24-03-2013	SUN	II	1200 hrs	/5140	19550
29-03-2013	FRI	II ✓	1300 hrs	/3800	17940
30-03-2013	SAT	II	1200 hrs	/3800	14380
31-03-2013	SUN	II	1300 hrs	/3710	18260
01-04-2013	MON	III	1200 hrs	/3410	14750
04-04-2013	THU	III	1300 hrs	/24000	93600
06-04-2013	SAT	II	1300 hrs	/1650	7720
07-04-2013	SUN	II	1300 hrs	/7500	32240
13-04-2013	SAT	II	1300 hrs	/2950	13450
14-04-2013	SUN	II	1500 hrs	/4900	27640
20-04-2013	SAT	I	1200 hrs	/1830	6930
21-04-2013	SUN	I	1100 hrs	/4200	20800
27-04-2013	SAT	I	1300 hrs	/1890	8510
28-04-2013	SUN	I	1200 hrs	/6080	22830
					350245

Appendix B1

2011 Peak Hour Junction Assessment Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Level 1
Time - 2011 Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
t	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1	(pcu/hr)
q_{a-d}	=	9	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	19	(pcu/hr)
q_{b-c}	=	25	(pcu/hr)
q_{b-d}	=	220	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	246	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	227	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

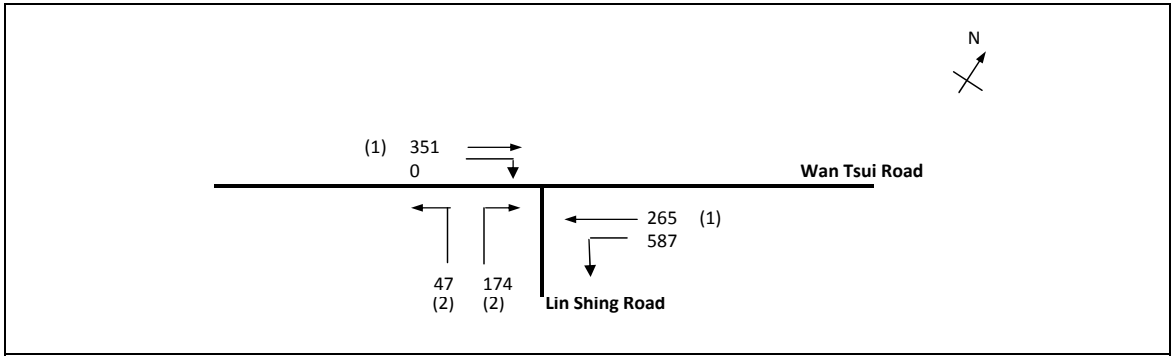
Q_{b-a}	=	540
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	609
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	529
Q_{d-c}	=	455
Q_{c-b}	=	439
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

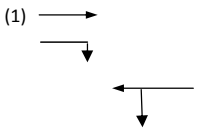
DFC_{b-a}	=	0.035
DFC_{b-c}	=	0.033
DFC_{b-d}	=	0.362
DFC_{d-a}	=	0.365
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.499
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.015

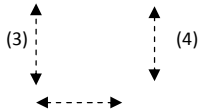
Critical DFC = 0.499

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.467	
Loss time		L =	35	sec
Total Flow		=	1203	pcu
Co	= (1.5*L+5)/(1-Y)	=	107.8	sec
Cm	= L/(1-Y)	=	65.6	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	36.6	%
Cp	= 0.9*L/(0.9-Y)	=	72.7	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.6	%



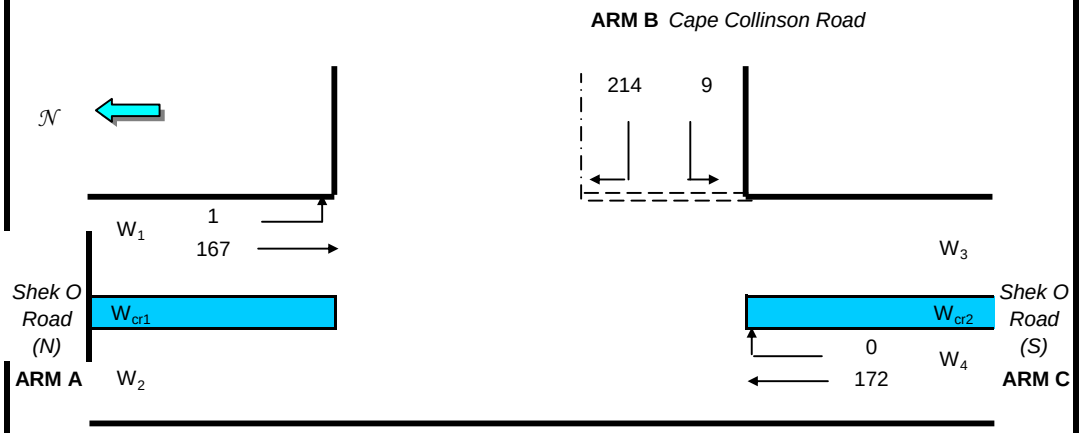


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		351		351	0.00	1915			1915	0.183			33	85	0.259	18	4
ST/LT	A	4.00	1	1	10		N	2015	587	265		852	0.69	1826			1826	0.467	0.467		85	85	0.659	48	5
Ped	B	6.0	3																	30					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Level 1
Time - 2011 Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	1	(pcu/hr)
q_{a-c}	=	167	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	172	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	214	(pcu/hr)
q_{b-c}	=	9	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

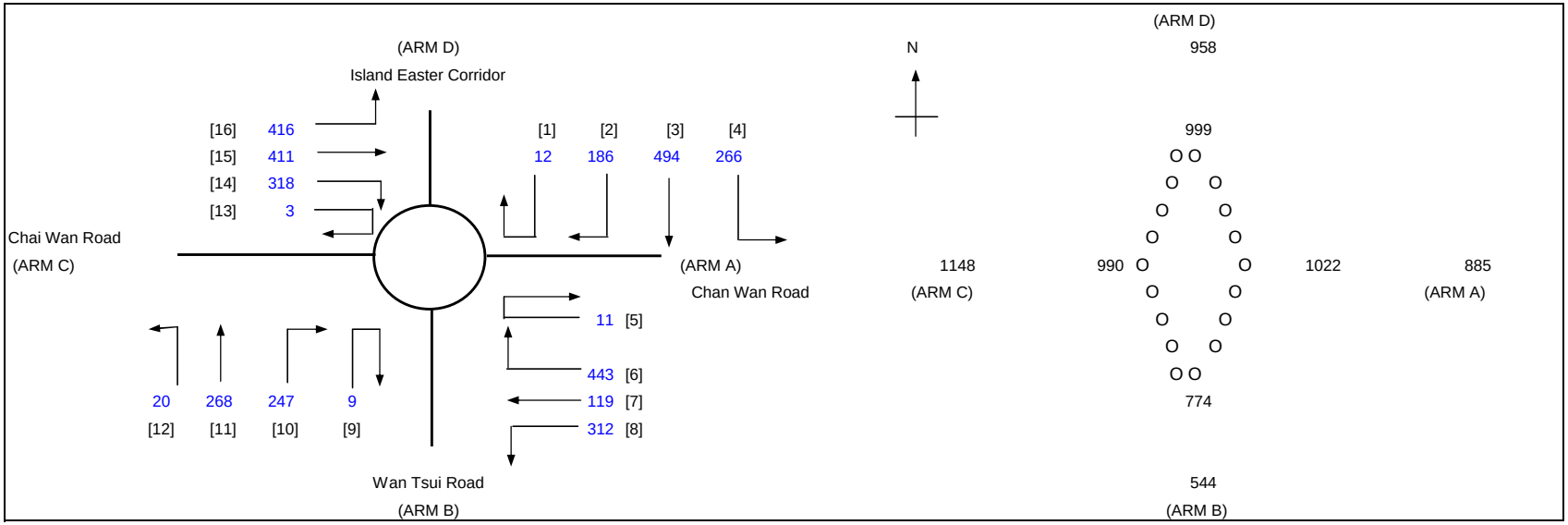
Q_{b-c}	=	699
Q_{c-b}	=	778
Q_{b-a}	=	348

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.615
DFC_{b-c}	=	0.013
DFC_{c-b}	=	0.000

Critical DFC = 0.615

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME : 2011_LV1_Ref_J4.xls	CHECKED BY:	OC	Sep-13
2011 Level 1 Peak Hour			REVIEWED BY:	OC	Sep-13

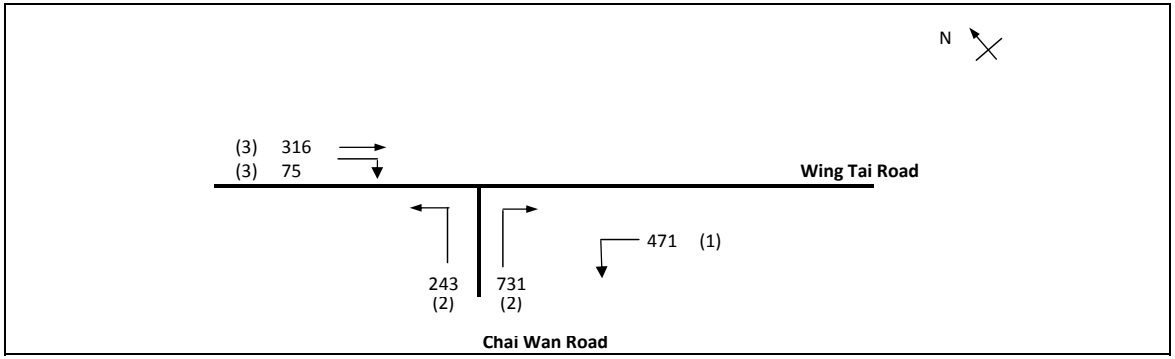


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	885	544	1148	958
Qc	=	Circulating flow across entry (pcu/h)	1022	774	990	999
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1695	1042	1730	1447
DFC	=	Design flow/Capacity = Q/Qe	0.52	0.52	0.66	0.66

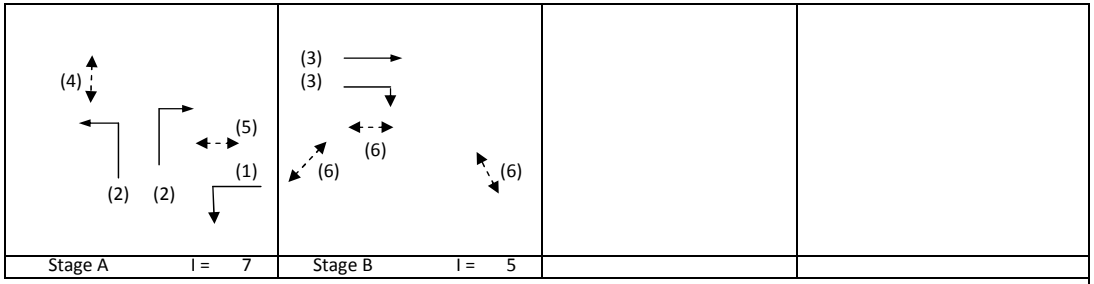
Total In Sum = 2521 PCU

DFC of Critical Approach = 0.66

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



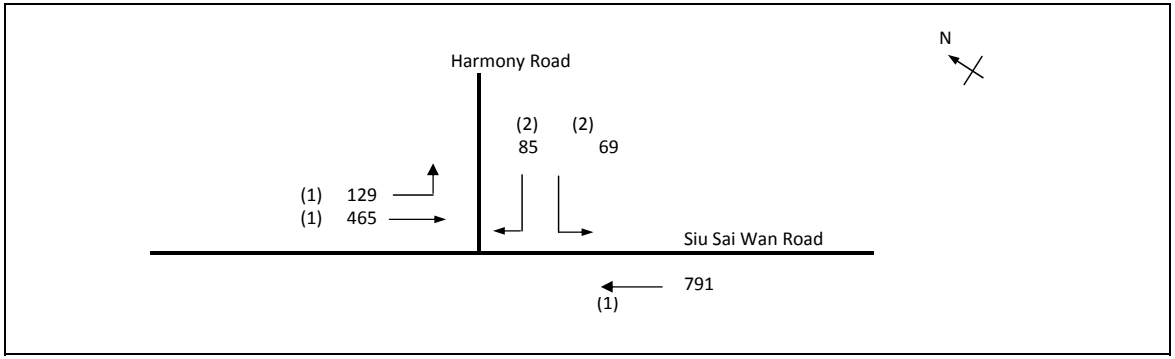
No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.282	
Loss time	L =	10	sec
Total Flow	=	1836	pcu
Co = (1.5*L+5)/(1-Y)	=	27.8	sec
Cm = L/(1-Y)	=	13.9	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	192.8	%
Cp = 0.9*L/(0.9-Y)	=	14.6	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	187.5	%



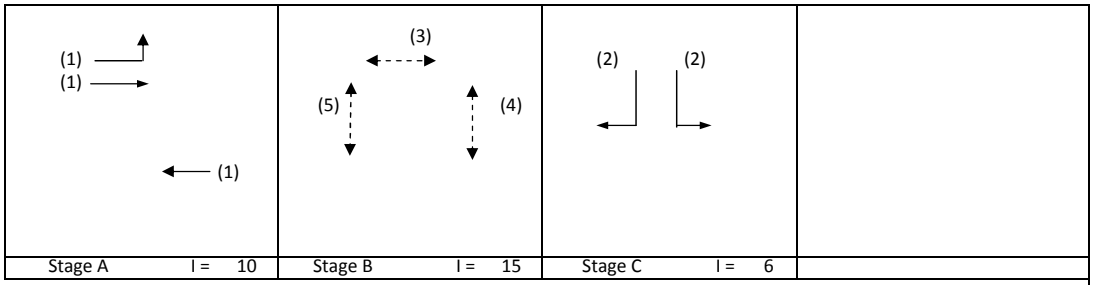
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	471			471	1.00	3857			3857	0.122			39	65	0.187	12	5
LT	A	4.00	2	2	24			4310	243			243	1.00	4056			4056	0.060			19	65	0.092	6	5
RT	A	3.50	2	2	11		y	4070			731	731	1.00	3582			3582	0.204	0.204		65	65	0.313	21	5
ST	B	3.50	3	2			y	4070		316		316	0.00	4070			4070	0.078	0.078		25	25	0.313	18	24
RT	B	4.50	3	2	13		y	4270			75	75	1.00	3828			3828	0.020			6	25	0.079	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.244	
Loss time	L =	48	sec
Total Flow	=	1538	pcu
Co = (1.5*L+5)/(1-Y)	=	101.9	sec
Cm = L/(1-Y)	=	63.5	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	121.0	%
Cp = 0.9*L/(0.9-Y)	=	65.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	91.6	%

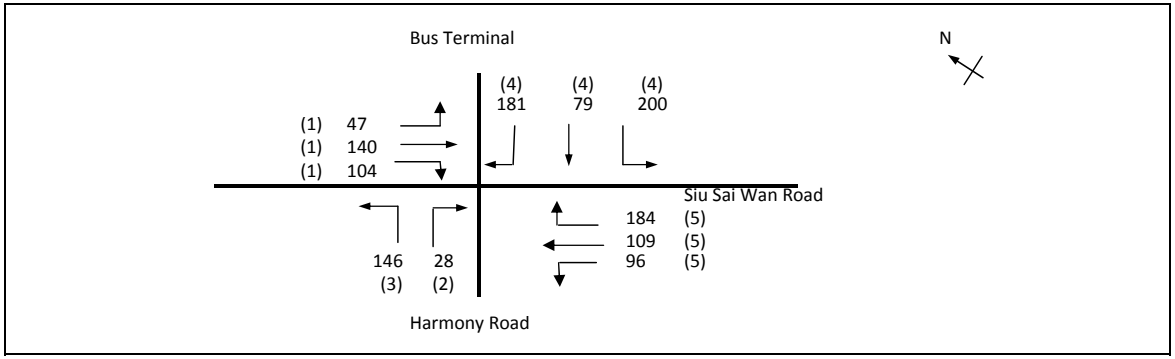


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

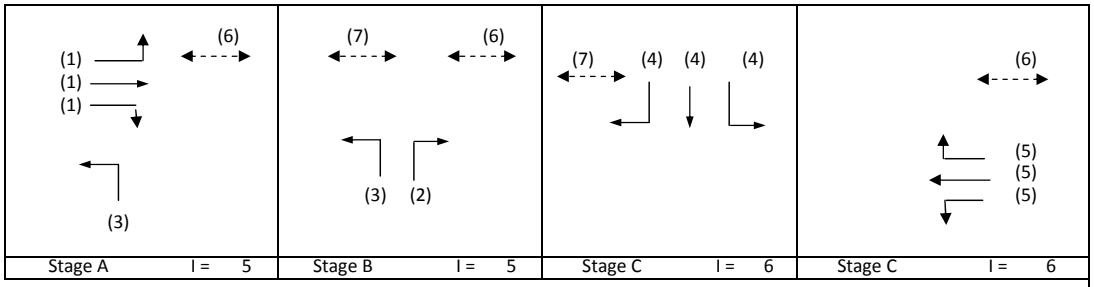
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	129	148		277	0.47	1829			1829	0.151			32	42	0.357	24	14
ST	A	3.20	1	1				2075		317		317	0.00	2075			2075	0.153			32	42	0.360	30	14
ST	A	3.00	1	2			y	3970		791		791	0.00	3970			3970	0.199	0.199		42	42	0.470	36	13
LT	C	3.75	2	1	12		y	1990	69			69	1.00	1769			1769	0.039			8	10	0.404	6	42
RT	C	3.75	2	1	12			2130			85	85	1.00	1893			1893	0.045	0.045		10	10	0.470	12	43
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.366	
Loss time	L =	18	sec
Total Flow	=	1313	pcu
Co = (1.5*L+5)/(1-Y)	=	50.5	sec
Cm = L/(1-Y)	=	28.4	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	109.1	%
Cp = 0.9*L/(0.9-Y)	=	30.3	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	103.8	%

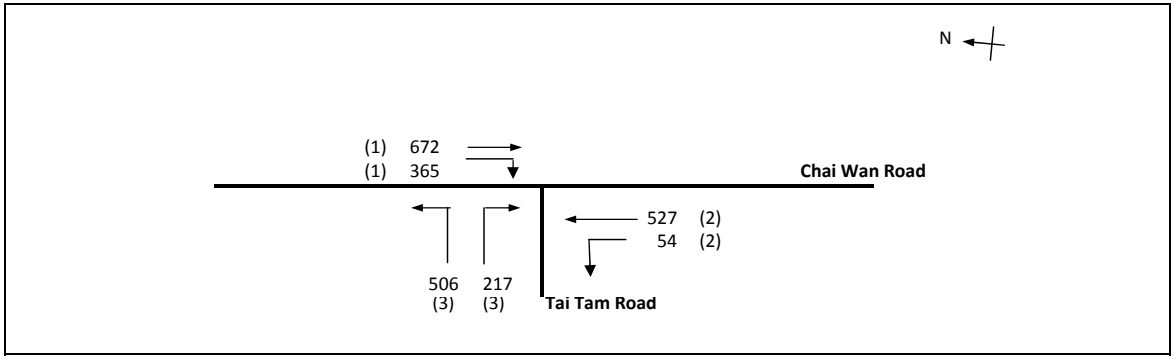


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

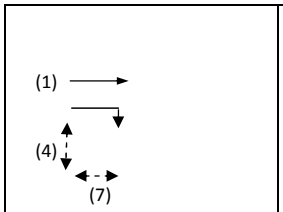
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	47	79		126	0.37	1851			1851	0.068			16	20	0.353	12	31
ST/RT	A	3.30	1	1	12			2085		61	104	165	0.63	1933			1933	0.085	0.085		20	20	0.442	18	32
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015	0.015		4	4	0.442	0	64
LT	A,B	3.75	3	1	13		y	1990	146			146	1.00	1784			1784	0.082			19	29	0.297	18	24
RT	C	3.50	4	1	12			2105			181	181	1.00	1871			1871	0.097			23	37	0.276	18	19
LT/ST	C	3.50	4	1	12		y	1965	200	79		279	0.72	1803			1803	0.155	0.155		37	37	0.442	30	19
ST/RT	D	3.50	5	1	12			2105		0	184	184	1.00	1871			1871	0.098			23	23	0.442	24	29
LT/ST	D	3.50	5	1	11		y	1965	96	109		205	0.47	1848			1848	0.111	0.111		26	26	0.442	24	26
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

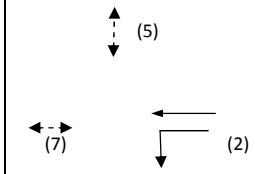
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



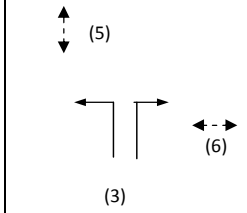
No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.508
Loss time	L =	18 sec
Total Flow	=	2341 pcu
Co = (1.5*L+5)/(1-Y)	=	65.0 sec
Cm = L/(1-Y)	=	36.6 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	50.6 %
Cp = 0.9*L/(0.9-Y)	=	41.3 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	46.8 %



Stage A I = 7



Stage B I = 8

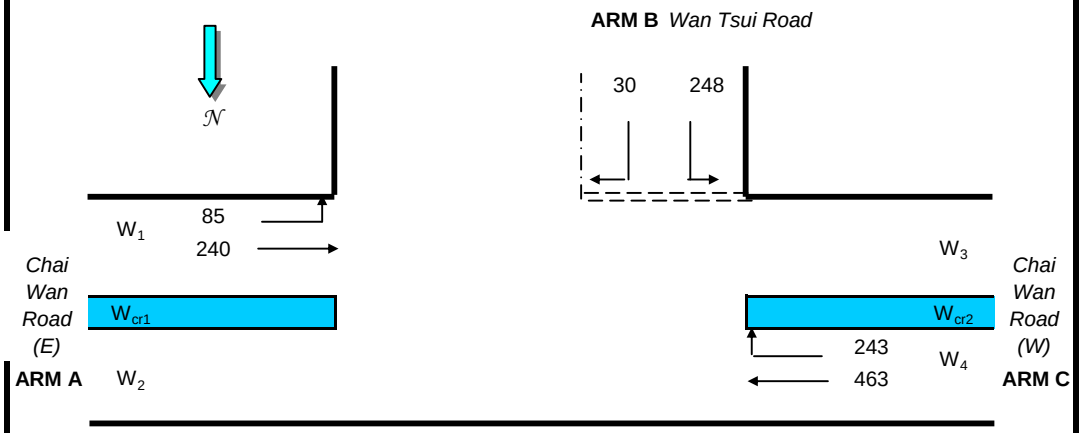


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		672		672	0.00	4070			4070	0.165			28	28	0.613	42	23
RT	A	3.50	1	1	13			2105			365	365	1.00	1887			1887	0.193	0.193		33	28	0.718	42	28
ST	B	3.50	2	2				4210		527		527	0.00	4210			4210	0.125	0.125		21	21	0.613	36	29
LT	B	3.10	2	1	12		y	1925	54			54	1.00	1711			1711	0.032			5	21	0.155	6	30
LT	C	4.00	3	1	15		y	2015	347			347	1.00	1832			1832	0.189	0.189		32	32	0.613	36	23
LT/RT	C	4.00	3	1	15			2155	159		217	376	1.00	1959			1959	0.192			33	32	0.621	42	23
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2011 Level 1
Time - 2011 Level 1 Peak Hour



GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	85	(pcu/hr)
q_{a-c}	=	240	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	463	(pcu/hr)
q_{c-b}	=	243	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	30	(pcu/hr)
q_{b-c}	=	248	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	791
Q_{c-b}	=	702
Q_{b-a}	=	379

COMPARISION OF DESIGN FLOW TO CAPACITY

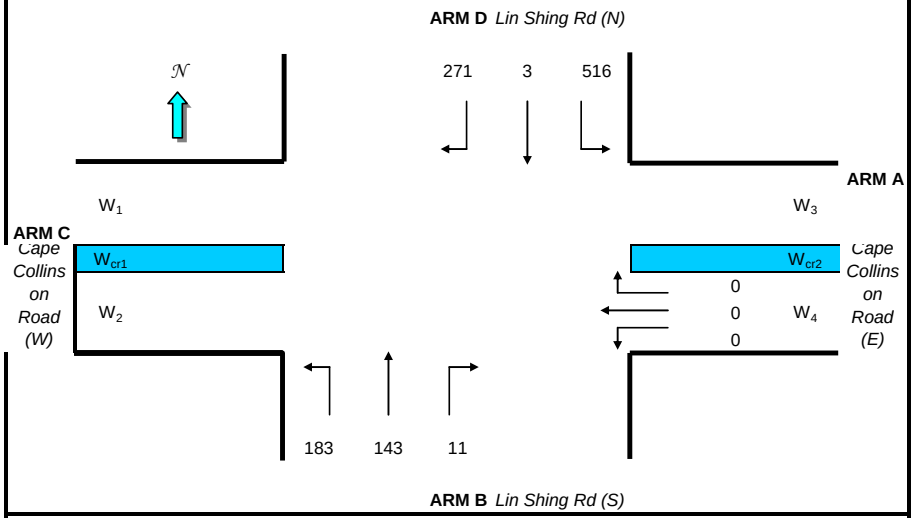
DFC_{b-a}	=	0.079
DFC_{b-c}	=	0.314
DFC_{c-b}	=	0.346

Critical DFC = 0.346

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Level 2
Time - 2011 Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
t	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11	(pcu/hr)
q_{b-c}	=	183	(pcu/hr)
q_{b-d}	=	143	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	516	(pcu/hr)
q_{d-b}	=	3	(pcu/hr)
q_{d-c}	=	271	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

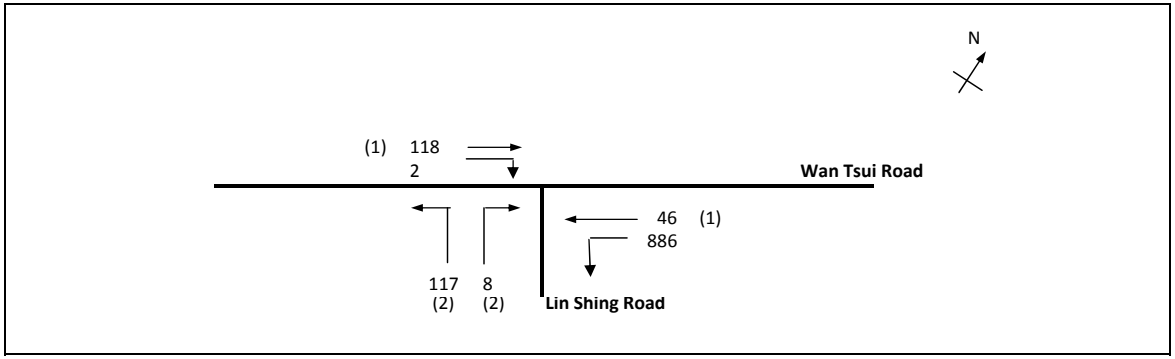
Q_{b-a}	=	455
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	439
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

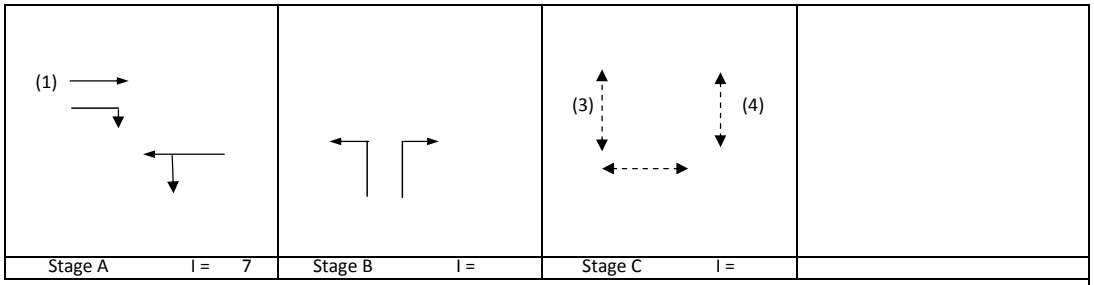
DFC_{b-a}	=	0.024
DFC_{b-c}	=	0.244
DFC_{b-d}	=	0.234
DFC_{d-a}	=	0.765
DFC_{d-b}	=	0.006
DFC_{d-c}	=	0.617
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.765

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.528	
Loss time	L =	45	sec
Total Flow	=	1050	pcu
Co = (1.5*L+5)/(1-Y)	=	153.8	sec
Cm = L/(1-Y)	=	95.4	sec
Yult	=	0.563	
R.C.ult = (Yult-Y)/Y*100%	=	6.4	%
Cp = 0.9*L/(0.9-Y)	=	109.0	sec
Ymax = 1-L/C	=	0.625	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	6.4	%

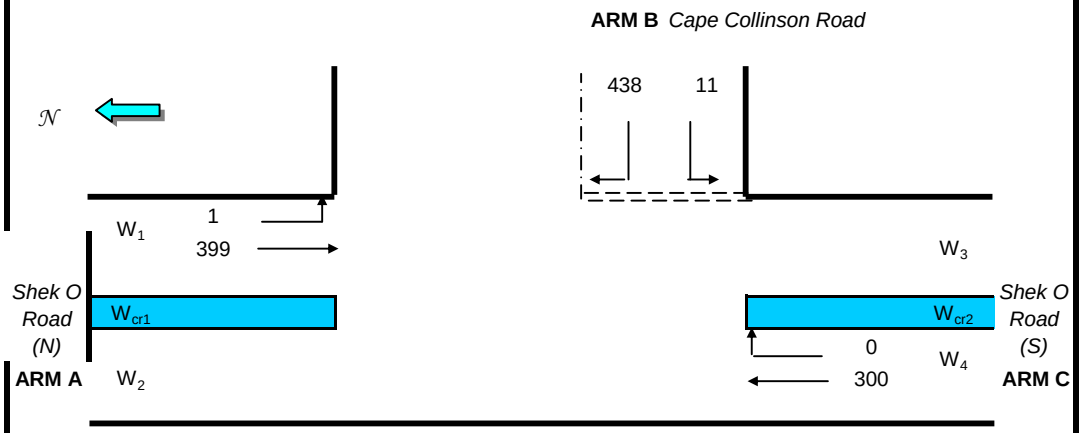


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		118		118	0.00	1915			1915	0.062			9	75	0.099	6	7
ST/LT	A	4.00	1	1	10		N	2015	886	46		932	0.95	1764			1764	0.528	0.528		75	75	0.846	66	12
Ped	B	6.0	3																	40					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Level 2
Time - 2011 Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	1	(pcu/hr)
q_{a-c}	=	399	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	300	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	438	(pcu/hr)
q_{b-c}	=	11	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

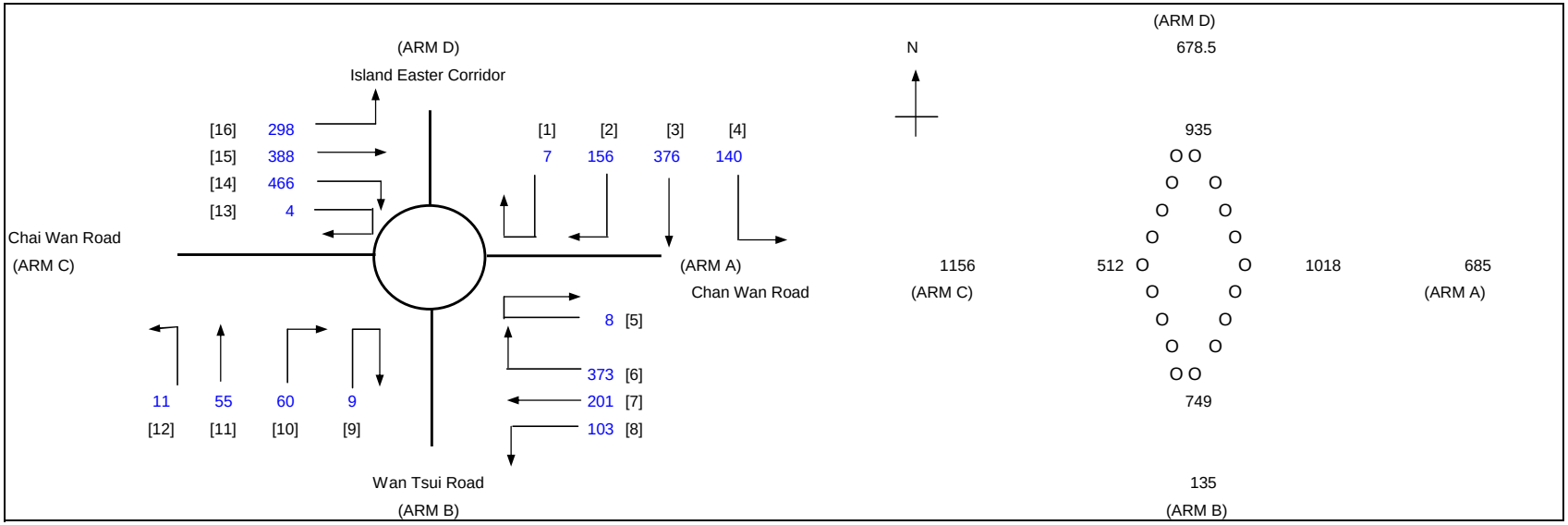
Q_{b-c}	=	640
Q_{c-b}	=	712
Q_{b-a}	=	298

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.470
DFC_{b-c}	=	0.017
DFC_{c-b}	=	0.000

Critical DFC = 1.470

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME : 2011_LV2_Ref_J4.xls	CHECKED BY:	OC	Sep-13
2011 Level 2 Peak Hour			REVIEWED BY:	OC	Sep-13

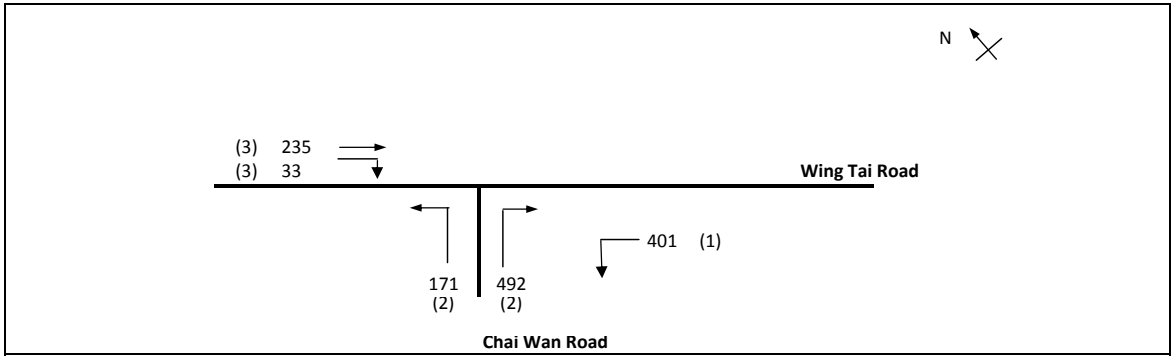


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	685	135	1156	679
Qc	=	Circulating flow across entry (pcu/h)	1018	749	512	935
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1698	1056	2092	1492
DFC	=	Design flow/Capacity = Q/Qe	0.40	0.13	0.55	0.45

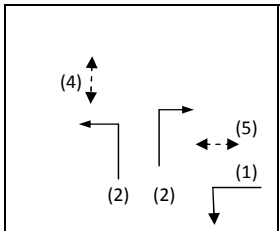
Total In Sum = 2103 PCU

DFC of Critical Approach = 0.55

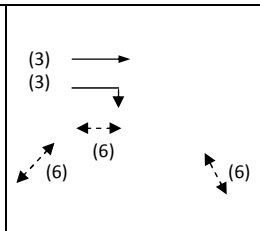
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.195
Loss time		L =	10 sec
Total Flow		=	1332 pcu
Co	= (1.5*L+5)/(1-Y)	=	24.8 sec
Cm	= L/(1-Y)	=	12.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	322.8 %
Cp	= 0.9*L/(0.9-Y)	=	12.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	315.2 %



Stage A I = 7

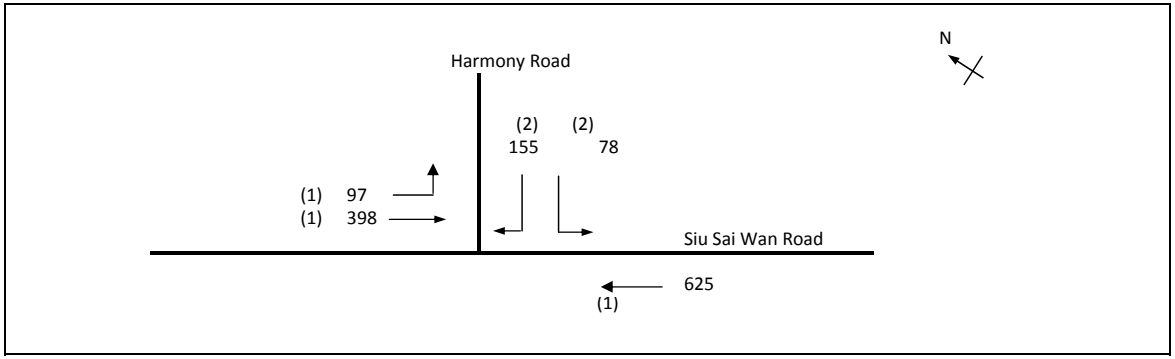


Stage B I = 5

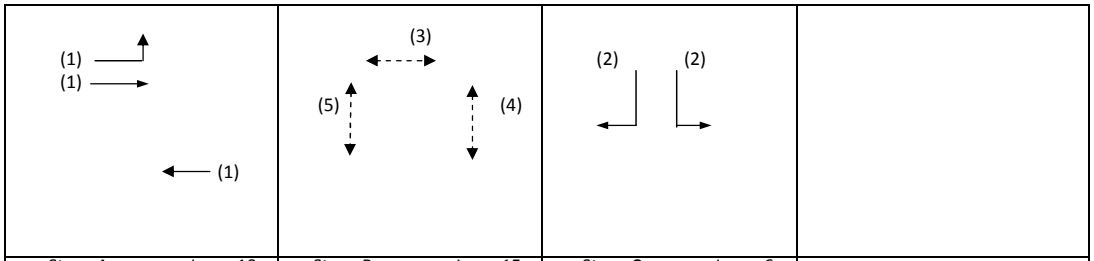
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	401			401	1.00	3857			3857	0.104			48	63	0.164	12	6
LT	A	4.00	2	2	24			4310	171			171	1.00	4056			4056	0.042			19	63	0.067	3	6
RT	A	3.50	2	2	11		y	4070			492	492	1.00	3582			3582	0.137	0.137		63	63	0.217	15	5
ST	B	3.50	3	2			y	4070		235		235	0.00	4070			4070	0.058	0.058		27	27	0.217	12	23
RT	B	4.50	3	2	13		y	4270			33	33	1.00	3828			3828	0.009			4	27	0.032	0	24
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.239
Loss time		L =	48 sec
Total Flow		=	1352 pcu
Co	= (1.5*L+5)/(1-Y)	=	101.2 sec
Cm	= L/(1-Y)	=	63.1 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	125.8 %
Cp	= 0.9*L/(0.9-Y)	=	65.4 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	95.7 %

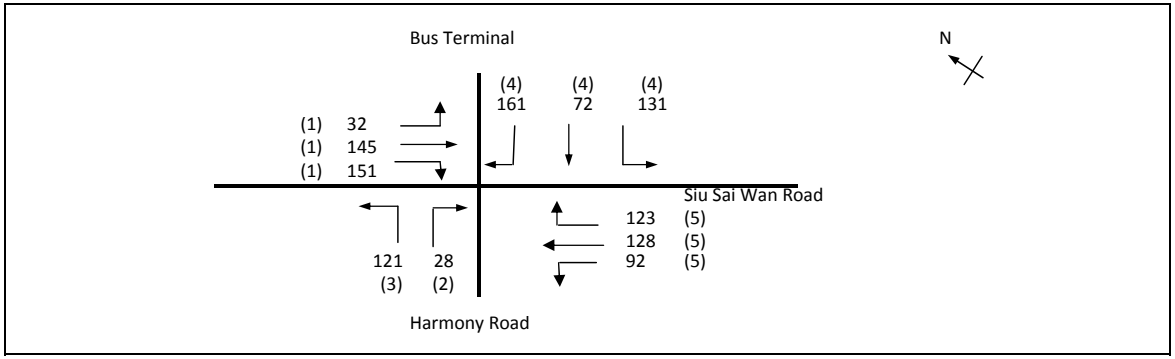


Stage A I = 10 Stage B I = 15 Stage C I = 6

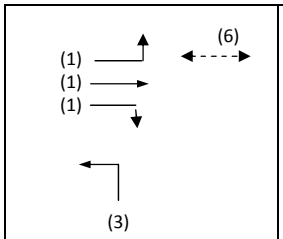
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	97	148		245	0.40	1845			1845	0.133			29	34	0.388	24	19
ST	A	3.20	1	1				2075		250		250	0.00	2075			2075	0.120			26	34	0.351	24	18
ST	A	3.00	1	2			y	3970		625		625	0.00	3970			3970	0.157	0.157		34	34	0.460	33	17
LT	C	3.75	2	1	12		y	1990	78			78	1.00	1769			1769	0.044			10	18	0.248	6	31
RT	C	3.75	2	1	12			2130			155	155	1.00	1893			1893	0.082	0.082		18	18	0.460	18	32
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

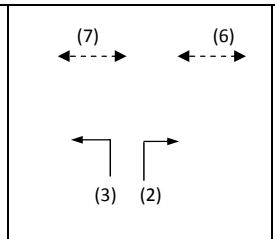
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



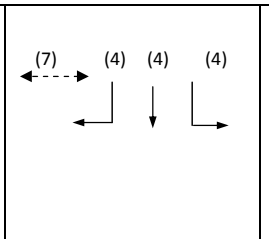
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.357
Loss time		L =	18 sec
Total Flow		=	1183 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.8 sec
Cm	= L/(1-Y)	=	28.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	114.2 %
Cp	= 0.9*L/(0.9-Y)	=	29.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	108.8 %



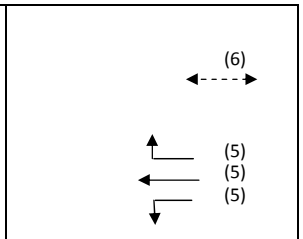
Stage A I = 5



Stage B I = 5



Stage C I = 6

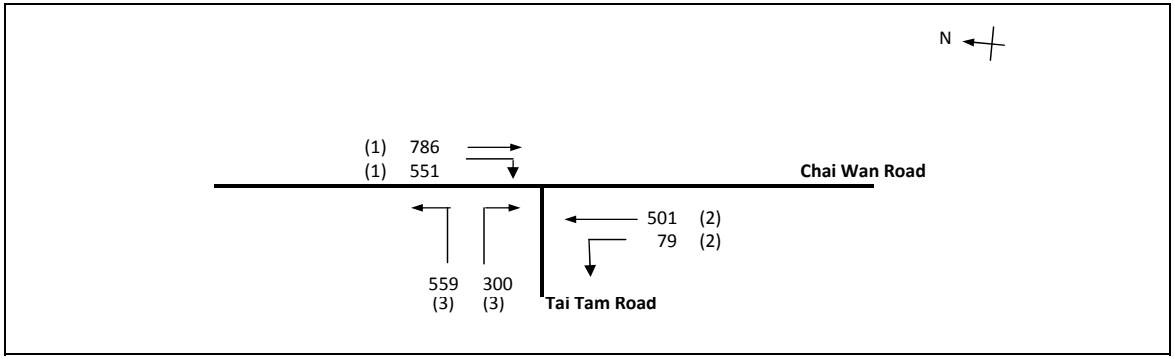


Stage C I = 6

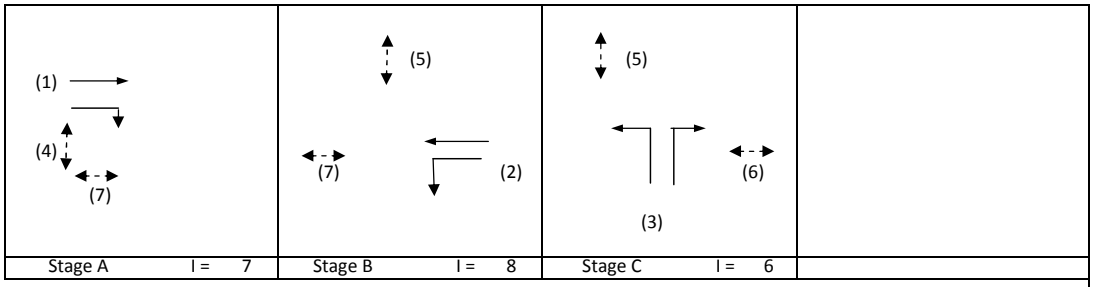
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	32	79		111	0.29	1871			1871	0.059			14	27	0.227	12	25
ST/RT	A	3.30	1	1	12			2085		66	151	216	0.70	1918			1918	0.113	0.113		27	27	0.431	24	25
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015	0.015		4	4	0.431	0	63
LT	A,B	3.75	3	1	13		y	1990	121			121	1.00	1784			1784	0.068			17	36	0.198	12	20
RT	C	3.50	4	1	12			2105			161	161	1.00	1871			1871	0.086			21	27	0.333	18	25
LT/ST	C	3.50	4	1	12		y	1965	131	72		202	0.64	1818			1818	0.111	0.111		27	27	0.431	24	26
ST/RT	D	3.50	5	1	12			2105		0	123	123	1.00	1871			1871	0.066			16	16	0.431	18	36
LT/ST	D	3.50	5	1	11		y	1965	92	128		220	0.42	1859			1859	0.118	0.118		29	29	0.431	24	24
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.629	
Loss time	L =	18	sec
Total Flow	=	2776	pcu
Co = (1.5*L+5)/(1-Y)	=	86.3	sec
Cm = L/(1-Y)	=	48.6	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	21.6	%
Cp = 0.9*L/(0.9-Y)	=	59.9	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	18.5	%

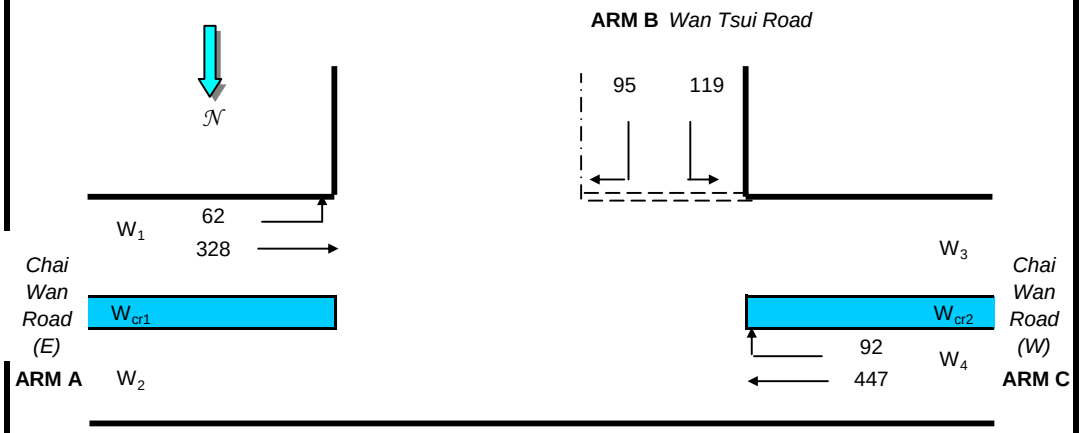


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		786		786	0.00	4070			4070	0.193			27	27	0.760	51	26
RT	A	3.50	1	1	13			2105			551	551	1.00	1887			1887	0.292	0.292		40	27	1.148	66	34
ST	B	3.50	2	2				4210		501		501	0.00	4210			4210	0.119	0.119		16	16	0.760	36	37
LT	B	3.10	2	1	12		y	1925	79			79	1.00	1711			1711	0.046			6	16	0.295	6	35
LT	C	4.00	3	1	15		y	2015	400			400	1.00	1832			1832	0.218	0.218		30	30	0.760	48	28
LT/RT	C	4.00	3	1	15			2155	159		300	459	1.00	1959			1959	0.234			32	30	0.815	54	31
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2011 Level 2
Time - 2011 Level 2 Peak Hour



GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	62	(pcu/hr)
q_{a-c}	=	328	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	447	(pcu/hr)
q_{c-b}	=	92	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	95	(pcu/hr)
q_{b-c}	=	119	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	781
Q_{c-b}	=	695
Q_{b-a}	=	390

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.243
DFC_{b-c}	=	0.152
DFC_{c-b}	=	0.132

Critical DFC = 0.243

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape Co

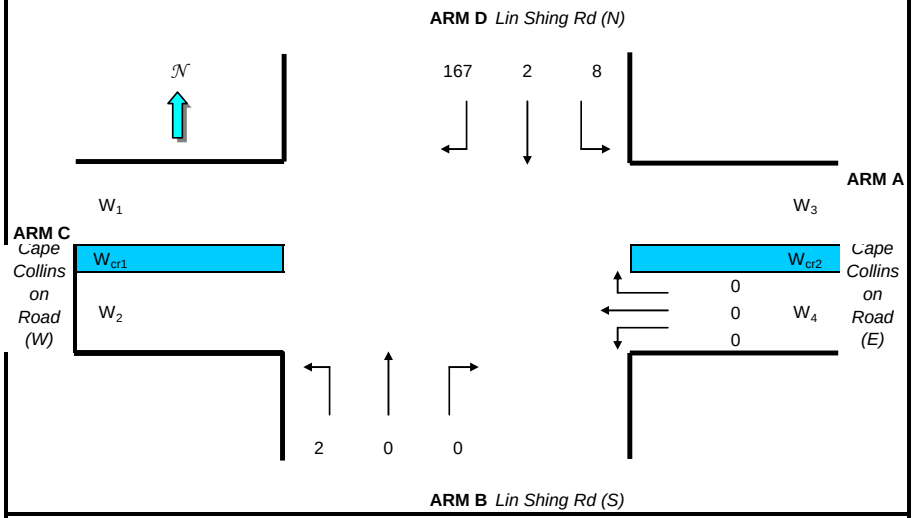
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2011 Level 3

Time - 2011 Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
t	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	167	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

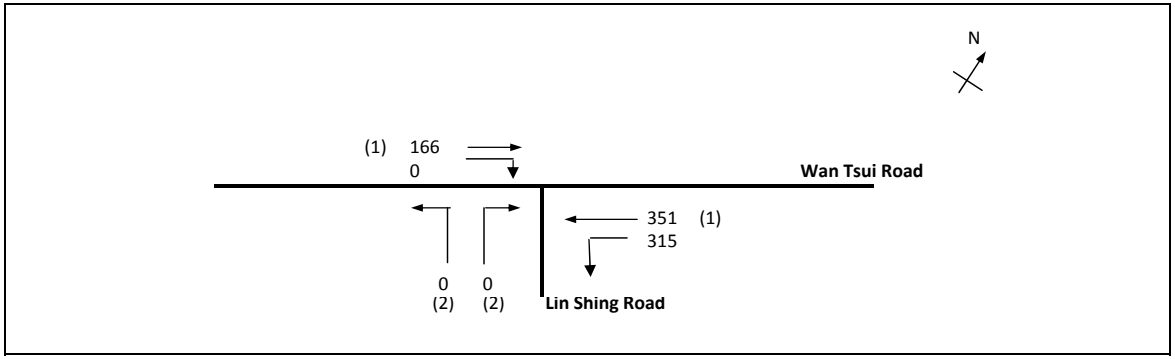
THE CAPACITY OF MOVEMENT

Q_{b-a}	=	623
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

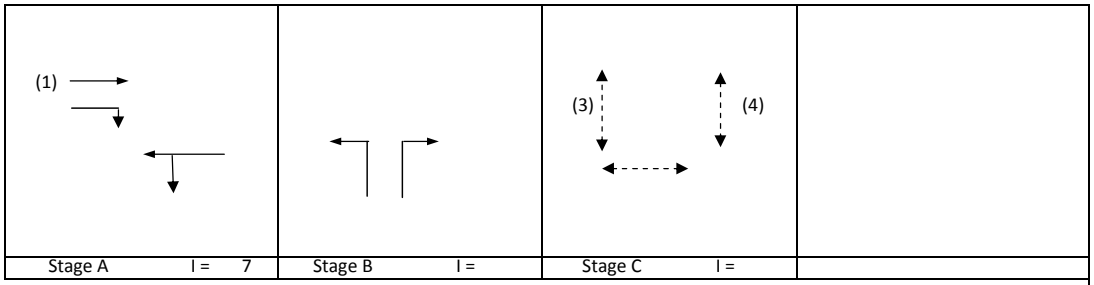
COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.322
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000
Critical DFC	=	**0.322**

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.354	
Loss time		L =	55	sec
Total Flow		=	832	pcu
Co	= (1.5*L+5)/(1-Y)	=	135.4	sec
Cm	= L/(1-Y)	=	85.1	sec
Yult		=	0.488	
R.C.ult	= (Yult-Y)/Y*100%	=	37.7	%
Cp	= 0.9*L/(0.9-Y)	=	90.7	sec
Ymax	= 1-L/C	=	0.542	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	37.7	%

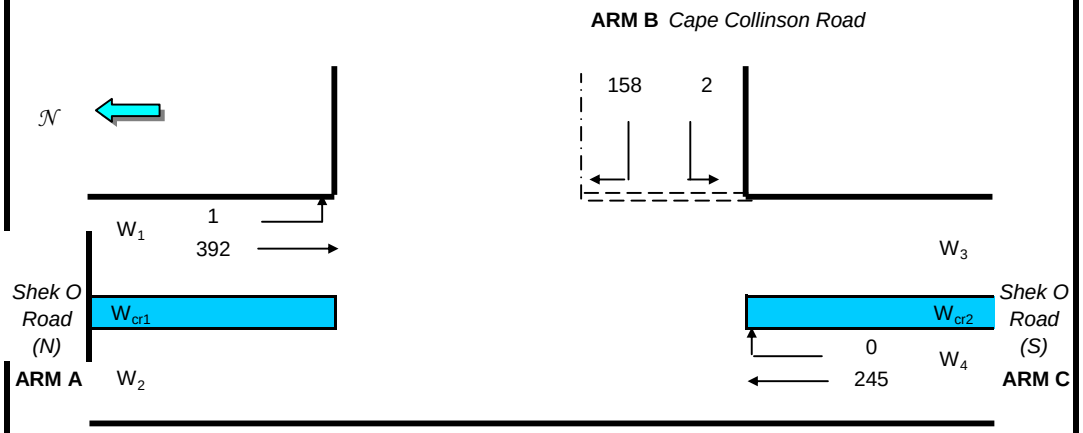


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		166		166	0.00	1915			1915	0.087			16	65	0.160	12	11
ST/LT	A	4.00	1	1	10		N	2015	315	351		666	0.47	1882			1882	0.354	0.354		65	65	0.653	60	10
Ped	B	6.0	3																	50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2011 Level 3
Time - 2011 Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	1	(pcu/hr)
q_{a-c}	=	392	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	245	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	158	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

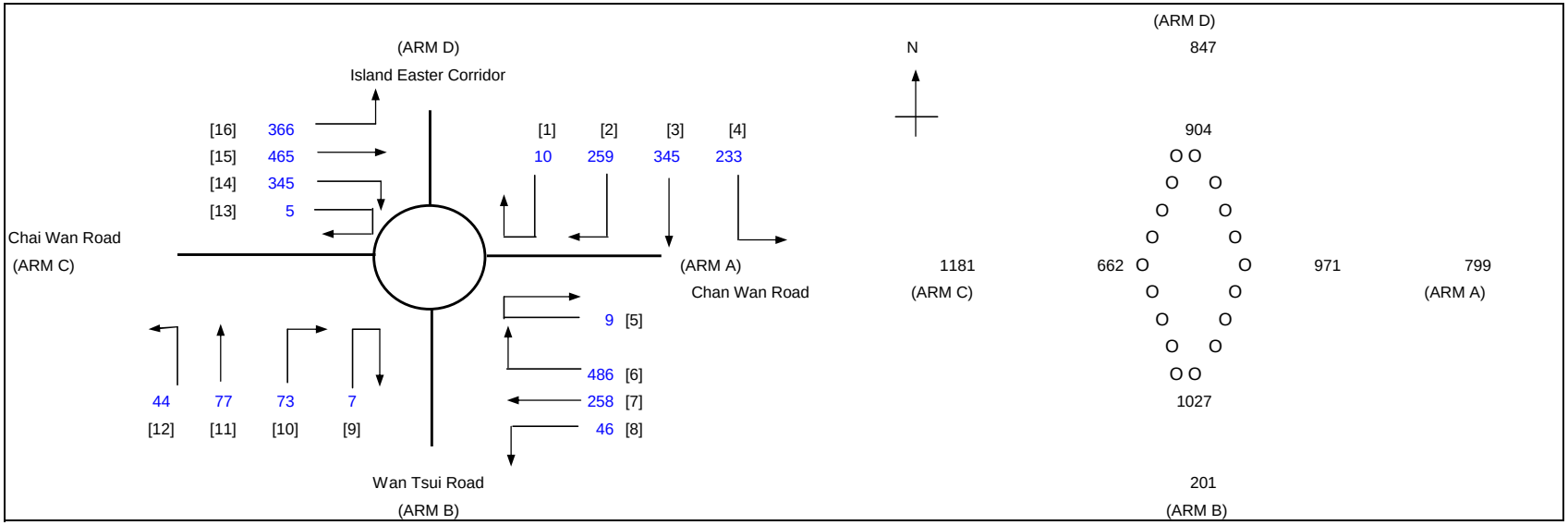
Q_{b-c}	=	642
Q_{c-b}	=	714
Q_{b-a}	=	305

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.519
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.519

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME : 2011_LV3_Ref_J4.xls	CHECKED BY:	OC	Sep-13
2011 Level 3 Peak Hour			REVIEWED BY:	OC	Sep-13

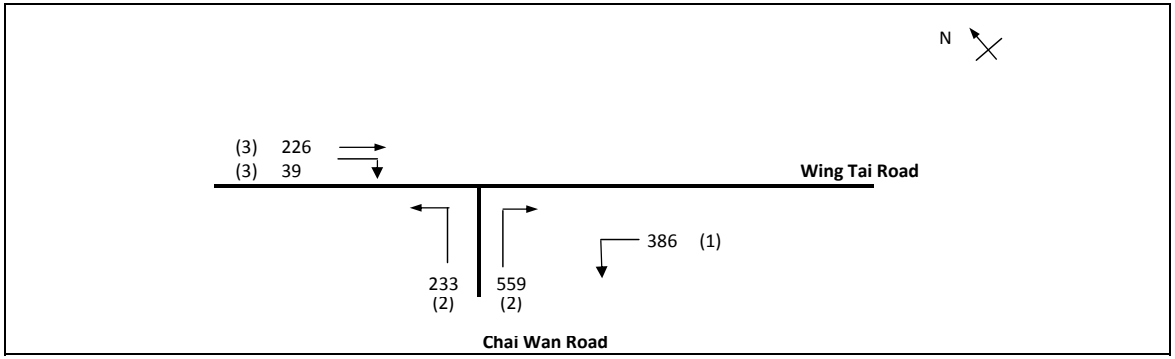


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	799	201	1181	847
Qc	=	Circulating flow across entry (pcu/h)	971	1027	662	904
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1733	901	1978	1514
DFC	=	Design flow/Capacity = Q/Qe	0.46	0.22	0.60	0.56

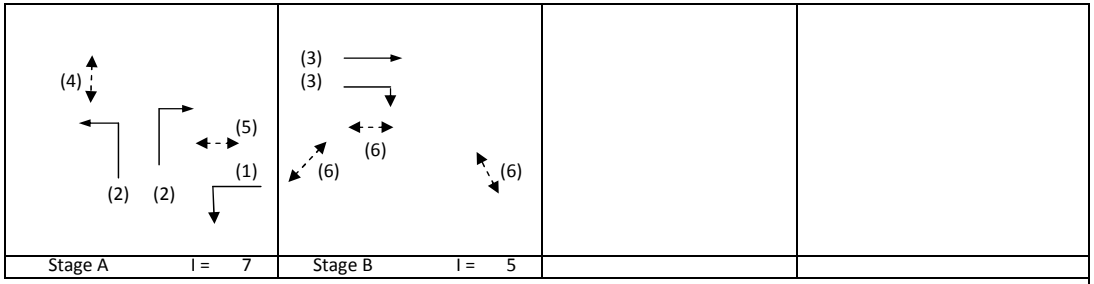
Total In Sum = 2339 PCU

DFC of Critical Approach = 0.60

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.212	
Loss time		L =	10	sec
Total Flow		=	1443	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.4	sec
Cm	= L/(1-Y)	=	12.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	289.9	%
Cp	= 0.9*L/(0.9-Y)	=	13.1	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	282.8	%

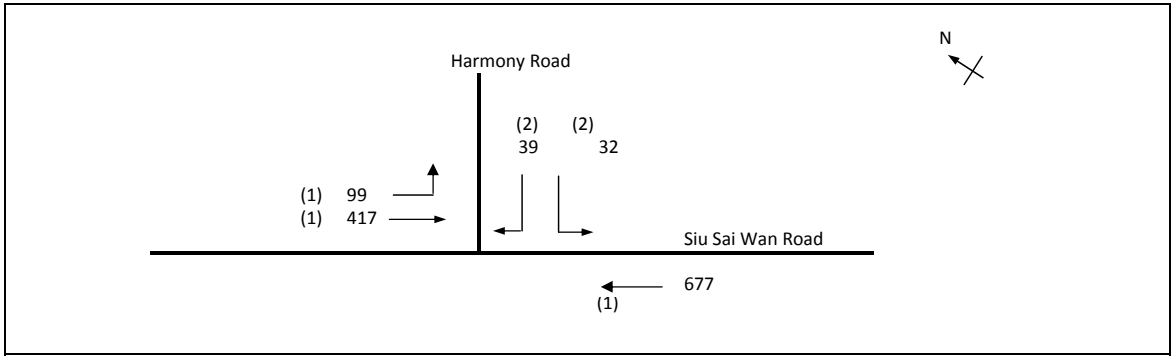


Stage A I = 7 Stage B I = 5

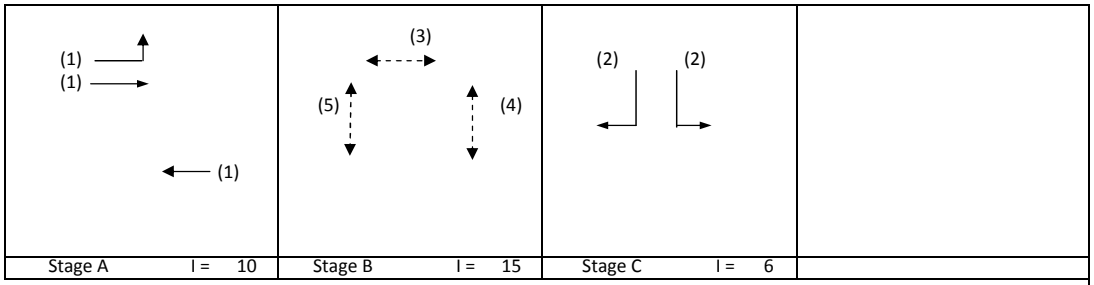
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	386			386	1.00	3857			3857	0.100			43	66	0.151	9	5
LT	A	4.00	2	2	24			4310	233			233	1.00	4056			4056	0.057			24	66	0.087	6	5
RT	A	3.50	2	2	11		y	4070			559	559	1.00	3582			3582	0.156	0.156		66	66	0.235	15	5
ST	B	3.50	3	2			y	4070		226		226	0.00	4070			4070	0.056	0.056		24	24	0.235	12	25
RT	B	4.50	3	2	13		y	4270			39	39	1.00	3828			3828	0.010			4	24	0.043	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3	
Cycle time		C =	100	sec
Sum(y)		Y =	0.191	
Loss time		L =	48	sec
Total Flow		=	1264	pcu
Co	= (1.5*L+5)/(1-Y)	=	95.2	sec
Cm	= L/(1-Y)	=	59.3	sec
Yult		=	0.540	
R.C.ult	= (Yult-Y)/Y*100%	=	182.5	%
Cp	= 0.9*L/(0.9-Y)	=	60.9	sec
Ymax	= 1-L/C	=	0.520	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	144.9	%

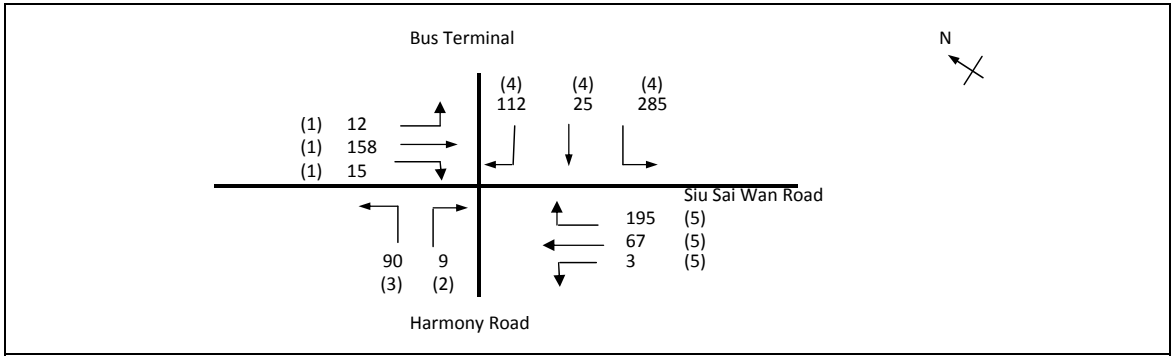


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

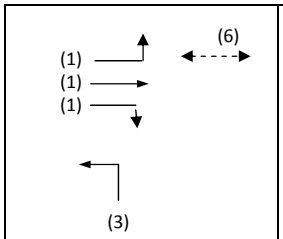
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	99	148		247	0.40	1844			1844	0.134			36	46	0.289	18	12
ST	A	3.20	1	1				2075		269		269	0.00	2075			2075	0.130			35	46	0.279	24	12
ST	A	3.00	1	2			y	3970		677		677	0.00	3970			3970	0.171	0.171		46	46	0.368	30	11
LT	C	3.75	2	1	12		y	1990	32			32	1.00	1769			1769	0.018			5	6	0.323	0	47
RT	C	3.75	2	1	12			2130			39	39	1.00	1893			1893	0.021	0.021		6	6	0.368	6	48
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

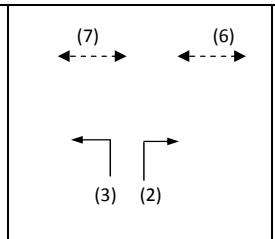
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



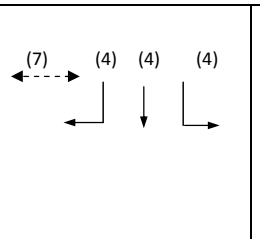
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.263	
Loss time	L =	18	sec
Total Flow	=	971	pcu
Co = (1.5*L+5)/(1-Y)	=	43.4	sec
Cm = L/(1-Y)	=	24.4	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	191.4	%
Cp = 0.9*L/(0.9-Y)	=	25.4	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	184.1	%



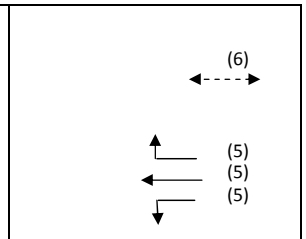
Stage A I = 5



Stage B I = 5



Stage C I = 6

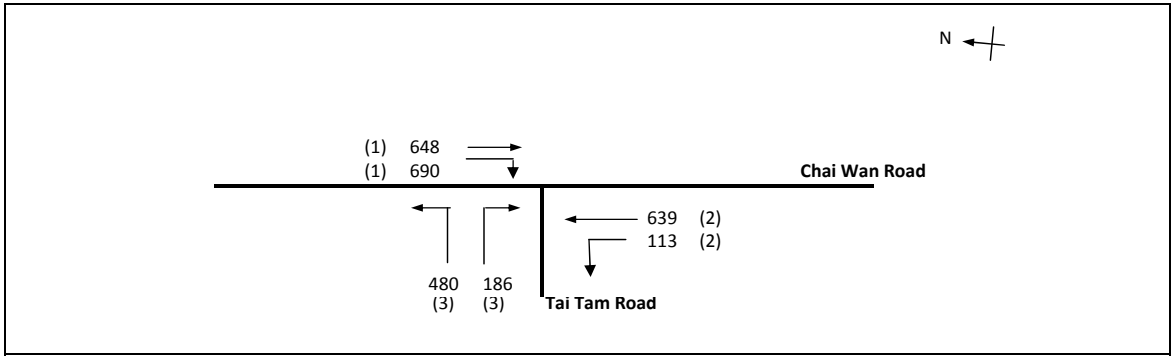


Stage C I = 6

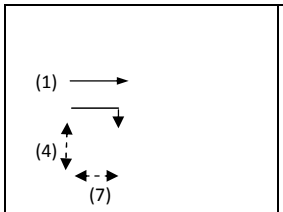
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.13	1911			1911	0.048			16	15	0.328	12	36
ST/RT	A	3.30	1	1	12			2085		79	15	94	0.16	2044			2044	0.046	0.046		15	15	0.317	12	35
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		2	2	0.317	0	72
LT	A,B	3.75	3	1	13		y	1990	90			90	1.00	1784			1784	0.050			17	22	0.243	12	30
RT	C	3.50	4	1	12			2105			112	112	1.00	1871			1871	0.060			20	58	0.108	6	9
LT/ST	C	3.50	4	1	12		y	1965	285	25		310	0.92	1762			1762	0.176	0.176		58	58	0.317	24	8
ST/RT	D	3.50	5	1	12			2105		0	195	195	1.00	1871			1871	0.104			35	35	0.317	18	20
LT/ST	D	3.50	5	1	11		y	1965	3	67		70	0.04	1954			1954	0.036	0.036		12	12	0.317	6	39
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

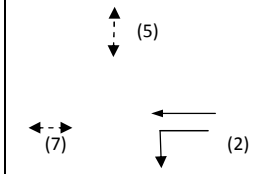
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



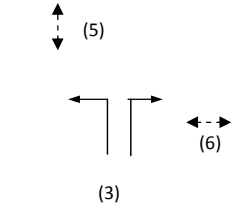
No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.693
Loss time	L =	18 sec
Total Flow	=	2756 pcu
Co = (1.5*L+5)/(1-Y)	=	104.1 sec
Cm = L/(1-Y)	=	58.6 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	10.4 %
Cp = 0.9*L/(0.9-Y)	=	78.1 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	7.7 %



Stage A I = 7



Stage B I = 8

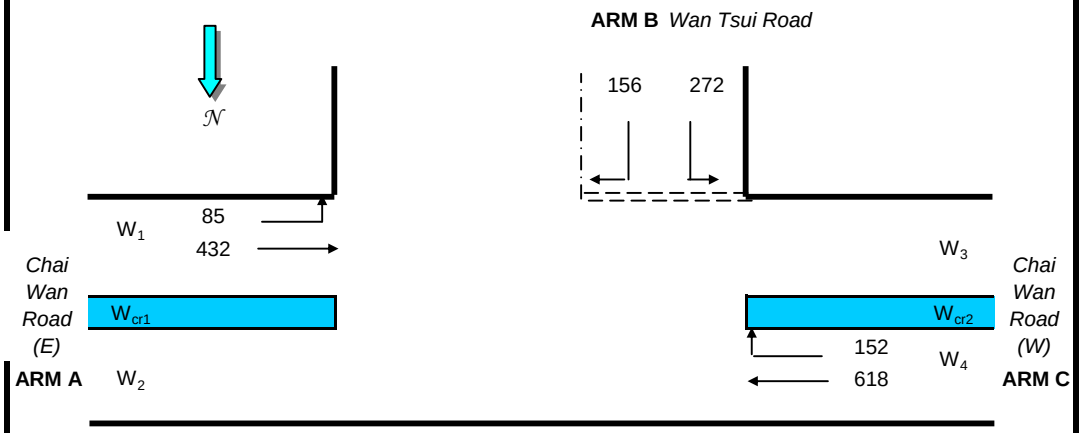


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		648		648	0.00	4070			4070	0.159			20	20	0.836	45	37
RT	A	3.50	1	1	13			2105			690	690	1.00	1887			1887	0.366	0.366		46	20	1.920	96	43
ST	B	3.50	2	2				4210		639		639	0.00	4210			4210	0.152	0.152		19	19	0.836	45	38
LT	B	3.10	2	1	12		y	1925	113			113	1.00	1711			1711	0.066			8	19	0.364	12	33
LT	C	4.00	3	1	15		y	2015	321			321	1.00	1832			1832	0.175	0.175		22	22	0.836	42	46
LT/RT	C	4.00	3	1	15			2155	159		186	345	1.00	1959			1959	0.176			22	22	0.840	48	45
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2011 Level 3
Time - 2011 Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	85	(pcu/hr)
q_{a-c}	=	432	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	618	(pcu/hr)
q_{c-b}	=	152	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	156	(pcu/hr)
q_{b-c}	=	272	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	766
Q_{c-b}	=	680
Q_{b-a}	=	366

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.426
DFC_{b-c}	=	0.355
DFC_{c-b}	=	0.224

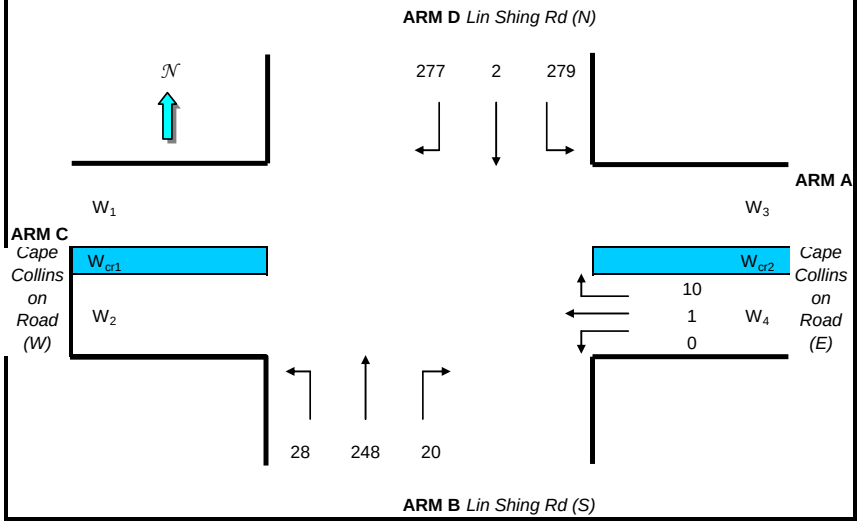
Critical DFC = 0.426

Appendix B2

2016 Peak Hour Junction Assessment Calculation Sheets

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Junction Capacity Analysis	Prepared By: KC Checked By: OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0288	(pcu/hr)
q_{a-d}	=	10.259	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	19.547	(pcu/hr)
q_{b-c}	=	27.719	(pcu/hr)
q_{b-d}	=	248.4	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	278.63	(pcu/hr)
q_{d-b}	=	2.2652	(pcu/hr)
q_{d-c}	=	276.87	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

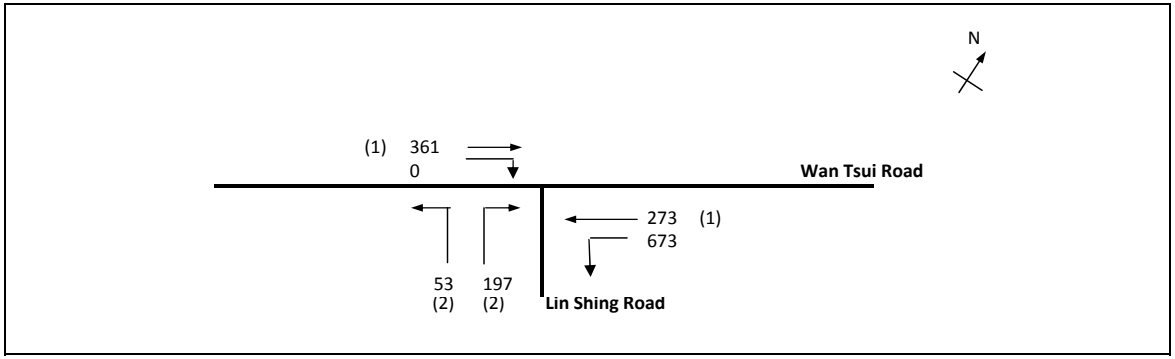
Q_{b-a}	=	522
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	528
Q_{d-c}	=	447
Q_{c-b}	=	439
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

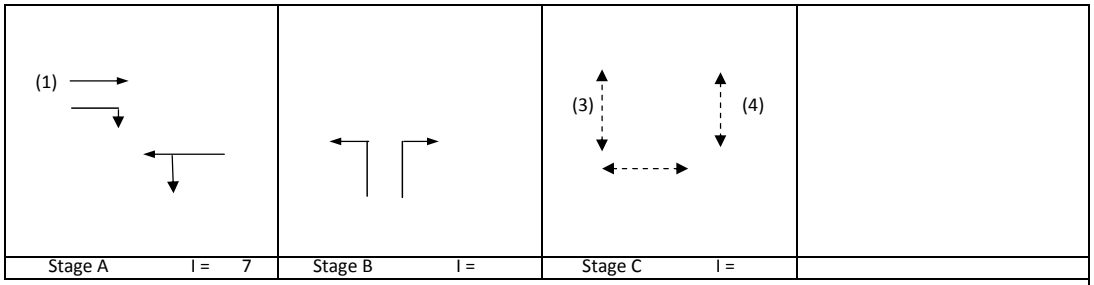
DFC_{b-a}	=	0.037
DFC_{b-c}	=	0.037
DFC_{b-d}	=	0.408
DFC_{d-a}	=	0.413
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.620
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.017

Critical DFC = 0.620

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.519
Loss time		L =	25 sec
Total Flow		=	1307 pcu
Co	= (1.5*L+5)/(1-Y)	=	88.4 sec
Cm	= L/(1-Y)	=	52.0 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	37.2 %
Cp	= 0.9*L/(0.9-Y)	=	59.1 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	37.2 %

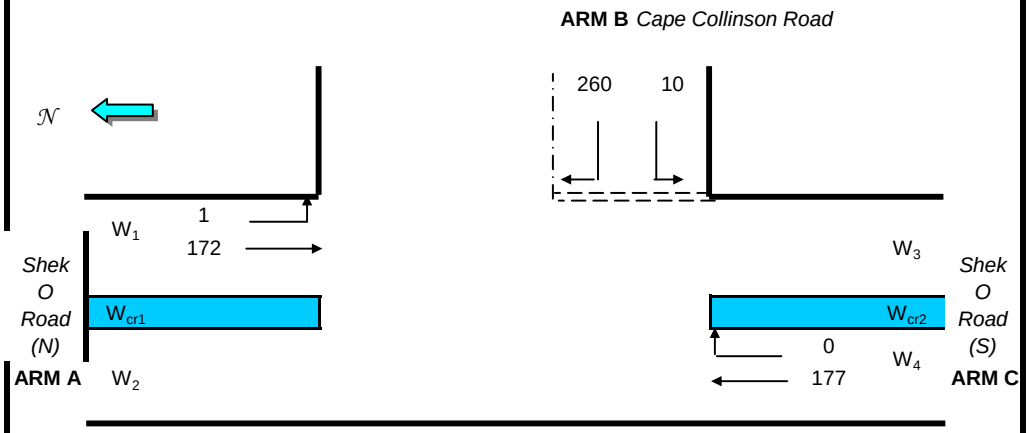


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		361		361	0.00	1915			1915	0.189			34	95	0.238	12	2
ST/LT	A	4.00	1	1	10		N	2015	673	273		946	0.71	1821			1821	0.519	0.519		95	95	0.656	36	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	1	(pcu/hr)
q_{a-c}	=	172	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	177	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	260	(pcu/hr)
q_{b-c}	=	10	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

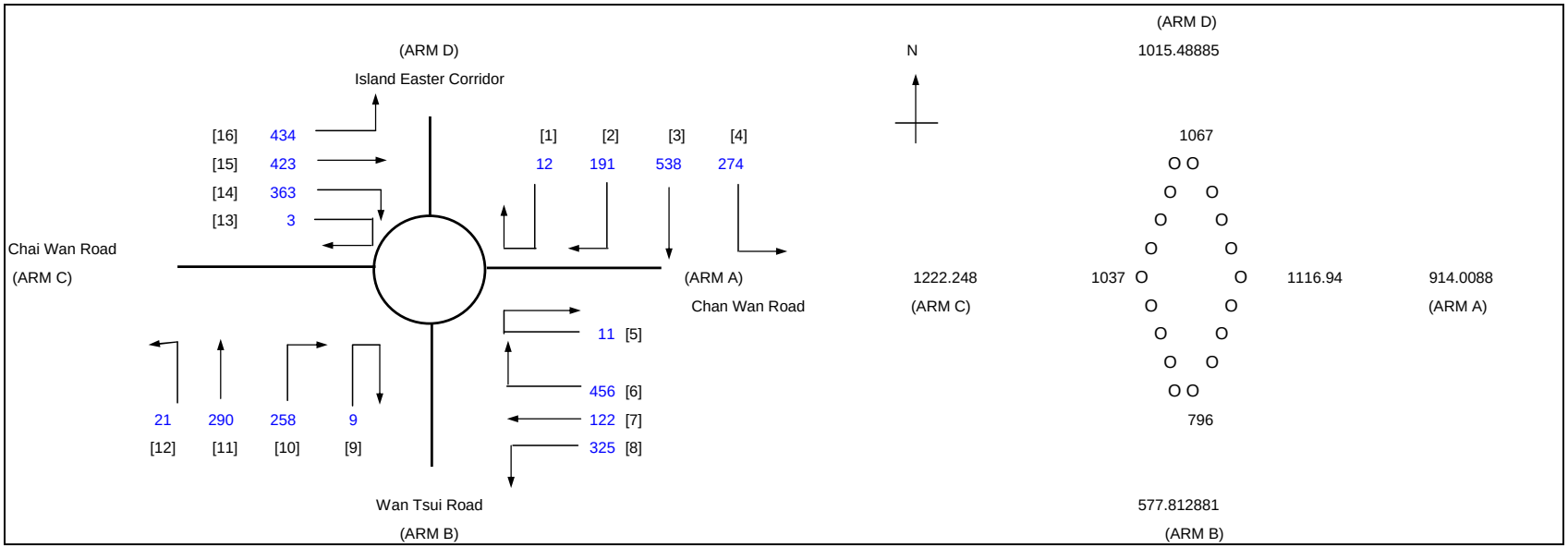
Q_{b-c}	=	698
Q_{c-b}	=	777
Q_{b-a}	=	347

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.749
DFC_{b-c}	=	0.015
DFC_{c-b}	=	0.000

Critical DFC = 0.749

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME 2016_LV1_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

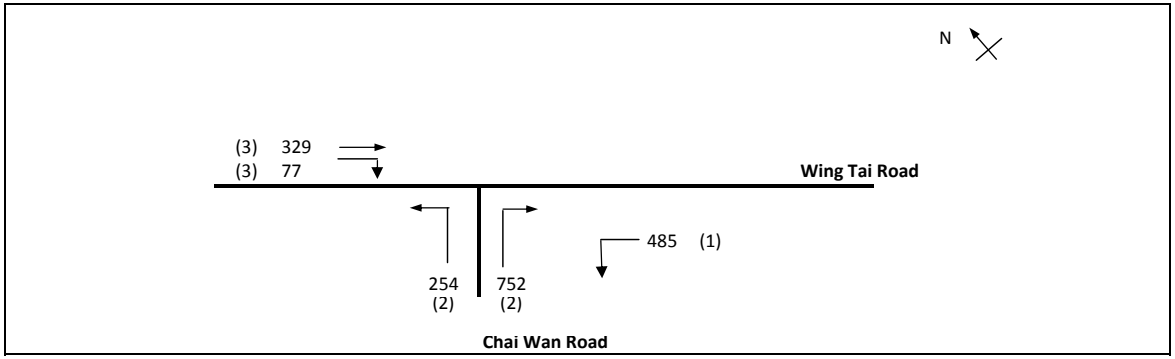


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	914	578	1222	1015
Qc	=	Circulating flow across entry (pcu/h)	1117	796	1037	1067
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1622	1030	1695	1400
DFC	=	Design flow/Capacity = Q/Qe	0.56	0.56	0.72	0.73

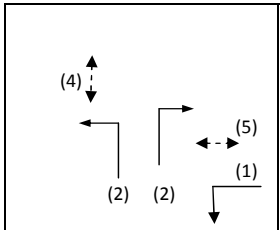
Total In Sum = 2677.223 PCU

DFC of Critical Approach = 0.73

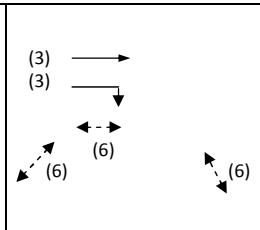
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.291
Loss time		L =	10 sec
Total Flow		=	1896 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.2 sec
Cm	= L/(1-Y)	=	14.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	183.8 %
Cp	= 0.9*L/(0.9-Y)	=	14.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	178.6 %



Stage A I = 7

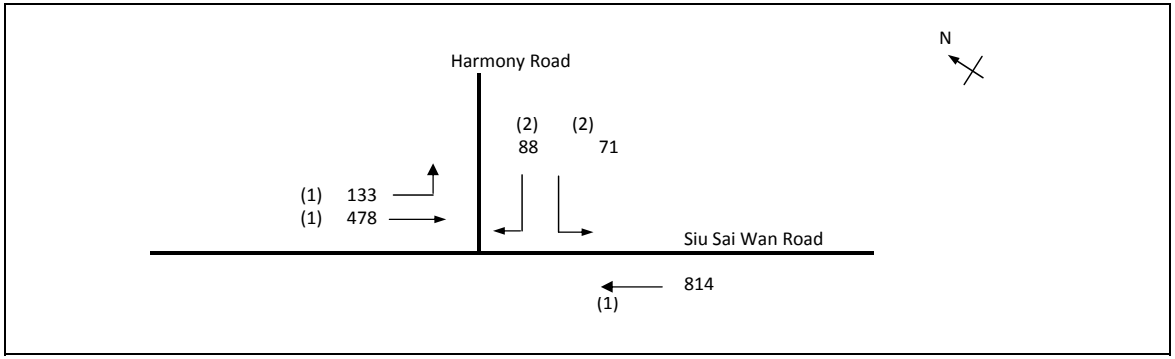


Stage B I = 5

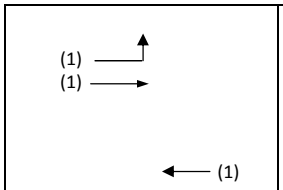
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	485			485	1.00	3857			3857	0.126			39	65	0.193	12	5
LT	A	4.00	2	2	24			4310	254			254	1.00	4056			4056	0.063			19	65	0.096	6	5
RT	A	3.50	2	2	11		y	4070			752	752	1.00	3582			3582	0.210	0.210		65	65	0.323	21	5
ST	B	3.50	3	2			y	4070		329		329	0.00	4070			4070	0.081	0.081		25	25	0.323	18	24
RT	B	4.50	3	2	13		y	4270			77	77	1.00	3828			3828	0.020			6	25	0.081	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

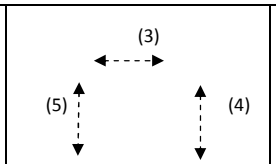
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



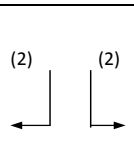
No. of stages per cycle	N =	3
Cycle time	C =	100 sec
Sum(y)	Y =	0.251
Loss time	L =	48 sec
Total Flow	=	1583 pcu
Co = (1.5*L+5)/(1-Y)	=	102.8 sec
Cm = L/(1-Y)	=	64.1 sec
Yult	=	0.540
R.C.ult = (Yult-Y)/Y*100%	=	114.9 %
Cp = 0.9*L/(0.9-Y)	=	66.6 sec
Ymax = 1-L/C	=	0.520
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	86.2 %



Stage A I = 10



Stage B I = 15

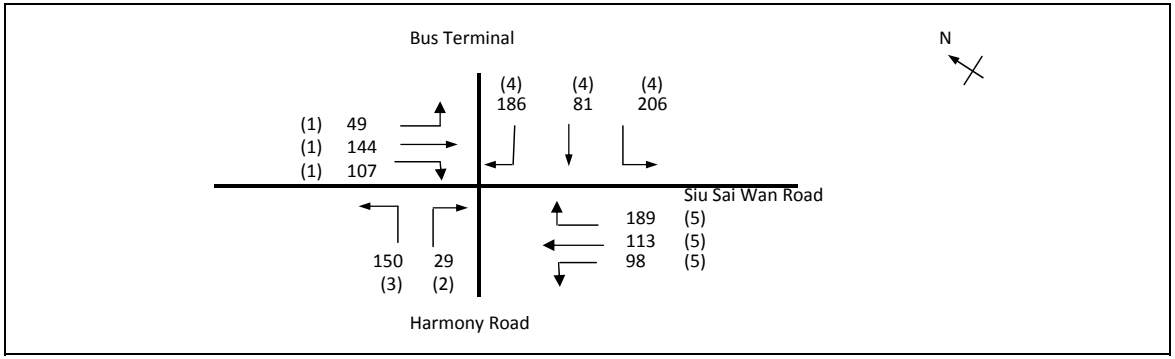


Stage C I = 6

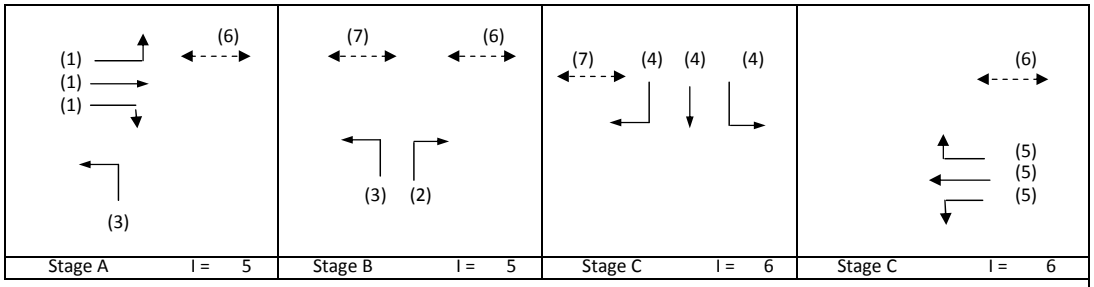
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	133	148		281	0.47	1827			1827	0.154			32	42	0.362	24	14
ST	A	3.20	1	1				2075		330		330	0.00	2075			2075	0.159			33	42	0.375	30	14
ST	A	3.00	1	2			y	3970		814		814	0.00	3970			3970	0.205	0.205		42	42	0.483	39	13
LT	C	3.75	2	1	12		y	1990	71			71	1.00	1769			1769	0.040			8	10	0.416	6	42
RT	C	3.75	2	1	12			2130			88	88	1.00	1893			1893	0.046	0.046		10	10	0.483	12	43
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.377	
Loss time	L =	18	sec
Total Flow	=	1351	pcu
Co = (1.5*L+5)/(1-Y)	=	51.4	sec
Cm = L/(1-Y)	=	28.9	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	102.7	%
Cp = 0.9*L/(0.9-Y)	=	31.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	97.6	%

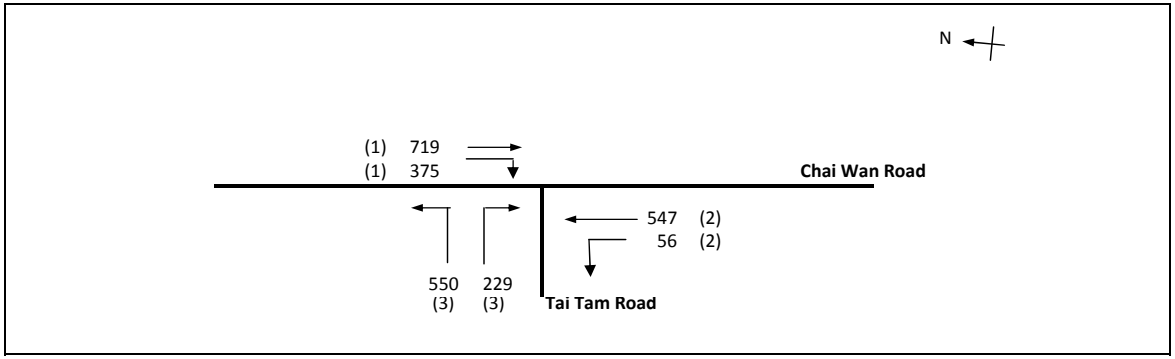


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

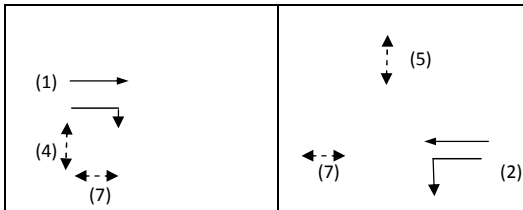
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																			18					
LT/ST	A	3.30	1	1	11		y	1945	49	79		128	0.38	1849			1849	0.069			16	20	0.354	12	31
ST/RT	A	3.30	1	1	12			2085		65	107	172	0.62	1935			1935	0.089	0.089		20	20	0.456	24	31
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.015	0.015		4	4	0.456	0	65
LT	A,B	3.75	3	1	13		y	1990	150			150	1.00	1784			1784	0.084			19	29	0.304	18	24
RT	C	3.50	4	1	12			2105			186	186	1.00	1871			1871	0.099			23	37	0.284	18	19
LT/ST	C	3.50	4	1	12		y	1965	206	81		287	0.72	1803			1803	0.159	0.159		37	37	0.456	30	19
ST/RT	D	3.50	5	1	12			2105		0	189	189	1.00	1871			1871	0.101			23	23	0.456	24	29
LT/ST	D	3.50	5	1	11		y	1965	98	113		211	0.47	1848			1848	0.114	0.114		26	26	0.456	24	26
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011

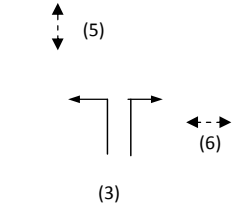


No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.542
Loss time	L =	18 sec
Total Flow	=	2476 pcu
Co = (1.5*L+5)/(1-Y)	=	69.9 sec
Cm = L/(1-Y)	=	39.3 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	41.0 %
Cp = 0.9*L/(0.9-Y)	=	45.3 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	37.5 %



Stage A I = 7

Stage B I = 8

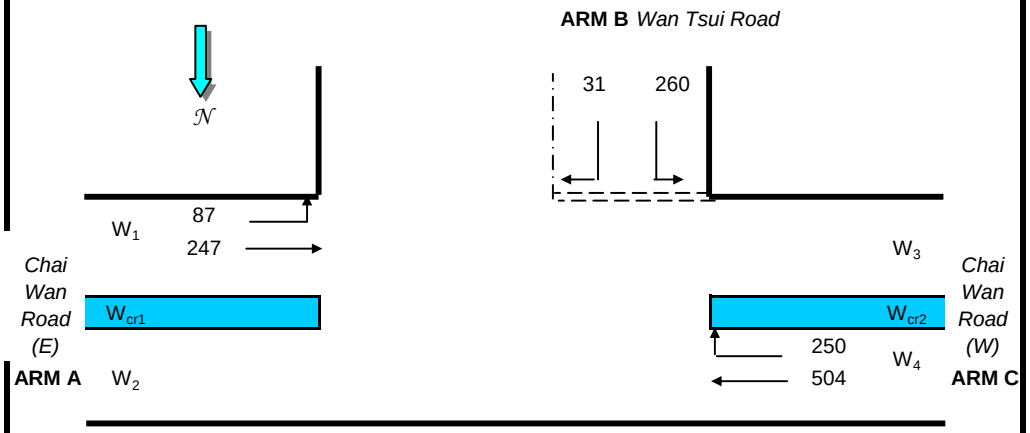


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		719		719	0.00	4070			4070	0.177			28	28	0.655	45	24
RT	A	3.50	1	1	13			2105			375	375	1.00	1887			1887	0.199	0.199		32	28	0.738	42	29
ST	B	3.50	2	2				4210		547		547	0.00	4210			4210	0.130	0.130		21	21	0.655	36	30
LT	B	3.10	2	1	12		y	1925	56			56	1.00	1711			1711	0.032			5	21	0.164	6	30
LT	C	4.00	3	1	15		y	2015	391			391	1.00	1832			1832	0.213	0.213		34	34	0.655	42	22
LT/RT	C	4.00	3	1	15			2155	159		229	388	1.00	1959			1959	0.198			32	34	0.607	42	21
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Ching Ming - Reference Case
Time - Ching Ming Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	87	(pcu/hr)
q_{a-c}	=	247	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	504	(pcu/hr)
q_{c-b}	=	250	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	31	(pcu/hr)
q_{b-c}	=	260	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

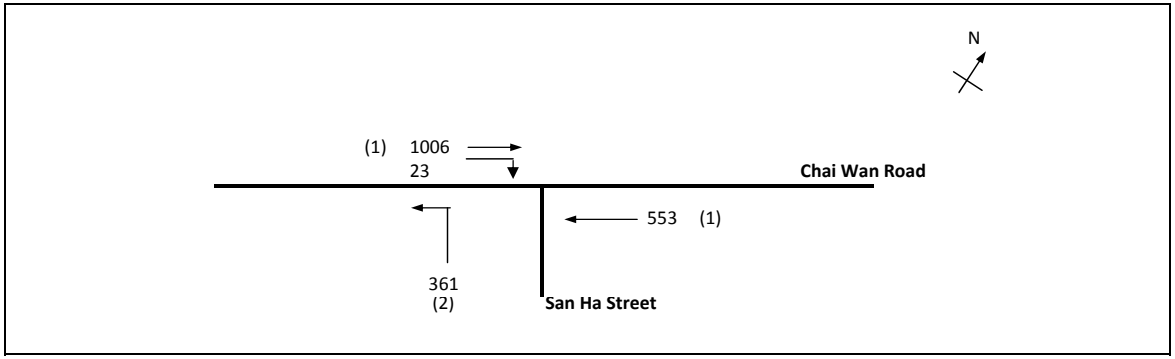
Q_{b-c}	=	790
Q_{c-b}	=	701
Q_{b-a}	=	375

COMPARISION OF DESIGN FLOW TO CAPACITY

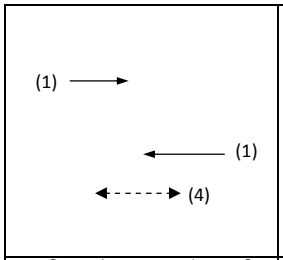
DFC_{b-a}	=	0.082
DFC_{b-c}	=	0.329
DFC_{c-b}	=	0.357

Critical DFC = 0.357

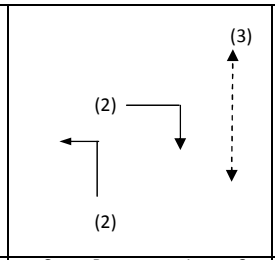
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.464
Loss time		L =	10 sec
Total Flow		=	1942 pcu
Co	= (1.5*L+5)/(1-Y)	=	37.3 sec
Cm	= L/(1-Y)	=	18.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	77.8 %
Cp	= 0.9*L/(0.9-Y)	=	20.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	74.6 %



Stage A I = 6



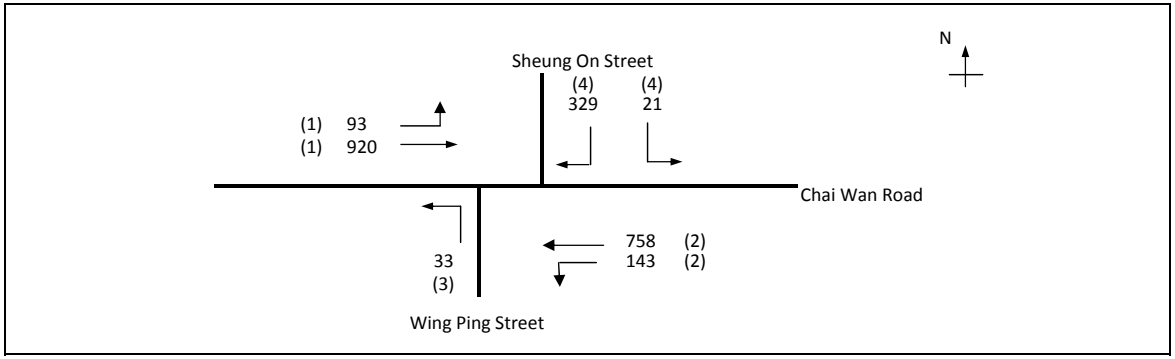
Stage B I = 6

Stage C I =

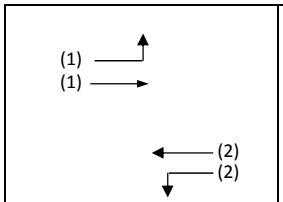
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1006		1006	0.00	4070			4070	0.247	0.247		48	47	0.526	42	10
ST	A	3.50	1	2	10		N	4070		553		553	0.00	4070			4070	0.136			26	47	0.289	24	11
LT	B	3.00	2	1	10		N	1915	361			361	1.00	1665			1665	0.217	0.217		42	53	0.409	24	9
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

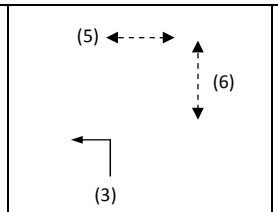
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



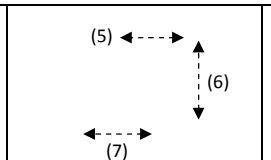
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.283
Loss time		L =	37 sec
Total Flow		=	2296 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.4 sec
Cm	= L/(1-Y)	=	51.6 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	120.0 %
Cp	= 0.9*L/(0.9-Y)	=	54.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	120.0 %



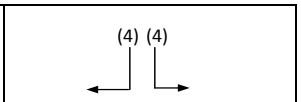
Stage A I = 8



Stage B I = 5



Stage C I = 7



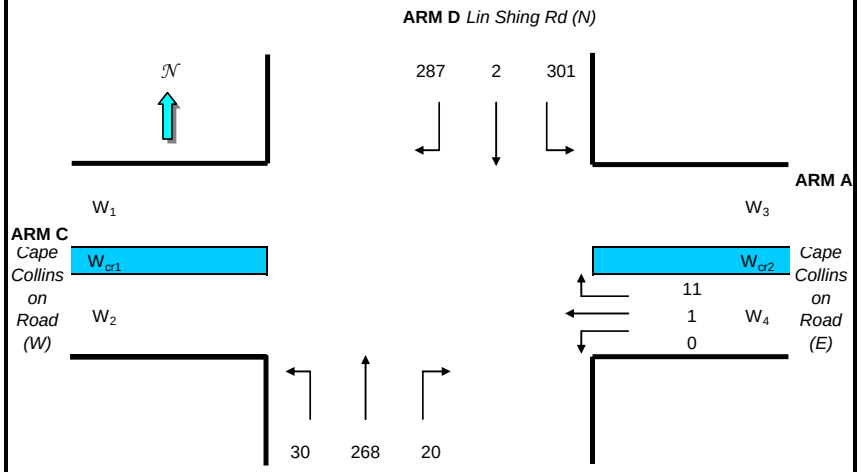
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	93	920		1012	0.09	6105			6105	0.166	0.166		49		0.000	66	54
LT/ST	A	3.30	2	3	12		Y	6115	143	758		901	0.16	5996			5996	0.150			44		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	33			33	1.00	1684			1684	0.020	0.020		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	21		329	350	1.00	3583			3583	0.098	0.098		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Junction Capacity Analysis	Prepared By: KC Checked By: OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0288	(pcu/hr)
q_{a-d}	=	11.259	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	19.547	(pcu/hr)
q_{b-c}	=	29.719	(pcu/hr)
q_{b-d}	=	267.74	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	301.16	(pcu/hr)
q_{d-b}	=	2.4484	(pcu/hr)
q_{d-c}	=	287.26	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

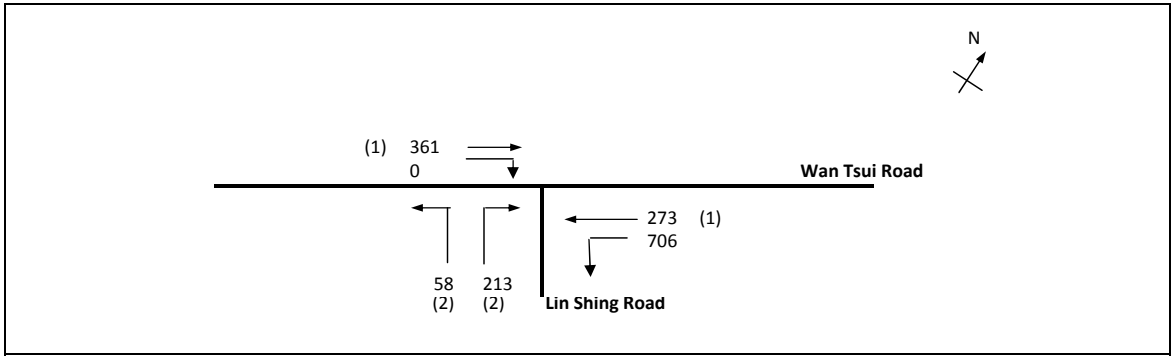
Q_{b-a}	=	514
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	528
Q_{d-c}	=	441
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

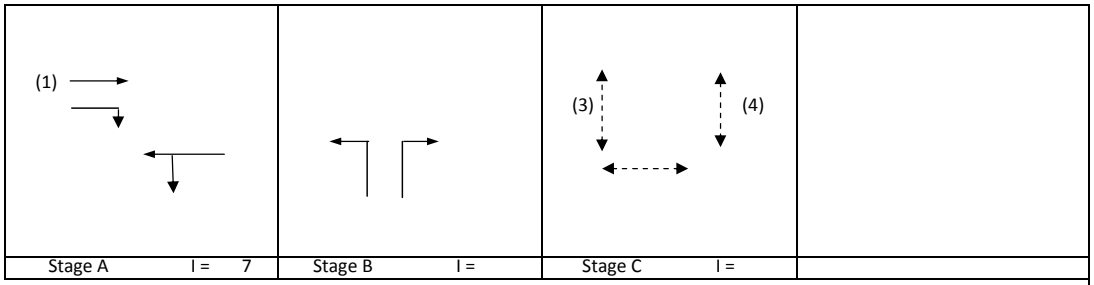
DFC_{b-a}	=	0.038
DFC_{b-c}	=	0.040
DFC_{b-d}	=	0.440
DFC_{d-a}	=	0.447
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.651
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.018

Critical DFC = 0.651

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.538	
Loss time	L =	25	sec
Total Flow	=	1340	pcu
Co = (1.5*L+5)/(1-Y)	=	92.0	sec
Cm = L/(1-Y)	=	54.1	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	32.4	%
Cp = 0.9*L/(0.9-Y)	=	62.2	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	32.4	%

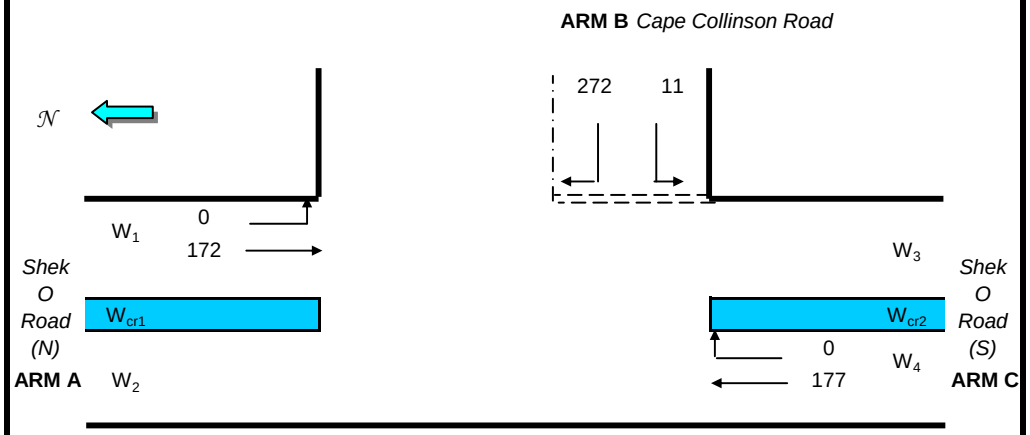


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		361		361	0.00	1915			1915	0.189			33	95	0.238	12	2
ST/LT	A	4.00	1	1	10		N	2015	706	273		979	0.72	1818			1818	0.538	0.538		95	95	0.680	36	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	172	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	177	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	272	(pcu/hr)
q_{b-c}	=	11	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

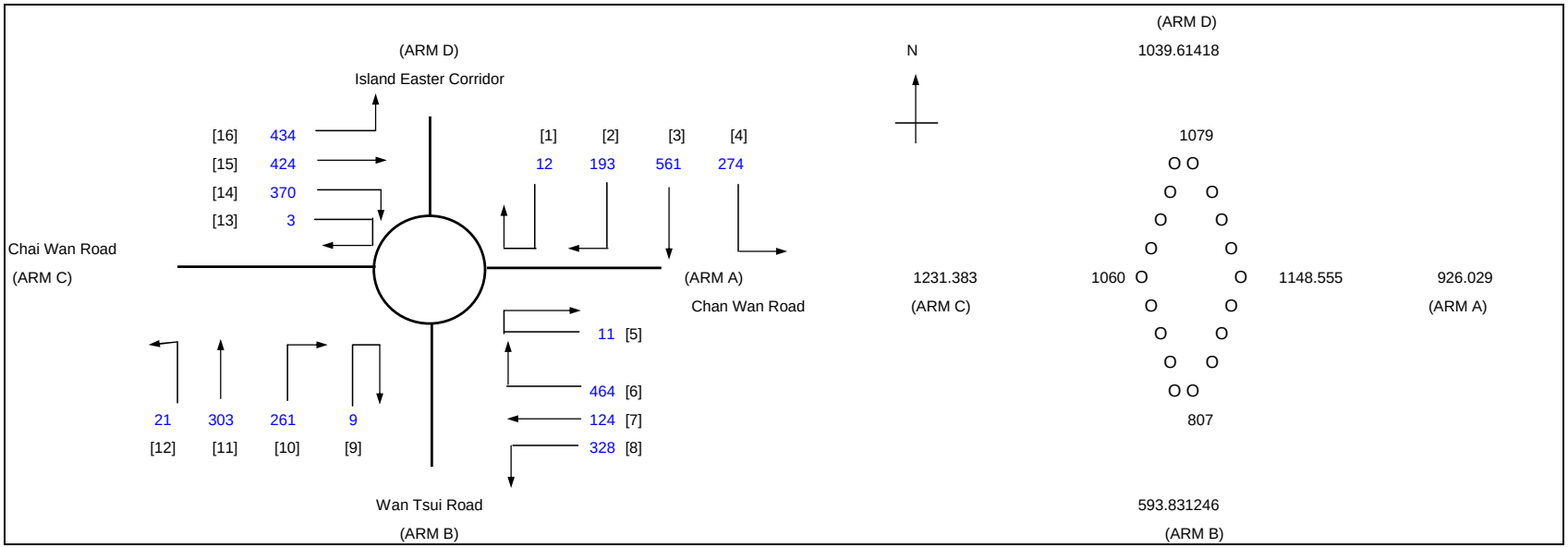
Q_{b-c}	=	698
Q_{c-b}	=	777
Q_{b-a}	=	347

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.783
DFC_{b-c}	=	0.016
DFC_{c-b}	=	0.000

Critical DFC = 0.783

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2016_LV1_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

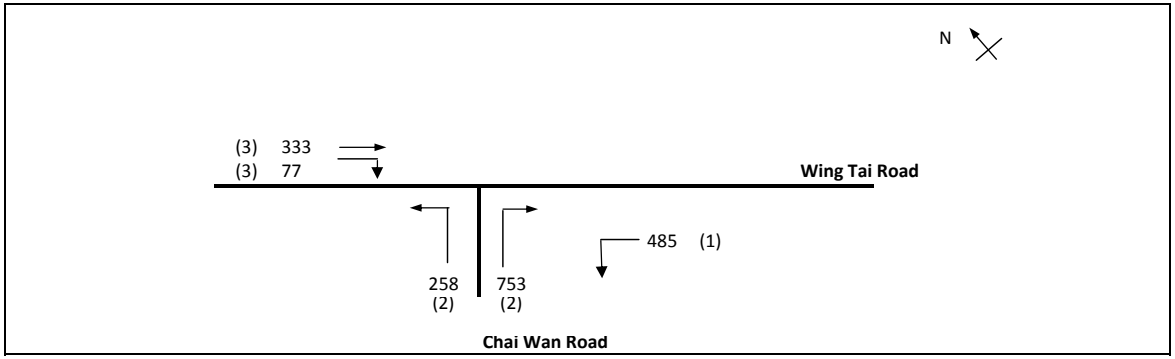


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	926	594	1231	1040
Qc	=	Circulating flow across entry (pcu/h)	1149	807	1060	1079
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1598	1024	1677	1392
DFC	=	Design flow/Capacity = Q/Qe	0.58	0.58	0.73	0.75

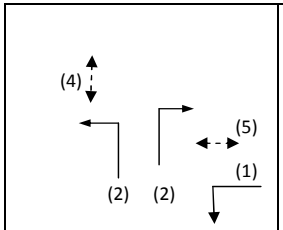
Total In Sum = 2735.389 PCU

DFC of Critical Approach = 0.75

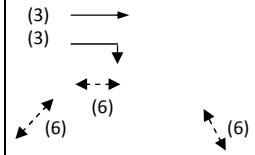
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.292
Loss time		L =	10 sec
Total Flow		=	1905 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.2 sec
Cm	= L/(1-Y)	=	14.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	182.5 %
Cp	= 0.9*L/(0.9-Y)	=	14.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	177.4 %



Stage A I = 7

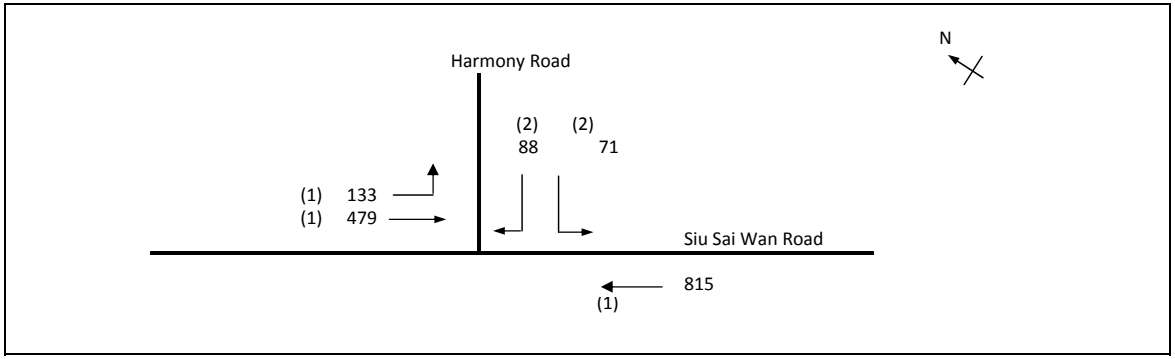


Stage B I = 5

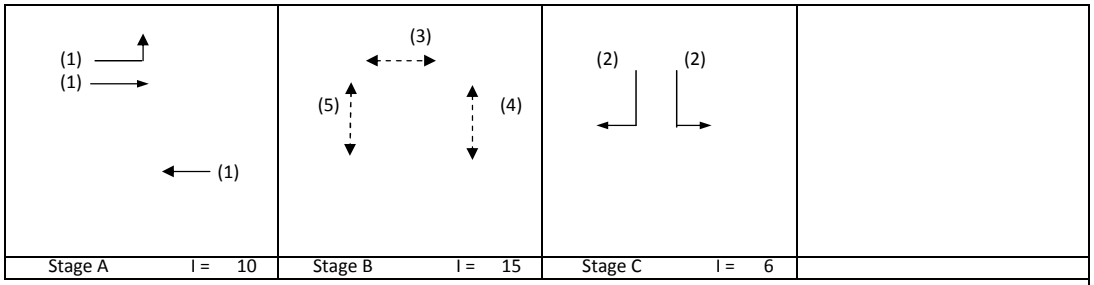
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	485			485	1.00	3857			3857	0.126			39	65	0.194	12	5
LT	A	4.00	2	2	24			4310	258			258	1.00	4056			4056	0.064			20	65	0.098	6	5
RT	A	3.50	2	2	11		y	4070			753	753	1.00	3582			3582	0.210	0.210		65	65	0.324	21	5
ST	B	3.50	3	2			y	4070		333		333	0.00	4070			4070	0.082	0.082		25	25	0.324	18	24
RT	B	4.50	3	2	13		y	4270			77	77	1.00	3828			3828	0.020			6	25	0.080	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.252
Loss time		L =	48 sec
Total Flow		=	1585 pcu
Co	= (1.5*L+5)/(1-Y)	=	102.9 sec
Cm	= L/(1-Y)	=	64.1 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	114.6 %
Cp	= 0.9*L/(0.9-Y)	=	66.6 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	86.0 %

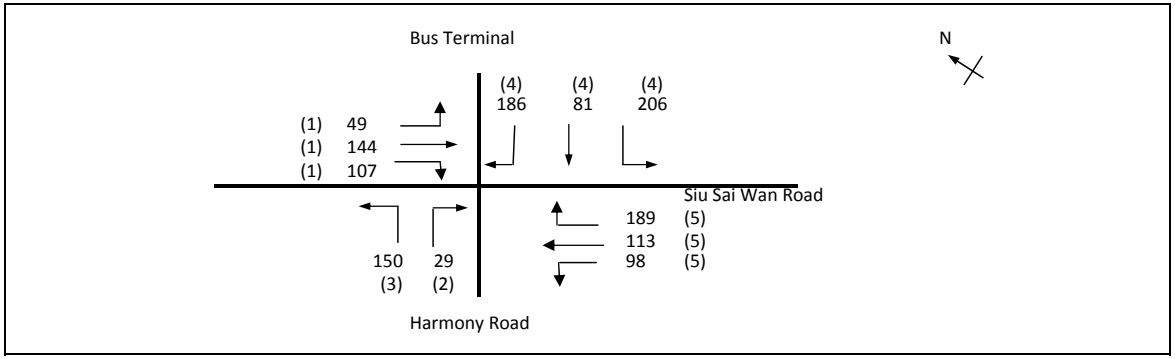


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

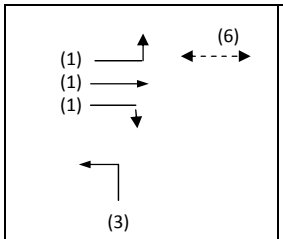
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	133	148		281	0.47	1827			1827	0.154			32	42	0.362	24	14
ST	A	3.20	1	1				2075		331		331	0.00	2075			2075	0.159			33	42	0.376	30	14
ST	A	3.00	1	2			y	3970		815		815	0.00	3970			3970	0.205	0.205		42	42	0.484	39	13
LT	C	3.75	2	1	12		y	1990	71			71	1.00	1769			1769	0.040			8	10	0.417	6	42
RT	C	3.75	2	1	12			2130			88	88	1.00	1893			1893	0.046	0.046		10	10	0.484	12	43
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

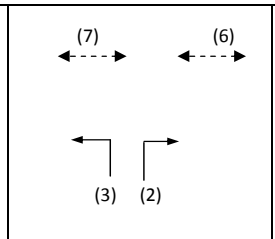
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



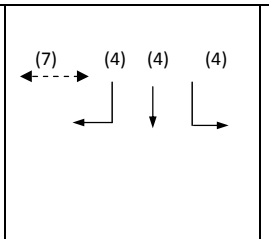
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.377
Loss time		L =	18 sec
Total Flow		=	1351 pcu
Co	= (1.5*L+5)/(1-Y)	=	51.4 sec
Cm	= L/(1-Y)	=	28.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	102.7 %
Cp	= 0.9*L/(0.9-Y)	=	31.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	97.6 %



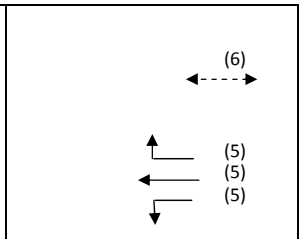
Stage A I = 5



Stage B I = 5



Stage C I = 6

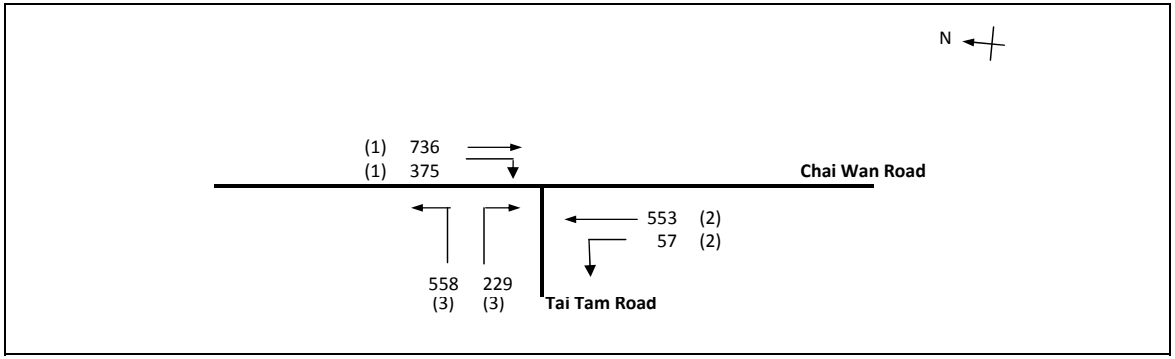


Stage C I = 6

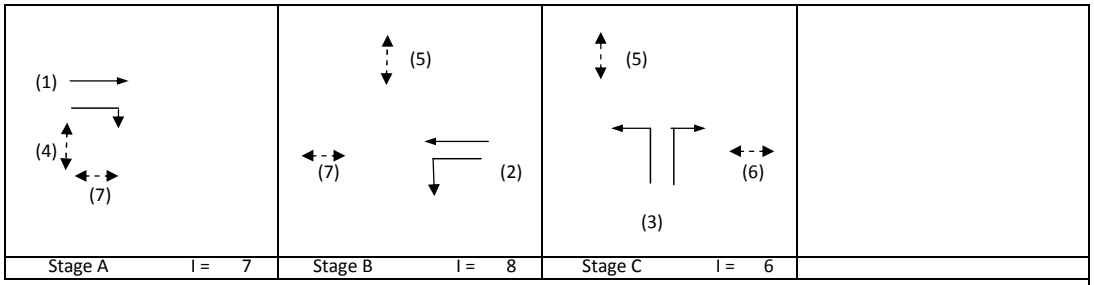
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	49	79		128	0.38	1849			1849	0.069			16	20	0.354	12	31
ST/RT	A	3.30	1	1	12			2085		65	107	172	0.62	1935			1935	0.089	0.089		20	20	0.456	24	31
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.015	0.015		4	4	0.456	0	65
LT	A,B	3.75	3	1	13		y	1990	150			150	1.00	1784			1784	0.084			19	29	0.304	18	24
RT	C	3.50	4	1	12			2105			186	186	1.00	1871			1871	0.099			23	37	0.284	18	19
LT/ST	C	3.50	4	1	12		y	1965	206	81		287	0.72	1803			1803	0.159	0.159		37	37	0.456	30	19
ST/RT	D	3.50	5	1	12			2105		0	189	189	1.00	1871			1871	0.101			23	23	0.456	24	29
LT/ST	D	3.50	5	1	11		y	1965	98	113		211	0.47	1848			1848	0.114	0.114		26	26	0.456	24	26
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.550
Loss time	L =	18 sec
Total Flow	=	2508 pcu
Co = (1.5*L+5)/(1-Y)	=	71.2 sec
Cm = L/(1-Y)	=	40.0 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	39.0 %
Cp = 0.9*L/(0.9-Y)	=	46.3 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	35.5 %

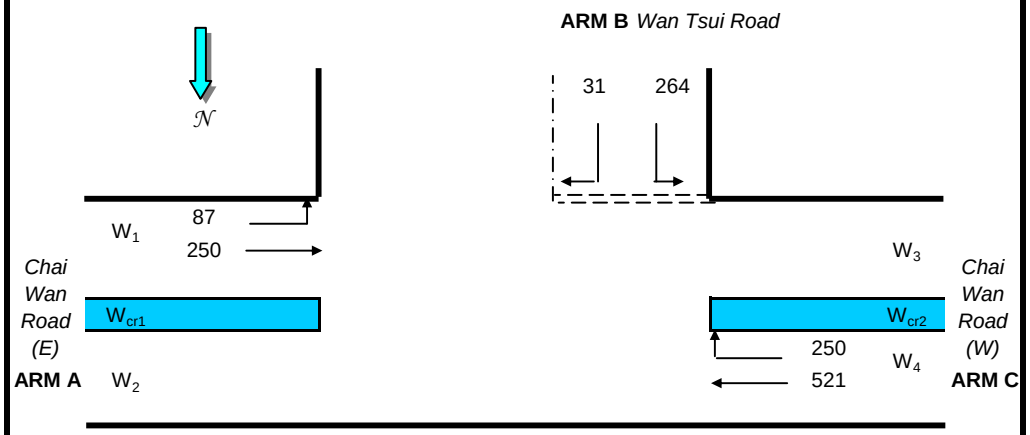


Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		736		736	0.00	4070			4070	0.181			29	29	0.664	45	23
RT	A	3.50	1	1	13			2105			375	375	1.00	1887			1887	0.199	0.199		31	29	0.731	42	29
ST	B	3.50	2	2				4210		553		553	0.00	4210			4210	0.131	0.131		21	21	0.664	36	30
LT	B	3.10	2	1	12		y	1925	57			57	1.00	1711			1711	0.033			5	21	0.167	6	30
LT	C	4.00	3	1	15		y	2015	403			403	1.00	1832			1832	0.220	0.220		35	35	0.664	42	22
LT/RT	C	4.00	3	1	15			2155	155		229	384	1.00	1959			1959	0.196			31	35	0.592	42	21
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	87.445	(pcu/hr)
q_{a-c}	=	249.64	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	521.06	(pcu/hr)
q_{c-b}	=	249.99	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	30.863	(pcu/hr)
q_{b-c}	=	264.37	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

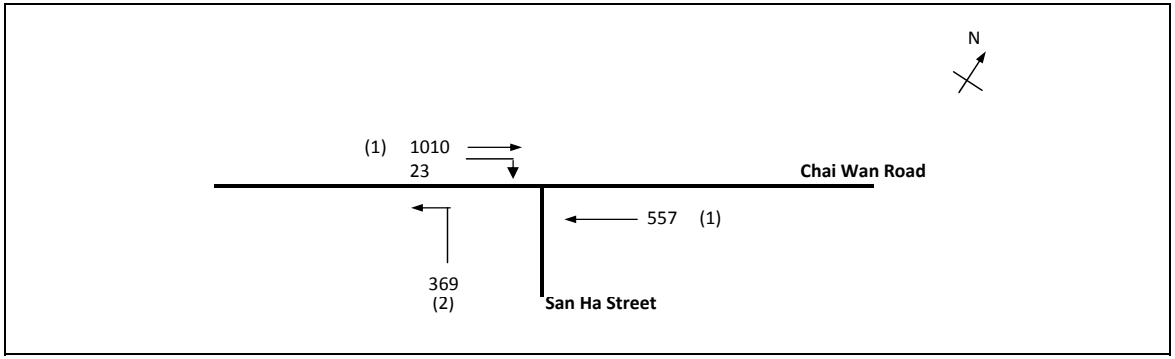
Q_{b-c}	=	789
Q_{c-b}	=	701
Q_{b-a}	=	374

COMPARISION OF DESIGN FLOW TO CAPACITY

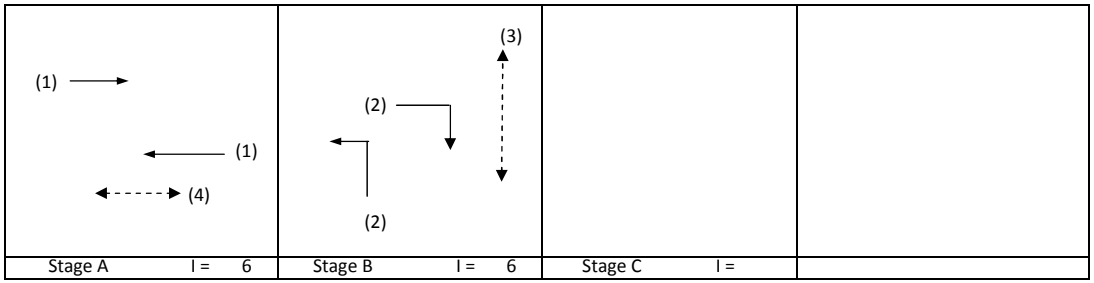
DFC_{b-a}	=	0.082
DFC_{b-c}	=	0.335
DFC_{c-b}	=	0.357

Critical DFC = 0.357

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.470
Loss time		L =	10 sec
Total Flow		=	1959 pcu
Co	= (1.5*L+5)/(1-Y)	=	37.7 sec
Cm	= L/(1-Y)	=	18.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	75.6 %
Cp	= 0.9*L/(0.9-Y)	=	20.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	72.4 %

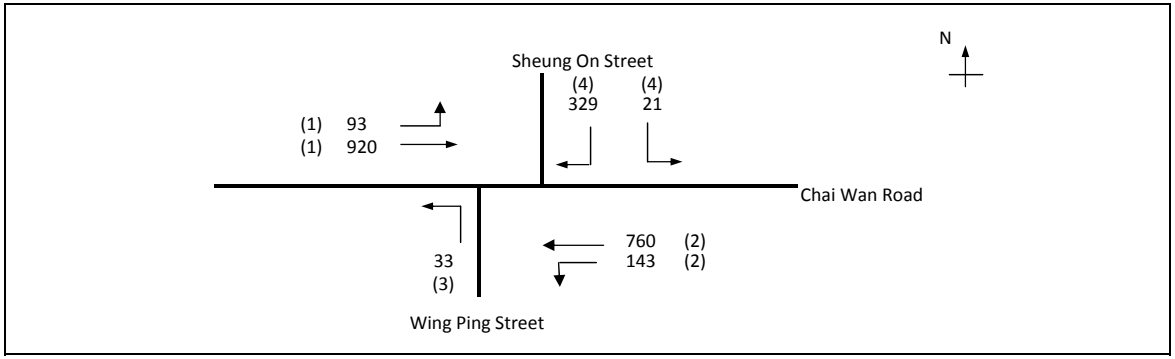


Stage A	I = 6	Stage B	I = 6	Stage C	I =

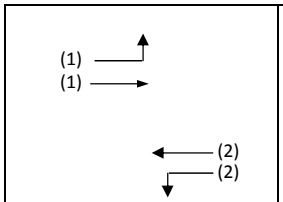
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1010		1010	0.00	4070			4070	0.248	0.248		48	47	0.528	42	10
ST	A	3.50	1	2	10		N	4070		557		557	0.00	4070			4070	0.137			26	47	0.291	24	11
LT	B	3.00	2	1	10		N	1915	369			369	1.00	1665			1665	0.222	0.222		42	53	0.418	24	9
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

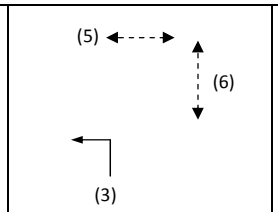
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



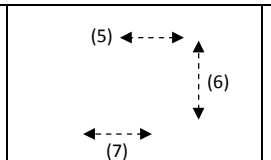
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.283
Loss time		L =	37 sec
Total Flow		=	2298 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.4 sec
Cm	= L/(1-Y)	=	51.6 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	120.0 %
Cp	= 0.9*L/(0.9-Y)	=	54.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	120.0 %



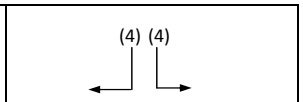
Stage A I = 8



Stage B I = 5



Stage C I = 7



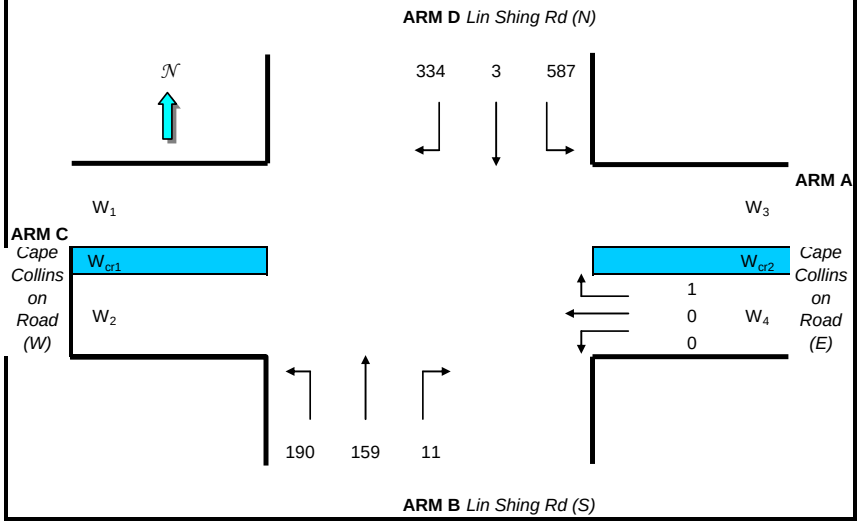
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	93	920		1012	0.09	6105			6105	0.166	0.166		49		0.000	66	54
LT/ST	A	3.30	2	3	12		Y	6115	143	760		903	0.16	5996			5996	0.151			44		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	33			33	1.00	1684			1684	0.020	0.020		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	21		329	350	1.00	3583			3583	0.098	0.098		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Junction Capacity Analysis	Prepared By: KC Checked By: OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	1	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.316	(pcu/hr)
q_{b-c}	=	190.26	(pcu/hr)
q_{b-d}	=	159.09	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	586.93	(pcu/hr)
q_{d-b}	=	3.4124	(pcu/hr)
q_{d-c}	=	334.25	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

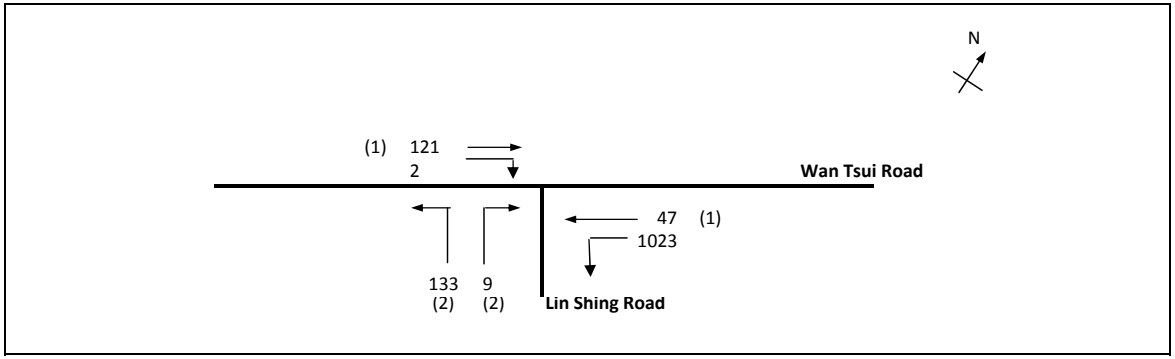
Q_{b-a}	=	424
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	433
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

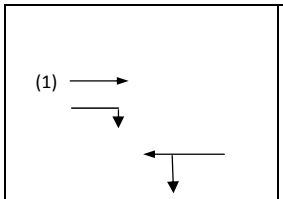
DFC_{b-a}	=	0.027
DFC_{b-c}	=	0.254
DFC_{b-d}	=	0.260
DFC_{d-a}	=	0.870
DFC_{d-b}	=	0.006
DFC_{d-c}	=	0.771
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.002

Critical DFC = 0.870

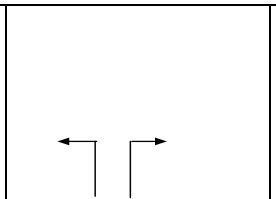
TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Hour -Reference Case	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



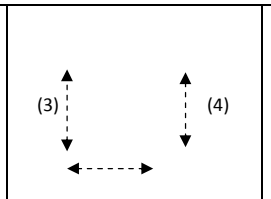
No. of stages per cycle	N =	2
Cycle time	C =	120 sec
Sum(y)	Y =	0.608
Loss time	L =	25 sec
Total Flow	=	1192 pcu
Co = (1.5*L+5)/(1-Y)	=	108.3 sec
Cm = L/(1-Y)	=	63.7 sec
Yult	=	0.713
R.C.ult = (Yult-Y)/Y*100%	=	17.3 %
Cp = 0.9*L/(0.9-Y)	=	76.9 sec
Ymax = 1-L/C	=	0.792
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	17.3 %



Stage A I = 7



Stage B I =



Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		121		121	0.00	1915			1915	0.063			10	95	0.080	0	2
ST/LT	A	4.00	1	1	10		N	2015	1023	47		1071	0.96	1762			1762	0.608	0.608		95	95	0.767	42	5
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

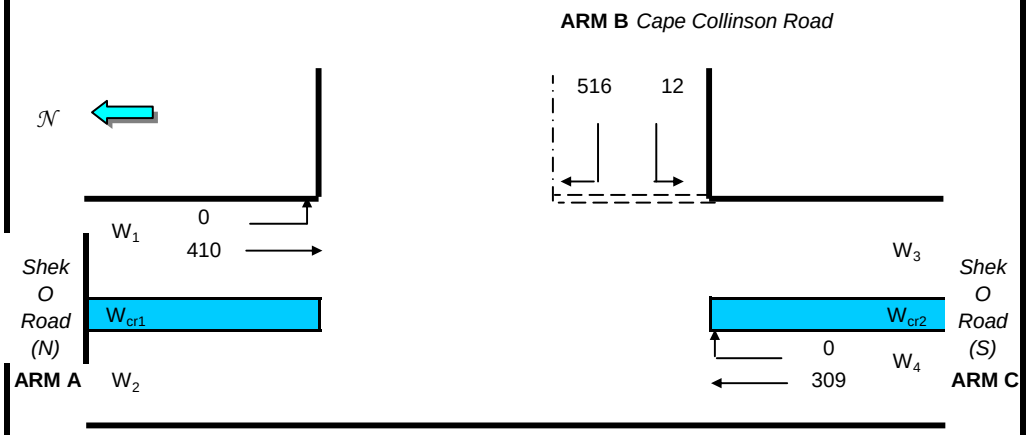
Prepared By: KC

Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2016 Level 2 - Reference Case

Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	309	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	516	(pcu/hr)
q_{b-c}	=	12	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

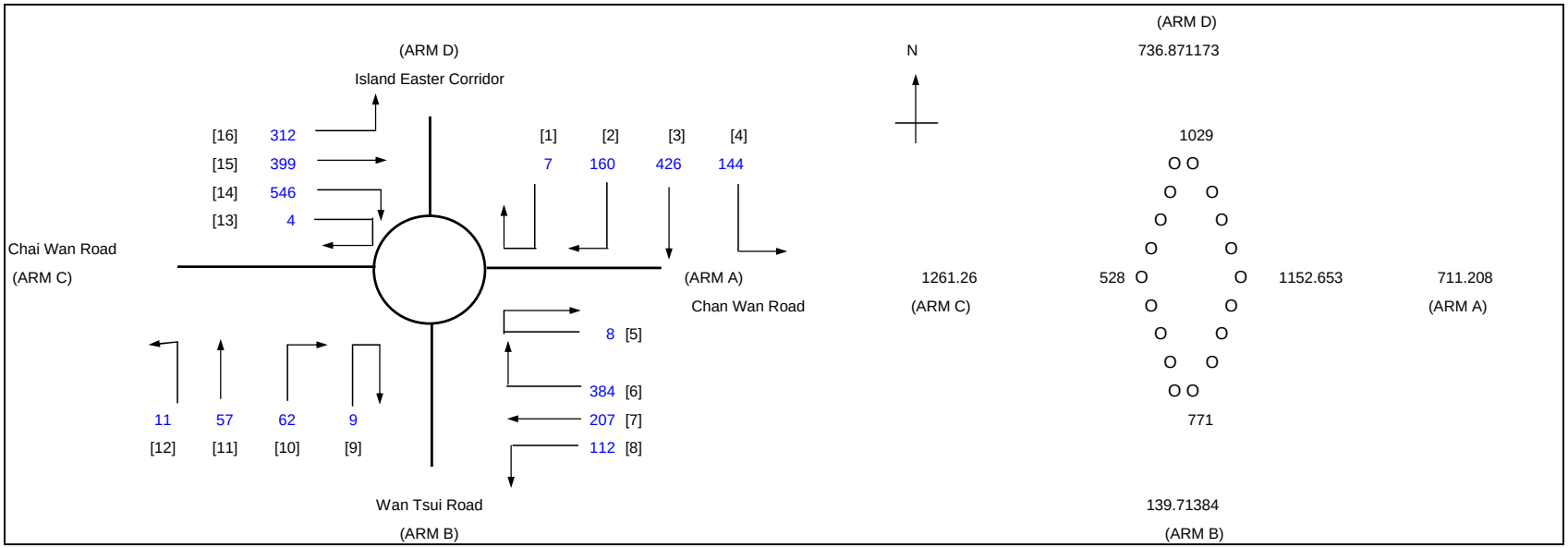
Q_{b-c}	=	637
Q_{c-b}	=	709
Q_{b-a}	=	295

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.748
DFC_{b-c}	=	0.020
DFC_{c-b}	=	0.000

Critical DFC = 1.748

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME 2016_LV2_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

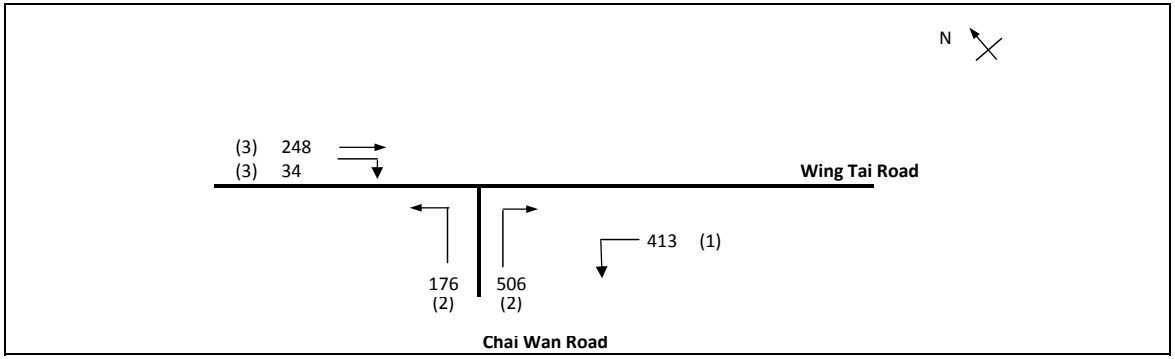


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	711	140	1261	737
Qc	=	Circulating flow across entry (pcu/h)	1153	771	528	1029
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1595	1044	2080	1427
DFC	=	Design flow/Capacity = Q/Qe	0.45	0.13	0.61	0.52

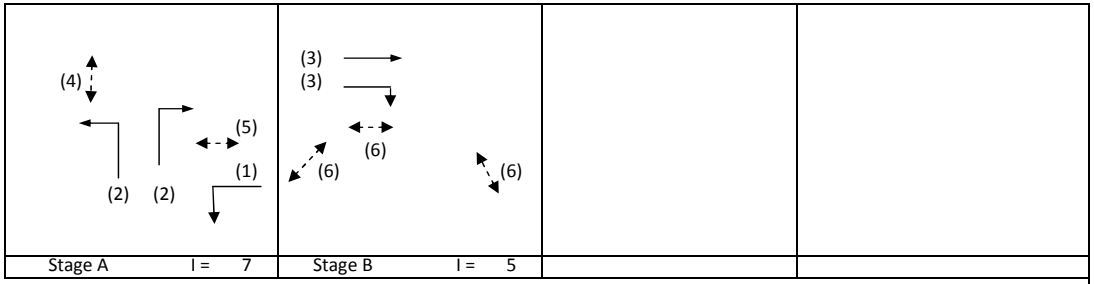
Total In Sum = 2269.694 PCU

DFC of Critical Approach = 0.61

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



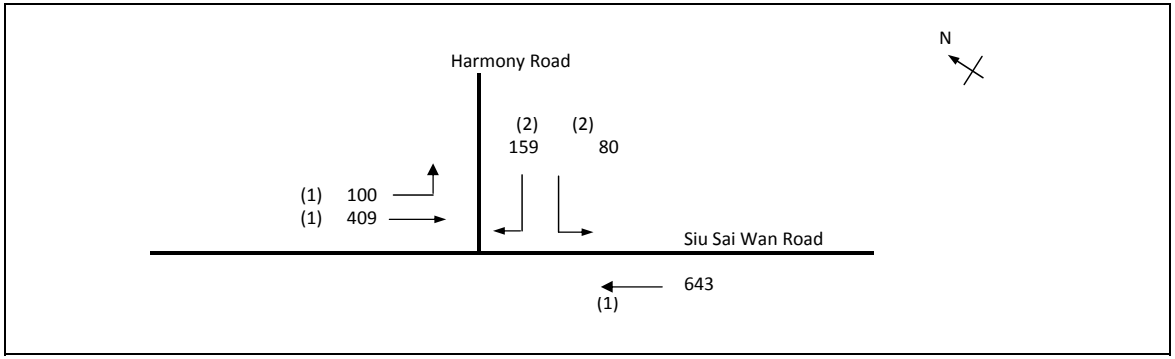
No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	10	sec
Total Flow	=	1377	pcu
Co = (1.5*L+5)/(1-Y)	=	25.1	sec
Cm = L/(1-Y)	=	12.5	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	307.8	%
Cp = 0.9*L/(0.9-Y)	=	12.9	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	300.4	%



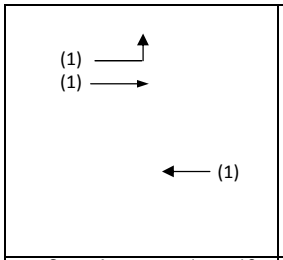
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	413			413	1.00	3857			3857	0.107			48	63	0.170	12	6
LT	A	4.00	2	2	24			4310	176			176	1.00	4056			4056	0.043			19	63	0.069	3	6
RT	A	3.50	2	2	11		y	4070			506	506	1.00	3582			3582	0.141	0.141		63	63	0.225	15	6
ST	B	3.50	3	2			y	4070		248		248	0.00	4070			4070	0.061	0.061		27	27	0.225	15	23
RT	B	4.50	3	2	13		y	4270			34	34	1.00	3828			3828	0.009			4	27	0.033	0	24
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

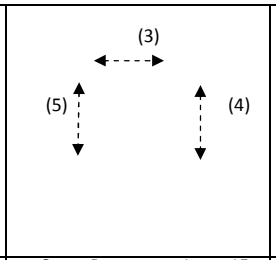
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



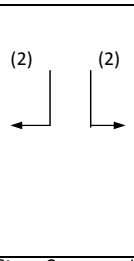
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.246	
Loss time	L =	48	sec
Total Flow	=	1391	pcu
Co = (1.5*L+5)/(1-Y)	=	102.1	sec
Cm = L/(1-Y)	=	63.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	119.5	%
Cp = 0.9*L/(0.9-Y)	=	66.1	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	90.2	%



Stage A I = 10



Stage B I = 15

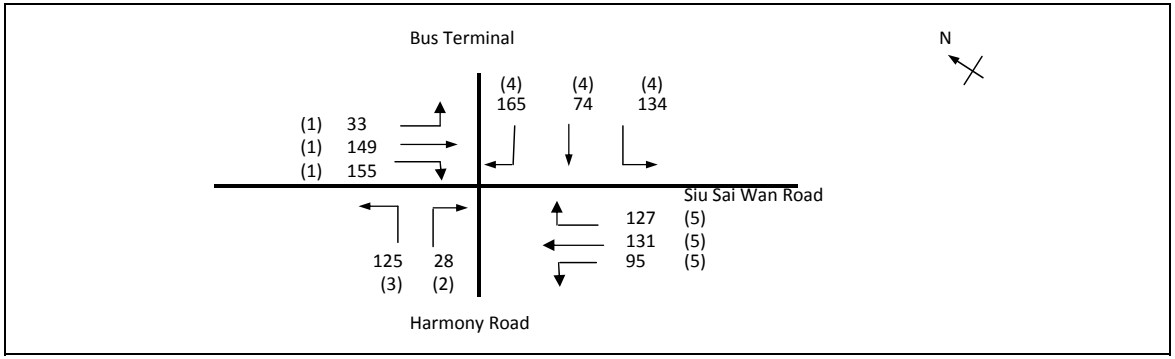


Stage C I = 6

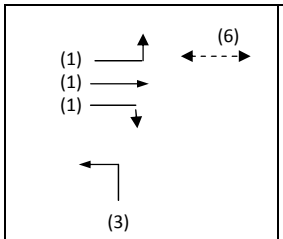
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	100	148		248	0.40	1844			1844	0.134			28	34	0.392	24	19
ST	A	3.20	1	1				2075		261		261	0.00	2075			2075	0.126			27	34	0.367	24	18
ST	A	3.00	1	2			y	3970		643		643	0.00	3970			3970	0.162	0.162		34	34	0.473	33	17
LT	C	3.75	2	1	12		y	1990	80			80	1.00	1769			1769	0.045			10	18	0.255	6	31
RT	C	3.75	2	1	12			2130			159	159	1.00	1893			1893	0.084	0.084		18	18	0.473	18	32
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

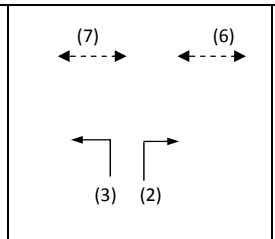
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



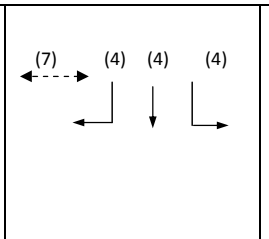
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.369	
Loss time	L =	18	sec
Total Flow	=	1217	pcu
Co = (1.5*L+5)/(1-Y)	=	50.7	sec
Cm = L/(1-Y)	=	28.5	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	107.5	%
Cp = 0.9*L/(0.9-Y)	=	30.5	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	102.3	%



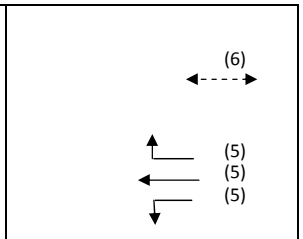
Stage A I = 5



Stage B I = 5



Stage C I = 6

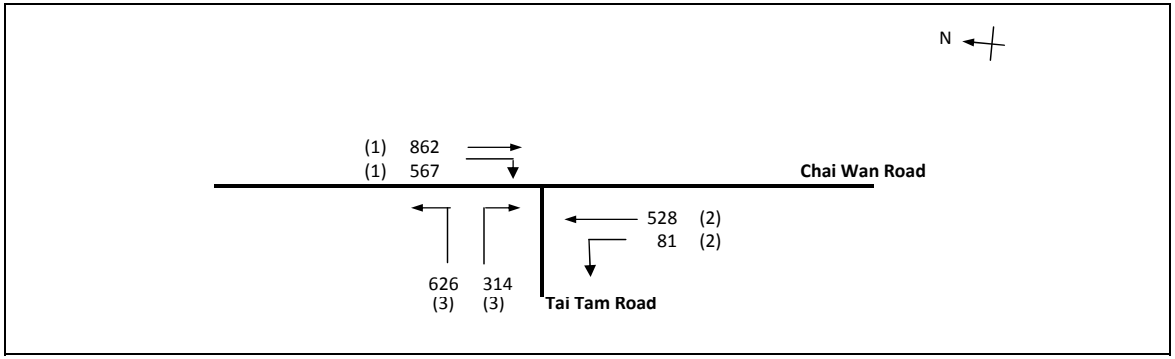


Stage C I = 6

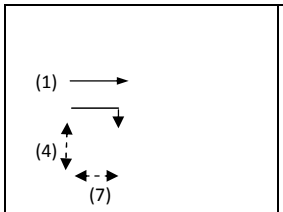
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	33	79		112	0.30	1870			1870	0.060			14	28	0.228	12	25
ST/RT	A	3.30	1	1	12			2085		70	155	225	0.69	1920			1920	0.117	0.117		28	28	0.445	24	25
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015	0.015		4	4	0.445	0	64
LT	A,B	3.75	3	1	13		y	1990	125			125	1.00	1784			1784	0.070			16	36	0.202	12	20
RT	C	3.50	4	1	12			2105			165	165	1.00	1871			1871	0.088			21	27	0.343	18	26
LT/ST	C	3.50	4	1	12		y	1965	134	74		208	0.64	1818			1818	0.115	0.115		27	27	0.445	24	26
ST/RT	D	3.50	5	1	12			2105		0	127	127	1.00	1871			1871	0.068			16	16	0.445	18	36
LT/ST	D	3.50	5	1	11		y	1965	95	131		226	0.42	1859			1859	0.122	0.122		29	29	0.445	24	24
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

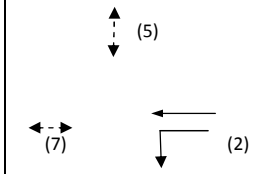
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



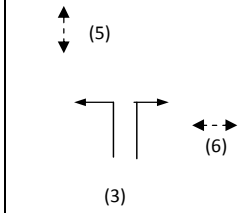
No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.681
Loss time	L =	18 sec
Total Flow	=	2977 pcu
Co = (1.5*L+5)/(1-Y)	=	100.2 sec
Cm = L/(1-Y)	=	56.4 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	12.4 %
Cp = 0.9*L/(0.9-Y)	=	73.8 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	9.6 %



Stage A I = 7



Stage B I = 8



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		862		862	0.00	4070			4070	0.212			27	27	0.821	54	28
RT	A	3.50	1	1	13			2105			567	567	1.00	1887			1887	0.300	0.300		38	27	1.165	72	34
ST	B	3.50	2	2				4210		528		528	0.00	4210			4210	0.125	0.125		16	16	0.821	39	41
LT	B	3.10	2	1	12		y	1925	81			81	1.00	1711			1711	0.047			6	16	0.311	12	35
LT	C	4.00	3	1	15		y	2015	467			467	1.00	1832			1832	0.255	0.255		33	33	0.821	54	30
LT/RT	C	4.00	3	1	15			2155	159		314	473	1.00	1959			1959	0.242			31	33	0.778	54	26
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

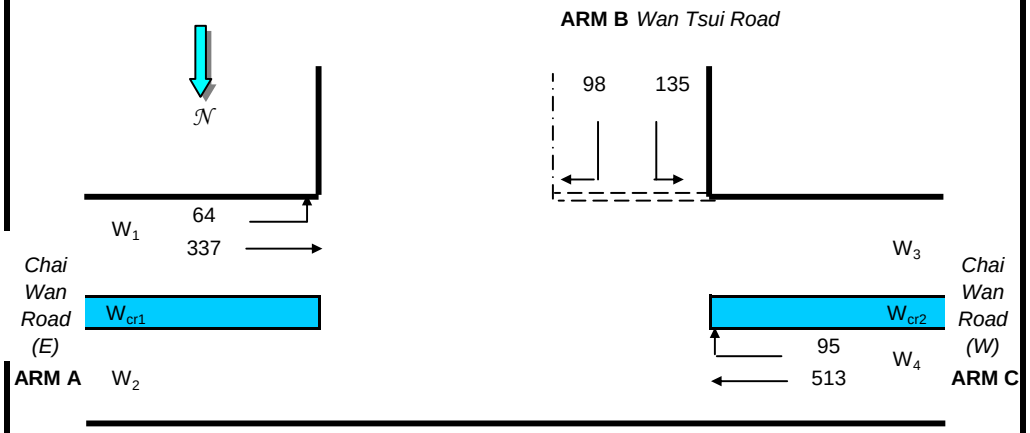
Prepared By: KC

Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road

Design Year - 2016 Level 2 - Reference Case

Time - Level 2 Peak Hour



GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	64	(pcu/hr)
q_{a-c}	=	337	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	513	(pcu/hr)
q_{c-b}	=	95	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	98	(pcu/hr)
q_{b-c}	=	135	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	779
Q_{c-b}	=	693
Q_{b-a}	=	386

COMPARISION OF DESIGN FLOW TO CAPACITY

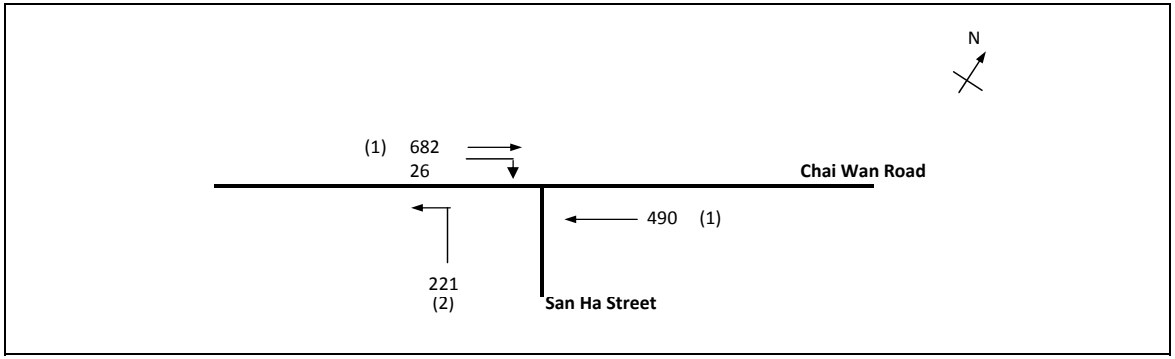
DFC_{b-a}	=	0.253
DFC_{b-c}	=	0.173
DFC_{c-b}	=	0.136

Critical DFC = 0.253

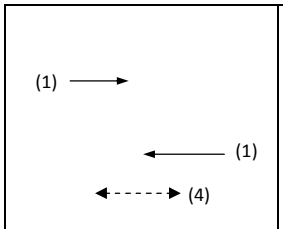
REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

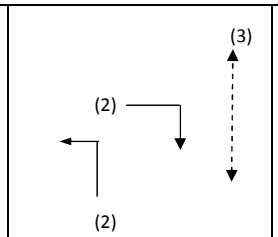
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.300	
Loss time		L =	10	sec
Total Flow		=	1419	pcu
Co	= (1.5*L+5)/(1-Y)	=	28.6	sec
Cm	= L/(1-Y)	=	14.3	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	174.6	%
Cp	= 0.9*L/(0.9-Y)	=	15.0	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	169.6	%



Stage A I = 6



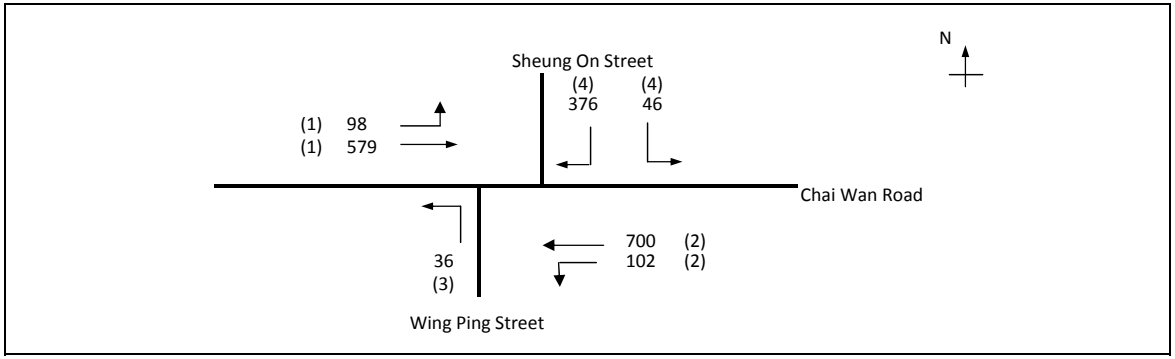
Stage B I = 6

Stage C I =

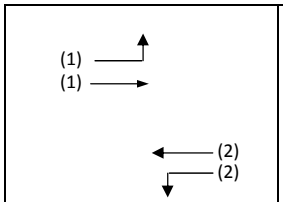
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		682		682	0.00	4070			4070	0.168	0.168		50	47	0.357	30	11
ST	A	3.50	1	2	10		N	4070		490		490	0.00	4070			4070	0.120			36	47	0.256	21	11
LT	B	3.00	2	1	10		N	1915	221			221	1.00	1665			1665	0.133	0.133		40	53	0.251	12	9
RT	B	3.50	2	1	12			2105			26	26	1.00	1871			1871	0.014			4	53	0.026	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

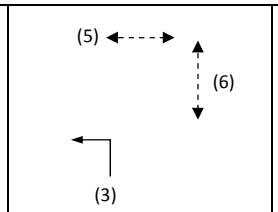
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



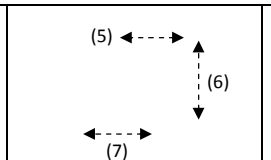
No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.272	
Loss time		L =	37	sec
Total Flow		=	1937	pcu
Co	= (1.5*L+5)/(1-Y)	=	83.2	sec
Cm	= L/(1-Y)	=	50.9	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	128.5	%
Cp	= 0.9*L/(0.9-Y)	=	53.1	sec
Ymax	= 1-L/C	=	0.692	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	128.5	%



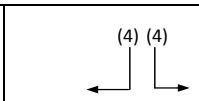
Stage A I = 8



Stage B I = 5



Stage C I = 7

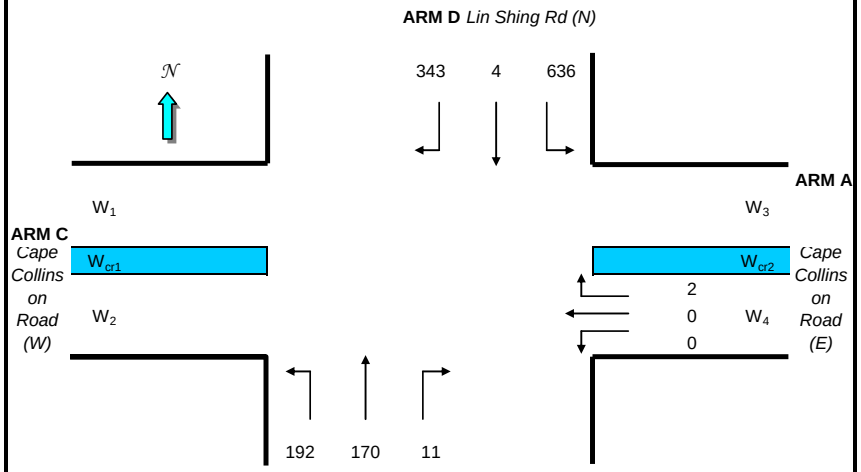


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	98	579		677	0.14	6066			6066	0.112			34		0.000	44	54
LT/ST	A	3.30	2	3	12		Y	6115	102	700		802	0.13	6019			6019	0.133	0.133		41		0.000	52	54
LT	B	3.50	3	1	9		Y	1965	36			36	1.00	1684			1684	0.021	0.021		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	46		376	422	1.00	3583			3583	0.118	0.118		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	2	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.316	(pcu/hr)
q_{b-c}	=	192.26	(pcu/hr)
q_{b-d}	=	169.54	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	636.39	(pcu/hr)
q_{d-b}	=	3.7	(pcu/hr)
q_{d-c}	=	343.17	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

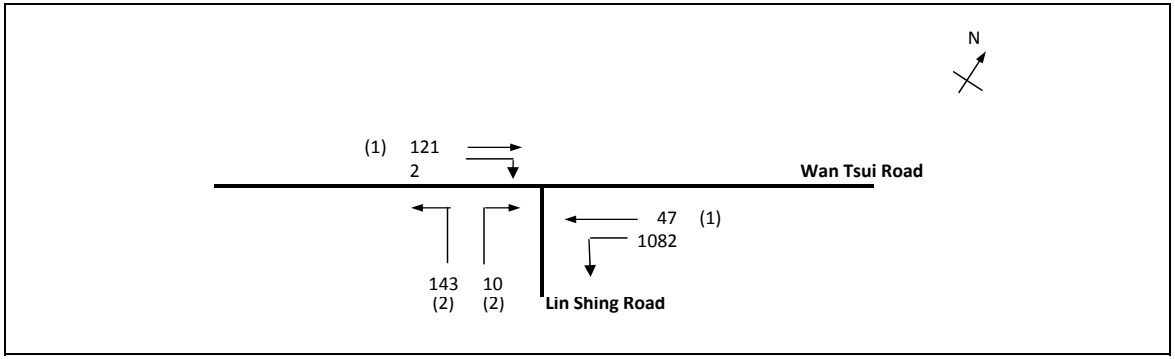
Q_{b-a}	=	407
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	532
Q_{d-c}	=	430
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

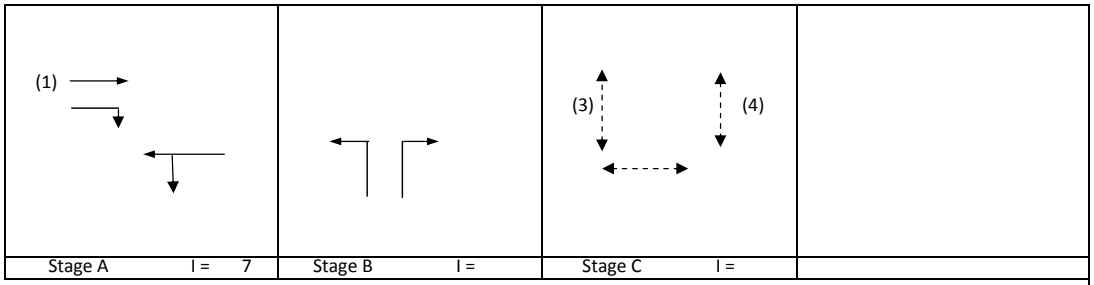
DFC_{b-a}	=	0.028
DFC_{b-c}	=	0.257
DFC_{b-d}	=	0.278
DFC_{d-a}	=	0.944
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.798
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.003

Critical DFC = 0.944

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.641	
Loss time	L =	25	sec
Total Flow	=	1251	pcu
Co = (1.5*L+5)/(1-Y)	=	118.4	sec
Cm = L/(1-Y)	=	69.6	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	11.2	%
Cp = 0.9*L/(0.9-Y)	=	86.9	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	11.2	%

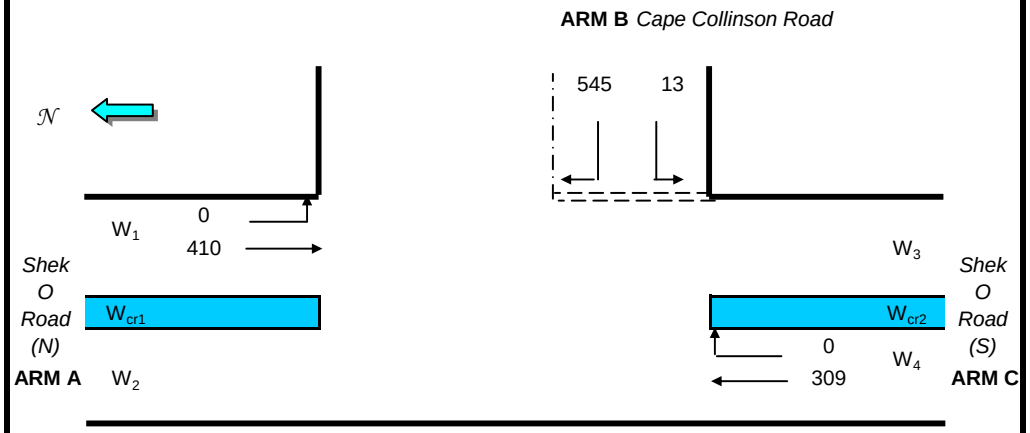


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		121		121	0.00	1915			1915	0.063			9	95	0.080	0	2
ST/LT	A	4.00	1	1	10		N	2015	1082	47		1129	0.96	1762			1762	0.641	0.641		95	95	0.810	42	6
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	309	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	545	(pcu/hr)
q_{b-c}	=	13	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

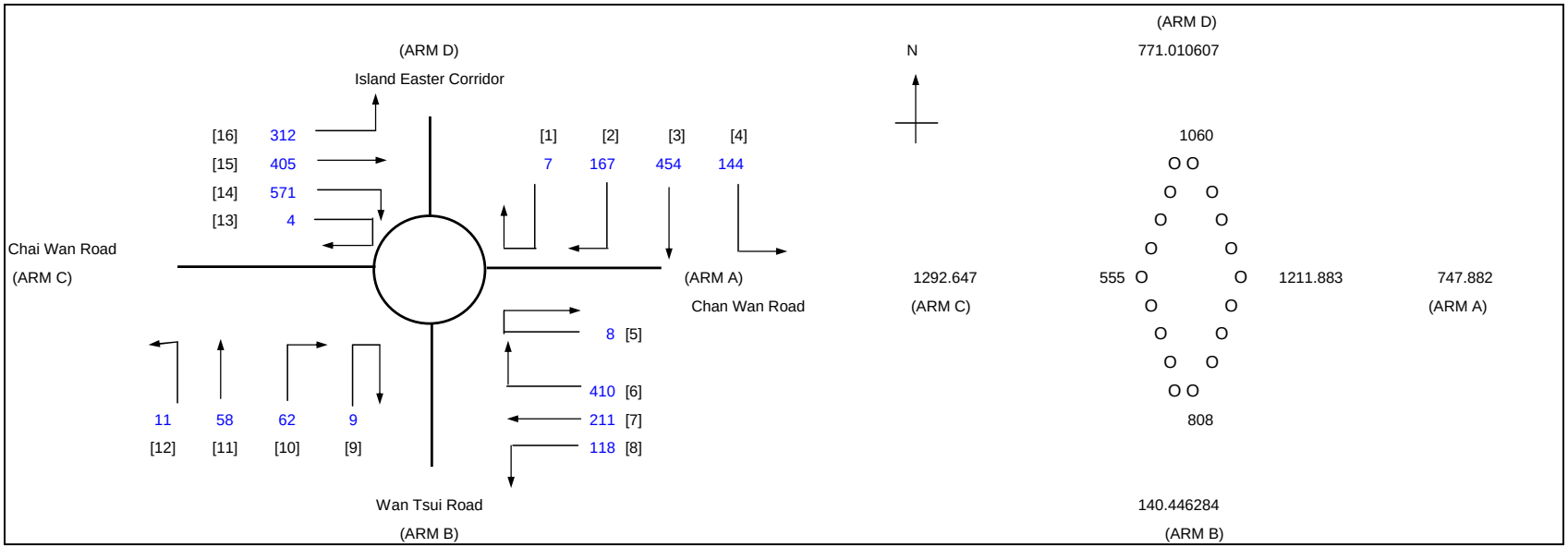
Q_{b-c}	=	637
Q_{c-b}	=	709
Q_{b-a}	=	295

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.847
DFC_{b-c}	=	0.021
DFC_{c-b}	=	0.000

Critical DFC = 1.847

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2016_LV2_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

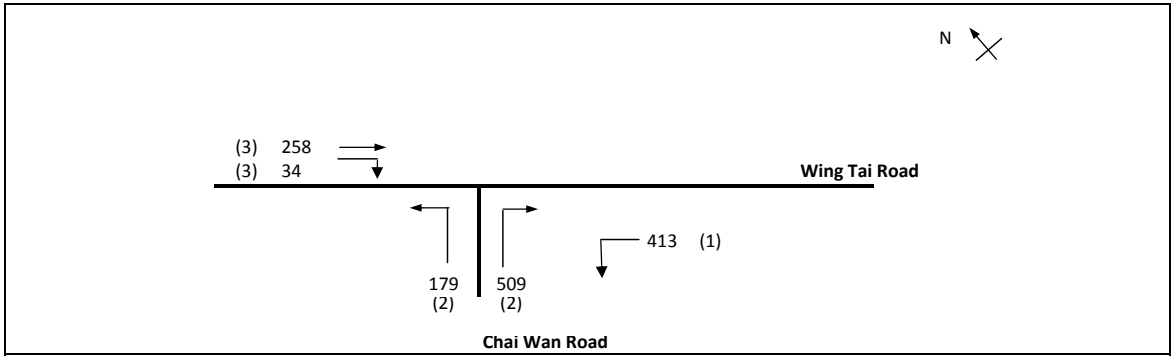


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	748	140	1293	771
Qc	=	Circulating flow across entry (pcu/h)	1212	808	555	1060
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1550	1023	2059	1405
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.14	0.63	0.55

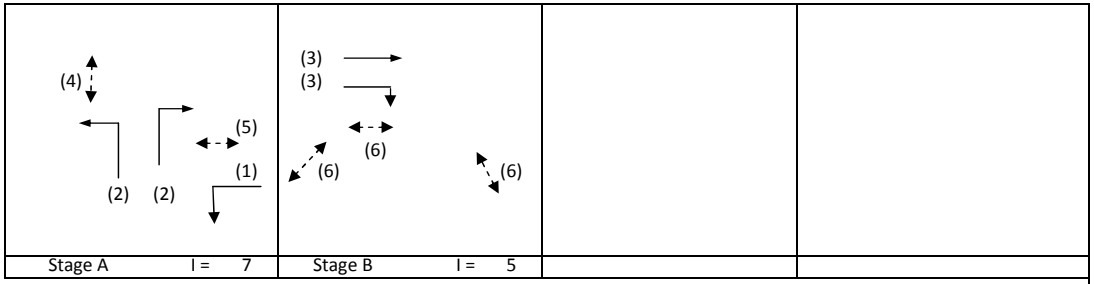
Total In Sum = 2366.89 PCU

DFC of Critical Approach = 0.63

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.206	
Loss time		L =	10	sec
Total Flow		=	1393	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.2	sec
Cm	= L/(1-Y)	=	12.6	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	301.2	%
Cp	= 0.9*L/(0.9-Y)	=	13.0	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	293.9	%

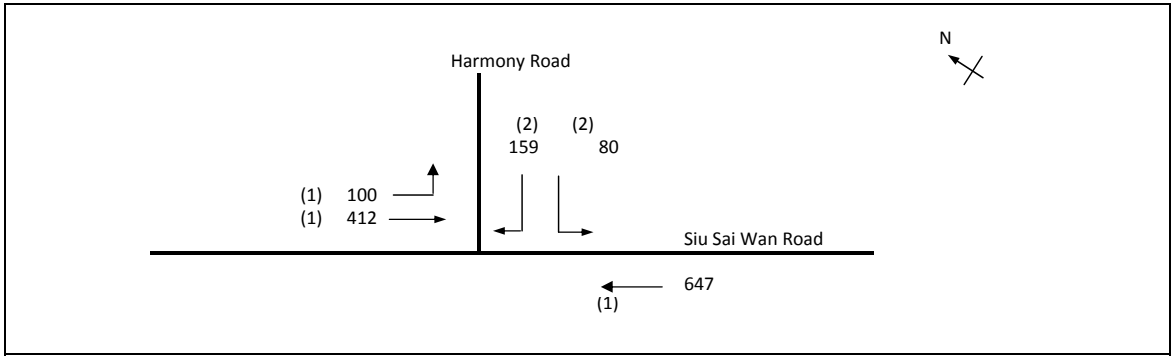


Stage A I = 7 Stage B I = 5

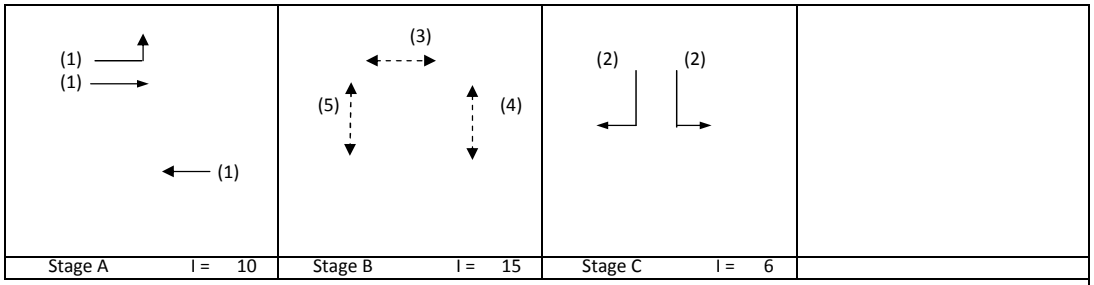
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	413			413	1.00	3857			3857	0.107			47	62	0.172	12	6
LT	A	4.00	2	2	24			4310	179			179	1.00	4056			4056	0.044			19	62	0.071	3	6
RT	A	3.50	2	2	11		y	4070			509	509	1.00	3582			3582	0.142	0.142		62	62	0.228	15	6
ST	B	3.50	3	2			y	4070		258		258	0.00	4070			4070	0.063	0.063		28	28	0.228	15	22
RT	B	4.50	3	2	13		y	4270			34	34	1.00	3828			3828	0.009			4	28	0.032	0	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.247
Loss time		L =	48 sec
Total Flow		=	1398 pcu
Co	= (1.5*L+5)/(1-Y)	=	102.3 sec
Cm	= L/(1-Y)	=	63.8 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	118.6 %
Cp	= 0.9*L/(0.9-Y)	=	66.2 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	89.4 %

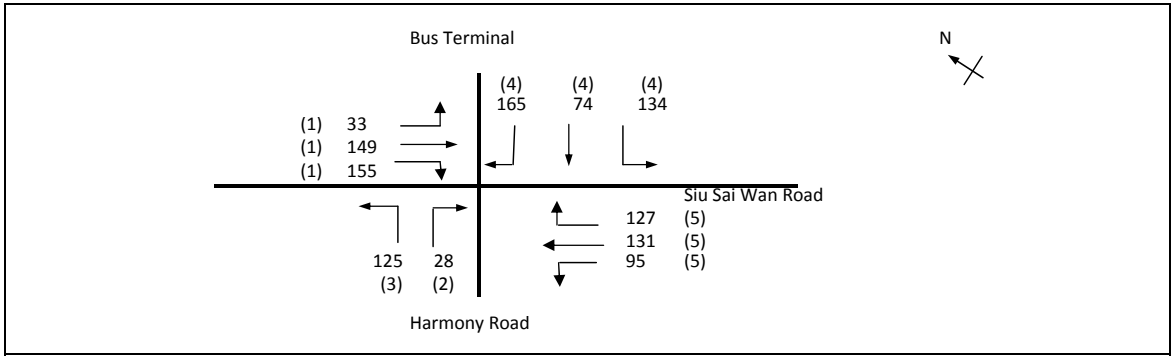


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

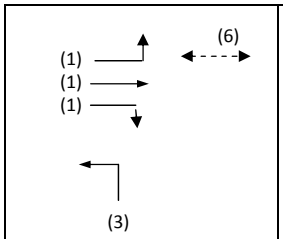
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	100	148		248	0.40	1844			1844	0.134			28	34	0.392	24	18
ST	A	3.20	1	1				2075		264		264	0.00	2075			2075	0.127			27	34	0.371	24	18
ST	A	3.00	1	2			y	3970		647		647	0.00	3970			3970	0.163	0.163		34	34	0.475	33	17
LT	C	3.75	2	1	12		y	1990	80			80	1.00	1769			1769	0.045			10	18	0.257	6	31
RT	C	3.75	2	1	12			2130			159	159	1.00	1893			1893	0.084	0.084		18	18	0.475	18	32
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

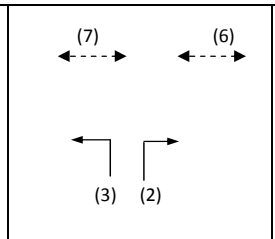
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



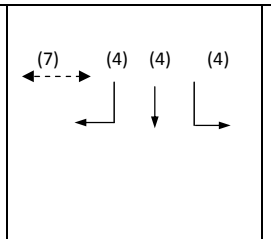
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.369
Loss time		L =	18 sec
Total Flow		=	1217 pcu
Co	= (1.5*L+5)/(1-Y)	=	50.7 sec
Cm	= L/(1-Y)	=	28.5 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	107.5 %
Cp	= 0.9*L/(0.9-Y)	=	30.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	102.3 %



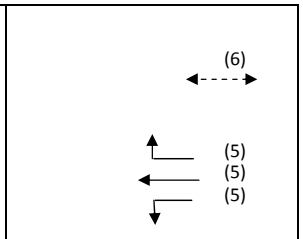
Stage A I = 5



Stage B I = 5



Stage C I = 6

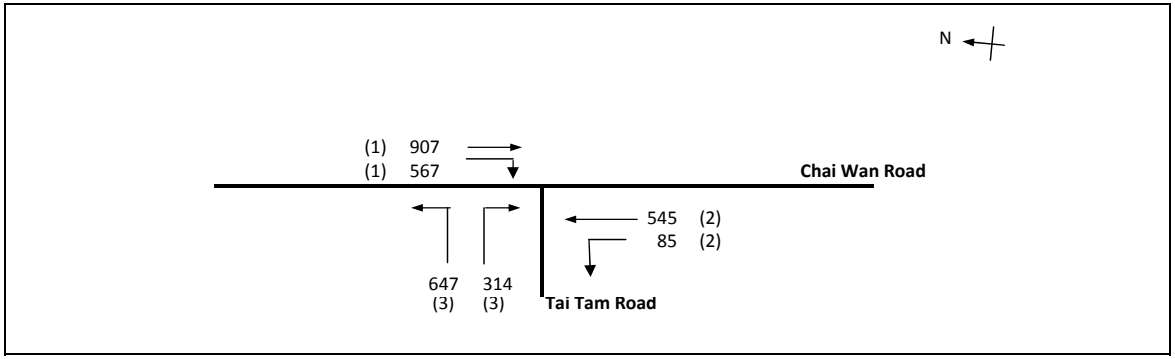


Stage C I = 6

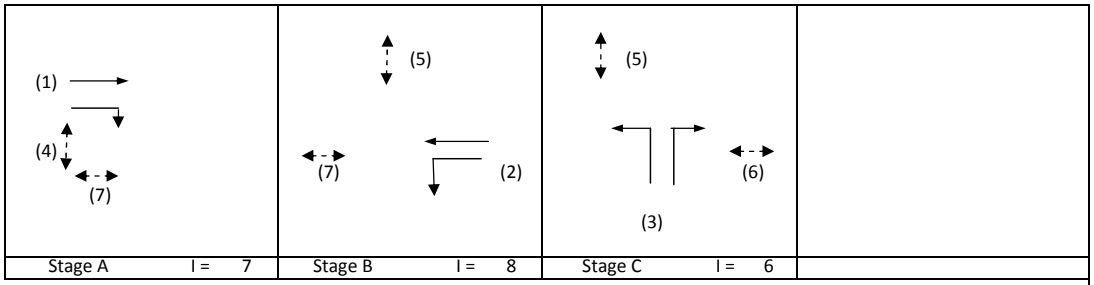
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	33	79		112	0.30	1870			1870	0.060			14	28	0.228	12	25
ST/RT	A	3.30	1	1	12			2085		70	155	225	0.69	1920			1920	0.117	0.117		28	28	0.445	24	25
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015	0.015		4	4	0.445	0	64
LT	A,B	3.75	3	1	13		y	1990	125			125	1.00	1784			1784	0.070			16	36	0.202	12	20
RT	C	3.50	4	1	12			2105			165	165	1.00	1871			1871	0.088			21	27	0.343	18	26
LT/ST	C	3.50	4	1	12		y	1965	134	74		208	0.64	1818			1818	0.115	0.115		27	27	0.445	24	26
ST/RT	D	3.50	5	1	12			2105		0	127	127	1.00	1871			1871	0.068			16	16	0.445	18	36
LT/ST	D	3.50	5	1	11		y	1965	95	131		226	0.42	1859			1859	0.122	0.122		29	29	0.445	24	24
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.698
Loss time		L =	18 sec
Total Flow		=	3065 pcu
Co	= (1.5*L+5)/(1-Y)	=	106.1 sec
Cm	= L/(1-Y)	=	59.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	9.5 %
Cp	= 0.9*L/(0.9-Y)	=	80.4 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	6.8 %

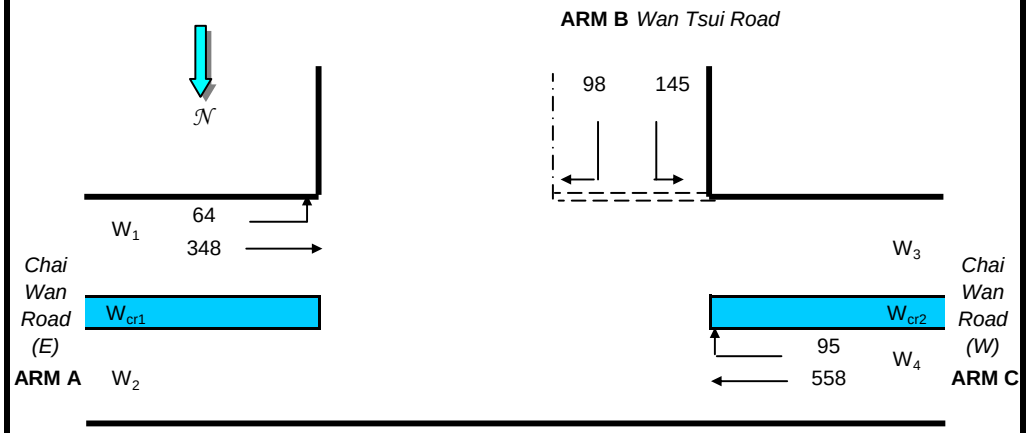


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		907		907	0.00	4070			4070	0.223			28	28	0.843	57	28
RT	A	3.50	1	1	13			2105			567	567	1.00	1887			1887	0.300	0.300		37	28	1.137	72	34
ST	B	3.50	2	2				4210		545		545	0.00	4210			4210	0.129	0.129		16	16	0.843	39	43
LT	B	3.10	2	1	12		y	1925	85			85	1.00	1711			1711	0.050			6	16	0.325	12	35
LT	C	4.00	3	1	15		y	2015	492			492	1.00	1832			1832	0.269	0.269		33	33	0.843	54	31
LT/RT	C	4.00	3	1	15			2155	155		314	469	1.00	1959			1959	0.239			30	33	0.751	54	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	63.783	(pcu/hr)
q_{a-c}	=	347.93	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	557.89	(pcu/hr)
q_{c-b}	=	94.646	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	97.733	(pcu/hr)
q_{b-c}	=	145.28	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

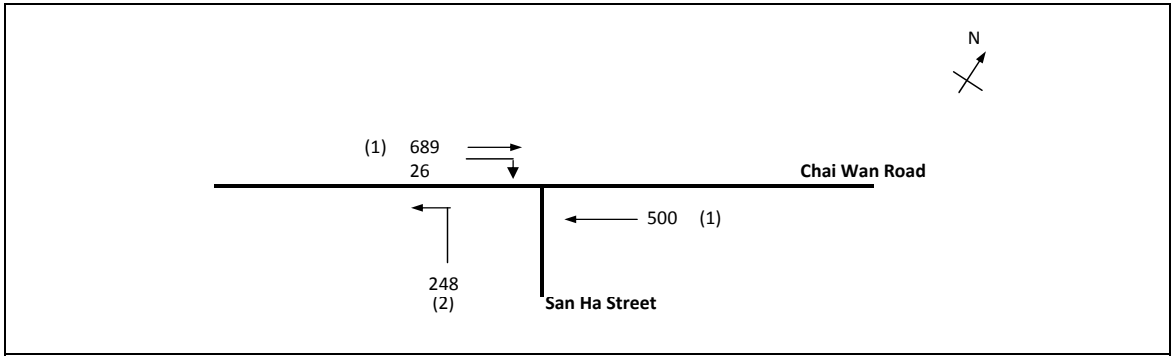
Q_{b-c}	=	778
Q_{c-b}	=	692
Q_{b-a}	=	383

COMPARISION OF DESIGN FLOW TO CAPACITY

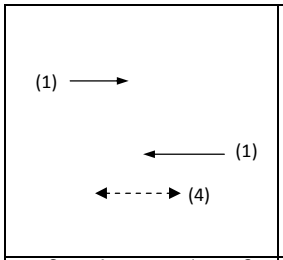
DFC_{b-a}	=	0.255
DFC_{b-c}	=	0.187
DFC_{c-b}	=	0.137

Critical DFC = 0.255

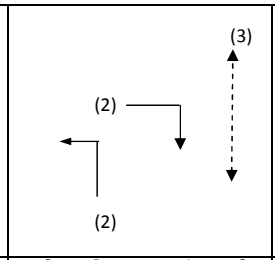
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.318	
Loss time		L =	10	sec
Total Flow		=	1462	pcu
Co	= (1.5*L+5)/(1-Y)	=	29.3	sec
Cm	= L/(1-Y)	=	14.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	159.4	%
Cp	= 0.9*L/(0.9-Y)	=	15.5	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	154.6	%



Stage A I = 6



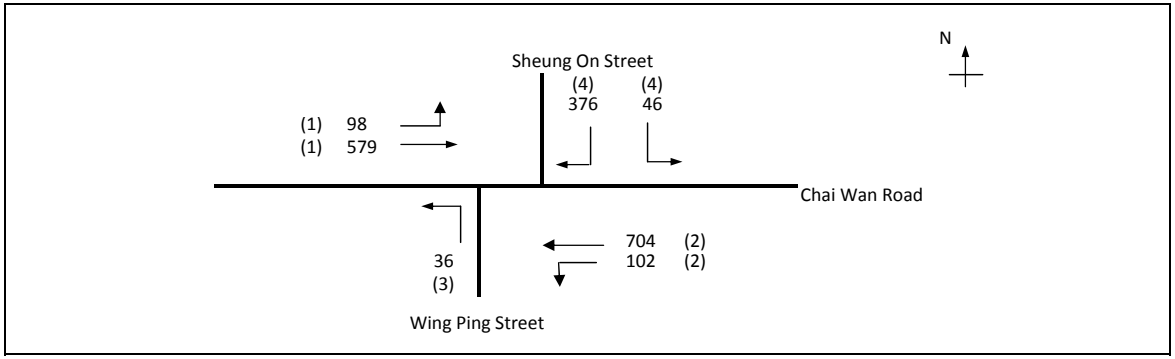
Stage B I = 6

Stage C I =

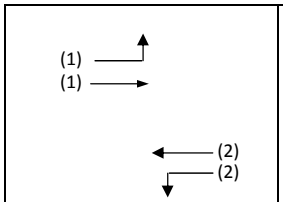
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		689		689	0.00	4070			4070	0.169	0.169		48	47	0.360	30	11
ST	A	3.50	1	2	10		N	4070		500		500	0.00	4070			4070	0.123			35	47	0.261	21	11
LT	B	3.00	2	1	10		N	1915	248			248	1.00	1665			1665	0.149	0.149		42	53	0.281	18	9
RT	B	3.50	2	1	12			2105			26	26	1.00	1871			1871	0.014			4	53	0.026	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

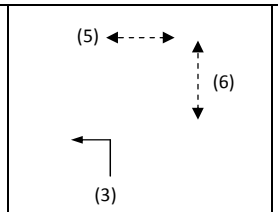
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



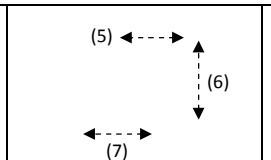
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.273
Loss time		L =	37 sec
Total Flow		=	1941 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.2 sec
Cm	= L/(1-Y)	=	50.9 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	127.9 %
Cp	= 0.9*L/(0.9-Y)	=	53.1 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	127.9 %



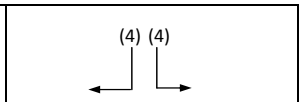
Stage A I = 8



Stage B I = 5



Stage C I = 7



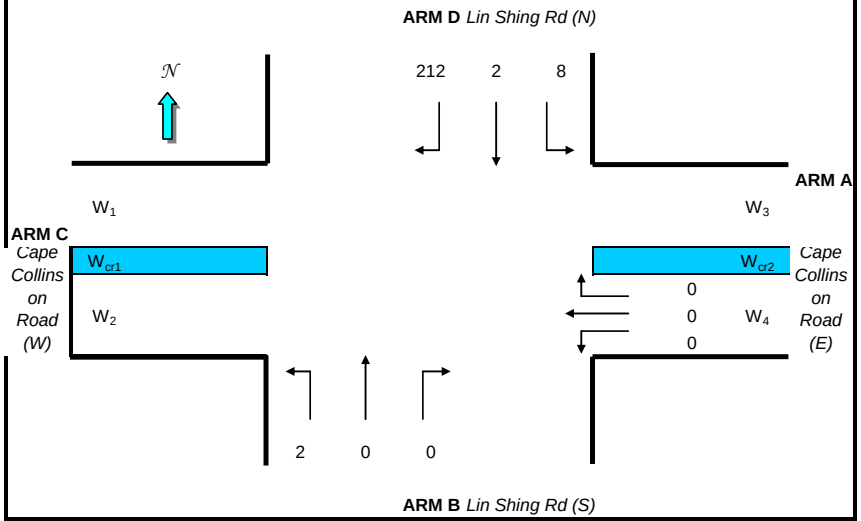
Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	98	579		677	0.14	6066			6066	0.112			34		0.000	44	54
LT/ST	A	3.30	2	3	12		Y	6115	102	704		806	0.13	6020			6020	0.134	0.134		41		0.000	52	54
LT	B	3.50	3	1	9		Y	1965	36			36	1.00	1684			1684	0.021	0.021		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	46		376	422	1.00	3583			3583	0.118	0.118		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at	Prepared By:	KC
	Junction Capacity Analysis	Checked By:	OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.0575	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.2301	(pcu/hr)
q_{d-b}	=	2.0575	(pcu/hr)
q_{d-c}	=	212.02	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

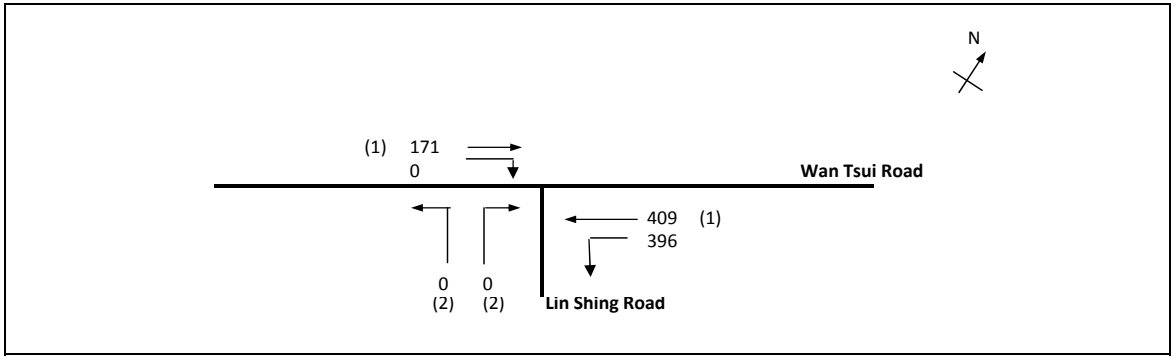
Q_{b-a}	=	617
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

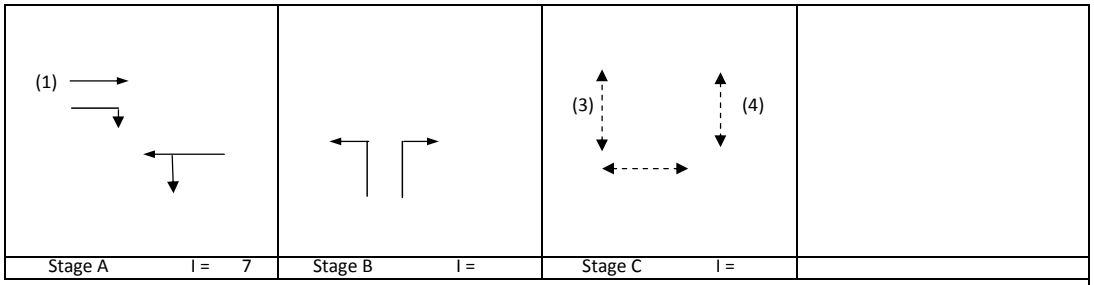
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.409
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.409

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.429	
Loss time		L =	55	sec
Total Flow		=	976	pcu
Co	= (1.5*L+5)/(1-Y)	=	153.3	sec
Cm	= L/(1-Y)	=	96.4	sec
Yult		=	0.488	
R.C.ult	= (Yult-Y)/Y*100%	=	13.6	%
Cp	= 0.9*L/(0.9-Y)	=	105.1	sec
Ymax	= 1-L/C	=	0.542	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	13.6	%

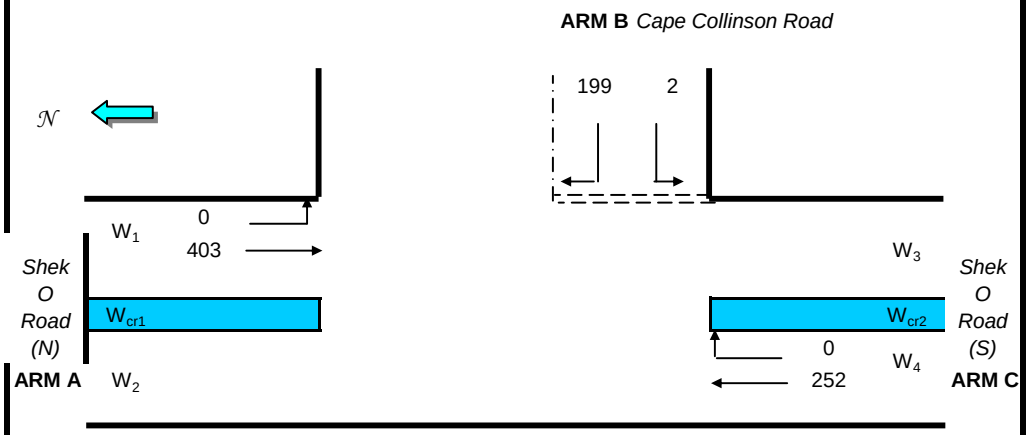


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		171		171	0.00	1915			1915	0.089			14	65	0.165	12	11
ST/LT	A	4.00	1	1	10		N	2015	396	409		805	0.49	1877			1877	0.429	0.429		65	65	0.792	72	13
Ped	B	6.0	3									0		6000						50					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	403	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	252	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	199	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

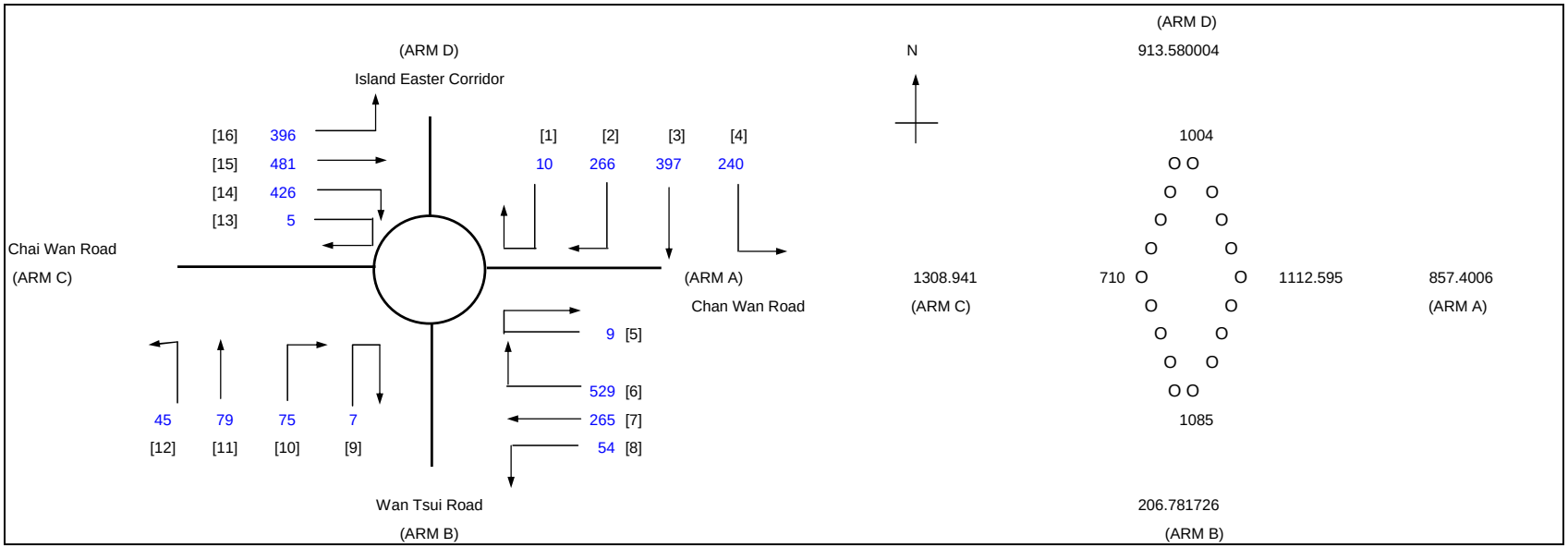
Q_{b-c}	=	639
Q_{c-b}	=	711
Q_{b-a}	=	302

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.657
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.657

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME 2016_LV3_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

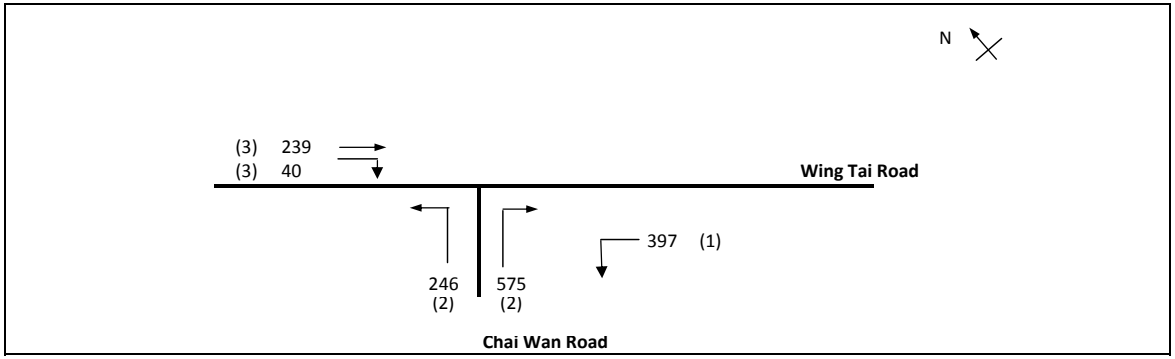


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	857	207	1309	914
Qc	=	Circulating flow across entry (pcu/h)	1113	1085	710	1004
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1626	869	1942	1444
DFC	=	Design flow/Capacity = Q/Qe	0.53	0.24	0.67	0.63

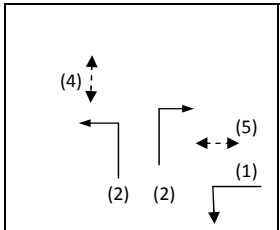
Total In Sum = 2551.645 PCU

DFC of Critical Approach = 0.67

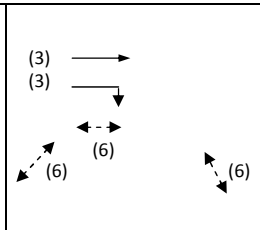
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2
Cycle time	C =	100 sec
Sum(y)	Y =	0.219
Loss time	L =	10 sec
Total Flow	=	1497 pcu
Co = (1.5*L+5)/(1-Y)	=	25.6 sec
Cm = L/(1-Y)	=	12.8 sec
Yult	=	0.825
R.C.ult = (Yult-Y)/Y*100%	=	276.2 %
Cp = 0.9*L/(0.9-Y)	=	13.2 sec
Ymax = 1-L/C	=	0.900
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	269.3 %



Stage A I = 7

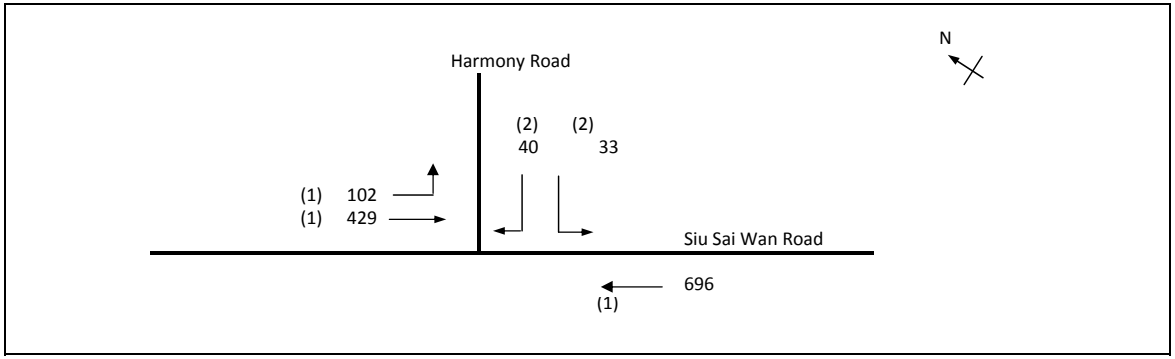


Stage B I = 5

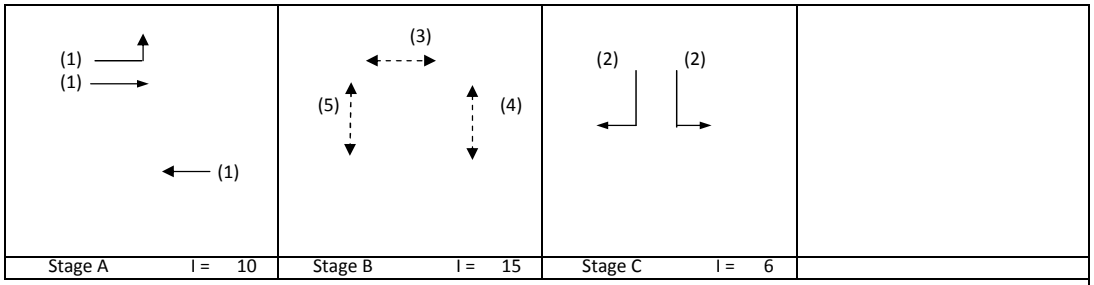
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	397			397	1.00	3857			3857	0.103			42	66	0.156	9	5
LT	A	4.00	2	2	24			4310	246			246	1.00	4056			4056	0.061			25	66	0.092	6	5
RT	A	3.50	2	2	11		y	4070			575	575	1.00	3582			3582	0.161	0.161		66	66	0.244	15	5
ST	B	3.50	3	2			y	4070		239		239	0.00	4070			4070	0.059	0.059		24	24	0.244	15	25
RT	B	4.50	3	2	13		y	4270			40	40	1.00	3828			3828	0.010			4	24	0.043	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.197	
Loss time	L =	48	sec
Total Flow	=	1300	pcu
Co = (1.5*L+5)/(1-Y)	=	95.8	sec
Cm = L/(1-Y)	=	59.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	174.6	%
Cp = 0.9*L/(0.9-Y)	=	61.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	138.0	%

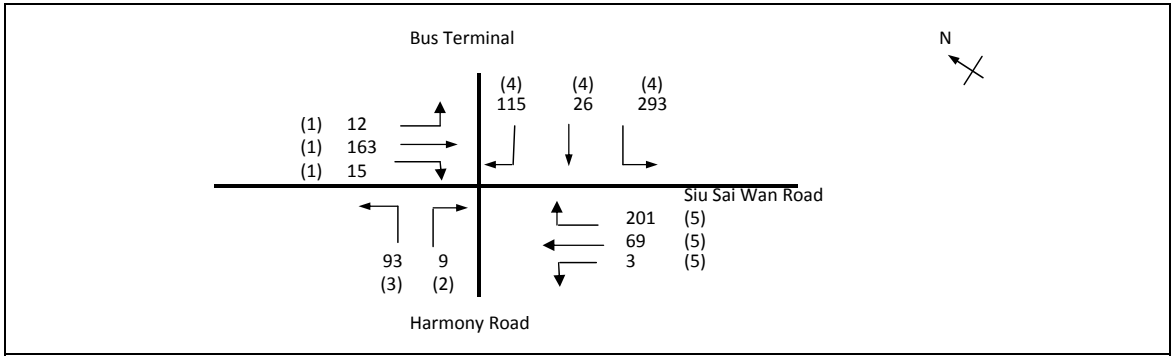


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

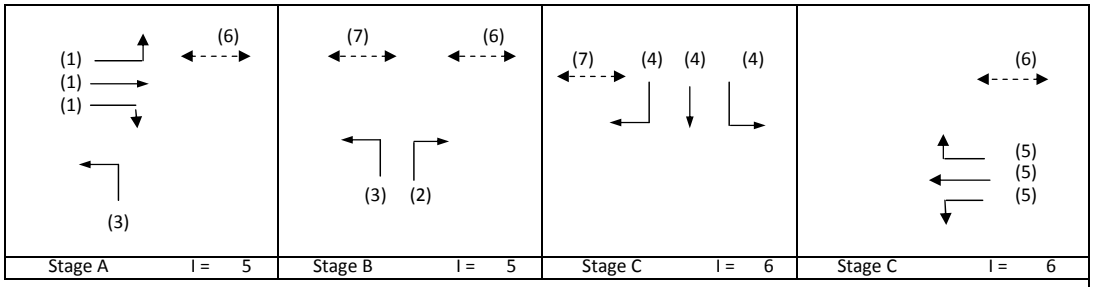
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	148		250	0.41	1843			1843	0.136			36	46	0.292	18	12
ST	A	3.20	1	1				2075		281		281	0.00	2075			2075	0.135			36	46	0.292	24	12
ST	A	3.00	1	2			y	3970		696		696	0.00	3970			3970	0.175	0.175		46	46	0.378	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.332	0	47
RT	C	3.75	2	1	12			2130			40	40	1.00	1893			1893	0.021	0.021		6	6	0.378	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.342	
Loss time	L =	18	sec
Total Flow	=	999	pcu
Co = (1.5*L+5)/(1-Y)	=	48.6	sec
Cm = L/(1-Y)	=	27.3	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	124.0	%
Cp = 0.9*L/(0.9-Y)	=	29.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	118.4	%

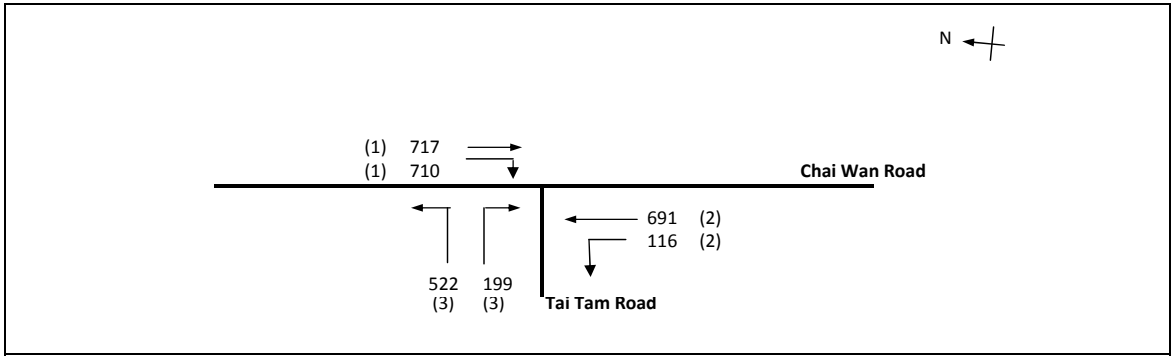


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

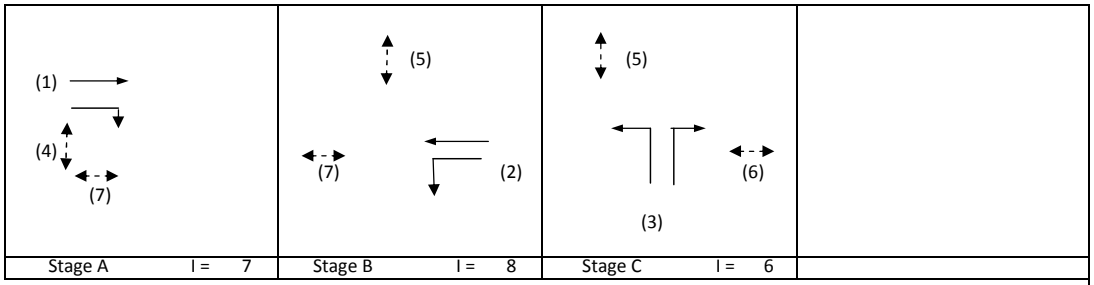
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.14	1910			1910	0.048			12	12	0.407	12	40
ST/RT	A	3.30	1	1	12			2085		84	15	99	0.16	2045			2045	0.048	0.048		12	12	0.412	12	40
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
LT	A,B	3.75	3	1	13		y	1990	93			93	1.00	1784			1784	0.052			13	19	0.293	12	32
RT	C	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.062			16	46	0.140	6	14
LT/ST	C	3.50	4	1	12		y	1965	293	26		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
ST/RT	D	3.50	5	1	12			2105		0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	69		72	0.04	1954			1954	0.037			9	9	0.412	6	44
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.723	
Loss time	L =	18	sec
Total Flow	=	2955	pcu
Co = (1.5*L+5)/(1-Y)	=	115.6	sec
Cm = L/(1-Y)	=	65.0	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	5.8	%
Cp = 0.9*L/(0.9-Y)	=	91.6	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	3.1	%

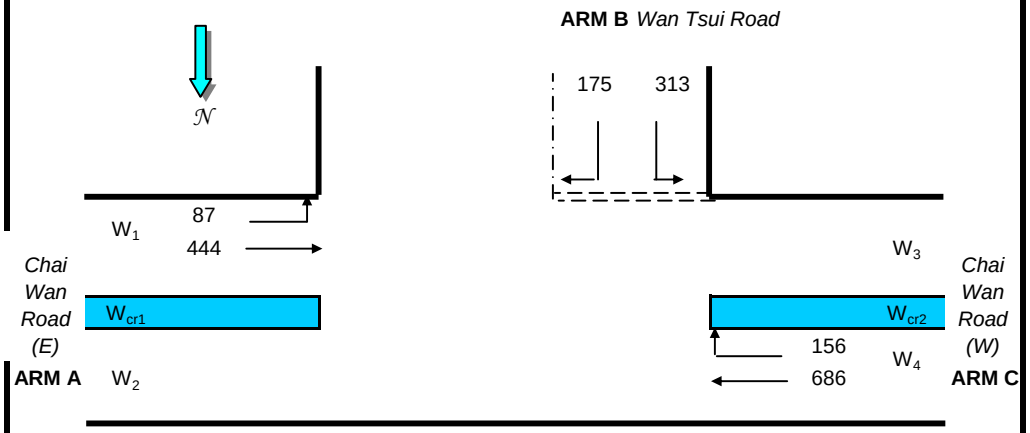


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		717		717	0.00	4070			4070	0.176			21	21	0.873	48	42
RT	A	3.50	1	1	13			2105			710	710	1.00	1887			1887	0.376	0.376		45	21	1.865	96	42
ST	B	3.50	2	2				4210		691		691	0.00	4210			4210	0.164	0.164		20	20	0.873	48	43
LT	B	3.10	2	1	12		y	1925	116			116	1.00	1711			1711	0.068			8	20	0.361	12	32
LT	C	4.00	3	1	15		y	2015	363			363	1.00	1832			1832	0.198			24	24	0.873	54	35
LT/RT	C	4.00	3	1	15			2155	159		199	358	1.00	1959			1959	0.183	0.183		22	24	0.807	48	38
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	87	(pcu/hr)
q_{a-c}	=	444	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	686	(pcu/hr)
q_{c-b}	=	156	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	175	(pcu/hr)
q_{b-c}	=	313	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

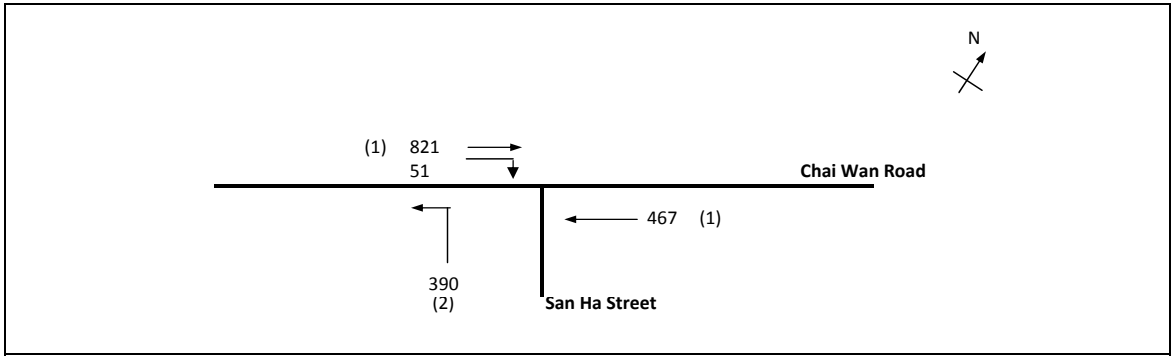
Q_{b-c}	=	764
Q_{c-b}	=	678
Q_{b-a}	=	361

COMPARISION OF DESIGN FLOW TO CAPACITY

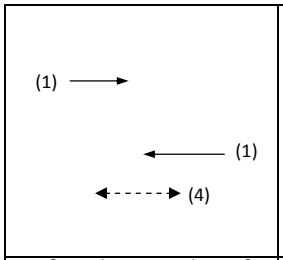
DFC_{b-a}	=	0.484
DFC_{b-c}	=	0.410
DFC_{c-b}	=	0.231

Critical DFC = 0.484

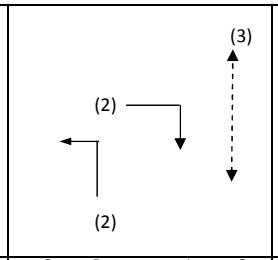
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.436	
Loss time		L =	10	sec
Total Flow		=	1730	pcu
Co	= (1.5*L+5)/(1-Y)	=	35.5	sec
Cm	= L/(1-Y)	=	17.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	89.3	%
Cp	= 0.9*L/(0.9-Y)	=	19.4	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	85.8	%



Stage A I = 6



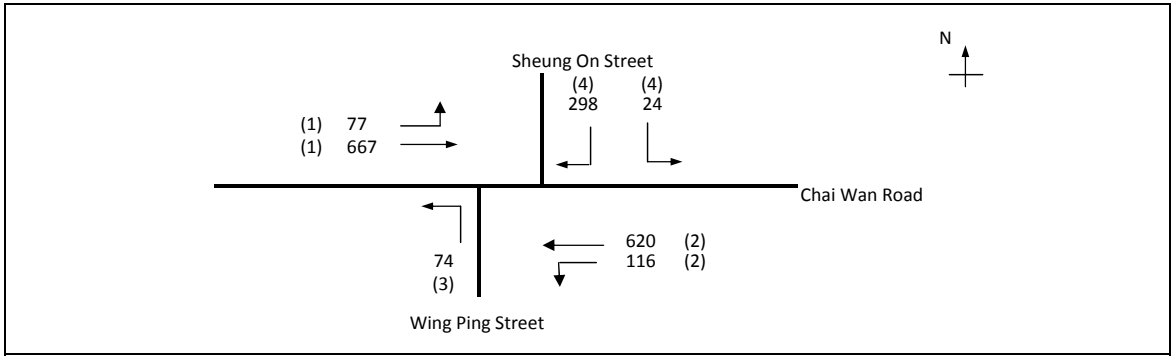
Stage B I = 6

Stage C I =

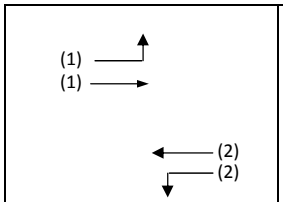
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		821		821	0.00	4070			4070	0.202	0.202		42	47	0.429	36	11
ST	A	3.50	1	2	10		N	4070		467		467	0.00	4070			4070	0.115			24	47	0.244	18	11
LT	B	3.00	2	1	10		N	1915	390			390	1.00	1665			1665	0.234	0.234		48	53	0.442	30	9
RT	B	3.50	2	1	12			2105			51	51	1.00	1871			1871	0.027			6	53	0.052	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

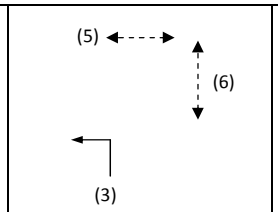
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



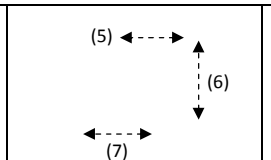
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.257
Loss time		L =	37 sec
Total Flow		=	1876 pcu
Co	= (1.5*L+5)/(1-Y)	=	81.4 sec
Cm	= L/(1-Y)	=	49.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	142.5 %
Cp	= 0.9*L/(0.9-Y)	=	51.8 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	142.5 %



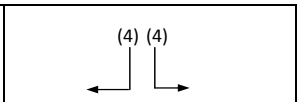
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	77	667		744	0.10	6096			6096	0.122			39		0.000	48	54
LT/ST	A	3.30	2	3	12		Y	6115	116	620		737	0.16	5997			5997	0.123	0.123		40		0.000	48	54
LT	B	3.50	3	1	9		Y	1965	74			74	1.00	1684			1684	0.044	0.044		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	24		298	322	1.00	3583			3583	0.090	0.090		29		0.000	30	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

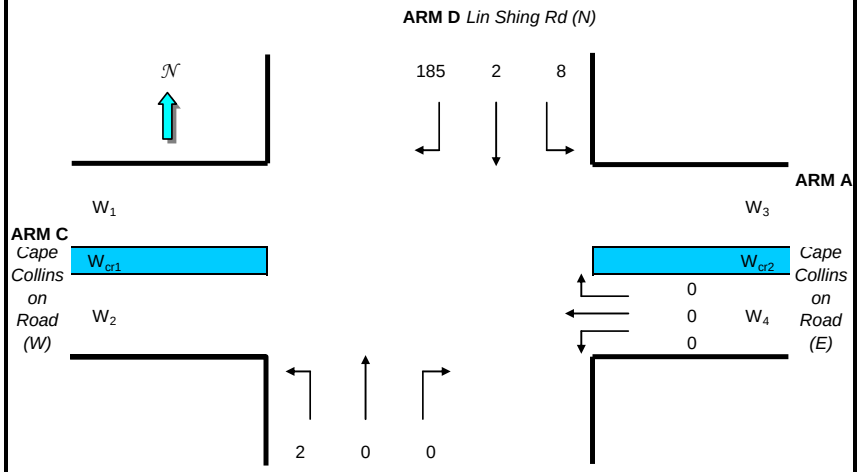
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2016 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.0575	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.2301	(pcu/hr)
q_{d-b}	=	2.0575	(pcu/hr)
q_{d-c}	=	184.56	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

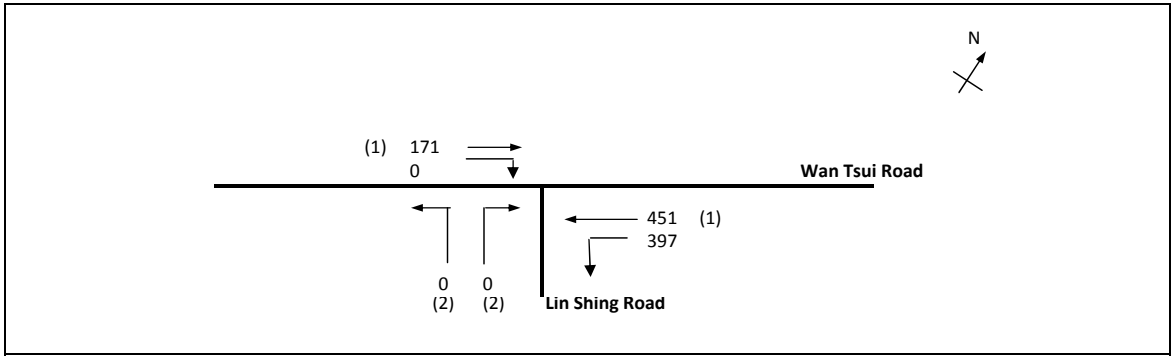
Q_{b-a}	=	621
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

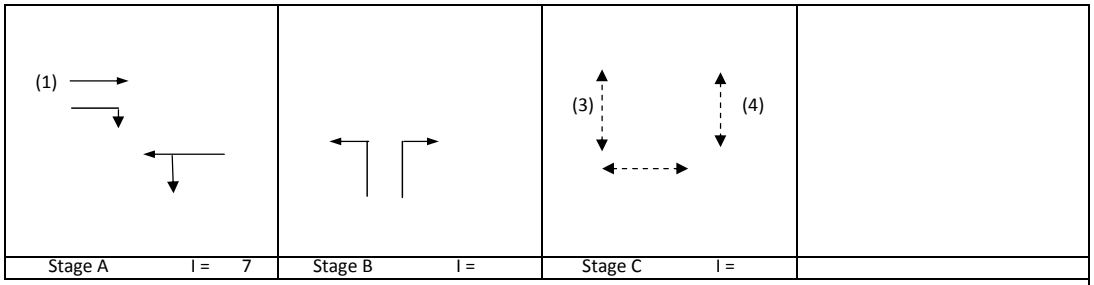
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.012
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.356
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.356

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.451	
Loss time		L =	25	sec
Total Flow		=	1019	pcu
Co	= (1.5*L+5)/(1-Y)	=	77.4	sec
Cm	= L/(1-Y)	=	45.5	sec
Yult		=	0.713	
R.C.ult	= (Yult-Y)/Y*100%	=	58.1	%
Cp	= 0.9*L/(0.9-Y)	=	50.1	sec
Ymax	= 1-L/C	=	0.792	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	58.1	%



Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		171		171	0.00	1915			1915	0.089			19	95	0.113	6	2
ST/LT	A	4.00	1	1	10		N	2015	397	451		849	0.47	1883			1883	0.451	0.451		95	95	0.569	30	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

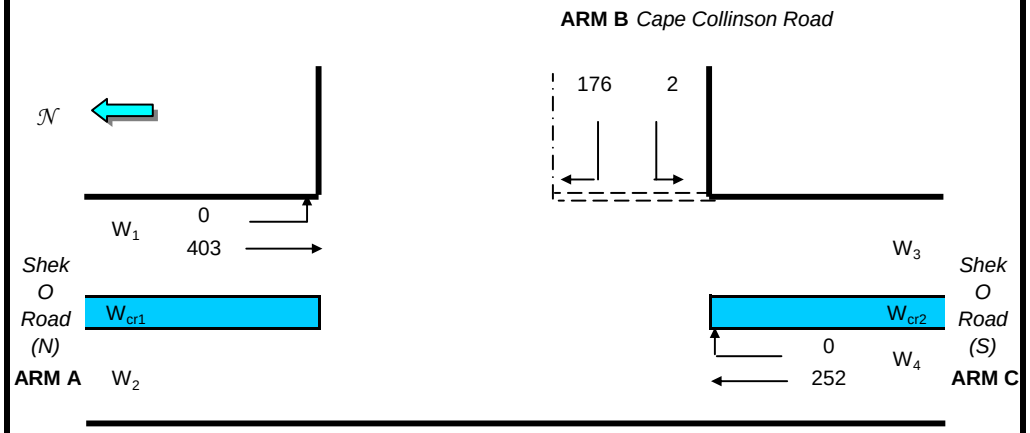
Prepared By: KC

Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2016 Level 3 - Site 1

Time - Level 3 Peak Hour



GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	403	(pcu/hr)

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	639
Q_{c-b}	=	711
Q_{b-a}	=	302

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	252	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.583
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

MINOR ROAD (ARM B)

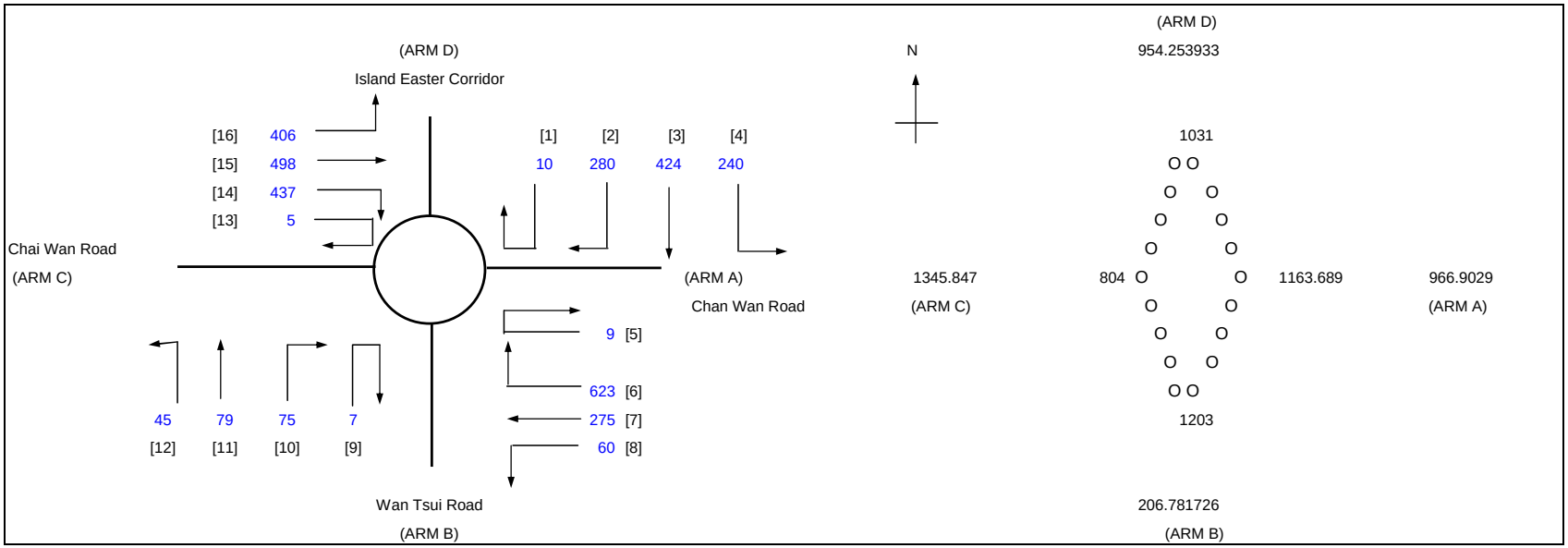
W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	176	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

Critical DFC = 0.583

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2016_LV3_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

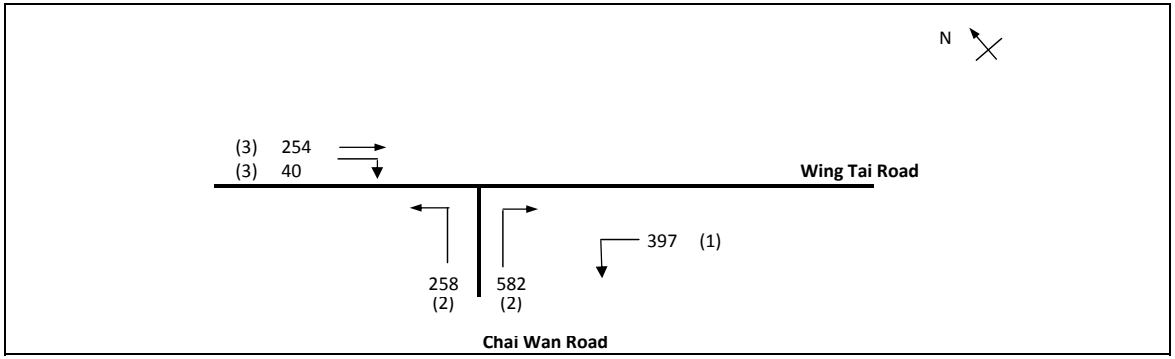


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	967	207	1346	954
Qc	=	Circulating flow across entry (pcu/h)	1164	1203	804	1031
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1587	804	1871	1425
DFC	=	Design flow/Capacity = Q/Qe	0.61	0.26	0.72	0.67

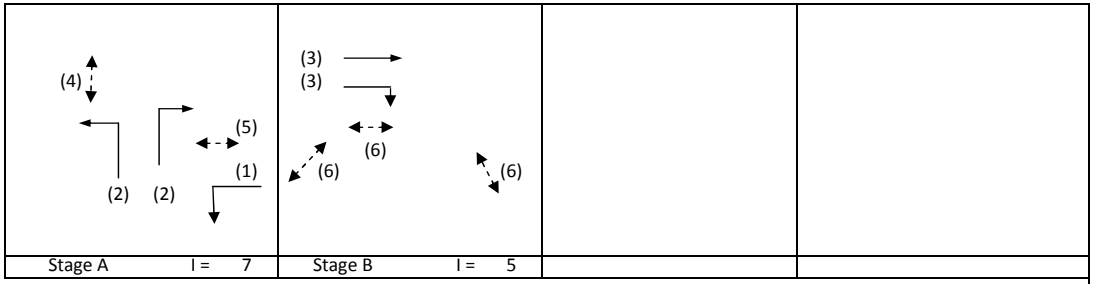
Total In Sum = 2722.742 PCU

DFC of Critical Approach = 0.72

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME :/3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.225	
Loss time		L =	10	sec
Total Flow		=	1531	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.8	sec
Cm	= L/(1-Y)	=	12.9	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	266.8	%
Cp	= 0.9*L/(0.9-Y)	=	13.3	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	260.1	%

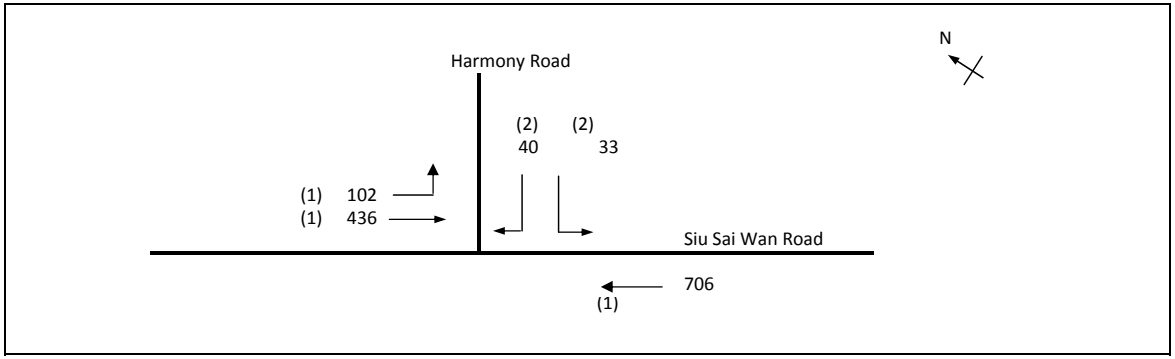


Stage A I = 7 Stage B I = 5

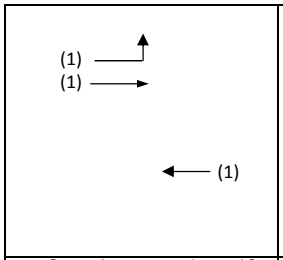
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	397			397	1.00	3857			3857	0.103			41	65	0.158	9	5
LT	A	4.00	2	2	24			4310	258			258	1.00	4056			4056	0.064			25	65	0.098	6	5
RT	A	3.50	2	2	11		y	4070			582	582	1.00	3582			3582	0.162	0.162		65	65	0.250	15	5
ST	B	3.50	3	2			y	4070		254		254	0.00	4070			4070	0.062	0.062		25	25	0.250	15	24
RT	B	4.50	3	2	13		y	4270			40	40	1.00	3828			3828	0.010			4	25	0.042	0	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

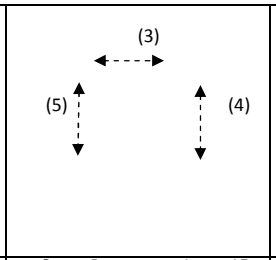
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



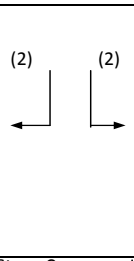
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.199	
Loss time	L =	48	sec
Total Flow	=	1316	pcu
Co = (1.5*L+5)/(1-Y)	=	96.1	sec
Cm = L/(1-Y)	=	59.9	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	171.4	%
Cp = 0.9*L/(0.9-Y)	=	61.6	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	135.2	%



Stage A I = 10



Stage B I = 15

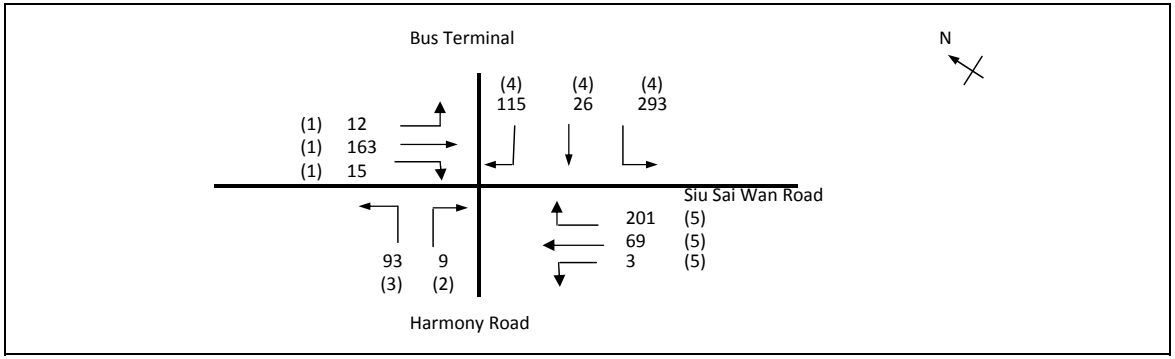


Stage C I = 6

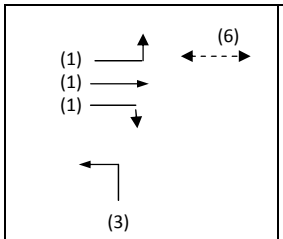
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	148		250	0.41	1843			1843	0.136			35	46	0.292	18	12
ST	A	3.20	1	1				2075		288		288	0.00	2075			2075	0.139			36	46	0.299	24	12
ST	A	3.00	1	2			y	3970		706		706	0.00	3970			3970	0.178	0.178		46	46	0.383	30	11
LT	C	3.75	2	1	12		y	1990	33			33	1.00	1769			1769	0.019			5	6	0.336	0	48
RT	C	3.75	2	1	12			2130			40	40	1.00	1893			1893	0.021	0.021		6	6	0.383	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

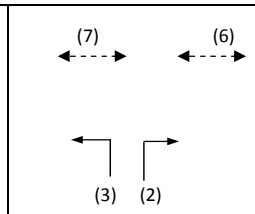
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



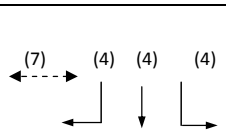
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.342
Loss time	L =	18 sec
Total Flow	=	999 pcu
Co = (1.5*L+5)/(1-Y)	=	48.6 sec
Cm = L/(1-Y)	=	27.3 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	124.0 %
Cp = 0.9*L/(0.9-Y)	=	29.0 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	118.4 %



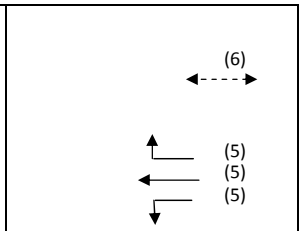
Stage A I = 5



Stage B I = 5



Stage C I = 6

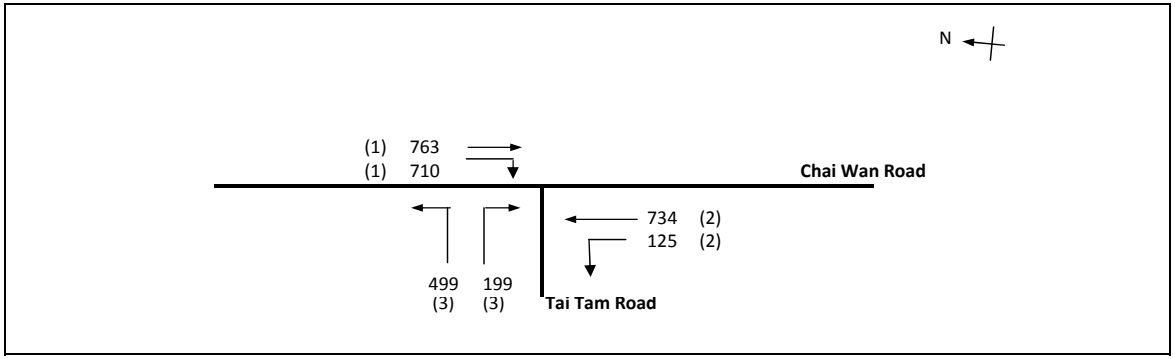


Stage C I = 6

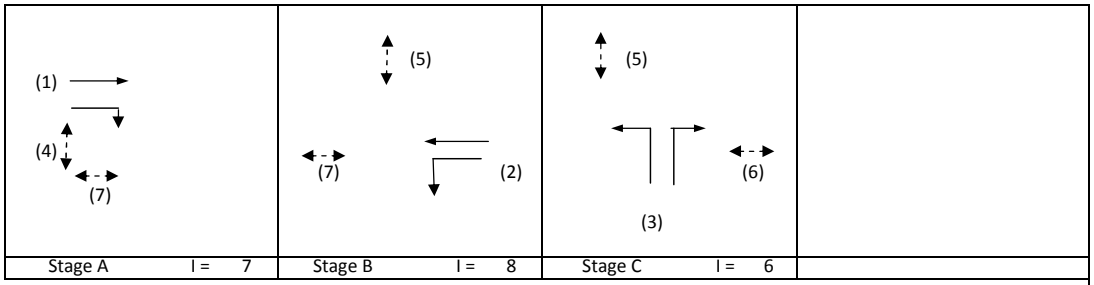
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	12	79		91	0.14	1910			1910	0.048			12	12	0.407	12	40
ST/RT	A	3.30	1	1	12			2085		84	15	99	0.16	2045			2045	0.048	0.048		12	12	0.412	12	40
RT	B	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
LT	A,B	3.75	3	1	13		y	1990	93			93	1.00	1784			1784	0.052			13	19	0.293	12	32
RT	C	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.062			16	46	0.140	6	14
LT/ST	C	3.50	4	1	12		y	1965	293	26		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
ST/RT	D	3.50	5	1	12			2105		0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	69		72	0.04	1954			1954	0.037			9	9	0.412	6	44
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.732	
Loss time	L =	18	sec
Total Flow	=	3031	pcu
Co = (1.5*L+5)/(1-Y)	=	119.2	sec
Cm = L/(1-Y)	=	67.0	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	4.6	%
Cp = 0.9*L/(0.9-Y)	=	96.1	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	1.9	%

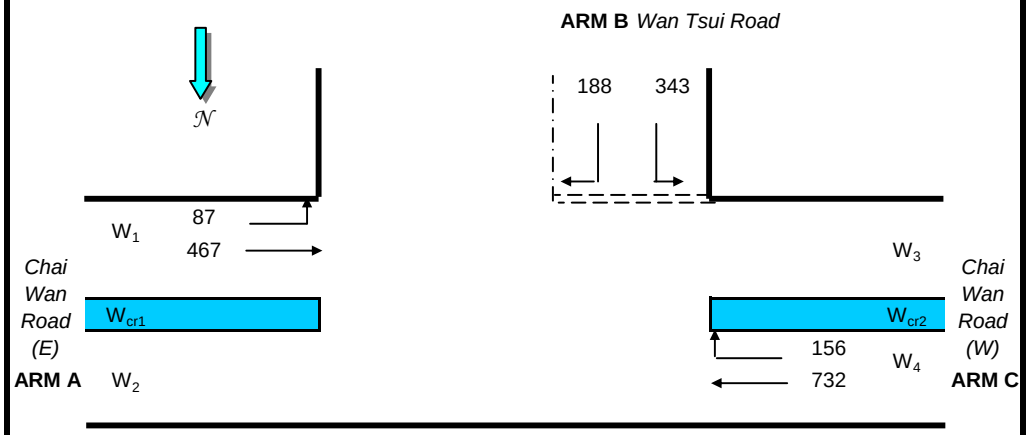


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		763		763	0.00	4070			4070	0.187			22	22	0.883	51	41
RT	A	3.50	1	1	13			2105			710	710	1.00	1887			1887	0.376	0.376		45	22	1.772	96	41
ST	B	3.50	2	2				4210		734		734	0.00	4210			4210	0.174	0.174		21	21	0.883	51	42
LT	B	3.10	2	1	12		y	1925	125			125	1.00	1711			1711	0.073			9	21	0.371	12	31
LT	C	4.00	3	1	15		y	2015	344			344	1.00	1832			1832	0.188			22	22	0.883	54	36
LT/RT	C	4.00	3	1	15			2155	155		199	354	1.00	1959			1959	0.181	0.181		22	22	0.850	48	36
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2016 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	87.445	(pcu/hr)
q_{a-c}	=	467.39	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	731.88	(pcu/hr)
q_{c-b}	=	156.37	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	187.6	(pcu/hr)
q_{b-c}	=	343.09	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

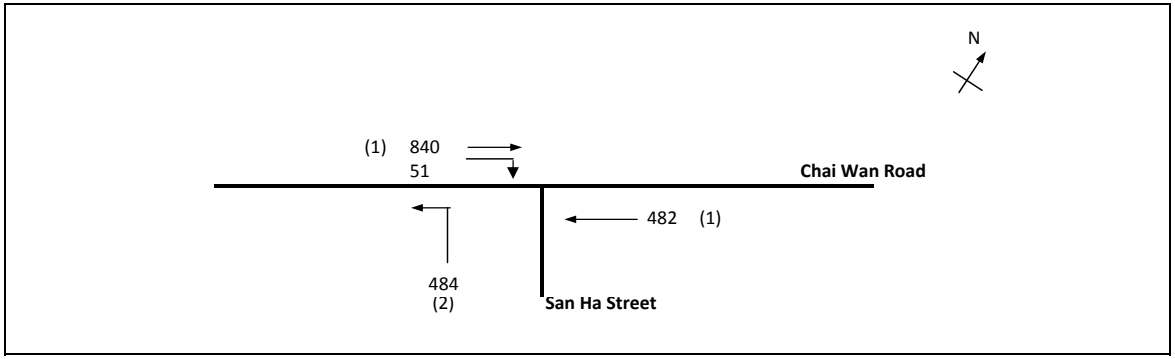
Q_{b-c}	=	761
Q_{c-b}	=	676
Q_{b-a}	=	357

COMPARISION OF DESIGN FLOW TO CAPACITY

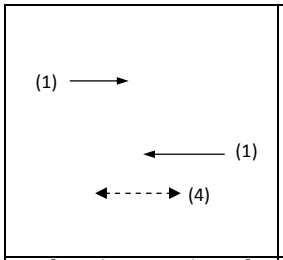
DFC_{b-a}	=	0.525
DFC_{b-c}	=	0.451
DFC_{c-b}	=	0.231

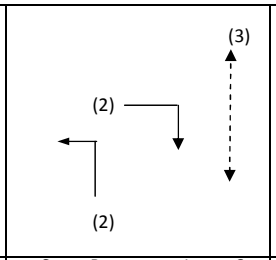
Critical DFC = 0.525

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME :/3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.497	
Loss time		L =	10	sec
Total Flow		=	1858	pcu
Co	= (1.5*L+5)/(1-Y)	=	39.8	sec
Cm	= L/(1-Y)	=	19.9	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	65.9	%
Cp	= 0.9*L/(0.9-Y)	=	22.3	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	62.9	%



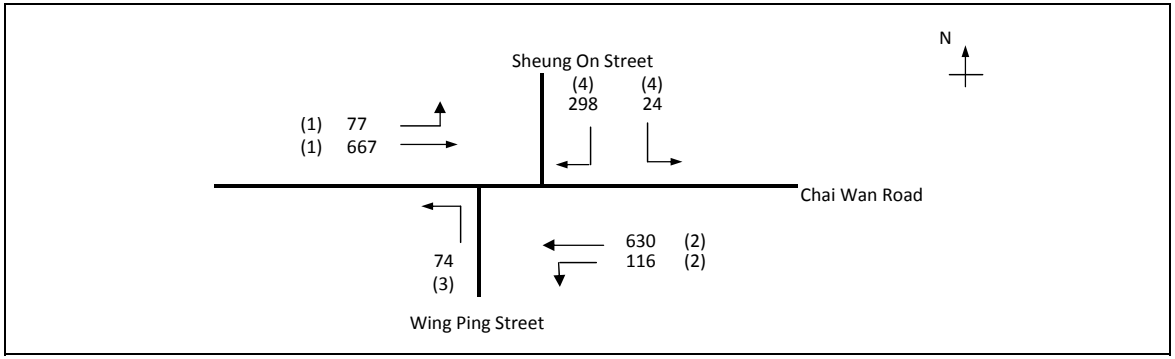


Stage A	I = 6	Stage B	I = 6	Stage C	I =

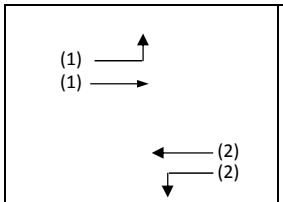
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		840		840	0.00	4070			4070	0.206	0.206		37	47	0.439	36	11
ST	A	3.50	1	2	10		N	4070		482		482	0.00	4070			4070	0.119			21	47	0.252	21	11
LT	B	3.00	2	1	10		N	1915	484			484	1.00	1665			1665	0.291	0.291		53	53	0.549	36	9
RT	B	3.50	2	1	12			2105			51	51	1.00	1871			1871	0.027			5	53	0.052	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

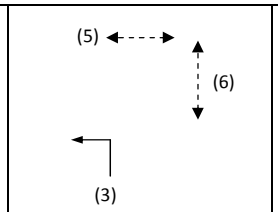
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



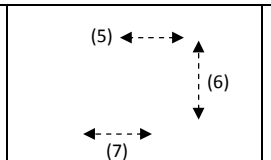
No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.258	
Loss time		L =	37	sec
Total Flow		=	1886	pcu
Co	= (1.5*L+5)/(1-Y)	=	81.6	sec
Cm	= L/(1-Y)	=	49.9	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	141.1	%
Cp	= 0.9*L/(0.9-Y)	=	51.9	sec
Ymax	= 1-L/C	=	0.692	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	141.1	%



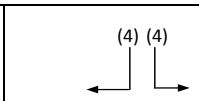
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

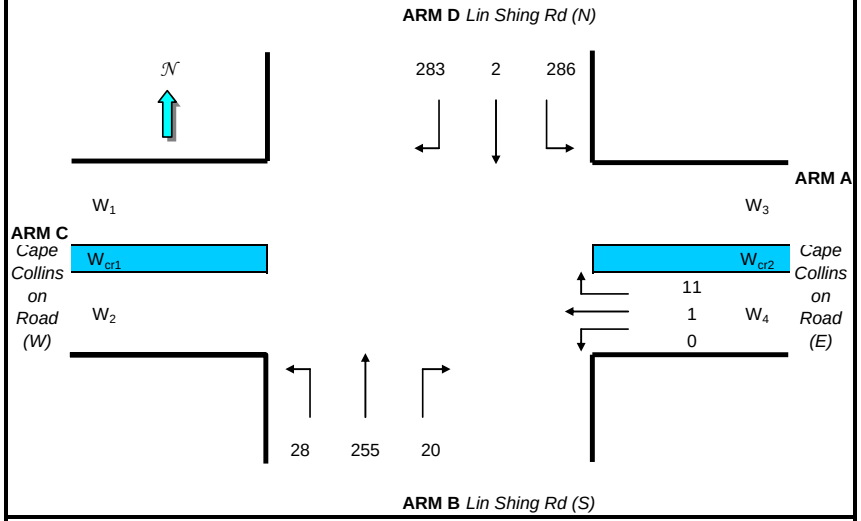
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	77	667		744	0.10	6096			6096	0.122			39		0.000	48	54
LT/ST	A	3.30	2	3	12		Y	6115	116	630		746	0.16	5998			5998	0.124	0.124		40		0.000	48	54
LT	B	3.50	3	1	9		Y	1965	74			74	1.00	1684			1684	0.044	0.044		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	24		298	322	1.00	3583			3583	0.090	0.090		29		0.000	30	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix B3

2021 Peak Hour Junction Assessment Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0575	(pcu/hr)
q_{a-d}	=	10.518	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	20.093	(pcu/hr)
q_{b-c}	=	28	(pcu/hr)
q_{b-d}	=	254.73	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	286	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	283	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

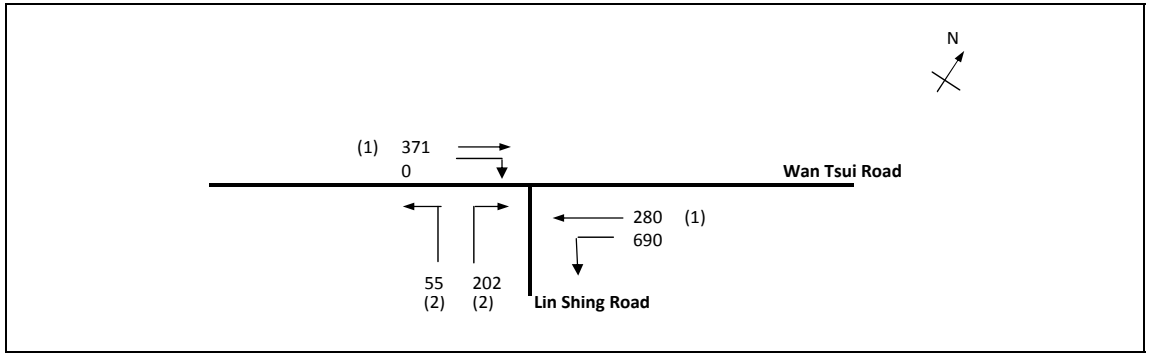
Q_{b-a}	=	519
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	528
Q_{d-c}	=	445
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

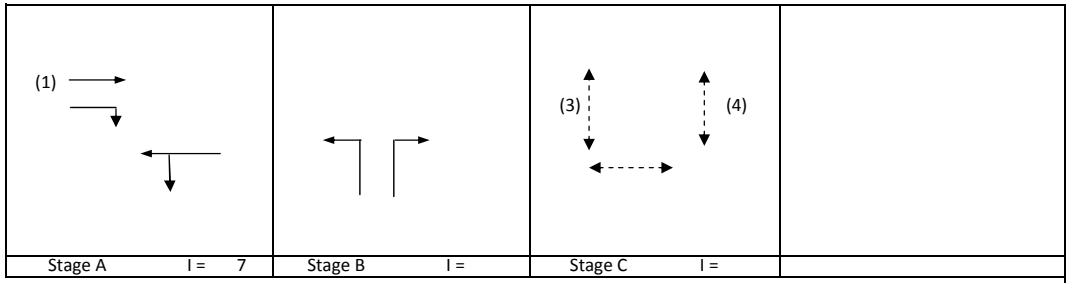
DFC_{b-a}	=	0.039
DFC_{b-c}	=	0.038
DFC_{b-d}	=	0.419
DFC_{d-a}	=	0.424
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.637
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.017

Critical DFC = 0.637

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.533
Loss time		L =	25 sec
Total Flow		=	1341 pcu
Co	= (1.5*L+5)/(1-Y)	=	91.0 sec
Cm	= L/(1-Y)	=	53.5 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	33.7 %
Cp	= 0.9*L/(0.9-Y)	=	61.3 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.7 %



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		371		371	0.00	1915			1915	0.194			35	95	0.245	12	2
ST/LT	A	4.00	1	1	10		N	2015	690	280		970	0.71	1821			1821	0.533	0.533		95	95	0.673	36	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

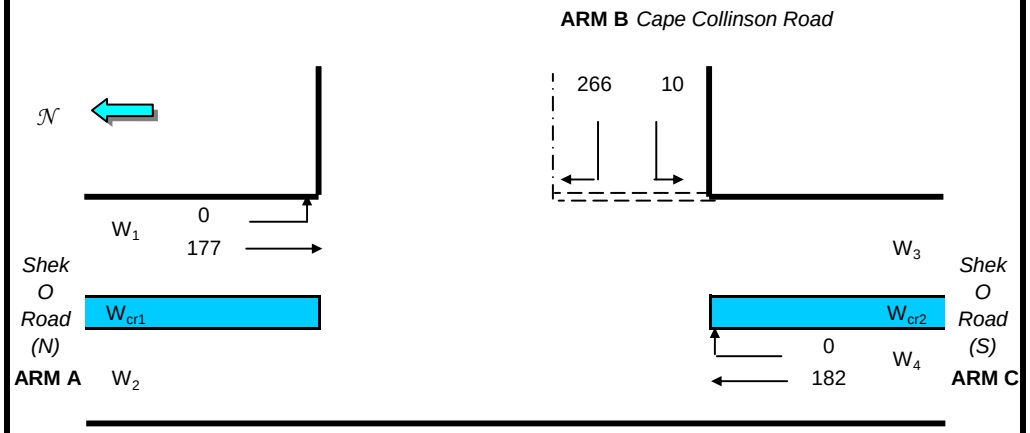
Prepared By: KC

Checked By:

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 1 - Reference Case

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	177	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	182	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	266	(pcu/hr)
q_{b-c}	=	10	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

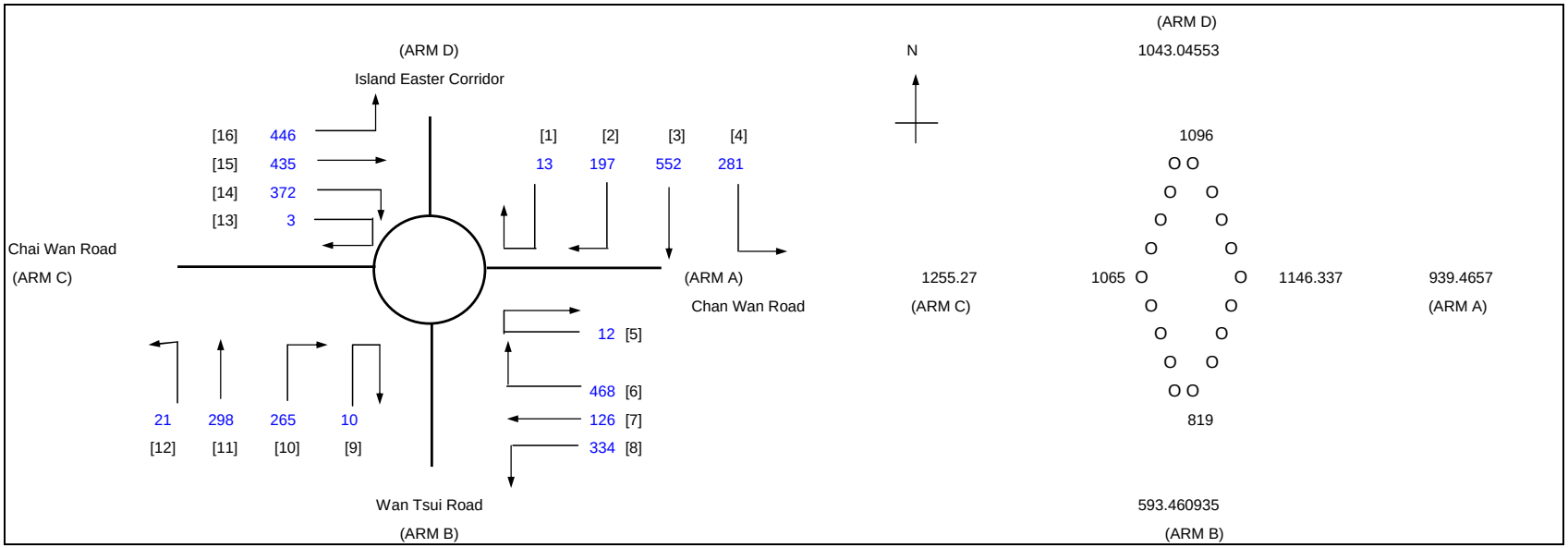
Q_{b-c}	=	697
Q_{c-b}	=	776
Q_{b-a}	=	346

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.769
DFC_{b-c}	=	0.015
DFC_{c-b}	=	0.000

Critical DFC = 0.769

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME 2021_LV1_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

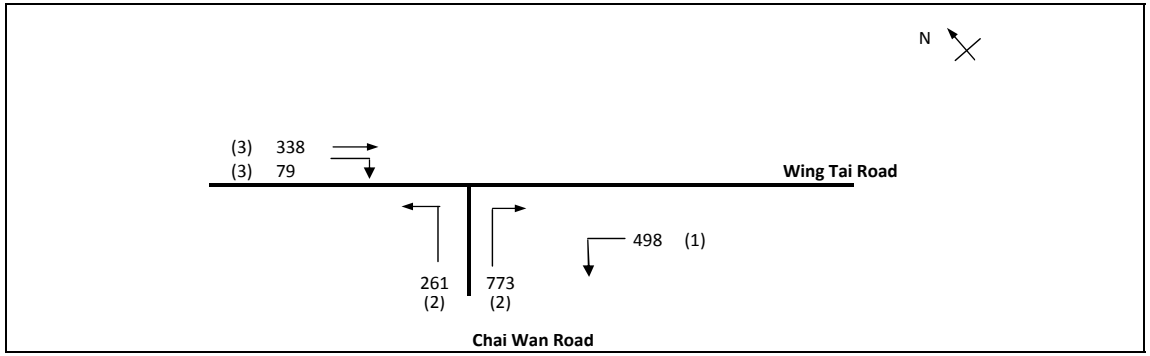


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	939	593	1255	1043
Qc	=	Circulating flow across entry (pcu/h)	1146	819	1065	1096
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1600	1017	1673	1380
DFC	=	Design flow/Capacity = Q/Qe	0.59	0.58	0.75	0.76

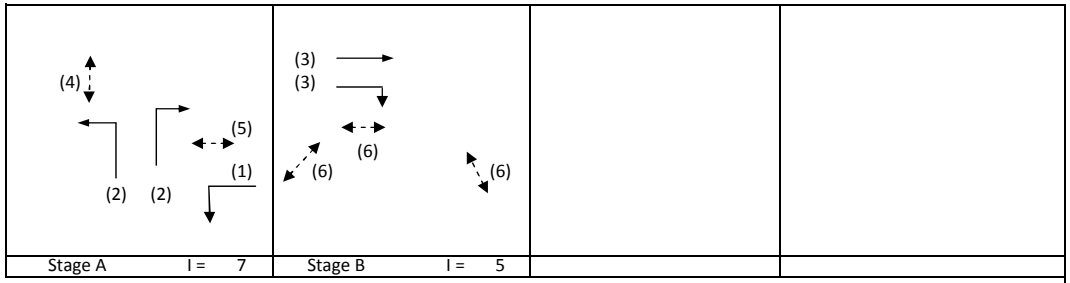
Total In Sum = 2749.739 PCU

DFC of Critical Approach = 0.76

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.299
Loss time		L =	10 sec
Total Flow		=	1949 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.5 sec
Cm	= L/(1-Y)	=	14.3 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	176.1 %
Cp	= 0.9*L/(0.9-Y)	=	15.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	171.1 %

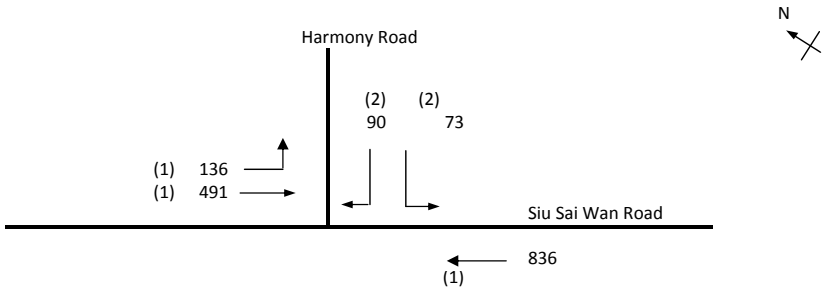


Stage A I = 7 Stage B I = 5

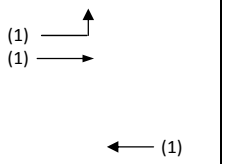
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	498			498	1.00	3857			3857	0.129			39	65	0.199	12	5
LT	A	4.00	2	2	24			4310	261			261	1.00	4056			4056	0.064			19	65	0.099	6	5
RT	A	3.50	2	2	11		y	4070			773	773	1.00	3582			3582	0.216	0.216		65	65	0.332	21	5
ST	B	3.50	3	2			y	4070		338		338	0.00	4070			4070	0.083	0.083		25	25	0.332	21	24
RT	B	4.50	3	2	13		y	4270			79	79	1.00	3828			3828	0.021			6	25	0.083	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

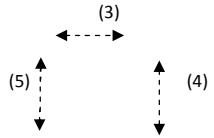
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



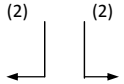
No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.258
Loss time		L =	48 sec
Total Flow		=	1627 pcu
Co	= (1.5*L+5)/(1-Y)	=	103.8 sec
Cm	= L/(1-Y)	=	64.7 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	109.0 %
Cp	= 0.9*L/(0.9-Y)	=	67.3 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	81.2 %



Stage A I = 10



Stage B I = 15

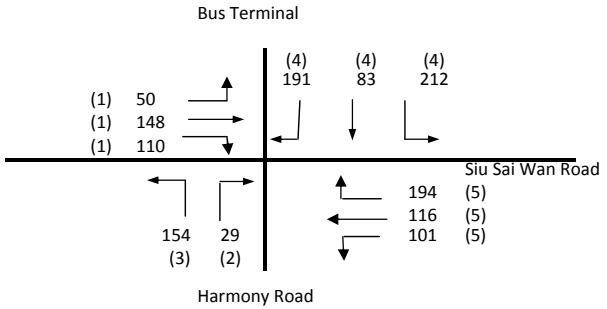


Stage C I = 6

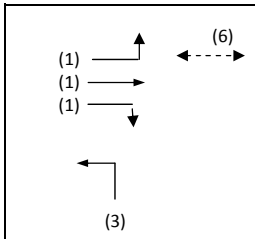
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	136	152		288	0.47	1827			1827	0.158			32	42	0.372	24	14
ST	A	3.20	1	1				2075		339		339	0.00	2075			2075	0.164			33	42	0.386	30	14
ST	A	3.00	1	2			y	3970		836		836	0.00	3970			3970	0.211	0.211		42	42	0.497	39	13
LT	C	3.75	2	1	12		y	1990	73			73	1.00	1769			1769	0.041			8	10	0.428	6	42
RT	C	3.75	2	1	12			2130			90	90	1.00	1893			1893	0.048	0.048		10	10	0.497	12	44
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

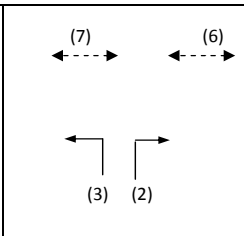
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



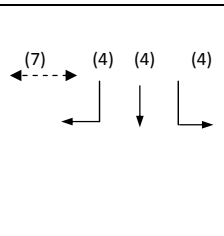
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.375
Loss time	L =	18 sec
Total Flow	=	1389 pcu
Co = (1.5*L+5)/(1-Y)	=	51.2 sec
Cm = L/(1-Y)	=	28.8 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	104.2 %
Cp = 0.9*L/(0.9-Y)	=	30.8 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	99.1 %



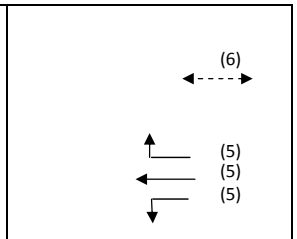
Stage A I = 5



Stage B I = 5



Stage C I = 6

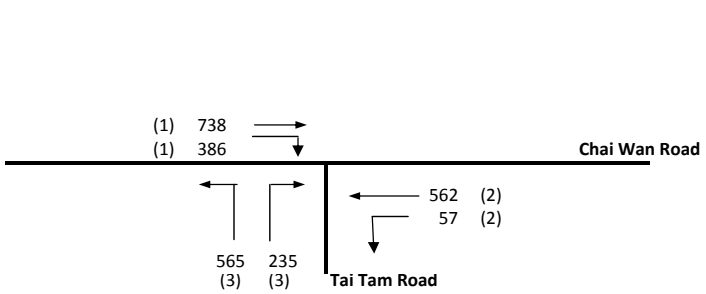


Stage C I = 6

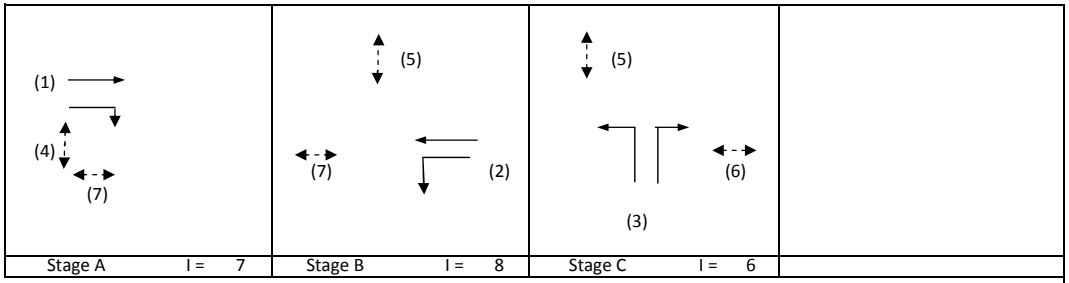
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	50	81		131	0.38	1849			1849	0.071			16	21	0.350	18	30
ST/RT	A	3.30	1	1	12			2085		67	110	177	0.62	1935			1935	0.091	0.091		21	21	0.452	24	31
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.452	0	64
LT	A,B	3.75	3	1	13		y	1990	154			154	1.00	1784			1784	0.086			20	30	0.303	18	23
RT	C	3.50	4	1	12			2105			191	191	1.00	1871			1871	0.102			24	38	0.282	18	18
LT/ST	C	3.50	4	1	12		y	1965	212	83		295	0.72	1803			1803	0.164	0.164		38	38	0.452	30	18
ST/RT	D	3.50	5	1	12			2105		0	194	194	1.00	1871			1871	0.104	0.104		24	24	0.452	24	28
LT/ST	D	3.50	5	1	11		y	1965	101	116		217	0.47	1848			1848	0.117			27	27	0.452	24	26
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.557
Loss time		L =	18 sec
Total Flow		=	2543 pcu
Co	= (1.5*L+5)/(1-Y)	=	72.3 sec
Cm	= L/(1-Y)	=	40.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	37.3 %
Cp	= 0.9*L/(0.9-Y)	=	47.3 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.8 %



Stage A I = 7 | Stage B I = 8 | Stage C I = 6

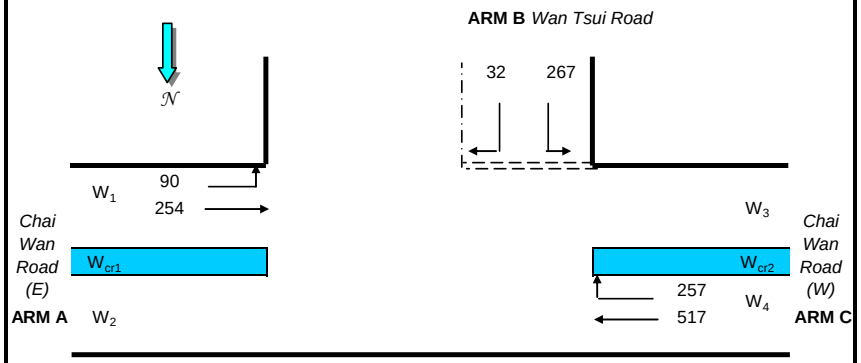
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		738		738	0.00	4070			4070	0.181			28	28	0.673	45	24
RT	A	3.50	1	1	13			2105			386	386	1.00	1887			1887	0.205	0.205		32	28	0.759	48	30
ST	B	3.50	2	2				4210		562		562	0.00	4210			4210	0.134	0.134		21	21	0.673	39	30
LT	B	3.10	2	1	12		y	1925	57			57	1.00	1711			1711	0.033			5	21	0.168	6	30
LT	C	4.00	3	1	15		y	2015	402			402	1.00	1832			1832	0.219	0.219		34	34	0.673	42	22
LT/RT	C	4.00	3	1	15			2155	163		235	398	1.00	1959			1959	0.203			32	34	0.623	42	21
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By:

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	254	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	517	(pcu/hr)
q_{c-b}	=	256.98	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	32	(pcu/hr)
q_{b-c}	=	267	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

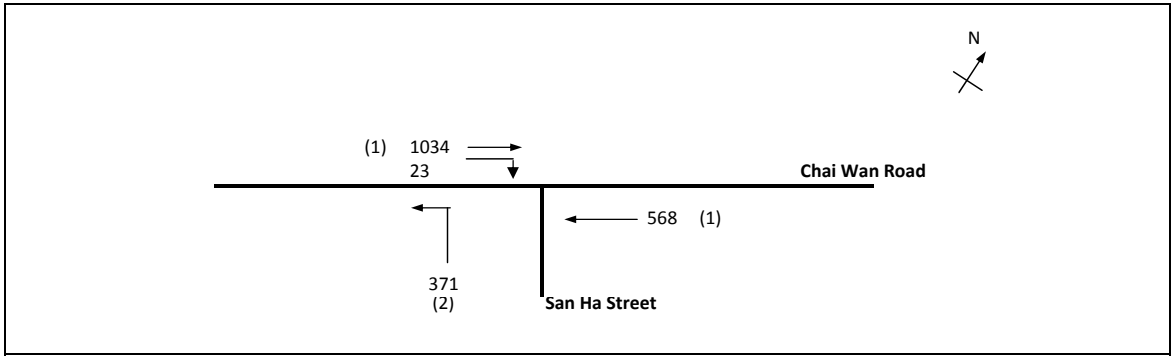
Q_{b-c}	=	789
Q_{c-b}	=	700
Q_{b-a}	=	373

COMPARISION OF DESIGN FLOW TO CAPACITY

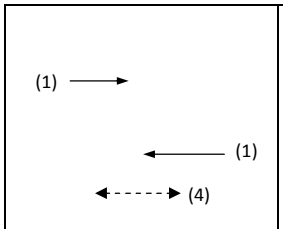
DFC_{b-a}	=	0.085
DFC_{b-c}	=	0.339
DFC_{c-b}	=	0.367

Critical DFC = 0.367

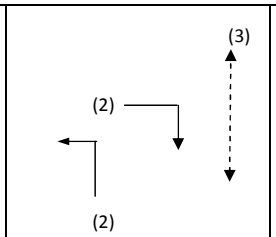
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.477
Loss time		L =	10 sec
Total Flow		=	1996 pcu
Co	= (1.5*L+5)/(1-Y)	=	38.2 sec
Cm	= L/(1-Y)	=	19.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	73.0 %
Cp	= 0.9*L/(0.9-Y)	=	21.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	69.9 %



Stage A I = 6



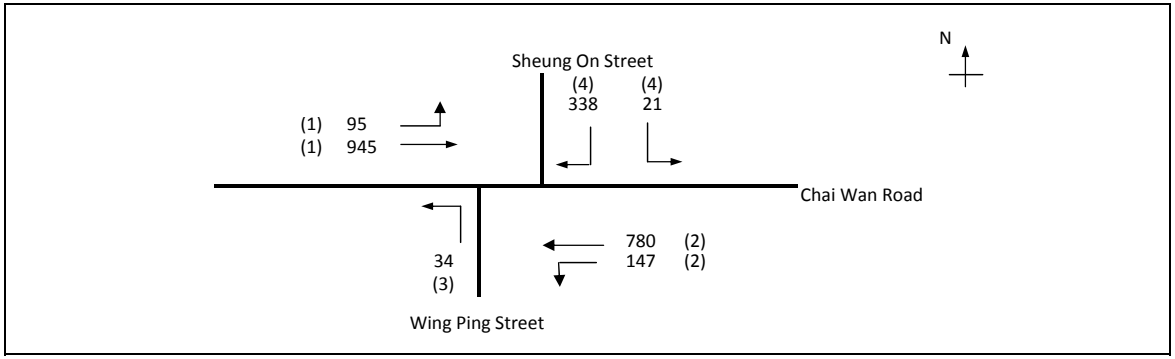
Stage B I = 6

Stage C I =

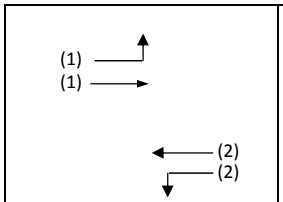
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1034		1034	0.00	4070			4070	0.254	0.254		48	47	0.540	45	10
ST	A	3.50	1	2	10		N	4070		568		568	0.00	4070			4070	0.140			26	47	0.297	24	11
LT	B	3.00	2	1	10		N	1915	371			371	1.00	1665			1665	0.223	0.223		42	53	0.421	24	9
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

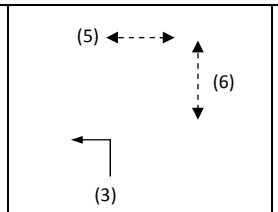
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



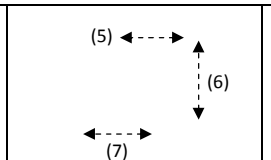
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.275
Loss time		L =	37 sec
Total Flow		=	2361 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.4 sec
Cm	= L/(1-Y)	=	51.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	126.4 %
Cp	= 0.9*L/(0.9-Y)	=	53.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	126.4 %



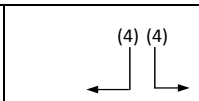
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	95	945		1041	0.09	6105			6105	0.170			51		0.000	68	54
LT/ST	A	3.30	2	3	12		Y	6115	147	780		927	0.16	5996			5996	0.155	0.155		47		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	34			34	1.00	1684			1684	0.020	0.020		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	21		338	360	1.00	3583			3583	0.100	0.100		30		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

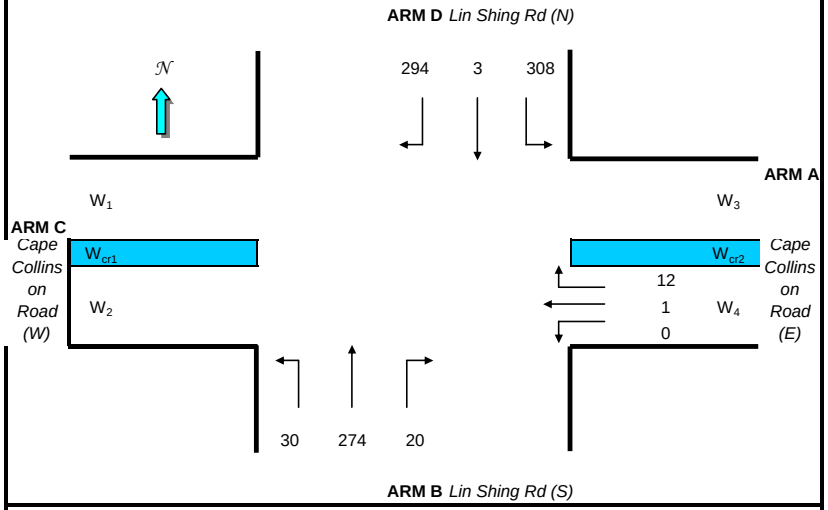
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 1 - Site 1

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0575	(pcu/hr)
q_{a-d}	=	11.518	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	20.093	(pcu/hr)
q_{b-c}	=	30.438	(pcu/hr)
q_{b-d}	=	274.07	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	308.23	(pcu/hr)
q_{d-b}	=	2.506	(pcu/hr)
q_{d-c}	=	293.79	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

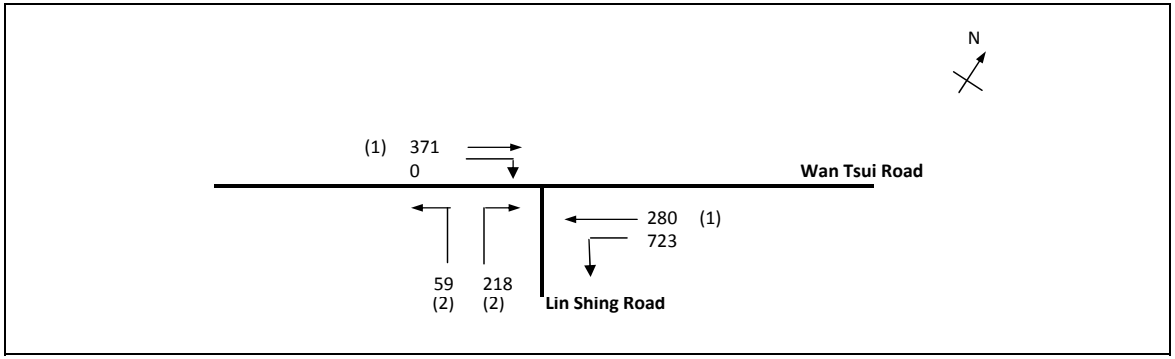
Q_{b-a}	=	510
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	527
Q_{d-c}	=	439
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

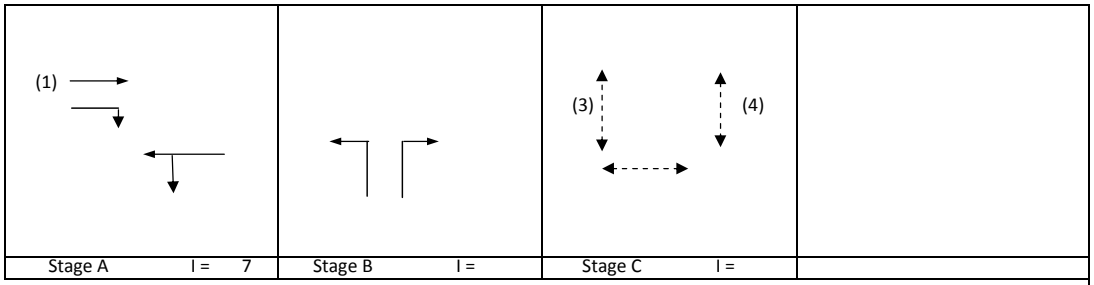
DFC_{b-a}	=	0.039
DFC_{b-c}	=	0.041
DFC_{b-d}	=	0.451
DFC_{d-a}	=	0.457
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.669
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.019

Critical DFC = 0.669

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls	Checked By:	KC	29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.552	
Loss time	L =	25	sec
Total Flow	=	1374	pcu
Co = (1.5*L+5)/(1-Y)	=	94.8	sec
Cm = L/(1-Y)	=	55.8	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	29.1	%
Cp = 0.9*L/(0.9-Y)	=	64.6	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29.1	%

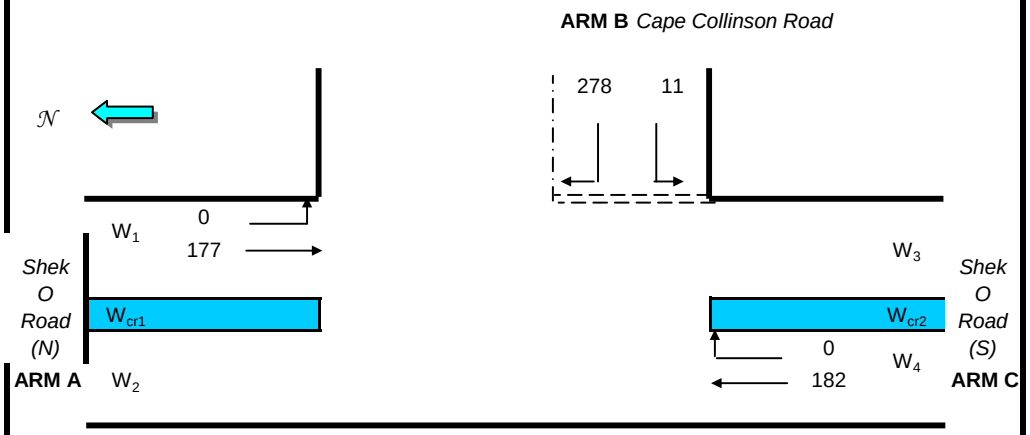


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		371		371	0.00	1915			1915	0.194			33	95	0.245	12	2
ST/LT	A	4.00	1	1	10		N	2015	723	280		1003	0.72	1818			1818	0.552	0.552		95	95	0.697	36	4
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	176.61	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	181.9	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	277.71	(pcu/hr)
q_{b-c}	=	11.286	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

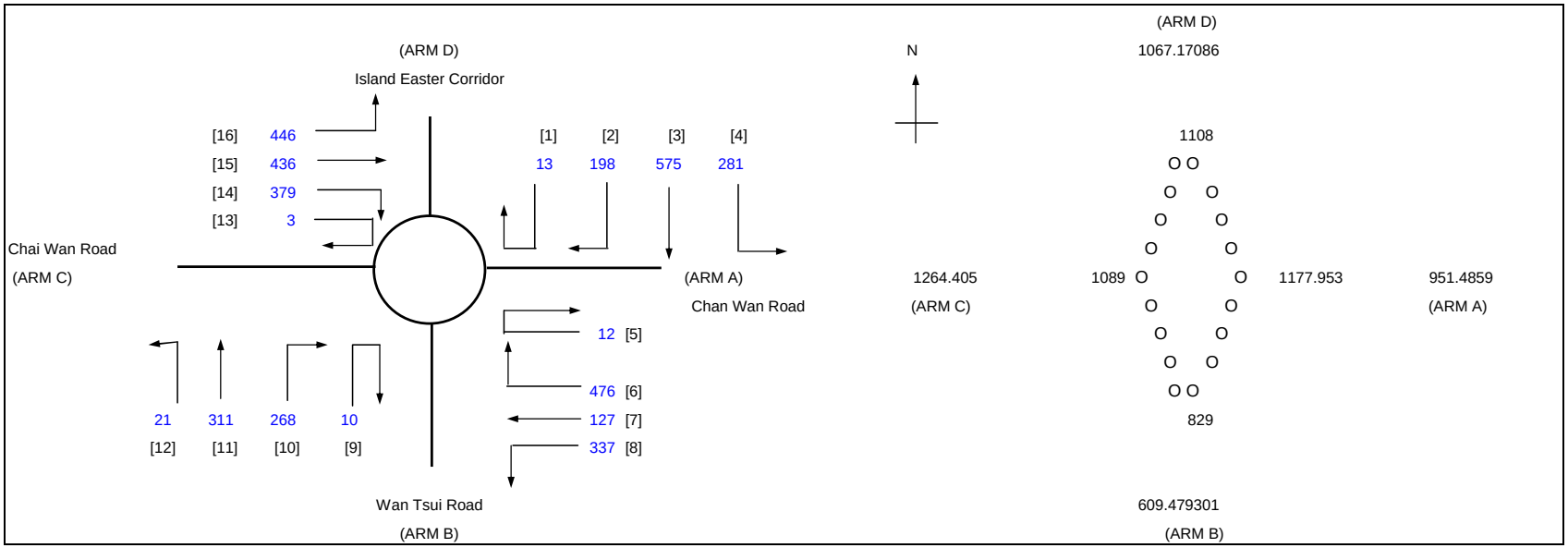
Q_{b-c}	=	697
Q_{c-b}	=	776
Q_{b-a}	=	346

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.804
DFC_{b-c}	=	0.016
DFC_{c-b}	=	0.000

Critical DFC = 0.804

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME : 2021_LV1_S1.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

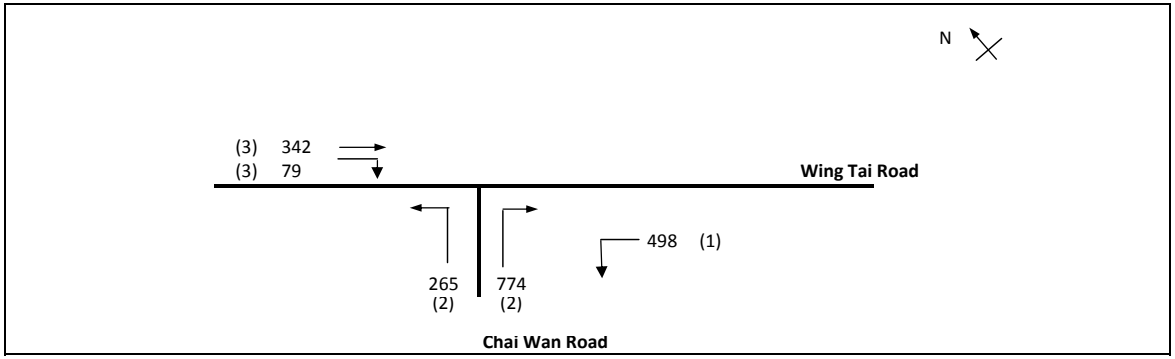


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	951	609	1264	1067
Qc	=	Circulating flow across entry (pcu/h)	1178	829	1089	1108
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1576	1011	1655	1372
DFC	=	Design flow/Capacity = Q/Qe	0.60	0.60	0.76	0.78

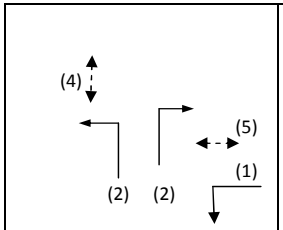
Total In Sum = 2807.905 PCU

DFC of Critical Approach = 0.78

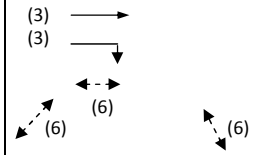
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls	Checked By:	KC	29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.300
Loss time		L =	10 sec
Total Flow		=	1958 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.6 sec
Cm	= L/(1-Y)	=	14.3 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	174.9 %
Cp	= 0.9*L/(0.9-Y)	=	15.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	169.9 %



Stage A I = 7

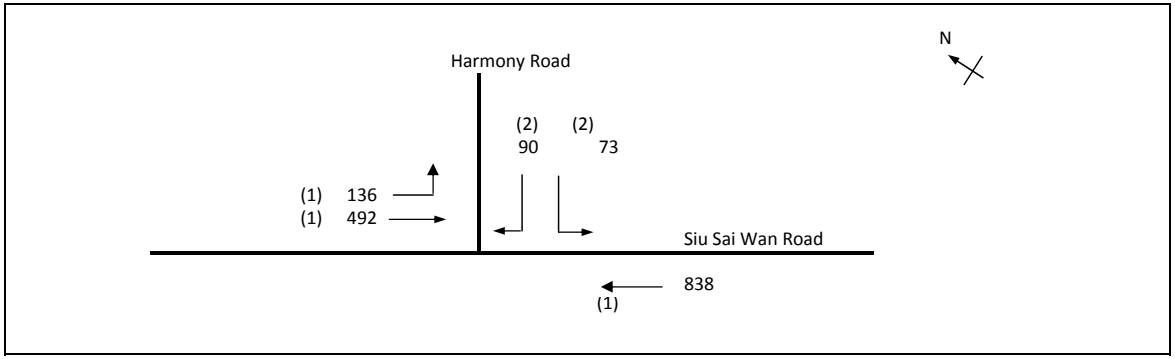


Stage B I = 5

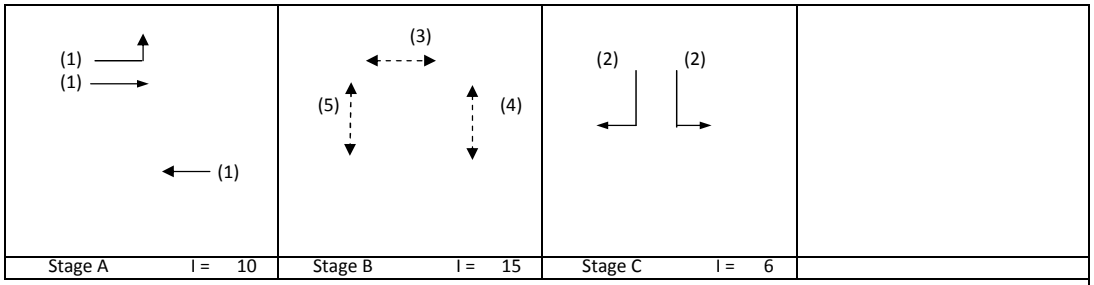
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	498			498	1.00	3857			3857	0.129			39	65	0.199	12	5
LT	A	4.00	2	2	24			4310	265			265	1.00	4056			4056	0.065			20	65	0.101	6	5
RT	A	3.50	2	2	11		y	4070			774	774	1.00	3582			3582	0.216	0.216		65	65	0.333	21	5
ST	B	3.50	3	2			y	4070		342		342	0.00	4070			4070	0.084	0.084		25	25	0.333	21	24
RT	B	4.50	3	2	13		y	4270			79	79	1.00	3828			3828	0.021			6	25	0.082	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls	Checked By:	KC	29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.259	
Loss time	L =	48	sec
Total Flow	=	1629	pcu
Co = (1.5*L+5)/(1-Y)	=	103.9	sec
Cm = L/(1-Y)	=	64.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	108.8	%
Cp = 0.9*L/(0.9-Y)	=	67.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	81.0	%

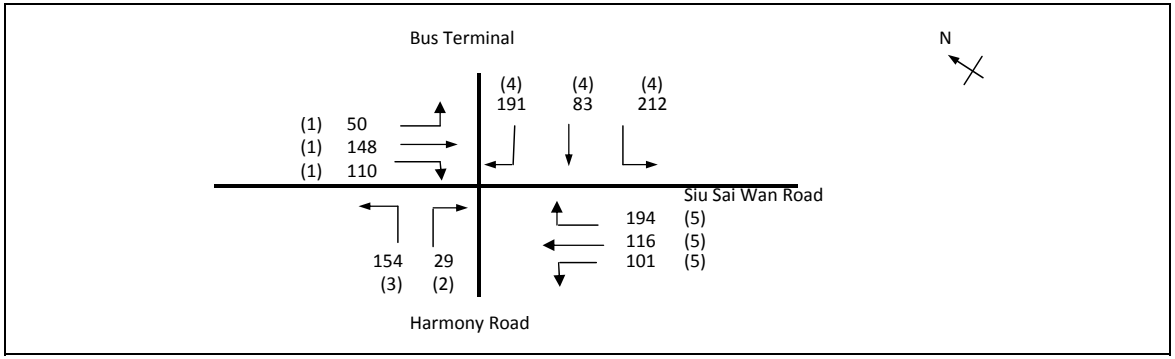


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

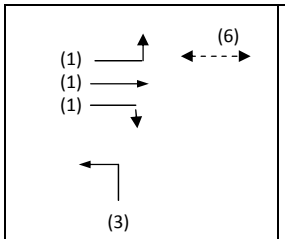
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	136	152		288	0.47	1827			1827	0.158			32	42	0.372	24	14
ST	A	3.20	1	1				2075		340		340	0.00	2075			2075	0.164			33	42	0.386	30	14
ST	A	3.00	1	2			y	3970		838		838	0.00	3970			3970	0.211	0.211		42	42	0.497	39	13
LT	C	3.75	2	1	12		y	1990	73			73	1.00	1769			1769	0.041			8	10	0.428	6	42
RT	C	3.75	2	1	12			2130			90	90	1.00	1893			1893	0.048	0.048		10	10	0.497	12	44
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

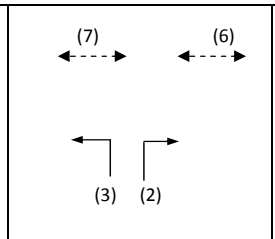
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls	Checked By:	KC	29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



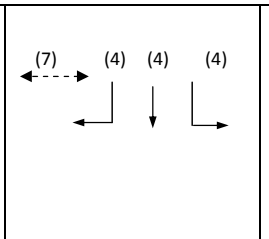
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.375
Loss time	L =	18 sec
Total Flow	=	1389 pcu
Co = (1.5*L+5)/(1-Y)	=	51.2 sec
Cm = L/(1-Y)	=	28.8 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	104.2 %
Cp = 0.9*L/(0.9-Y)	=	30.8 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	99.1 %



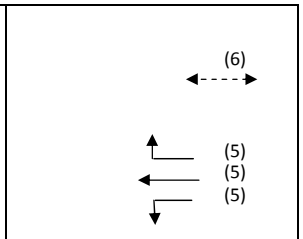
Stage A I = 5



Stage B I = 5



Stage C I = 6

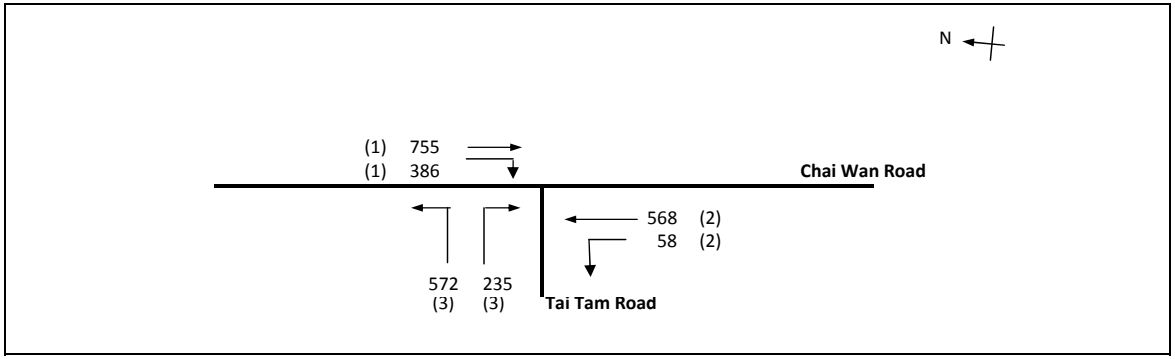


Stage C I = 6

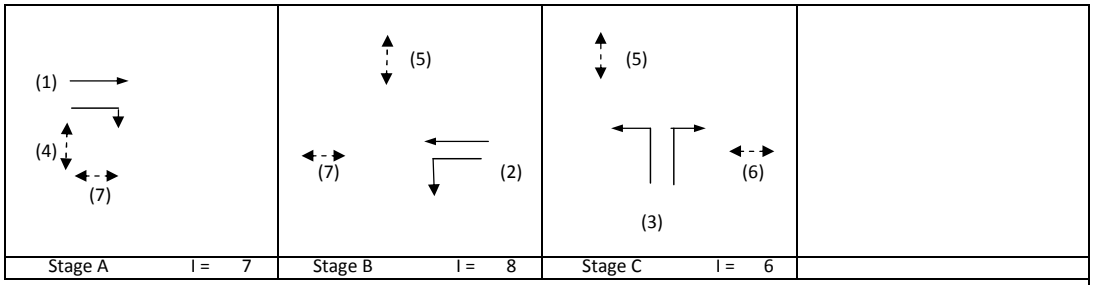
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	50	81		131	0.38	1849			1849	0.071			16	21	0.350	18	30
ST/RT	A	3.30	1	1	12			2085		67	110	177	0.62	1935			1935	0.091	0.091		21	21	0.452	24	31
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.452	0	64
LT	A,B	3.75	3	1	13		y	1990	154			154	1.00	1784			1784	0.086			20	30	0.303	18	23
RT	C	3.50	4	1	12			2105			191	191	1.00	1871			1871	0.102			24	38	0.282	18	18
LT/ST	C	3.50	4	1	12		y	1965	212	83		295	0.72	1803			1803	0.164	0.164		38	38	0.452	30	18
ST/RT	D	3.50	5	1	12			2105			194	194	1.00	1871			1871	0.104	0.104		24	24	0.452	24	28
LT/ST	D	3.50	5	1	11		y	1965	101	116		217	0.47	1848			1848	0.117			27	27	0.452	24	26
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls	Checked By:	KC	29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.537
Loss time		L =	18 sec
Total Flow		=	2575 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.1 sec
Cm	= L/(1-Y)	=	38.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	42.5 %
Cp	= 0.9*L/(0.9-Y)	=	44.6 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38.9 %

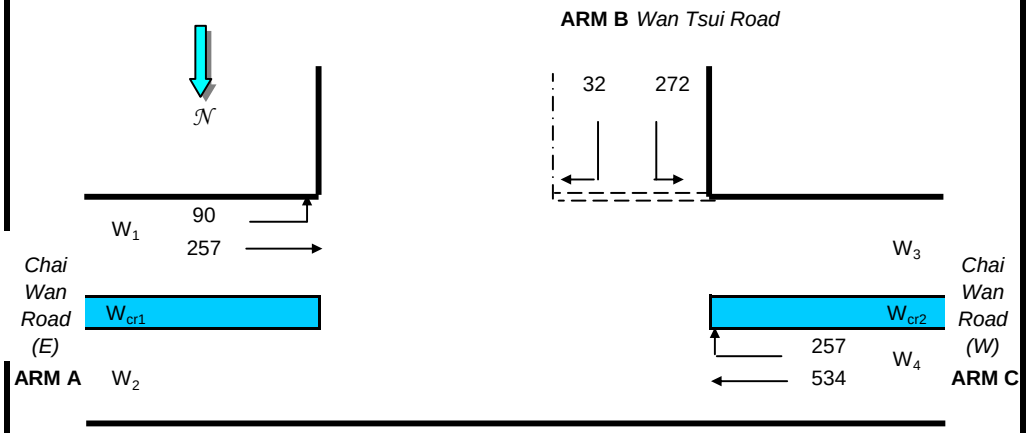


Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		755		755	0.00	4120			4120	0.183			30	30	0.648	45	22
RT	A	3.00	1	1	13			2055			386	386	1.00	1842			1842	0.210	0.210		34	30	0.741	48	28
ST	B	3.50	2	2				4210		568		568	0.00	4210			4210	0.135	0.135		22	22	0.648	39	29
LT	B	3.10	2	1	12		y	1925	58			58	1.00	1711			1711	0.034			6	22	0.163	6	29
LT	C	4.00	3	1	15		y	2015	430			430	1.00	1832			1832	0.235			38	38	0.648	48	19
LT/RT	C	4.00	3	1	15			2155	142		235	377	1.00	1959			1959	0.192	0.192		31	38	0.531	42	18
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	256.55	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	534.38	(pcu/hr)
q_{c-b}	=	256.98	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	31.726	(pcu/hr)
q_{b-c}	=	271.5	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

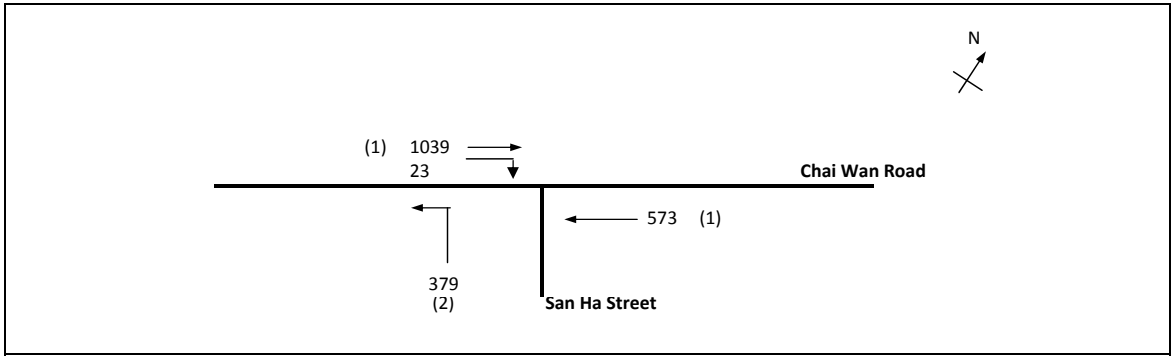
Q_{b-c}	=	788
Q_{c-b}	=	700
Q_{b-a}	=	372

COMPARISION OF DESIGN FLOW TO CAPACITY

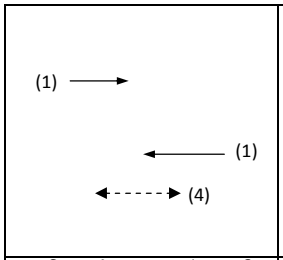
DFC_{b-a}	=	0.085
DFC_{b-c}	=	0.344
DFC_{c-b}	=	0.367

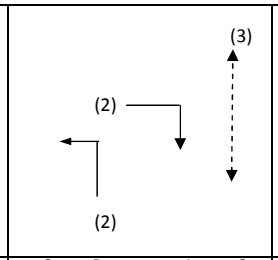
Critical DFC = 0.367

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	FILENAME : J10LV1 - Peak Hour Traffic Flows	Checked By:		KC	29-4-2011
2021 Level 1 Peak Hour - Site 1	REFERENCE NO.: 2021_LV1_S1.xls	Reviewed By:		OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.483
Loss time		L =	10 sec
Total Flow		=	2013 pcu
Co	= (1.5*L+5)/(1-Y)	=	38.7 sec
Cm	= L/(1-Y)	=	19.3 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	70.9 %
Cp	= 0.9*L/(0.9-Y)	=	21.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	67.8 %



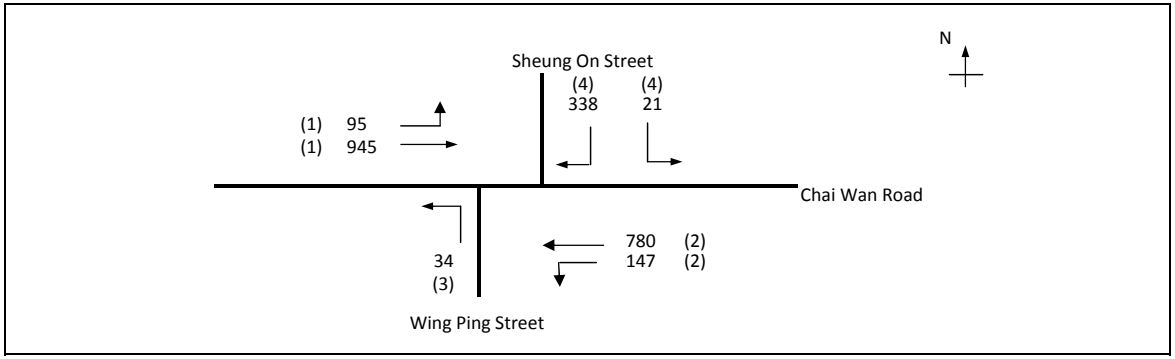


Stage A	I = 6	Stage B	I = 6	Stage C	I =

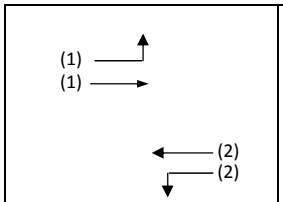
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1039		1039	0.00	4070			4070	0.255	0.255		48	47	0.543	45	10
ST	A	3.50	1	2	10		N	4070		573		573	0.00	4070			4070	0.141			26	47	0.299	24	11
LT	B	3.00	2	1	10		N	1915	379			379	1.00	1665			1665	0.228	0.228		42	53	0.429	24	9
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

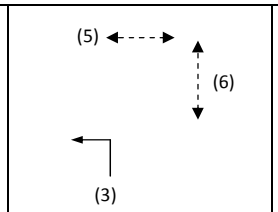
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls	Checked By:	KC	29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



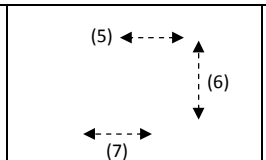
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.275
Loss time		L =	37 sec
Total Flow		=	2361 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.4 sec
Cm	= L/(1-Y)	=	51.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	126.4 %
Cp	= 0.9*L/(0.9-Y)	=	53.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	126.4 %



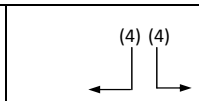
Stage A I = 8



Stage B I = 5



Stage C I = 7

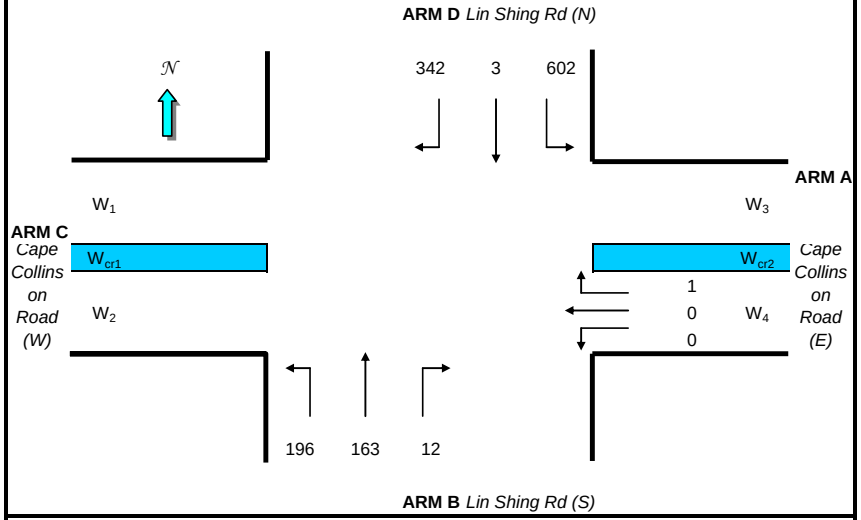


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	95	945		1041	0.09	6105			6105	0.170			51		0.000	68	54
LT/ST	A	3.30	2	3	12		Y	6115	147	780		927	0.16	5996			5996	0.155	0.155		47		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	34			34	1.00	1684			1684	0.020	0.020		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	21		338	360	1.00	3583			3583	0.100	0.100		30		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	1	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.633	(pcu/hr)
q_{b-c}	=	196	(pcu/hr)
q_{b-d}	=	163.2	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	602	(pcu/hr)
q_{d-b}	=	3	(pcu/hr)
q_{d-c}	=	342	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

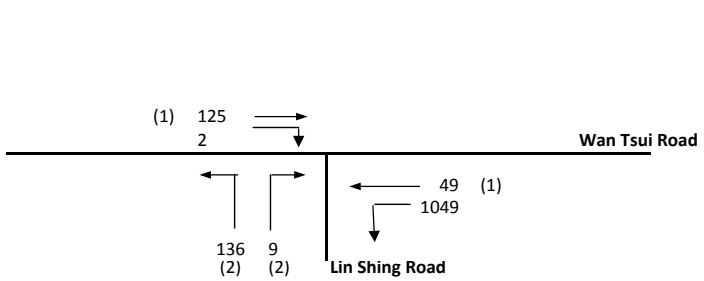
Q_{b-a}	=	418
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	431
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

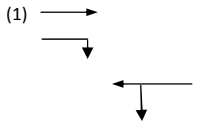
DFC_{b-a}	=	0.028
DFC_{b-c}	=	0.261
DFC_{b-d}	=	0.267
DFC_{d-a}	=	0.892
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.793
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.002

Critical DFC = 0.892

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011

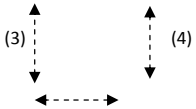


No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.623
Loss time		L =	25 sec
Total Flow		=	1222 pcu
Co	= (1.5*L+5)/(1-Y)	=	112.7 sec
Cm	= L/(1-Y)	=	66.3 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	14.4 %
Cp	= 0.9*L/(0.9-Y)	=	81.2 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	14.4 %



Stage A I = 7

Stage B I =



Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		125		125	0.00	1915			1915	0.065			10	95	0.082	0	2
ST/LT	A	4.00	1	1	10		N	2015	1049	49		1097	0.96	1762			1762	0.623	0.623		95	95	0.787	42	5
Ped	B	6.0	3																	20					

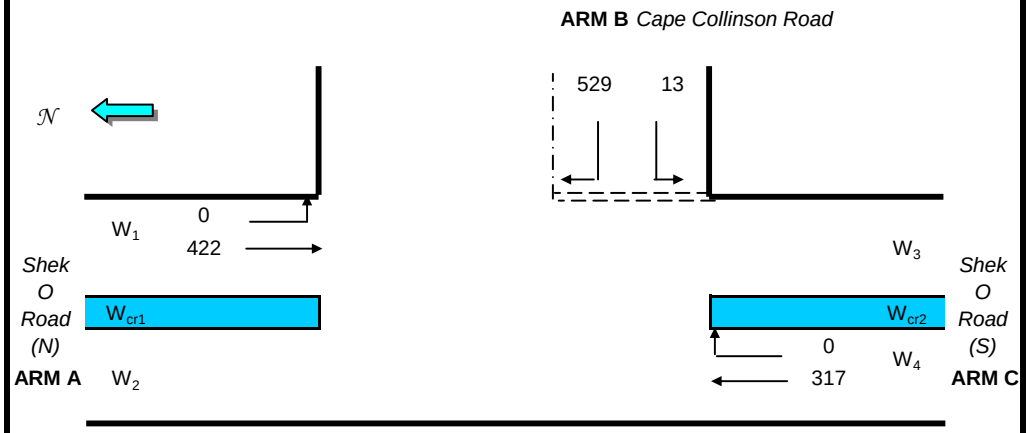
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	422	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	317	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	529	(pcu/hr)
q_{b-c}	=	13	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

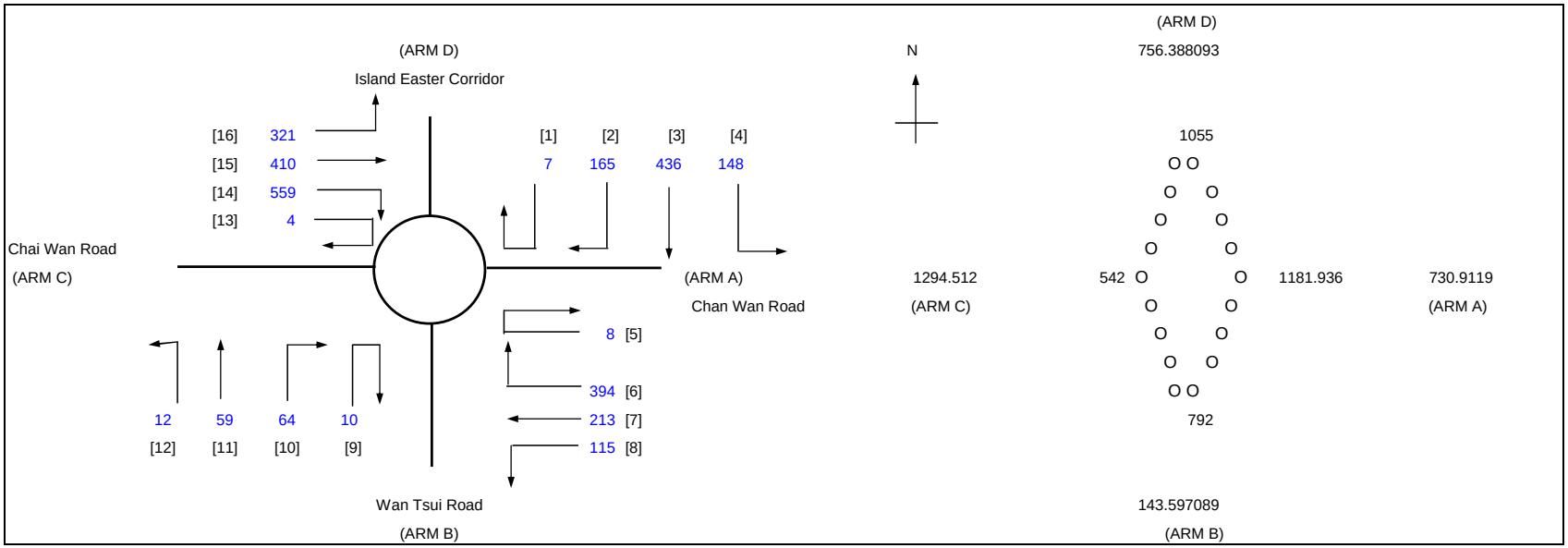
Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	293

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.807
DFC_{b-c}	=	0.020
DFC_{c-b}	=	0.000

Critical DFC = 1.807

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME 2021_LV2_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

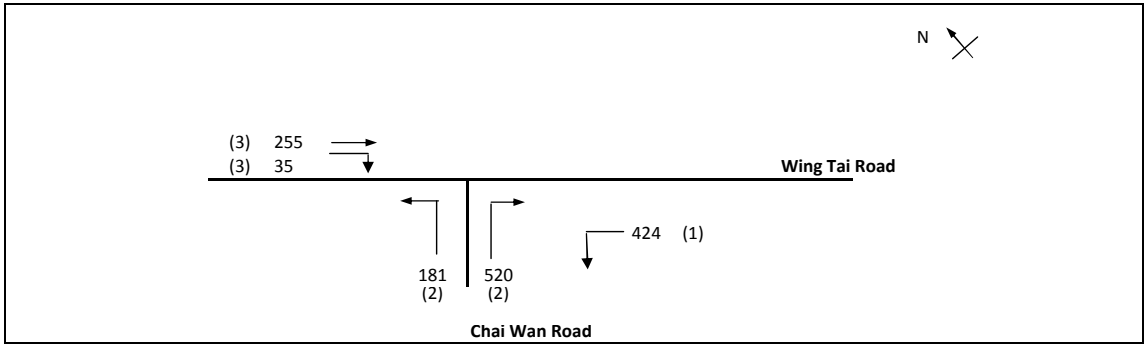


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	731	144	1295	756
Qc	=	Circulating flow across entry (pcu/h)	1182	792	542	1055
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1573	1032	2069	1408
DFC	=	Design flow/Capacity = Q/Qe	0.46	0.14	0.63	0.54

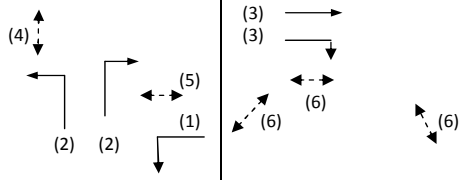
Total In Sum = 2330.186 PCU

DFC of Critical Approach = 0.63

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.208
Loss time		L =	10 sec
Total Flow		=	1415 pcu
Co	= (1.5*L+5)/(1-Y)	=	25.3 sec
Cm	= L/(1-Y)	=	12.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	296.8 %
Cp	= 0.9*L/(0.9-Y)	=	13.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	289.6 %



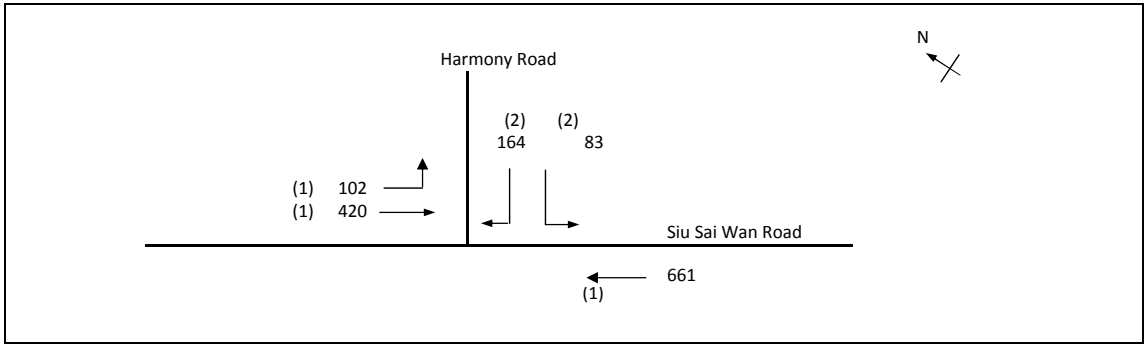
Stage A I = 7

Stage B I = 5

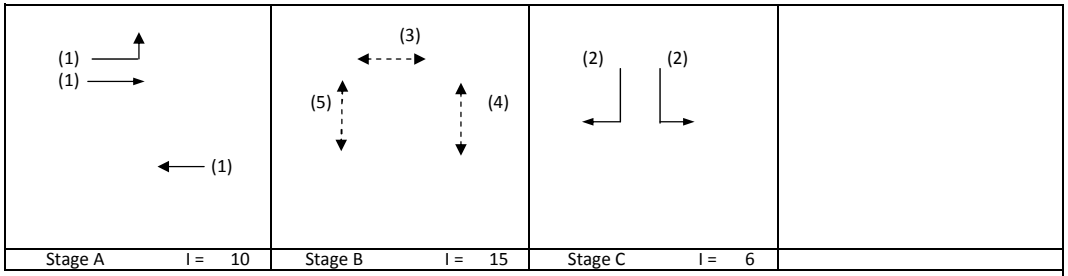
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	424			424	1.00	3857			3857	0.110			48	63	0.175	12	6
LT	A	4.00	2	2	24			4310	181			181	1.00	4056			4056	0.045			19	63	0.071	3	6
RT	A	3.50	2	2	11		y	4070			520	520	1.00	3582			3582	0.145	0.145		63	63	0.231	15	6
ST	B	3.50	3	2			y	4070		255		255	0.00	4070			4070	0.063	0.063		27	27	0.231	15	23
RT	B	4.50	3	2	13		y	4270			35	35	1.00	3828			3828	0.009			4	27	0.034	0	24
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Reviewed By:	OC	3-5-2011
	REFERENCE NO.:			



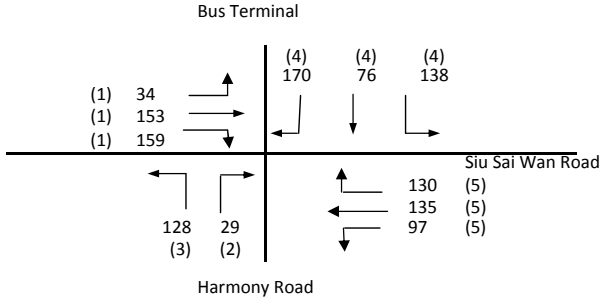
No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.253
Loss time		L =	48 sec
Total Flow		=	1430 pcu
Co	= (1.5*L+5)/(1-Y)	=	103.1 sec
Cm	= L/(1-Y)	=	64.2 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	113.5 %
Cp	= 0.9*L/(0.9-Y)	=	66.8 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	85.1 %



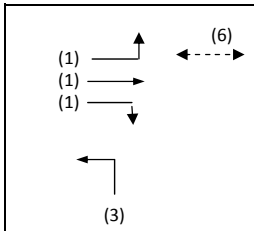
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	152		254	0.40	1844			1844	0.138			28	34	0.403	24	19
ST	A	3.20	1	1				2075		268		268	0.00	2075			2075	0.129			27	34	0.378	24	18
ST	A	3.00	1	2			y	3970		661		661	0.00	3970			3970	0.166	0.166		34	34	0.486	36	17
LT	C	3.75	2	1	12		y	1990	83			83	1.00	1769			1769	0.047			10	18	0.263	6	31
RT	C	3.75	2	1	12			2130			164	164	1.00	1893			1893	0.086	0.086		18	18	0.486	18	32
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

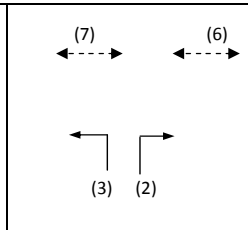
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



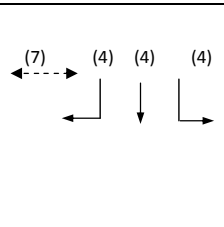
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.323
Loss time		L =	18 sec
Total Flow		=	1251 pcu
Co	= (1.5*L+5)/(1-Y)	=	47.3 sec
Cm	= L/(1-Y)	=	26.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	136.5 %
Cp	= 0.9*L/(0.9-Y)	=	28.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	130.6 %



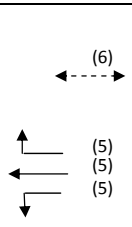
Stage A I = 5



Stage B I = 5



Stage C I = 6

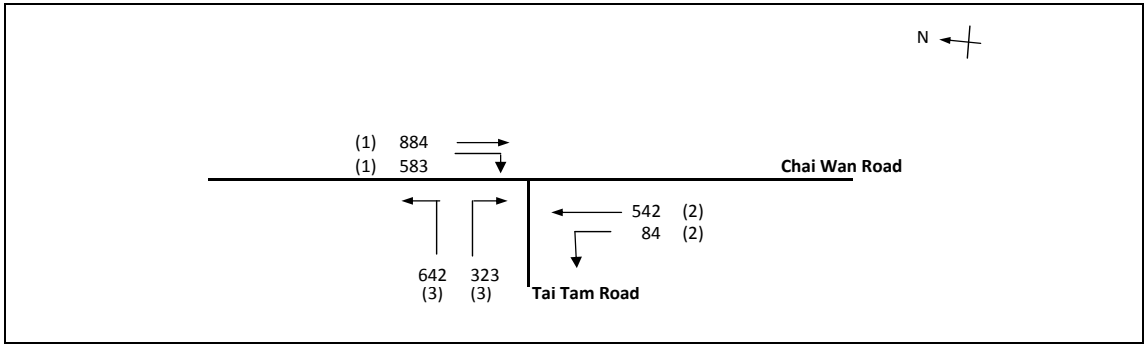


Stage C I = 6

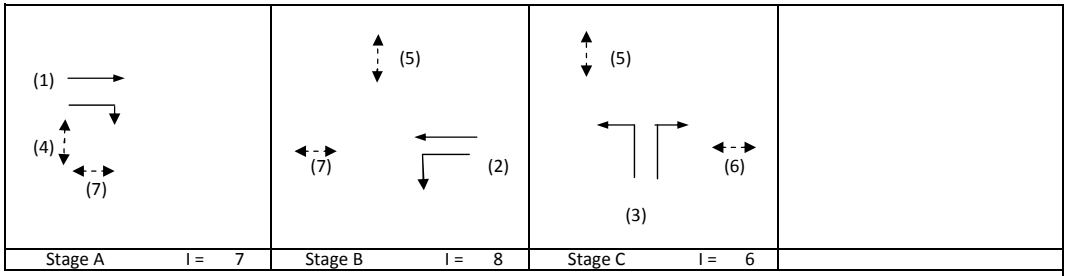
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	34	81		115	0.30	1869			1869	0.062			17	32	0.200	12	22
ST/RT	A	3.30	1	1	12			2085		72	159	231	0.69	1920			1920	0.120	0.120		32	32	0.390	24	22
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.390	0	57
LT	A,B	3.75	3	1	13		y	1990	128			128	1.00	1784			1784	0.072			19	42	0.181	12	16
RT	C	3.50	4	1	12			2105			170	170	1.00	1871			1871	0.091			24	32	0.301	18	22
LT/ST	C	3.50	4	1	12		y	1965	138	76		214	0.64	1818			1818	0.118	0.118		32	32	0.390	24	22
ST/RT	D	3.50	5	1	12			2105		0	130	130	1.00	1871			1871	0.070	0.070		19	19	0.390	18	33
LT/ST	D	3.50	5	1	11		y	1965	97	135		233	0.42	1859			1859	0.125			34	34	0.390	24	21
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case	REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.699
Loss time	L =	18 sec
Total Flow	=	3057 pcu
Co = (1.5*L+5)/(1-Y)	=	106.3 sec
Cm = L/(1-Y)	=	59.8 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	9.4 %
Cp = 0.9*L/(0.9-Y)	=	80.6 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	6.7 %



Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		884		884	0.00	4070			4070	0.217			27	27	0.844	57	29
RT	A	3.50	1	1	13			2105			583	583	1.00	1887			1887	0.309	0.309		38	27	1.199	72	35
ST	B	3.50	2	2				4210		542		542	0.00	4210			4210	0.129	0.129		16	16	0.844	39	43
LT	B	3.10	2	1	12		y	1925	84			84	1.00	1711			1711	0.049			6	16	0.320	12	35
LT	C	4.00	3	1	15		y	2015	479			479	1.00	1832			1832	0.261	0.261		33	33	0.844	54	32
LT/RT	C	4.00	3	1	15			2155	163		323	486	1.00	1959			1959	0.248			31	33	0.800	54	28
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

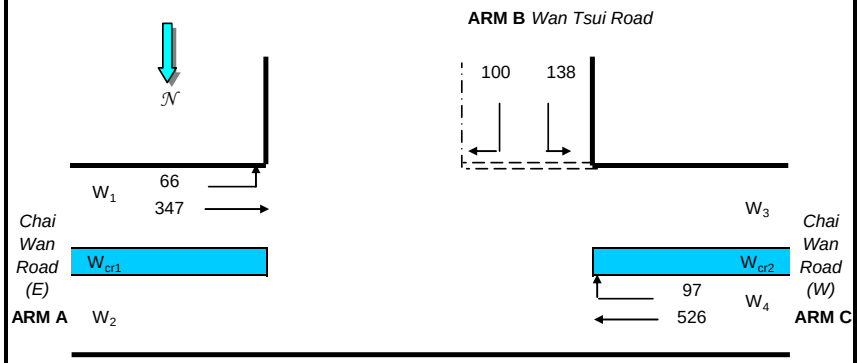
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	65.567	(pcu/hr)
q_{a-c}	=	347	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	526	(pcu/hr)
q_{c-b}	=	97.293	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	100	(pcu/hr)
q_{b-c}	=	138	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

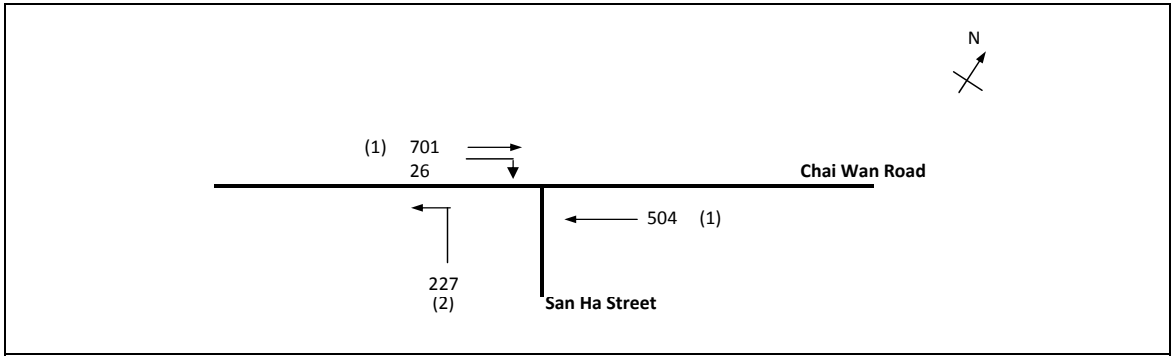
Q_{b-c}	=	778
Q_{c-b}	=	692
Q_{b-a}	=	384

COMPARISION OF DESIGN FLOW TO CAPACITY

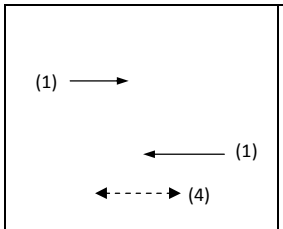
DFC_{b-a}	=	0.262
DFC_{b-c}	=	0.177
DFC_{c-b}	=	0.141

Critical DFC = 0.262

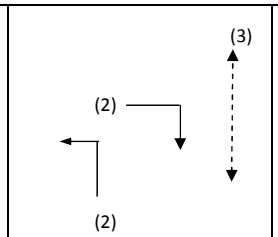
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.309	
Loss time		L =	10	sec
Total Flow		=	1459	pcu
Co	= (1.5*L+5)/(1-Y)	=	28.9	sec
Cm	= L/(1-Y)	=	14.5	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	167.1	%
Cp	= 0.9*L/(0.9-Y)	=	15.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	162.3	%



Stage A I = 6



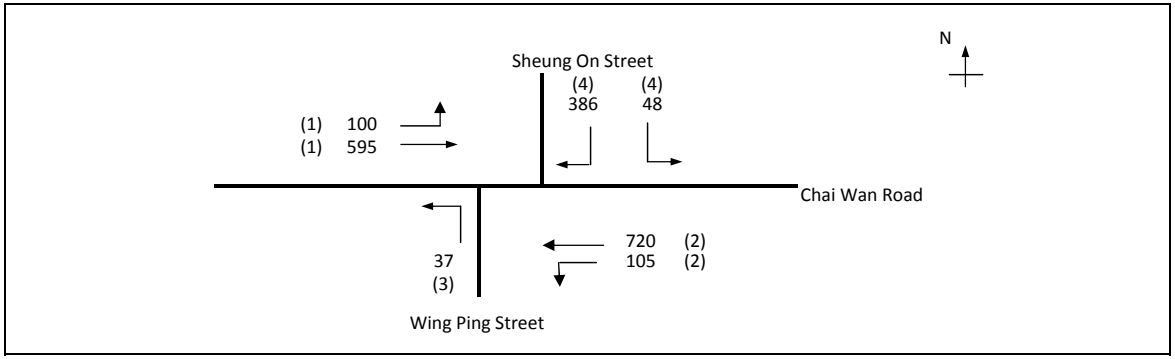
Stage B I = 6

Stage C I =

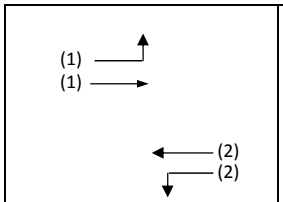
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		701		701	0.00	4070			4070	0.172	0.172		50	47	0.367	30	11
ST	A	3.50	1	2	10		N	4070		504		504	0.00	4070			4070	0.124			36	47	0.263	21	11
LT	B	3.00	2	1	10		N	1915	227			227	1.00	1665			1665	0.137	0.137		40	53	0.258	12	9
RT	B	3.50	2	1	12			2105			26	26	1.00	1871			1871	0.014			4	53	0.027	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

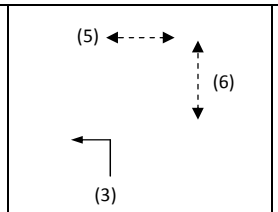
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



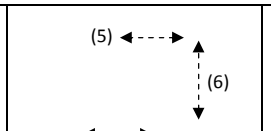
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.280
Loss time		L =	37 sec
Total Flow		=	1991 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.0 sec
Cm	= L/(1-Y)	=	51.4 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	122.3 %
Cp	= 0.9*L/(0.9-Y)	=	53.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	122.3 %



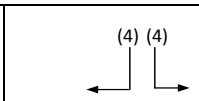
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	100	595		696	0.14	6066			6066	0.115			34		0.000	46	54
LT/ST	A	3.30	2	3	12		Y	6115	105	720		825	0.13	6019			6019	0.137	0.137		41		0.000	54	54
LT	B	3.50	3	1	9		Y	1965	37			37	1.00	1684			1684	0.022	0.022		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	48		386	434	1.00	3583			3583	0.121	0.121		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

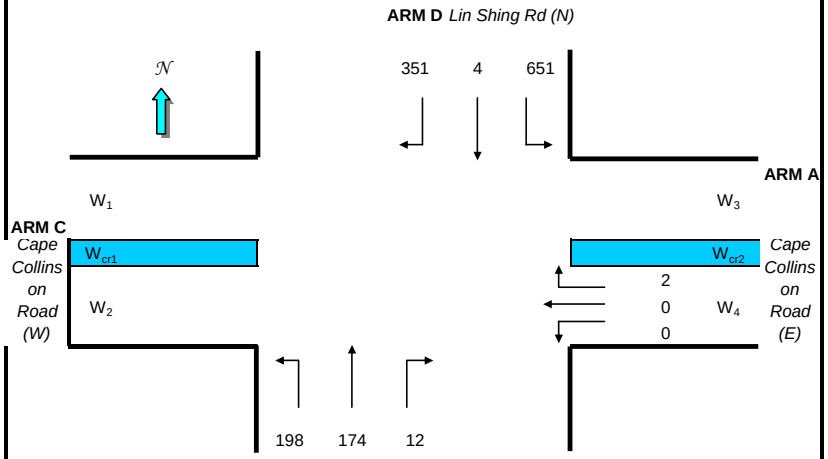
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 2 - Site 1

Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	2	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.633	(pcu/hr)
q_{b-c}	=	197.53	(pcu/hr)
q_{b-d}	=	173.65	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	651.24	(pcu/hr)
q_{d-b}	=	3.7863	(pcu/hr)
q_{d-c}	=	350.97	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

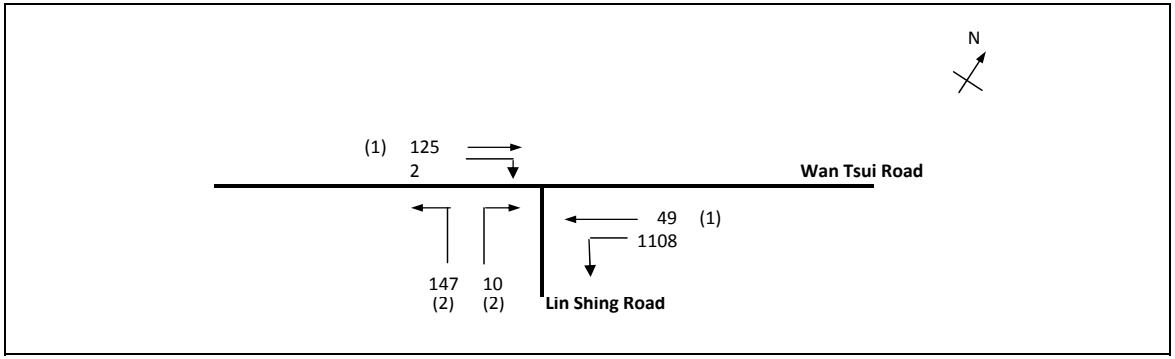
Q_{b-a}	=	402
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	532
Q_{d-c}	=	428
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

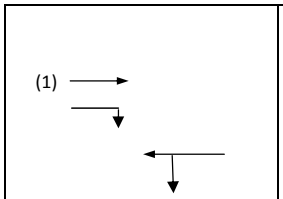
DFC_{b-a}	=	0.029
DFC_{b-c}	=	0.264
DFC_{b-d}	=	0.284
DFC_{d-a}	=	0.966
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.820
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.003

Critical DFC = 0.966

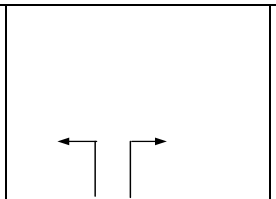
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



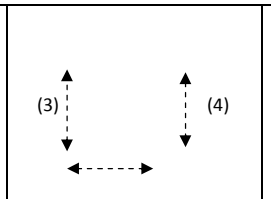
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.656
Loss time		L =	25 sec
Total Flow		=	1281 pcu
Co	= (1.5*L+5)/(1-Y)	=	123.6 sec
Cm	= L/(1-Y)	=	72.7 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	8.6 %
Cp	= 0.9*L/(0.9-Y)	=	92.3 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8.6 %



Stage A I = 7



Stage B I =

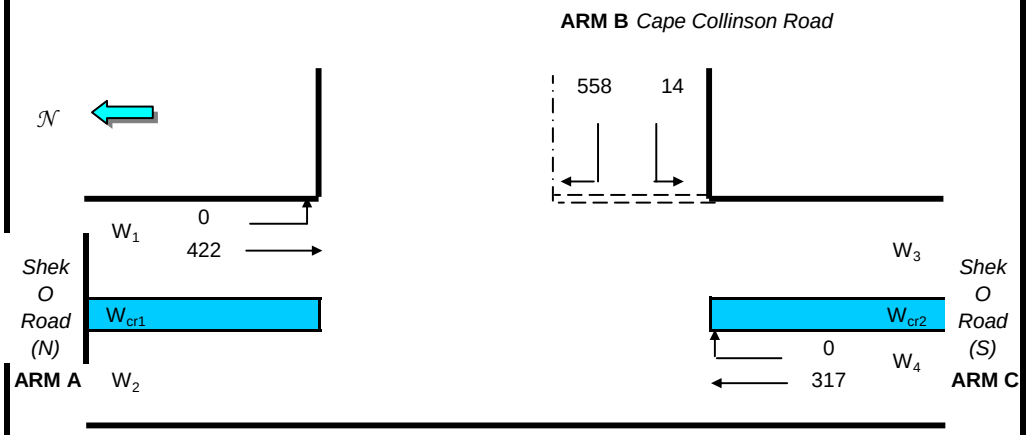


Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		125		125	0.00	1915			1915	0.065			9	95	0.082	0	2
ST/LT	A	4.00	1	1	10		N	2015	1108	49		1156	0.96	1762			1762	0.656	0.656		95	95	0.829	48	6
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	421.95	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	317.26	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	557.93	(pcu/hr)
q_{b-c}	=	13.782	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

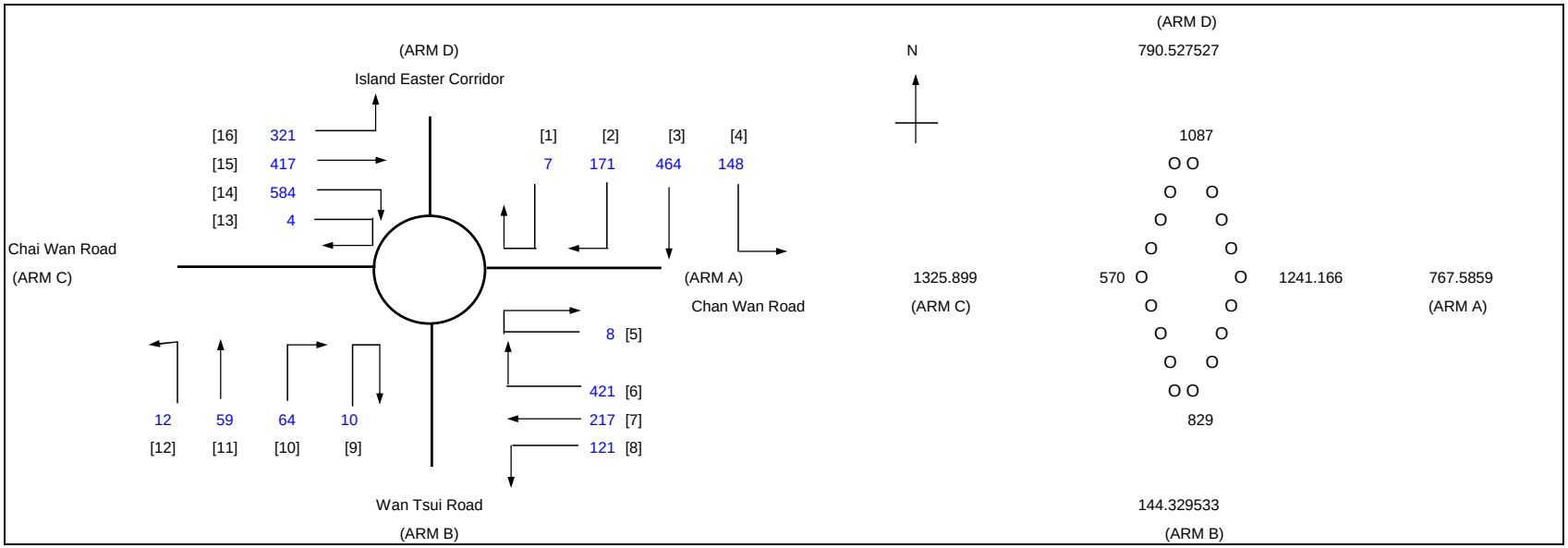
Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	293

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.907
DFC_{b-c}	=	0.022
DFC_{c-b}	=	0.000

Critical DFC = 1.907

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2021_LV2_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

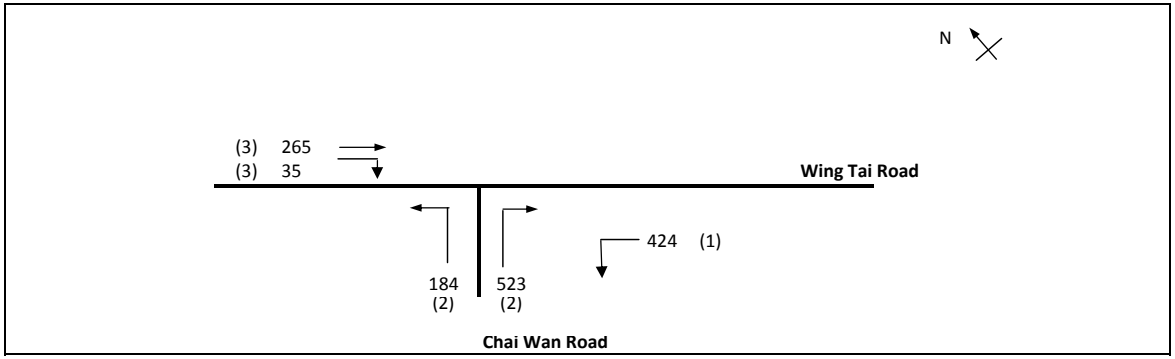


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	768	144	1326	791
Qc	=	Circulating flow across entry (pcu/h)	1241	829	570	1087
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1528	1011	2048	1386
DFC	=	Design flow/Capacity = Q/Qe	0.50	0.14	0.65	0.57

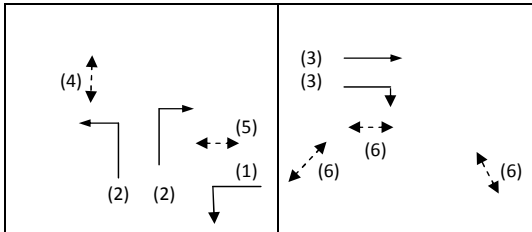
Total In Sum = 2427.383 PCU

DFC of Critical Approach = 0.65

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.211	
Loss time		L =	10	sec
Total Flow		=	1432	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.4	sec
Cm	= L/(1-Y)	=	12.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	290.5	%
Cp	= 0.9*L/(0.9-Y)	=	13.1	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	283.4	%



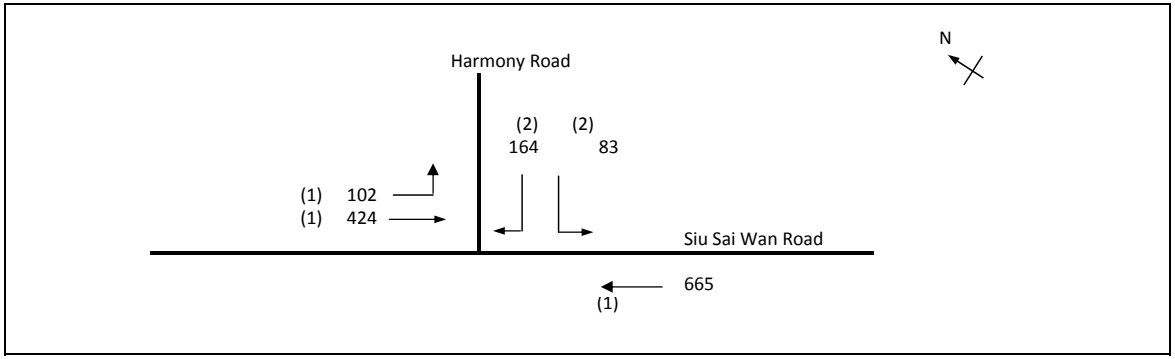
Stage A I = 7

Stage B I = 5

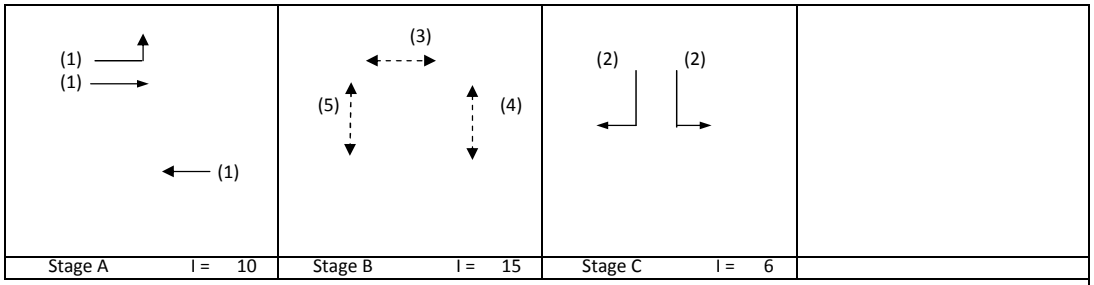
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	424			424	1.00	3857			3857	0.110			47	62	0.177	12	6
LT	A	4.00	2	2	24			4310	184			184	1.00	4056			4056	0.045			19	62	0.073	3	6
RT	A	3.50	2	2	11		y	4070			523	523	1.00	3582			3582	0.146	0.146		62	62	0.235	15	6
ST	B	3.50	3	2			y	4070		265		265	0.00	4070			4070	0.065	0.065		28	28	0.235	15	22
RT	B	4.50	3	2	13		y	4270			35	35	1.00	3828			3828	0.009			4	28	0.033	0	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME :2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	100 sec
Sum(y)	Y =	0.254
Loss time	L =	48 sec
Total Flow	=	1437 pcu
Co = (1.5*L+5)/(1-Y)	=	103.2 sec
Cm = L/(1-Y)	=	64.3 sec
Yult	=	0.540
R.C.ult = (Yult-Y)/Y*100%	=	112.6 %
Cp = 0.9*L/(0.9-Y)	=	66.9 sec
Ymax = 1-L/C	=	0.520
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	84.3 %

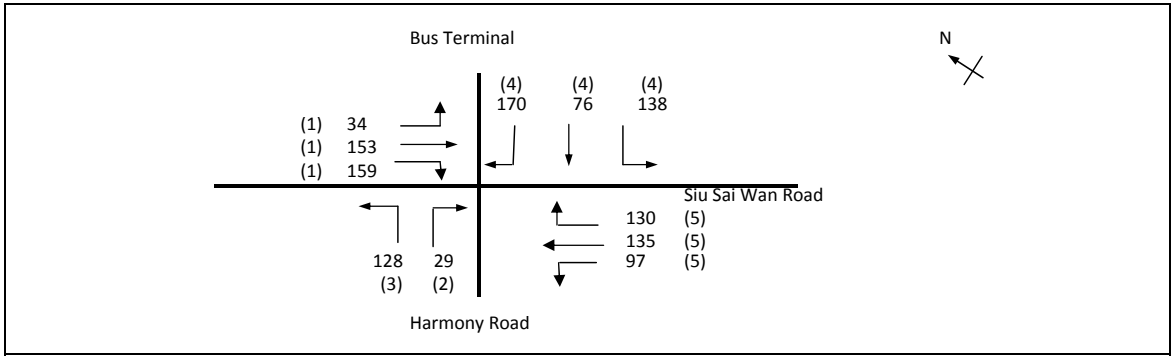


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

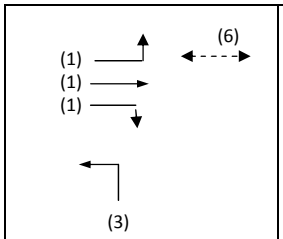
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	152		254	0.40	1844			1844	0.138			28	34	0.402	24	18
ST	A	3.20	1	1				2075		272		272	0.00	2075			2075	0.131			27	34	0.382	24	18
ST	A	3.00	1	2			y	3970		665		665	0.00	3970			3970	0.168	0.168		34	34	0.488	36	17
LT	C	3.75	2	1	12		y	1990	83			83	1.00	1769			1769	0.047			10	18	0.264	6	31
RT	C	3.75	2	1	12			2130			164	164	1.00	1893			1893	0.086	0.086		18	18	0.488	18	32
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

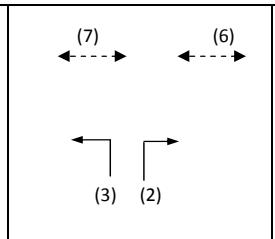
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME :2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



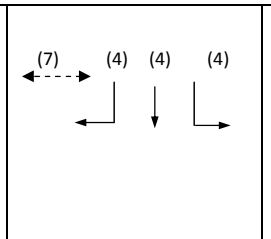
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.323
Loss time		L =	18 sec
Total Flow		=	1251 pcu
Co	= (1.5*L+5)/(1-Y)	=	47.3 sec
Cm	= L/(1-Y)	=	26.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	136.5 %
Cp	= 0.9*L/(0.9-Y)	=	28.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	130.6 %



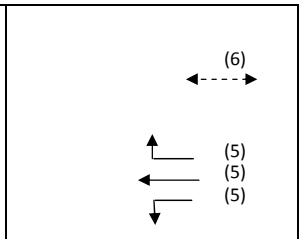
Stage A I = 5



Stage B I = 5



Stage C I = 6

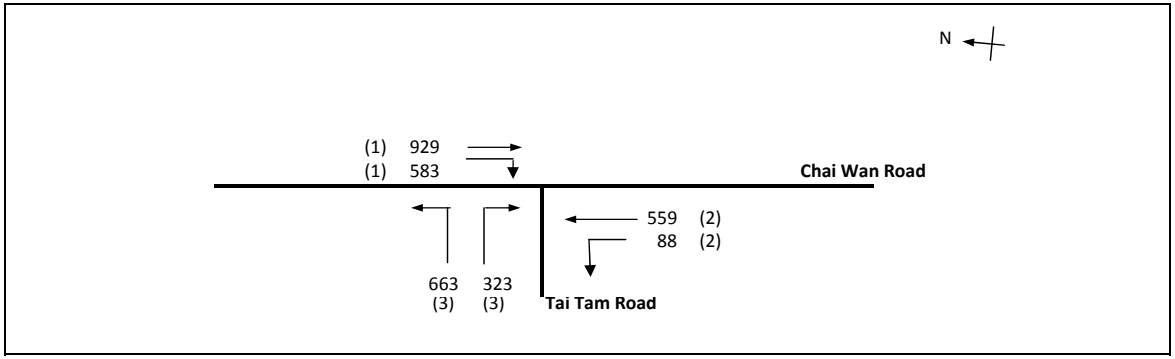


Stage C I = 6

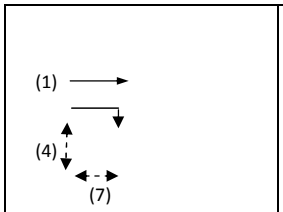
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	34	81		115	0.30	1869			1869	0.062			17	32	0.200	12	22
ST/RT	A	3.30	1	1	12			2085		72	159	231	0.69	1920			1920	0.120	0.120		32	32	0.390	24	22
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.390	0	57
LT	A,B	3.75	3	1	13		y	1990	128			128	1.00	1784			1784	0.072			19	42	0.181	12	16
RT	C	3.50	4	1	12			2105			170	170	1.00	1871			1871	0.091			24	32	0.301	18	22
LT/ST	C	3.50	4	1	12		y	1965	138	76		214	0.64	1818			1818	0.118	0.118		32	32	0.390	24	22
ST/RT	D	3.50	5	1	12			2105			130	130	1.00	1871			1871	0.070	0.070		19	19	0.390	18	33
LT/ST	D	3.50	5	1	11		y	1965	97	135		233	0.42	1859			1859	0.125			34	34	0.390	24	21
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

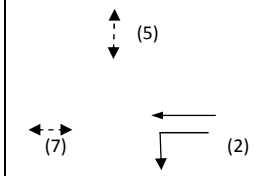
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



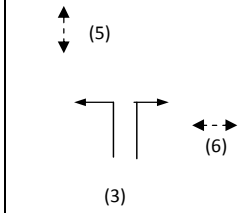
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.686
Loss time		L =	18 sec
Total Flow		=	3145 pcu
Co	= (1.5*L+5)/(1-Y)	=	102.0 sec
Cm	= L/(1-Y)	=	57.4 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	11.5 %
Cp	= 0.9*L/(0.9-Y)	=	75.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8.7 %



Stage A I = 7



Stage B I = 8

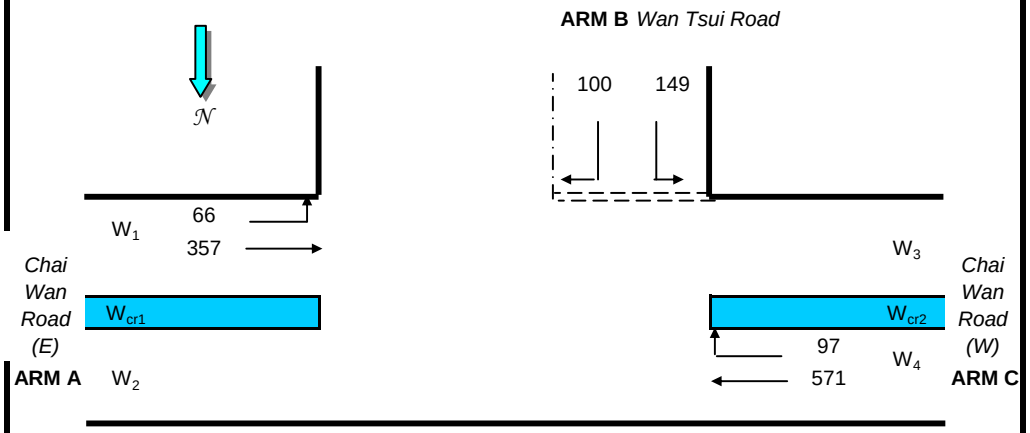


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		929		929	0.00	4120			4120	0.226			29	29	0.828	57	26
RT	A	3.00	1	1	13			2055			583	583	1.00	1842			1842	0.316	0.316		40	29	1.161	72	33
ST	B	3.50	2	2				4210		559		559	0.00	4210			4210	0.133	0.133		17	17	0.828	39	40
LT	B	3.10	2	1	12		y	1925	88			88	1.00	1711			1711	0.051			7	17	0.320	12	34
LT	C	4.00	3	1	15		y	2015	521			521	1.00	1832			1832	0.285			36	36	0.828	54	27
LT/RT	C	4.00	3	1	15			2155	142		323	465	1.00	1959			1959	0.237	0.237		30	36	0.690	48	21
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	65.567	(pcu/hr)
q_{a-c}	=	357.36	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	570.74	(pcu/hr)
q_{c-b}	=	97.293	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	100.47	(pcu/hr)
q_{b-c}	=	148.71	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

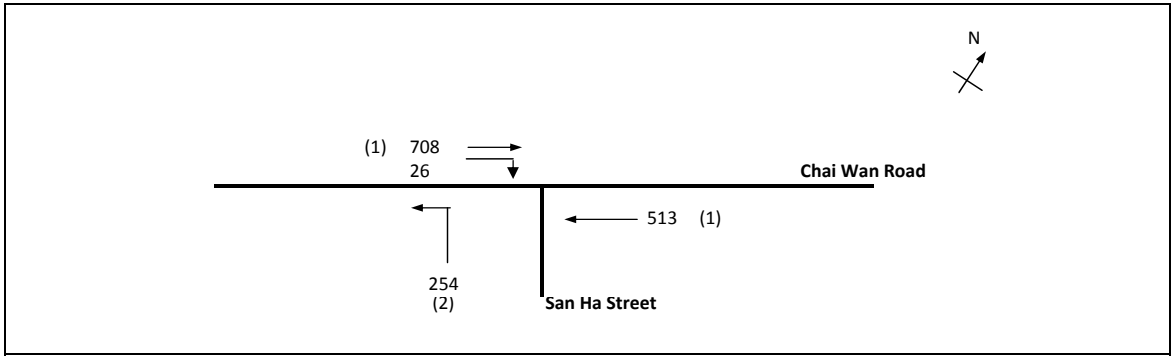
Q_{b-c}	=	777
Q_{c-b}	=	691
Q_{b-a}	=	381

COMPARISION OF DESIGN FLOW TO CAPACITY

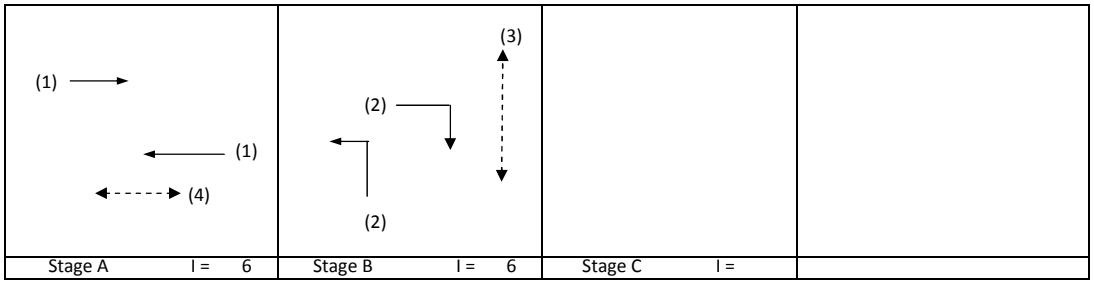
DFC_{b-a}	=	0.264
DFC_{b-c}	=	0.191
DFC_{c-b}	=	0.141

Critical DFC = 0.264

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.326
Loss time		L =	10 sec
Total Flow		=	1502 pcu
Co	= (1.5*L+5)/(1-Y)	=	29.7 sec
Cm	= L/(1-Y)	=	14.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	152.7 %
Cp	= 0.9*L/(0.9-Y)	=	15.7 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	148.1 %

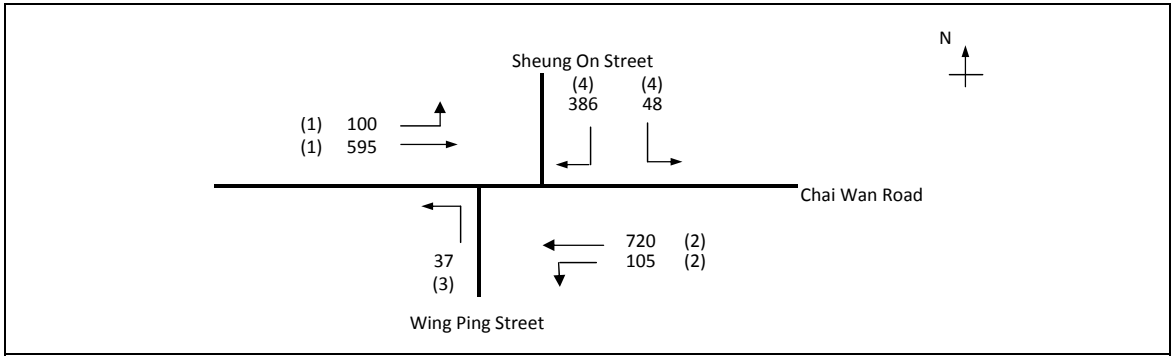


Stage A	I = 6	Stage B	I = 6	Stage C	I =

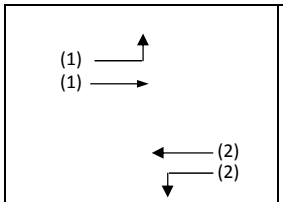
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		708		708	0.00	4070			4070	0.174	0.174		48	47	0.370	30	11
ST	A	3.50	1	2	10		N	4070		513		513	0.00	4070			4070	0.126			35	47	0.268	21	11
LT	B	3.00	2	1	10		N	1915	254			254	1.00	1665			1665	0.153	0.153		42	53	0.288	18	9
RT	B	3.50	2	1	12			2105			26	26	1.00	1871			1871	0.014			4	53	0.027	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

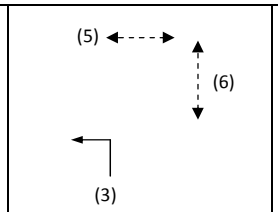
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



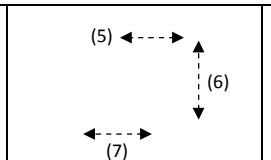
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.280
Loss time		L =	37 sec
Total Flow		=	1991 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.0 sec
Cm	= L/(1-Y)	=	51.4 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	122.3 %
Cp	= 0.9*L/(0.9-Y)	=	53.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	122.3 %



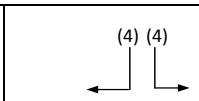
Stage A I = 8



Stage B I = 5



Stage C I = 7

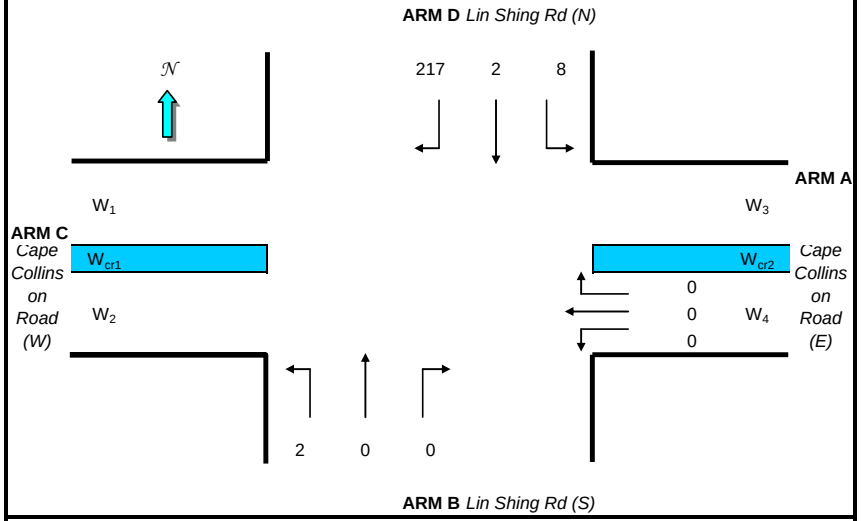


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	100	595		696	0.14	6066			6066	0.115			34		0.000	46	54
LT/ST	A	3.30	2	3	12		Y	6115	105	720		825	0.13	6019			6019	0.137	0.137		41		0.000	54	54
LT	B	3.50	3	1	9		Y	1965	37			37	1.00	1684			1684	0.022	0.022		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	48		386	434	1.00	3583			3583	0.121	0.121		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	217	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

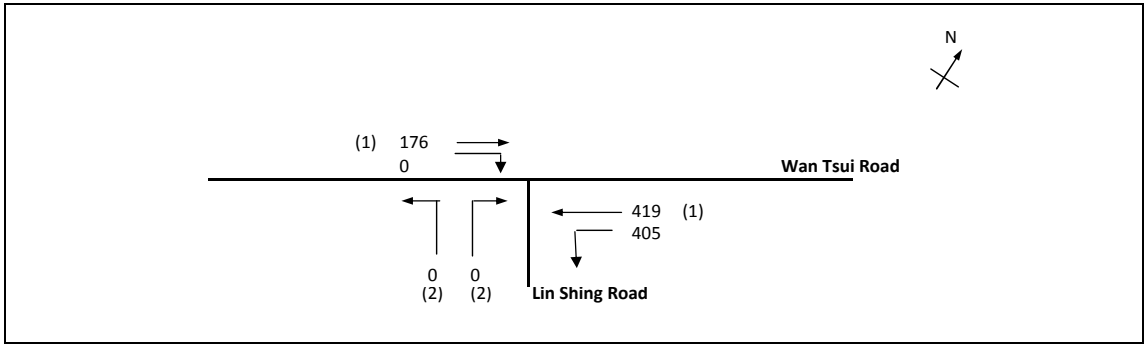
Q_{b-a}	=	616
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

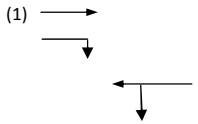
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.419
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

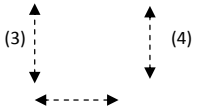
Critical DFC = 0.419

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.439	
Loss time		L =	25	sec
Total Flow		=	1000	pcu
Co	= (1.5*L+5)/(1-Y)	=	75.8	sec
Cm	= L/(1-Y)	=	44.6	sec
Yult		=	0.713	
R.C.ult	= (Yult-Y)/Y*100%	=	62.2	%
Cp	= 0.9*L/(0.9-Y)	=	48.8	sec
Ymax	= 1-L/C	=	0.792	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	62.2	%





Stage A I = 7 | Stage B I = | Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		176		176	0.00	1915			1915	0.092			20	95	0.116	6	2
ST/LT	A	4.00	1	1	10		N	2015	405	419		825	0.49	1877			1877	0.439	0.439		95	95	0.555	30	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

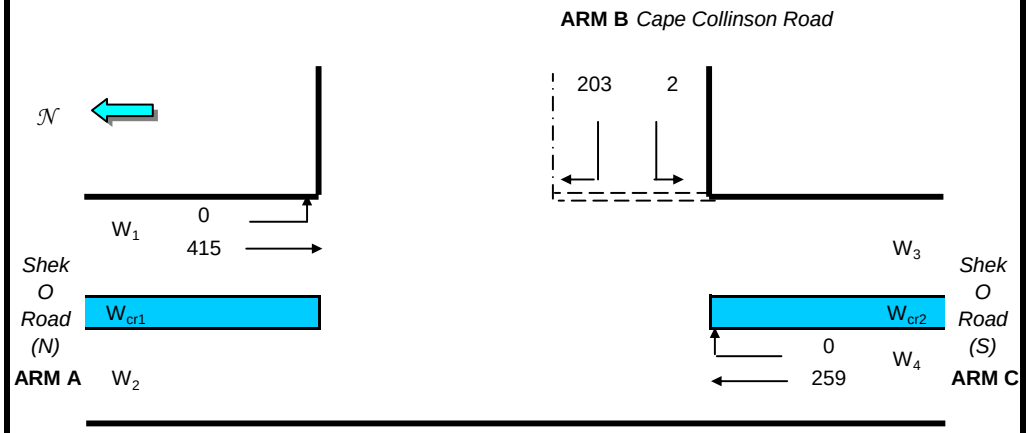
Prepared By: KC

Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 3 - Reference Case

Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	415	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	259	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	203	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

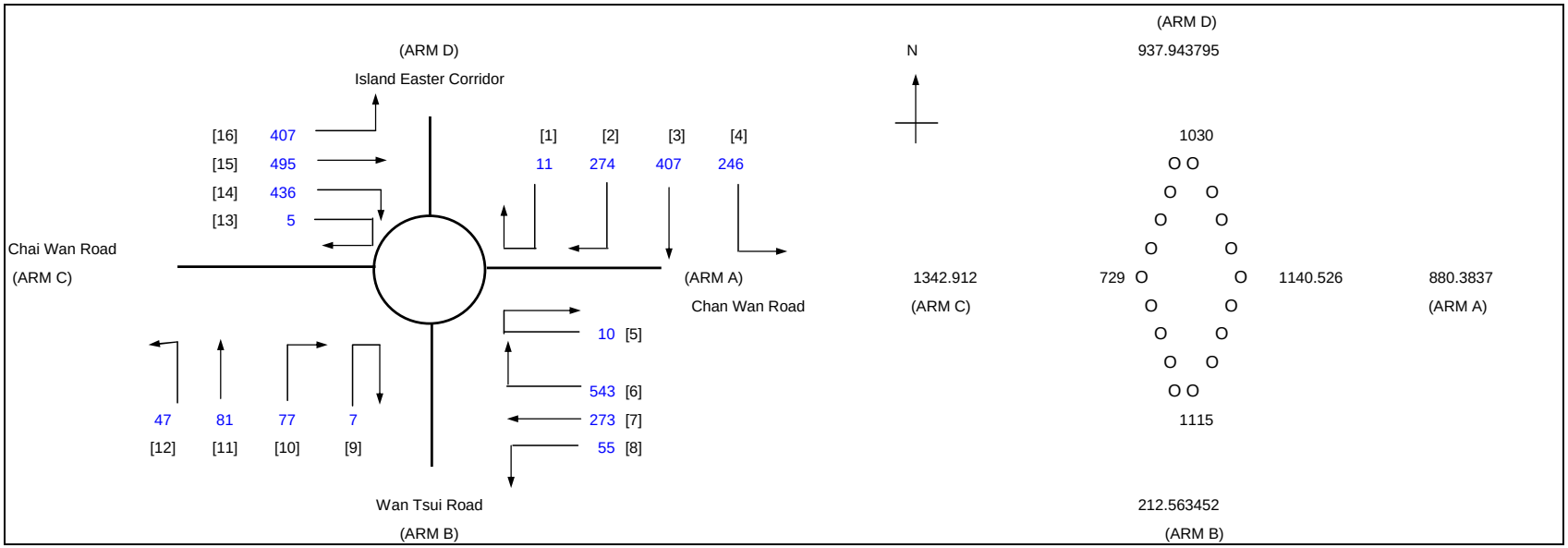
Q_{b-c}	=	636
Q_{c-b}	=	708
Q_{b-a}	=	300

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.678
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.678

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME 2021_LV3_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

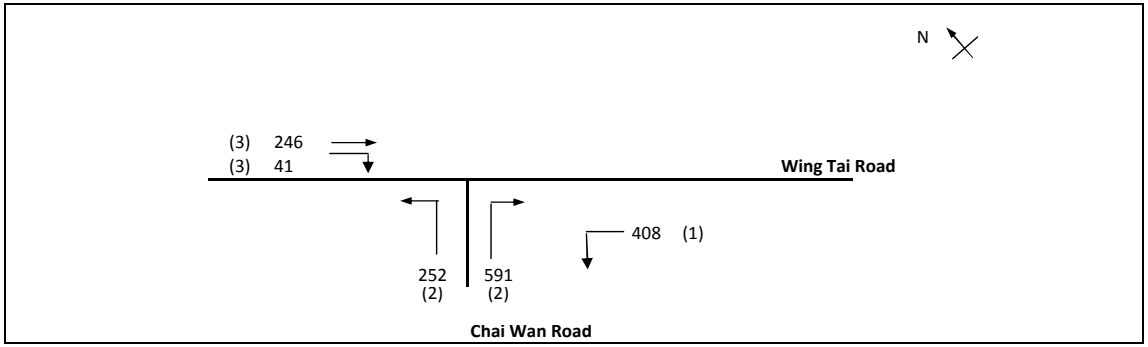


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	880	213	1343	938
Qc	=	Circulating flow across entry (pcu/h)	1141	1115	729	1030
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1604	852	1928	1426
DFC	=	Design flow/Capacity = Q/Qe	0.55	0.25	0.70	0.66

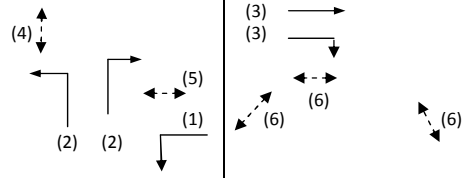
Total In Sum = 2618.926 PCU

DFC of Critical Approach = 0.70

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.225
Loss time		L =	10 sec
Total Flow		=	1539 pcu
Co	= (1.5*L+5)/(1-Y)	=	25.8 sec
Cm	= L/(1-Y)	=	12.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	266.0 %
Cp	= 0.9*L/(0.9-Y)	=	13.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	259.4 %



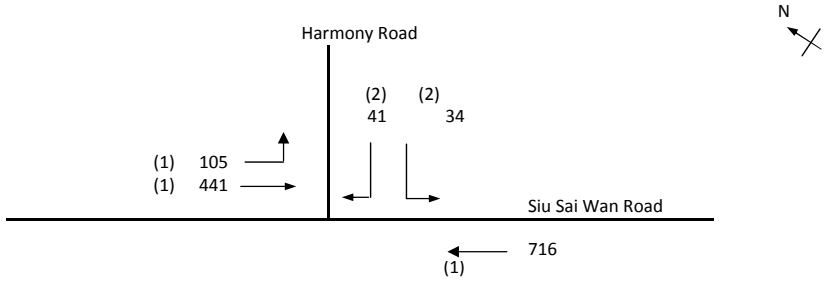
Stage A I = 7

Stage B I = 5

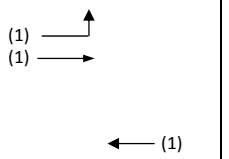
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	408			408	1.00	3857			3857	0.106			42	66	0.161	9	5
LT	A	4.00	2	2	24			4310	252			252	1.00	4056			4056	0.062			25	66	0.094	6	5
RT	A	3.50	2	2	11		y	4070			591	591	1.00	3582			3582	0.165	0.165		66	66	0.250	15	5
ST	B	3.50	3	2			y	4070		246		246	0.00	4070			4070	0.060	0.060		24	24	0.250	15	25
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			4	24	0.045	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

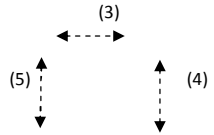
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



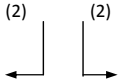
No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.202
Loss time		L =	48 sec
Total Flow		=	1337 pcu
Co	= (1.5*L+5)/(1-Y)	=	96.5 sec
Cm	= L/(1-Y)	=	60.2 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	167.2 %
Cp	= 0.9*L/(0.9-Y)	=	61.9 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	131.5 %



Stage A I = 10



Stage B I = 15

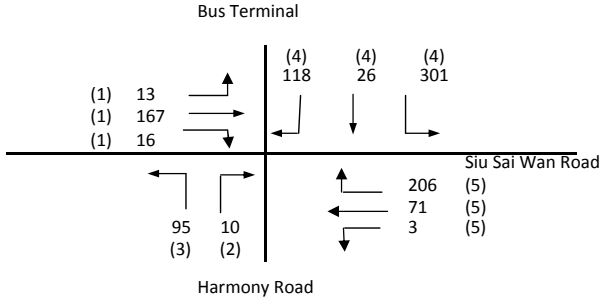


Stage C I = 6

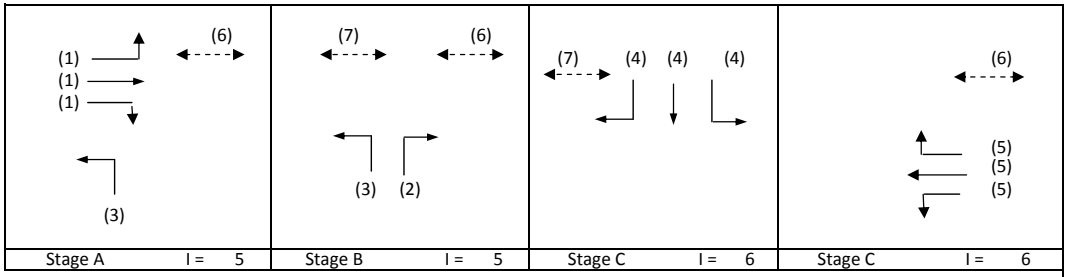
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1843			1843	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.300	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.341	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.351
Loss time		L =	18 sec
Total Flow		=	1027 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.3 sec
Cm	= L/(1-Y)	=	27.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	117.9 %
Cp	= 0.9*L/(0.9-Y)	=	29.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	112.4 %

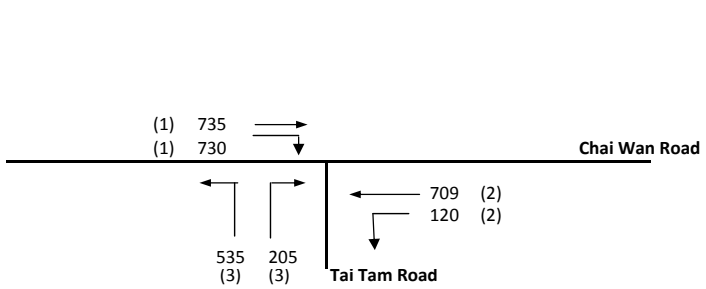


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

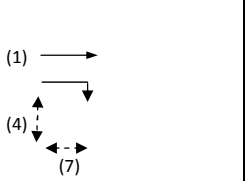
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																			18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.417	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	102	0.16	2045			2045	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	32
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	301	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105		0	206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1954			1954	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

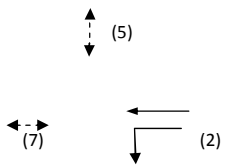
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



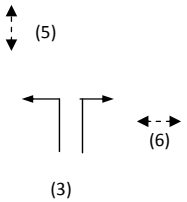
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.758
Loss time		L =	18 sec
Total Flow		=	3034 pcu
Co	= (1.5*L+5)/(1-Y)	=	132.5 sec
Cm	= L/(1-Y)	=	74.5 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	0.9 %
Cp	= 0.9*L/(0.9-Y)	=	114.5 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-1.7 %



Stage A I = 7



Stage B I = 8



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		735		735	0.00	4070			4070	0.181			21	21	0.915	54	43
RT	A	3.50	1	1	13			2105			730	730	1.00	1887			1887	0.387	0.387		44	21	1.959	102	42
ST	B	3.50	2	2				4210		709		709	0.00	4210			4210	0.168	0.168		19	19	0.915	54	44
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			8	19	0.379	12	32
LT	C	4.00	3	1	15		y	2015	372			372	1.00	1832			1832	0.203	0.203		23	23	0.915	66	35
LT/RT	C	4.00	3	1	15			2155	163		205	368	1.00	1959			1959	0.188			22	23	0.845	48	44
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

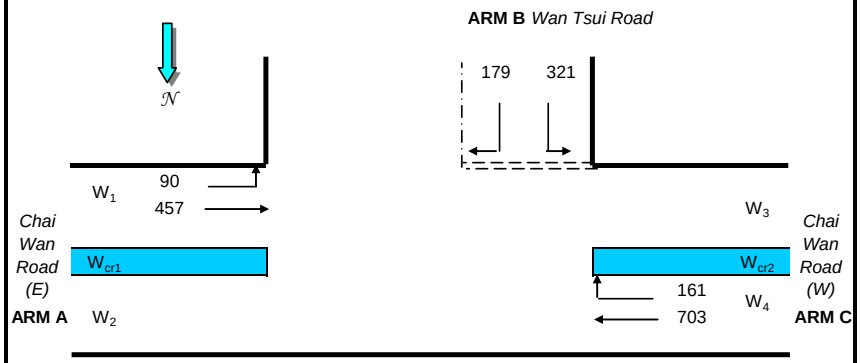
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	457	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	703	(pcu/hr)
q_{c-b}	=	160.74	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	179	(pcu/hr)
q_{b-c}	=	321	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

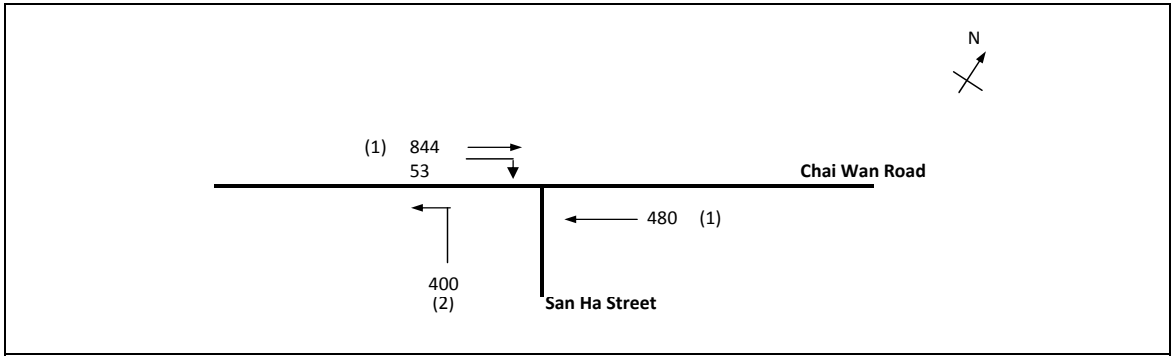
Q_{b-c}	=	763
Q_{c-b}	=	677
Q_{b-a}	=	359

COMPARISION OF DESIGN FLOW TO CAPACITY

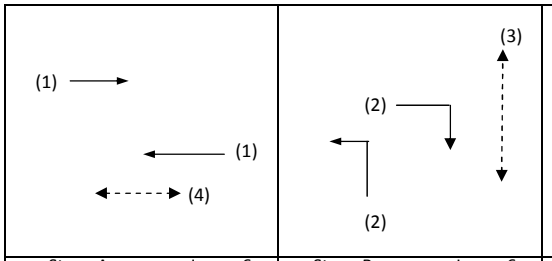
DFC_{b-a}	=	0.500
DFC_{b-c}	=	0.421
DFC_{c-b}	=	0.238

Critical DFC = 0.500

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.447
Loss time		L =	10 sec
Total Flow		=	1777 pcu
Co	= (1.5*L+5)/(1-Y)	=	36.2 sec
Cm	= L/(1-Y)	=	18.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	84.4 %
Cp	= 0.9*L/(0.9-Y)	=	19.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	81.0 %



Stage A I = 6

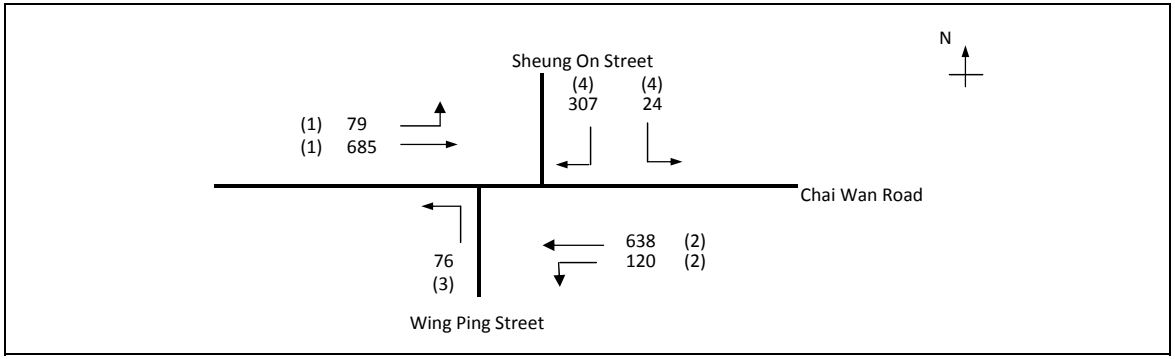
Stage B I = 6

Stage C I =

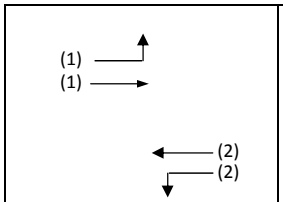
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		844		844	0.00	4070			4070	0.207	0.207		42	47	0.441	36	11
ST	A	3.50	1	2	10		N	4070		480		480	0.00	4070			4070	0.118			24	47	0.251	21	11
LT	B	3.00	2	1	10		N	1915	400			400	1.00	1665			1665	0.240	0.240		48	53	0.453	30	9
RT	B	3.50	2	1	12			2105			53	53	1.00	1871			1871	0.028			6	53	0.053	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

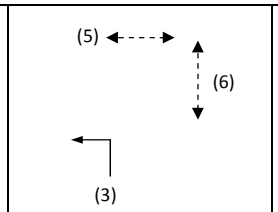
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



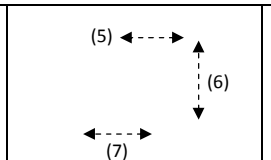
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.264
Loss time		L =	37 sec
Total Flow		=	1929 pcu
Co	= (1.5*L+5)/(1-Y)	=	82.2 sec
Cm	= L/(1-Y)	=	50.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	135.9 %
Cp	= 0.9*L/(0.9-Y)	=	52.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	135.9 %



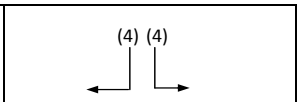
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

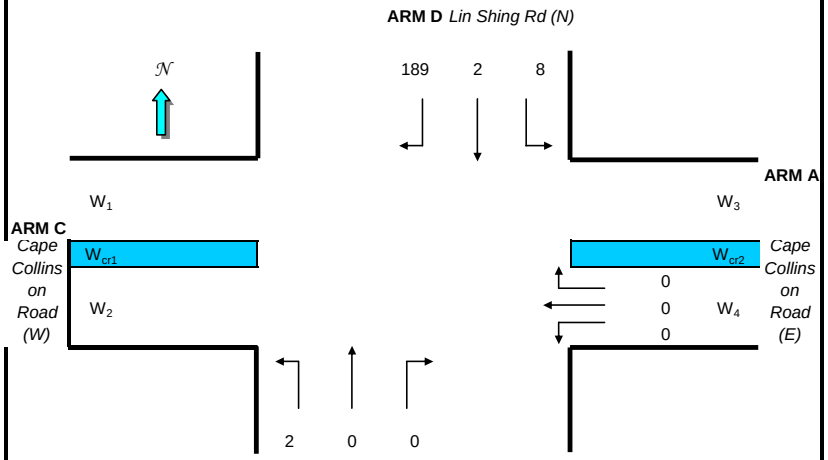
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	79	685		765	0.10	6096			6096	0.125			39		0.000	50	54
LT/ST	A	3.30	2	3	12		Y	6115	120	638		757	0.16	5997			5997	0.126	0.126		40		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	76			76	1.00	1684			1684	0.045	0.045		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	24		307	331	1.00	3583			3583	0.092	0.092		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a | **Prepared By:** KC

Junction Capacity Analysis | **Checked By:** OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1151	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4602	(pcu/hr)
q_{d-b}	=	2.1151	(pcu/hr)
q_{d-c}	=	189.37	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

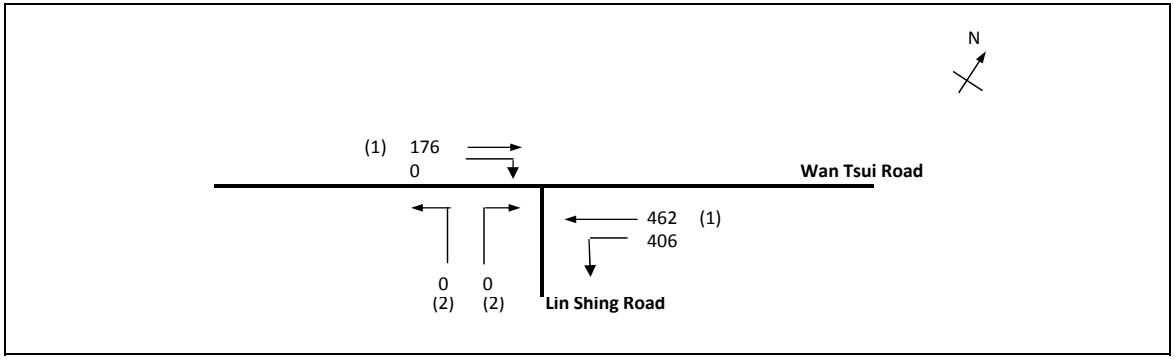
Q_{b-a}	=	620
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

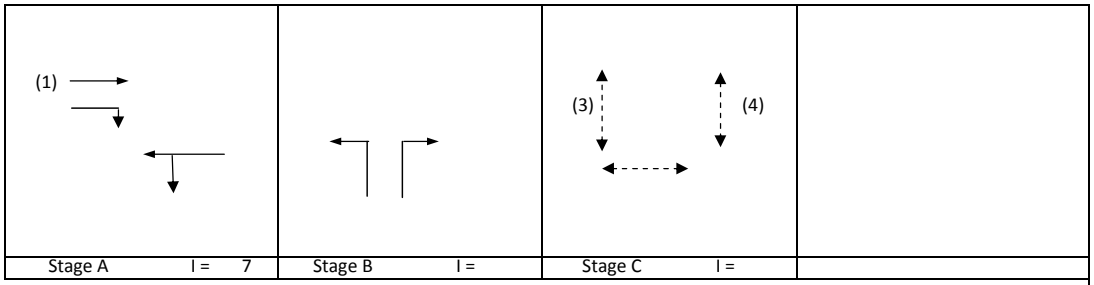
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.366
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.366

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME :/3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.461	
Loss time		L =	25	sec
Total Flow		=	1043	pcu
Co	= (1.5*L+5)/(1-Y)	=	78.8	sec
Cm	= L/(1-Y)	=	46.4	sec
Yult		=	0.713	
R.C.ult	= (Yult-Y)/Y*100%	=	54.6	%
Cp	= 0.9*L/(0.9-Y)	=	51.2	sec
Ymax	= 1-L/C	=	0.792	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	54.6	%

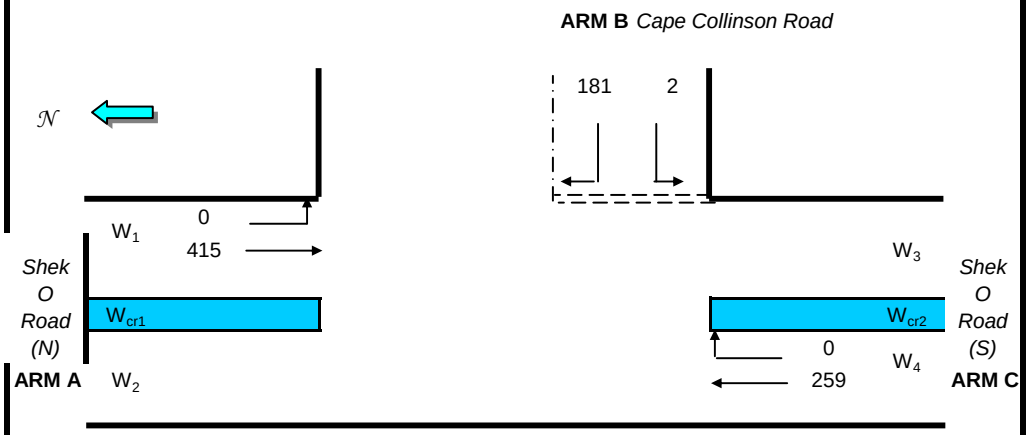


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		176		176	0.00	1915			1915	0.092			19	95	0.116	6	2
ST/LT	A	4.00	1	1	10		N	2015	406	462		868	0.47	1883			1883	0.461	0.461		95	95	0.582	36	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	414.55	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	259.09	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	180.61	(pcu/hr)
q_{b-c}	=	2.1151	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

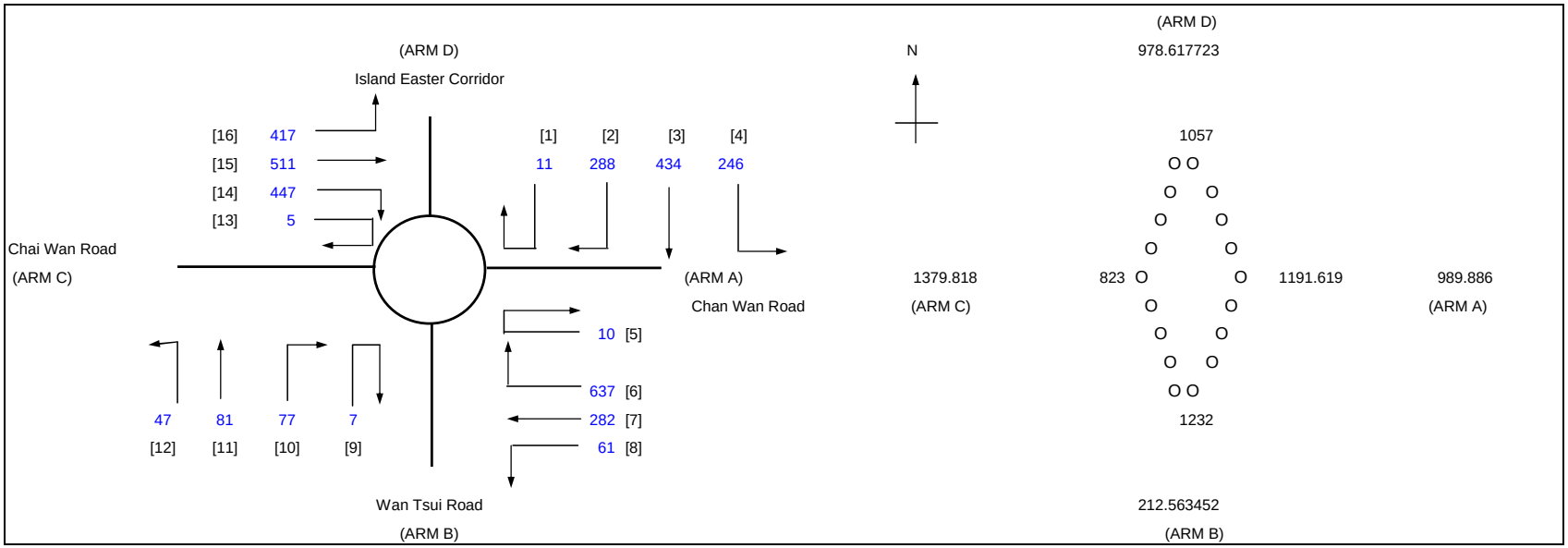
Q_{b-c}	=	636
Q_{c-b}	=	708
Q_{b-a}	=	300

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.603
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.603

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2021_LV3_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

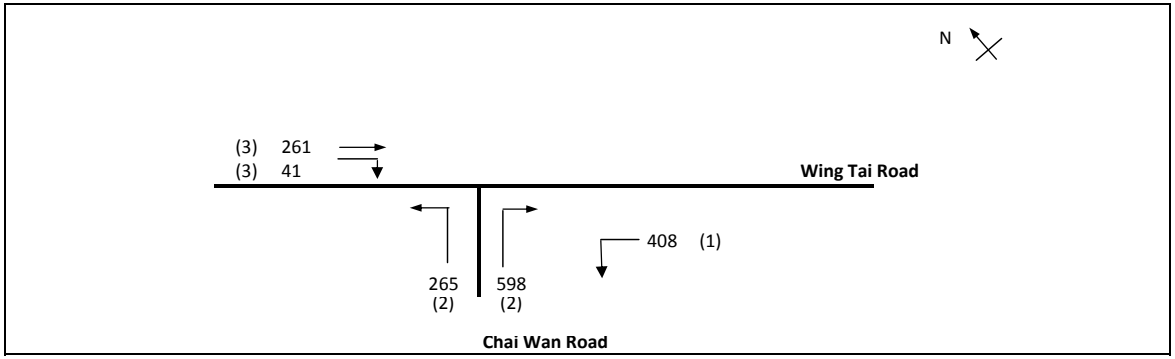


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	990	213	1380	979
Qc	=	Circulating flow across entry (pcu/h)	1192	1232	823	1057
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1565	787	1856	1407
DFC	=	Design flow/Capacity = Q/Qe	0.63	0.27	0.74	0.70

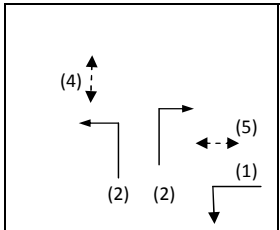
Total In Sum = 2790.023 PCU

DFC of Critical Approach = 0.74

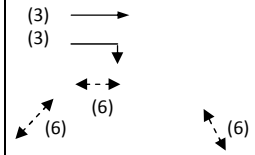
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.231
Loss time		L =	10 sec
Total Flow		=	1573 pcu
Co	= (1.5*L+5)/(1-Y)	=	26.0 sec
Cm	= L/(1-Y)	=	13.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	257.1 %
Cp	= 0.9*L/(0.9-Y)	=	13.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	250.6 %



Stage A I = 7

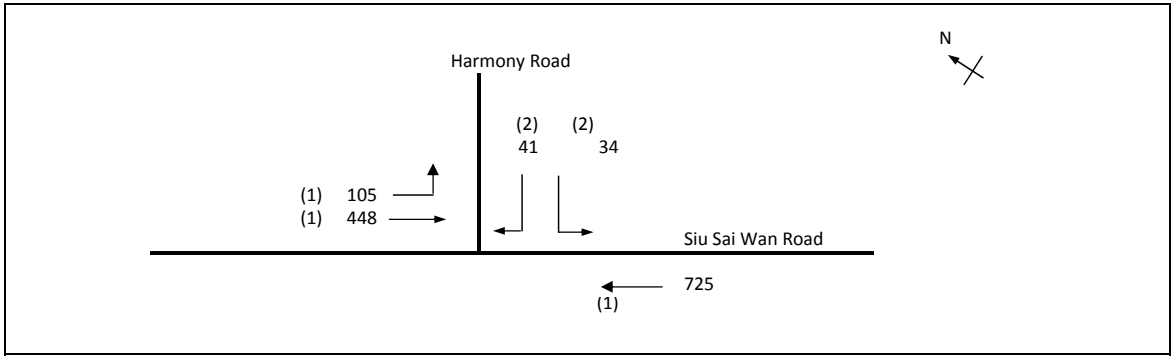


Stage B I = 5

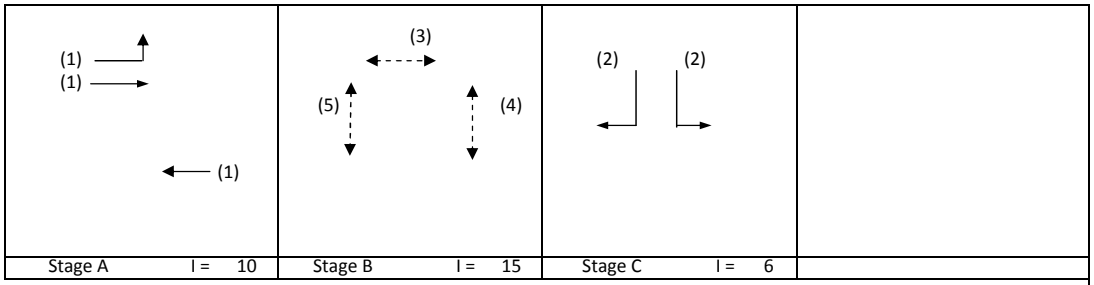
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	408			408	1.00	3857			3857	0.106			41	65	0.163	9	5
LT	A	4.00	2	2	24			4310	265			265	1.00	4056			4056	0.065			25	65	0.100	6	5
RT	A	3.50	2	2	11		y	4070			598	598	1.00	3582			3582	0.167	0.167		65	65	0.257	15	5
ST	B	3.50	3	2			y	4070		261		261	0.00	4070			4070	0.064	0.064		25	25	0.257	15	24
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			4	25	0.043	0	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.204	
Loss time	L =	48	sec
Total Flow	=	1353	pcu
Co = (1.5*L+5)/(1-Y)	=	96.8	sec
Cm = L/(1-Y)	=	60.3	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	164.1	%
Cp = 0.9*L/(0.9-Y)	=	62.1	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	128.9	%

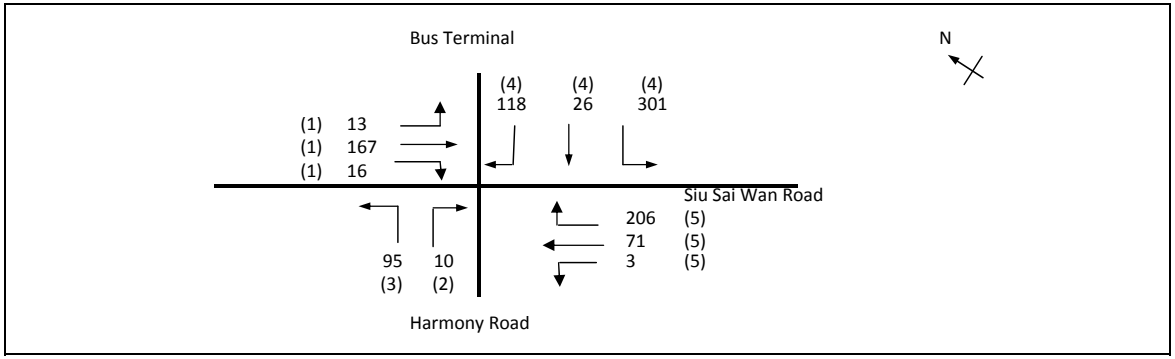


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

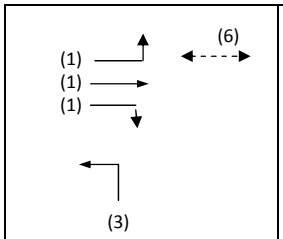
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1843			1843	0.139			35	46	0.300	18	12
ST	A	3.20	1	1				2075		296		296	0.00	2075			2075	0.143			36	46	0.307	24	12
ST	A	3.00	1	2			y	3970		725		725	0.00	3970			3970	0.183	0.183		46	46	0.393	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.345	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.393	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

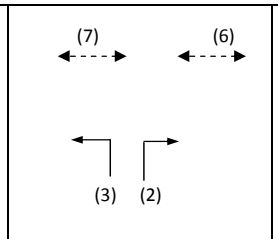
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



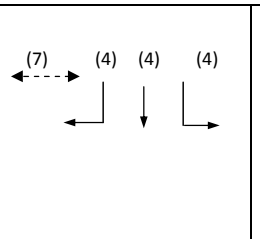
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.351
Loss time	L =	18 sec
Total Flow	=	1027 pcu
Co = (1.5*L+5)/(1-Y)	=	49.3 sec
Cm = L/(1-Y)	=	27.7 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	117.9 %
Cp = 0.9*L/(0.9-Y)	=	29.5 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	112.4 %



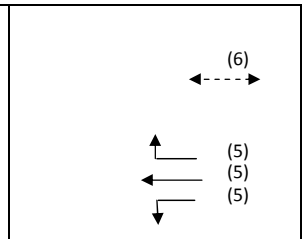
Stage A I = 5



Stage B I = 5



Stage C I = 6

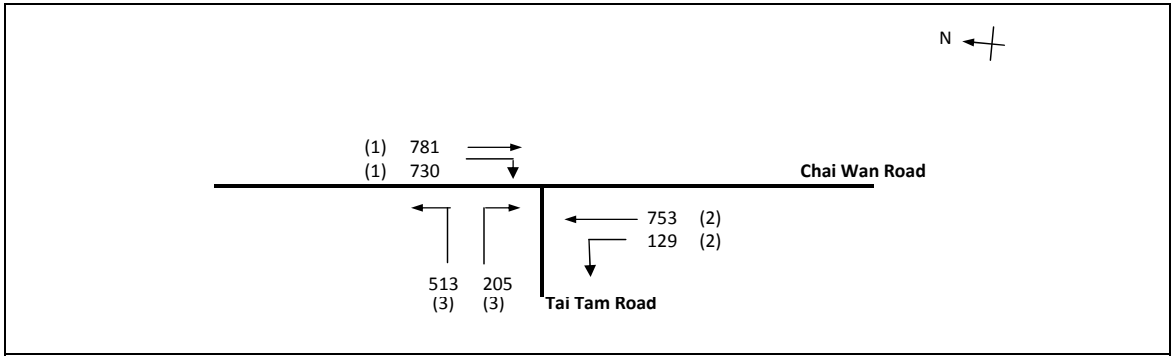


Stage C I = 6

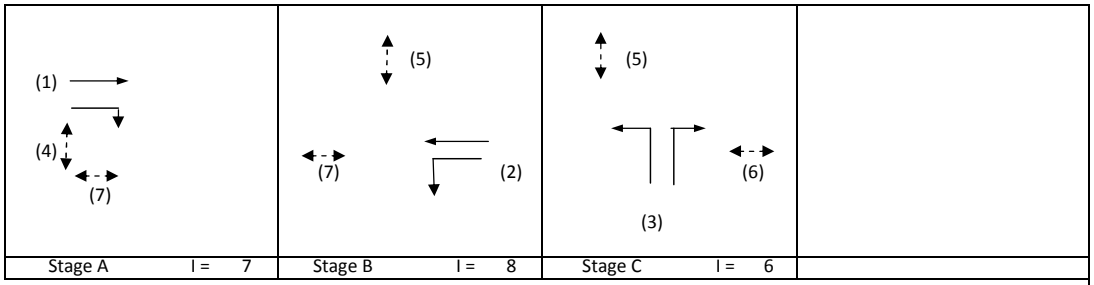
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.417	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	102	0.16	2045			2045	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	32
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	301	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1954			1954	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME :/3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.752
Loss time		L =	18 sec
Total Flow		=	3110 pcu
Co	= (1.5*L+5)/(1-Y)	=	129.0 sec
Cm	= L/(1-Y)	=	72.6 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	1.7 %
Cp	= 0.9*L/(0.9-Y)	=	109.4 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-0.8 %

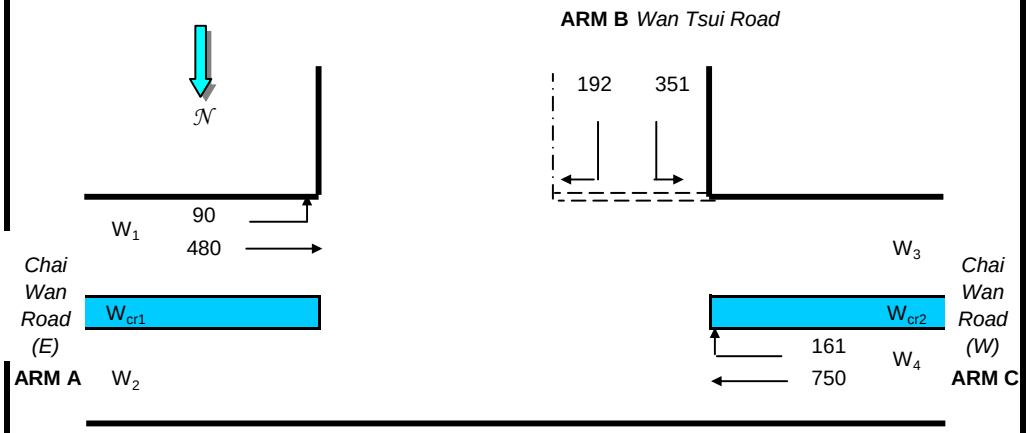


Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		781		781	0.00	4120			4120	0.190			22	22	0.907	54	42
RT	A	3.00	1	1	13			2055			730	730	1.00	1842			1842	0.396	0.396		46	22	1.895	96	41
ST	B	3.50	2	2				4210		753		753	0.00	4210			4210	0.179	0.179		21	21	0.907	54	43
LT	B	3.10	2	1	12		y	1925	129			129	1.00	1711			1711	0.075			9	21	0.382	18	31
LT	C	4.00	3	1	15		y	2015	371			371	1.00	1832			1832	0.203			23	23	0.907	60	35
LT/RT	C	4.00	3	1	15			2155	142		205	347	1.00	1959			1959	0.177	0.177		20	23	0.793	42	38
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	479.82	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	749.66	(pcu/hr)
q_{c-b}	=	160.74	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	192.09	(pcu/hr)
q_{b-c}	=	350.92	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

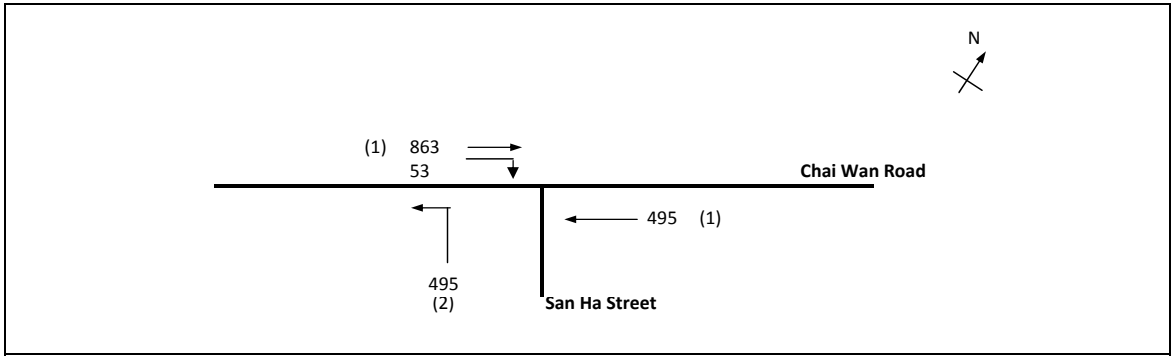
Q_{b-c}	=	760
Q_{c-b}	=	674
Q_{b-a}	=	355

COMPARISION OF DESIGN FLOW TO CAPACITY

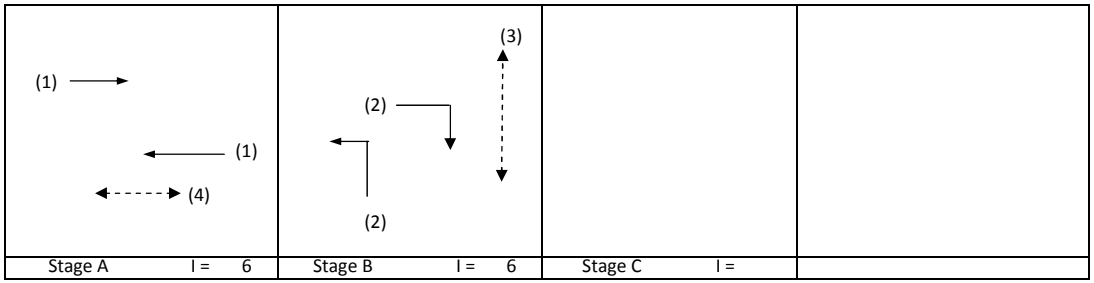
DFC_{b-a}	=	0.542
DFC_{b-c}	=	0.462
DFC_{c-b}	=	0.239

Critical DFC = 0.542

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.509
Loss time		L =	10 sec
Total Flow		=	1906 pcu
Co	= (1.5*L+5)/(1-Y)	=	40.7 sec
Cm	= L/(1-Y)	=	20.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	62.1 %
Cp	= 0.9*L/(0.9-Y)	=	23.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	59.2 %

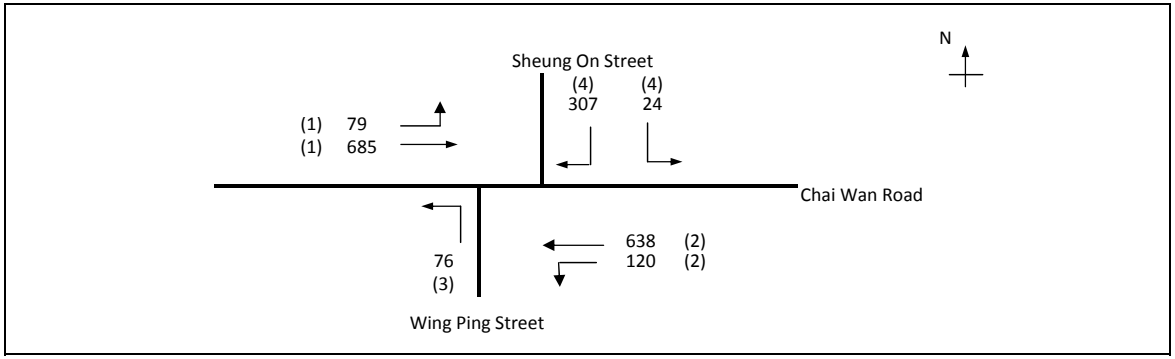


Stage A	I = 6	Stage B	I = 6	Stage C	I =

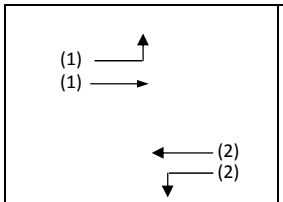
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		863		863	0.00	4070			4070	0.212	0.212		37	47	0.451	36	11
ST	A	3.50	1	2	10		N	4070		495		495	0.00	4070			4070	0.122			22	47	0.259	21	11
LT	B	3.00	2	1	10		N	1915	495			495	1.00	1665			1665	0.297	0.297		53	53	0.560	36	9
RT	B	3.50	2	1	12			2105			53	53	1.00	1871			1871	0.028			5	53	0.053	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

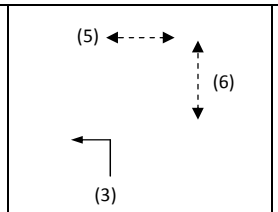
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



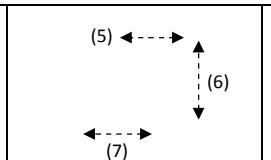
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.264
Loss time		L =	37 sec
Total Flow		=	1929 pcu
Co	= (1.5*L+5)/(1-Y)	=	82.2 sec
Cm	= L/(1-Y)	=	50.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	135.9 %
Cp	= 0.9*L/(0.9-Y)	=	52.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	135.9 %



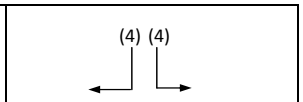
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

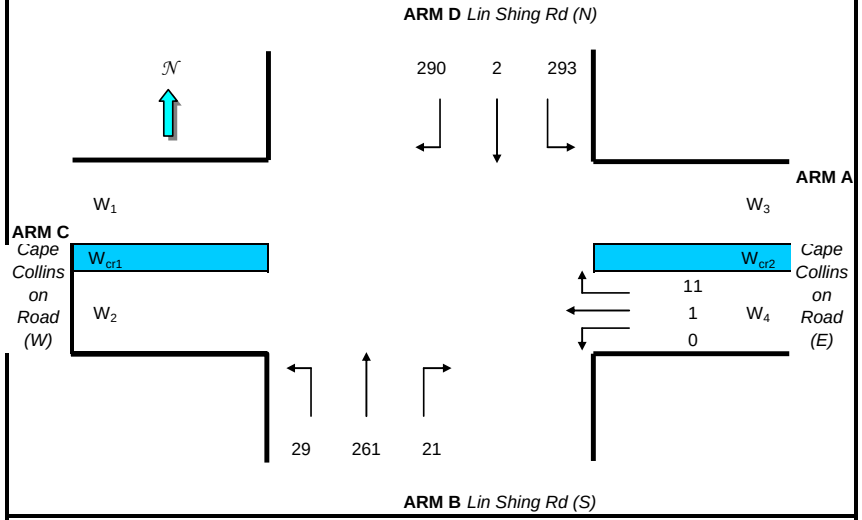
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	79	685		765	0.10	6096			6096	0.125			39		0.000	50	54
LT/ST	A	3.30	2	3	12		Y	6115	120	638		757	0.16	5997			5997	0.126	0.126		40		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	76			76	1.00	1684			1684	0.045	0.045		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	24		307	331	1.00	3583			3583	0.092	0.092		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix B4

2026 Peak Hour Junction Assessment Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0871	(pcu/hr)
q_{a-d}	=	10.784	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	20.655	(pcu/hr)
q_{b-c}	=	29.177	(pcu/hr)
q_{b-d}	=	261.23	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	292.98	(pcu/hr)
q_{d-b}	=	2.3819	(pcu/hr)
q_{d-c}	=	290.11	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

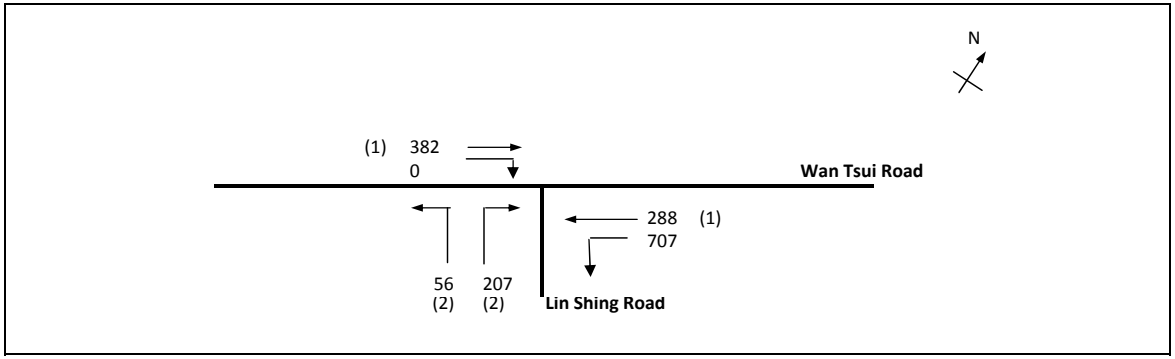
Q_{b-a}	=	516
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	528
Q_{d-c}	=	443
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

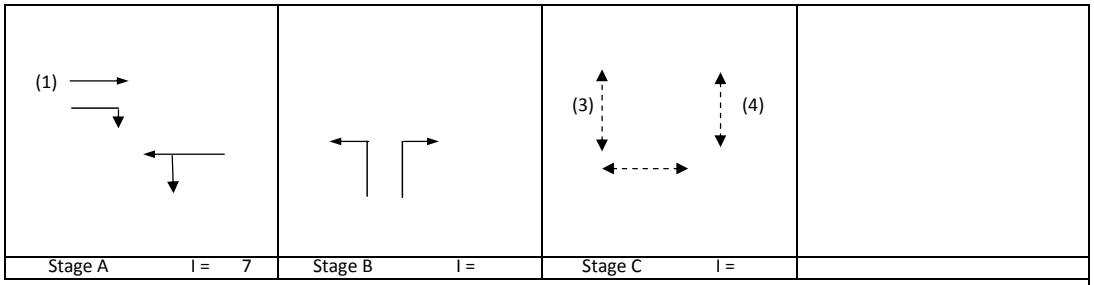
DFC_{b-a}	=	0.040
DFC_{b-c}	=	0.039
DFC_{b-d}	=	0.430
DFC_{d-a}	=	0.434
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.655
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.018

Critical DFC = 0.655

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.547	
Loss time	L =	25	sec
Total Flow	=	1377	pcu
Co = (1.5*L+5)/(1-Y)	=	93.7	sec
Cm = L/(1-Y)	=	55.1	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	30.4	%
Cp = 0.9*L/(0.9-Y)	=	63.7	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	30.4	%



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		382		382	0.00	1915			1915	0.199			35	95	0.252	12	2
ST/LT	A	4.00	1	1	10		N	2015	707	288		995	0.71	1821			1821	0.547	0.547		95	95	0.690	36	4
Ped	B	6.0	3																	20					

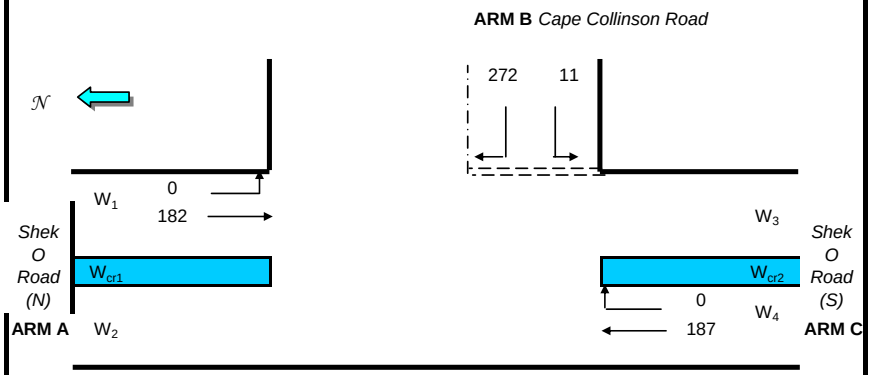
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	181.55	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	186.98	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	272.24	(pcu/hr)
q_{b-c}	=	10.723	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

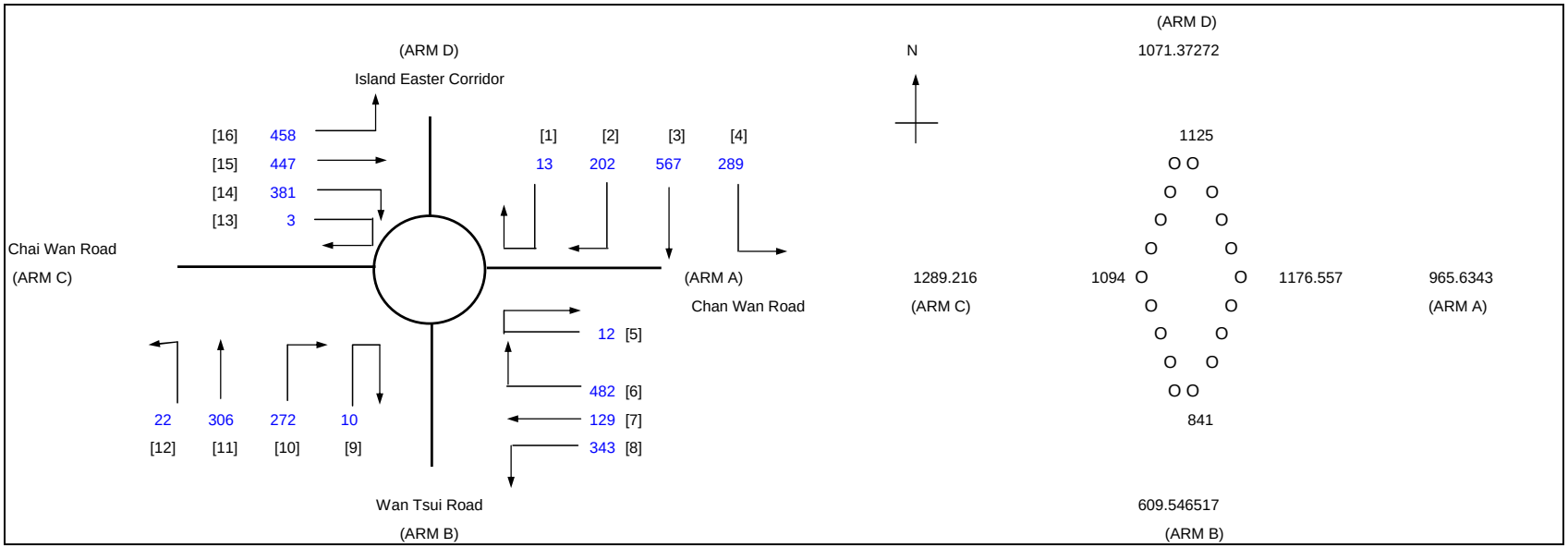
Q_{b-c}	=	696
Q_{c-b}	=	775
Q_{b-a}	=	344

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.791
DFC_{b-c}	=	0.015
DFC_{c-b}	=	0.000

Critical DFC = 0.791

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME : 2026_LV1_Ref.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

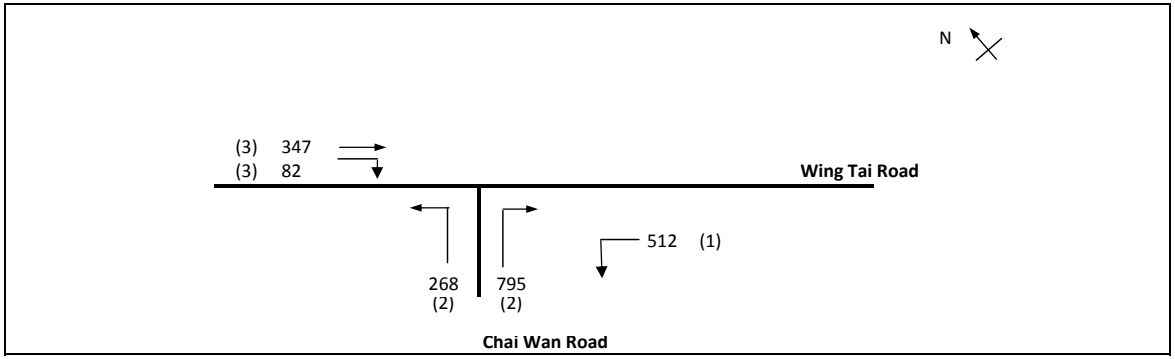


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	966	610	1289	1071
Qc	=	Circulating flow across entry (pcu/h)	1177	841	1094	1125
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1577	1004	1651	1360
DFC	=	Design flow/Capacity = Q/Qe	0.61	0.61	0.78	0.79

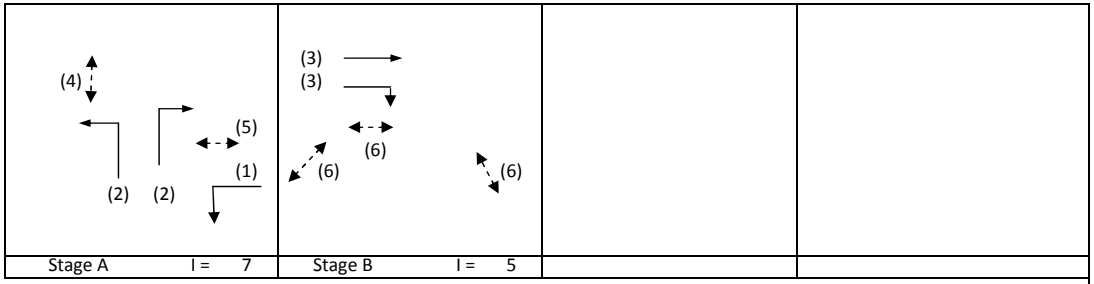
Total In Sum = 2824.283 PCU

DFC of Critical Approach = 0.79

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.307	
Loss time		L =	10	sec
Total Flow		=	2003	pcu
Co	= (1.5*L+5)/(1-Y)	=	28.9	sec
Cm	= L/(1-Y)	=	14.4	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	168.6	%
Cp	= 0.9*L/(0.9-Y)	=	15.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	163.7	%

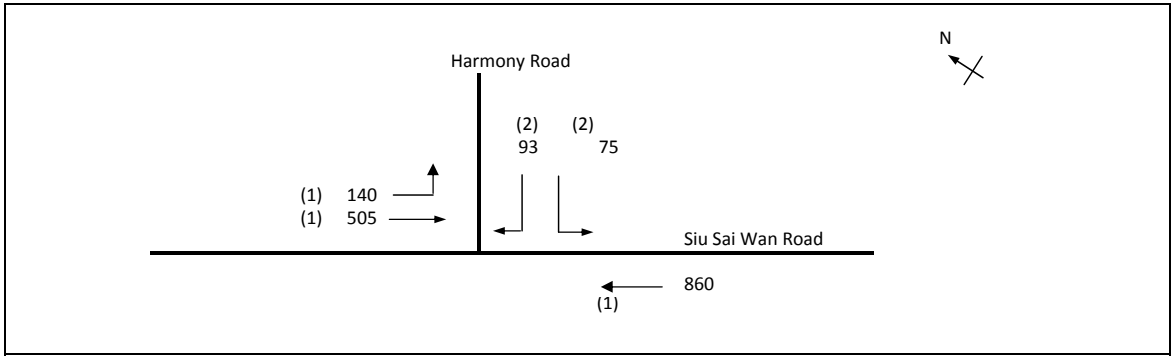


Stage A I = 7 Stage B I = 5

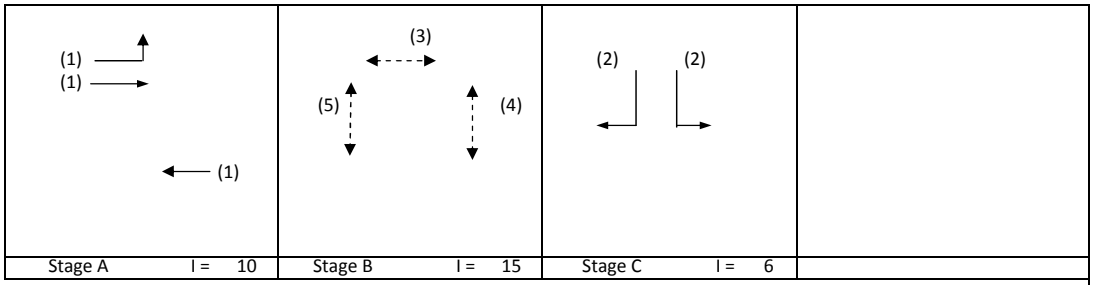
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	512			512	1.00	3857			3857	0.133			39	65	0.204	12	5
LT	A	4.00	2	2	24			4310	268			268	1.00	4056			4056	0.066			19	65	0.102	6	5
RT	A	3.50	2	2	11		y	4070			795	795	1.00	3582			3582	0.222	0.222		65	65	0.341	21	5
ST	B	3.50	3	2			y	4070		347		347	0.00	4070			4070	0.085	0.085		25	25	0.341	21	24
RT	B	4.50	3	2	13		y	4270			82	82	1.00	3828			3828	0.021			6	25	0.085	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.266	
Loss time	L =	48	sec
Total Flow	=	1672	pcu
Co = (1.5*L+5)/(1-Y)	=	104.8	sec
Cm = L/(1-Y)	=	65.4	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	103.3	%
Cp = 0.9*L/(0.9-Y)	=	68.1	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	76.2	%

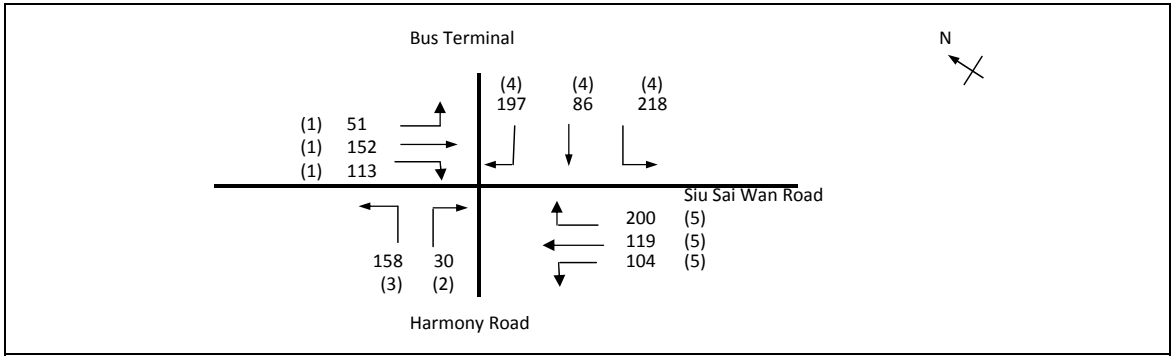


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

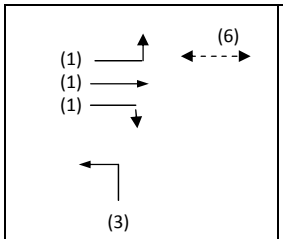
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	140	156		296	0.47	1827			1827	0.162			32	42	0.382	24	14
ST	A	3.20	1	1				2075		349		349	0.00	2075			2075	0.168			33	42	0.397	30	14
ST	A	3.00	1	2			y	3970		860		860	0.00	3970			3970	0.217	0.217		42	42	0.511	39	13
LT	C	3.75	2	1	12		y	1990	75			75	1.00	1769			1769	0.042			8	10	0.440	6	43
RT	C	3.75	2	1	12			2130			93	93	1.00	1893			1893	0.049	0.049		10	10	0.511	12	44
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

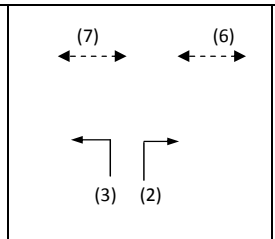
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



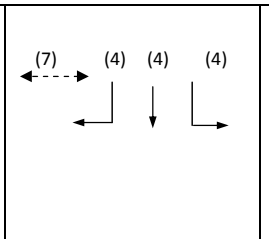
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.385
Loss time	L =	18 sec
Total Flow	=	1427 pcu
Co = (1.5*L+5)/(1-Y)	=	52.0 sec
Cm = L/(1-Y)	=	29.3 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	98.8 %
Cp = 0.9*L/(0.9-Y)	=	31.4 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	93.8 %



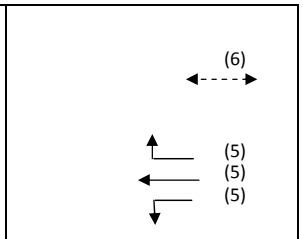
Stage A I = 5



Stage B I = 5



Stage C I = 6

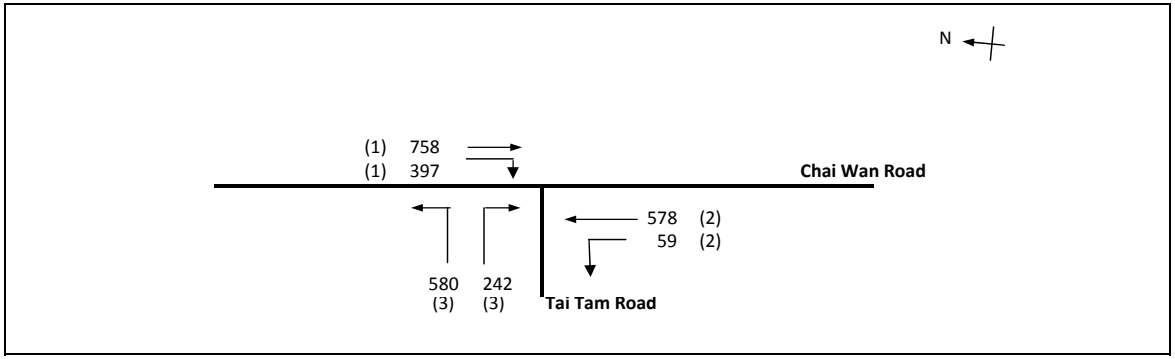


Stage C I = 6

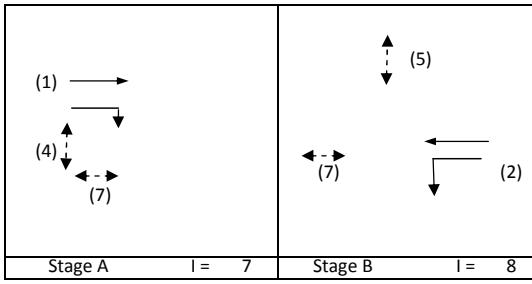
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	51	84		135	0.38	1849			1849	0.073			17	21	0.363	18	30
ST/RT	A	3.30	1	1	12			2085		68	113	181	0.62	1934			1934	0.094	0.094		21	21	0.464	24	31
RT	B	3.50	2	1	12			2105			30	30	1.00	1871			1871	0.016	0.016		4	4	0.464	0	65
LT	A,B	3.75	3	1	13		y	1990	158			158	1.00	1784			1784	0.089			20	30	0.312	18	24
RT	C	3.50	4	1	12			2105			197	197	1.00	1871			1871	0.105			24	38	0.290	18	18
LT/ST	C	3.50	4	1	12		y	1965	218	86		303	0.72	1803			1803	0.168	0.168		38	38	0.464	30	18
ST/RT	D	3.50	5	1	12			2105		0	200	200	1.00	1871			1871	0.107	0.107		24	24	0.464	24	28
LT/ST	D	3.50	5	1	11		y	1965	104	119		223	0.47	1848			1848	0.121			27	27	0.464	24	26
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.572
Loss time	L =	18 sec
Total Flow	=	2612 pcu
Co = (1.5*L+5)/(1-Y)	=	74.8 sec
Cm = L/(1-Y)	=	42.1 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	33.7 %
Cp = 0.9*L/(0.9-Y)	=	49.4 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	30.3 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		758		758	0.00	4070			4070	0.186			28	28	0.691	48	24
RT	A	3.50	1	1	13			2105			397	397	1.00	1887			1887	0.210	0.210		32	28	0.780	48	31
ST	B	3.50	2	2				4210		578		578	0.00	4210			4210	0.137	0.137		21	21	0.691	39	30
LT	B	3.10	2	1	12		y	1925	59			59	1.00	1711			1711	0.034			5	21	0.173	6	30
LT	C	4.00	3	1	15		y	2015	412			412	1.00	1832			1832	0.225	0.225		34	34	0.691	48	23
LT/RT	C	4.00	3	1	15			2155	168		242	410	1.00	1959			1959	0.209			32	34	0.642	48	22
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

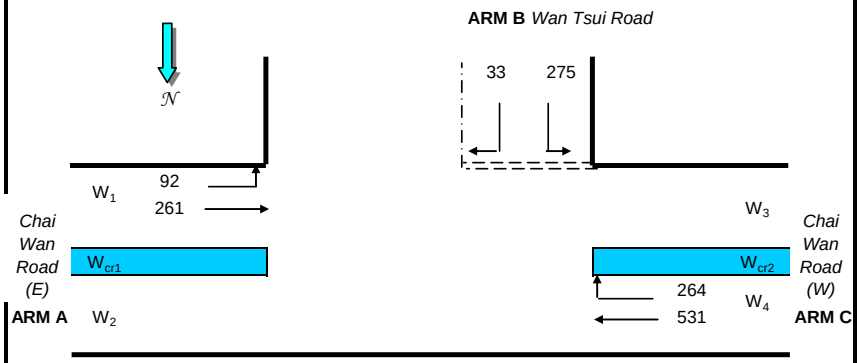
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	92.403	(pcu/hr)
q_{a-c}	=	260.9	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	530.62	(pcu/hr)
q_{c-b}	=	264.16	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	32.613	(pcu/hr)
q_{b-c}	=	274.51	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

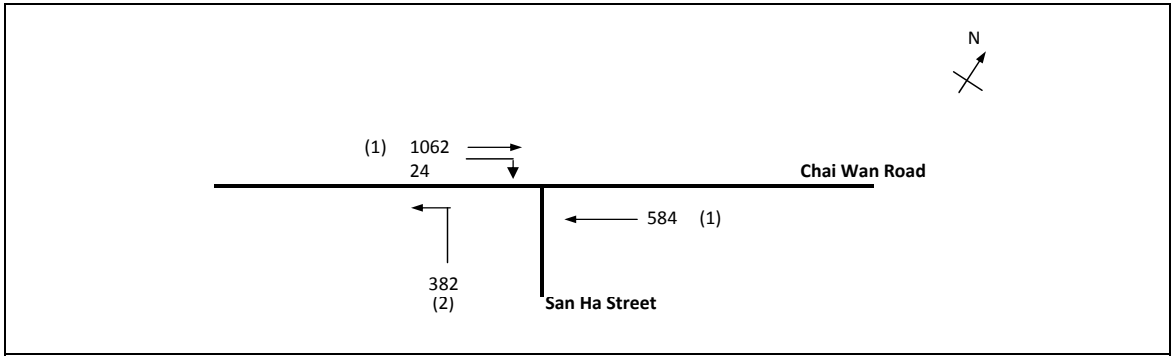
Q_{b-c}	=	788
Q_{c-b}	=	699
Q_{b-a}	=	371

COMPARISION OF DESIGN FLOW TO CAPACITY

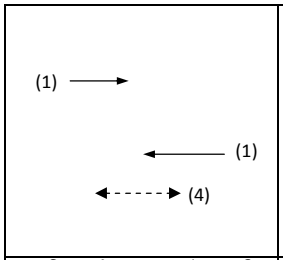
DFC_{b-a}	=	0.088
DFC_{b-c}	=	0.348
DFC_{c-b}	=	0.378

Critical DFC = 0.378

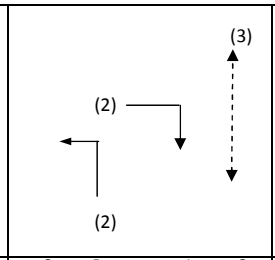
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.490
Loss time		L =	10 sec
Total Flow		=	2052 pcu
Co	= (1.5*L+5)/(1-Y)	=	39.2 sec
Cm	= L/(1-Y)	=	19.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	68.3 %
Cp	= 0.9*L/(0.9-Y)	=	22.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	65.2 %



Stage A I = 6



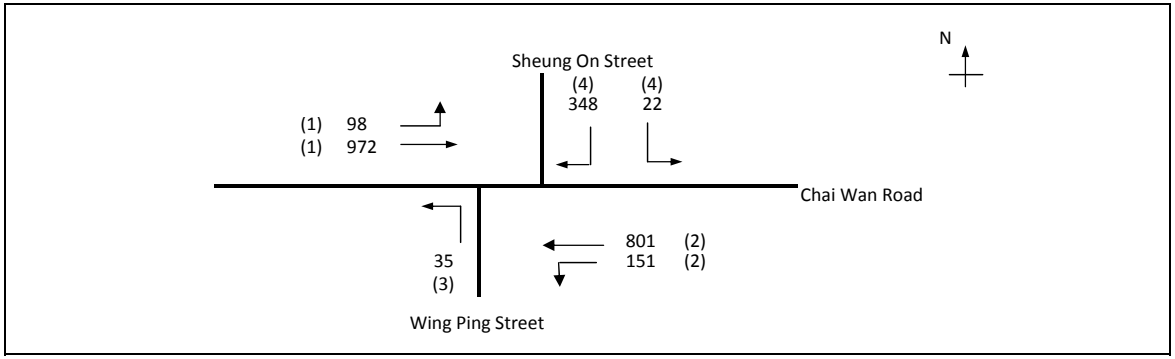
Stage B I = 6

Stage C I =

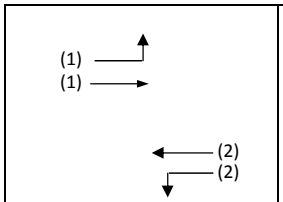
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1062		1062	0.00	4070			4070	0.261	0.261		48	47	0.555	45	10
ST	A	3.50	1	2	10		N	4070		584		584	0.00	4070			4070	0.144			26	47	0.305	24	11
LT	B	3.00	2	1	10		N	1915	382			382	1.00	1665			1665	0.229	0.229		42	53	0.432	24	9
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.024	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

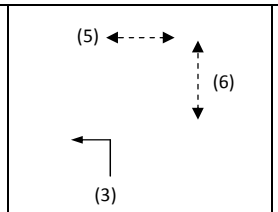
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



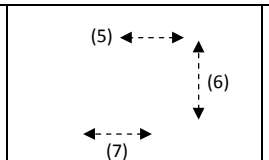
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.283
Loss time		L =	37 sec
Total Flow		=	2427 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.3 sec
Cm	= L/(1-Y)	=	51.6 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	120.2 %
Cp	= 0.9*L/(0.9-Y)	=	53.9 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	120.2 %



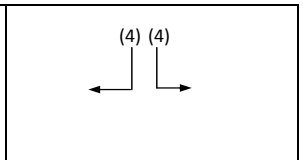
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22				
LT/ST	A	3.50	1	3	12		y	6175	98	972		1070	0.09	6105			6105	0.175			51		0.000	70	54
LT/ST	A	3.30	2	3	12		Y	6115	151	801		953	0.16	5996			5996	0.159	0.159		47		0.000	62	54
LT	B	3.50	3	1	9		Y	1965	35			35	1.00	1684			1684	0.021	0.021		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	22		348	370	1.00	3583			3583	0.103	0.103		30		0.000	36	54
Ped	B,C	4.00	5																					
Ped	B,C	5.00	6																					
Ped	C	3.00	7																	15				

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

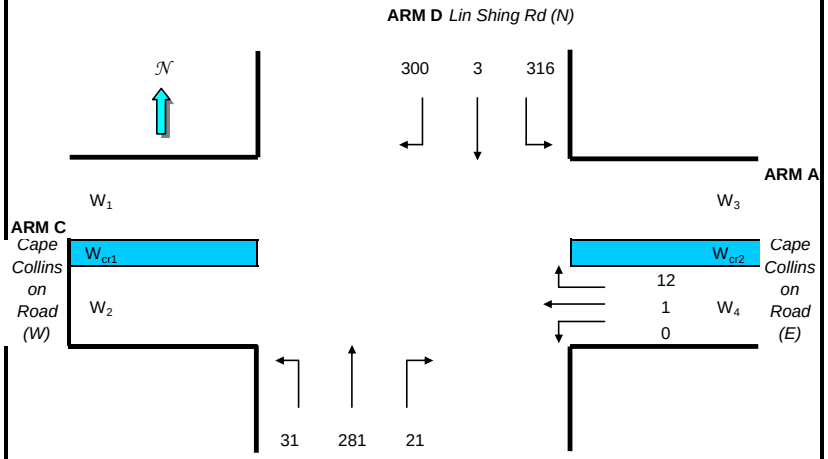
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2026 Level 1 - Site 1

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0871	(pcu/hr)
q_{a-d}	=	11.784	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	20.655	(pcu/hr)
q_{b-c}	=	31.177	(pcu/hr)
q_{b-d}	=	280.58	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	315.51	(pcu/hr)
q_{d-b}	=	2.5651	(pcu/hr)
q_{d-c}	=	300.5	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

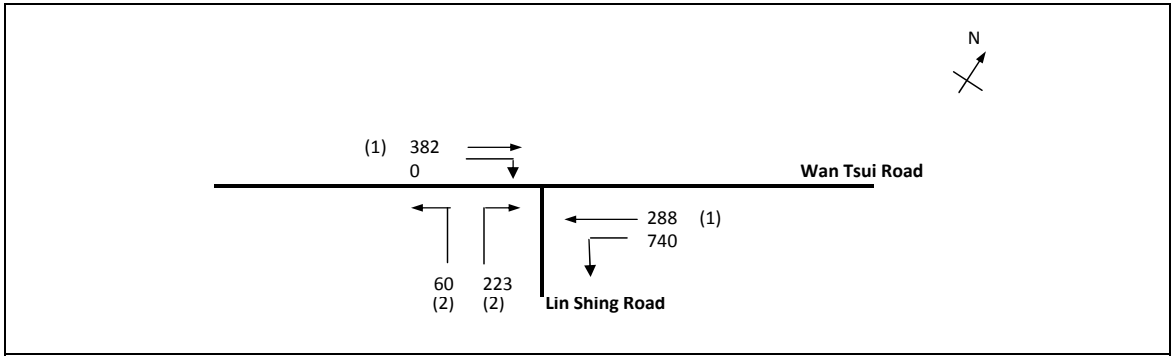
Q_{b-a}	=	507
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	527
Q_{d-c}	=	437
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

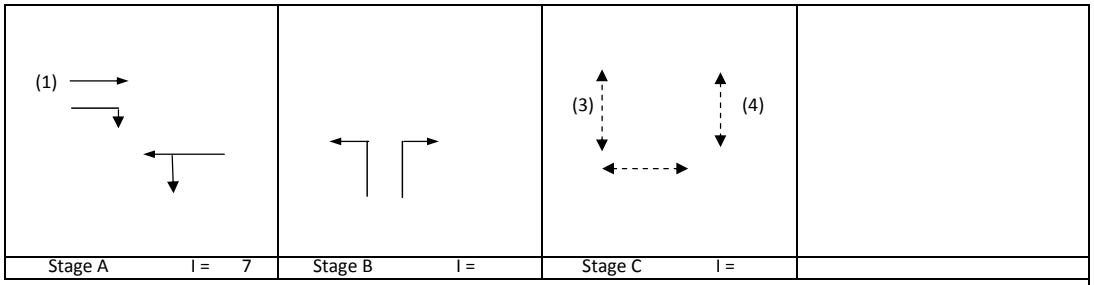
DFC_{b-a}	=	0.041
DFC_{b-c}	=	0.042
DFC_{b-d}	=	0.462
DFC_{d-a}	=	0.468
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.687
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.019

Critical DFC = 0.687

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.565	
Loss time	L =	25	sec
Total Flow	=	1410	pcu
Co = (1.5*L+5)/(1-Y)	=	97.8	sec
Cm = L/(1-Y)	=	57.5	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	26.0	%
Cp = 0.9*L/(0.9-Y)	=	67.3	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	26.0	%

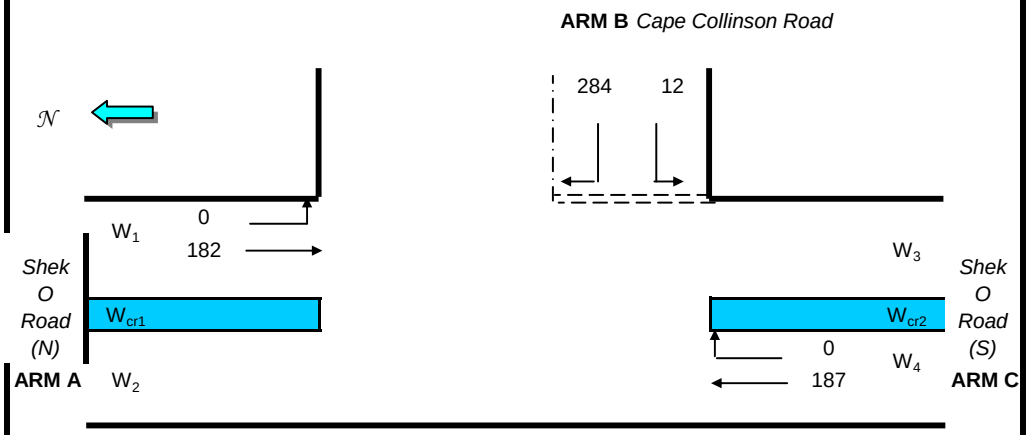


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		382		382	0.00	1915			1915	0.199			33	95	0.252	12	2
ST/LT	A	4.00	1	1	10		N	2015	740	288		1028	0.72	1819			1819	0.565	0.565		95	95	0.714	42	4
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	181.55	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	186.98	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	284.04	(pcu/hr)
q_{b-c}	=	11.552	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

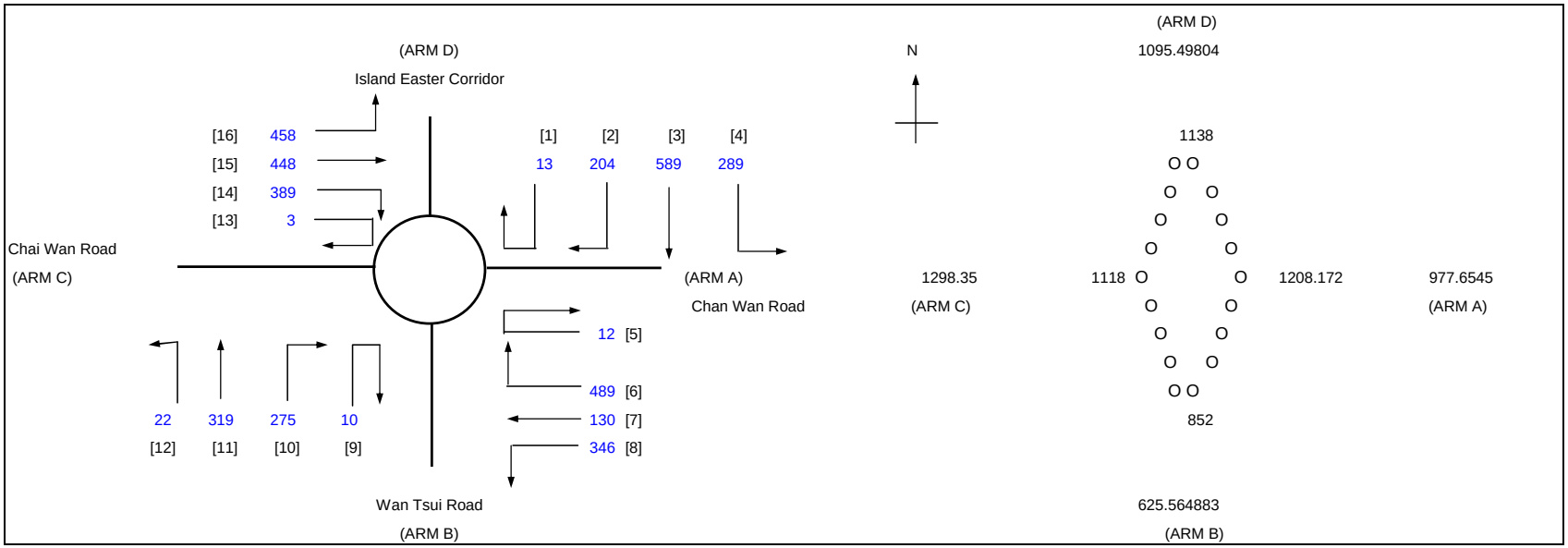
Q_{b-c}	=	696
Q_{c-b}	=	775
Q_{b-a}	=	344

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.825
DFC_{b-c}	=	0.017
DFC_{c-b}	=	0.000

Critical DFC = 0.825

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2026_LV1_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

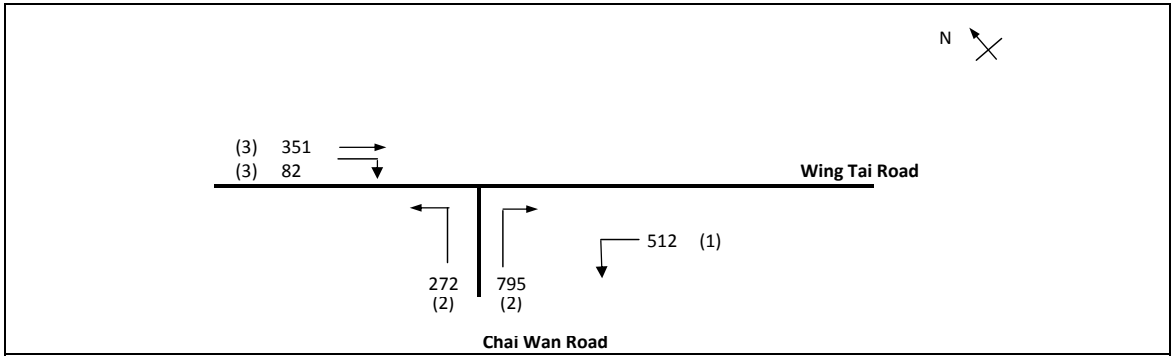


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	978	626	1298	1095
Qc	=	Circulating flow across entry (pcu/h)	1208	852	1118	1138
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1553	999	1633	1351
DFC	=	Design flow/Capacity = Q/Qe	0.63	0.63	0.80	0.81

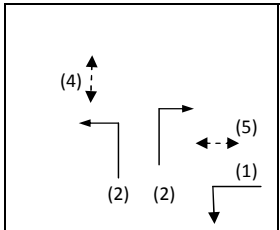
Total In Sum = 2882.449 PCU

DFC of Critical Approach = 0.81

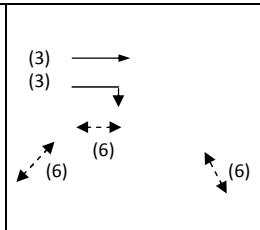
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.308	
Loss time		L =	10	sec
Total Flow		=	2012	pcu
Co	= (1.5*L+5)/(1-Y)	=	28.9	sec
Cm	= L/(1-Y)	=	14.5	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	167.5	%
Cp	= 0.9*L/(0.9-Y)	=	15.2	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	162.6	%



Stage A I = 7

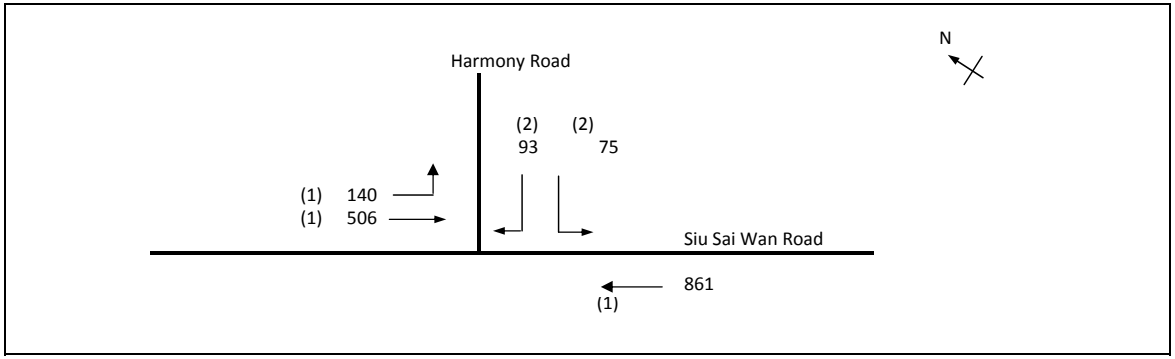


Stage B I = 5

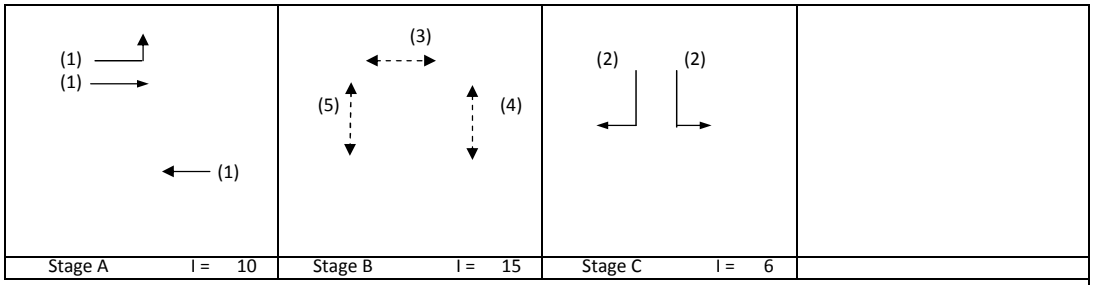
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	512			512	1.00	3857			3857	0.133			39	65	0.205	15	5
LT	A	4.00	2	2	24			4310	272			272	1.00	4056			4056	0.067			20	65	0.103	6	5
RT	A	3.50	2	2	11		y	4070			795	795	1.00	3582			3582	0.222	0.222		65	65	0.343	21	5
ST	B	3.50	3	2			y	4070		351		351	0.00	4070			4070	0.086	0.086		25	25	0.343	21	24
RT	B	4.50	3	2	13		y	4270			82	82	1.00	3828			3828	0.021			6	25	0.085	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.266
Loss time		L =	48 sec
Total Flow		=	1674 pcu
Co	= (1.5*L+5)/(1-Y)	=	104.9 sec
Cm	= L/(1-Y)	=	65.4 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	103.1 %
Cp	= 0.9*L/(0.9-Y)	=	68.1 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	76.0 %

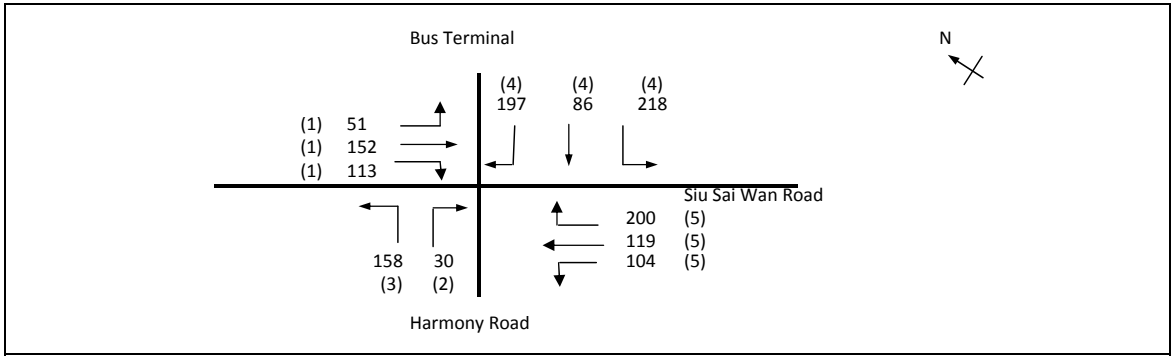


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

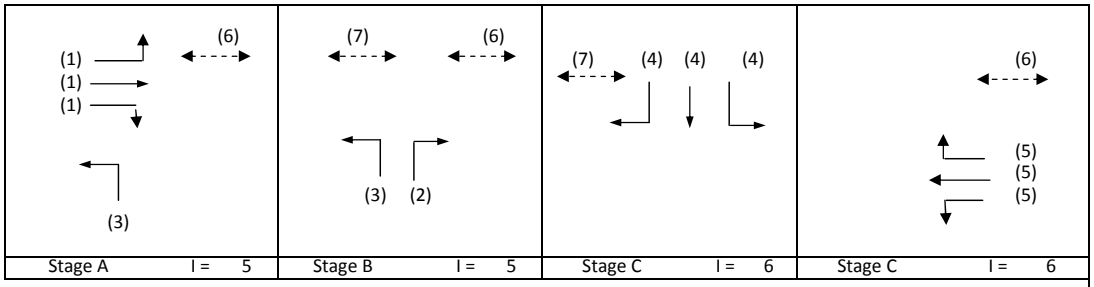
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	140	156		296	0.47	1827			1827	0.162			32	42	0.382	24	14
ST	A	3.20	1	1				2075		350		350	0.00	2075			2075	0.169			33	42	0.397	30	14
ST	A	3.00	1	2			y	3970		861		861	0.00	3970			3970	0.217	0.217		42	42	0.511	39	13
LT	C	3.75	2	1	12		y	1990	75			75	1.00	1769			1769	0.042			8	10	0.440	6	43
RT	C	3.75	2	1	12			2130			93	93	1.00	1893			1893	0.049	0.049		10	10	0.511	12	44
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.399
Loss time		L =	18 sec
Total Flow		=	1427 pcu
Co	= (1.5*L+5)/(1-Y)	=	53.2 sec
Cm	= L/(1-Y)	=	29.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	91.9 %
Cp	= 0.9*L/(0.9-Y)	=	32.3 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	87.1 %

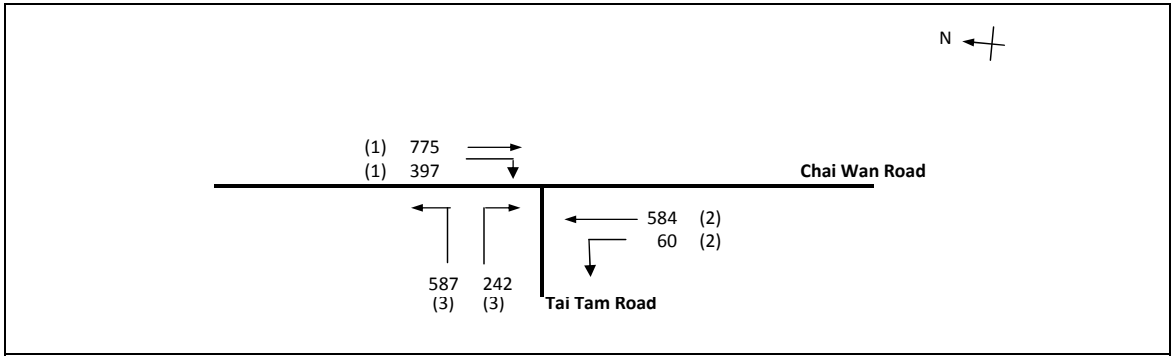


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

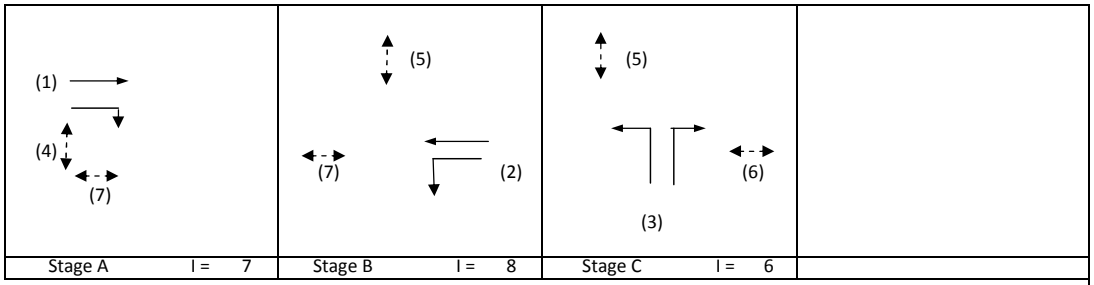
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																			18					
LT/ST	A	3.30	1	1	11		y	1945	51	84		135	0.38	1849			1849	0.073			16	20	0.376	18	31
ST/RT	A	3.30	1	1	12			2085		68	113	181	0.62	1934			1934	0.094	0.094		20	20	0.481	24	32
RT	B	3.50	2	1	12			2105			30	30	1.00	1871			1871	0.016	0.016		4	4	0.481	0	67
LT	A,B	3.75	3	1	13		y	1990	158			158	1.00	1784			1784	0.089			19	29	0.322	18	24
RT	C	3.50	4	1	12			2105			197	197	1.00	1871			1871	0.105			23	37	0.300	18	19
LT/ST	C	3.50	4	1	12		y	1965	218	86		303	0.72	1803			1803	0.168	0.168		37	37	0.481	30	19
ST/RT	D	3.50	5	1	12			2105		0	200	200	1.00	1871			1871	0.107			23	23	0.481	24	29
LT/ST	D	3.50	5	1	11		y	1965	104	119		223	0.47	1848			1848	0.121	0.121		26	26	0.481	24	27
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.583
Loss time		L =	18 sec
Total Flow		=	2645 pcu
Co	= (1.5*L+5)/(1-Y)	=	76.7 sec
Cm	= L/(1-Y)	=	43.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	31.3 %
Cp	= 0.9*L/(0.9-Y)	=	51.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.0 %

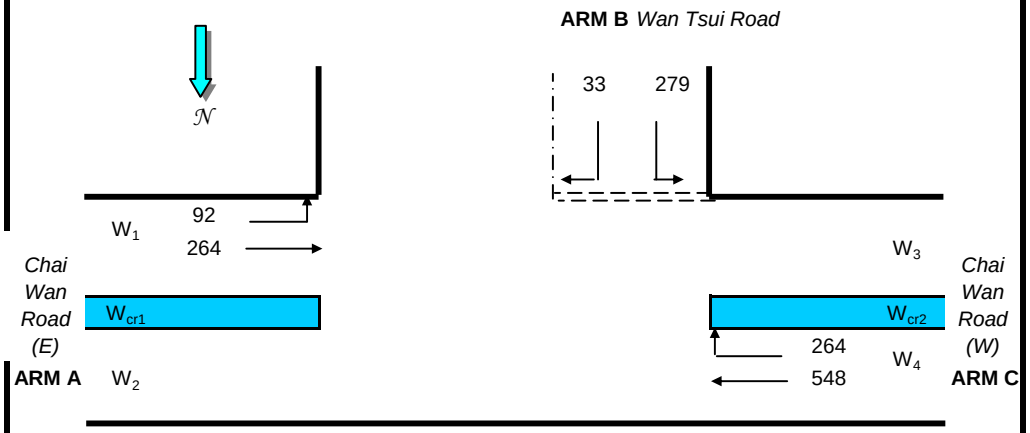


Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		775		775	0.00	4070			4070	0.190			28	28	0.703	48	24
RT	A	3.75	1	1	13			2130			397	397	1.00	1910			1910	0.208	0.208		31	28	0.767	48	30
ST	B	3.50	2	2				4210		584		584	0.00	4210			4210	0.139	0.139		21	21	0.703	39	31
LT	B	3.10	2	1	12		y	1925	60			60	1.00	1711			1711	0.035			5	21	0.177	6	30
LT	C	4.00	3	1	15		y	2015	432			432	1.00	1832			1832	0.236	0.236		35	35	0.703	48	22
LT/RT	C	4.00	3	1	15			2155	155		242	397	1.00	1959			1959	0.202			30	35	0.603	42	20
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	92.403	(pcu/hr)
q_{a-c}	=	263.64	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	548.07	(pcu/hr)
q_{c-b}	=	264.16	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	32.613	(pcu/hr)
q_{b-c}	=	278.83	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

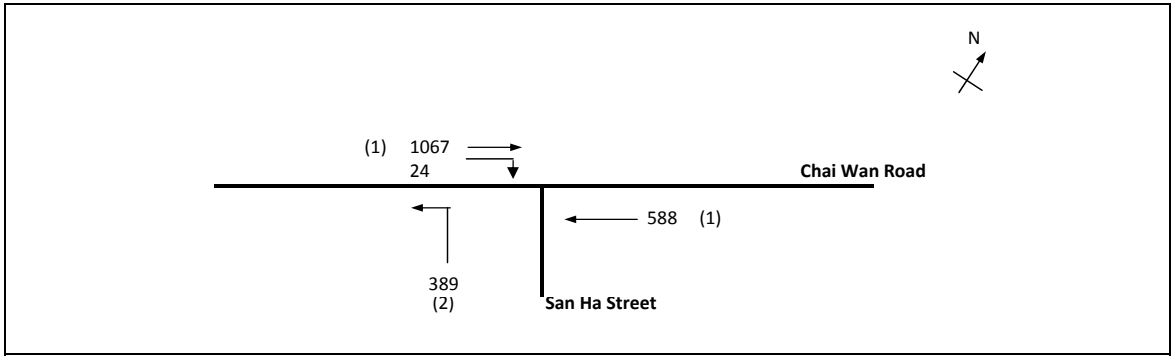
Q_{b-c}	=	787
Q_{c-b}	=	699
Q_{b-a}	=	370

COMPARISION OF DESIGN FLOW TO CAPACITY

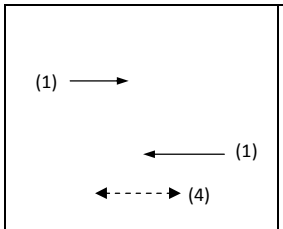
DFC_{b-a}	=	0.088
DFC_{b-c}	=	0.354
DFC_{c-b}	=	0.378

Critical DFC = 0.378

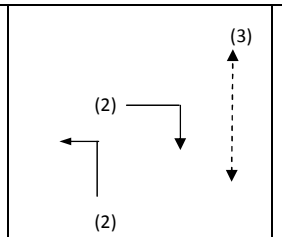
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.496
Loss time		L =	10 sec
Total Flow		=	2069 pcu
Co	= (1.5*L+5)/(1-Y)	=	39.7 sec
Cm	= L/(1-Y)	=	19.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	66.3 %
Cp	= 0.9*L/(0.9-Y)	=	22.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	63.3 %



Stage A I = 6



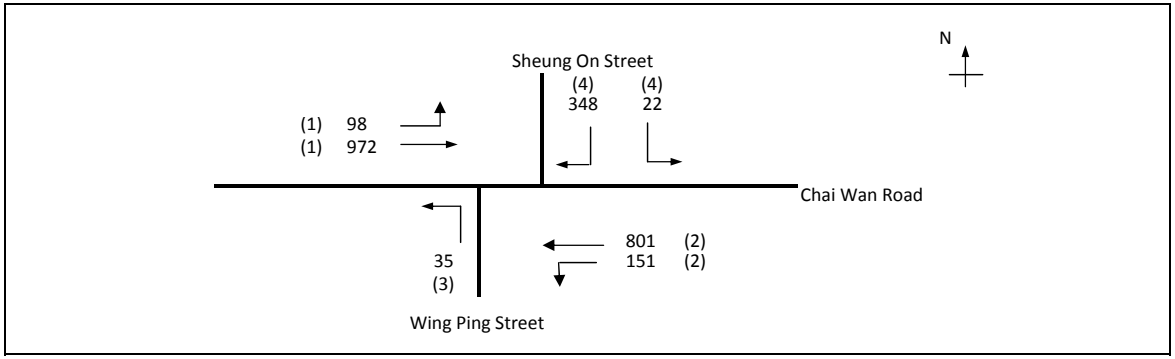
Stage B I = 6

Stage C I =

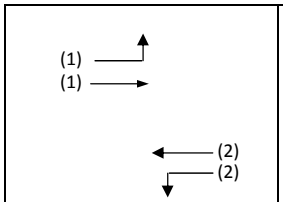
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1067		1067	0.00	4070			4070	0.262	0.262		48	47	0.558	45	10
ST	A	3.50	1	2	10		N	4070		588		588	0.00	4070			4070	0.145			26	47	0.308	24	11
LT	B	3.00	2	1	10		N	1915	389			389	1.00	1665			1665	0.234	0.234		42	53	0.441	30	9
RT	B	3.50	2	1	12			2105			24	24	1.00	1871			1871	0.013			2	53	0.024	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

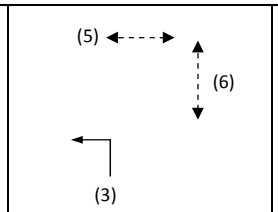
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



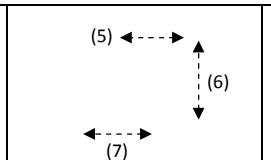
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.299
Loss time		L =	37 sec
Total Flow		=	2427 pcu
Co	= (1.5*L+5)/(1-Y)	=	86.3 sec
Cm	= L/(1-Y)	=	52.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	108.2 %
Cp	= 0.9*L/(0.9-Y)	=	55.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	108.2 %



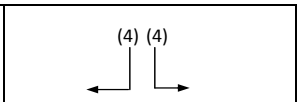
Stage A I = 8



Stage B I = 5



Stage C I = 7

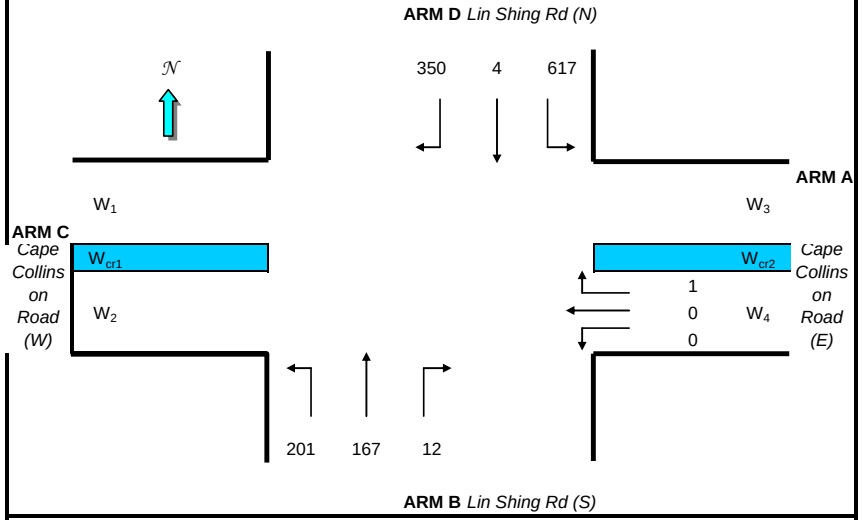


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	98	972		1070	0.09	6105			6105	0.175	0.175		49		0.000	70	54
LT/ST	A	3.30	2	3	12		Y	6115	151	801		953	0.16	5996			5996	0.159			44		0.000	62	54
LT	B	3.50	3	1	9		Y	1965	35			35	1.00	1684			1684	0.021	0.021		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	22		348	370	1.00	3583			3583	0.103	0.103		29		0.000	36	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	1	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.958	(pcu/hr)
q_{b-c}	=	200.94	(pcu/hr)
q_{b-d}	=	167.43	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	617.03	(pcu/hr)
q_{d-b}	=	3.5874	(pcu/hr)
q_{d-c}	=	350.06	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

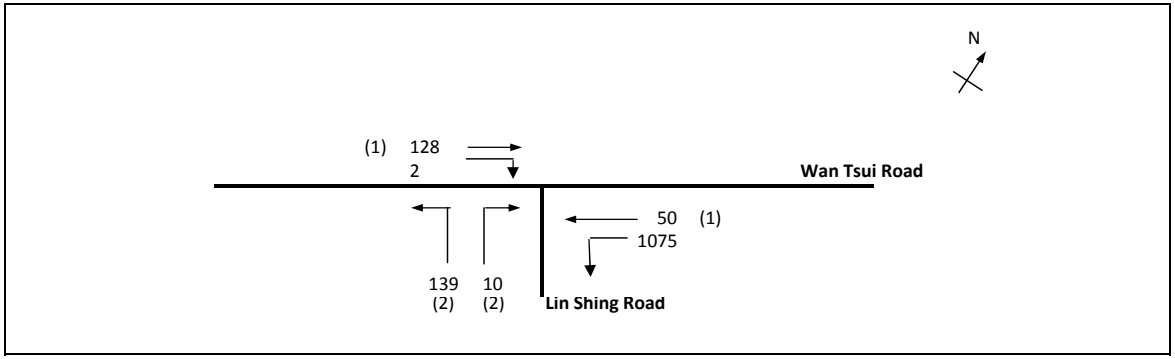
Q_{b-a}	=	413
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	429
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

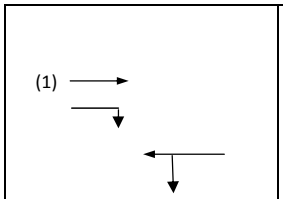
DFC_{b-a}	=	0.029
DFC_{b-c}	=	0.268
DFC_{b-d}	=	0.274
DFC_{d-a}	=	0.915
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.816
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.002

Critical DFC = 0.915

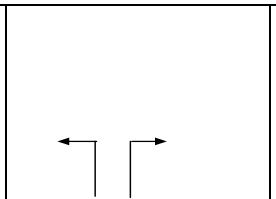
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



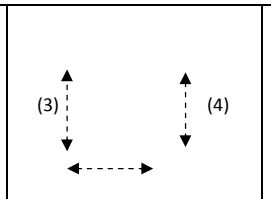
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.638
Loss time		L =	25 sec
Total Flow		=	1253 pcu
Co	= (1.5*L+5)/(1-Y)	=	117.5 sec
Cm	= L/(1-Y)	=	69.1 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	11.6 %
Cp	= 0.9*L/(0.9-Y)	=	86.0 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	11.6 %



Stage A I = 7



Stage B I =



Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		128		128	0.00	1915			1915	0.067			10	95	0.085	0	2
ST/LT	A	4.00	1	1	10		N	2015	1075	50		1125	0.96	1762			1762	0.638	0.638		95	95	0.806	42	6
Ped	B	6.0	3																	20					

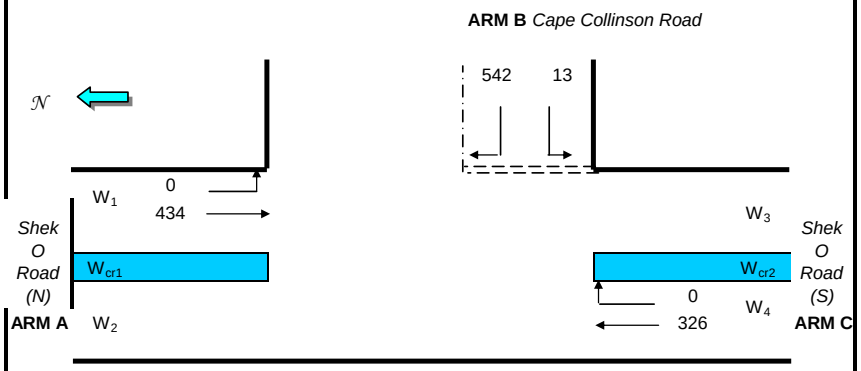
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a | **Prepared By: KC**

Junction Capacity Analysis | **Checked By: OC**

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	433.75	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	326.13	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	541.59	(pcu/hr)
q_{b-c}	=	13.1	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

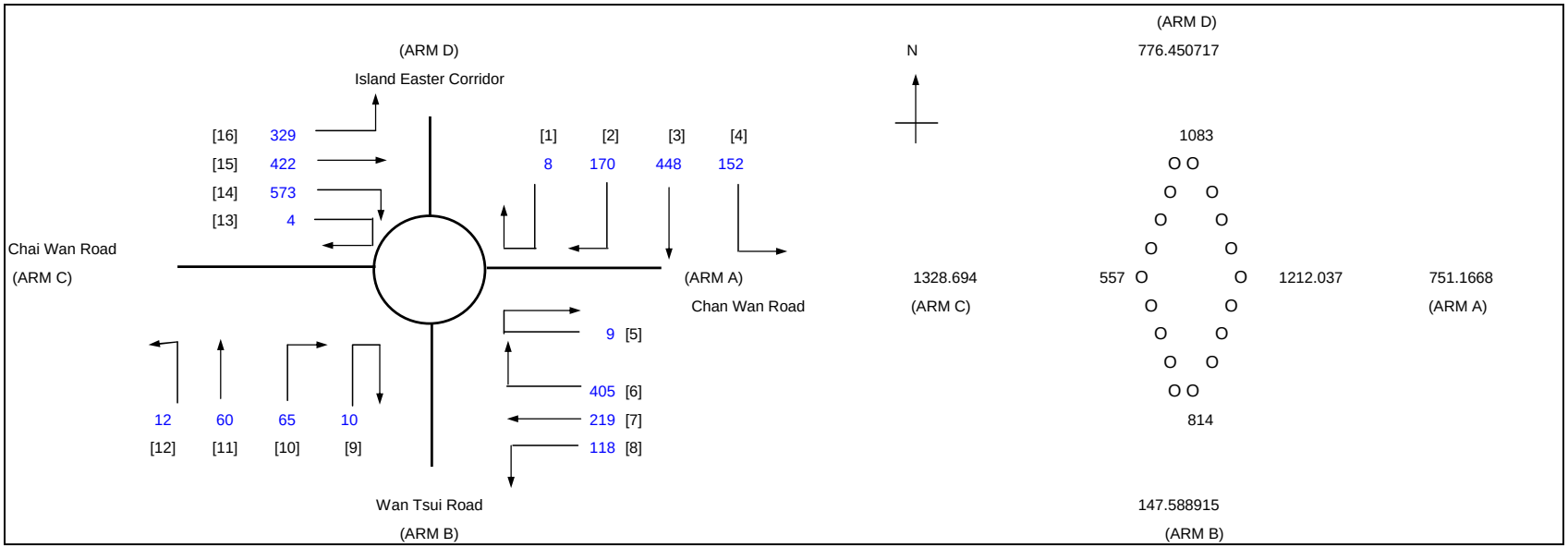
Q_{b-c}	=	631
Q_{c-b}	=	703
Q_{b-a}	=	290

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.869
DFC_{b-c}	=	0.021
DFC_{c-b}	=	0.000

Critical DFC = 1.869

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME : 2026_LV2_Ref.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

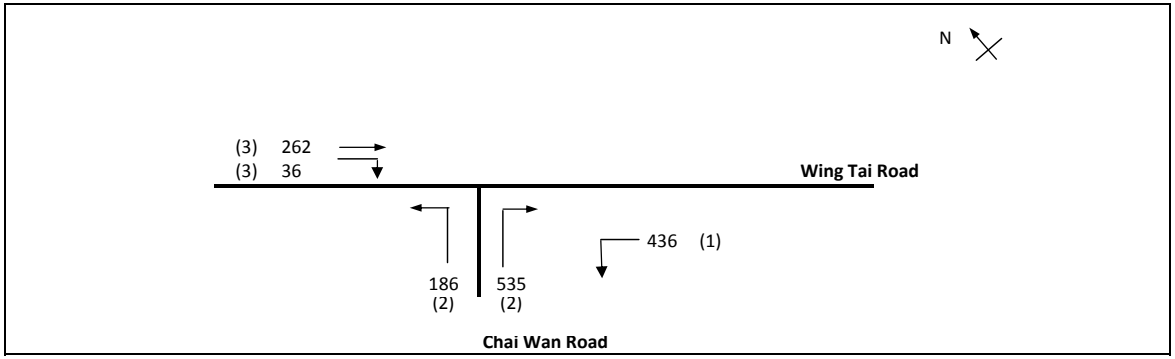


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	751	148	1329	776
Qc	=	Circulating flow across entry (pcu/h)	1212	814	557	1083
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1550	1020	2058	1389
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.14	0.65	0.56

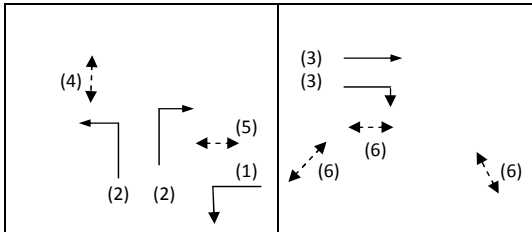
Total In Sum = 2392.37 PCU

DFC of Critical Approach = 0.65

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.214	
Loss time		L =	10	sec
Total Flow		=	1455	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.4	sec
Cm	= L/(1-Y)	=	12.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	286.1	%
Cp	= 0.9*L/(0.9-Y)	=	13.1	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	279.0	%



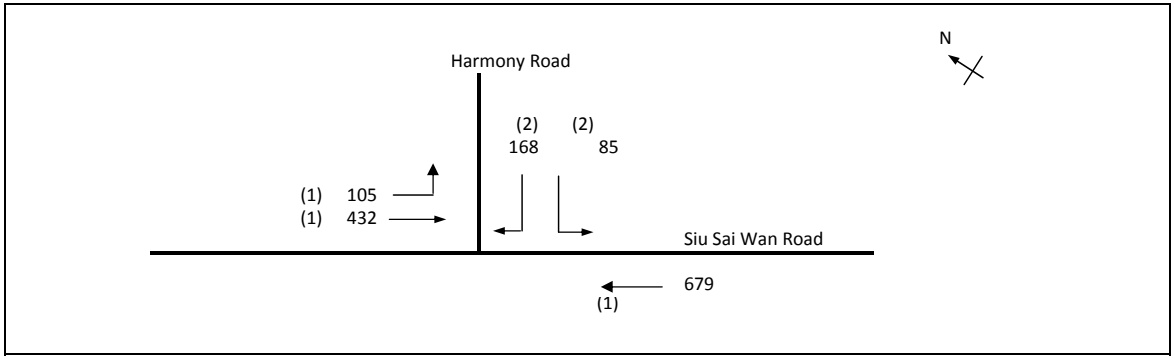
Stage A I = 7

Stage B I = 5

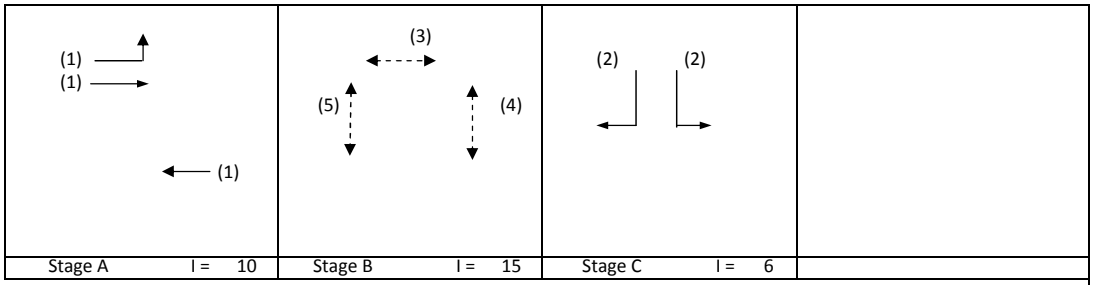
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	436			436	1.00	3857			3857	0.113			48	63	0.180	12	6
LT	A	4.00	2	2	24			4310	186			186	1.00	4056			4056	0.046			19	63	0.073	3	6
RT	A	3.50	2	2	11		y	4070			535	535	1.00	3582			3582	0.149	0.149		63	63	0.237	15	5
ST	B	3.50	3	2			y	4070		262		262	0.00	4070			4070	0.064	0.064		27	27	0.237	15	23
RT	B	4.50	3	2	13		y	4270			36	36	1.00	3828			3828	0.009			4	27	0.035	0	24
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.260	
Loss time	L =	48	sec
Total Flow	=	1470	pcu
Co = (1.5*L+5)/(1-Y)	=	104.1	sec
Cm = L/(1-Y)	=	64.9	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	107.7	%
Cp = 0.9*L/(0.9-Y)	=	67.5	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	80.0	%

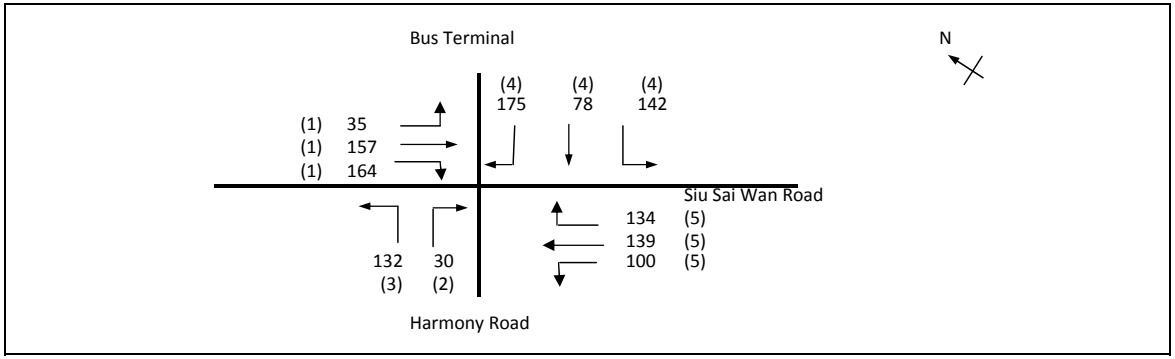


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

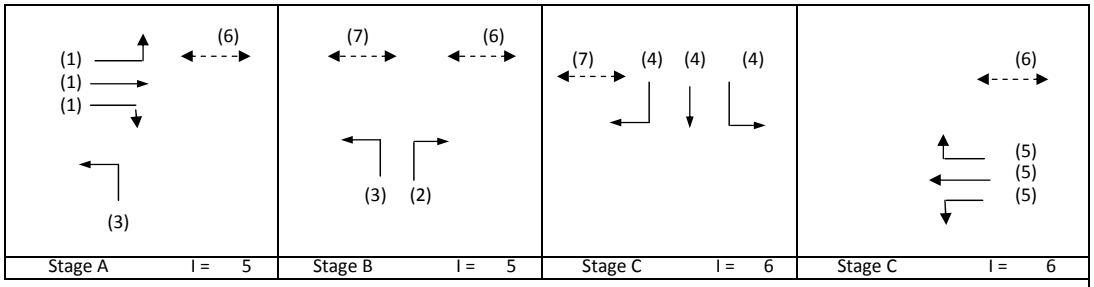
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	156		261	0.40	1844			1844	0.142			28	34	0.414	24	19
ST	A	3.20	1	1				2075		276		276	0.00	2075			2075	0.133			27	34	0.389	30	18
ST	A	3.00	1	2			y	3970		679		679	0.00	3970			3970	0.171	0.171		34	34	0.500	36	17
LT	C	3.75	2	1	12		y	1990	85			85	1.00	1769			1769	0.048			10	18	0.270	6	31
RT	C	3.75	2	1	12			2130			168	168	1.00	1893			1893	0.089	0.089		18	18	0.500	18	33
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.389
Loss time		L =	18 sec
Total Flow		=	1286 pcu
Co	= (1.5*L+5)/(1-Y)	=	52.4 sec
Cm	= L/(1-Y)	=	29.5 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	96.5 %
Cp	= 0.9*L/(0.9-Y)	=	31.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	91.6 %

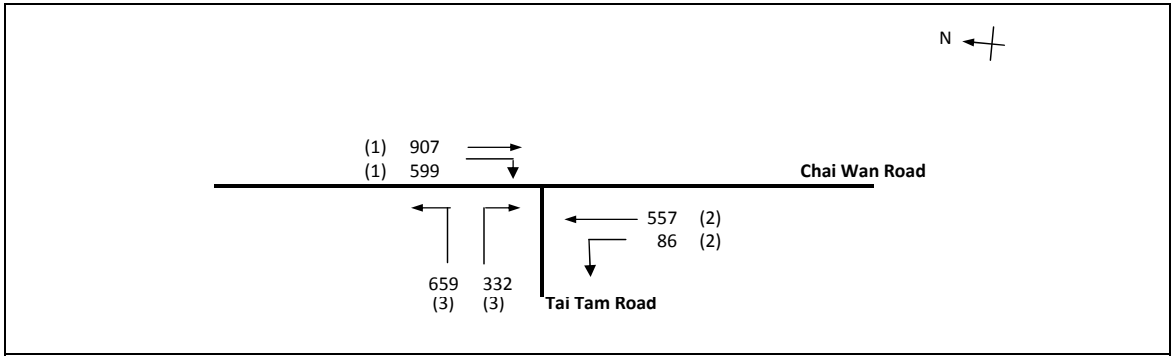


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

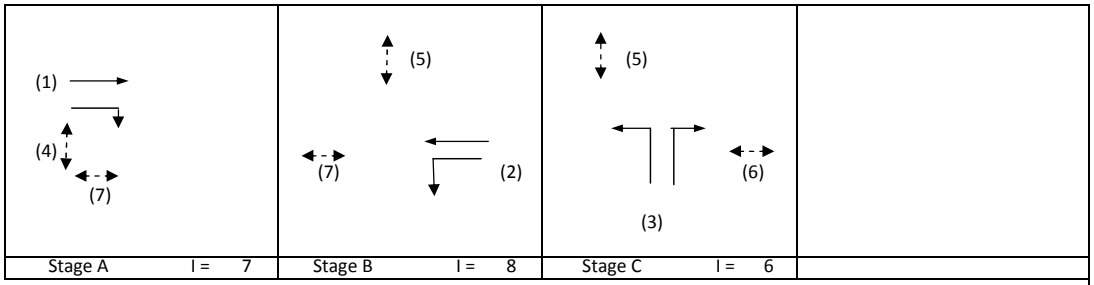
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	35	84		119	0.29	1870			1870	0.064			14	28	0.242	12	25
ST/RT	A	3.30	1	1	12			2085		73	164	237	0.69	1919			1919	0.124	0.124		28	28	0.470	30	25
RT	B	3.50	2	1	12			2105			30	30	1.00	1871			1871	0.016	0.016		4	4	0.470	0	66
LT	A,B	3.75	3	1	13		y	1990	132			132	1.00	1784			1784	0.074			16	36	0.214	12	20
RT	C	3.50	4	1	12			2105			175	175	1.00	1871			1871	0.093			21	27	0.363	18	26
LT/ST	C	3.50	4	1	12		y	1965	142	78		220	0.64	1818			1818	0.121	0.121		27	27	0.470	24	26
ST/RT	D	3.50	5	1	12			2105		0	134	134	1.00	1871			1871	0.072			16	16	0.470	18	37
LT/ST	D	3.50	5	1	11		y	1965	100	139		239	0.42	1859			1859	0.129	0.129		29	29	0.470	30	25
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	105 sec
Sum(y)	Y =	0.717
Loss time	L =	18 sec
Total Flow	=	3139 pcu
Co = (1.5*L+5)/(1-Y)	=	113.2 sec
Cm = L/(1-Y)	=	63.7 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	6.6 %
Cp = 0.9*L/(0.9-Y)	=	88.7 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	3.9 %



Stage A I = 7 | Stage B I = 8 | Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		907		907	0.00	4070			4070	0.223			27	27	0.866	57	39
RT	A	3.50	1	1	13			2105			599	599	1.00	1887			1887	0.317	0.317		38	27	1.233	72	35
ST	B	3.50	2	2				4210		557		557	0.00	4210			4210	0.132	0.132		16	16	0.866	39	45
LT	B	3.10	2	1	12		y	1925	86			86	1.00	1711			1711	0.050			6	16	0.329	12	35
LT	C	4.00	3	1	15		y	2015	491			491	1.00	1832			1832	0.268	0.268		32	32	0.866	54	29
LT/RT	C	4.00	3	1	15			2155	168		332	500	1.00	1959			1959	0.255			31	32	0.825	60	29
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

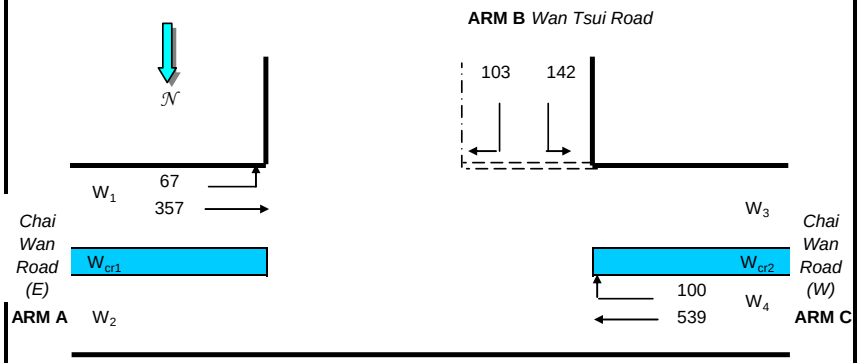
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	67.4	(pcu/hr)
q_{a-c}	=	356.57	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	538.93	(pcu/hr)
q_{c-b}	=	100.01	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	103.27	(pcu/hr)
q_{b-c}	=	141.51	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

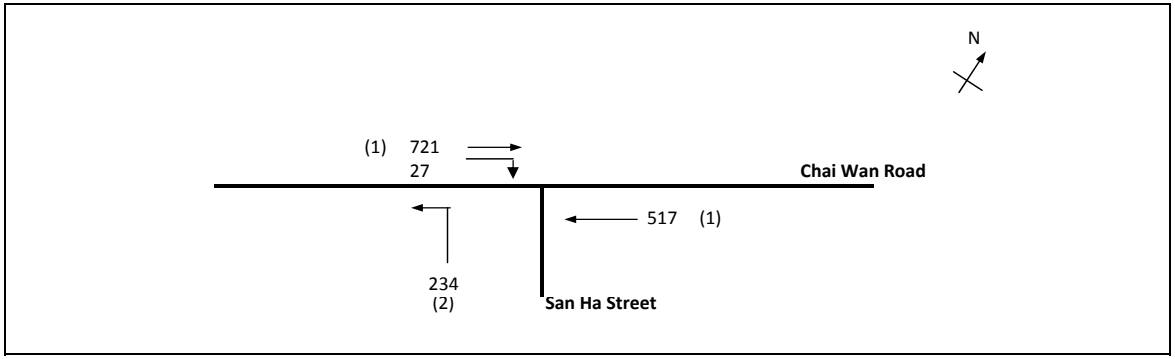
Q_{b-c}	=	777
Q_{c-b}	=	691
Q_{b-a}	=	382

COMPARISION OF DESIGN FLOW TO CAPACITY

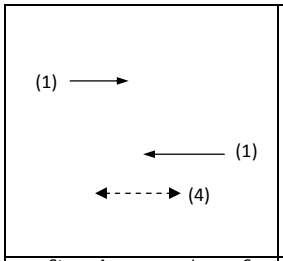
DFC_{b-a}	=	0.270
DFC_{b-c}	=	0.182
DFC_{c-b}	=	0.145

Critical DFC = 0.270

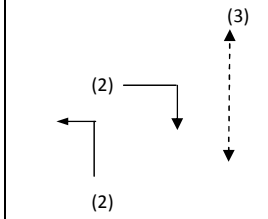
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.317	
Loss time		L =	10	sec
Total Flow		=	1499	pcu
Co	= (1.5*L+5)/(1-Y)	=	29.3	sec
Cm	= L/(1-Y)	=	14.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	159.9	%
Cp	= 0.9*L/(0.9-Y)	=	15.5	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	155.1	%



Stage A I = 6



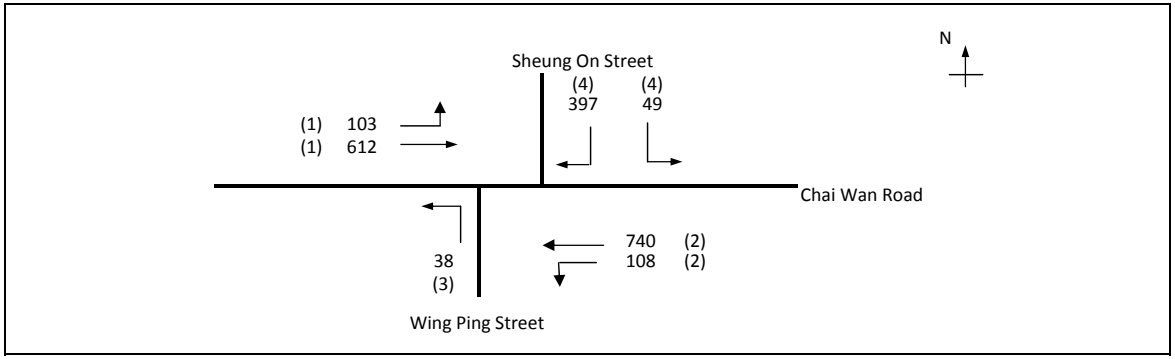
Stage B I = 6

Stage C I =

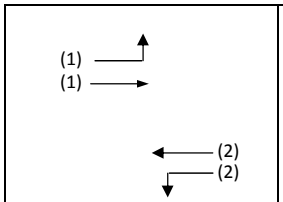
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		721		721	0.00	4070			4070	0.177	0.177		50	47	0.377	30	11
ST	A	3.50	1	2	10		N	4070		517		517	0.00	4070			4070	0.127			36	47	0.271	21	11
LT	B	3.00	2	1	10		N	1915	234			234	1.00	1665			1665	0.140	0.140		40	53	0.265	18	9
RT	B	3.50	2	1	12			2105			27	27	1.00	1871			1871	0.015			4	53	0.027	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

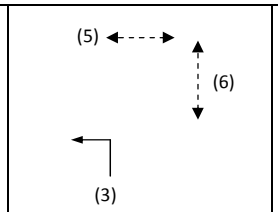
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



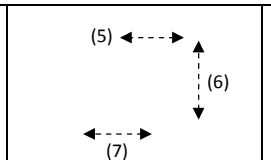
No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.288	
Loss time		L =	37	sec
Total Flow		=	2047	pcu
Co	= (1.5*L+5)/(1-Y)	=	85.0	sec
Cm	= L/(1-Y)	=	52.0	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	116.2	%
Cp	= 0.9*L/(0.9-Y)	=	54.4	sec
Ymax	= 1-L/C	=	0.692	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	116.2	%



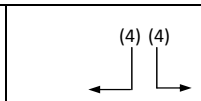
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	103	612		715	0.14	6066			6066	0.118			34		0.000	46	54
LT/ST	A	3.30	2	3	12		Y	6115	108	740		848	0.13	6019			6019	0.141	0.141		41		0.000	56	54
LT	B	3.50	3	1	9		Y	1965	38			38	1.00	1684			1684	0.023	0.023		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	49		397	446	1.00	3583			3583	0.124	0.124		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

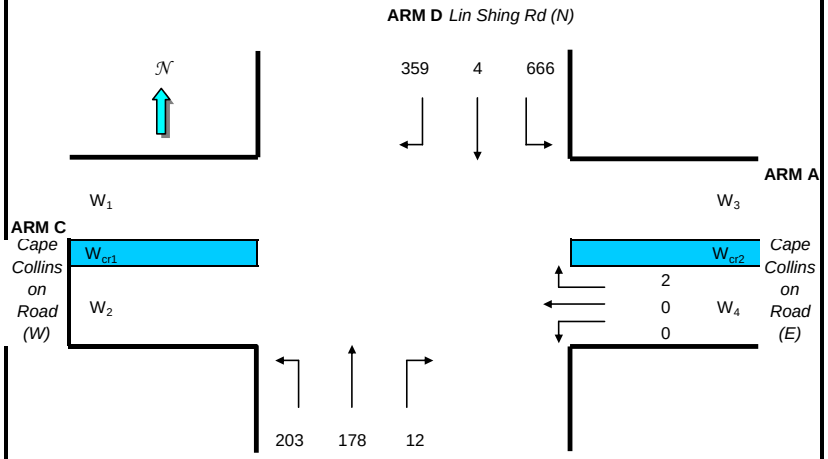
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2026 Level 2 - Site 1

Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	2	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.958	(pcu/hr)
q_{b-c}	=	202.94	(pcu/hr)
q_{b-d}	=	177.88	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	666.49	(pcu/hr)
q_{d-b}	=	3.875	(pcu/hr)
q_{d-c}	=	358.98	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

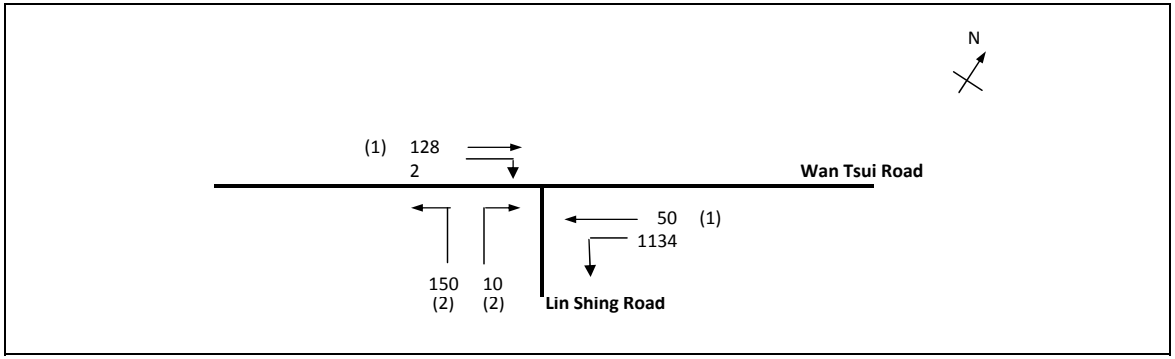
Q_{b-a}	=	396
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	532
Q_{d-c}	=	425
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

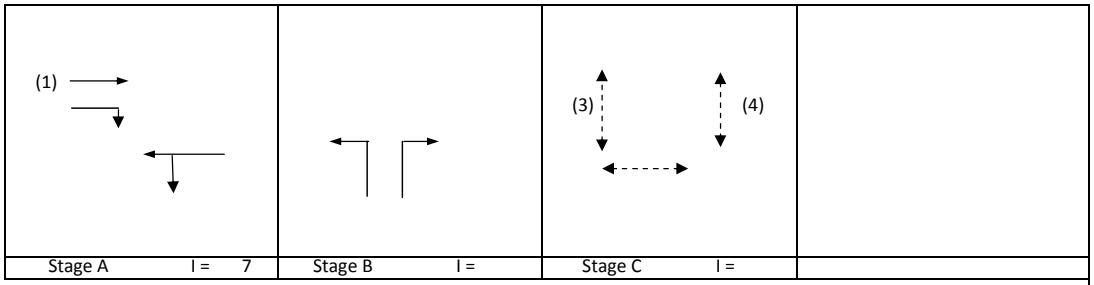
DFC_{b-a}	=	0.030
DFC_{b-c}	=	0.271
DFC_{b-d}	=	0.291
DFC_{d-a}	=	0.988
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.844
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.003

Critical DFC = 0.988

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME :2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.672	
Loss time	L =	25	sec
Total Flow	=	1312	pcu
Co = (1.5*L+5)/(1-Y)	=	129.5	sec
Cm = L/(1-Y)	=	76.2	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	6.1	%
Cp = 0.9*L/(0.9-Y)	=	98.6	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	6.1	%

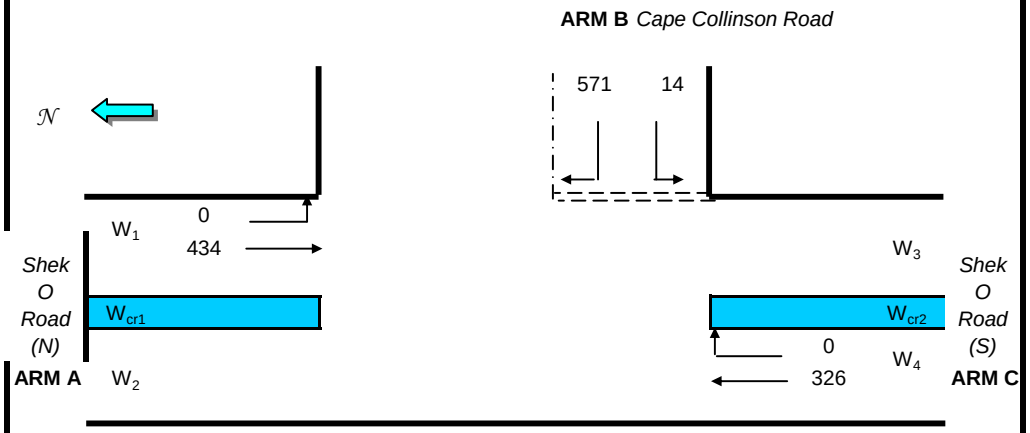


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		128		128	0.00	1915			1915	0.067			9	95	0.085	0	2
ST/LT	A	4.00	1	1	10		N	2015	1134	50		1184	0.96	1762			1762	0.672	0.672		95	95	0.849	48	7
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	433.75	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	326.13	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	570.88	(pcu/hr)
q_{b-c}	=	14.107	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

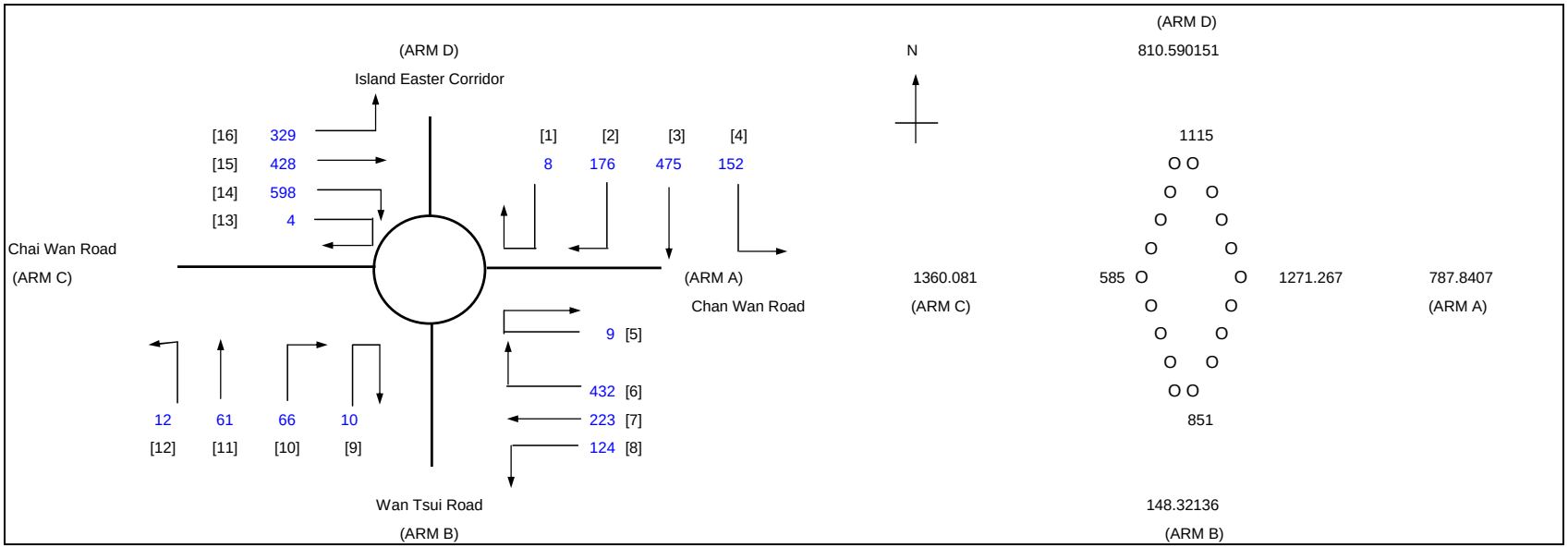
Q_{b-c}	=	631
Q_{c-b}	=	703
Q_{b-a}	=	290

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.970
DFC_{b-c}	=	0.022
DFC_{c-b}	=	0.000

Critical DFC = 1.970

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2026_LV2_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

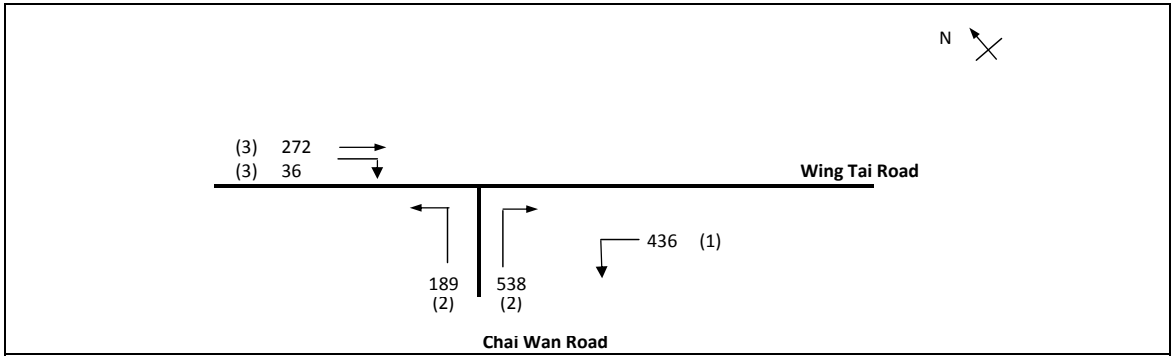


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	788	148	1360	811
Qc	=	Circulating flow across entry (pcu/h)	1271	851	585	1115
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1505	999	2037	1367
DFC	=	Design flow/Capacity = Q/Qe	0.52	0.15	0.67	0.59

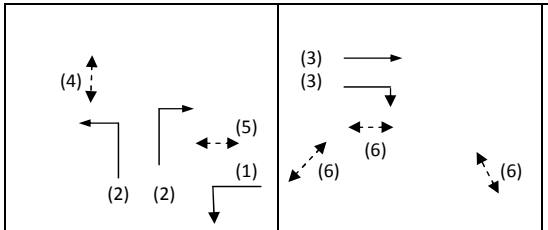
Total In Sum = 2489.567 PCU

DFC of Critical Approach = 0.67

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.217
Loss time		L =	10 sec
Total Flow		=	1471 pcu
Co	= (1.5*L+5)/(1-Y)	=	25.5 sec
Cm	= L/(1-Y)	=	12.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	280.2 %
Cp	= 0.9*L/(0.9-Y)	=	13.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	273.2 %



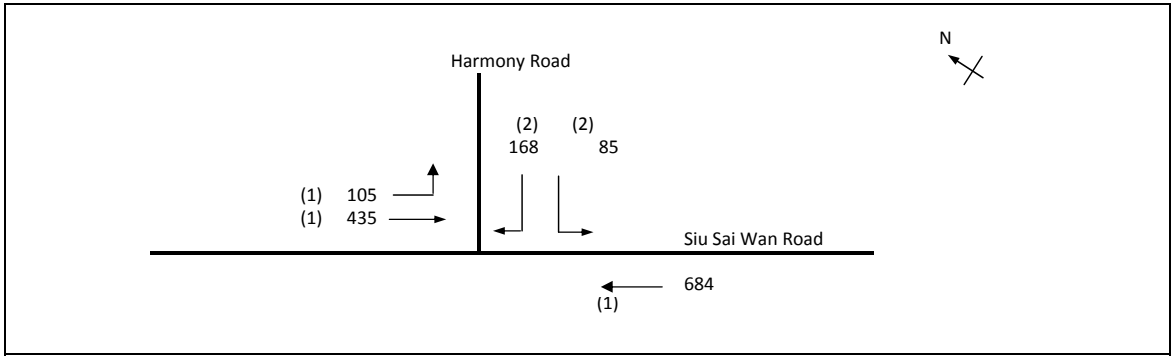
Stage A I = 7

Stage B I = 5

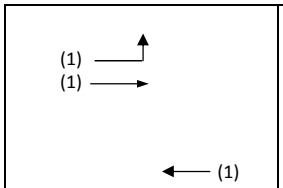
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	436			436	1.00	3857			3857	0.113			47	62	0.181	12	6
LT	A	4.00	2	2	24			4310	189			189	1.00	4056			4056	0.047			19	62	0.075	3	6
RT	A	3.50	2	2	11		y	4070			538	538	1.00	3582			3582	0.150	0.150		62	62	0.241	15	6
ST	B	3.50	3	2			y	4070		272		272	0.00	4070			4070	0.067	0.067		28	28	0.241	15	22
RT	B	4.50	3	2	13		y	4270			36	36	1.00	3828			3828	0.009			4	28	0.034	0	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

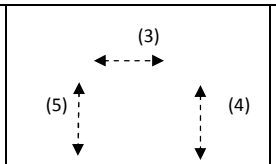
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME :2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



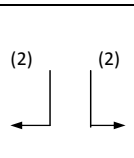
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.261	
Loss time	L =	48	sec
Total Flow	=	1477	pcu
Co = (1.5*L+5)/(1-Y)	=	104.2	sec
Cm = L/(1-Y)	=	65.0	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	106.9	%
Cp = 0.9*L/(0.9-Y)	=	67.6	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	79.3	%



Stage A I = 10



Stage B I = 15

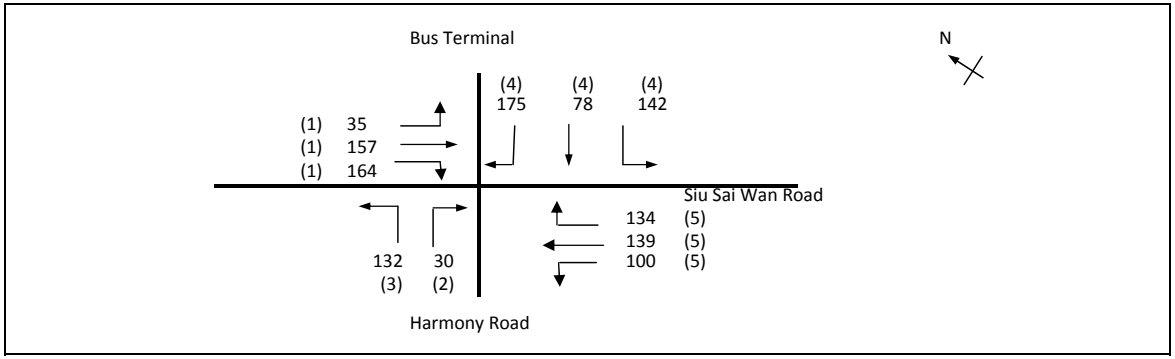


Stage C I = 6

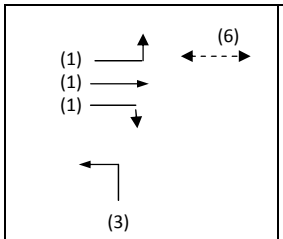
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	156		261	0.40	1844			1844	0.142			28	34	0.413	24	18
ST	A	3.20	1	1				2075		279		279	0.00	2075			2075	0.135			27	34	0.392	30	18
ST	A	3.00	1	2			y	3970		684		684	0.00	3970			3970	0.172	0.172		34	34	0.502	36	17
LT	C	3.75	2	1	12		y	1990	85			85	1.00	1769			1769	0.048			10	18	0.271	6	31
RT	C	3.75	2	1	12			2130			168	168	1.00	1893			1893	0.089	0.089		18	18	0.502	18	33
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

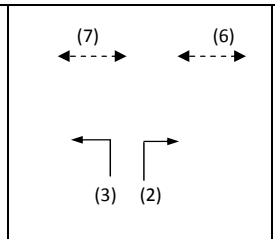
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



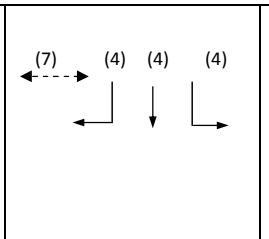
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.389
Loss time		L =	18 sec
Total Flow		=	1286 pcu
Co	= (1.5*L+5)/(1-Y)	=	52.4 sec
Cm	= L/(1-Y)	=	29.5 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	96.5 %
Cp	= 0.9*L/(0.9-Y)	=	31.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	91.6 %



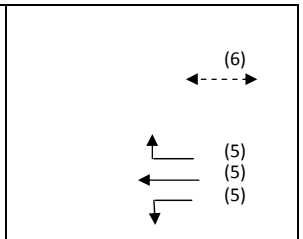
Stage A I = 5



Stage B I = 5



Stage C I = 6

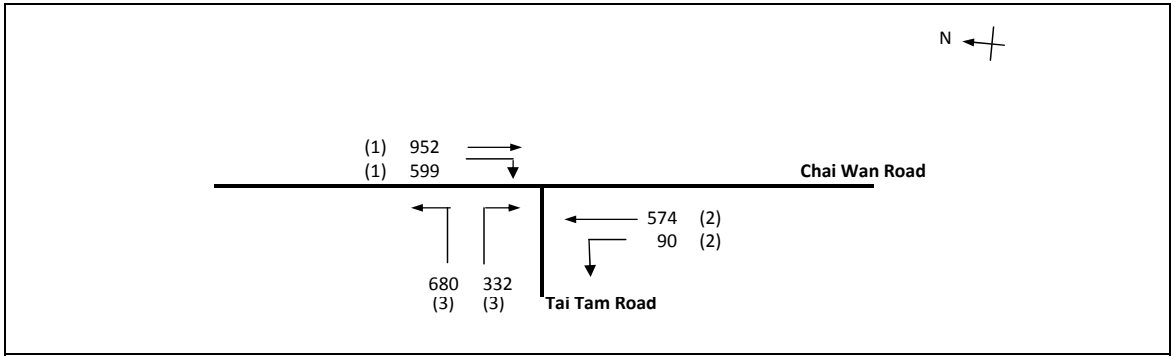


Stage C I = 6

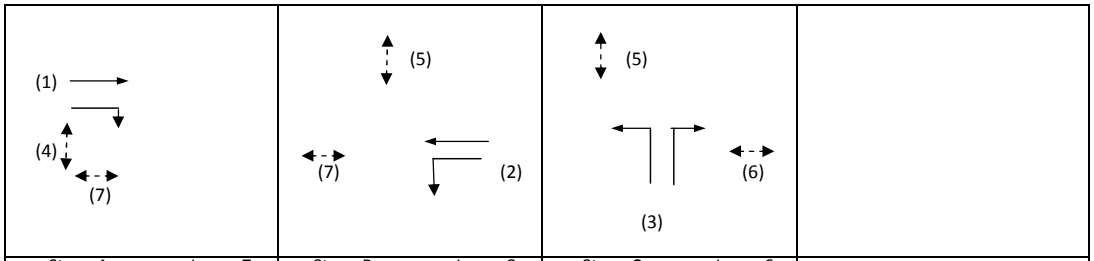
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	35	84		119	0.29	1870			1870	0.064			14	28	0.242	12	25
ST/RT	A	3.30	1	1	12			2085		73	164	237	0.69	1919			1919	0.124	0.124		28	28	0.470	30	25
RT	B	3.50	2	1	12			2105			30	30	1.00	1871			1871	0.016	0.016		4	4	0.470	0	66
LT	A,B	3.75	3	1	13		y	1990	132			132	1.00	1784			1784	0.074			16	36	0.214	12	20
RT	C	3.50	4	1	12			2105			175	175	1.00	1871			1871	0.093			21	27	0.363	18	26
LT/ST	C	3.50	4	1	12		y	1965	142	78		220	0.64	1818			1818	0.121	0.121		27	27	0.470	24	26
ST/RT	D	3.50	5	1	12			2105		0	134	134	1.00	1871			1871	0.072			16	16	0.470	18	37
LT/ST	D	3.50	5	1	11		y	1965	100	139		239	0.42	1859			1859	0.129	0.129		29	29	0.470	30	25
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.736
Loss time		L =	18 sec
Total Flow		=	3227 pcu
Co	= (1.5*L+5)/(1-Y)	=	121.4 sec
Cm	= L/(1-Y)	=	68.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	3.9 %
Cp	= 0.9*L/(0.9-Y)	=	99.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	1.3 %

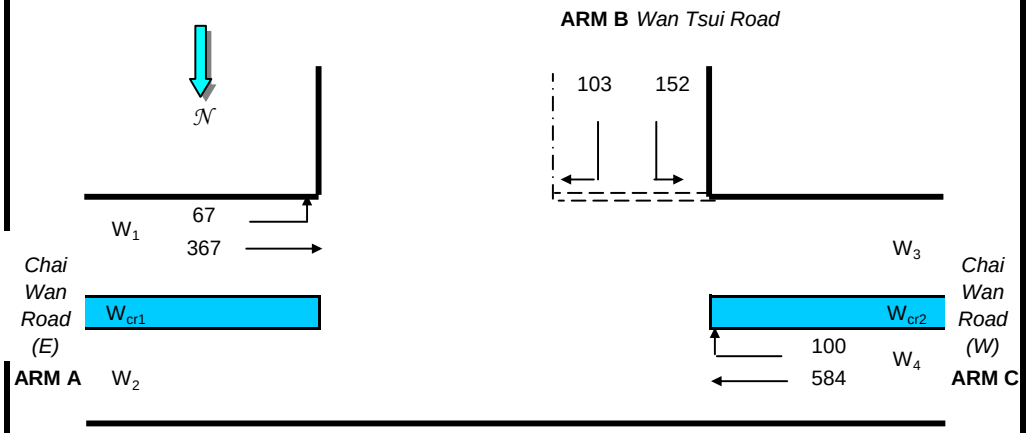


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		952		952	0.00	4070			4070	0.234			28	28	0.889	60	39
RT	A	3.75	1	1	13			2130			599	599	1.00	1910			1910	0.314	0.314		37	28	1.191	72	34
ST	B	3.50	2	2				4210		574		574	0.00	4210			4210	0.136	0.136		16	16	0.889	42	45
LT	B	3.10	2	1	12		y	1925	90			90	1.00	1711			1711	0.053			6	16	0.343	12	35
LT	C	4.00	3	1	15		y	2015	525			525	1.00	1832			1832	0.286	0.286		34	34	0.889	60	28
LT/RT	C	4.00	3	1	15			2155	155		332	487	1.00	1959			1959	0.248			29	34	0.771	54	25
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	67.4	(pcu/hr)
q_{a-c}	=	367.06	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	583.96	(pcu/hr)
q_{c-b}	=	100.01	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	103.27	(pcu/hr)
q_{b-c}	=	152.22	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

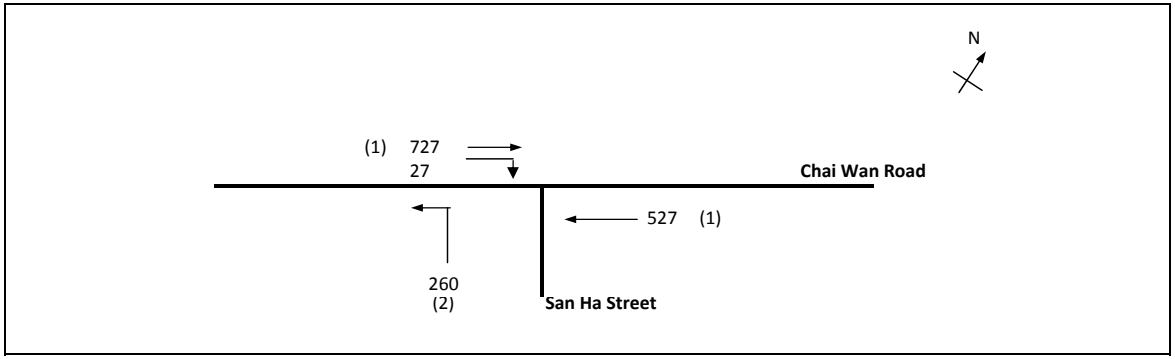
Q_{b-c}	=	775
Q_{c-b}	=	690
Q_{b-a}	=	379

COMPARISION OF DESIGN FLOW TO CAPACITY

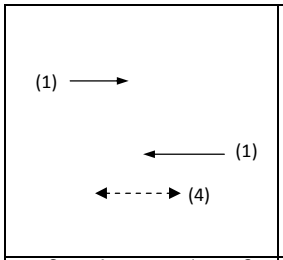
DFC_{b-a}	=	0.272
DFC_{b-c}	=	0.196
DFC_{c-b}	=	0.145

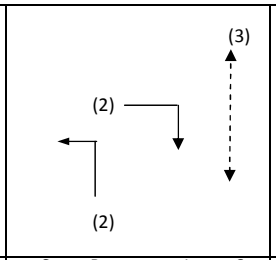
Critical DFC = 0.272

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.335
Loss time		L =	10 sec
Total Flow		=	1542 pcu
Co	= (1.5*L+5)/(1-Y)	=	30.1 sec
Cm	= L/(1-Y)	=	15.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	146.2 %
Cp	= 0.9*L/(0.9-Y)	=	15.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	141.7 %



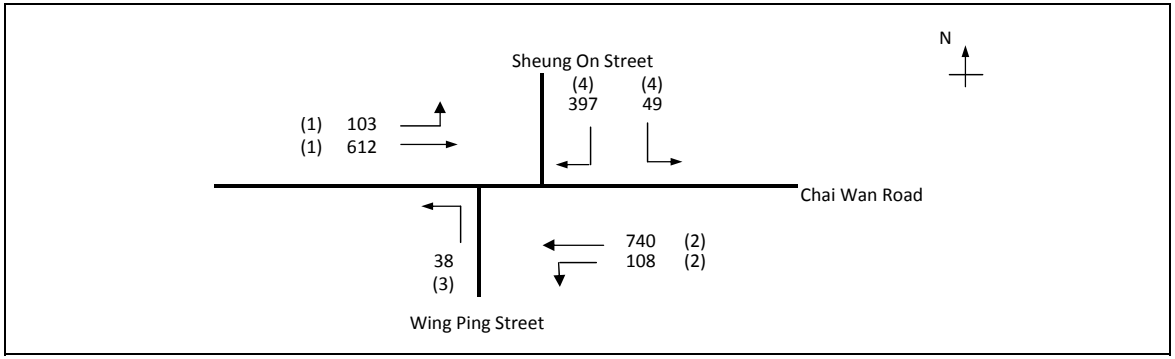


Stage A	I = 6	Stage B	I = 6	Stage C	I =

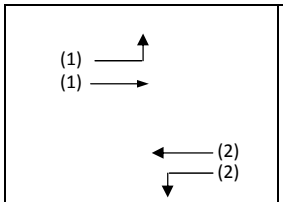
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		727		727	0.00	4070			4070	0.179	0.179		48	47	0.380	30	11
ST	A	3.50	1	2	10		N	4070		527		527	0.00	4070			4070	0.130			35	47	0.276	21	11
LT	B	3.00	2	1	10		N	1915	260			260	1.00	1665			1665	0.156	0.156		42	53	0.295	18	9
RT	B	3.50	2	1	12			2105			27	27	1.00	1871			1871	0.015			4	53	0.027	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

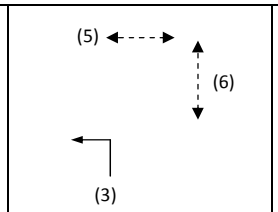
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME :/2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



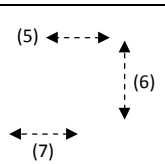
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.288
Loss time		L =	37 sec
Total Flow		=	2047 pcu
Co	= (1.5*L+5)/(1-Y)	=	85.0 sec
Cm	= L/(1-Y)	=	52.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	116.2 %
Cp	= 0.9*L/(0.9-Y)	=	54.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	116.2 %



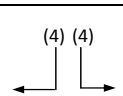
Stage A I = 8



Stage B I = 5



Stage C I = 7

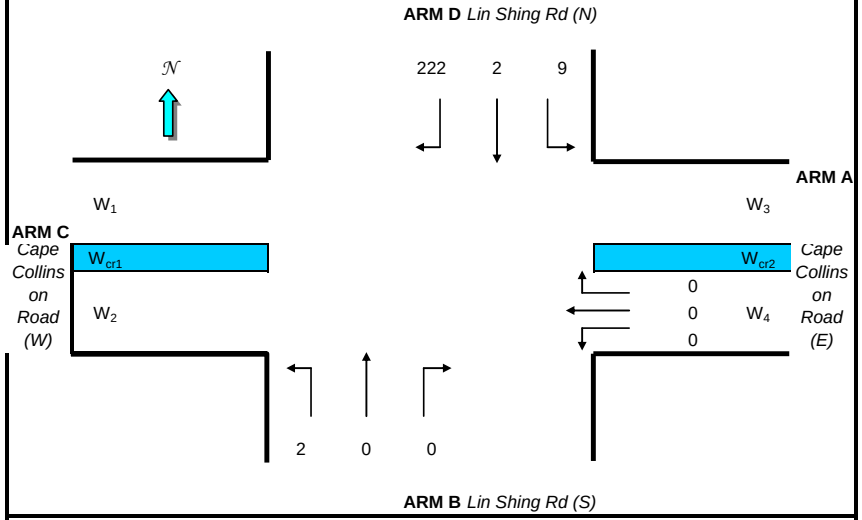


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	103	612		715	0.14	6066			6066	0.118			34		0.000	46	54
LT/ST	A	3.30	2	3	12		Y	6115	108	740		848	0.13	6019			6019	0.141	0.141		41		0.000	56	54
LT	B	3.50	3	1	9		Y	1965	38			38	1.00	1684			1684	0.023	0.023		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	49		397	446	1.00	3583			3583	0.124	0.124		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1742	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.6968	(pcu/hr)
q_{d-b}	=	2.1742	(pcu/hr)
q_{d-c}	=	221.76	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

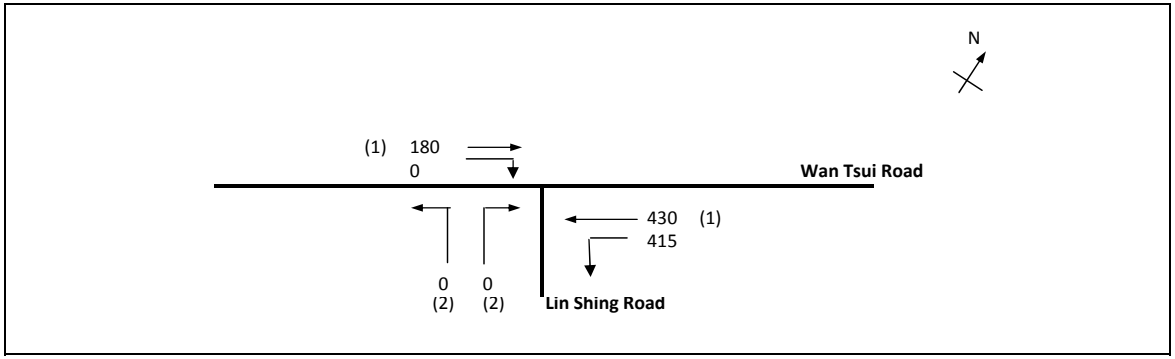
Q_{b-a}	=	615
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

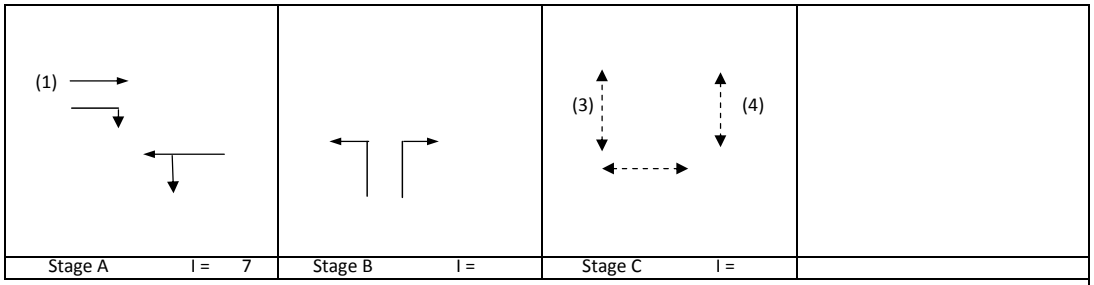
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.428
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.428

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.450	
Loss time		L =	25	sec
Total Flow		=	1025	pcu
Co	= (1.5*L+5)/(1-Y)	=	77.3	sec
Cm	= L/(1-Y)	=	45.4	sec
Yult		=	0.713	
R.C.ult	= (Yult-Y)/Y*100%	=	58.4	%
Cp	= 0.9*L/(0.9-Y)	=	50.0	sec
Ymax	= 1-L/C	=	0.792	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	58.4	%



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		180		180	0.00	1915			1915	0.094			20	95	0.119	6	2
ST/LT	A	4.00	1	1	10		N	2015	415	430		844	0.49	1877			1877	0.450	0.450		95	95	0.568	30	3
Ped	B	6.0	3																	20					

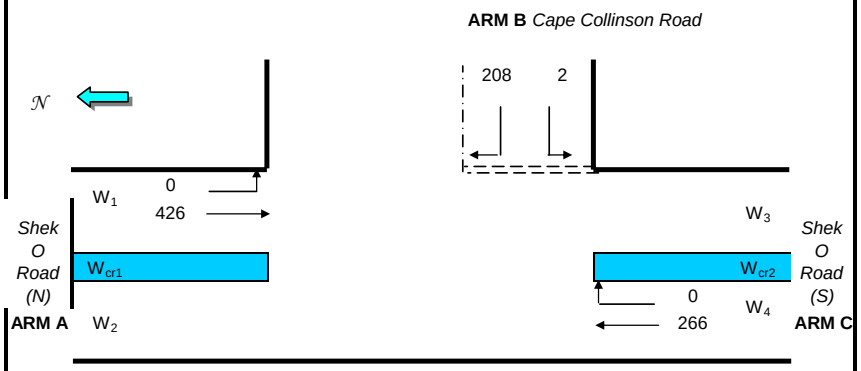
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a | **Prepared By: KC**

Junction Capacity Analysis | **Checked By: OC**

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	426.14	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	266.34	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	207.75	(pcu/hr)
q_{b-c}	=	2.1742	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

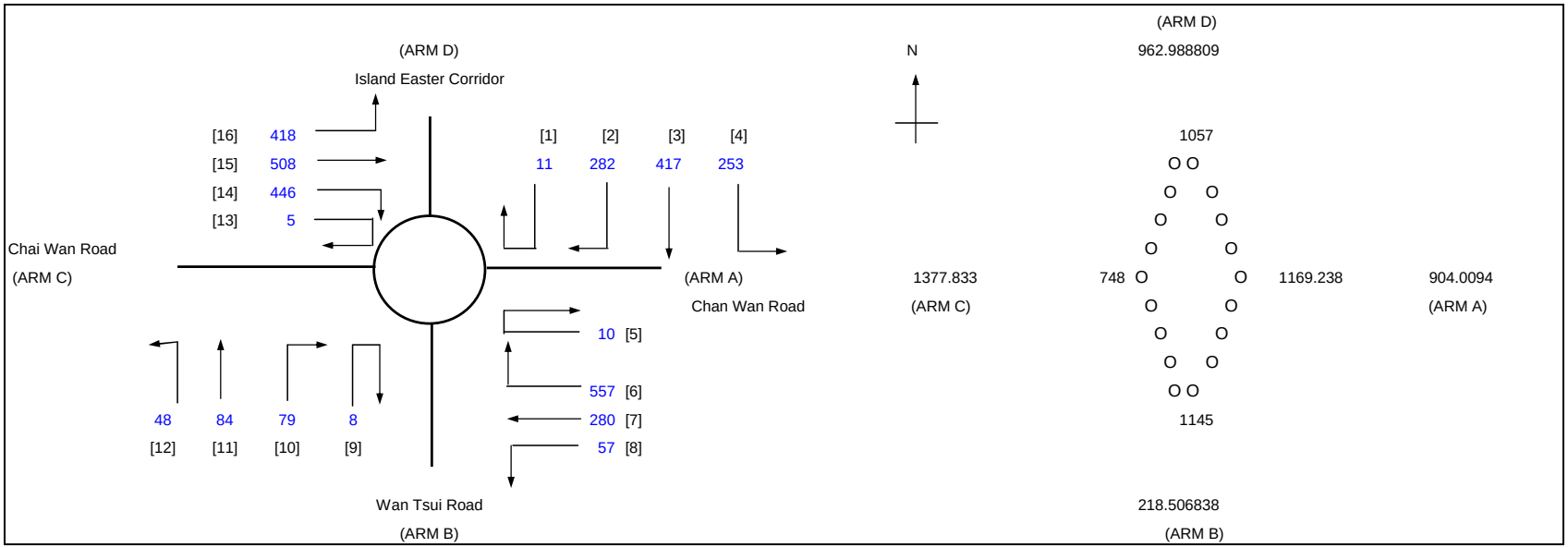
Q_{b-c}	=	633
Q_{c-b}	=	705
Q_{b-a}	=	297

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.700
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.700

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME 2026_LV3_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

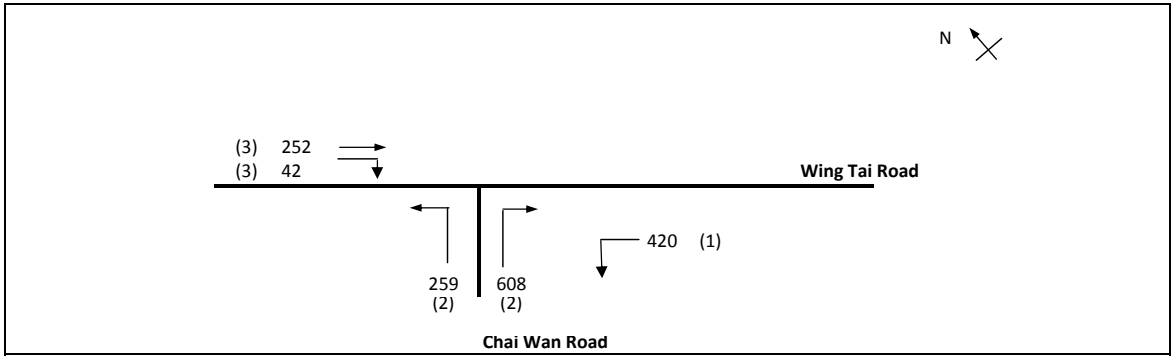


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	904	219	1378	963
Qc	=	Circulating flow across entry (pcu/h)	1169	1145	748	1057
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1582	836	1913	1407
DFC	=	Design flow/Capacity = Q/Qe	0.57	0.26	0.72	0.68

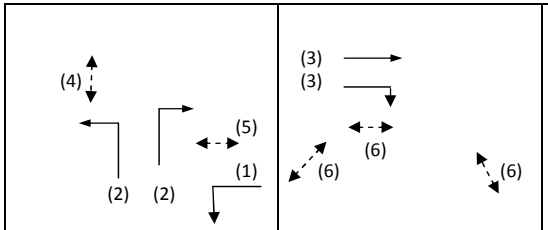
Total In Sum = 2688.088 PCU

DFC of Critical Approach = 0.72

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.232
Loss time		L =	10 sec
Total Flow		=	1581 pcu
Co	= (1.5*L+5)/(1-Y)	=	26.0 sec
Cm	= L/(1-Y)	=	13.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	256.1 %
Cp	= 0.9*L/(0.9-Y)	=	13.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	249.7 %



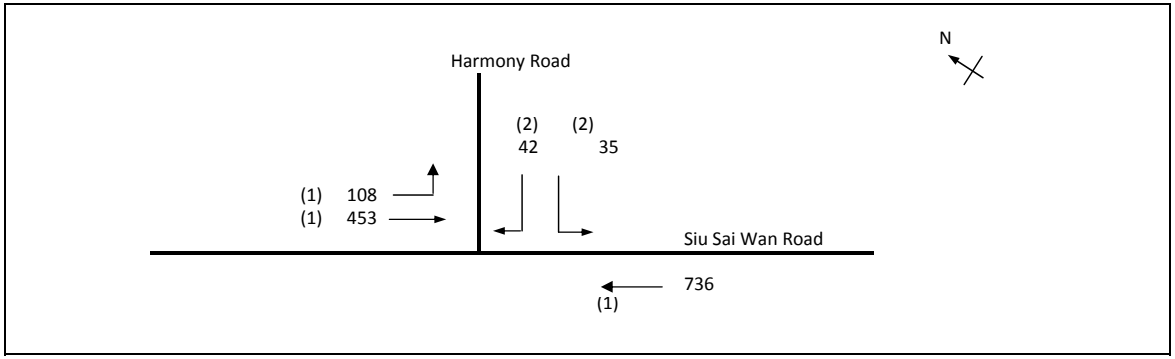
Stage A I = 7

Stage B I = 5

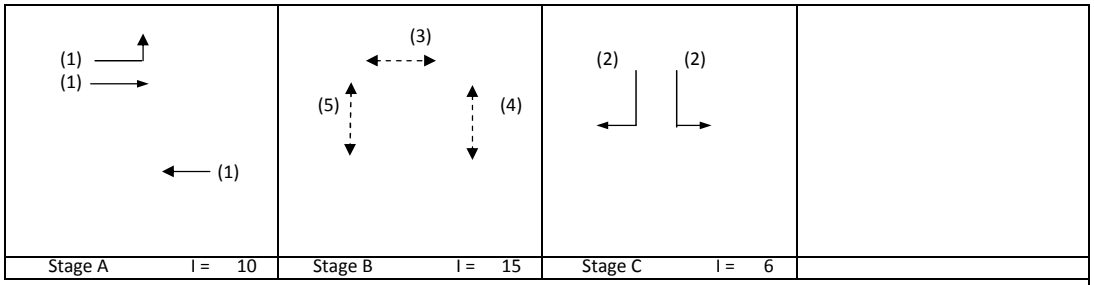
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	420			420	1.00	3857			3857	0.109			42	66	0.165	9	5
LT	A	4.00	2	2	24			4310	259			259	1.00	4056			4056	0.064			25	66	0.097	6	5
RT	A	3.50	2	2	11		y	4070			608	608	1.00	3582			3582	0.170	0.170		66	66	0.257	15	5
ST	B	3.50	3	2			y	4070		252		252	0.00	4070			4070	0.062	0.062		24	24	0.257	15	25
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			4	24	0.046	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.208	
Loss time	L =	48	sec
Total Flow	=	1374	pcu
Co = (1.5*L+5)/(1-Y)	=	97.2	sec
Cm = L/(1-Y)	=	60.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	159.9	%
Cp = 0.9*L/(0.9-Y)	=	62.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	125.2	%

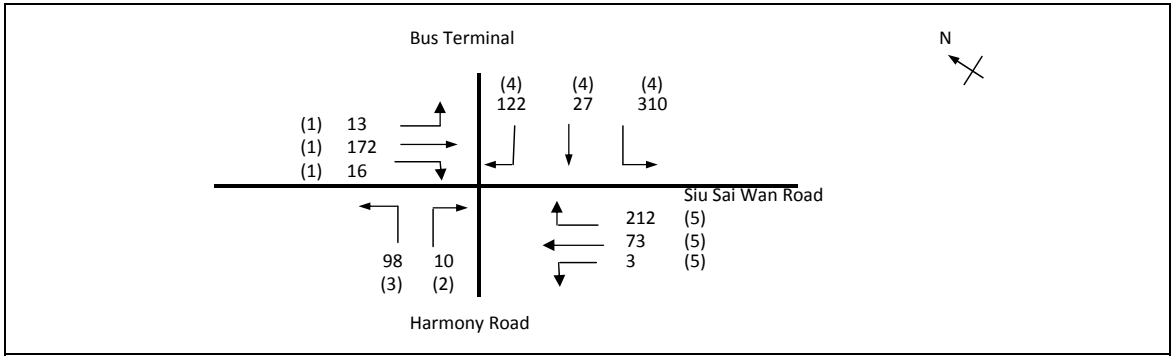


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

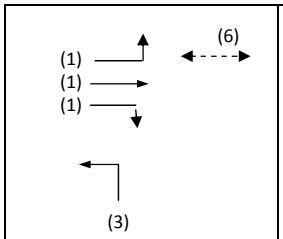
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	108	156		264	0.41	1842			1842	0.143			36	46	0.308	18	12
ST	A	3.20	1	1				2075		297		297	0.00	2075			2075	0.143			36	46	0.309	24	12
ST	A	3.00	1	2			y	3970		736		736	0.00	3970			3970	0.185	0.185		46	46	0.400	30	11
LT	C	3.75	2	1	12		y	1990	35			35	1.00	1769			1769	0.020			5	6	0.351	0	48
RT	C	3.75	2	1	12			2130			42	42	1.00	1893			1893	0.022	0.022		6	6	0.400	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

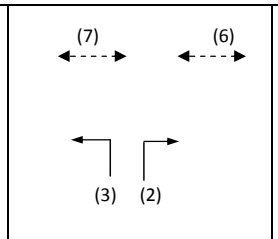
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



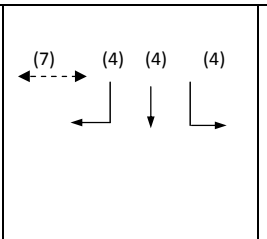
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.361
Loss time		L =	18 sec
Total Flow		=	1056 pcu
Co	= (1.5*L+5)/(1-Y)	=	50.0 sec
Cm	= L/(1-Y)	=	28.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	112.1 %
Cp	= 0.9*L/(0.9-Y)	=	30.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	106.8 %



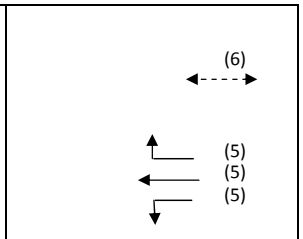
Stage A I = 5



Stage B I = 5



Stage C I = 6

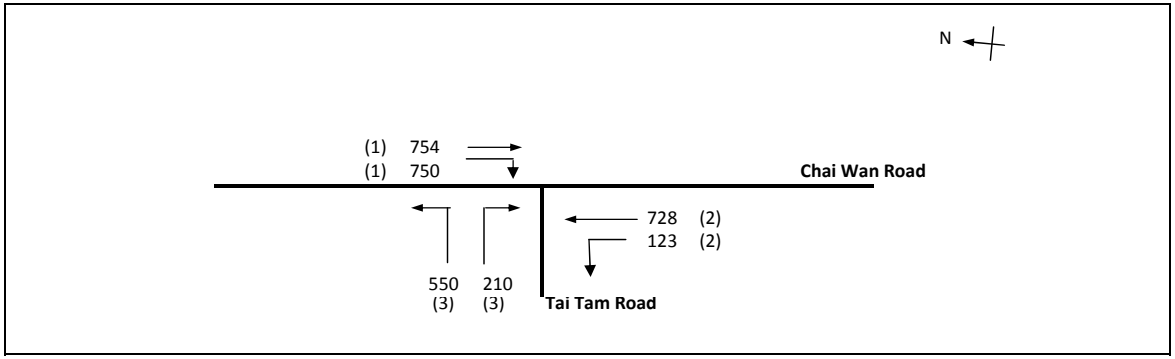


Stage C I = 6

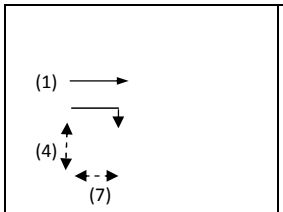
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	84		97	0.13	1910			1910	0.051			12	12	0.435	12	41
ST/RT	A	3.30	1	1	12			2085		88	16	104	0.16	2045			2045	0.051	0.051		12	12	0.435	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.435	0	101
LT	A,B	3.75	3	1	13		y	1990	98			98	1.00	1784			1784	0.055			13	19	0.311	12	33
RT	C	3.50	4	1	12			2105			122	122	1.00	1871			1871	0.065			16	46	0.148	6	14
LT/ST	C	3.50	4	1	12		y	1965	310	27		337	0.92	1762			1762	0.191	0.191		46	46	0.435	30	14
ST/RT	D	3.50	5	1	12			2105		0	212	212	1.00	1871			1871	0.113	0.113		27	27	0.435	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	73		76	0.04	1954			1954	0.039			9	9	0.435	12	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

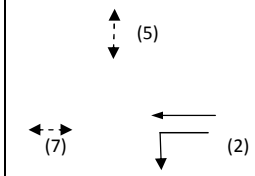
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



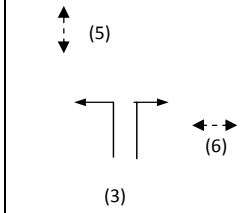
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.764
Loss time		L =	18 sec
Total Flow		=	3116 pcu
Co	= (1.5*L+5)/(1-Y)	=	135.3 sec
Cm	= L/(1-Y)	=	76.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	0.2 %
Cp	= 0.9*L/(0.9-Y)	=	118.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-2.3 %



Stage A I = 7



Stage B I = 8



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		754		754	0.00	4070			4070	0.185			21	21	0.922	54	42
RT	A	3.50	1	1	13			2105			750	750	1.00	1887			1887	0.397	0.397		45	21	1.976	102	42
ST	B	3.50	2	2				4210		728		728	0.00	4210			4210	0.173	0.173		20	20	0.922	54	43
LT	B	3.10	2	1	12		y	1925	123			123	1.00	1711			1711	0.072			8	20	0.382	12	32
LT	C	4.00	3	1	15		y	2015	382			382	1.00	1832			1832	0.208			24	24	0.922	66	35
LT/RT	C	4.00	3	1	15			2155	168		210	378	1.00	1959			1959	0.193	0.193		22	24	0.854	48	35
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

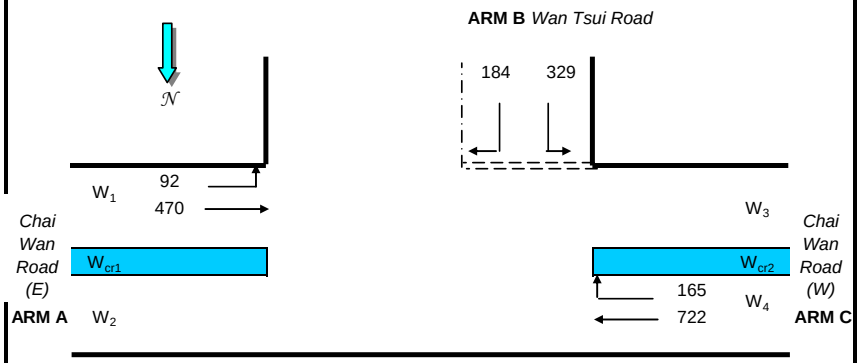
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	92.403	(pcu/hr)
q_{a-c}	=	469.63	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	721.77	(pcu/hr)
q_{c-b}	=	165.24	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	184	(pcu/hr)
q_{b-c}	=	329.31	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

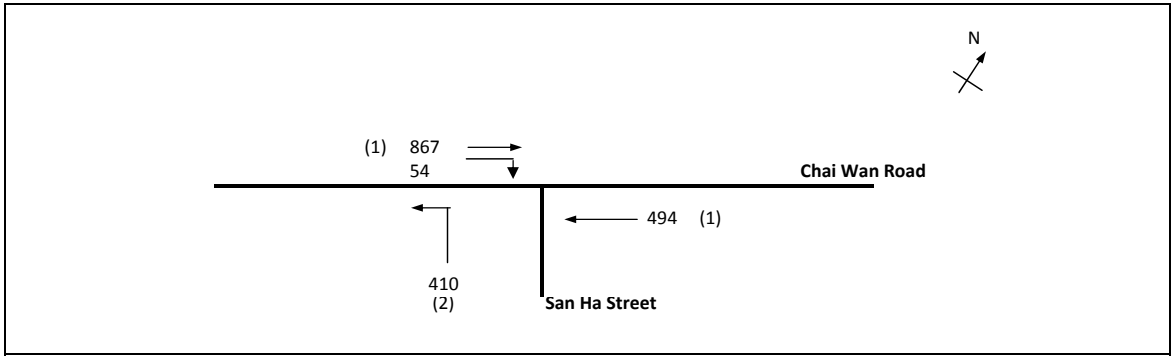
Q_{b-c}	=	761
Q_{c-b}	=	675
Q_{b-a}	=	356

COMPARISION OF DESIGN FLOW TO CAPACITY

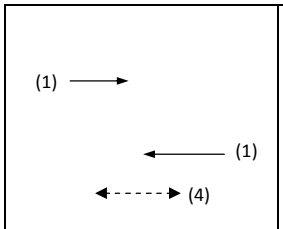
DFC_{b-a}	=	0.516
DFC_{b-c}	=	0.433
DFC_{c-b}	=	0.245

Critical DFC = 0.516

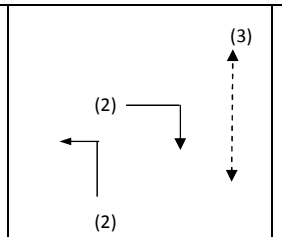
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.459	
Loss time		L =	10	sec
Total Flow		=	1825	pcu
Co	= (1.5*L+5)/(1-Y)	=	37.0	sec
Cm	= L/(1-Y)	=	18.5	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	79.5	%
Cp	= 0.9*L/(0.9-Y)	=	20.4	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	76.3	%



Stage A I = 6



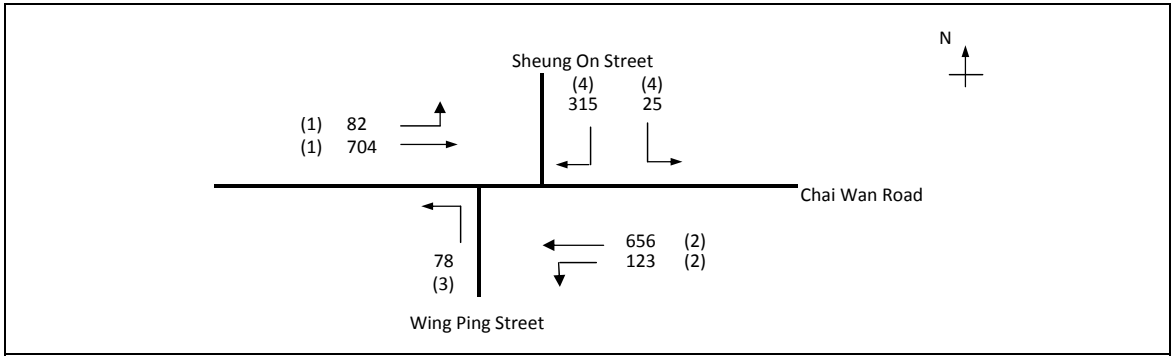
Stage B I = 6

Stage C I =

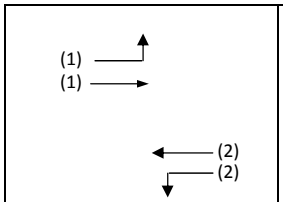
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		867		867	0.00	4070			4070	0.213	0.213		42	47	0.453	36	11
ST	A	3.50	1	2	10		N	4070		494		494	0.00	4070			4070	0.121			24	47	0.258	21	11
LT	B	3.00	2	1	10		N	1915	410			410	1.00	1665			1665	0.246	0.246		48	53	0.465	30	9
RT	B	3.50	2	1	12			2105			54	54	1.00	1871			1871	0.029			6	53	0.055	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

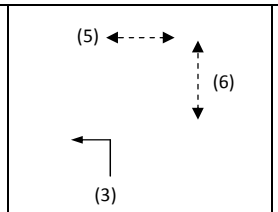
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



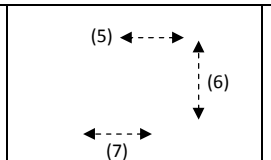
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.271
Loss time		L =	37 sec
Total Flow		=	1983 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.0 sec
Cm	= L/(1-Y)	=	50.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	129.5 %
Cp	= 0.9*L/(0.9-Y)	=	53.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	129.5 %



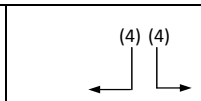
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	82	704		786	0.10	6096			6096	0.129			39		0.000	52	54
LT/ST	A	3.30	2	3	12		Y	6115	123	656		778	0.16	5997			5997	0.130	0.130		40		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	78			78	1.00	1684			1684	0.046	0.046		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	25		315	340	1.00	3583			3583	0.095	0.095		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

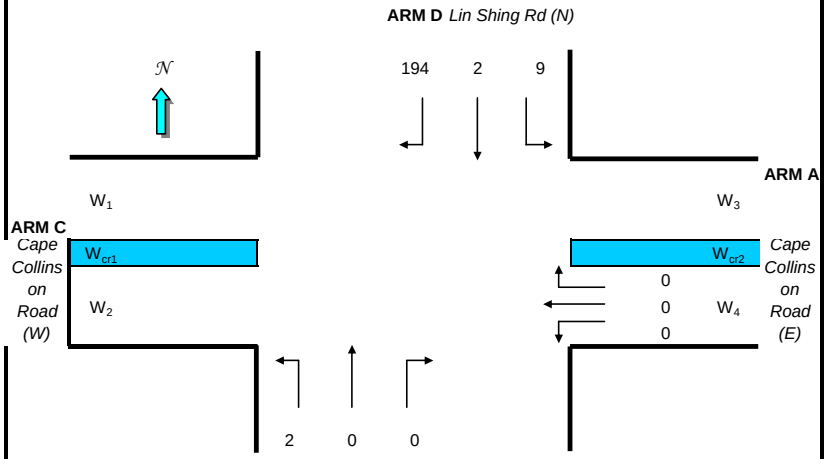
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2026 Level 3 - Site 1

Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1742	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.6968	(pcu/hr)
q_{d-b}	=	2.1742	(pcu/hr)
q_{d-c}	=	194.3	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

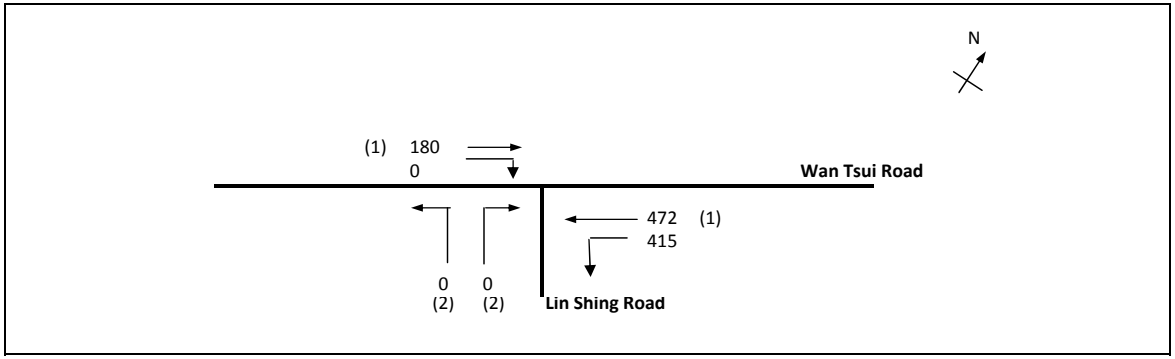
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

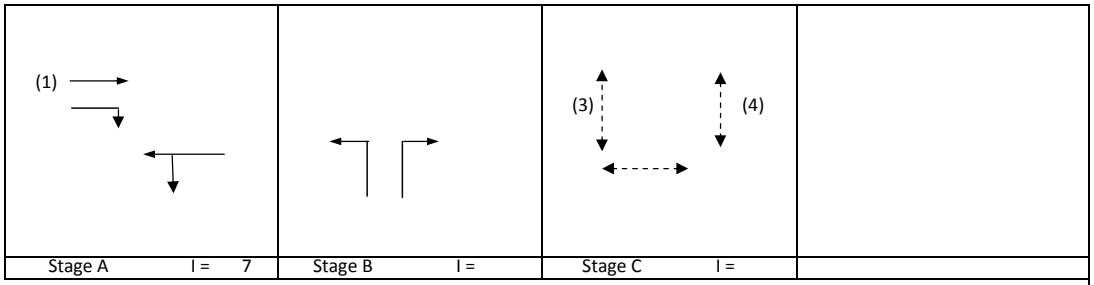
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.375
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.375

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.471	
Loss time		L =	25	sec
Total Flow		=	1068	pcu
Co	= (1.5*L+5)/(1-Y)	=	80.4	sec
Cm	= L/(1-Y)	=	47.3	sec
Yult		=	0.713	
R.C.ult	= (Yult-Y)/Y*100%	=	51.2	%
Cp	= 0.9*L/(0.9-Y)	=	52.5	sec
Ymax	= 1-L/C	=	0.792	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51.2	%

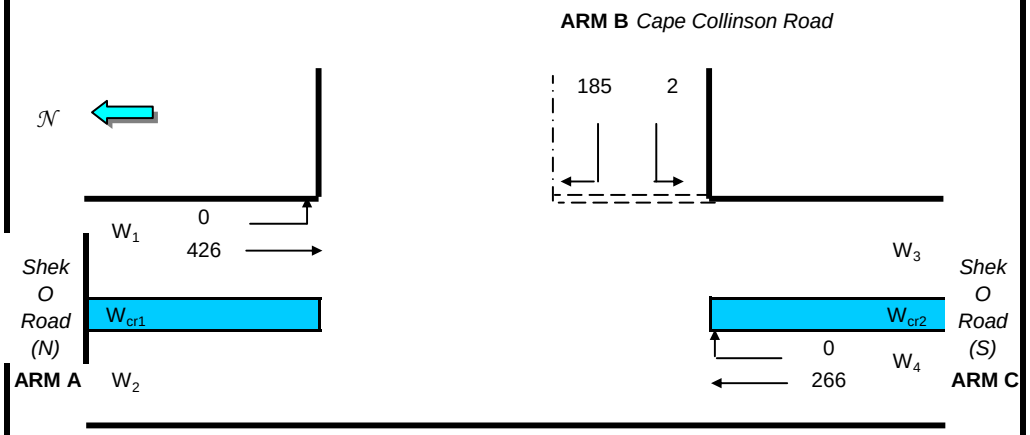


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		180		180	0.00	1915			1915	0.094			19	95	0.119	6	2
ST/LT	A	4.00	1	1	10		N	2015	415	472		887	0.47	1883			1883	0.471	0.471		95	95	0.595	36	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2026 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	426.14	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	266.34	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	185.28	(pcu/hr)
q_{b-c}	=	2.1742	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

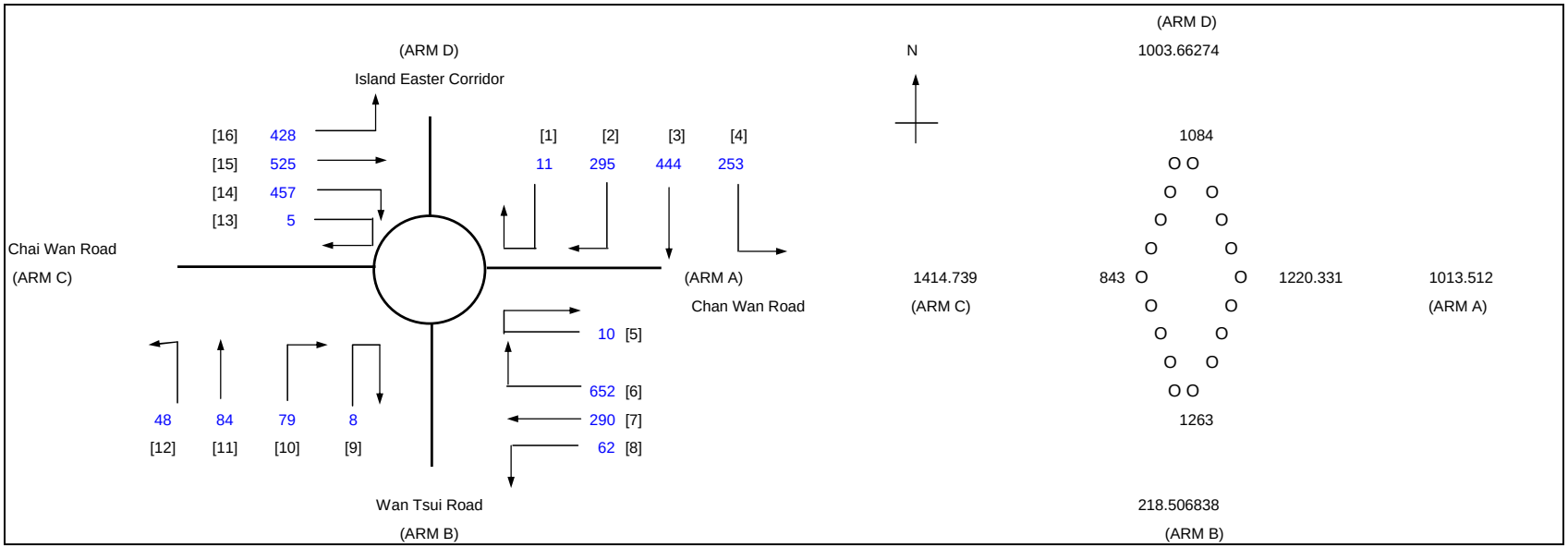
Q_{b-c}	=	633
Q_{c-b}	=	705
Q_{b-a}	=	297

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.624
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.624

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME2026_LV3_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

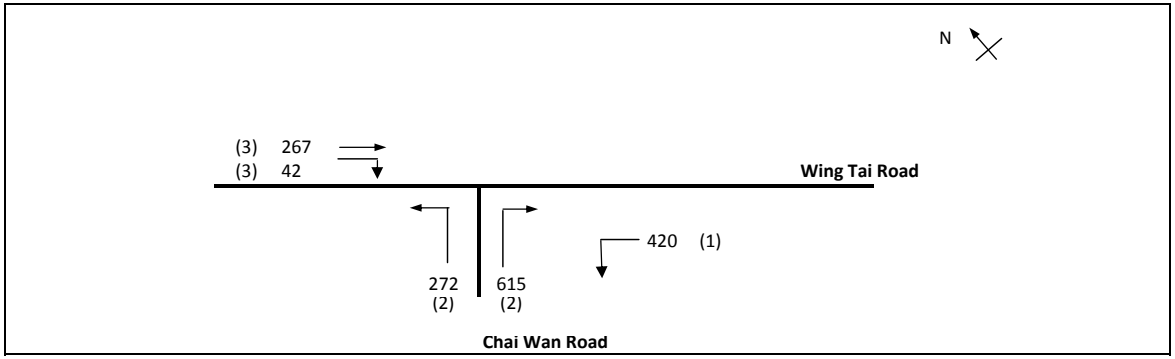


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	1014	219	1415	1004
Qc	=	Circulating flow across entry (pcu/h)	1220	1263	843	1084
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1543	770	1841	1389
DFC	=	Design flow/Capacity = Q/Qe	0.66	0.28	0.77	0.72

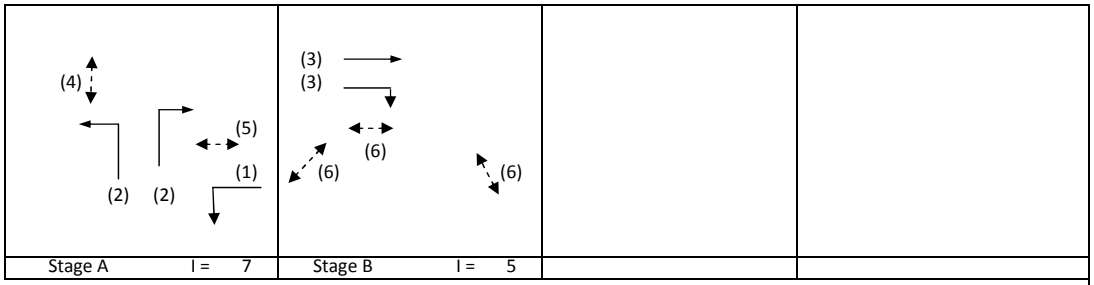
Total In Sum = 2859.185 PCU

DFC of Critical Approach = 0.77

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.237	
Loss time	L =	10	sec
Total Flow	=	1616	pcu
Co = (1.5*L+5)/(1-Y)	=	26.2	sec
Cm = L/(1-Y)	=	13.1	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	247.7	%
Cp = 0.9*L/(0.9-Y)	=	13.6	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	241.4	%

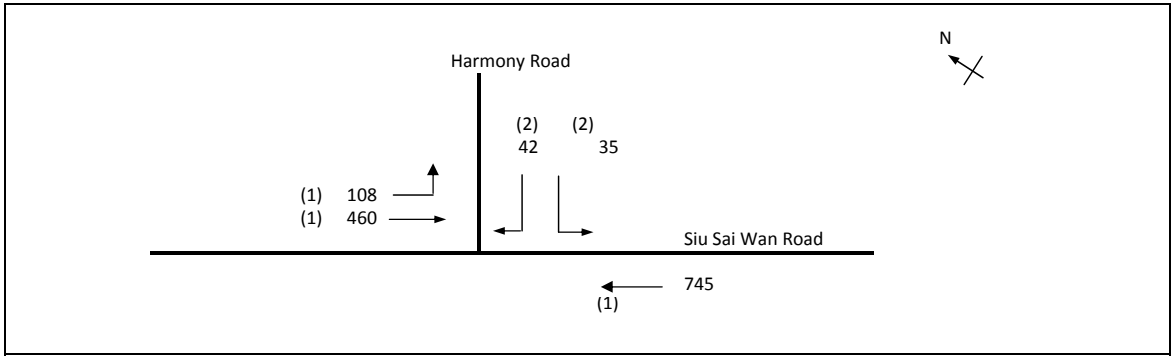


Stage A I = 7 Stage B I = 5

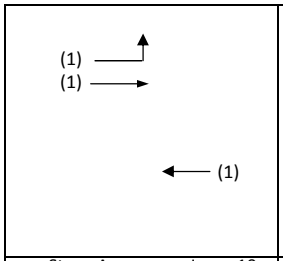
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	420			420	1.00	3857			3857	0.109			41	65	0.167	12	5
LT	A	4.00	2	2	24			4310	272			272	1.00	4056			4056	0.067			25	65	0.103	6	5
RT	A	3.50	2	2	11		y	4070			615	615	1.00	3582			3582	0.172	0.172		65	65	0.264	15	5
ST	B	3.50	3	2			y	4070		267		267	0.00	4070			4070	0.066	0.066		25	25	0.264	15	24
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			4	25	0.044	0	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

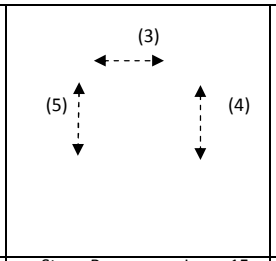
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



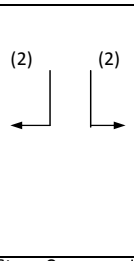
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.210	
Loss time	L =	48	sec
Total Flow	=	1390	pcu
Co = (1.5*L+5)/(1-Y)	=	97.5	sec
Cm = L/(1-Y)	=	60.8	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	157.0	%
Cp = 0.9*L/(0.9-Y)	=	62.6	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	122.8	%



Stage A I = 10



Stage B I = 15

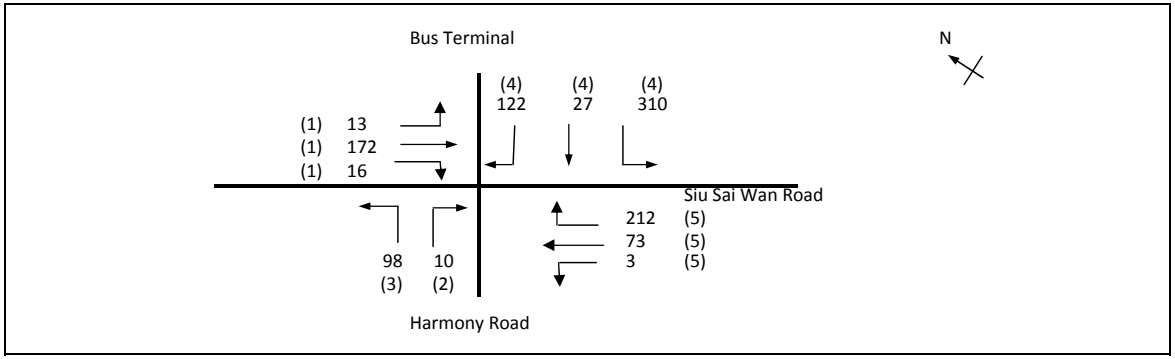


Stage C I = 6

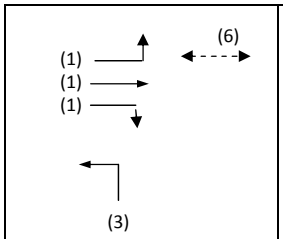
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	108	156		264	0.41	1842			1842	0.143			35	46	0.308	18	12
ST	A	3.20	1	1				2075		304		304	0.00	2075			2075	0.147			36	46	0.316	24	12
ST	A	3.00	1	2			y	3970		745		745	0.00	3970			3970	0.188	0.188		46	46	0.404	33	11
LT	C	3.75	2	1	12		y	1990	35			35	1.00	1769			1769	0.020			5	6	0.355	0	48
RT	C	3.75	2	1	12			2130			42	42	1.00	1893			1893	0.022	0.022		6	6	0.404	6	50
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

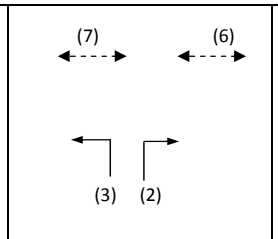
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



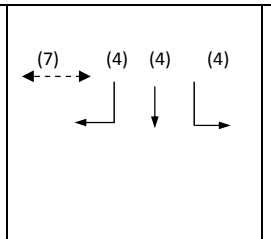
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.361
Loss time	L =	18 sec
Total Flow	=	1056 pcu
Co = (1.5*L+5)/(1-Y)	=	50.0 sec
Cm = L/(1-Y)	=	28.2 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	112.1 %
Cp = 0.9*L/(0.9-Y)	=	30.0 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	106.8 %



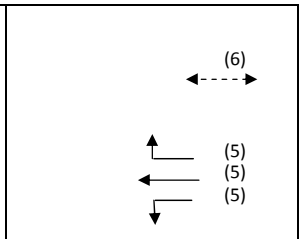
Stage A I = 5



Stage B I = 5



Stage C I = 6

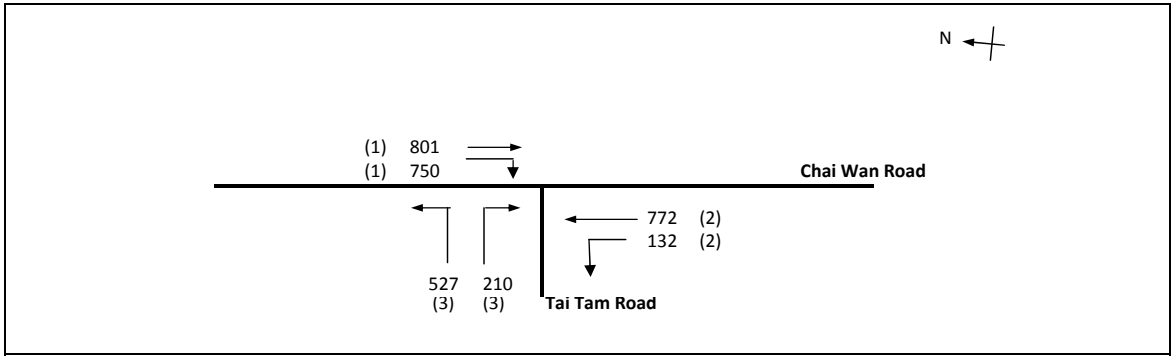


Stage C I = 6

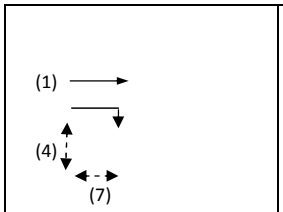
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	84		97	0.13	1910			1910	0.051			12	12	0.435	12	41
ST/RT	A	3.30	1	1	12			2085		88	16	104	0.16	2045			2045	0.051	0.051		12	12	0.435	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.435	0	101
LT	A,B	3.75	3	1	13		y	1990	98			98	1.00	1784			1784	0.055			13	19	0.311	12	33
RT	C	3.50	4	1	12			2105			122	122	1.00	1871			1871	0.065			16	46	0.148	6	14
LT/ST	C	3.50	4	1	12		y	1965	310	27		337	0.92	1762			1762	0.191	0.191		46	46	0.435	30	14
ST/RT	D	3.50	5	1	12			2105		0	212	212	1.00	1871			1871	0.113	0.113		27	27	0.435	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	73		76	0.04	1954			1954	0.039			9	9	0.435	12	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

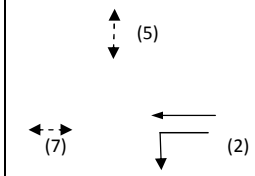
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME :/3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



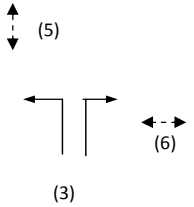
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.763
Loss time		L =	18 sec
Total Flow		=	3192 pcu
Co	= (1.5*L+5)/(1-Y)	=	134.8 sec
Cm	= L/(1-Y)	=	75.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	0.3 %
Cp	= 0.9*L/(0.9-Y)	=	117.9 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-2.2 %



Stage A I = 7



Stage B I = 8

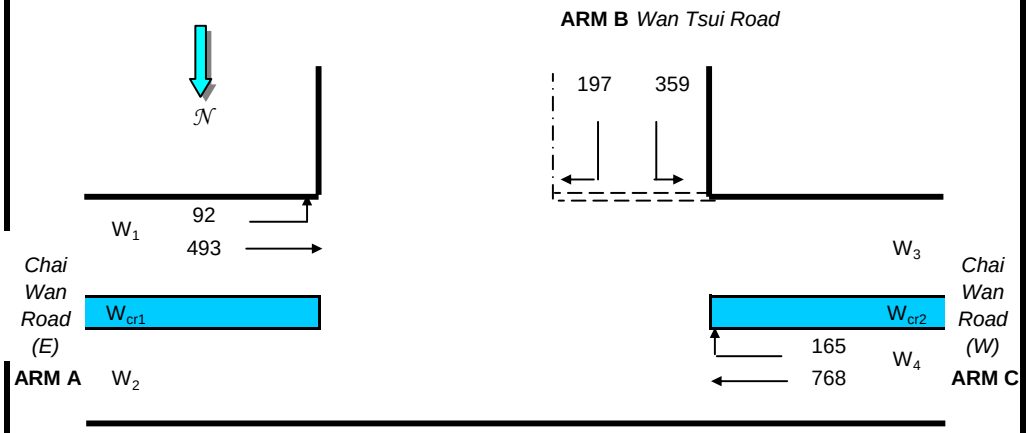


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		801		801	0.00	4070			4070	0.197			22	22	0.920	57	42
RT	A	3.75	1	1	13			2130			750	750	1.00	1910			1910	0.393	0.393		45	22	1.838	102	41
ST	B	3.50	2	2				4210		772		772	0.00	4210			4210	0.183	0.183		21	21	0.920	57	43
LT	B	3.10	2	1	12		y	1925	132			132	1.00	1711			1711	0.077			9	21	0.387	18	31
LT	C	4.00	3	1	15		y	2015	372			372	1.00	1832			1832	0.203			23	23	0.920	66	36
LT/RT	C	4.00	3	1	15			2155	155		210	365	1.00	1959			1959	0.186	0.186		21	23	0.845	48	44
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2026 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	92.403	(pcu/hr)
q_{a-c}	=	492.59	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	767.93	(pcu/hr)
q_{c-b}	=	165.24	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	196.7	(pcu/hr)
q_{b-c}	=	358.96	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

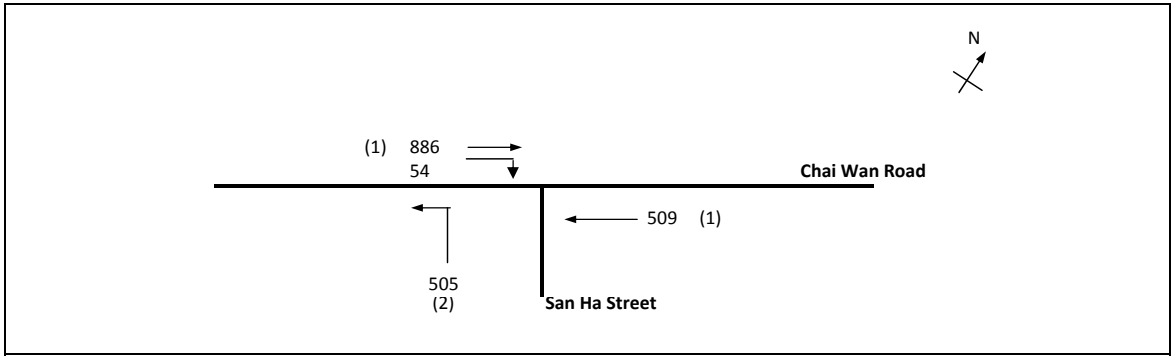
Q_{b-c}	=	758
Q_{c-b}	=	672
Q_{b-a}	=	352

COMPARISION OF DESIGN FLOW TO CAPACITY

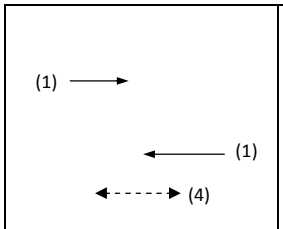
DFC_{b-a}	=	0.559
DFC_{b-c}	=	0.474
DFC_{c-b}	=	0.246

Critical DFC = 0.559

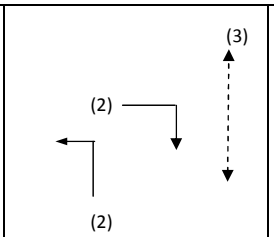
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME :/3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.521	
Loss time		L =	10	sec
Total Flow		=	1954	pcu
Co	= (1.5*L+5)/(1-Y)	=	41.7	sec
Cm	= L/(1-Y)	=	20.9	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	58.4	%
Cp	= 0.9*L/(0.9-Y)	=	23.7	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	55.5	%



Stage A I = 6



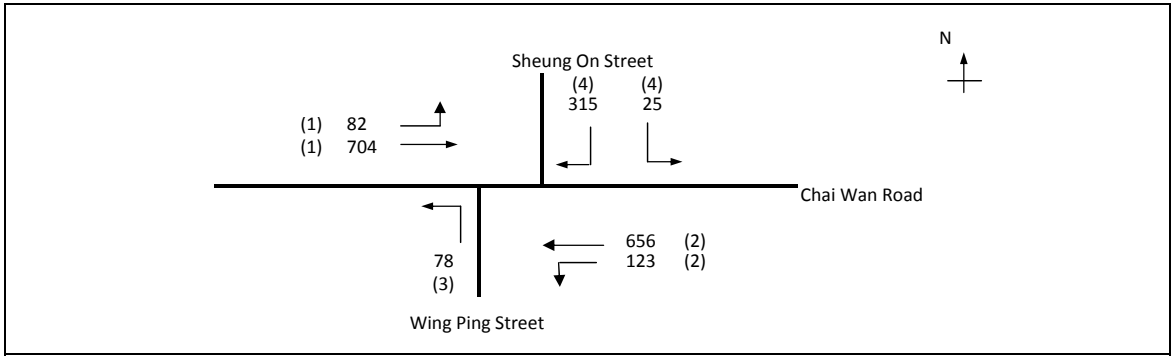
Stage B I = 6

Stage C I =

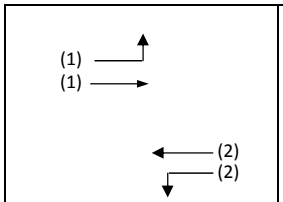
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		886		886	0.00	4070			4070	0.218	0.218		38	47	0.463	39	11
ST	A	3.50	1	2	10		N	4070		509		509	0.00	4070			4070	0.125			22	47	0.266	21	11
LT	B	3.00	2	1	10		N	1915	505			505	1.00	1665			1665	0.303	0.303		52	53	0.572	36	9
RT	B	3.50	2	1	12			2105			54	54	1.00	1871			1871	0.029			5	53	0.055	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

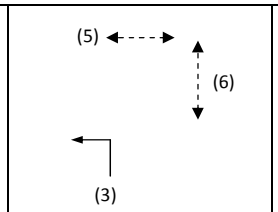
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME :3_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



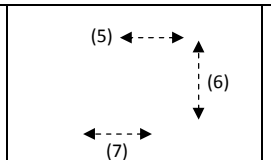
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.271
Loss time		L =	37 sec
Total Flow		=	1983 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.0 sec
Cm	= L/(1-Y)	=	50.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	129.5 %
Cp	= 0.9*L/(0.9-Y)	=	53.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	129.5 %



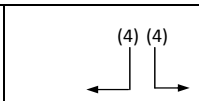
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

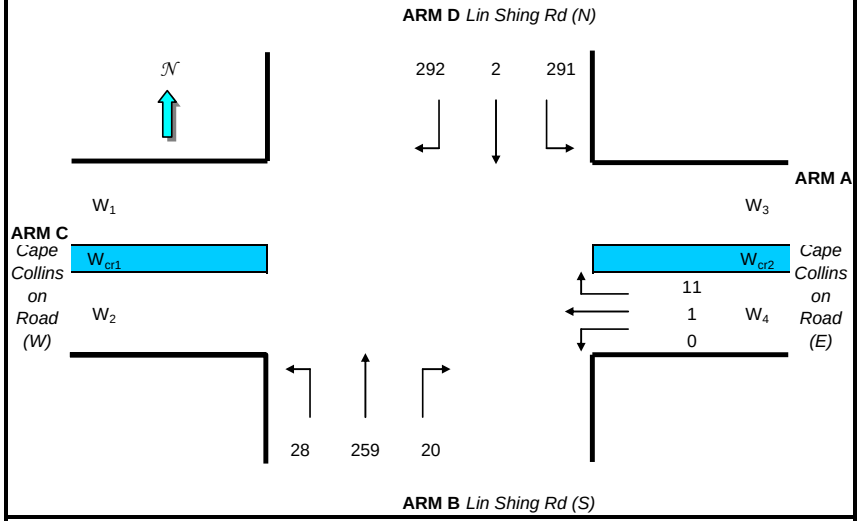
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	82	704		786	0.10	6096			6096	0.129			39		0.000	52	54
LT/ST	A	3.30	2	3	12		Y	6115	123	656		778	0.16	5997			5997	0.130	0.130		40		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	78			78	1.00	1684			1684	0.046	0.046		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	25		315	340	1.00	3583			3583	0.095	0.095		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix B5

2021 Sensitivity Test 1
Peak Hour Junction Assessment
Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0575	(pcu/hr)
q_{a-d}	=	10.518	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	20.093	(pcu/hr)
q_{b-c}	=	28	(pcu/hr)
q_{b-d}	=	259.34	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	291	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	292	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

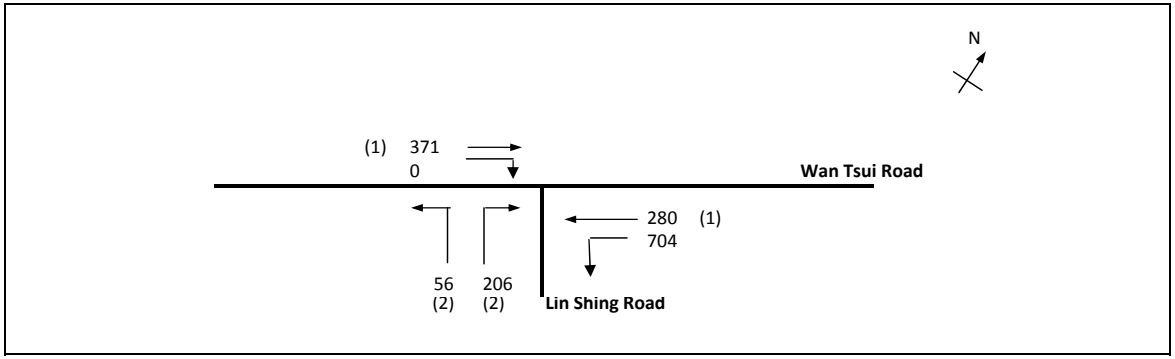
Q_{b-a}	=	516
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	528
Q_{d-c}	=	444
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

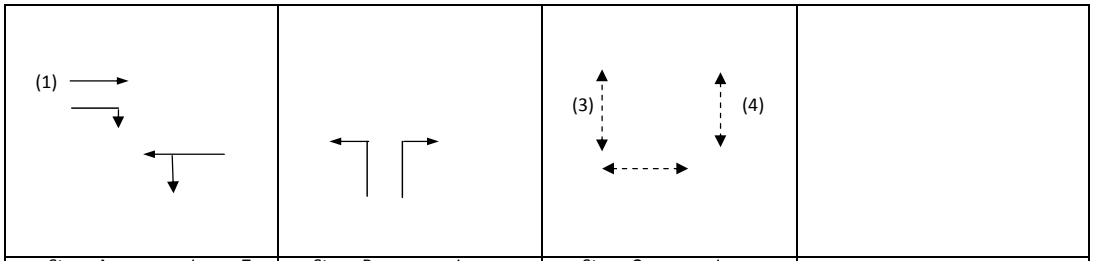
DFC_{b-a}	=	0.039
DFC_{b-c}	=	0.038
DFC_{b-d}	=	0.426
DFC_{d-a}	=	0.431
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.658
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.017

Critical DFC = 0.658

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.541
Loss time		L =	25 sec
Total Flow		=	1355 pcu
Co	= (1.5*L+5)/(1-Y)	=	92.5 sec
Cm	= L/(1-Y)	=	54.4 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	31.8 %
Cp	= 0.9*L/(0.9-Y)	=	62.6 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	31.8 %



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		371		371	0.00	1915			1915	0.194			34	95	0.245	12	2
ST/LT	A	4.00	1	1	10		N	2015	704	280		984	0.72	1820			1820	0.541	0.541		95	95	0.683	36	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

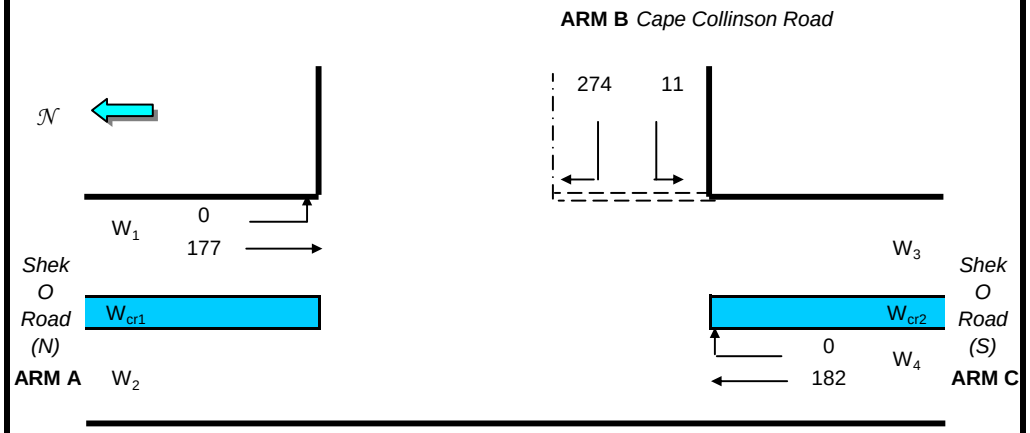
Prepared By: KC

Checked By:

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 1 - Reference Case

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	177	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	182	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	274	(pcu/hr)
q_{b-c}	=	11	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

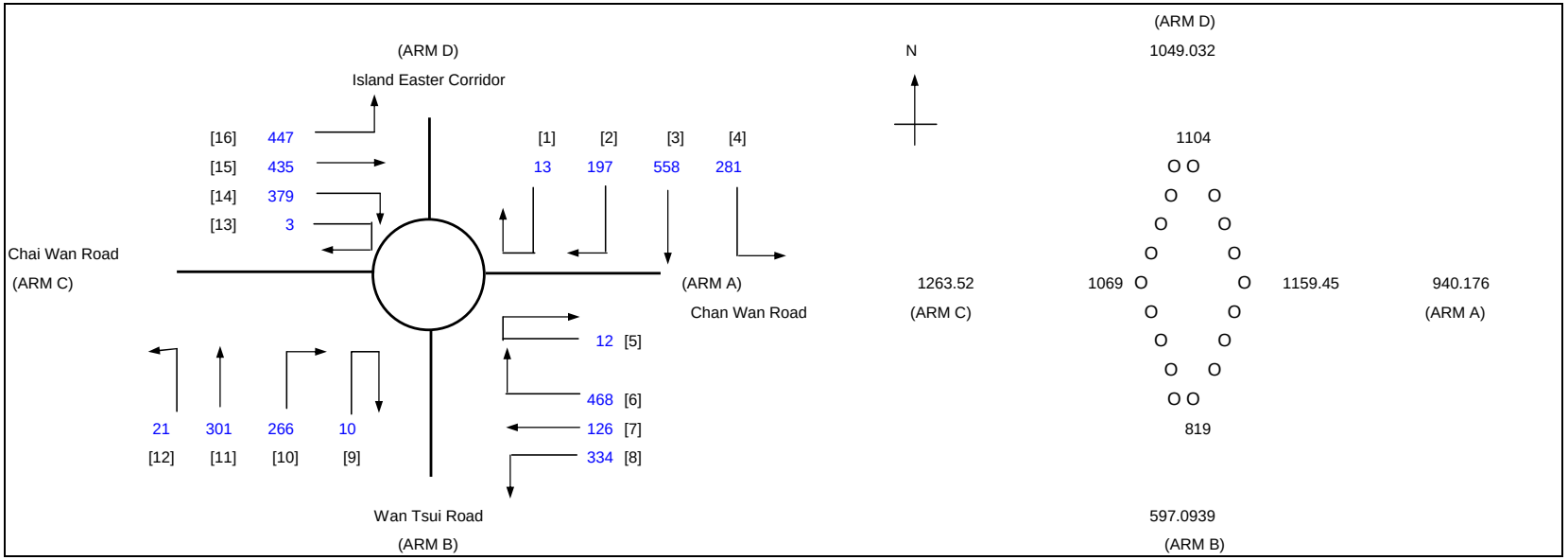
Q_{b-c}	=	697
Q_{c-b}	=	776
Q_{b-a}	=	346

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.792
DFC_{b-c}	=	0.015
DFC_{c-b}	=	0.000

Critical DFC = 0.792

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4LV1_Sen1_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

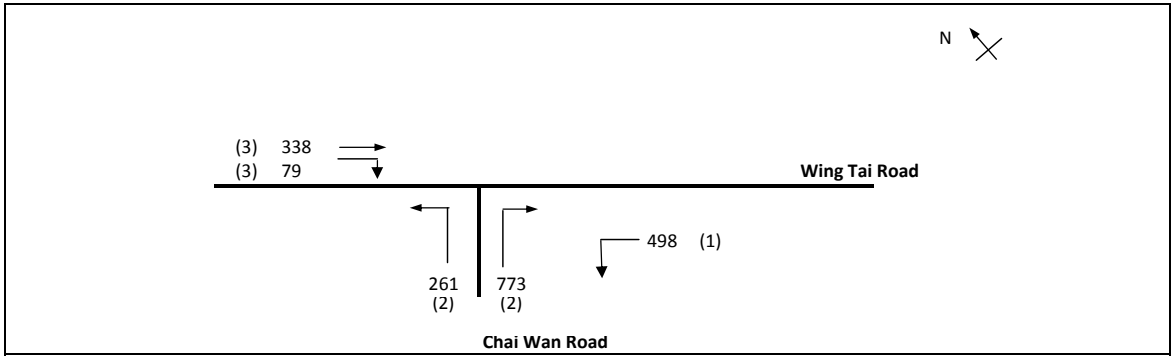


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	940	597	1264	1049
Qc	=	Circulating flow across entry (pcu/h)	1159	819	1069	1104
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1590	1017	1670	1375
DFC	=	Design flow/Capacity = Q/Qe	0.59	0.59	0.76	0.76

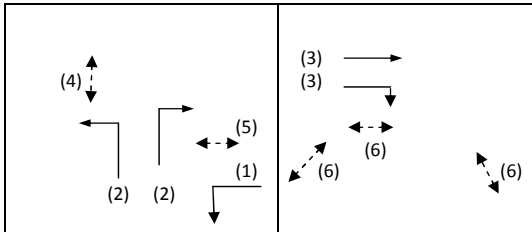
Total In Sum = 2766.48 PCU

DFC of Critical Approach = 0.76

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2
Cycle time	C =	100 sec
Sum(y)	Y =	0.299
Loss time	L =	10 sec
Total Flow	=	1950 pcu
Co = (1.5*L+5)/(1-Y)	=	28.5 sec
Cm = L/(1-Y)	=	14.3 sec
Yult	=	0.825
R.C.ult = (Yult-Y)/Y*100%	=	175.9 %
Cp = 0.9*L/(0.9-Y)	=	15.0 sec
Ymax = 1-L/C	=	0.900
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	170.9 %



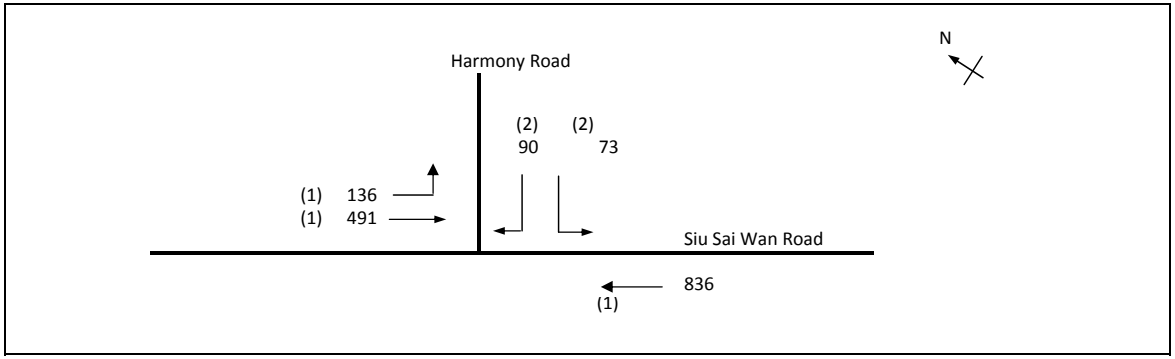
Stage A I = 7

Stage B I = 5

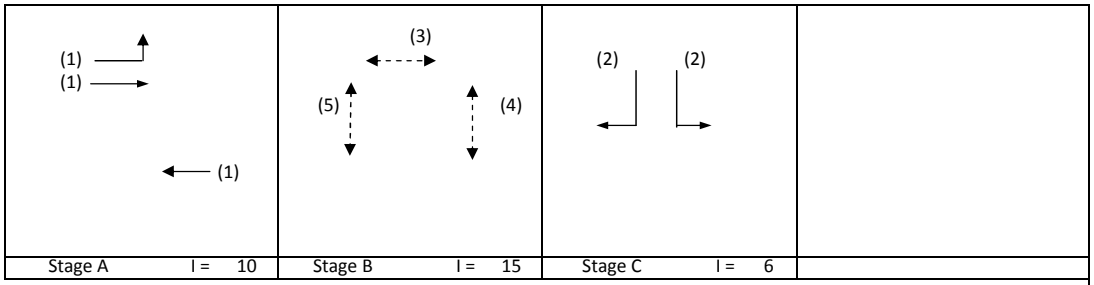
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	498			498	1.00	3857			3857	0.129			39	65	0.199	12	5
LT	A	4.00	2	2	24			4310	261			261	1.00	4056			4056	0.064			19	65	0.099	6	5
RT	A	3.50	2	2	11		y	4070			773	773	1.00	3582			3582	0.216	0.216		65	65	0.332	21	5
ST	B	3.50	3	2			y	4070		338		338	0.00	4070			4070	0.083	0.083		25	25	0.332	21	24
RT	B	4.50	3	2	13		y	4270			79	79	1.00	3828			3828	0.021			6	25	0.083	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	100 sec
Sum(y)		Y =	0.258
Loss time		L =	48 sec
Total Flow		=	1627 pcu
Co	= (1.5*L+5)/(1-Y)	=	103.8 sec
Cm	= L/(1-Y)	=	64.7 sec
Yult		=	0.540
R.C.ult	= (Yult-Y)/Y*100%	=	109.0 %
Cp	= 0.9*L/(0.9-Y)	=	67.3 sec
Ymax	= 1-L/C	=	0.520
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	81.2 %

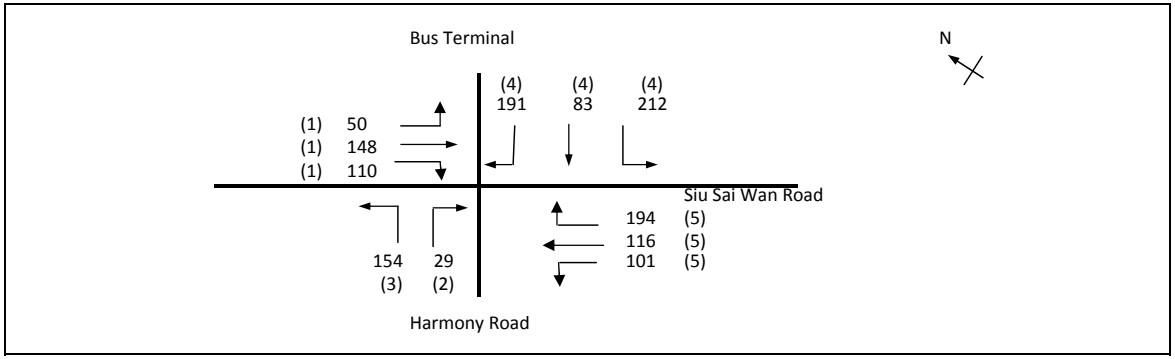


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

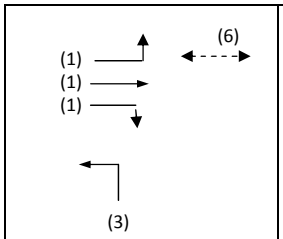
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	136	152		288	0.47	1827			1827	0.158			32	42	0.372	24	14
ST	A	3.20	1	1				2075		339		339	0.00	2075			2075	0.164			33	42	0.386	30	14
ST	A	3.00	1	2			y	3970		836		836	0.00	3970			3970	0.211	0.211		42	42	0.497	39	13
LT	C	3.75	2	1	12		y	1990	73			73	1.00	1769			1769	0.041			8	10	0.428	6	42
RT	C	3.75	2	1	12			2130			90	90	1.00	1893			1893	0.048	0.048		10	10	0.497	12	44
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

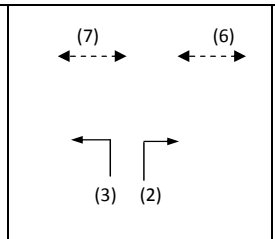
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



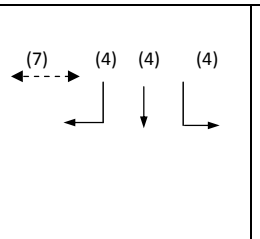
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.375
Loss time	L =	18 sec
Total Flow	=	1389 pcu
Co = (1.5*L+5)/(1-Y)	=	51.2 sec
Cm = L/(1-Y)	=	28.8 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	104.2 %
Cp = 0.9*L/(0.9-Y)	=	30.8 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	99.1 %



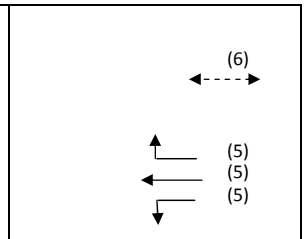
Stage A I = 5



Stage B I = 5



Stage C I = 6

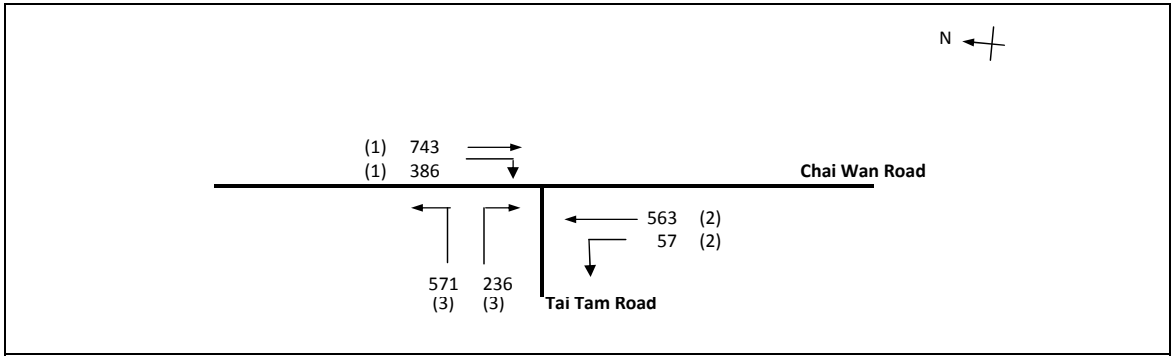


Stage C I = 6

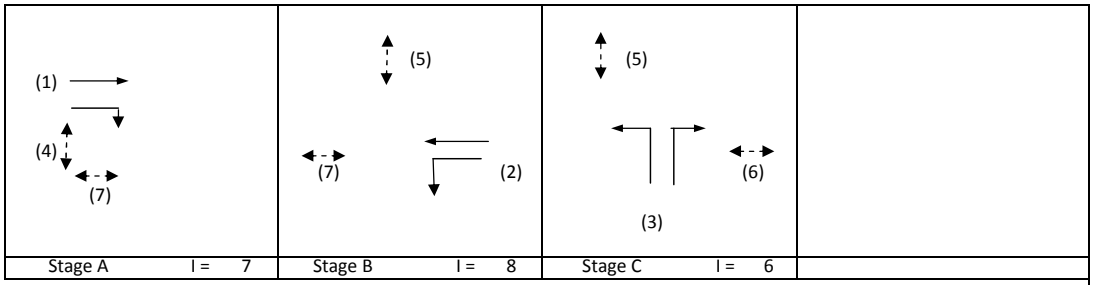
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	50	81		131	0.38	1849			1849	0.071			16	21	0.350	18	30
ST/RT	A	3.30	1	1	12			2085		67	110	177	0.62	1935			1935	0.091	0.091		21	21	0.452	24	31
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.452	0	64
LT	A,B	3.75	3	1	13		y	1990	154			154	1.00	1784			1784	0.086			20	30	0.303	18	23
RT	C	3.50	4	1	12			2105			191	191	1.00	1871			1871	0.102			24	38	0.282	18	18
LT/ST	C	3.50	4	1	12		y	1965	212	83		295	0.72	1803			1803	0.164	0.164		38	38	0.452	30	18
ST/RT	D	3.50	5	1	12			2105		0	194	194	1.00	1871			1871	0.104	0.104		24	24	0.452	24	28
LT/ST	D	3.50	5	1	11		y	1965	101	116		217	0.47	1848			1848	0.117			27	27	0.452	24	26
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.561
Loss time		L =	18 sec
Total Flow		=	2556 pcu
Co	= (1.5*L+5)/(1-Y)	=	72.9 sec
Cm	= L/(1-Y)	=	41.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	36.4 %
Cp	= 0.9*L/(0.9-Y)	=	47.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.0 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

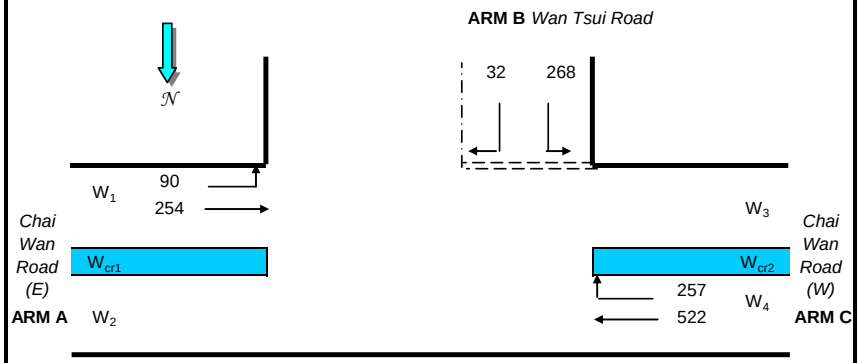
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		743		743	0.00	4070			4070	0.183			28	28	0.677	45	24
RT	A	3.50	1	1	13			2105			386	386	1.00	1887			1887	0.205	0.205		32	28	0.758	48	30
ST	B	3.50	2	2				4210		563		563	0.00	4210			4210	0.134	0.134		21	21	0.677	39	30
LT	B	3.10	2	1	12		y	1925	57			57	1.00	1711			1711	0.033			5	21	0.169	6	30
LT	C	4.00	3	1	15		y	2015	408			408	1.00	1832			1832	0.222	0.222		35	35	0.677	42	22
LT/RT	C	4.00	3	1	15			2155	163		236	399	1.00	1959			1959	0.204			32	35	0.620	42	21
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By:

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	254	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	522	(pcu/hr)
q_{c-b}	=	256.98	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	32	(pcu/hr)
q_{b-c}	=	268	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

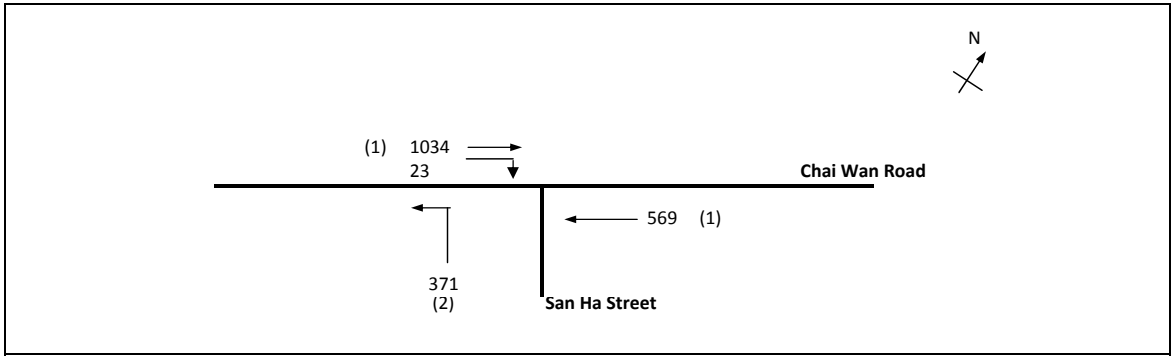
Q_{b-c}	=	789
Q_{c-b}	=	700
Q_{b-a}	=	373

COMPARISION OF DESIGN FLOW TO CAPACITY

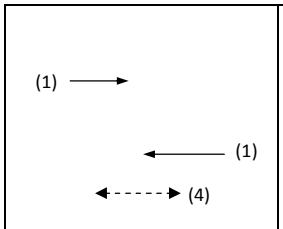
DFC_{b-a}	=	0.085
DFC_{b-c}	=	0.340
DFC_{c-b}	=	0.367

Critical DFC = 0.367

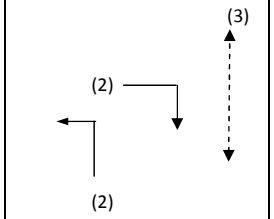
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.477
Loss time		L =	10 sec
Total Flow		=	1998 pcu
Co	= (1.5*L+5)/(1-Y)	=	38.2 sec
Cm	= L/(1-Y)	=	19.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	72.9 %
Cp	= 0.9*L/(0.9-Y)	=	21.3 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	69.8 %



Stage A I = 6



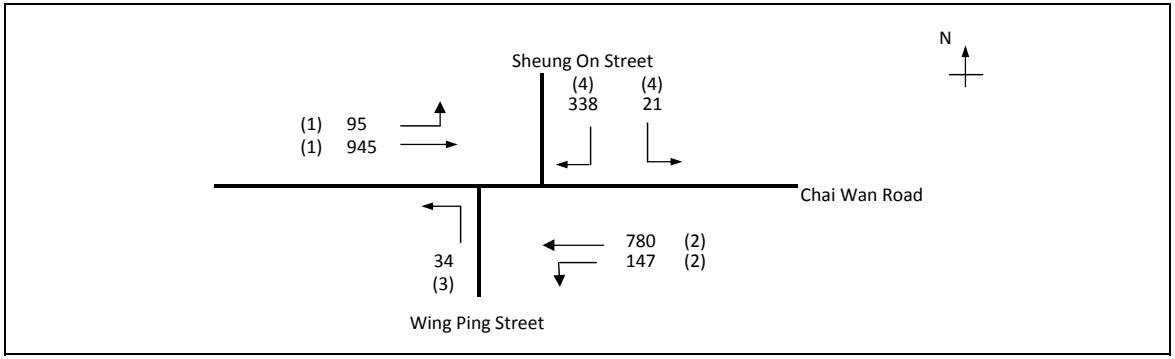
Stage B I = 6

Stage C I =

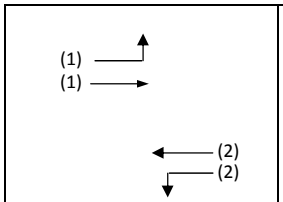
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1034		1034	0.00	4070			4070	0.254	0.254		48	47	0.541	45	10
ST	A	3.50	1	2	10		N	4070		569		569	0.00	4070			4070	0.140			26	47	0.297	24	11
LT	B	3.00	2	1	10		N	1915	371			371	1.00	1665			1665	0.223	0.223		42	53	0.421	24	9
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

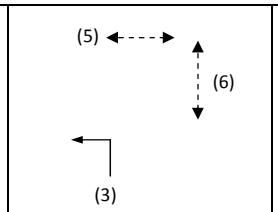
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



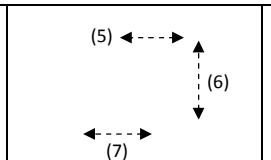
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.275
Loss time		L =	37 sec
Total Flow		=	2361 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.4 sec
Cm	= L/(1-Y)	=	51.0 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	126.4 %
Cp	= 0.9*L/(0.9-Y)	=	53.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	126.4 %



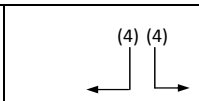
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	95	945		1041	0.09	6105			6105	0.170			51		0.000	68	54
LT/ST	A	3.30	2	3	12		Y	6115	147	780		927	0.16	5996			5996	0.155	0.155		47		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	34			34	1.00	1684			1684	0.020	0.020		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	21		338	360	1.00	3583			3583	0.100	0.100		30		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

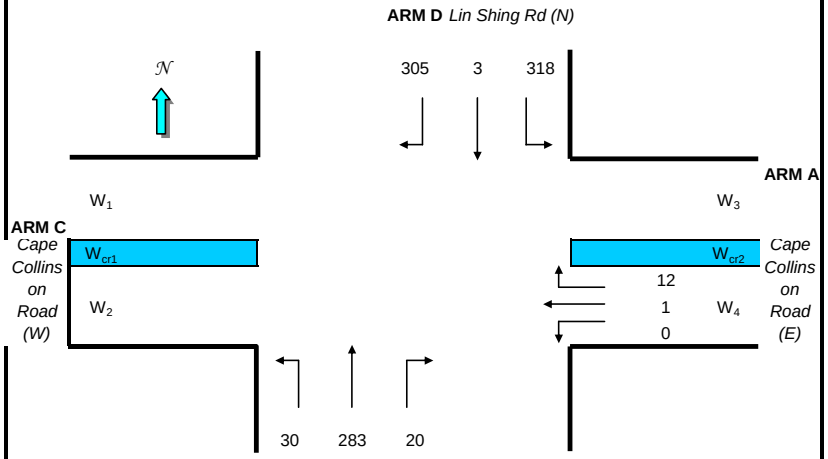
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 1 - Site 1

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.0575	(pcu/hr)
q_{a-d}	=	11.518	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	20.093	(pcu/hr)
q_{b-c}	=	30.438	(pcu/hr)
q_{b-d}	=	282.76	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	317.85	(pcu/hr)
q_{d-b}	=	2.5841	(pcu/hr)
q_{d-c}	=	304.53	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

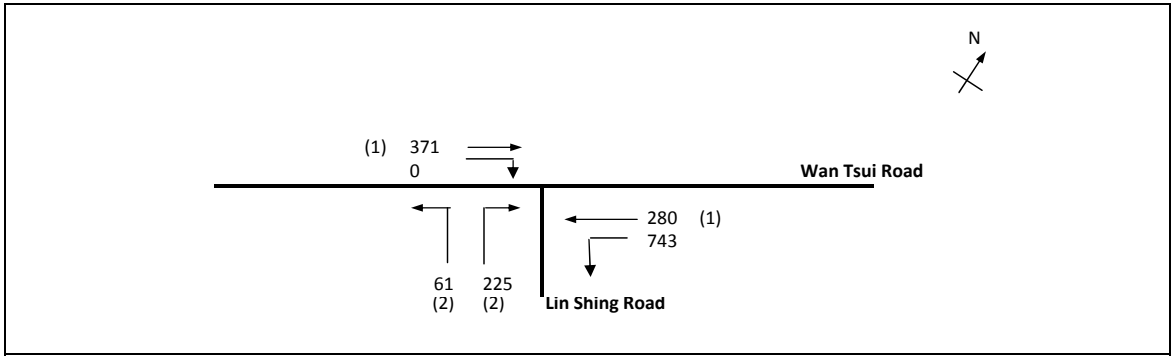
Q_{b-a}	=	506
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	608
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	527
Q_{d-c}	=	437
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

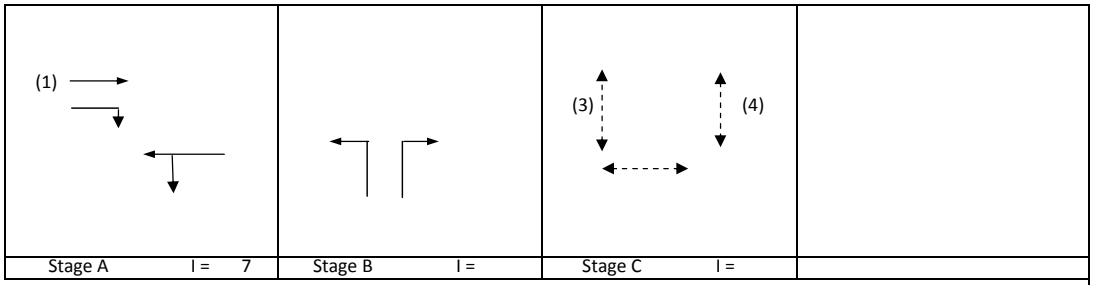
DFC_{b-a}	=	0.040
DFC_{b-c}	=	0.041
DFC_{b-d}	=	0.465
DFC_{d-a}	=	0.471
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.696
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.019

Critical DFC = 0.696

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.563	
Loss time	L =	25	sec
Total Flow	=	1395	pcu
Co = (1.5*L+5)/(1-Y)	=	97.3	sec
Cm = L/(1-Y)	=	57.3	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	26.5	%
Cp = 0.9*L/(0.9-Y)	=	66.8	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	26.5	%

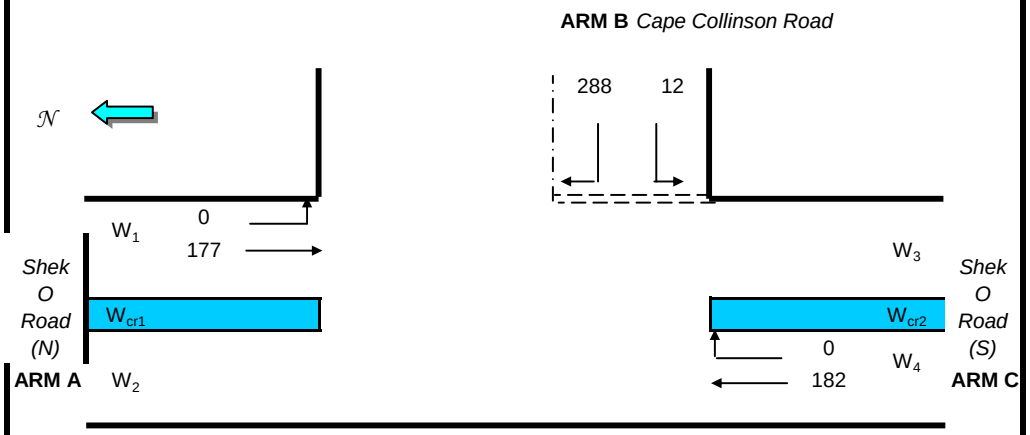


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		371		371	0.00	1915			1915	0.194			33	95	0.245	12	2
ST/LT	A	4.00	1	1	10		N	2015	743	280		1024	0.73	1817			1817	0.563	0.563		95	95	0.712	42	4
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	176.61	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	181.9	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	287.99	(pcu/hr)
q_{b-c}	=	11.639	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

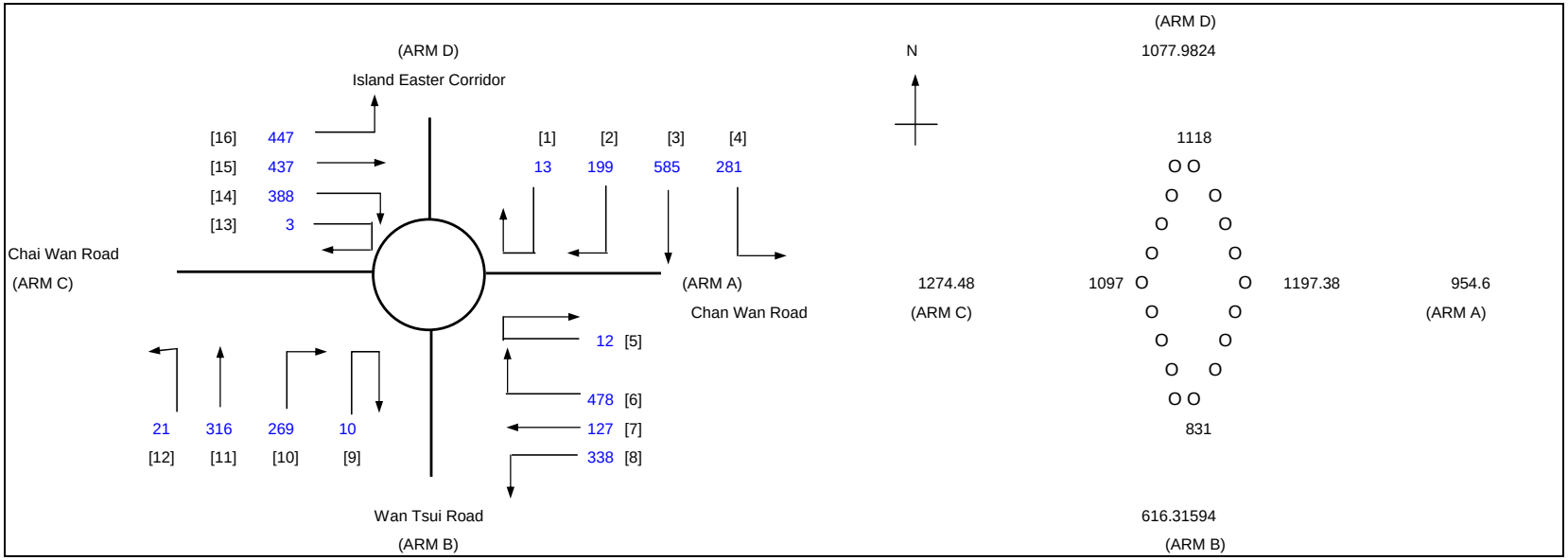
Q_{b-c}	=	697
Q_{c-b}	=	776
Q_{b-a}	=	346

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.833
DFC_{b-c}	=	0.017
DFC_{c-b}	=	0.000

Critical DFC = 0.833

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4_LV1_Sen1_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

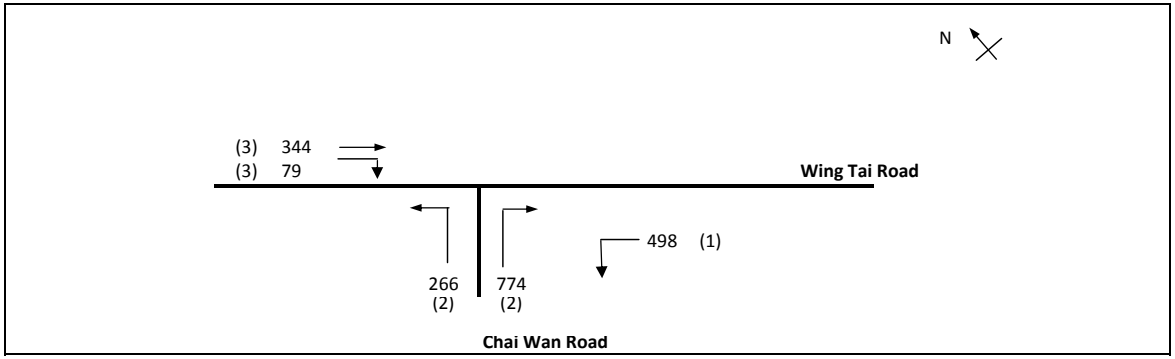


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	955	616	1274	1078
Qc	=	Circulating flow across entry (pcu/h)	1197	831	1097	1118
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1561	1010	1649	1365
DFC	=	Design flow/Capacity = Q/Qe	0.61	0.61	0.77	0.79

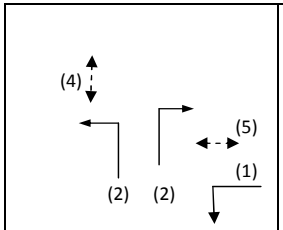
Total In Sum = 2836.28 PCU

DFC of Critical Approach = 0.79

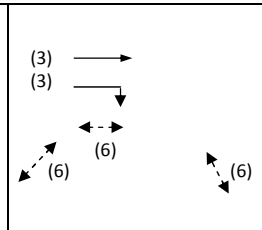
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.301
Loss time		L =	10 sec
Total Flow		=	1961 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.6 sec
Cm	= L/(1-Y)	=	14.3 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	174.5 %
Cp	= 0.9*L/(0.9-Y)	=	15.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	169.5 %



Stage A I = 7

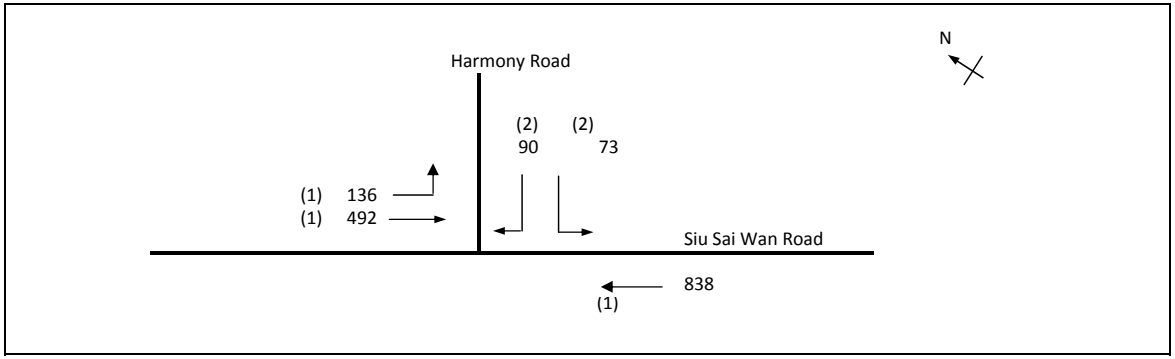


Stage B I = 5

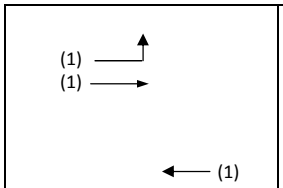
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	498			498	1.00	3857			3857	0.129			39	65	0.200	12	5
LT	A	4.00	2	2	24			4310	266			266	1.00	4056			4056	0.066			20	65	0.101	6	5
RT	A	3.50	2	2	11		y	4070			774	774	1.00	3582			3582	0.216	0.216		65	65	0.334	21	5
ST	B	3.50	3	2			y	4070		344		344	0.00	4070			4070	0.084	0.084		25	25	0.334	21	24
RT	B	4.50	3	2	13		y	4270			79	79	1.00	3828			3828	0.021			6	25	0.082	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

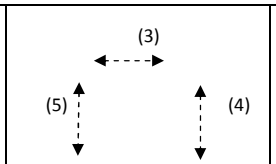
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



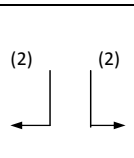
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.259	
Loss time	L =	48	sec
Total Flow	=	1629	pcu
Co = (1.5*L+5)/(1-Y)	=	103.9	sec
Cm = L/(1-Y)	=	64.7	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	108.8	%
Cp = 0.9*L/(0.9-Y)	=	67.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	80.9	%



Stage A I = 10



Stage B I = 15

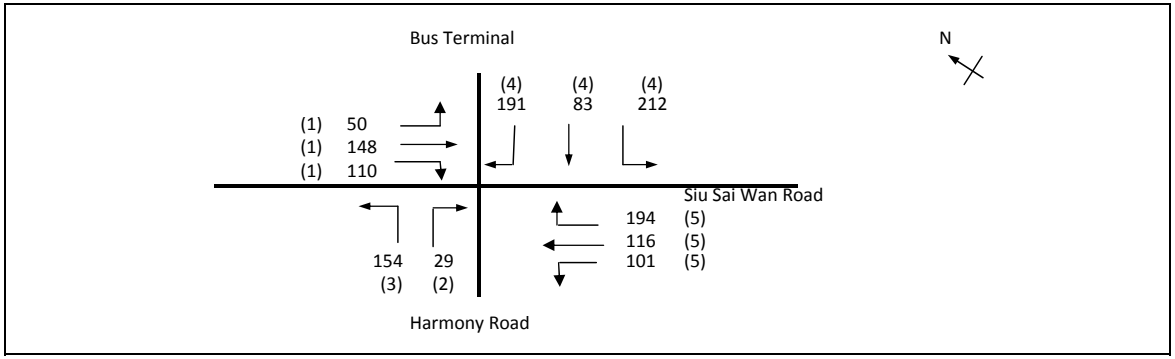


Stage C I = 6

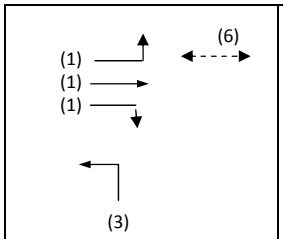
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	136	152		288	0.47	1827			1827	0.158			32	42	0.372	24	14
ST	A	3.20	1	1				2075		340		340	0.00	2075			2075	0.164			33	42	0.387	30	14
ST	A	3.00	1	2			y	3970		838		838	0.00	3970			3970	0.211	0.211		42	42	0.497	39	13
LT	C	3.75	2	1	12		y	1990	73			73	1.00	1769			1769	0.041			8	10	0.428	6	42
RT	C	3.75	2	1	12			2130			90	90	1.00	1893			1893	0.048	0.048		10	10	0.497	12	44
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

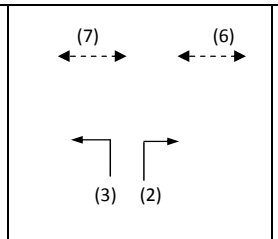
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



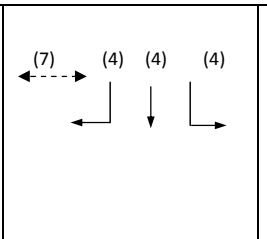
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.388
Loss time	L =	18 sec
Total Flow	=	1389 pcu
Co = (1.5*L+5)/(1-Y)	=	52.3 sec
Cm = L/(1-Y)	=	29.4 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	97.1 %
Cp = 0.9*L/(0.9-Y)	=	31.6 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	92.1 %



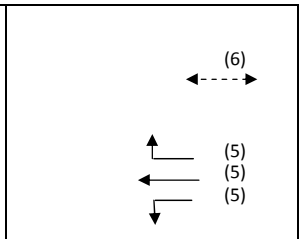
Stage A I = 5



Stage B I = 5



Stage C I = 6

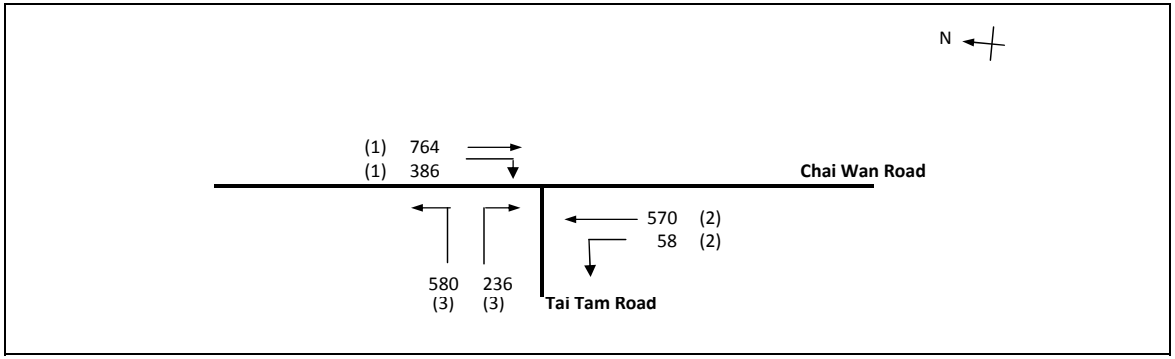


Stage C I = 6

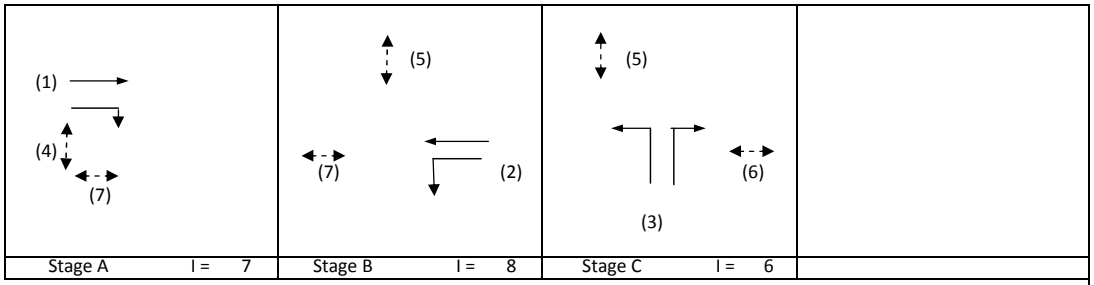
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	50	81		131	0.38	1849			1849	0.071			16	20	0.363	18	31
ST/RT	A	3.30	1	1	12			2085		67	110	177	0.62	1935			1935	0.091	0.091		20	20	0.468	24	32
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.468	0	66
LT	A,B	3.75	3	1	13		y	1990	154			154	1.00	1784			1784	0.086			19	29	0.312	18	24
RT	C	3.50	4	1	12			2105			191	191	1.00	1871			1871	0.102			23	37	0.292	18	19
LT/ST	C	3.50	4	1	12		y	1965	212	83		295	0.72	1803			1803	0.164	0.164		37	37	0.468	30	19
ST/RT	D	3.50	5	1	12			2105			194	194	1.00	1871			1871	0.104			23	23	0.468	24	29
LT/ST	D	3.50	5	1	11		y	1965	101	116		217	0.47	1848			1848	0.117	0.117		26	26	0.468	24	27
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.584
Loss time		L =	18 sec
Total Flow		=	2595 pcu
Co	= (1.5*L+5)/(1-Y)	=	76.9 sec
Cm	= L/(1-Y)	=	43.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	31.0 %
Cp	= 0.9*L/(0.9-Y)	=	51.3 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	27.7 %

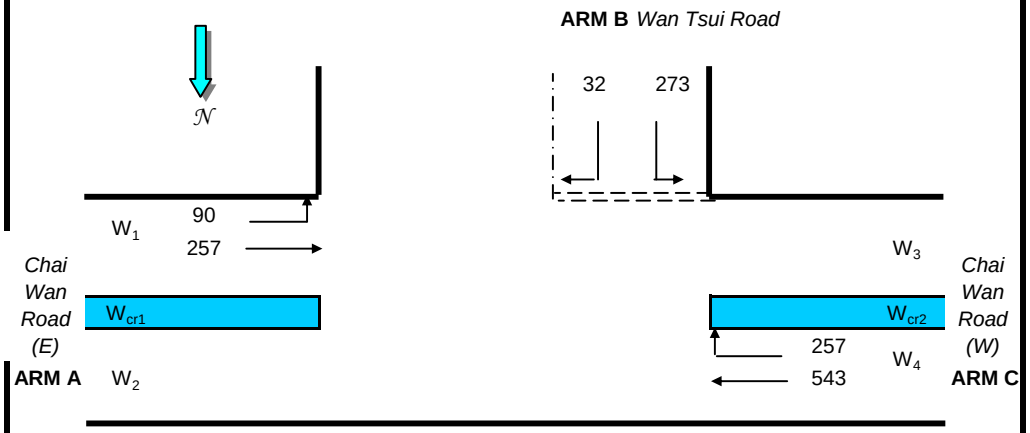


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		764		764	0.00	4120			4120	0.186			28	28	0.705	48	24
RT	A	3.00	1	1	13			2055			386	386	1.00	1842			1842	0.210	0.210		31	28	0.796	48	33
ST	B	3.50	2	2				4210		570		570	0.00	4210			4210	0.135	0.135		20	20	0.705	39	31
LT	B	3.10	2	1	12		y	1925	58			58	1.00	1711			1711	0.034			5	20	0.178	6	31
LT	C	4.00	3	1	15		y	2015	438			438	1.00	1832			1832	0.239	0.239		36	36	0.705	48	22
LT/RT	C	4.00	3	1	15			2155	142		236	378	1.00	1959			1959	0.193			29	36	0.569	42	20
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	257.1	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	543.33	(pcu/hr)
q_{c-b}	=	256.98	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	31.726	(pcu/hr)
q_{b-c}	=	273.35	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

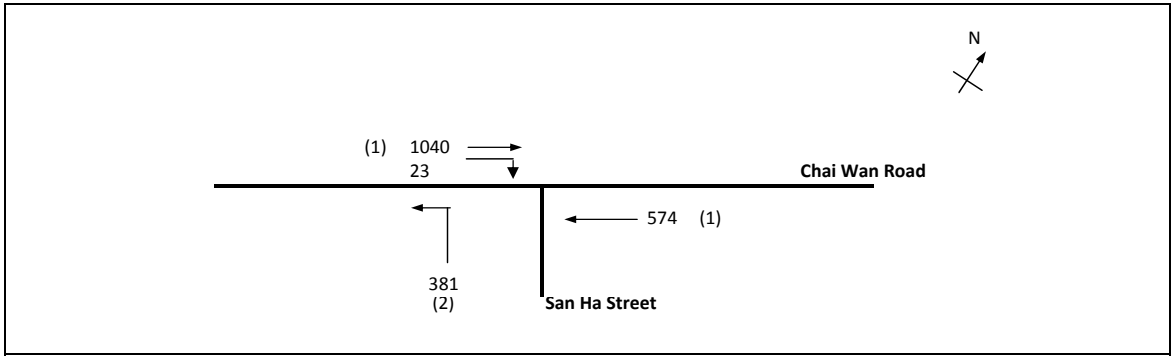
Q_{b-c}	=	788
Q_{c-b}	=	700
Q_{b-a}	=	372

COMPARISION OF DESIGN FLOW TO CAPACITY

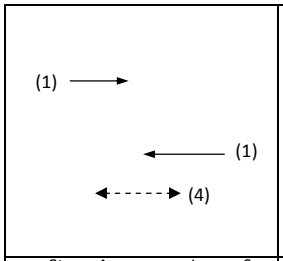
DFC_{b-a}	=	0.085
DFC_{b-c}	=	0.347
DFC_{c-b}	=	0.367

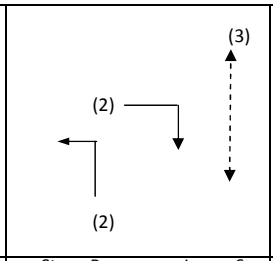
Critical DFC = 0.367

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.484
Loss time		L =	10 sec
Total Flow		=	2018 pcu
Co	= (1.5*L+5)/(1-Y)	=	38.8 sec
Cm	= L/(1-Y)	=	19.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	70.4 %
Cp	= 0.9*L/(0.9-Y)	=	21.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	67.3 %



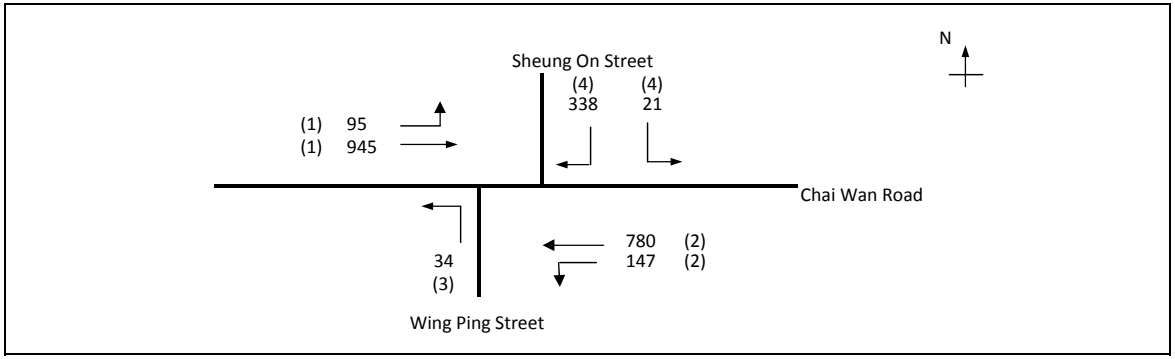


Stage A	I = 6	Stage B	I = 6	Stage C	I =

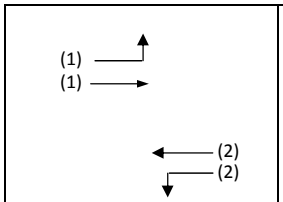
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1040		1040	0.00	4070			4070	0.256	0.256		48	47	0.544	45	10
ST	A	3.50	1	2	10		N	4070		574		574	0.00	4070			4070	0.141			26	47	0.300	24	11
LT	B	3.00	2	1	10		N	1915	381			381	1.00	1665			1665	0.229	0.229		42	53	0.431	24	9
RT	B	3.50	2	1	12			2105			23	23	1.00	1871			1871	0.012			2	53	0.023	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

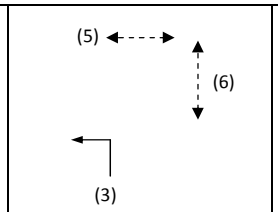
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME J1_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



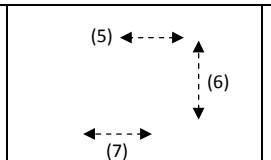
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.291
Loss time		L =	37 sec
Total Flow		=	2361 pcu
Co	= (1.5*L+5)/(1-Y)	=	85.3 sec
Cm	= L/(1-Y)	=	52.2 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	114.0 %
Cp	= 0.9*L/(0.9-Y)	=	54.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	114.0 %



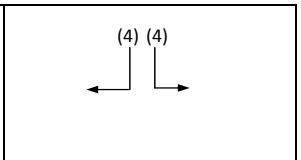
Stage A I = 8



Stage B I = 5



Stage C I = 7

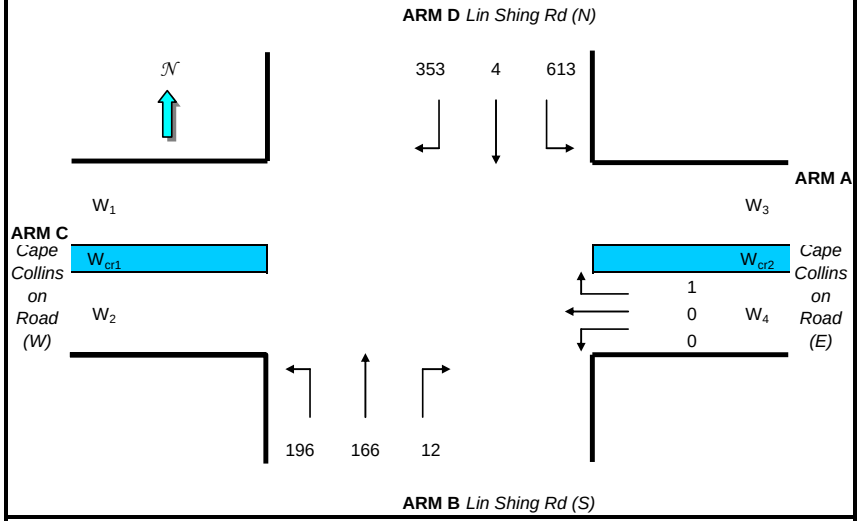


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	95	945		1041	0.09	6105			6105	0.170	0.170		49		0.000	68	54
LT/ST	A	3.30	2	3	12		Y	6115	147	780		927	0.16	5996			5996	0.155			44		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	34			34	1.00	1684			1684	0.020	0.020		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	21		338	360	1.00	3583			3583	0.100	0.100		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	1	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.633	(pcu/hr)
q_{b-c}	=	196	(pcu/hr)
q_{b-d}	=	165.8	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	613	(pcu/hr)
q_{d-b}	=	4	(pcu/hr)
q_{d-c}	=	353	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

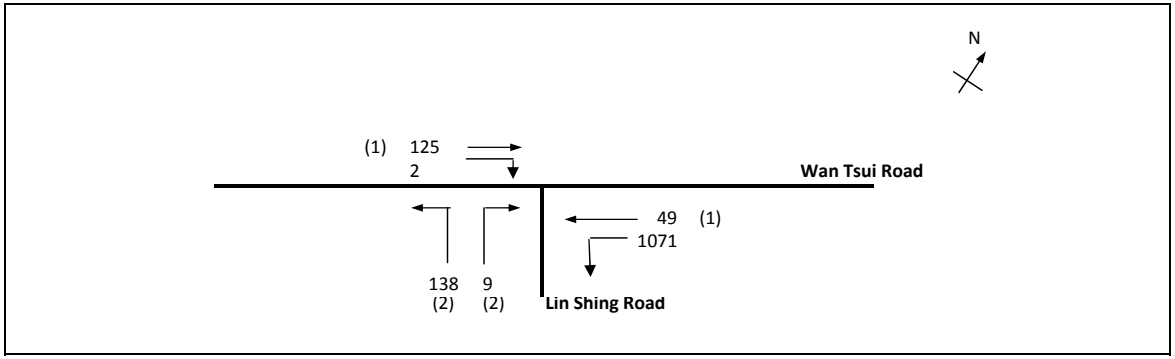
Q_{b-a}	=	413
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	431
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

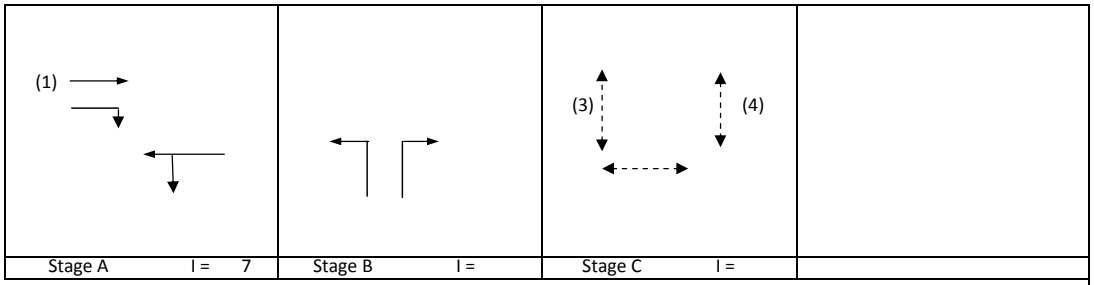
DFC_{b-a}	=	0.028
DFC_{b-c}	=	0.261
DFC_{b-d}	=	0.271
DFC_{d-a}	=	0.909
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.820
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.002

Critical DFC = 0.909

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:		KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.636
Loss time		L =	25 sec
Total Flow		=	1245 pcu
Co	= (1.5*L+5)/(1-Y)	=	116.6 sec
Cm	= L/(1-Y)	=	68.6 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	12.1 %
Cp	= 0.9*L/(0.9-Y)	=	85.1 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	12.1 %



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		125		125	0.00	1915			1915	0.065			10	95	0.082	0	2
ST/LT	A	4.00	1	1	10		N	2015	1071	49		1120	0.96	1762			1762	0.636	0.636		95	95	0.803	42	6
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

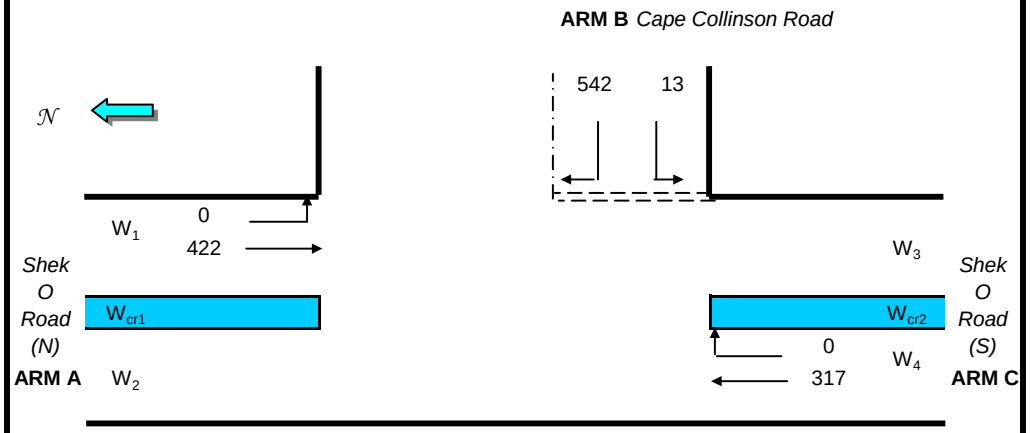
Prepared By: KC

Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 2 - Reference Case

Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	422	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	317	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	542	(pcu/hr)
q_{b-c}	=	13	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

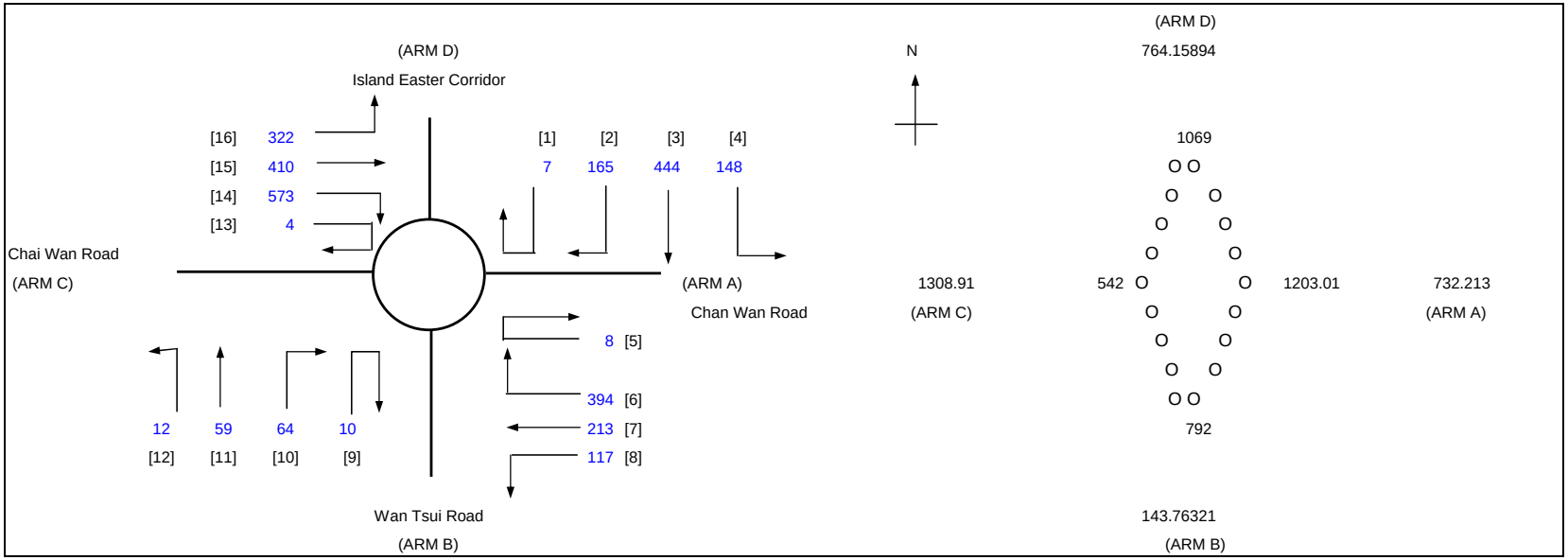
Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	293

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	1.852
DFC_{b-c}	=	0.021
DFC_{c-b}	=	0.000

Critical DFC = 1.852

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4LV2_Sen1_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

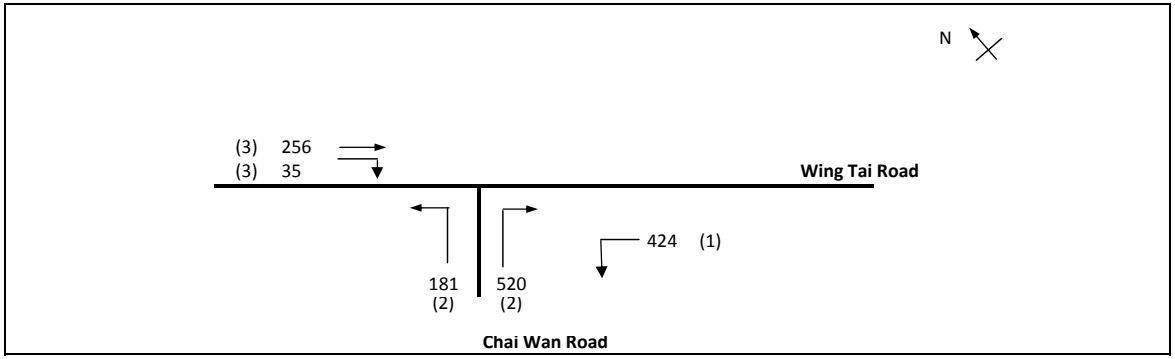


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	732	144	1309	764
Qc	=	Circulating flow across entry (pcu/h)	1203	792	542	1069
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1557	1032	2069	1399
DFC	=	Design flow/Capacity = Q/Qe	0.47	0.14	0.63	0.55

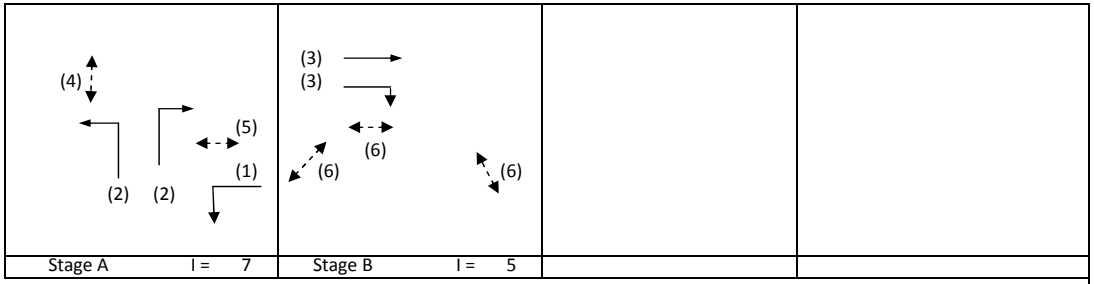
Total In Sum = 2351.43 PCU

DFC of Critical Approach = 0.63

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.208	
Loss time	L =	10	sec
Total Flow	=	1417	pcu
Co = (1.5*L+5)/(1-Y)	=	25.3	sec
Cm = L/(1-Y)	=	12.6	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	296.2	%
Cp = 0.9*L/(0.9-Y)	=	13.0	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	289.0	%

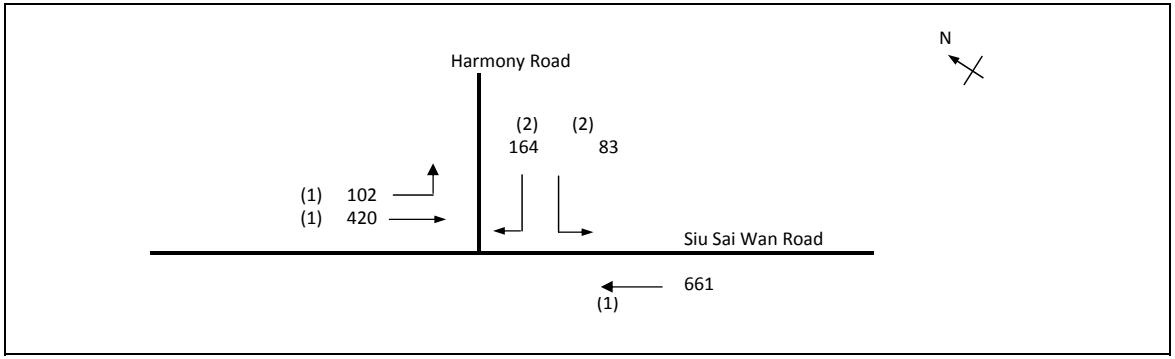


Stage A I = 7 Stage B I = 5

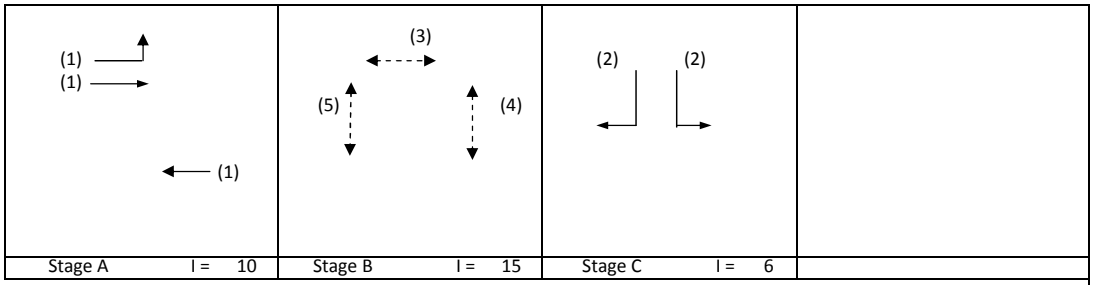
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	424			424	1.00	3857			3857	0.110			48	63	0.175	12	6
LT	A	4.00	2	2	24			4310	181			181	1.00	4056			4056	0.045			19	63	0.071	3	6
RT	A	3.50	2	2	11		y	4070			520	520	1.00	3582			3582	0.145	0.145		63	63	0.231	15	6
ST	B	3.50	3	2			y	4070		256		256	0.00	4070			4070	0.063	0.063		27	27	0.231	15	23
RT	B	4.50	3	2	13		y	4270			35	35	1.00	3828			3828	0.009			4	27	0.033	0	24
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3		
Cycle time		C =	100	sec	
Sum(y)		Y =	0.253		
Loss time		L =	48	sec	
Total Flow		=	1430	pcu	
Co	= (1.5*L+5)/(1-Y)	=	103.1	sec	
Cm	= L/(1-Y)	=	64.2	sec	
Yult		=	0.540		
R.C.ult	= (Yult-Y)/Y*100%	=	113.5	%	
Cp	= 0.9*L/(0.9-Y)	=	66.8	sec	
Ymax	= 1-L/C	=	0.520		
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	85.1	%	

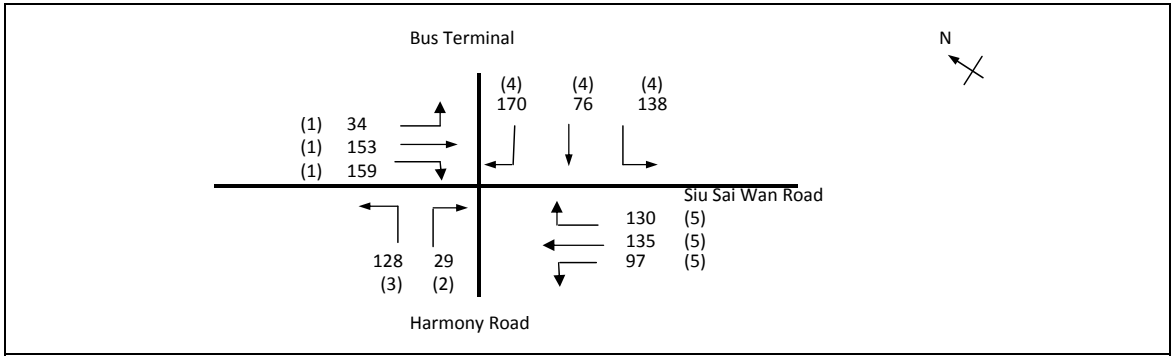


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

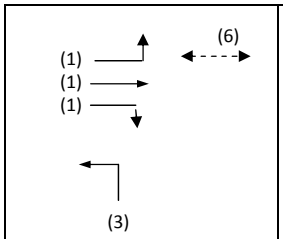
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	152		254	0.40	1844			1844	0.138			28	34	0.403	24	19
ST	A	3.20	1	1				2075		268		268	0.00	2075			2075	0.129			27	34	0.378	24	18
ST	A	3.00	1	2			y	3970		661		661	0.00	3970			3970	0.166	0.166		34	34	0.486	36	17
LT	C	3.75	2	1	12		y	1990	83			83	1.00	1769			1769	0.047			10	18	0.263	6	31
RT	C	3.75	2	1	12			2130			164	164	1.00	1893			1893	0.086	0.086		18	18	0.486	18	32
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

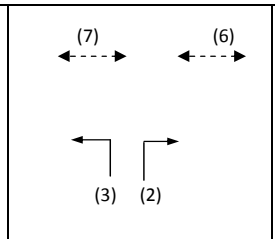
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



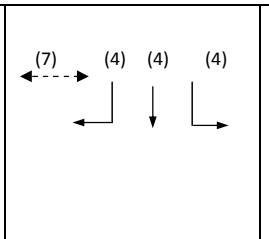
No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.379
Loss time		L =	18 sec
Total Flow		=	1251 pcu
Co	= (1.5*L+5)/(1-Y)	=	51.5 sec
Cm	= L/(1-Y)	=	29.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	101.8 %
Cp	= 0.9*L/(0.9-Y)	=	31.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	96.8 %



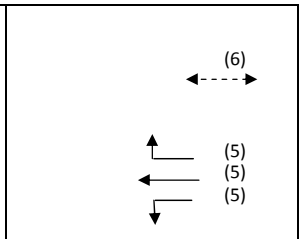
Stage A I = 5



Stage B I = 5



Stage C I = 6

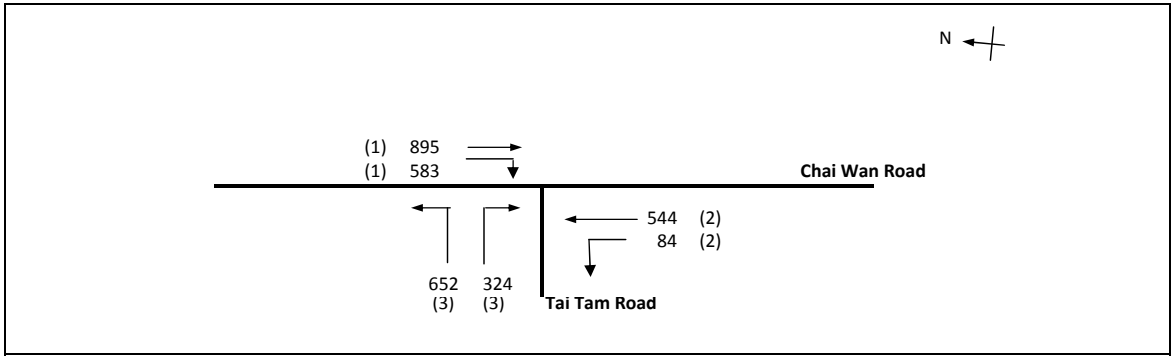


Stage C I = 6

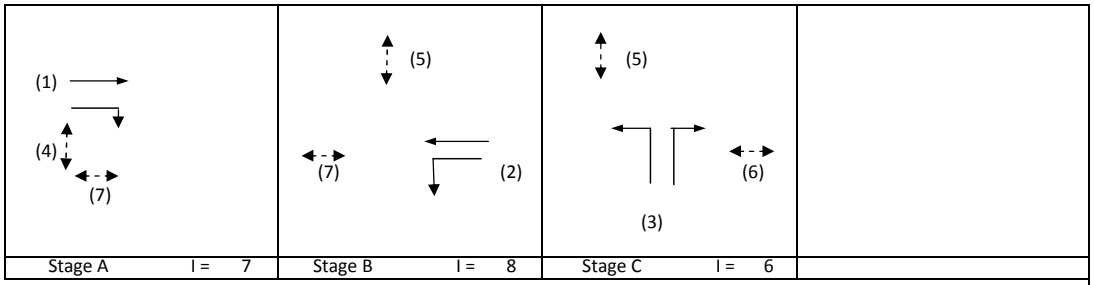
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	34	81		115	0.30	1869			1869	0.062			14	28	0.234	12	25
ST/RT	A	3.30	1	1	12			2085		72	159	231	0.69	1920			1920	0.120	0.120		28	28	0.457	24	25
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.457	0	65
LT	A,B	3.75	3	1	13		y	1990	128			128	1.00	1784			1784	0.072			16	36	0.208	12	19
RT	C	3.50	4	1	12			2105			170	170	1.00	1871			1871	0.091			21	27	0.353	18	26
LT/ST	C	3.50	4	1	12		y	1965	138	76		214	0.64	1818			1818	0.118	0.118		27	27	0.457	24	26
ST/RT	D	3.50	5	1	12			2105		0	130	130	1.00	1871			1871	0.070			16	16	0.457	18	36
LT/ST	D	3.50	5	1	11		y	1965	97	135		233	0.42	1859			1859	0.125	0.125		29	29	0.457	24	24
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.705
Loss time		L =	18 sec
Total Flow		=	3081 pcu
Co	= (1.5*L+5)/(1-Y)	=	108.5 sec
Cm	= L/(1-Y)	=	61.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	8.5 %
Cp	= 0.9*L/(0.9-Y)	=	83.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	5.8 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

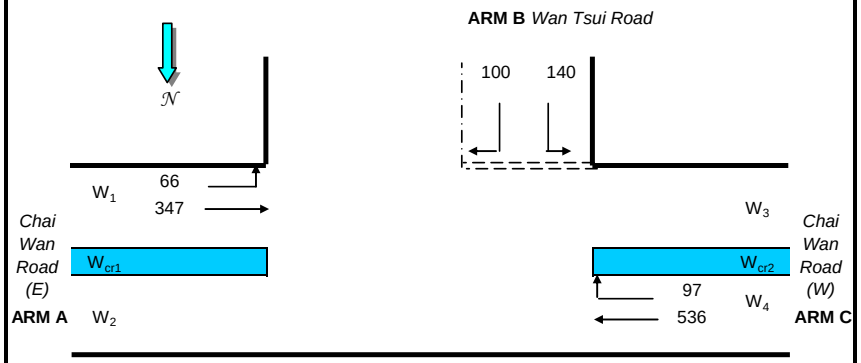
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		895		895	0.00	4070			4070	0.220			27	27	0.851	57	38
RT	A	3.50	1	1	13			2105			583	583	1.00	1887			1887	0.309	0.309		38	27	1.195	72	34
ST	B	3.50	2	2				4210		544		544	0.00	4210			4210	0.129	0.129		16	16	0.851	39	44
LT	B	3.10	2	1	12		y	1925	84			84	1.00	1711			1711	0.049			6	16	0.321	12	35
LT	C	4.00	3	1	15		y	2015	489			489	1.00	1832			1832	0.267	0.267		33	33	0.851	54	29
LT/RT	C	4.00	3	1	15			2155	163		324	487	1.00	1959			1959	0.249			31	33	0.792	54	27
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	65.567	(pcu/hr)
q_{a-c}	=	347	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	536	(pcu/hr)
q_{c-b}	=	97.293	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	100	(pcu/hr)
q_{b-c}	=	140	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

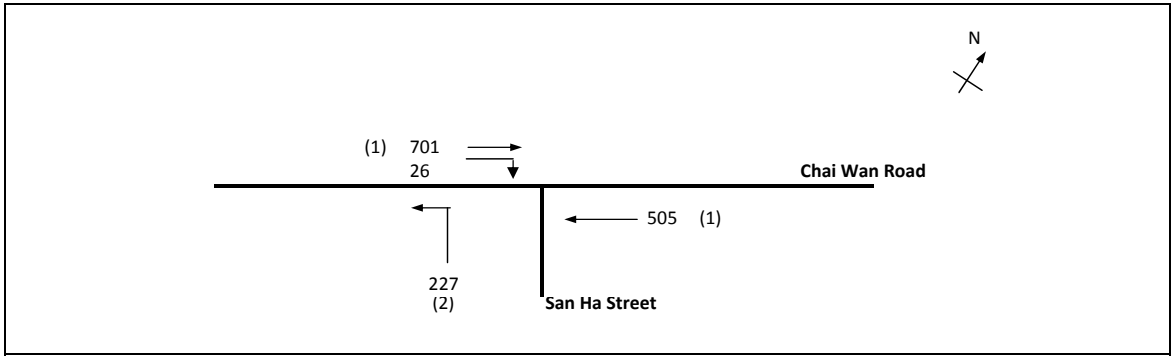
Q_{b-c}	=	778
Q_{c-b}	=	692
Q_{b-a}	=	384

COMPARISION OF DESIGN FLOW TO CAPACITY

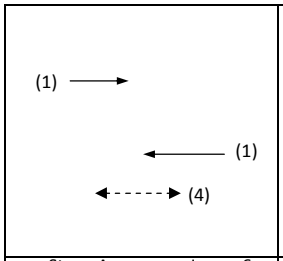
DFC_{b-a}	=	0.262
DFC_{b-c}	=	0.180
DFC_{c-b}	=	0.141

Critical DFC = 0.262

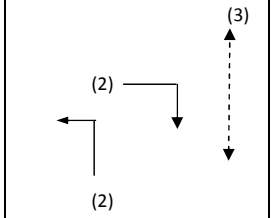
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.309
Loss time		L =	10 sec
Total Flow		=	1460 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.9 sec
Cm	= L/(1-Y)	=	14.5 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	167.1 %
Cp	= 0.9*L/(0.9-Y)	=	15.2 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	162.3 %



Stage A I = 6



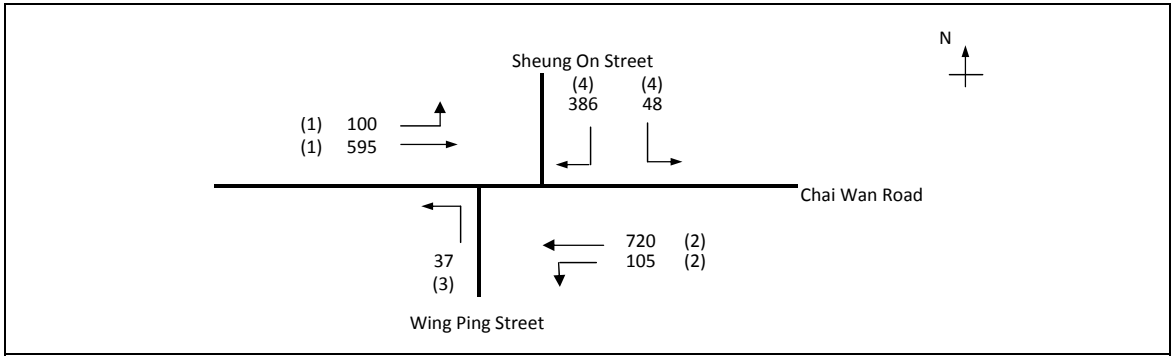
Stage B I = 6

Stage C I =

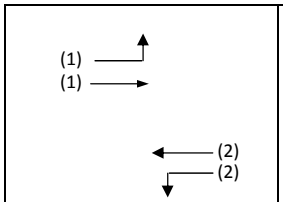
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		701		701	0.00	4070			4070	0.172	0.172		50	47	0.367	30	11
ST	A	3.50	1	2	10		N	4070		505		505	0.00	4070			4070	0.124			36	47	0.264	21	11
LT	B	3.00	2	1	10		N	1915	227			227	1.00	1665			1665	0.137	0.137		40	53	0.258	12	9
RT	B	3.50	2	1	12			2105			26	26	1.00	1871			1871	0.014			4	53	0.027	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

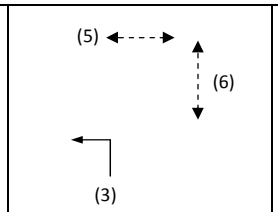
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



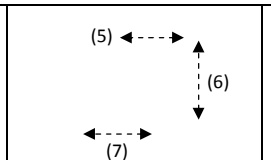
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.280
Loss time		L =	37 sec
Total Flow		=	1991 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.0 sec
Cm	= L/(1-Y)	=	51.4 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	122.3 %
Cp	= 0.9*L/(0.9-Y)	=	53.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	122.3 %



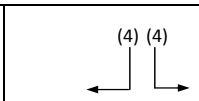
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

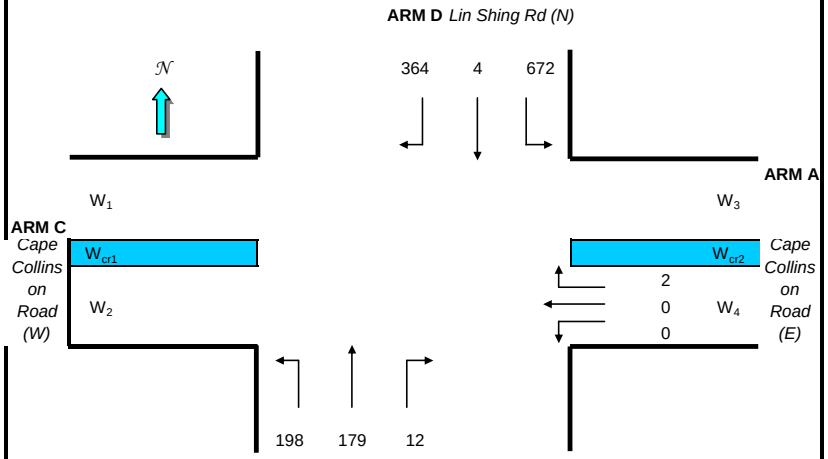
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	100	595		696	0.14	6066			6066	0.115			34		0.000	46	54
LT/ST	A	3.30	2	3	12		Y	6115	105	720		825	0.13	6019			6019	0.137	0.137		41		0.000	54	54
LT	B	3.50	3	1	9		Y	1965	37			37	1.00	1684			1684	0.022	0.022		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	48		386	434	1.00	3583			3583	0.121	0.121		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a | **Prepared By:** KC

Junction Capacity Analysis | **Checked By:** OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	2	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.633	(pcu/hr)
q_{b-c}	=	197.53	(pcu/hr)
q_{b-d}	=	178.53	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	672.35	(pcu/hr)
q_{d-b}	=	3.909	(pcu/hr)
q_{d-c}	=	363.85	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

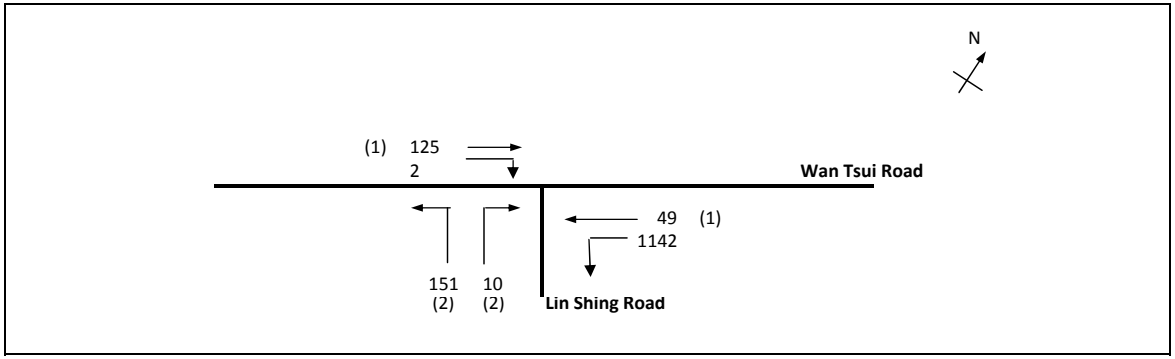
Q_{b-a}	=	393
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	532
Q_{d-c}	=	427
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

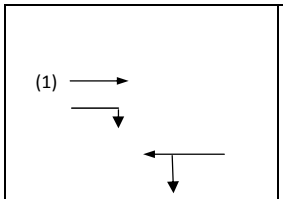
DFC_{b-a}	=	0.030
DFC_{b-c}	=	0.264
DFC_{b-d}	=	0.292
DFC_{d-a}	=	0.997
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.853
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.003

Critical DFC = 0.997

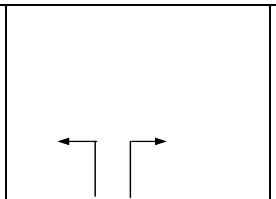
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



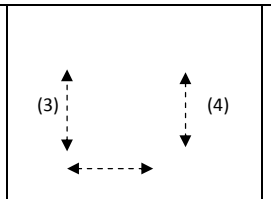
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.676
Loss time		L =	25 sec
Total Flow		=	1315 pcu
Co	= (1.5*L+5)/(1-Y)	=	131.0 sec
Cm	= L/(1-Y)	=	77.1 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	5.4 %
Cp	= 0.9*L/(0.9-Y)	=	100.3 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	5.4 %



Stage A I = 7



Stage B I =

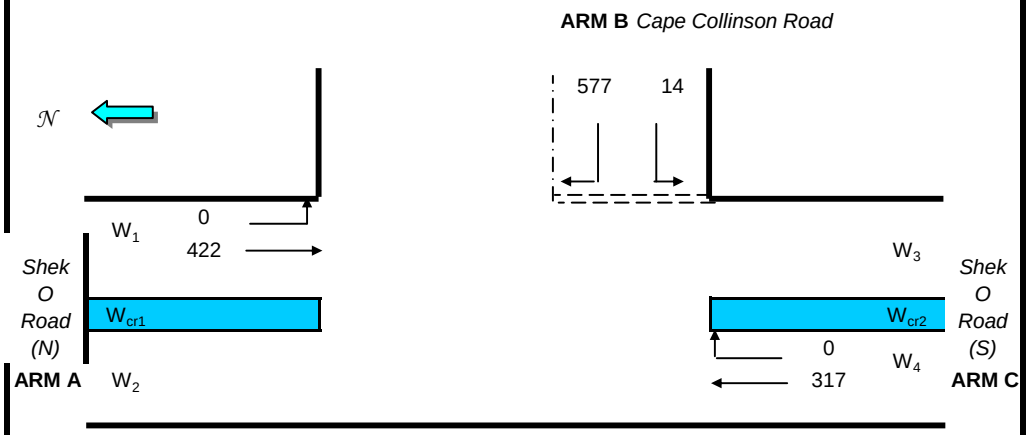


Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		125		125	0.00	1915			1915	0.065			9	95	0.082	0	2
ST/LT	A	4.00	1	1	10		N	2015	1142	49		1190	0.96	1762			1762	0.676	0.676		95	95	0.854	48	4
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	421.95	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	317.26	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	576.87	(pcu/hr)
q_{b-c}	=	14.212	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	293

COMPARISION OF DESIGN FLOW TO CAPACITY

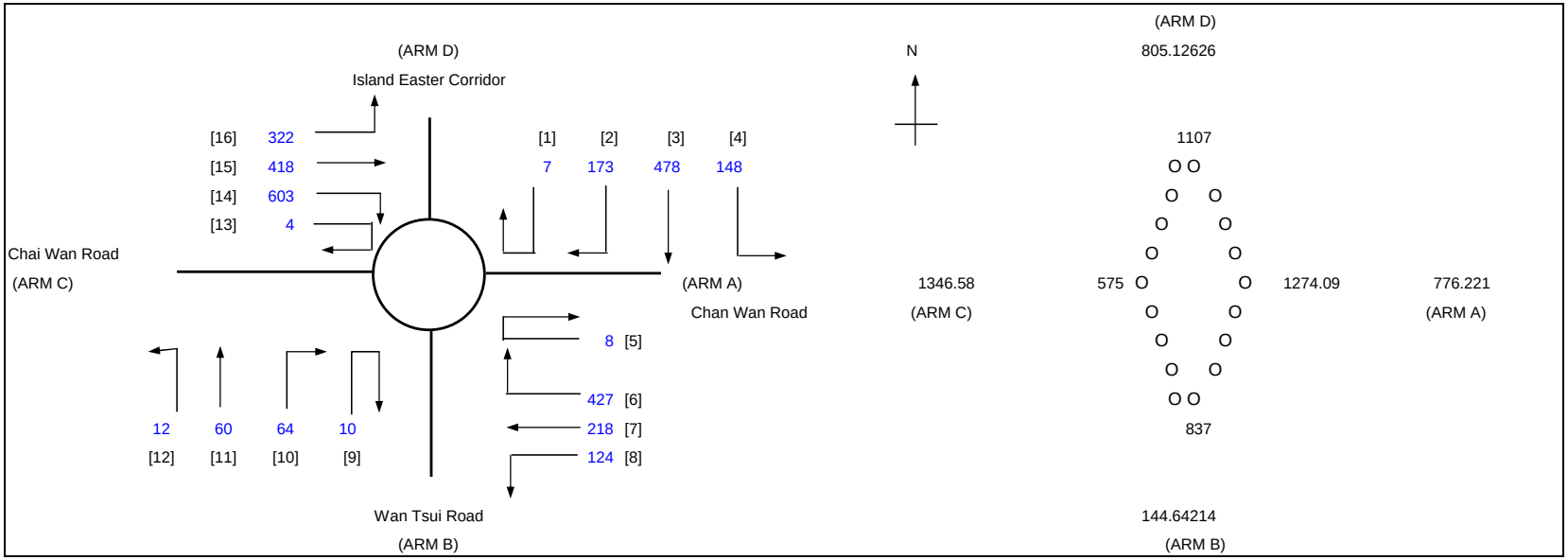
DFC_{b-a}	=	1.972
DFC_{b-c}	=	0.022
DFC_{c-b}	=	0.000

Critical DFC = 1.972

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4_LV2_Sen1_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

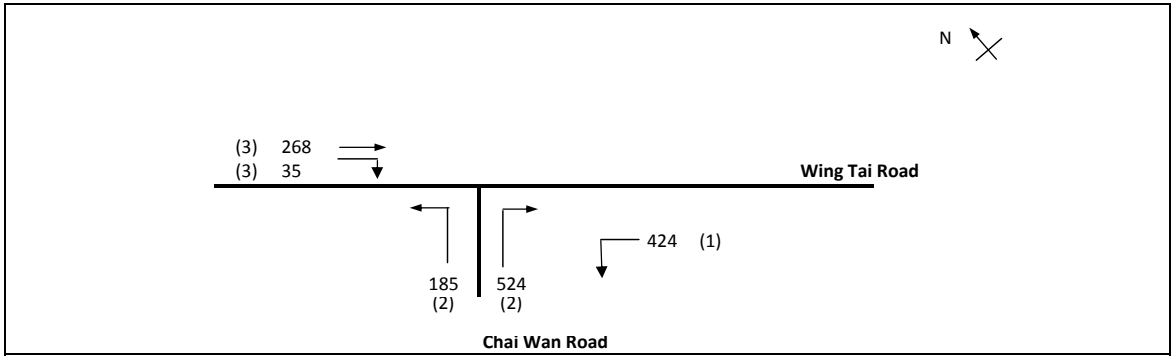


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	776	145	1347	805
Qc	=	Circulating flow across entry (pcu/h)	1274	837	575	1107
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1503	1007	2044	1373
DFC	=	Design flow/Capacity = Q/Qe	0.52	0.14	0.66	0.59

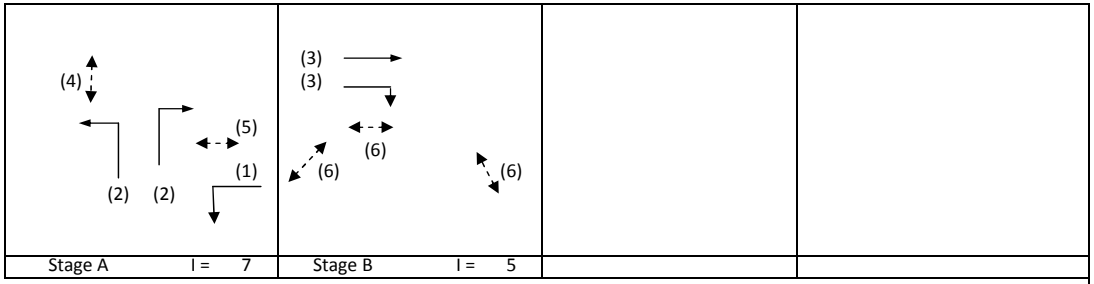
Total In Sum = 2468.06 PCU

DFC of Critical Approach = 0.66

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.212	
Loss time		L =	10	sec
Total Flow		=	1436	pcu
Co	= (1.5*L+5)/(1-Y)	=	25.4	sec
Cm	= L/(1-Y)	=	12.7	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	288.7	%
Cp	= 0.9*L/(0.9-Y)	=	13.1	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	281.7	%

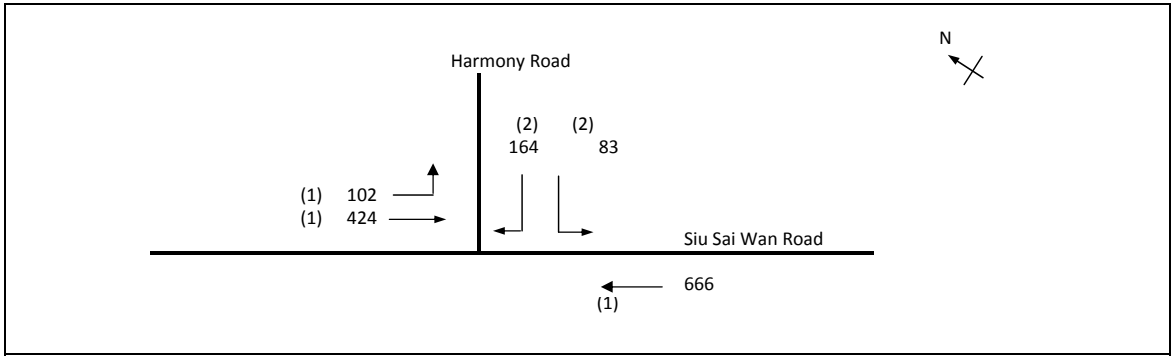


Stage A I = 7 Stage B I = 5

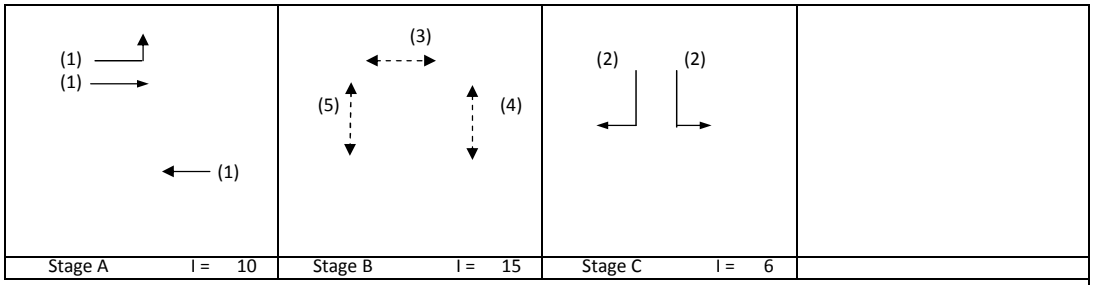
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	424			424	1.00	3857			3857	0.110			47	62	0.177	12	6
LT	A	4.00	2	2	24			4310	185			185	1.00	4056			4056	0.046			19	62	0.073	3	6
RT	A	3.50	2	2	11		y	4070			524	524	1.00	3582			3582	0.146	0.146		62	62	0.236	15	6
ST	B	3.50	3	2			y	4070		268		268	0.00	4070			4070	0.066	0.066		28	28	0.236	15	22
RT	B	4.50	3	2	13		y	4270			35	35	1.00	3828			3828	0.009			4	28	0.033	0	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3
Cycle time	C =	100 sec
Sum(y)	Y =	0.254
Loss time	L =	48 sec
Total Flow	=	1439 pcu
Co = (1.5*L+5)/(1-Y)	=	103.2 sec
Cm = L/(1-Y)	=	64.4 sec
Yult	=	0.540
R.C.ult = (Yult-Y)/Y*100%	=	112.5 %
Cp = 0.9*L/(0.9-Y)	=	66.9 sec
Ymax = 1-L/C	=	0.520
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	84.1 %

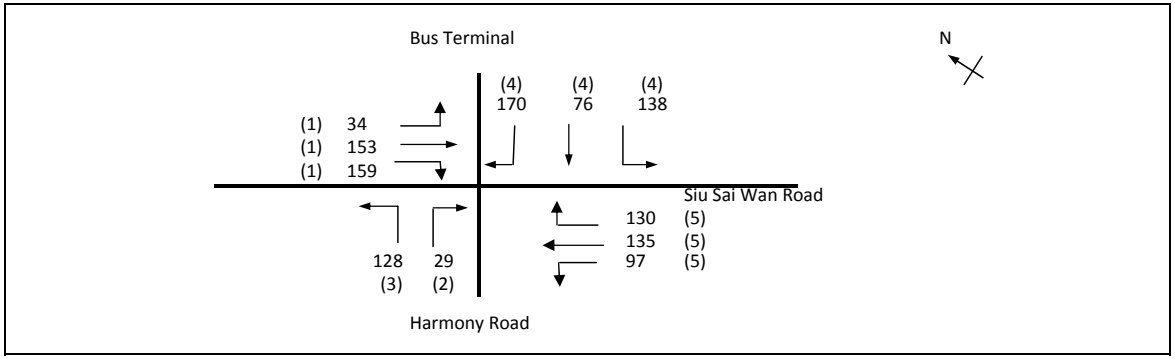


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

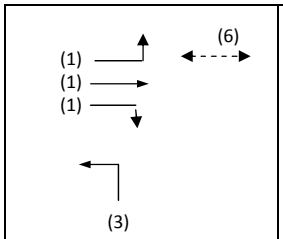
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	102	152		254	0.40	1844			1844	0.138			28	34	0.402	24	18
ST	A	3.20	1	1				2075		272		272	0.00	2075			2075	0.131			27	34	0.382	24	18
ST	A	3.00	1	2			y	3970		666		666	0.00	3970			3970	0.168	0.168		34	34	0.489	36	17
LT	C	3.75	2	1	12		y	1990	83			83	1.00	1769			1769	0.047			10	18	0.264	6	31
RT	C	3.75	2	1	12			2130			164	164	1.00	1893			1893	0.086	0.086		18	18	0.489	18	32
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

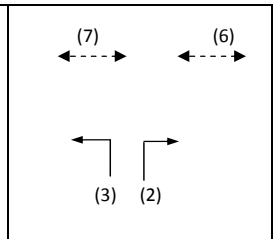
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



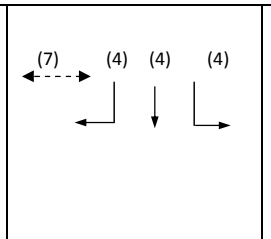
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.379	
Loss time	L =	18	sec
Total Flow	=	1251	pcu
Co = (1.5*L+5)/(1-Y)	=	51.5	sec
Cm = L/(1-Y)	=	29.0	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	101.8	%
Cp = 0.9*L/(0.9-Y)	=	31.1	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	96.8	%



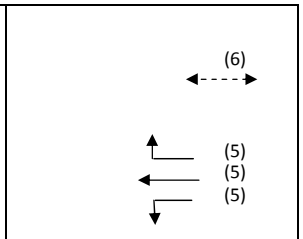
Stage A I = 5



Stage B I = 5



Stage C I = 6

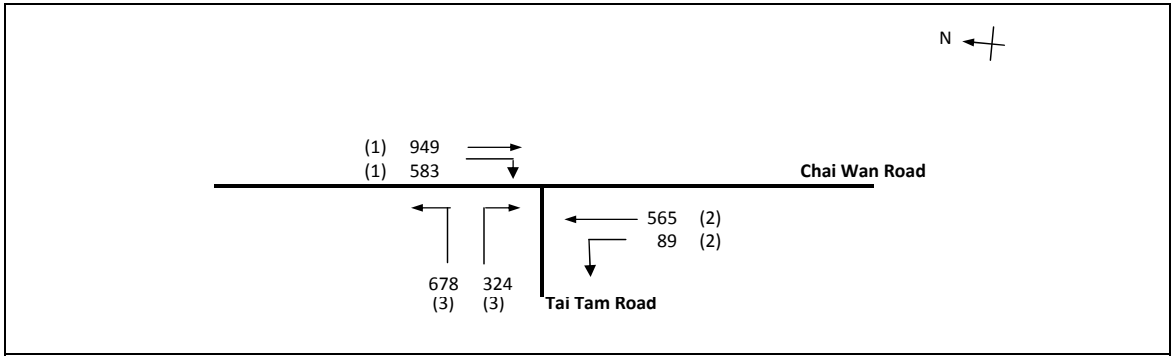


Stage C I = 6

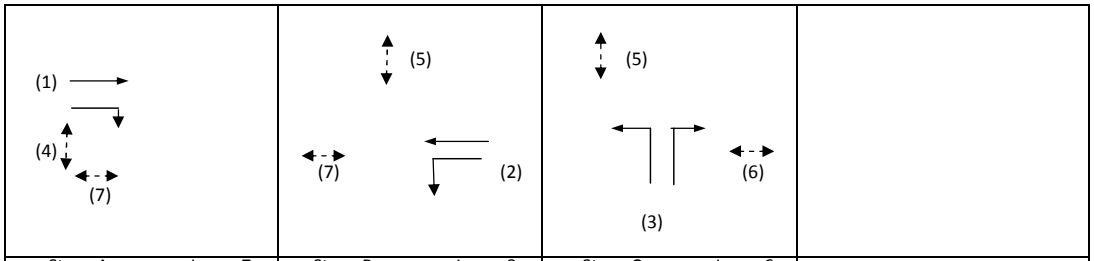
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	34	81		115	0.30	1869			1869	0.062			14	28	0.234	12	25
ST/RT	A	3.30	1	1	12			2085		72	159	231	0.69	1920			1920	0.120	0.120		28	28	0.457	24	25
RT	B	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.457	0	65
LT	A,B	3.75	3	1	13		y	1990	128			128	1.00	1784			1784	0.072			16	36	0.208	12	19
RT	C	3.50	4	1	12			2105			170	170	1.00	1871			1871	0.091			21	27	0.353	18	26
LT/ST	C	3.50	4	1	12		y	1965	138	76		214	0.64	1818			1818	0.118	0.118		27	27	0.457	24	26
ST/RT	D	3.50	5	1	12			2105			130	130	1.00	1871			1871	0.070			16	16	0.457	18	36
LT/ST	D	3.50	5	1	11		y	1965	97	135		233	0.42	1859			1859	0.125	0.125		29	29	0.457	24	24
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.743
Loss time		L =	18 sec
Total Flow		=	3186 pcu
Co	= (1.5*L+5)/(1-Y)	=	124.5 sec
Cm	= L/(1-Y)	=	70.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	3.0 %
Cp	= 0.9*L/(0.9-Y)	=	103.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	0.4 %

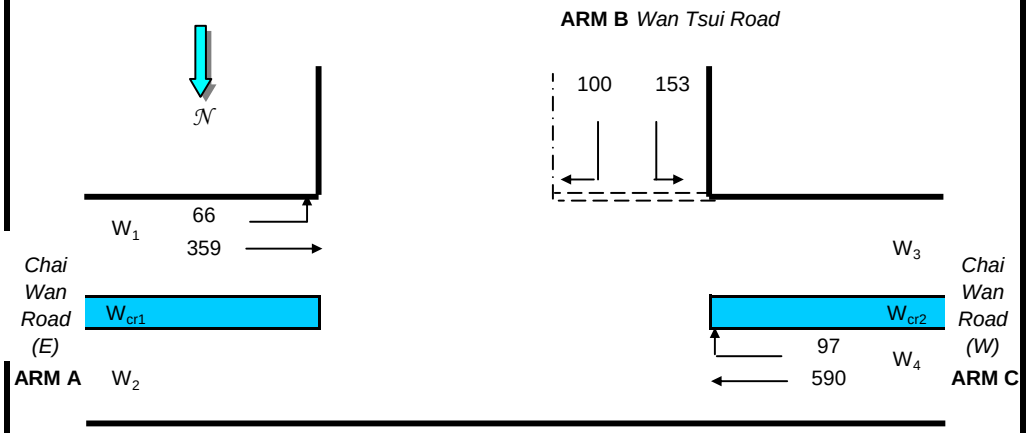


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		949		949	0.00	4120			4120	0.230			27	27	0.897	60	39
RT	A	3.00	1	1	13			2055			583	583	1.00	1842			1842	0.316	0.316		37	27	1.231	72	35
ST	B	3.50	2	2				4210		565		565	0.00	4210			4210	0.134	0.134		16	16	0.897	45	45
LT	B	3.10	2	1	12		y	1925	89			89	1.00	1711			1711	0.052			6	16	0.346	12	36
LT	C	4.00	3	1	15		y	2015	536			536	1.00	1832			1832	0.292	0.292		34	34	0.897	66	28
LT/RT	C	4.00	3	1	15			2155	142		324	466	1.00	1959			1959	0.238			28	34	0.729	54	23
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	65.567	(pcu/hr)
q_{a-c}	=	359.46	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	590.35	(pcu/hr)
q_{c-b}	=	97.293	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	100.47	(pcu/hr)
q_{b-c}	=	153.28	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

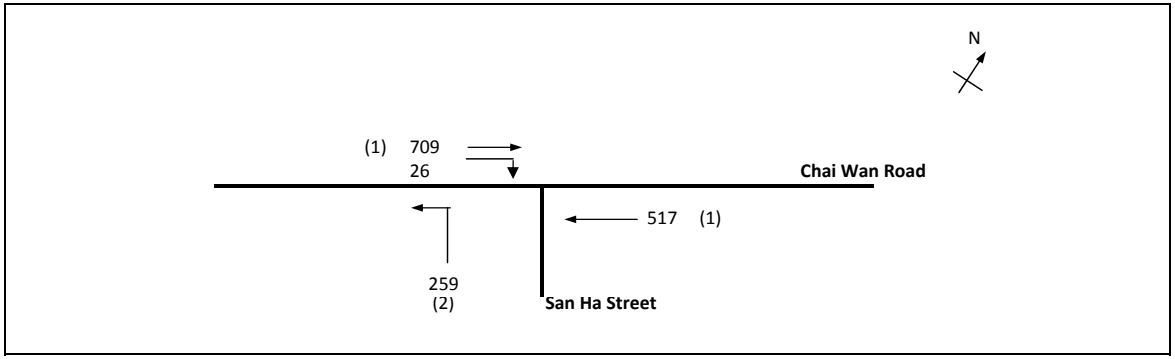
Q_{b-c}	=	776
Q_{c-b}	=	691
Q_{b-a}	=	380

COMPARISION OF DESIGN FLOW TO CAPACITY

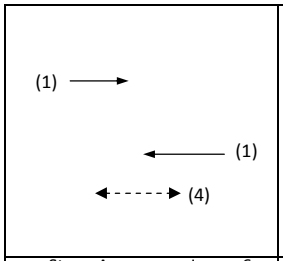
DFC_{b-a}	=	0.264
DFC_{b-c}	=	0.197
DFC_{c-b}	=	0.141

Critical DFC = 0.264

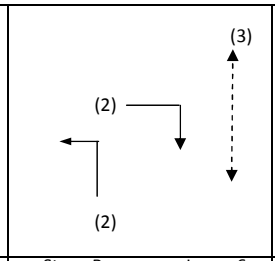
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.330
Loss time		L =	10 sec
Total Flow		=	1512 pcu
Co	= (1.5*L+5)/(1-Y)	=	29.9 sec
Cm	= L/(1-Y)	=	14.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	150.0 %
Cp	= 0.9*L/(0.9-Y)	=	15.8 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	145.4 %



Stage A I = 6



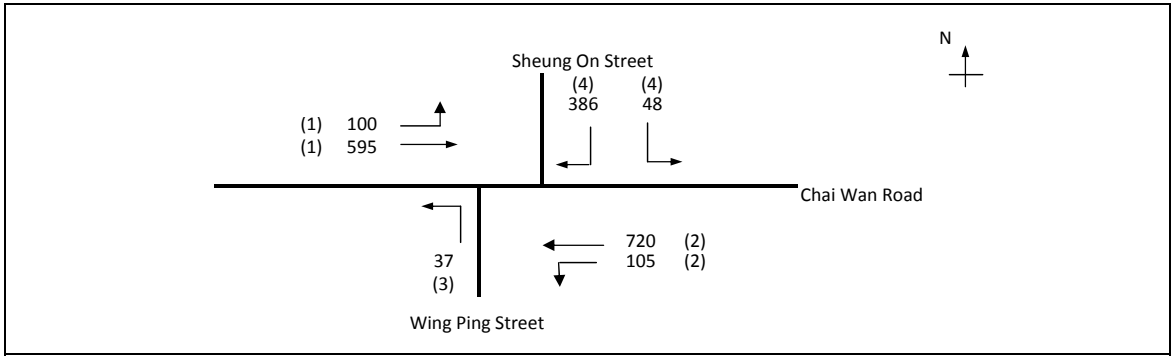
Stage B I = 6

Stage C I =

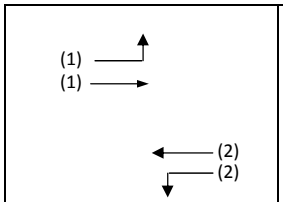
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		709		709	0.00	4070			4070	0.174	0.174		48	47	0.371	30	11
ST	A	3.50	1	2	10		N	4070		517		517	0.00	4070			4070	0.127			35	47	0.270	21	11
LT	B	3.00	2	1	10		N	1915	259			259	1.00	1665			1665	0.156	0.156		42	53	0.294	18	9
RT	B	3.50	2	1	12			2105			26	26	1.00	1871			1871	0.014			4	53	0.027	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

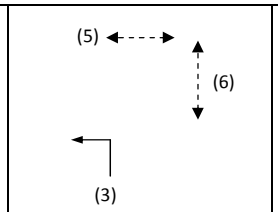
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



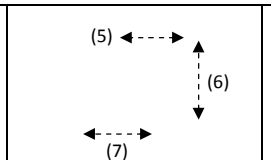
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.280
Loss time		L =	37 sec
Total Flow		=	1991 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.0 sec
Cm	= L/(1-Y)	=	51.4 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	122.3 %
Cp	= 0.9*L/(0.9-Y)	=	53.7 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	122.3 %



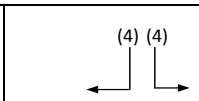
Stage A I = 8



Stage B I = 5



Stage C I = 7

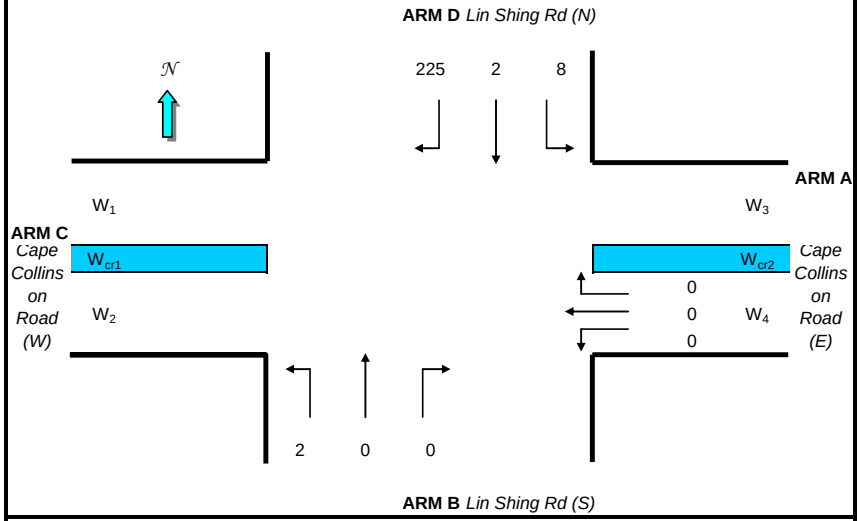


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	100	595		696	0.14	6066			6066	0.115			34		0.000	46	54
LT/ST	A	3.30	2	3	12		Y	6115	105	720		825	0.13	6019			6019	0.137	0.137		41		0.000	54	54
LT	B	3.50	3	1	9		Y	1965	37			37	1.00	1684			1684	0.022	0.022		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	48		386	434	1.00	3583			3583	0.121	0.121		36		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8	(pcu/hr)
q_{d-b}	=	2	(pcu/hr)
q_{d-c}	=	225	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

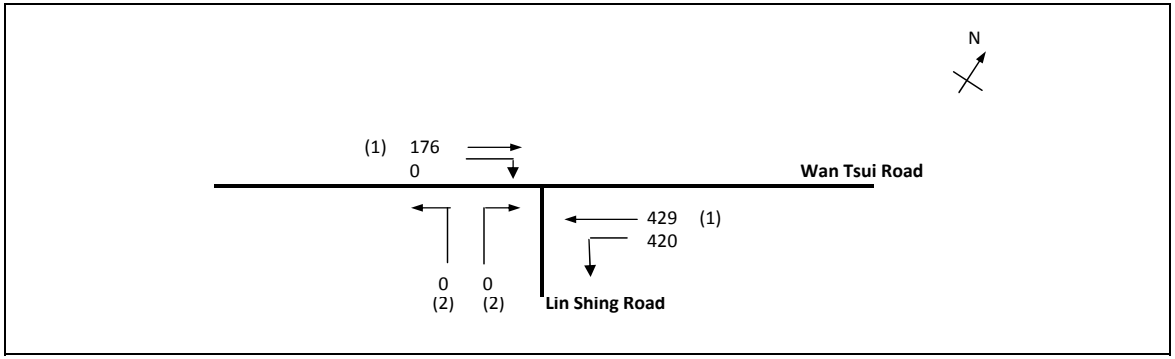
Q_{b-a}	=	615
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

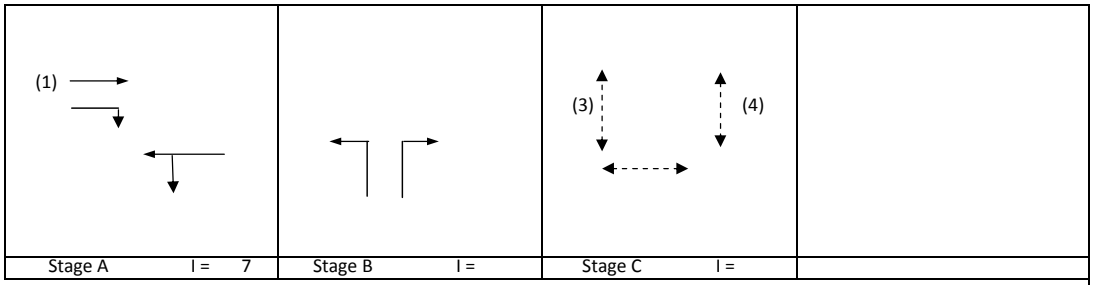
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.434
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.434

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.452	
Loss time		L =	25	sec
Total Flow		=	1024	pcu
Co	= (1.5*L+5)/(1-Y)	=	77.6	sec
Cm	= L/(1-Y)	=	45.7	sec
Yult		=	0.713	
R.C.ult	= (Yult-Y)/Y*100%	=	57.5	%
Cp	= 0.9*L/(0.9-Y)	=	50.3	sec
Ymax	= 1-L/C	=	0.792	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	57.5	%



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		176		176	0.00	1915			1915	0.092			19	95	0.116	6	2
ST/LT	A	4.00	1	1	10		N	2015	420	429		849	0.49	1876			1876	0.452	0.452		95	95	0.571	30	3
Ped	B	6.0	3																	20					

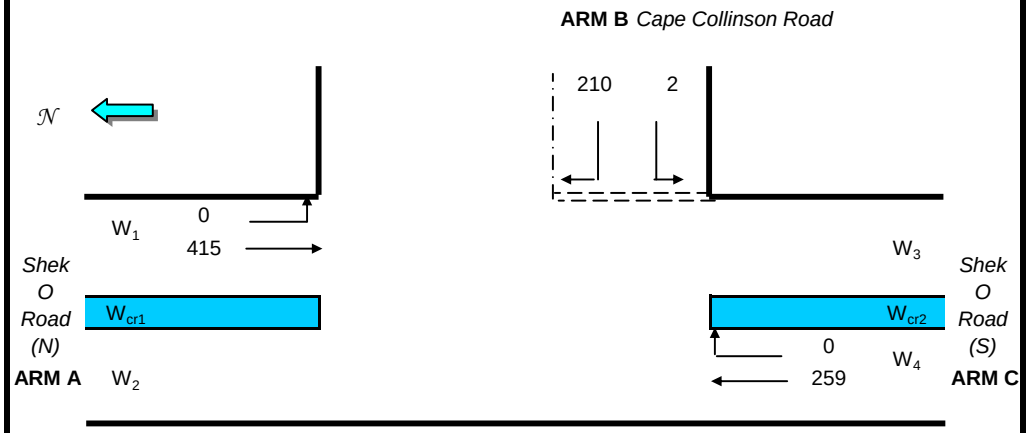
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	415	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	259	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	210	(pcu/hr)
q_{b-c}	=	2	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

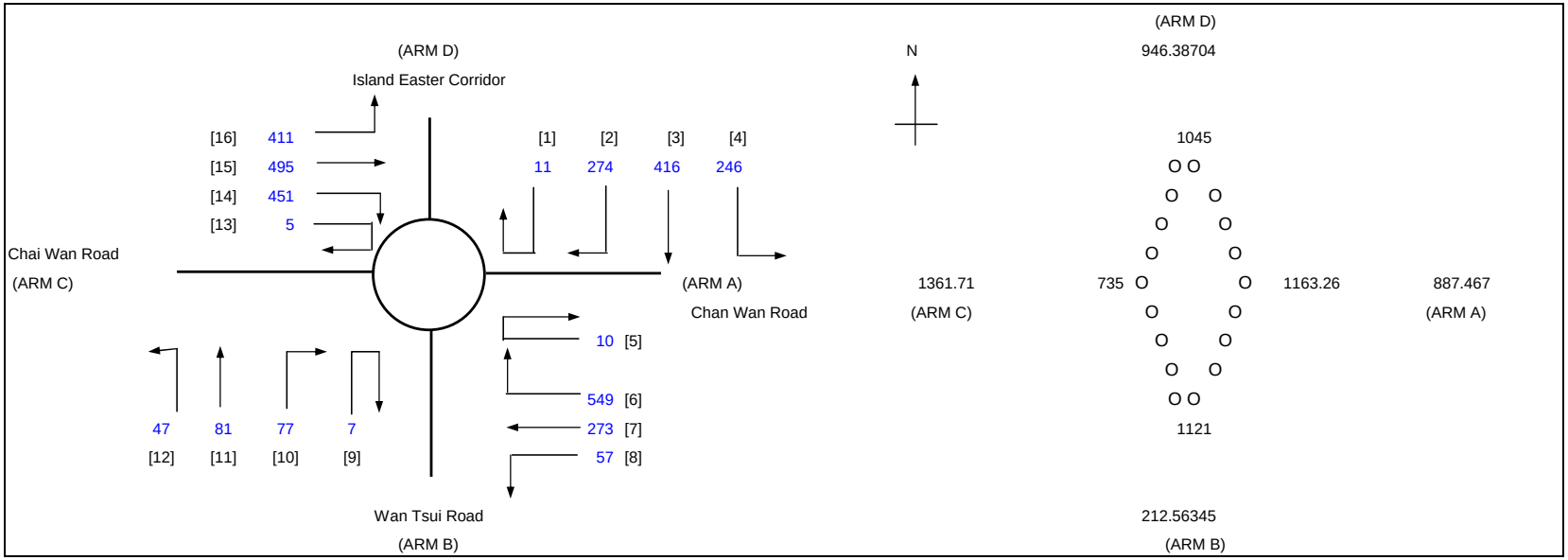
Q_{b-c}	=	636
Q_{c-b}	=	708
Q_{b-a}	=	300

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.702
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.702

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4LV3_Sen1_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

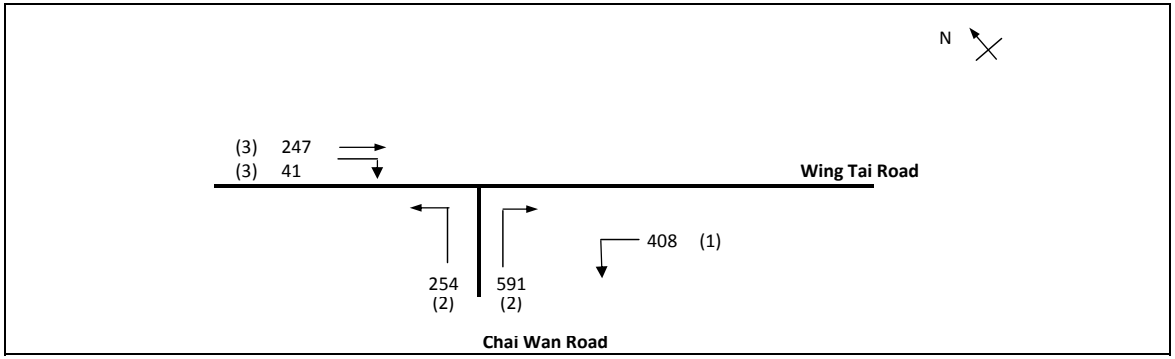


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	887	213	1362	946
Qc	=	Circulating flow across entry (pcu/h)	1163	1121	735	1045
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1587	849	1923	1415
DFC	=	Design flow/Capacity = Q/Qe	0.56	0.25	0.71	0.67

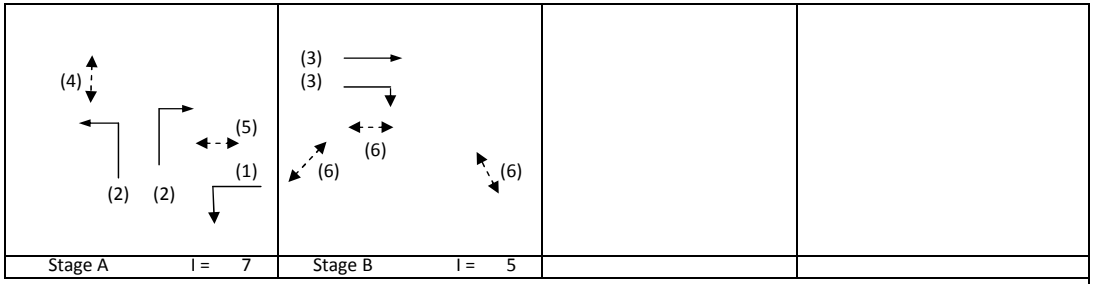
Total In Sum = 2648 PCU

DFC of Critical Approach = 0.71

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.226	
Loss time	L =	10	sec
Total Flow	=	1541	pcu
Co = (1.5*L+5)/(1-Y)	=	25.8	sec
Cm = L/(1-Y)	=	12.9	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	265.5	%
Cp = 0.9*L/(0.9-Y)	=	13.3	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	258.8	%

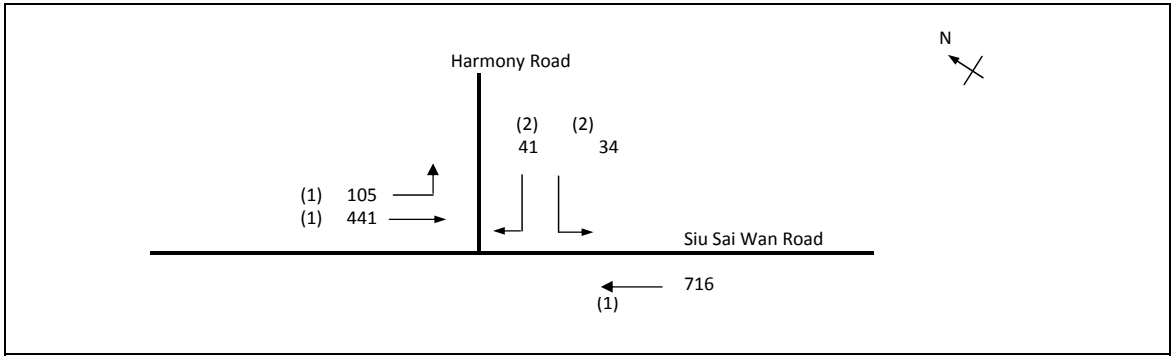


Stage A I = 7 Stage B I = 5

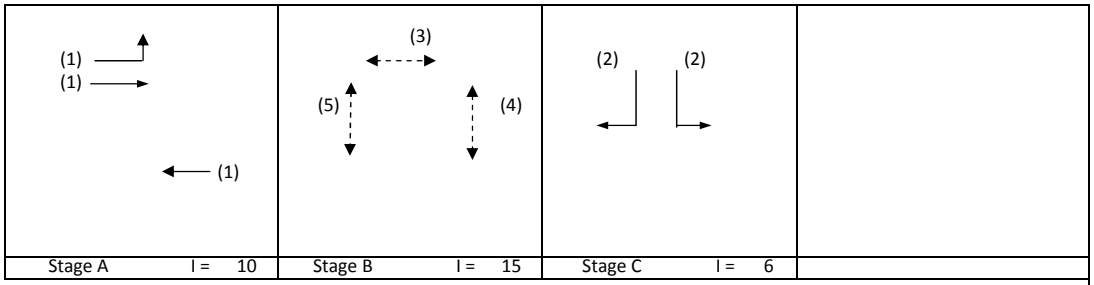
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	408			408	1.00	3857			3857	0.106			42	66	0.161	9	5
LT	A	4.00	2	2	24			4310	254			254	1.00	4056			4056	0.063			25	66	0.095	6	5
RT	A	3.50	2	2	11		y	4070			591	591	1.00	3582			3582	0.165	0.165		66	66	0.251	15	5
ST	B	3.50	3	2			y	4070		247		247	0.00	4070			4070	0.061	0.061		24	24	0.251	15	25
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			4	24	0.045	0	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.202	
Loss time	L =	48	sec
Total Flow	=	1337	pcu
Co = (1.5*L+5)/(1-Y)	=	96.5	sec
Cm = L/(1-Y)	=	60.2	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	167.2	%
Cp = 0.9*L/(0.9-Y)	=	61.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	131.5	%

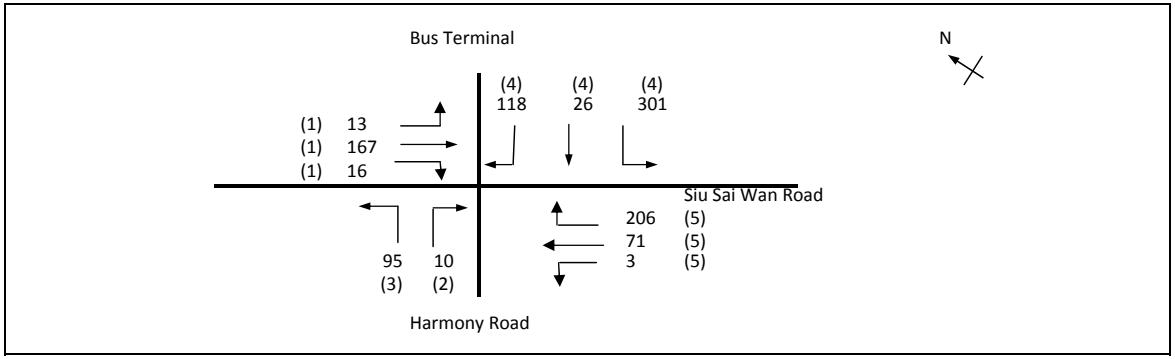


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

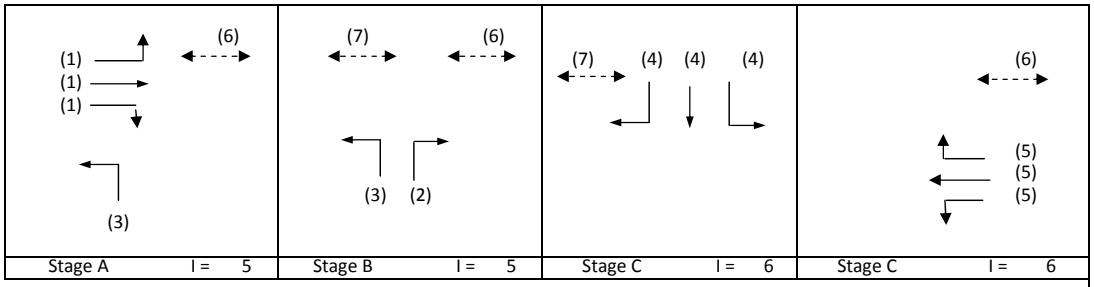
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1843			1843	0.139			36	46	0.300	18	12
ST	A	3.20	1	1				2075		289		289	0.00	2075			2075	0.139			36	46	0.300	24	12
ST	A	3.00	1	2			y	3970		716		716	0.00	3970			3970	0.180	0.180		46	46	0.389	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.341	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.389	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.351	
Loss time	L =	18	sec
Total Flow	=	1027	pcu
Co = (1.5*L+5)/(1-Y)	=	49.3	sec
Cm = L/(1-Y)	=	27.7	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	117.9	%
Cp = 0.9*L/(0.9-Y)	=	29.5	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	112.4	%

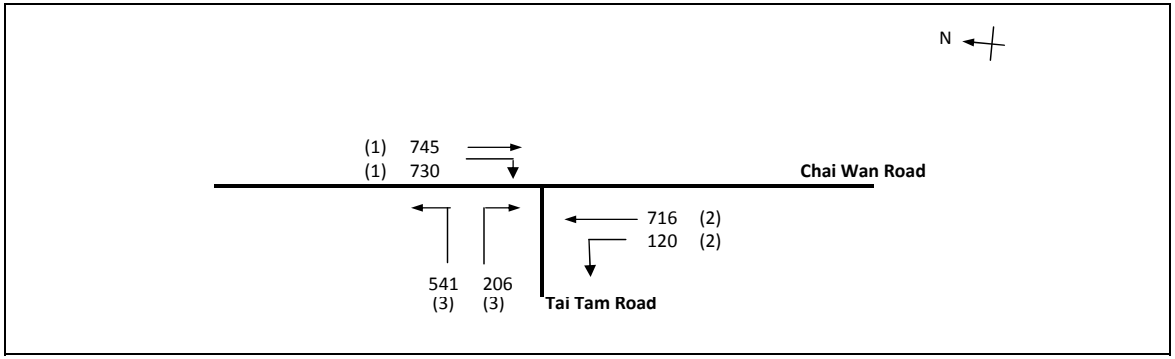


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

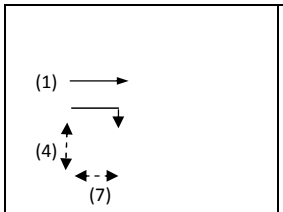
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																			18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.417	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	102	0.16	2045			2045	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	32
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	301	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105		0	206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1954			1954	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

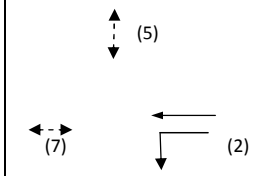
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



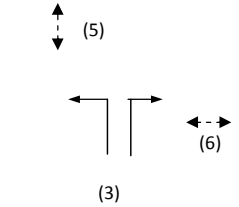
No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.745
Loss time		L =	18 sec
Total Flow		=	3058 pcu
Co	= (1.5*L+5)/(1-Y)	=	125.6 sec
Cm	= L/(1-Y)	=	70.7 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	2.6 %
Cp	= 0.9*L/(0.9-Y)	=	104.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	0.1 %



Stage A I = 7



Stage B I = 8



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		745		745	0.00	4070			4070	0.183			21	21	0.900	51	42
RT	A	3.50	1	1	13			2105			730	730	1.00	1887			1887	0.387	0.387		45	21	1.900	96	42
ST	B	3.50	2	2				4210		716		716	0.00	4210			4210	0.170	0.170		20	20	0.900	51	43
LT	B	3.10	2	1	12		y	1925	120			120	1.00	1711			1711	0.070			8	20	0.369	12	32
LT	C	4.00	3	1	15		y	2015	378			378	1.00	1832			1832	0.206			24	24	0.900	60	35
LT/RT	C	4.00	3	1	15			2155	163		206	369	1.00	1959			1959	0.189	0.189		22	24	0.822	48	39
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

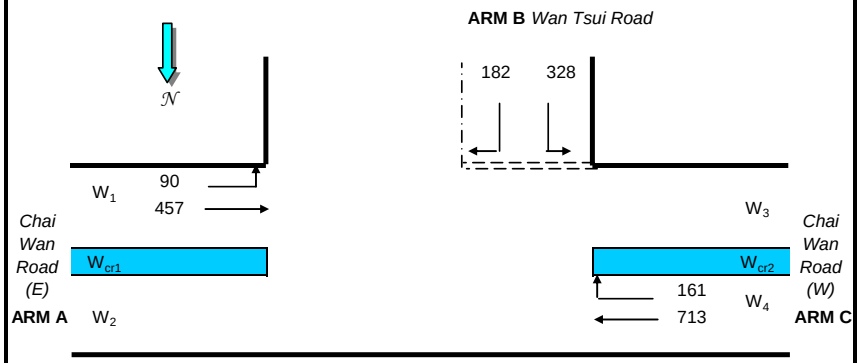
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	457	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	713	(pcu/hr)
q_{c-b}	=	160.74	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	182	(pcu/hr)
q_{b-c}	=	328	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

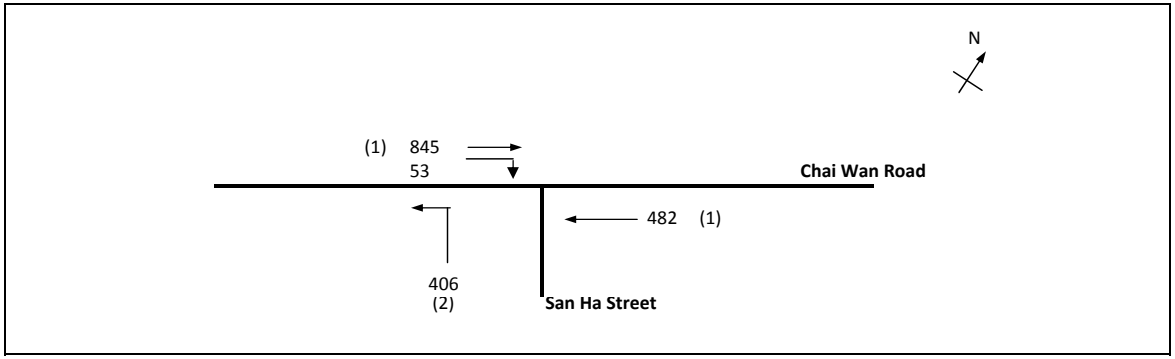
Q_{b-c}	=	763
Q_{c-b}	=	677
Q_{b-a}	=	358

COMPARISION OF DESIGN FLOW TO CAPACITY

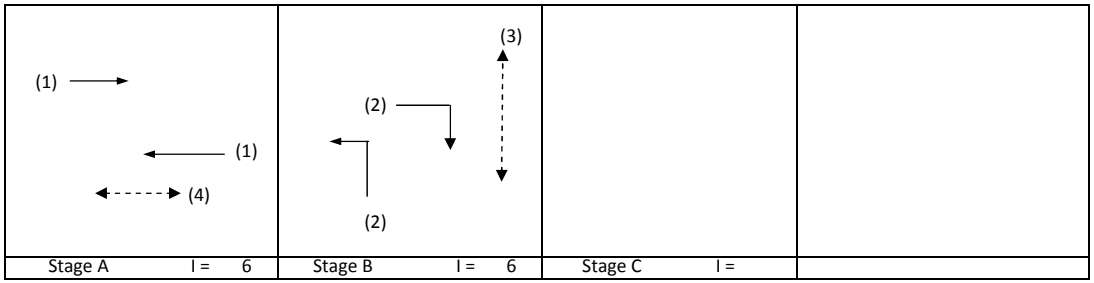
DFC_{b-a}	=	0.509
DFC_{b-c}	=	0.430
DFC_{c-b}	=	0.238

Critical DFC = 0.509

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



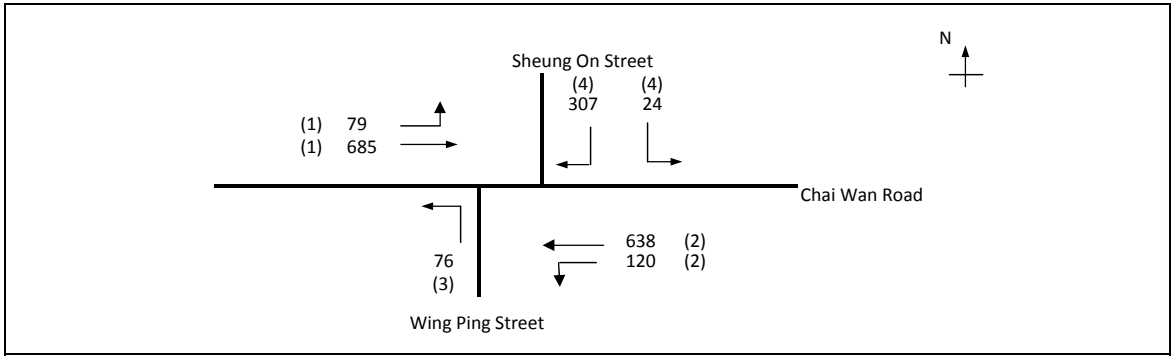
No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.451
Loss time		L =	10 sec
Total Flow		=	1785 pcu
Co	= (1.5*L+5)/(1-Y)	=	36.4 sec
Cm	= L/(1-Y)	=	18.2 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	82.8 %
Cp	= 0.9*L/(0.9-Y)	=	20.1 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	79.5 %



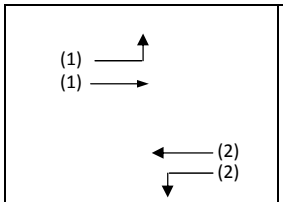
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		845		845	0.00	4070			4070	0.208	0.208		41	47	0.442	36	11
ST	A	3.50	1	2	10		N	4070		482		482	0.00	4070			4070	0.118			24	47	0.252	21	11
LT	B	3.00	2	1	10		N	1915	406			406	1.00	1665			1665	0.244	0.244		49	53	0.460	30	9
RT	B	3.50	2	1	12			2105			53	53	1.00	1871			1871	0.028			6	53	0.053	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

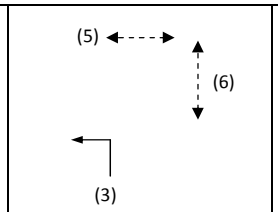
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



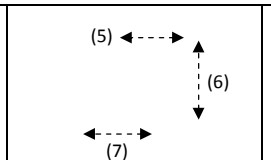
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.264
Loss time		L =	37 sec
Total Flow		=	1929 pcu
Co	= (1.5*L+5)/(1-Y)	=	82.2 sec
Cm	= L/(1-Y)	=	50.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	135.9 %
Cp	= 0.9*L/(0.9-Y)	=	52.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	135.9 %



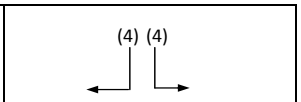
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	79	685		765	0.10	6096			6096	0.125			39		0.000	50	54
LT/ST	A	3.30	2	3	12		Y	6115	120	638		757	0.16	5997			5997	0.126	0.126		40		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	76			76	1.00	1684			1684	0.045	0.045		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	24		307	331	1.00	3583			3583	0.092	0.092		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

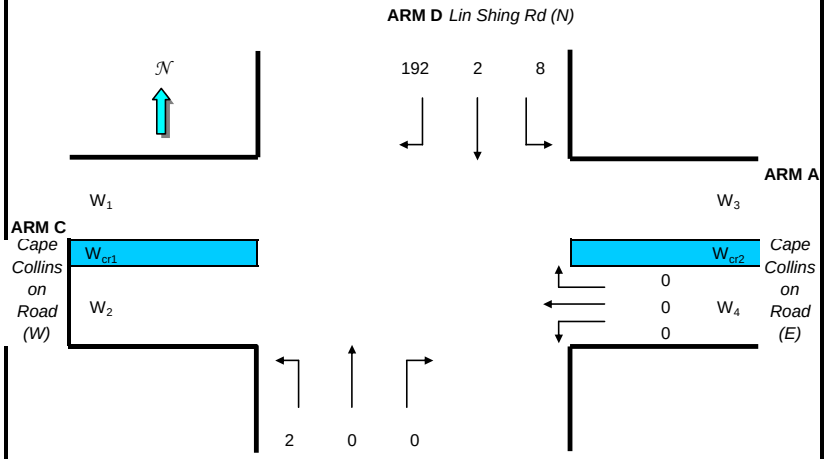
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 3 - Site 1

Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.1151	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	8.4602	(pcu/hr)
q_{d-b}	=	2.1151	(pcu/hr)
q_{d-c}	=	191.92	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

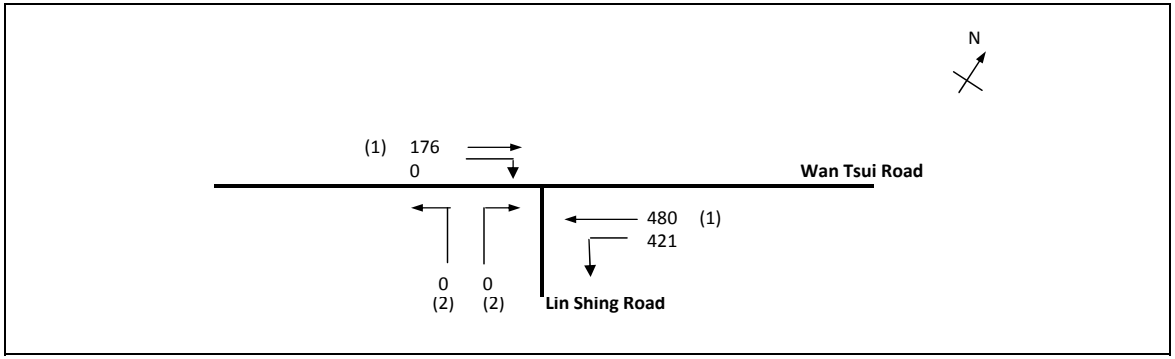
Q_{b-a}	=	619
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

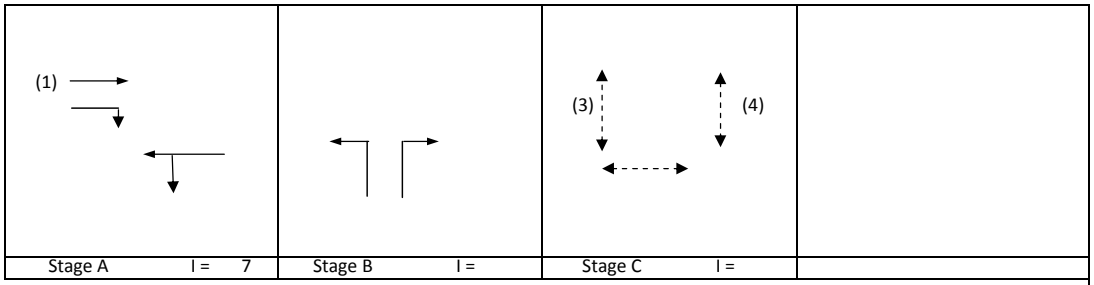
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.013
DFC_{d-b}	=	0.004
DFC_{d-c}	=	0.370
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.370

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME :1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.478	
Loss time		L =	25	sec
Total Flow		=	1076	pcu
Co	= (1.5*L+5)/(1-Y)	=	81.4	sec
Cm	= L/(1-Y)	=	47.9	sec
Yult		=	0.713	
R.C.ult	= (Yult-Y)/Y*100%	=	49.0	%
Cp	= 0.9*L/(0.9-Y)	=	53.3	sec
Ymax	= 1-L/C	=	0.792	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	49.0	%

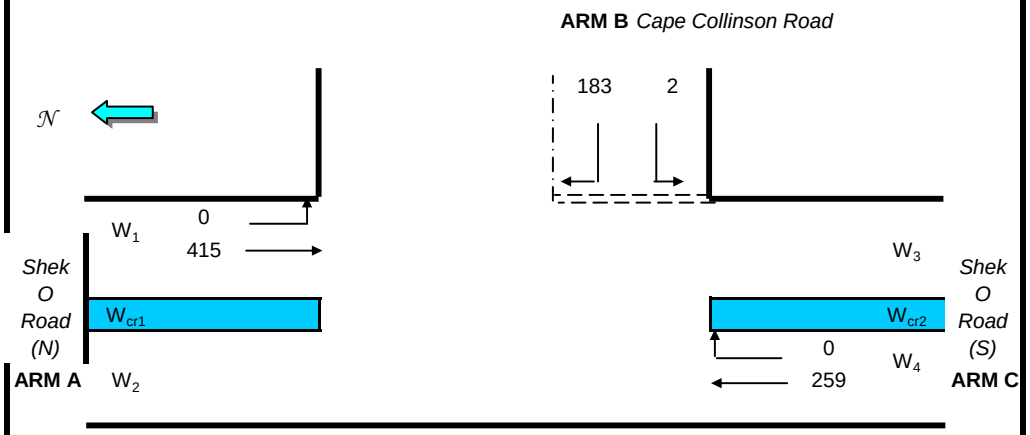


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		176		176	0.00	1915			1915	0.092			18	95	0.116	6	2
ST/LT	A	4.00	1	1	10		N	2015	421	480		900	0.47	1883			1883	0.478	0.478		95	95	0.604	36	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	414.55	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	259.09	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	183.31	(pcu/hr)
q_{b-c}	=	2.1151	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

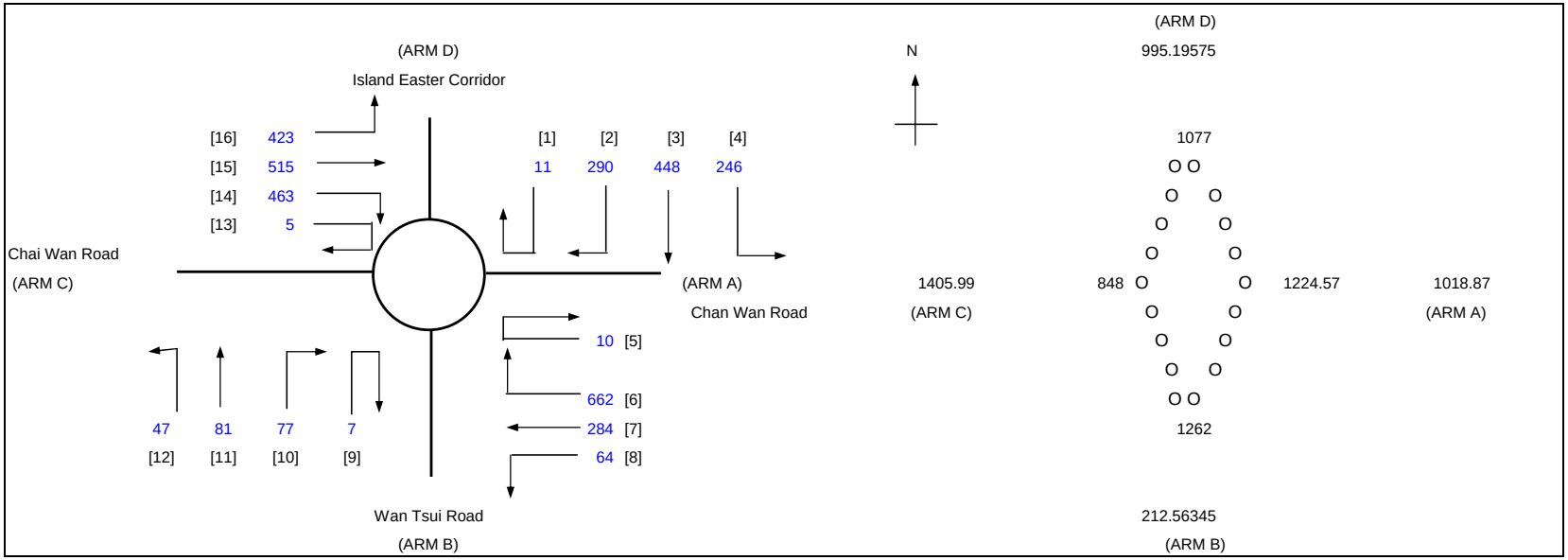
Q_{b-c}	=	636
Q_{c-b}	=	708
Q_{b-a}	=	300

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.612
DFC_{b-c}	=	0.003
DFC_{c-b}	=	0.000

Critical DFC = 0.612

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4_LV3_Sen1_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

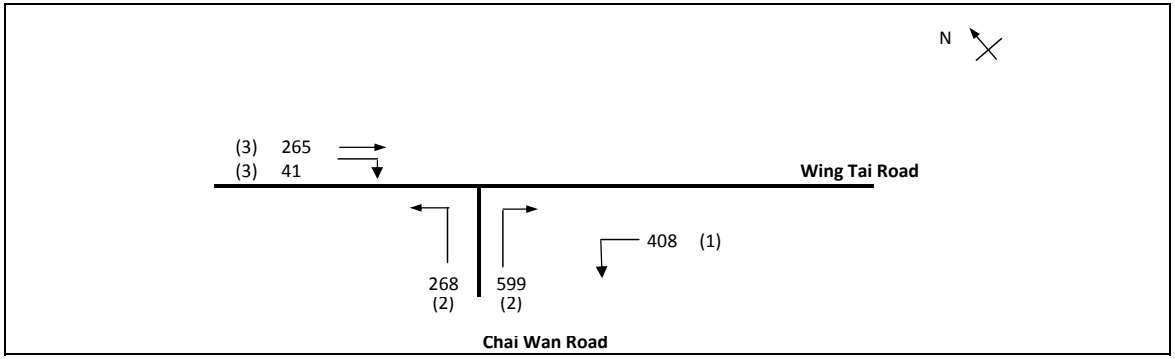


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	1019	213	1406	995
Qc	=	Circulating flow across entry (pcu/h)	1225	1262	848	1077
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1540	771	1837	1393
DFC	=	Design flow/Capacity = Q/Qe	0.66	0.28	0.77	0.71

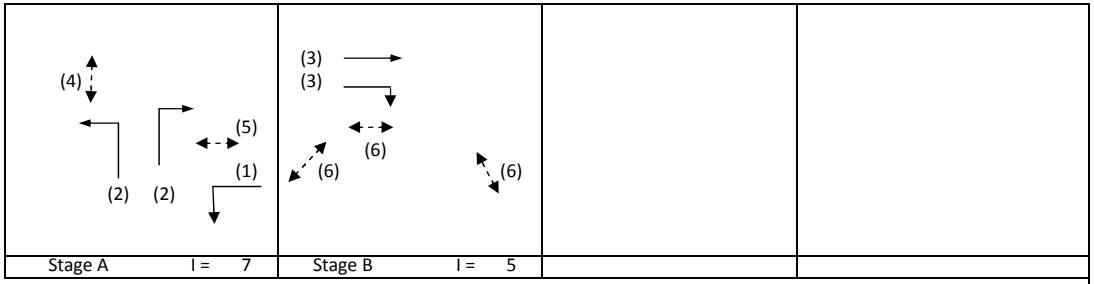
Total In Sum = 2853.32 PCU

DFC of Critical Approach = 0.77

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.232	
Loss time		L =	10	sec
Total Flow		=	1582	pcu
Co	= (1.5*L+5)/(1-Y)	=	26.1	sec
Cm	= L/(1-Y)	=	13.0	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	254.9	%
Cp	= 0.9*L/(0.9-Y)	=	13.5	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	248.5	%

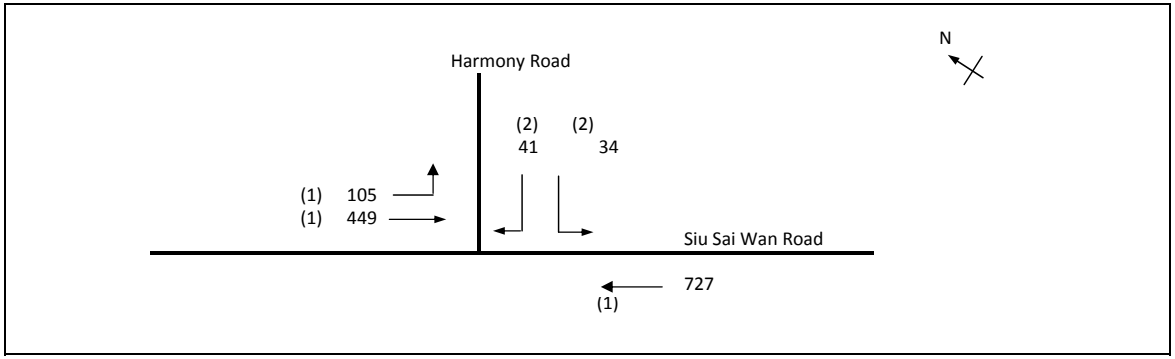


Stage A I = 7 Stage B I = 5

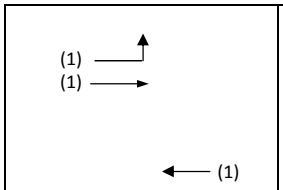
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	408			408	1.00	3857			3857	0.106			41	65	0.163	9	5
LT	A	4.00	2	2	24			4310	268			268	1.00	4056			4056	0.066			26	65	0.102	6	5
RT	A	3.50	2	2	11		y	4070			599	599	1.00	3582			3582	0.167	0.167		65	65	0.258	15	5
ST	B	3.50	3	2			y	4070		265		265	0.00	4070			4070	0.065	0.065		25	25	0.258	15	24
RT	B	4.50	3	2	13		y	4270			41	41	1.00	3828			3828	0.011			4	25	0.043	0	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

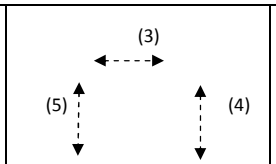
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



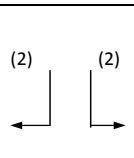
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.205	
Loss time	L =	48	sec
Total Flow	=	1356	pcu
Co = (1.5*L+5)/(1-Y)	=	96.8	sec
Cm = L/(1-Y)	=	60.4	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	163.5	%
Cp = 0.9*L/(0.9-Y)	=	62.1	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	128.4	%



Stage A I = 10



Stage B I = 15

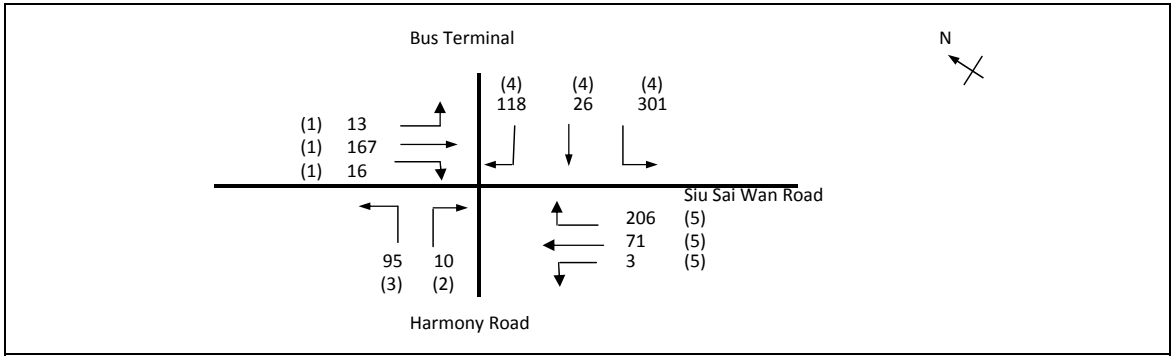


Stage C I = 6

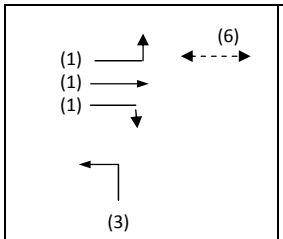
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	105	152		257	0.41	1843			1843	0.139			35	46	0.300	18	12
ST	A	3.20	1	1				2075		297		297	0.00	2075			2075	0.143			36	46	0.308	24	12
ST	A	3.00	1	2			y	3970		727		727	0.00	3970			3970	0.183	0.183		46	46	0.394	30	11
LT	C	3.75	2	1	12		y	1990	34			34	1.00	1769			1769	0.019			5	6	0.346	0	48
RT	C	3.75	2	1	12			2130			41	41	1.00	1893			1893	0.022	0.022		6	6	0.394	6	49
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

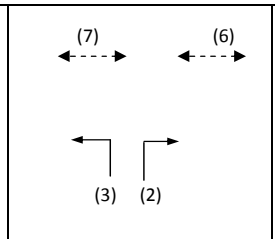
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



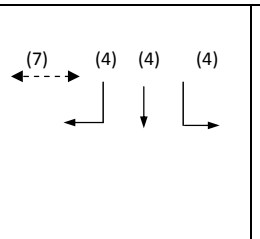
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.351
Loss time	L =	18 sec
Total Flow	=	1027 pcu
Co = (1.5*L+5)/(1-Y)	=	49.3 sec
Cm = L/(1-Y)	=	27.7 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	117.9 %
Cp = 0.9*L/(0.9-Y)	=	29.5 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	112.4 %



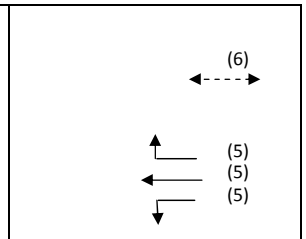
Stage A I = 5



Stage B I = 5



Stage C I = 6

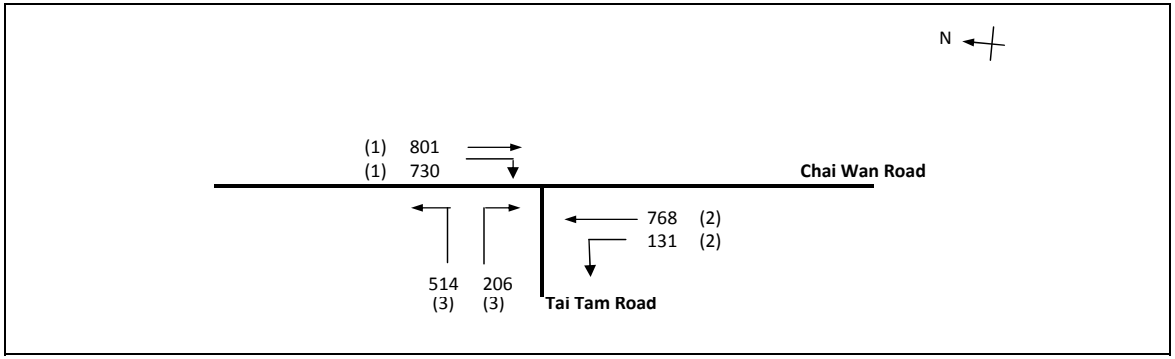


Stage C I = 6

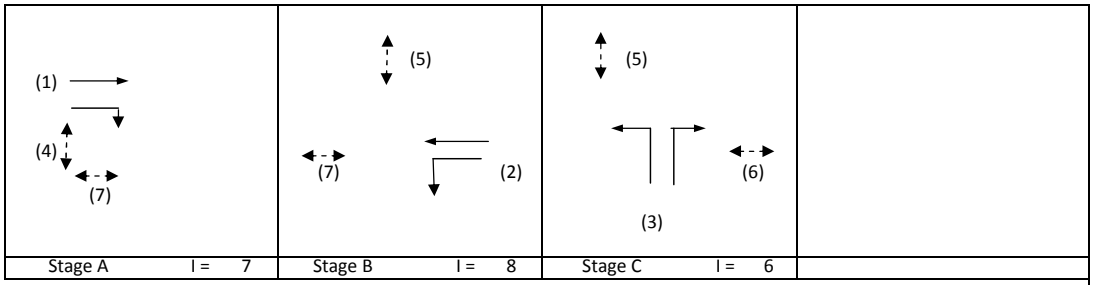
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	13	81		94	0.14	1910			1910	0.049			12	12	0.417	12	40
ST/RT	A	3.30	1	1	12			2085		86	16	102	0.16	2045			2045	0.050	0.050		12	12	0.424	12	40
RT	B	3.50	2	1	12			2105			10	10	1.00	1871			1871	0.005	0.005		1	1	0.424	0	99
LT	A,B	3.75	3	1	13		y	1990	95			95	1.00	1784			1784	0.053			13	19	0.301	12	32
RT	C	3.50	4	1	12			2105			118	118	1.00	1871			1871	0.063			16	46	0.144	6	14
LT/ST	C	3.50	4	1	12		y	1965	301	26		328	0.92	1762			1762	0.186	0.186		46	46	0.424	30	14
ST/RT	D	3.50	5	1	12			2105			206	206	1.00	1871			1871	0.110	0.110		27	27	0.424	24	25
LT/ST	D	3.50	5	1	11		y	1965	3	71		74	0.04	1954			1954	0.038			9	9	0.424	6	45
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.756
Loss time		L =	18 sec
Total Flow		=	3150 pcu
Co	= (1.5*L+5)/(1-Y)	=	131.4 sec
Cm	= L/(1-Y)	=	73.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	1.1 %
Cp	= 0.9*L/(0.9-Y)	=	112.8 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-1.4 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		801		801	0.00	4120			4120	0.194			22	22	0.913	54	42
RT	A	3.00	1	1	13			2055			730	730	1.00	1842			1842	0.396	0.396		46	22	1.861	96	41
ST	B	3.50	2	2				4210		768		768	0.00	4210			4210	0.182	0.182		21	21	0.913	54	43
LT	B	3.10	2	1	12		y	1925	131			131	1.00	1711			1711	0.076			9	21	0.382	18	31
LT	C	4.00	3	1	15		y	2015	372			372	1.00	1832			1832	0.203			23	23	0.913	60	35
LT/RT	C	4.00	3	1	15			2155	142		206	348	1.00	1959			1959	0.178	0.178		20	23	0.799	42	38
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at

Junction Capacity Analysis

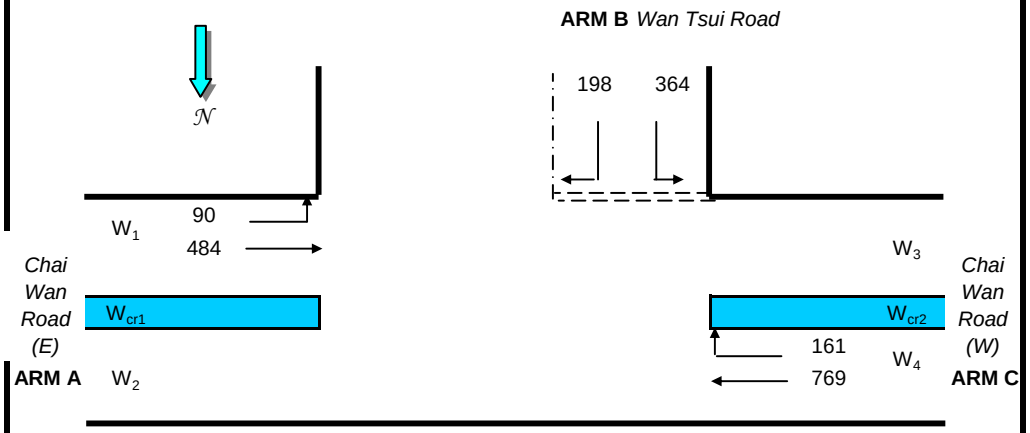
Prepared By: KC

Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road

Design Year - 2021 Level 3 - Site 1

Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	89.89	(pcu/hr)
q_{a-c}	=	484.41	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	768.88	(pcu/hr)
q_{c-b}	=	160.74	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	197.51	(pcu/hr)
q_{b-c}	=	363.57	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

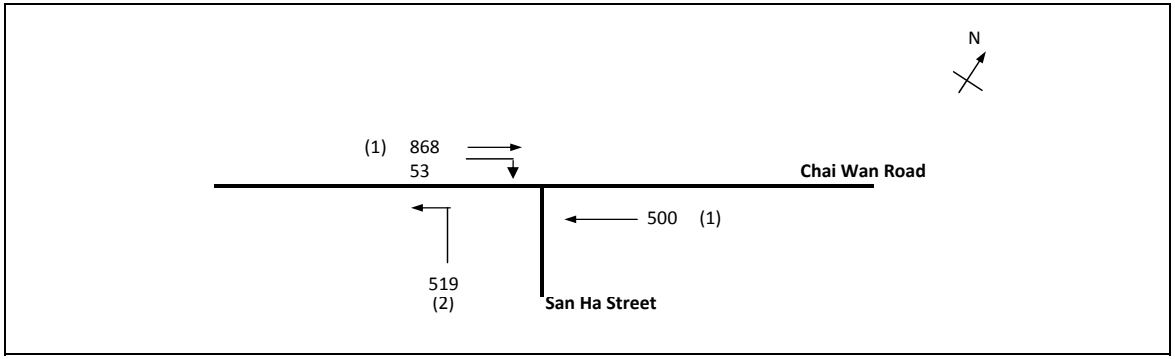
Q_{b-c}	=	759
Q_{c-b}	=	673
Q_{b-a}	=	353

COMPARISION OF DESIGN FLOW TO CAPACITY

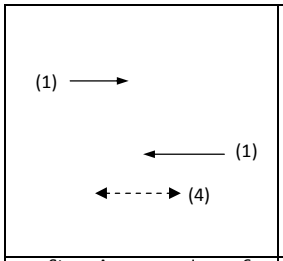
DFC_{b-a}	=	0.559
DFC_{b-c}	=	0.479
DFC_{c-b}	=	0.239

Critical DFC = 0.559

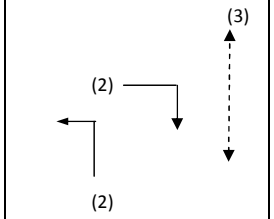
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.525
Loss time		L =	10 sec
Total Flow		=	1940 pcu
Co	= (1.5*L+5)/(1-Y)	=	42.1 sec
Cm	= L/(1-Y)	=	21.1 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	57.1 %
Cp	= 0.9*L/(0.9-Y)	=	24.0 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	54.3 %



Stage A I = 6



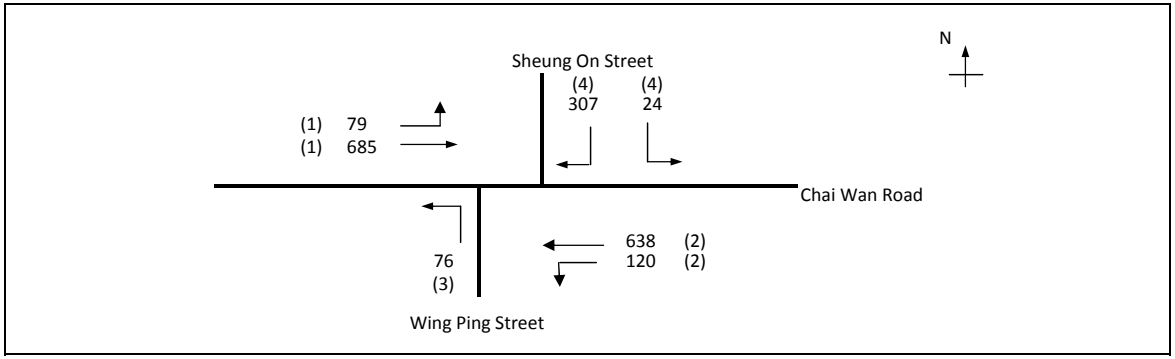
Stage B I = 6

Stage C I =

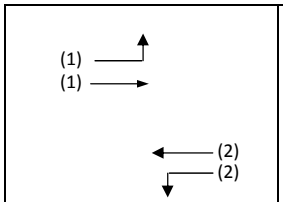
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		868		868	0.00	4070			4070	0.213	0.213		37	47	0.454	36	11
ST	A	3.50	1	2	10		N	4070		500		500	0.00	4070			4070	0.123			21	47	0.261	21	11
LT	B	3.00	2	1	10		N	1915	519			519	1.00	1665			1665	0.312	0.312		53	53	0.588	36	9
RT	B	3.50	2	1	12			2105			53	53	1.00	1871			1871	0.028			5	53	0.053	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

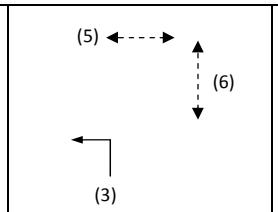
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



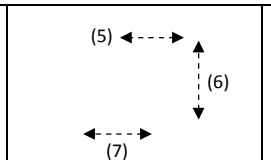
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.264
Loss time		L =	37 sec
Total Flow		=	1929 pcu
Co	= (1.5*L+5)/(1-Y)	=	82.2 sec
Cm	= L/(1-Y)	=	50.3 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	135.9 %
Cp	= 0.9*L/(0.9-Y)	=	52.3 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	135.9 %



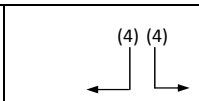
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

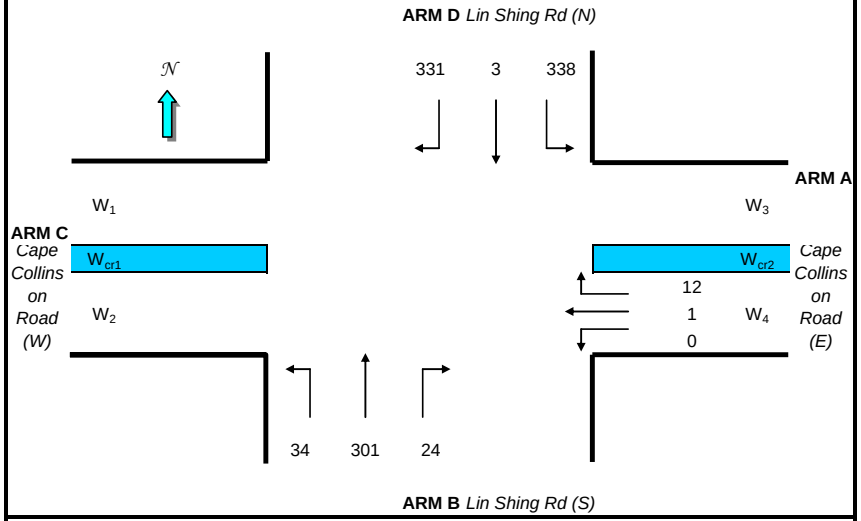
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	79	685		765	0.10	6096			6096	0.125			39		0.000	50	54
LT/ST	A	3.30	2	3	12		Y	6115	120	638		757	0.16	5997			5997	0.126	0.126		40		0.000	50	54
LT	B	3.50	3	1	9		Y	1965	76			76	1.00	1684			1684	0.045	0.045		14		0.000	12	54
LT/RT	D	3.75	4	2	10		y	4120	24		307	331	1.00	3583			3583	0.092	0.092		29		0.000	33	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix B6

2021 Sensitivity Test 2
Peak Hour Junction Assessment
Calculation Sheets

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.269	(pcu/hr)
q_{a-d}	=	12.421	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	24.112	(pcu/hr)
q_{b-c}	=	34	(pcu/hr)
q_{b-d}	=	301.26	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	338	(pcu/hr)
q_{d-b}	=	3	(pcu/hr)
q_{d-c}	=	331	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

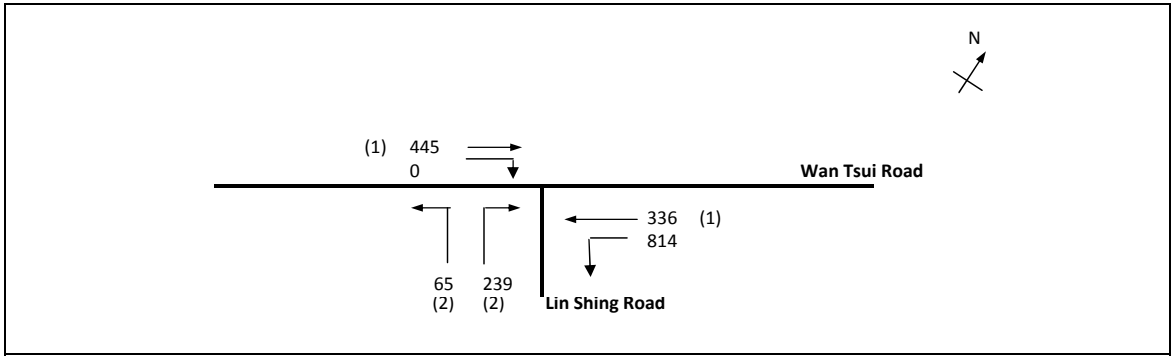
Q_{b-a}	=	496
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	607
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	527
Q_{d-c}	=	431
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

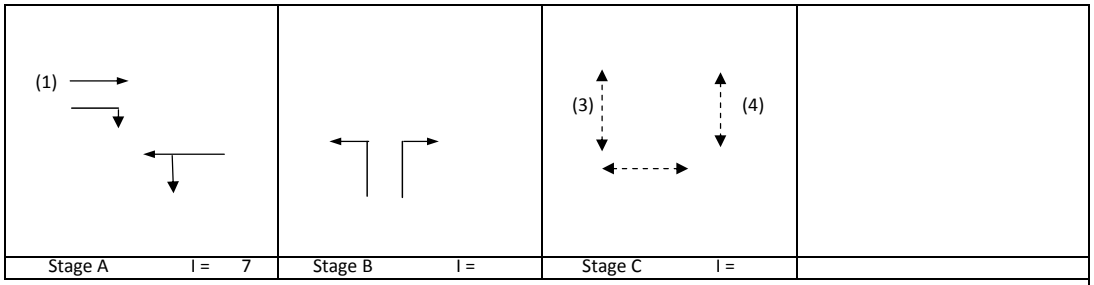
DFC_{b-a}	=	0.049
DFC_{b-c}	=	0.045
DFC_{b-d}	=	0.496
DFC_{d-a}	=	0.501
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.769
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.020

Critical DFC = 0.769

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.631
Loss time		L =	25 sec
Total Flow		=	1596 pcu
Co	= (1.5*L+5)/(1-Y)	=	115.3 sec
Cm	= L/(1-Y)	=	67.8 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	12.8 %
Cp	= 0.9*L/(0.9-Y)	=	83.8 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	12.8 %



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		445		445	0.00	1915			1915	0.233			35	95	0.294	18	2
ST/LT	A	4.00	1	1	10		N	2015	814	336		1150	0.71	1822			1822	0.631	0.631		95	95	0.798	42	5
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

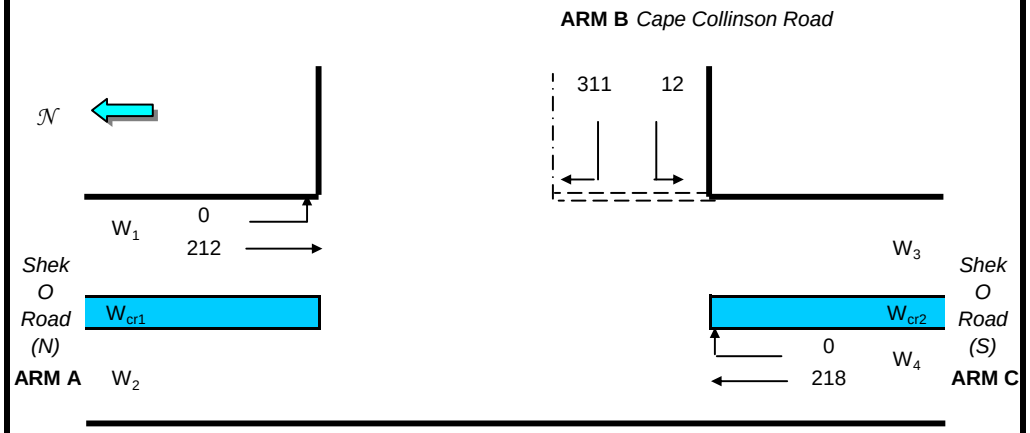
Prepared By: KC

Checked By:

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 1 - Reference Case

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	212	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	218	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	311	(pcu/hr)
q_{b-c}	=	12	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

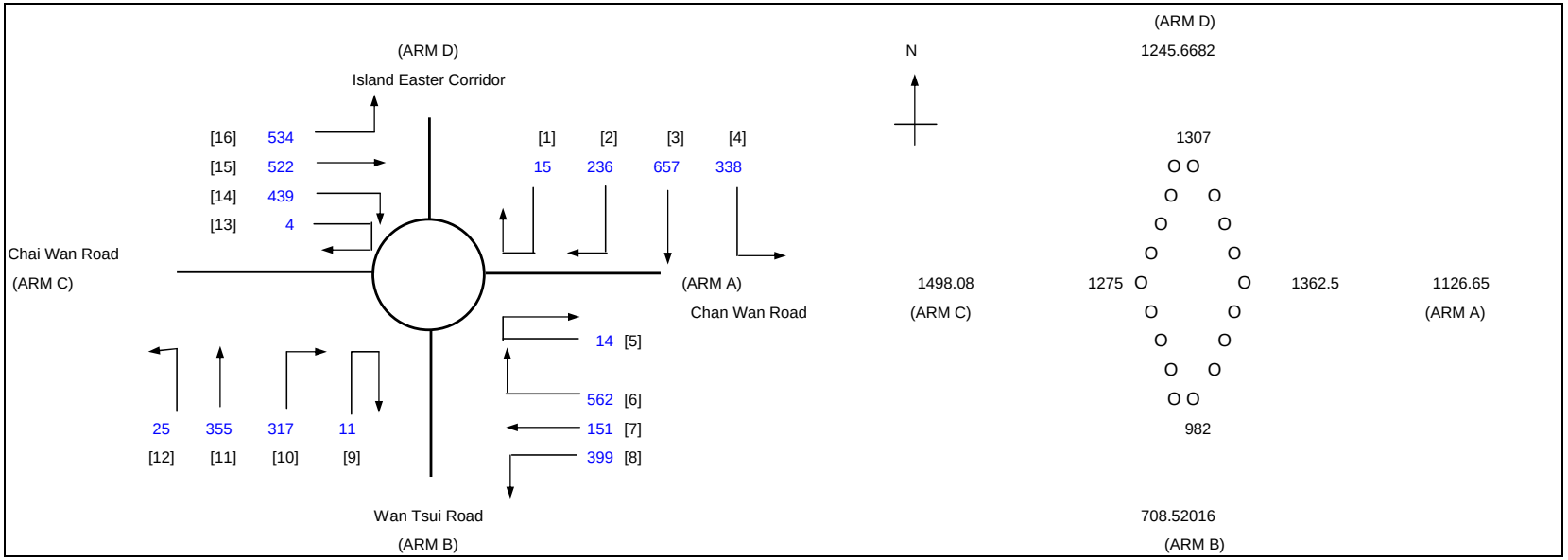
Q_{b-c}	=	688
Q_{c-b}	=	766
Q_{b-a}	=	336

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.925
DFC_{b-c}	=	0.018
DFC_{c-b}	=	0.000

Critical DFC = 0.925

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4LV1_Sen2_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

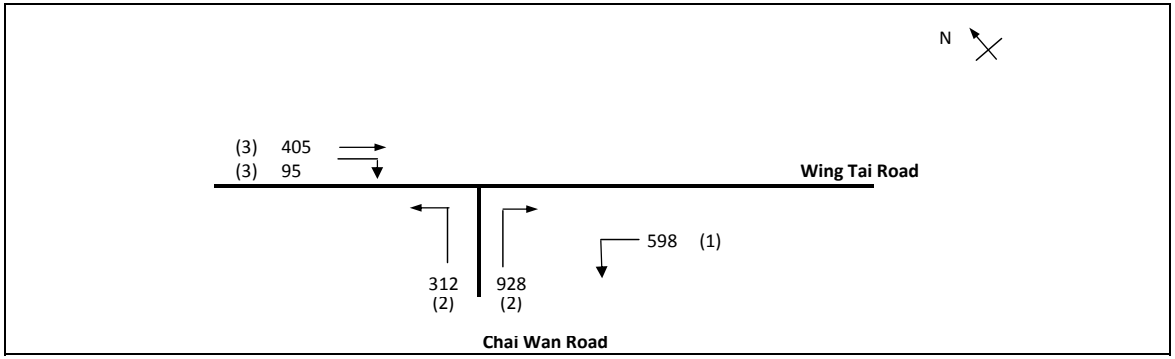


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	1127	709	1498	1246
Qc	=	Circulating flow across entry (pcu/h)	1362	982	1275	1307
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1435	926	1515	1233
DFC	=	Design flow/Capacity = Q/Qe	0.79	0.76	0.99	1.01

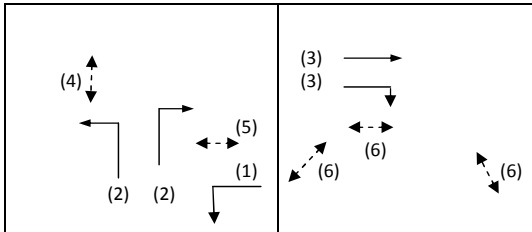
Total In Sum = 3282.95 PCU

DFC of Critical Approach = 1.01

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2
Cycle time	C =	100 sec
Sum(y)	Y =	0.358
Loss time	L =	10 sec
Total Flow	=	2337 pcu
Co = (1.5*L+5)/(1-Y)	=	31.2 sec
Cm = L/(1-Y)	=	15.6 sec
Yult	=	0.825
R.C.ult = (Yult-Y)/Y*100%	=	130.2 %
Cp = 0.9*L/(0.9-Y)	=	16.6 sec
Ymax = 1-L/C	=	0.900
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	126.0 %



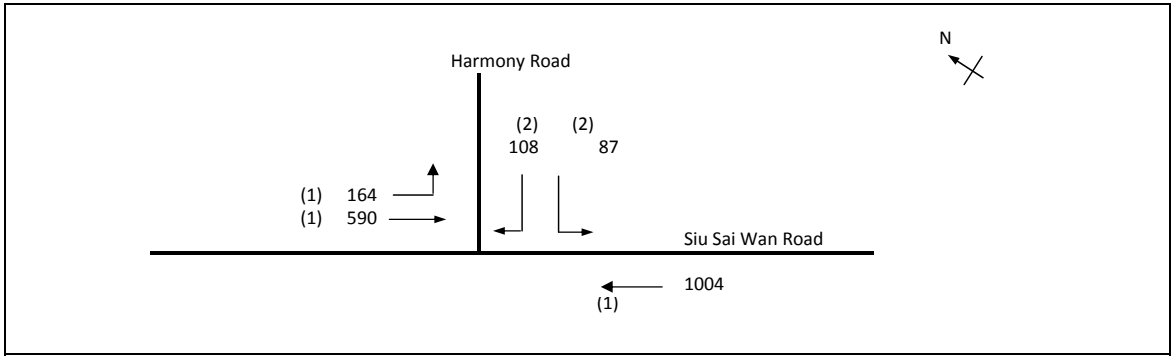
Stage A I = 7

Stage B I = 5

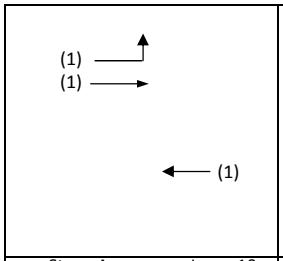
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	598			598	1.00	3857			3857	0.155			39	65	0.238	15	5
LT	A	4.00	2	2	24			4310	312			312	1.00	4056			4056	0.077			19	65	0.118	9	5
RT	A	3.50	2	2	11		y	4070			928	928	1.00	3582			3582	0.259	0.259		65	65	0.398	27	5
ST	B	3.50	3	2			y	4070		405		405	0.00	4070			4070	0.099	0.099		25	25	0.398	24	24
RT	B	4.50	3	2	13		y	4270			95	95	1.00	3828			3828	0.025			6	25	0.100	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

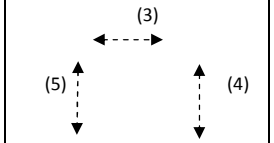
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



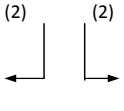
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.310	
Loss time	L =	48	sec
Total Flow	=	1952	pcu
Co = (1.5*L+5)/(1-Y)	=	111.6	sec
Cm = L/(1-Y)	=	69.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	74.2	%
Cp = 0.9*L/(0.9-Y)	=	73.2	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	51.0	%



Stage A I = 10



Stage B I = 15

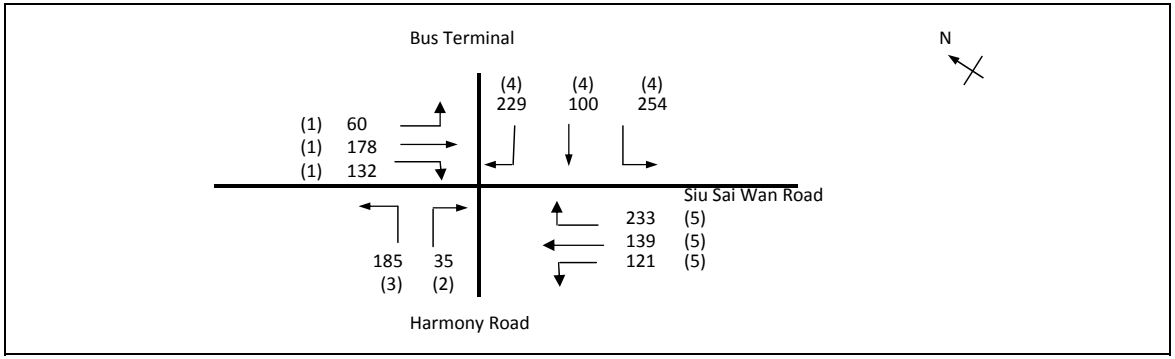


Stage C I = 6

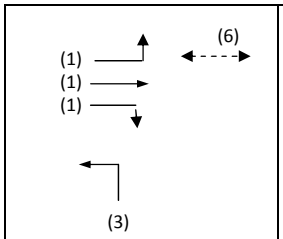
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	164	152		316	0.52	1817			1817	0.174			29	42	0.410	30	14
ST	A	3.20	1	1				2075		438		438	0.00	2075			2075	0.211			35	42	0.497	36	14
ST	A	3.00	1	2			y	3970		1004		1004	0.00	3970			3970	0.253	0.253		42	42	0.596	48	13
LT	C	3.75	2	1	12		y	1990	87			87	1.00	1769			1769	0.049			8	10	0.513	12	45
RT	C	3.75	2	1	12			2130			108	108	1.00	1893			1893	0.057	0.057		10	10	0.596	12	48
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

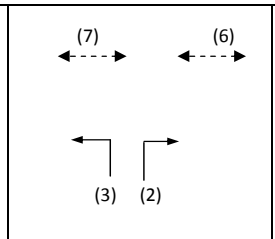
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



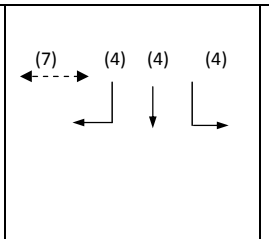
No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.474	
Loss time	L =	18	sec
Total Flow	=	1666	pcu
Co = (1.5*L+5)/(1-Y)	=	60.8	sec
Cm = L/(1-Y)	=	34.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	61.6	%
Cp = 0.9*L/(0.9-Y)	=	38.0	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	57.5	%



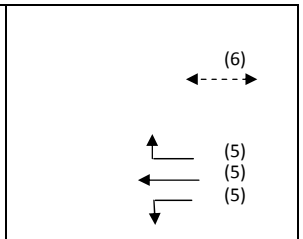
Stage A I = 5



Stage B I = 5



Stage C I = 6

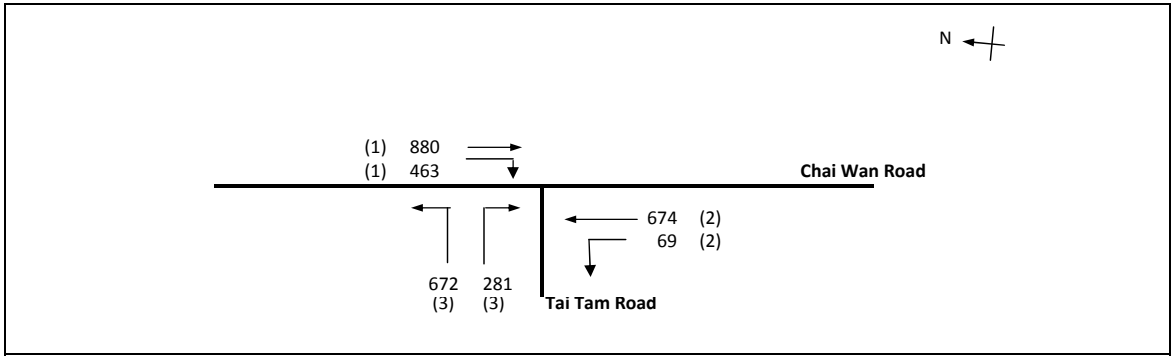


Stage C I = 6

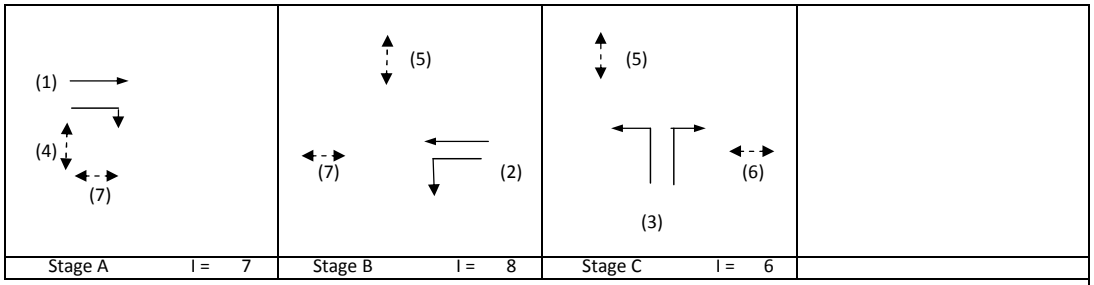
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	60	81		141	0.43	1838			1838	0.077			14	22	0.373	18	30
ST/RT	A	3.30	1	1	12			2085		97	132	228	0.58	1945			1945	0.117	0.117		22	22	0.572	30	32
RT	B	3.50	2	1	12			2105			35	35	1.00	1871			1871	0.019	0.019		3	3	0.572	6	78
LT	A,B	3.75	3	1	13		y	1990	185			185	1.00	1784			1784	0.104			19	30	0.362	18	23
RT	C	3.50	4	1	12			2105			229	229	1.00	1871			1871	0.123			23	36	0.357	24	19
LT/ST	C	3.50	4	1	12		y	1965	254	100		354	0.72	1803			1803	0.196	0.196		36	36	0.572	36	20
ST/RT	D	3.50	5	1	12			2105		0	233	233	1.00	1871			1871	0.125			23	23	0.572	30	31
LT/ST	D	3.50	5	1	11		y	1965	121	139		260	0.47	1848			1848	0.141	0.141		26	26	0.572	30	28
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.683
Loss time		L =	18 sec
Total Flow		=	3038 pcu
Co	= (1.5*L+5)/(1-Y)	=	101.0 sec
Cm	= L/(1-Y)	=	56.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	12.0 %
Cp	= 0.9*L/(0.9-Y)	=	74.7 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	9.2 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		880		880	0.00	4070			4070	0.216			28	28	0.824	54	27
RT	A	3.50	1	1	13			2105			463	463	1.00	1887			1887	0.245	0.245		31	28	0.936	78	33
ST	B	3.50	2	2				4210		674		674	0.00	4210			4210	0.160	0.160		20	20	0.824	45	35
LT	B	3.10	2	1	12		y	1925	69			69	1.00	1711			1711	0.040			5	20	0.206	6	31
LT	C	4.00	3	1	15		y	2015	509			509	1.00	1832			1832	0.278	0.278		35	35	0.824	54	27
LT/RT	C	4.00	3	1	15			2155	163		281	444	1.00	1959			1959	0.227			29	35	0.673	48	21
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

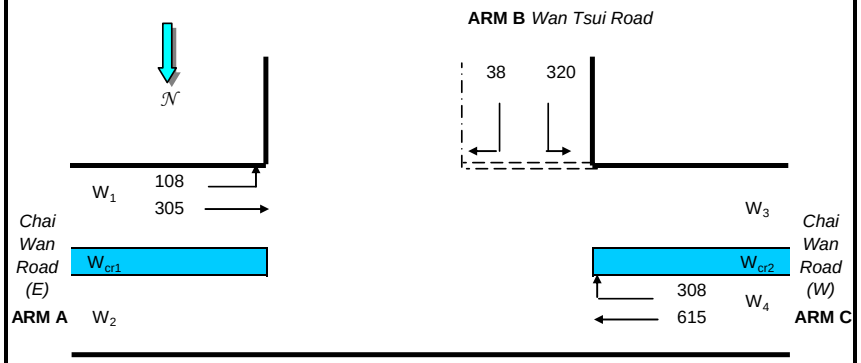
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By:

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 1 - Reference Case
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	107.87	(pcu/hr)
q_{a-c}	=	305	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	615	(pcu/hr)
q_{c-b}	=	308.38	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	38	(pcu/hr)
q_{b-c}	=	320	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

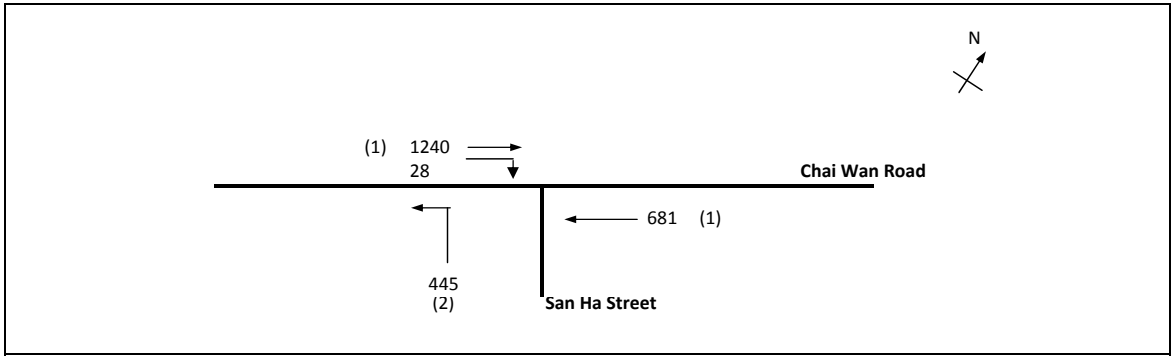
Q_{b-c}	=	781
Q_{c-b}	=	692
Q_{b-a}	=	358

COMPARISION OF DESIGN FLOW TO CAPACITY

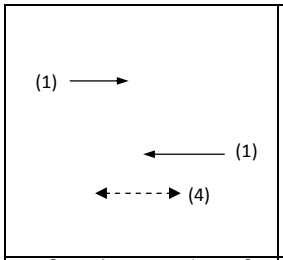
DFC_{b-a}	=	0.106
DFC_{b-c}	=	0.409
DFC_{c-b}	=	0.446

Critical DFC = 0.446

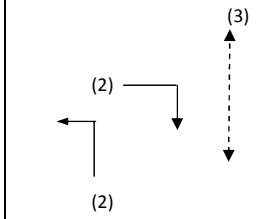
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.572	
Loss time		L =	10	sec
Total Flow		=	2394	pcu
Co	= (1.5*L+5)/(1-Y)	=	46.7	sec
Cm	= L/(1-Y)	=	23.4	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	44.2	%
Cp	= 0.9*L/(0.9-Y)	=	27.4	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	41.6	%



Stage A I = 6



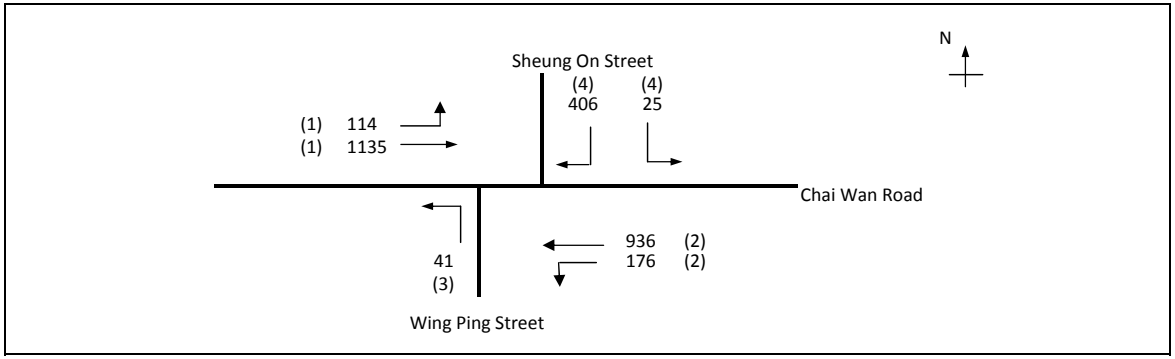
Stage B I = 6

Stage C I =

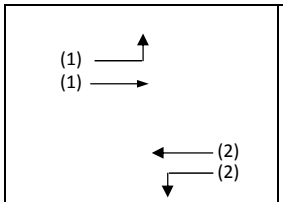
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1240		1240	0.00	4070			4070	0.305	0.305		48	47	0.648	54	10
ST	A	3.50	1	2	10		N	4070		681		681	0.00	4070			4070	0.167			26	47	0.356	30	11
LT	B	3.00	2	1	10		N	1915	445			445	1.00	1665			1665	0.267	0.267		42	53	0.505	30	9
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015			2	53	0.028	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

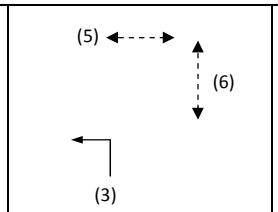
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



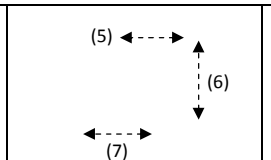
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.349
Loss time		L =	37 sec
Total Flow		=	2833 pcu
Co	= (1.5*L+5)/(1-Y)	=	92.9 sec
Cm	= L/(1-Y)	=	56.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	78.3 %
Cp	= 0.9*L/(0.9-Y)	=	60.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	78.3 %



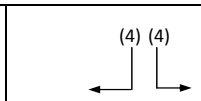
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	114	1135		1249	0.09	6105			6105	0.205	0.205		49		0.000	82	54
LT/ST	A	3.30	2	3	12		Y	6115	176	936		1112	0.16	5996			5996	0.185			44		0.000	74	54
LT	B	3.50	3	1	9		Y	1965	41			41	1.00	1684			1684	0.024	0.024		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	25		406	431	1.00	3583			3583	0.120	0.120		29		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a

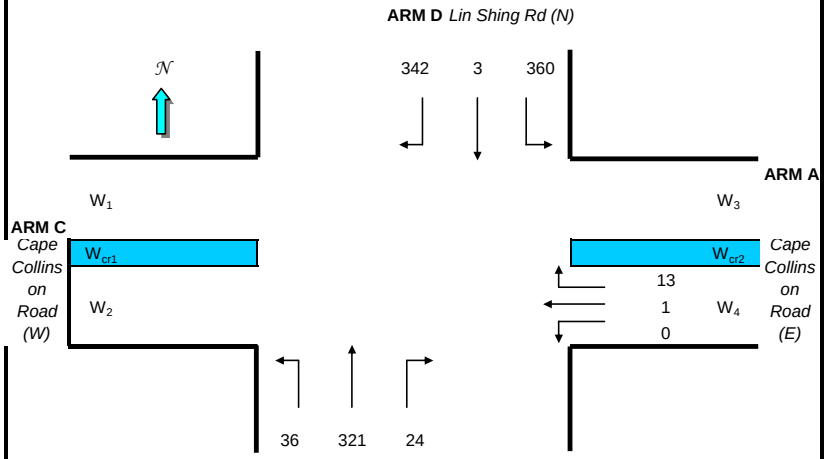
Junction Capacity Analysis

Prepared By:	**KC**
Checked By:	**OC**

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 1 - Site 1

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	1.269	(pcu/hr)
q_{a-d}	=	13.421	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	24.112	(pcu/hr)
q_{b-c}	=	35.726	(pcu/hr)
q_{b-d}	=	320.6	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	360.26	(pcu/hr)
q_{d-b}	=	2.929	(pcu/hr)
q_{d-c}	=	341.8	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

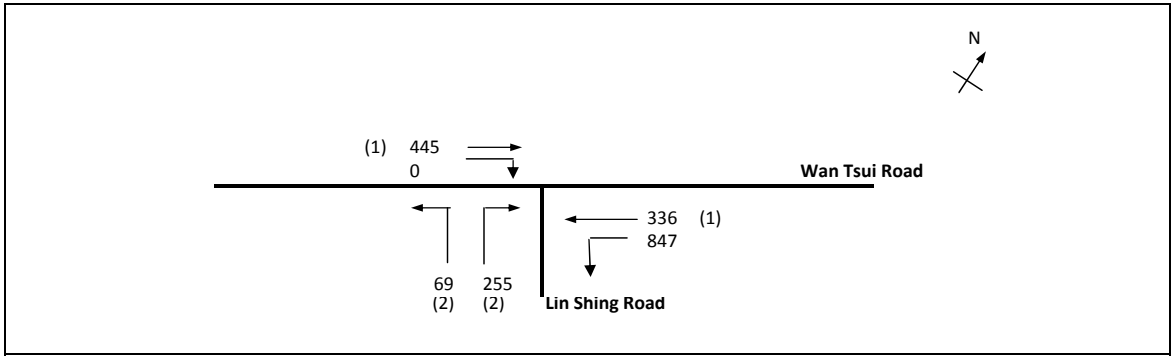
Q_{b-a}	=	487
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	607
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	526
Q_{d-c}	=	426
Q_{c-b}	=	440
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

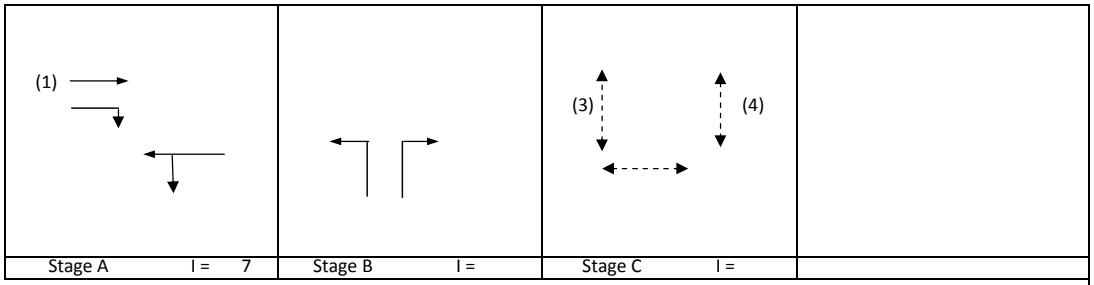
DFC_{b-a}	=	0.050
DFC_{b-c}	=	0.048
DFC_{b-d}	=	0.528
DFC_{d-a}	=	0.534
DFC_{d-b}	=	0.006
DFC_{d-c}	=	0.803
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.022

Critical DFC = 0.803

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.650	
Loss time	L =	25	sec
Total Flow	=	1629	pcu
Co = (1.5*L+5)/(1-Y)	=	121.6	sec
Cm = L/(1-Y)	=	71.5	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	9.6	%
Cp = 0.9*L/(0.9-Y)	=	90.1	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	9.6	%



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		445		445	0.00	1915			1915	0.233			34	95	0.294	18	2
ST/LT	A	4.00	1	1	10		N	2015	847	336		1183	0.72	1820			1820	0.650	0.650		95	95	0.822	48	6
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

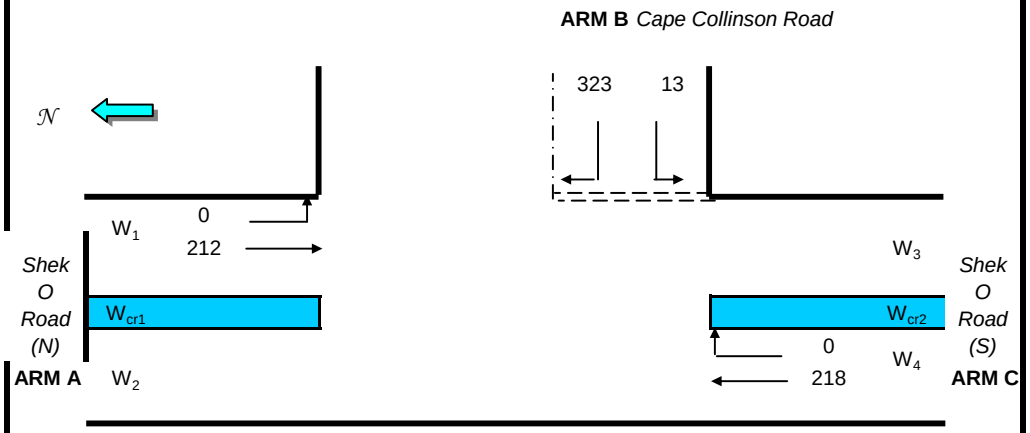
Prepared By: KC

Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 1 - Site 1

Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	211.93	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	218.27	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	322.98	(pcu/hr)
q_{b-c}	=	13.189	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

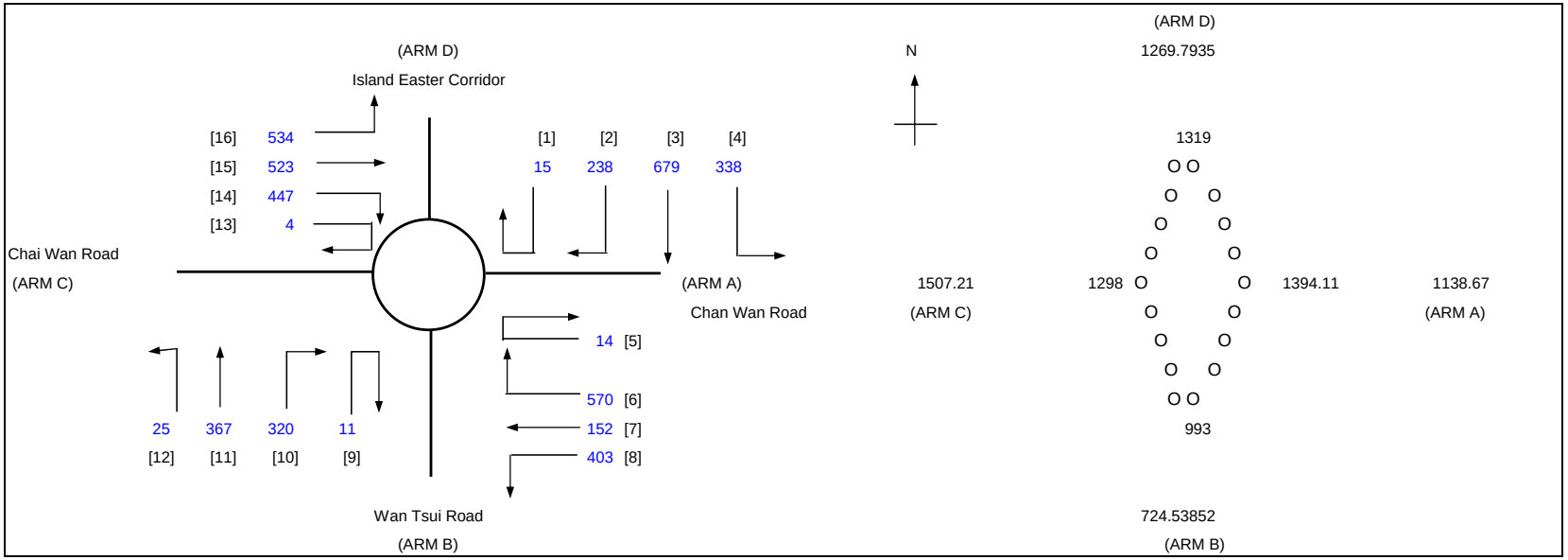
Q_{b-c}	=	688
Q_{c-b}	=	766
Q_{b-a}	=	336

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.961
DFC_{b-c}	=	0.019
DFC_{c-b}	=	0.000

Critical DFC = 0.961

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV1 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4_LV1_Sen2_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV1 Peak Hour			REVIEWED BY:	OC	Sep-13

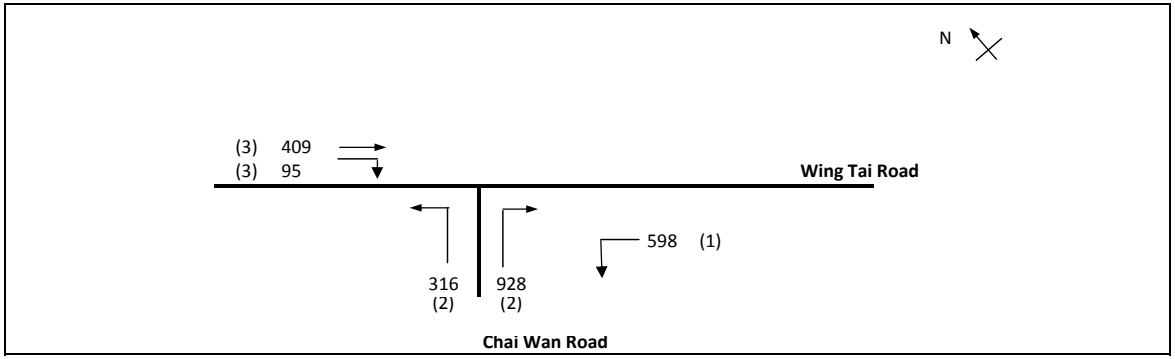


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	1139	725	1507	1270
Qc	=	Circulating flow across entry (pcu/h)	1394	993	1298	1319
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1411	920	1497	1225
DFC	=	Design flow/Capacity = Q/Qe	0.81	0.79	1.01	1.04

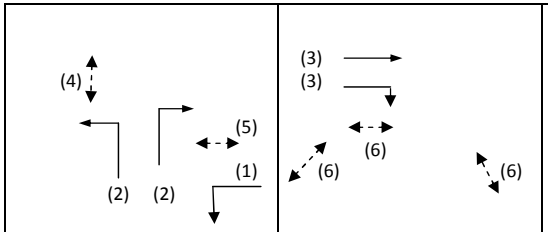
Total In Sum = 3341.11 PCU

DFC of Critical Approach = 1.04

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.360
Loss time		L =	10 sec
Total Flow		=	2346 pcu
Co	= (1.5*L+5)/(1-Y)	=	31.2 sec
Cm	= L/(1-Y)	=	15.6 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	129.4 %
Cp	= 0.9*L/(0.9-Y)	=	16.7 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	125.2 %



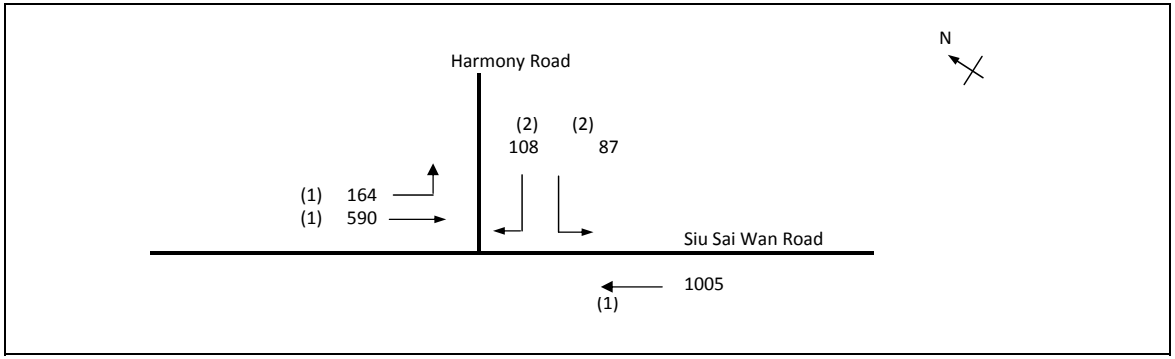
Stage A I = 7

Stage B I = 5

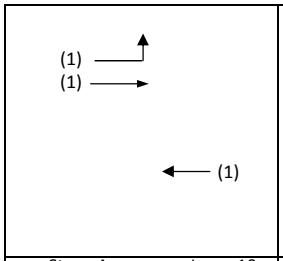
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	598			598	1.00	3857			3857	0.155			39	65	0.239	15	5
LT	A	4.00	2	2	24			4310	316			316	1.00	4056			4056	0.078			19	65	0.120	9	5
RT	A	3.50	2	2	11		y	4070			928	928	1.00	3582			3582	0.259	0.259		65	65	0.400	27	5
ST	B	3.50	3	2			y	4070		409		409	0.00	4070			4070	0.100	0.100		25	25	0.400	24	24
RT	B	4.50	3	2	13		y	4270			95	95	1.00	3828			3828	0.025			6	25	0.099	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

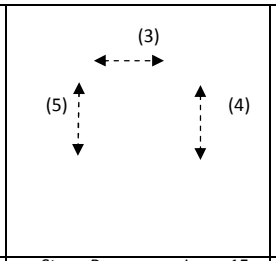
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



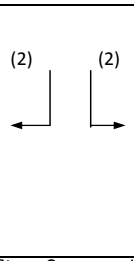
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.310	
Loss time	L =	48	sec
Total Flow	=	1954	pcu
Co = (1.5*L+5)/(1-Y)	=	111.6	sec
Cm = L/(1-Y)	=	69.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	74.0	%
Cp = 0.9*L/(0.9-Y)	=	73.3	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	50.8	%



Stage A I = 10



Stage B I = 15

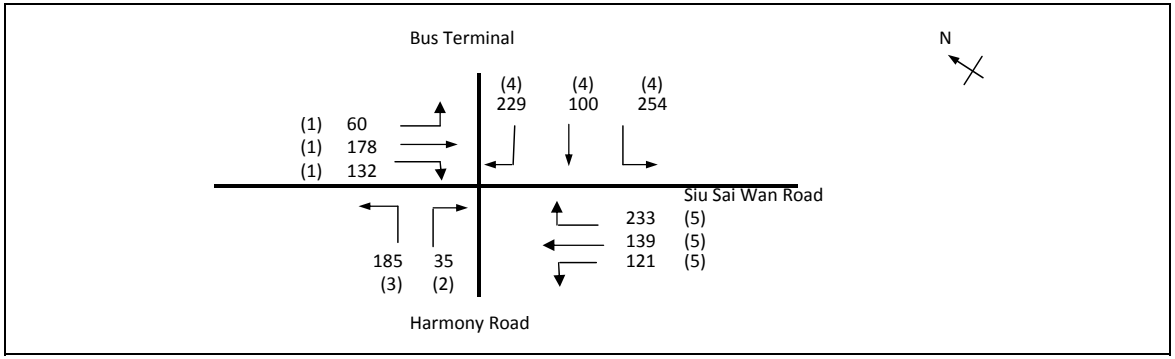


Stage C I = 6

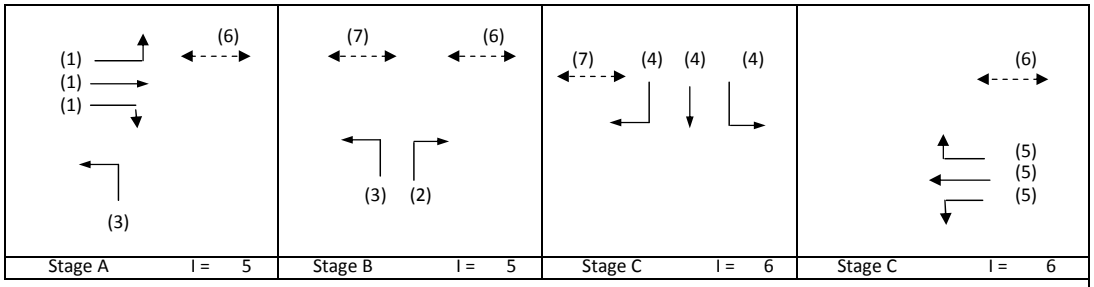
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	164	152		316	0.52	1817			1817	0.174			29	42	0.410	30	14
ST	A	3.20	1	1				2075		438		438	0.00	2075			2075	0.211			35	42	0.498	42	14
ST	A	3.00	1	2			y	3970		1005		1005	0.00	3970			3970	0.253	0.253		42	42	0.597	48	13
LT	C	3.75	2	1	12		y	1990	87			87	1.00	1769			1769	0.049			8	10	0.514	12	45
RT	C	3.75	2	1	12			2130			108	108	1.00	1893			1893	0.057	0.057		10	10	0.597	12	48
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.474
Loss time		L =	18 sec
Total Flow		=	1666 pcu
Co	= (1.5*L+5)/(1-Y)	=	60.8 sec
Cm	= L/(1-Y)	=	34.2 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	61.6 %
Cp	= 0.9*L/(0.9-Y)	=	38.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	57.5 %

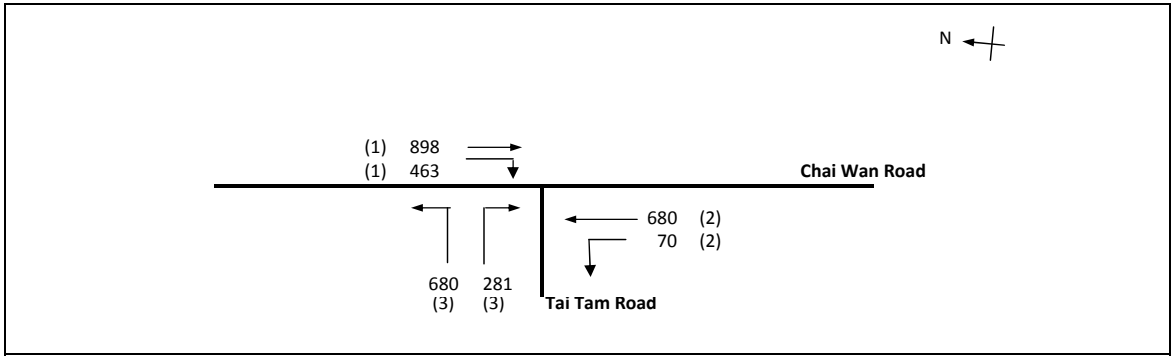


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

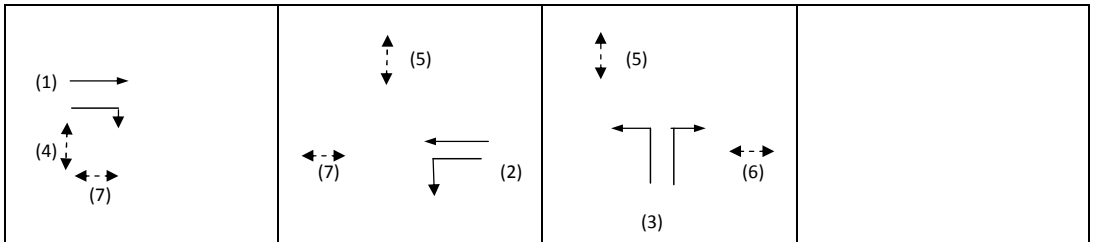
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18				
LT/ST	A	3.30	1	1	11		y	1945	60	81		141	0.43	1838			1838	0.077			14	22	0.373	18	30
ST/RT	A	3.30	1	1	12			2085		97	132	228	0.58	1945			1945	0.117	0.117		22	22	0.572	30	32
RT	B	3.50	2	1	12			2105			35	35	1.00	1871			1871	0.019	0.019		3	3	0.572	6	78
LT	A,B	3.75	3	1	13		y	1990	185			185	1.00	1784			1784	0.104			19	30	0.362	18	23
RT	C	3.50	4	1	12			2105			229	229	1.00	1871			1871	0.123			23	36	0.357	24	19
LT/ST	C	3.50	4	1	12		y	1965	254	100		354	0.72	1803			1803	0.196	0.196		36	36	0.572	36	20
ST/RT	D	3.50	5	1	12			2105			233	233	1.00	1871			1871	0.125			23	23	0.572	30	31
LT/ST	D	3.50	5	1	11		y	1965	121	139		260	0.47	1848			1848	0.141	0.141		26	26	0.572	30	28
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.706
Loss time		L =	18 sec
Total Flow		=	3071 pcu
Co	= (1.5*L+5)/(1-Y)	=	108.9 sec
Cm	= L/(1-Y)	=	61.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	8.3 %
Cp	= 0.9*L/(0.9-Y)	=	83.6 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	5.6 %

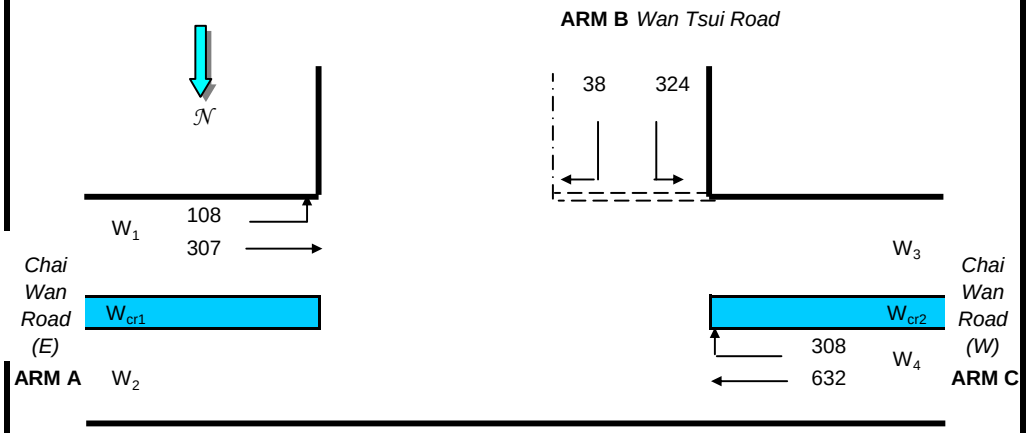


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		898		898	0.00	4120			4120	0.218			27	27	0.852	57	39
RT	A	3.00	1	1	13			2055			463	463	1.00	1842			1842	0.251	0.251		31	27	0.984	204	33
ST	B	3.50	2	2				4210		680		680	0.00	4210			4210	0.161	0.161		20	20	0.852	48	43
LT	B	3.10	2	1	12		y	1925	70			70	1.00	1711			1711	0.041			5	20	0.215	6	31
LT	C	4.00	3	1	15		y	2015	538			538	1.00	1832			1832	0.293	0.293		36	36	0.852	60	27
LT/RT	C	4.00	3	1	15			2155	142		281	423	1.00	1959			1959	0.216			27	36	0.627	48	20
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 1 - Site 1
Time - Level 1 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	107.87	(pcu/hr)
q_{a-c}	=	307.31	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	632.31	(pcu/hr)
q_{c-b}	=	308.38	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	38.071	(pcu/hr)
q_{b-c}	=	323.95	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

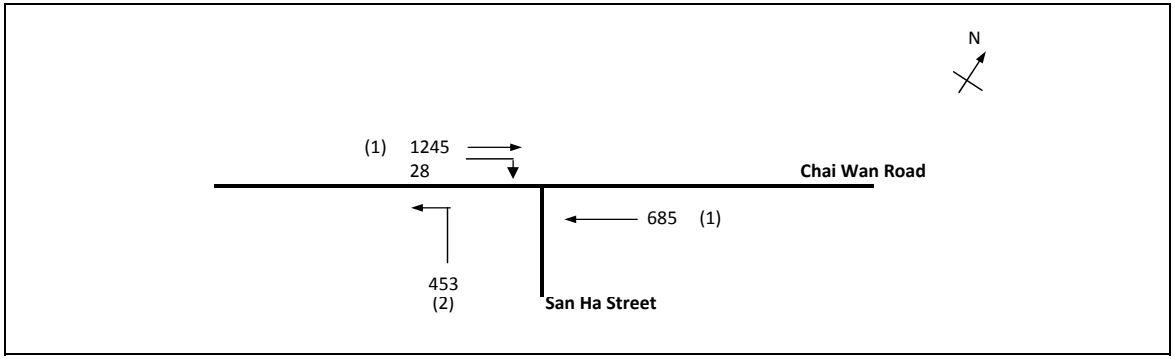
Q_{b-c}	=	781
Q_{c-b}	=	692
Q_{b-a}	=	357

COMPARISION OF DESIGN FLOW TO CAPACITY

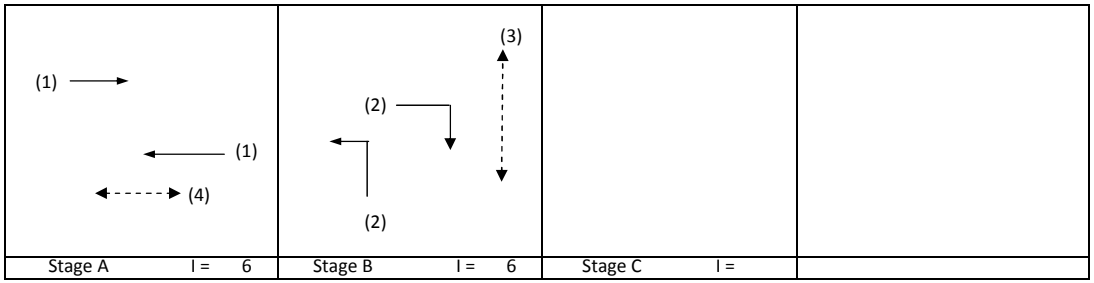
DFC_{b-a}	=	0.107
DFC_{b-c}	=	0.415
DFC_{c-b}	=	0.446

Critical DFC = 0.446

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.578
Loss time		L =	10 sec
Total Flow		=	2411 pcu
Co	= (1.5*L+5)/(1-Y)	=	47.4 sec
Cm	= L/(1-Y)	=	23.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	42.7 %
Cp	= 0.9*L/(0.9-Y)	=	27.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	40.2 %

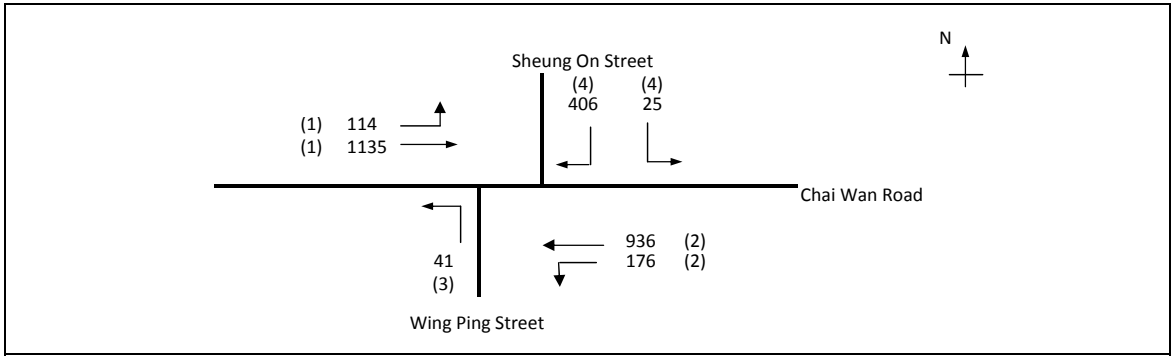


Stage A	I = 6	Stage B	I = 6	Stage C	I =

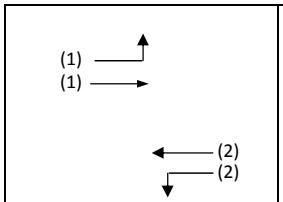
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1245		1245	0.00	4070			4070	0.306	0.306		48	47	0.651	54	10
ST	A	3.50	1	2	10		N	4070		685		685	0.00	4070			4070	0.168			26	47	0.358	30	11
LT	B	3.00	2	1	10		N	1915	453			453	1.00	1665			1665	0.272	0.272		42	53	0.514	30	9
RT	B	3.50	2	1	12			2105			28	28	1.00	1871			1871	0.015			2	53	0.028	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

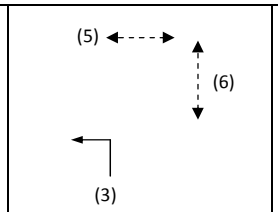
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



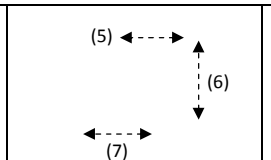
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.349
Loss time		L =	37 sec
Total Flow		=	2833 pcu
Co	= (1.5*L+5)/(1-Y)	=	92.9 sec
Cm	= L/(1-Y)	=	56.8 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	78.3 %
Cp	= 0.9*L/(0.9-Y)	=	60.4 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	78.3 %



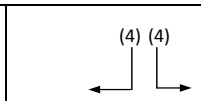
Stage A I = 8



Stage B I = 5



Stage C I = 7

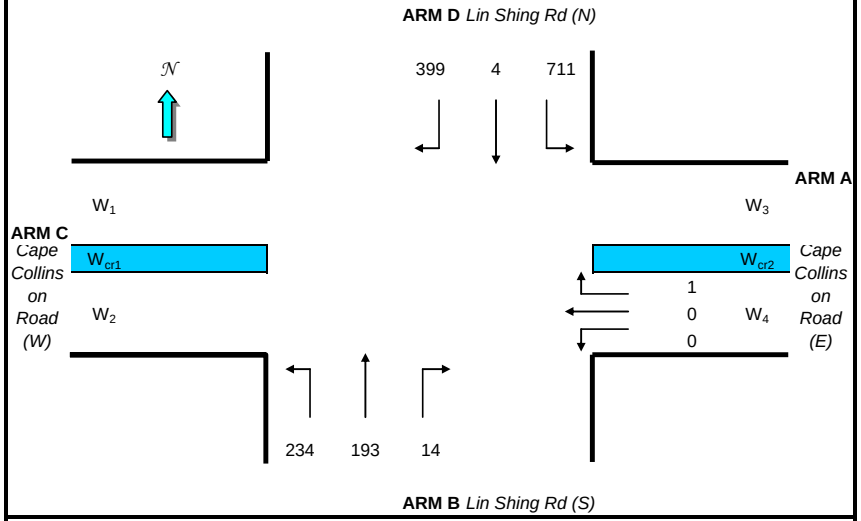


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	114	1135		1249	0.09	6105			6105	0.205	0.205		49		0.000	82	54
LT/ST	A	3.30	2	3	12		Y	6115	176	936		1112	0.16	5996			5996	0.185			44		0.000	74	54
LT	B	3.50	3	1	9		Y	1965	41			41	1.00	1684			1684	0.024	0.024		6		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	25		406	431	1.00	3583			3583	0.120	0.120		29		0.000	42	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	1	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	13.959	(pcu/hr)
q_{b-c}	=	234	(pcu/hr)
q_{b-d}	=	193.45	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	711	(pcu/hr)
q_{d-b}	=	4	(pcu/hr)
q_{d-c}	=	399	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

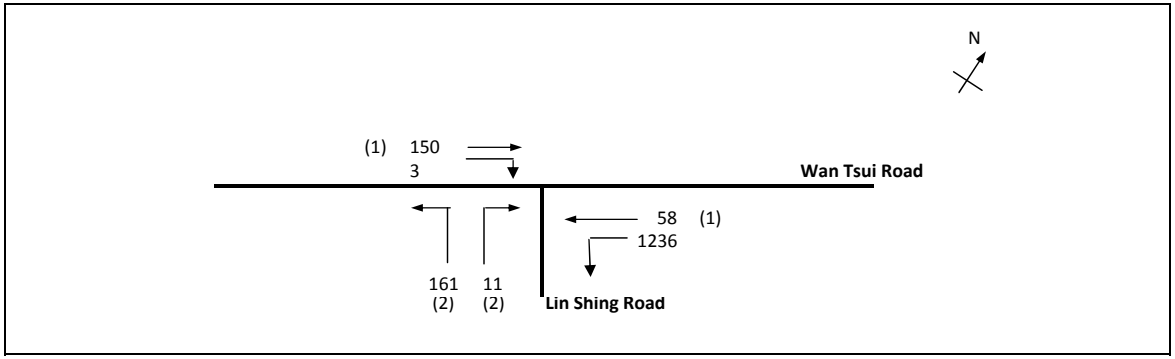
Q_{b-a}	=	377
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	414
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

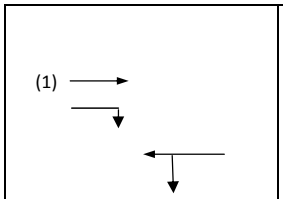
DFC_{b-a}	=	0.037
DFC_{b-c}	=	0.313
DFC_{b-d}	=	0.317
DFC_{d-a}	=	1.054
DFC_{d-b}	=	0.008
DFC_{d-c}	=	0.964
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.002

Critical DFC = 1.054

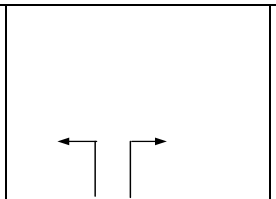
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



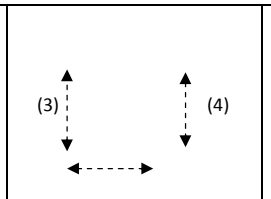
No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.735
Loss time		L =	25 sec
Total Flow		=	1444 pcu
Co	= (1.5*L+5)/(1-Y)	=	160.1 sec
Cm	= L/(1-Y)	=	94.2 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	-3.0 %
Cp	= 0.9*L/(0.9-Y)	=	136.0 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-3.0 %



Stage A I = 7



Stage B I =



Stage C I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		150		150	0.00	1915			1915	0.078			10	95	0.099	6	2
ST/LT	A	4.00	1	1	10		N	2015	1236	58		1295	0.95	1763			1763	0.735	0.735		95	95	0.928	60	4
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (

Junction Capacity Analysis

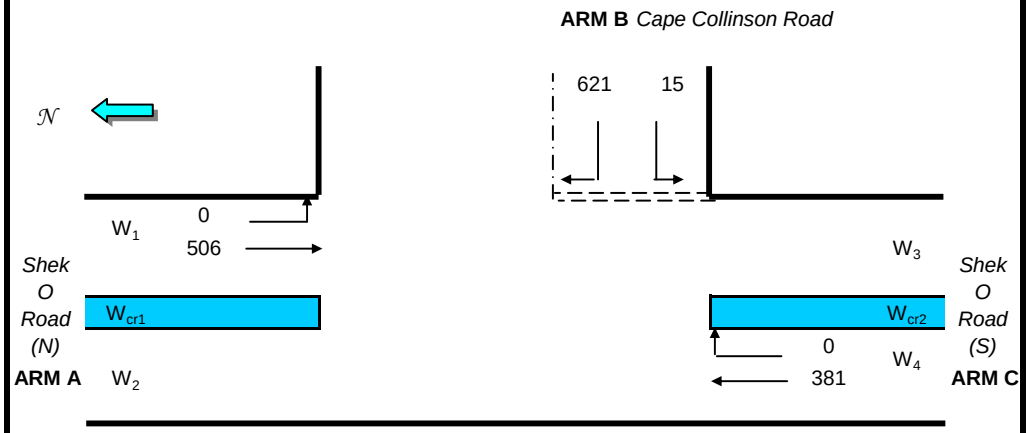
Prepared By: KC

Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road

Design Year - 2021 Level 2 - Reference Case

Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	506	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	381	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	621	(pcu/hr)
q_{b-c}	=	15	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

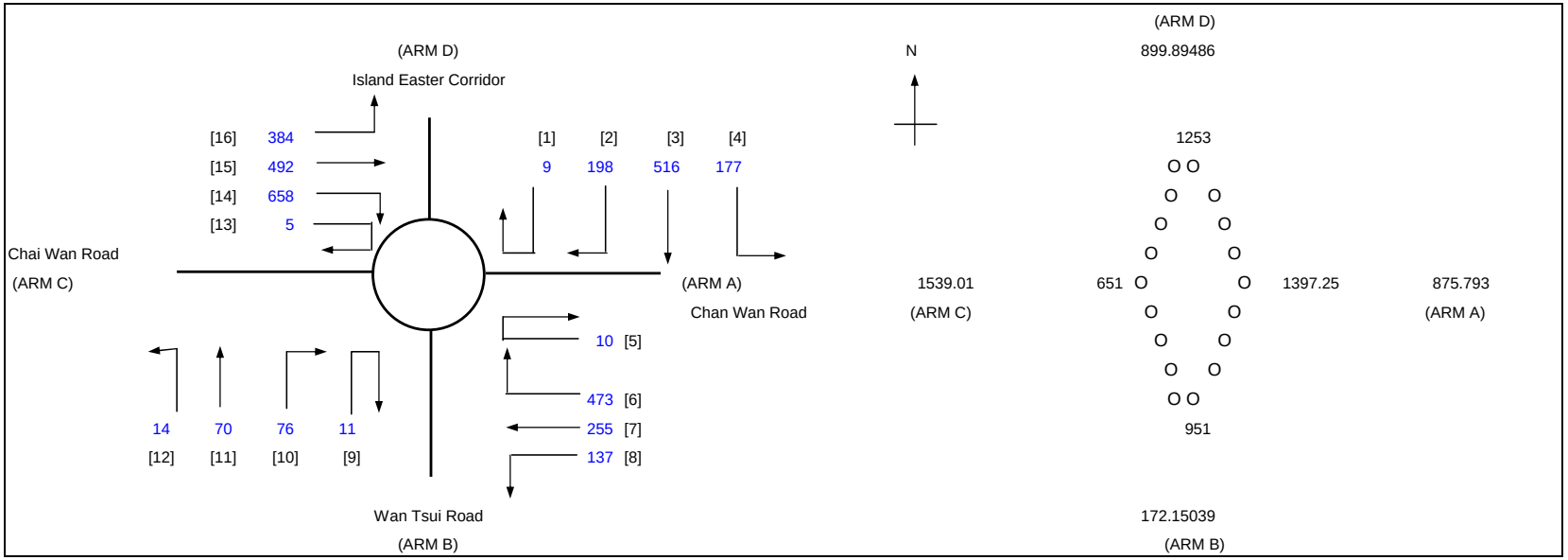
Q_{b-c}	=	613
Q_{c-b}	=	682
Q_{b-a}	=	273

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	2.279
DFC_{b-c}	=	0.025
DFC_{c-b}	=	0.000

Critical DFC = 2.279

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4LV2_Sen2_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

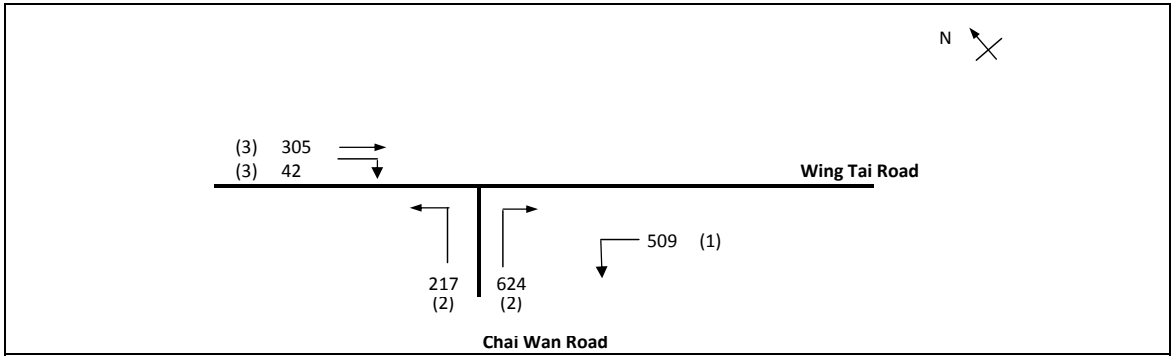


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	876	172	1539	900
Qc	=	Circulating flow across entry (pcu/h)	1397	951	651	1253
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1409	944	1987	1271
DFC	=	Design flow/Capacity = Q/Qe	0.62	0.18	0.77	0.71

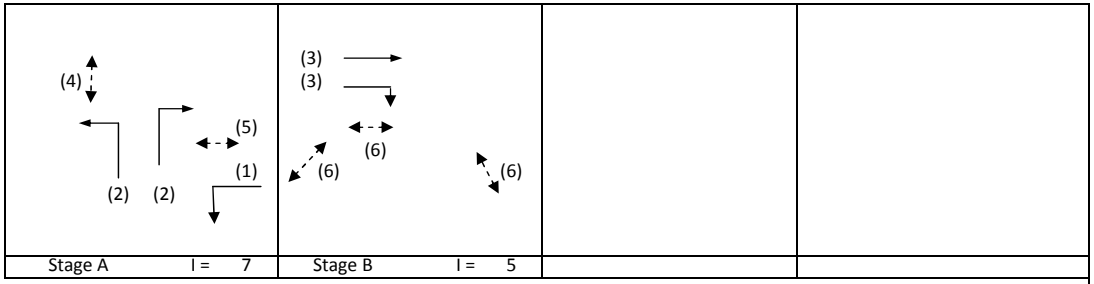
Total In Sum = 2774.98 PCU

DFC of Critical Approach = 0.77

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.249	
Loss time	L =	10	sec
Total Flow	=	1697	pcu
Co = (1.5*L+5)/(1-Y)	=	26.6	sec
Cm = L/(1-Y)	=	13.3	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	231.1	%
Cp = 0.9*L/(0.9-Y)	=	13.8	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	225.0	%

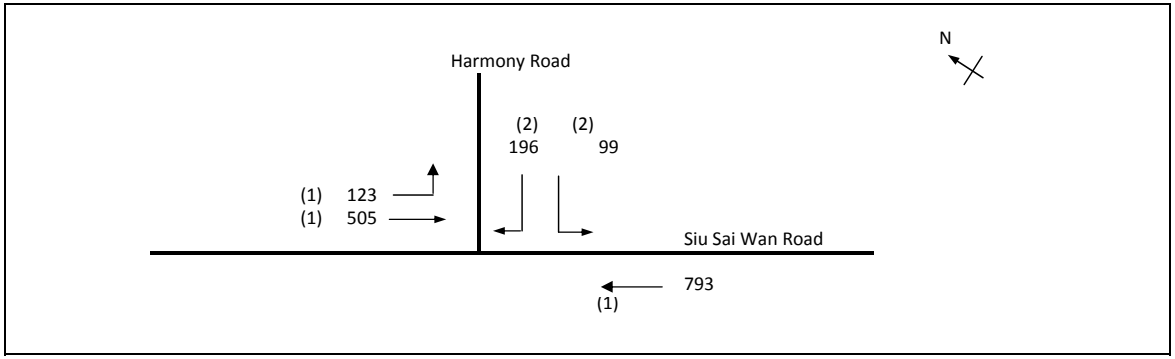


Stage A I = 7 Stage B I = 5

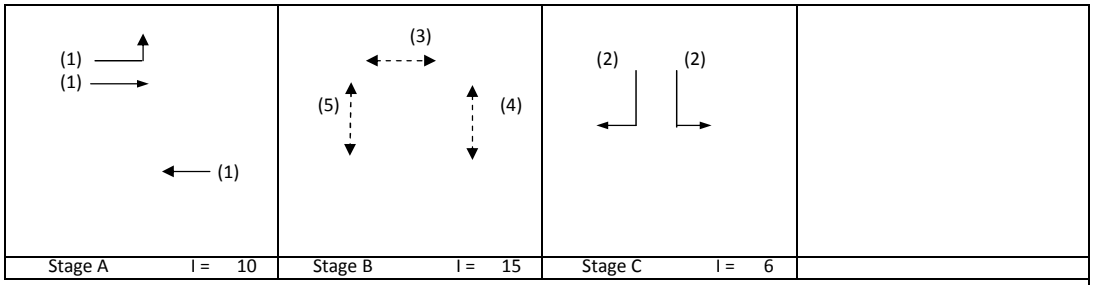
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	509			509	1.00	3857			3857	0.132			48	63	0.210	15	6
LT	A	4.00	2	2	24			4310	217			217	1.00	4056			4056	0.054			19	63	0.085	6	6
RT	A	3.50	2	2	11		y	4070			624	624	1.00	3582			3582	0.174	0.174		63	63	0.277	18	5
ST	B	3.50	3	2			y	4070		305		305	0.00	4070			4070	0.075	0.075		27	27	0.277	18	23
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			4	27	0.040	0	24
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.303	
Loss time	L =	48	sec
Total Flow	=	1716	pcu
Co = (1.5*L+5)/(1-Y)	=	110.5	sec
Cm = L/(1-Y)	=	68.9	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	77.9	%
Cp = 0.9*L/(0.9-Y)	=	72.4	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	54.2	%

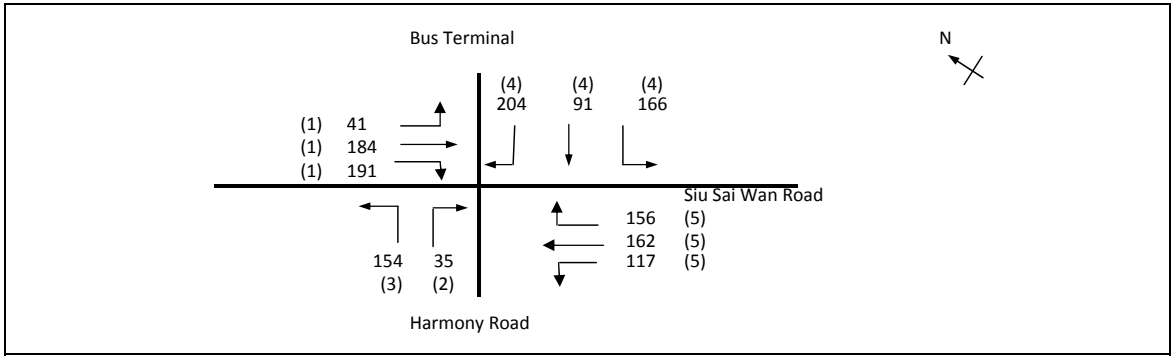


Stage A I = 10 | Stage B I = 15 | Stage C I = 6

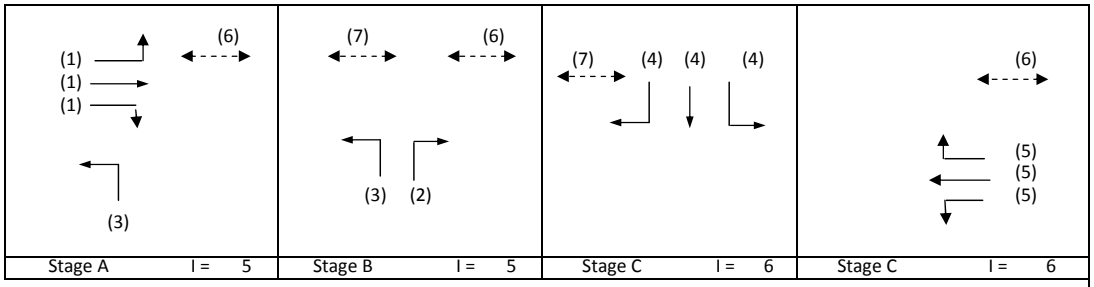
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	123	152		275	0.45	1833			1833	0.150			26	34	0.438	30	19
ST	A	3.20	1	1				2075		353		353	0.00	2075			2075	0.170			29	34	0.496	36	18
ST	A	3.00	1	2			y	3970		793		793	0.00	3970			3970	0.200	0.200		34	34	0.584	42	17
LT	C	3.75	2	1	12		y	1990	99			99	1.00	1769			1769	0.056			10	18	0.315	12	31
RT	C	3.75	2	1	12			2130			196	196	1.00	1893			1893	0.104	0.104		18	18	0.584	24	34
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	4
Cycle time		C =	105 sec
Sum(y)		Y =	0.396
Loss time		L =	18 sec
Total Flow		=	1501 pcu
Co	= (1.5*L+5)/(1-Y)	=	53.0 sec
Cm	= L/(1-Y)	=	29.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	93.2 %
Cp	= 0.9*L/(0.9-Y)	=	32.1 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	88.4 %

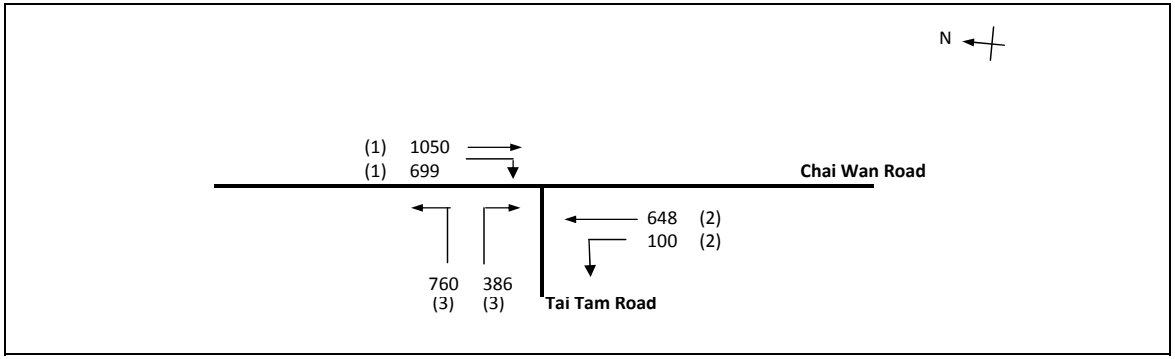


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

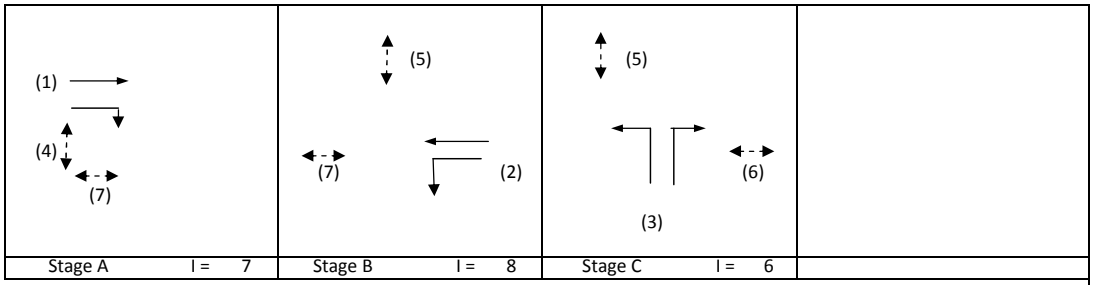
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																			18					
LT/ST	A	3.30	1	1	11		y	1945	41	81		122	0.34	1860			1860	0.066			14	33	0.206	12	21
ST/RT	A	3.30	1	1	12			2085		103	191	294	0.65	1928			1928	0.152	0.152		33	33	0.478	30	21
RT	B	3.50	2	1	12			2105			35	35	1.00	1871			1871	0.019	0.019		4	4	0.478	6	63
LT	A,B	3.75	3	1	13		y	1990	154			154	1.00	1784			1784	0.086			19	43	0.212	12	16
RT	C	3.50	4	1	12			2105			204	204	1.00	1871			1871	0.109			24	31	0.369	24	23
LT/ST	C	3.50	4	1	12		y	1965	166	91		257	0.64	1818			1818	0.141	0.141		31	31	0.478	30	23
ST/RT	D	3.50	5	1	12			2105		0	156	156	1.00	1871			1871	0.083	0.083		18	18	0.478	18	34
LT/ST	D	3.50	5	1	11		y	1965	117	162		279	0.42	1859			1859	0.150			33	33	0.478	30	21
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.850
Loss time		L =	18 sec
Total Flow		=	3644 pcu
Co	= (1.5*L+5)/(1-Y)	=	214.0 sec
Cm	= L/(1-Y)	=	120.4 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-10.0 %
Cp	= 0.9*L/(0.9-Y)	=	327.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-12.3 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		1050		1050	0.00	4070			4070	0.258			26	26	1.026	66	42
RT	A	3.50	1	1	13			2105			699	699	1.00	1887			1887	0.371	0.371		38	26	1.473	90	37
ST	B	3.50	2	2				4210		648		648	0.00	4210			4210	0.154	0.154		16	16	1.026	48	46
LT	B	3.10	2	1	12		y	1925	100			100	1.00	1711			1711	0.059			6	16	0.391	12	36
LT	C	4.00	3	1	15		y	2015	597			597	1.00	1832			1832	0.326	0.326		33	33	1.026	66	29
LT/RT	C	4.00	3	1	15			2155	163		386	549	1.00	1959			1959	0.280			29	33	0.883	60	29
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

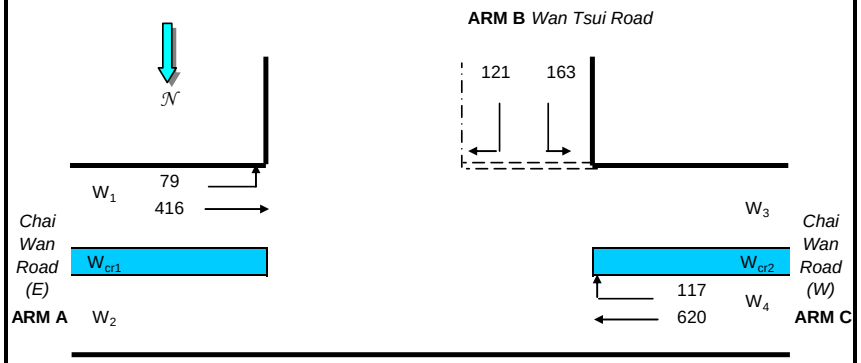
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 2 - Reference Case
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	78.68	(pcu/hr)
q_{a-c}	=	416	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	620	(pcu/hr)
q_{c-b}	=	116.75	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	121	(pcu/hr)
q_{b-c}	=	163	(pcu/hr)

GEOMETRIC PARAMETERS

D	=	0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

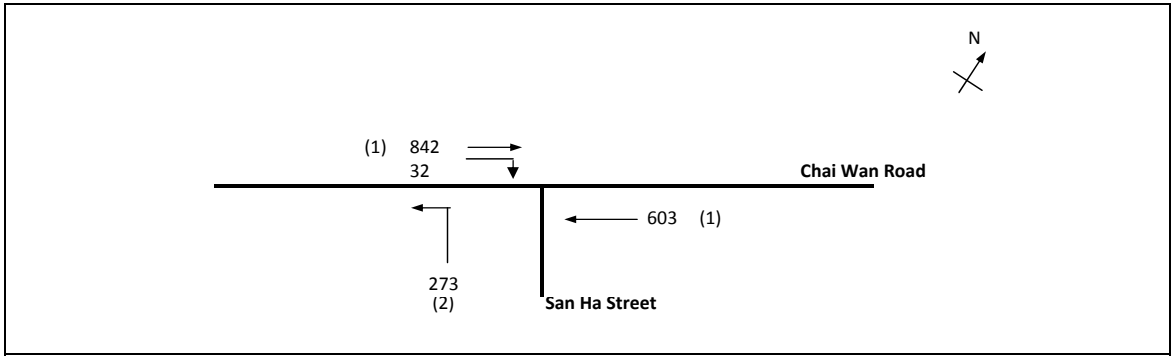
Q_{b-c}	=	768
Q_{c-b}	=	683
Q_{b-a}	=	371

COMPARISION OF DESIGN FLOW TO CAPACITY

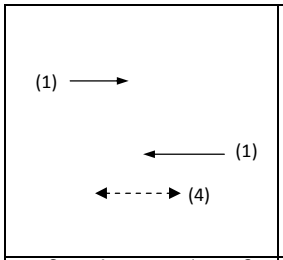
DFC_{b-a}	=	0.325
DFC_{b-c}	=	0.212
DFC_{c-b}	=	0.171

Critical DFC = 0.325

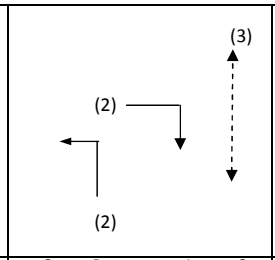
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2	
Cycle time		C =	100	sec
Sum(y)		Y =	0.371	
Loss time		L =	10	sec
Total Flow		=	1749	pcu
Co	= (1.5*L+5)/(1-Y)	=	31.8	sec
Cm	= L/(1-Y)	=	15.9	sec
Yult		=	0.825	
R.C.ult	= (Yult-Y)/Y*100%	=	122.6	%
Cp	= 0.9*L/(0.9-Y)	=	17.0	sec
Ymax	= 1-L/C	=	0.900	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	118.6	%



Stage A I = 6



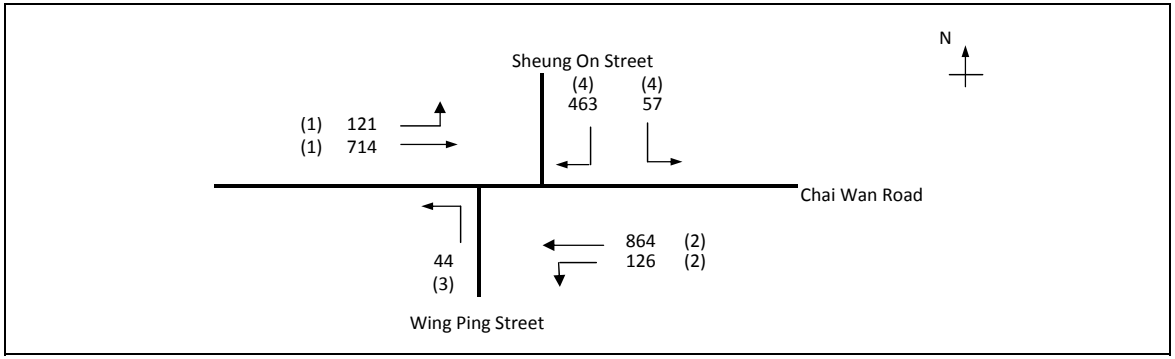
Stage B I = 6

Stage C I =

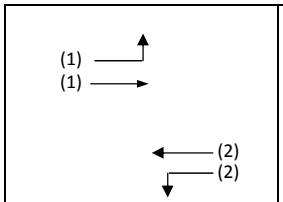
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		842		842	0.00	4070			4070	0.207	0.207		50	47	0.440	36	11
ST	A	3.50	1	2	10		N	4070		603		603	0.00	4070			4070	0.148			36	47	0.315	24	11
LT	B	3.00	2	1	10		N	1915	273			273	1.00	1665			1665	0.164	0.164		40	53	0.309	18	9
RT	B	3.50	2	1	12			2105			32	32	1.00	1871			1871	0.017			4	53	0.032	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

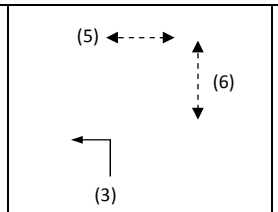
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



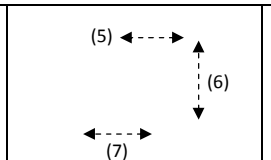
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.336
Loss time		L =	37 sec
Total Flow		=	2389 pcu
Co	= (1.5*L+5)/(1-Y)	=	91.1 sec
Cm	= L/(1-Y)	=	55.7 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	85.2 %
Cp	= 0.9*L/(0.9-Y)	=	59.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	85.2 %



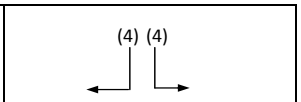
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

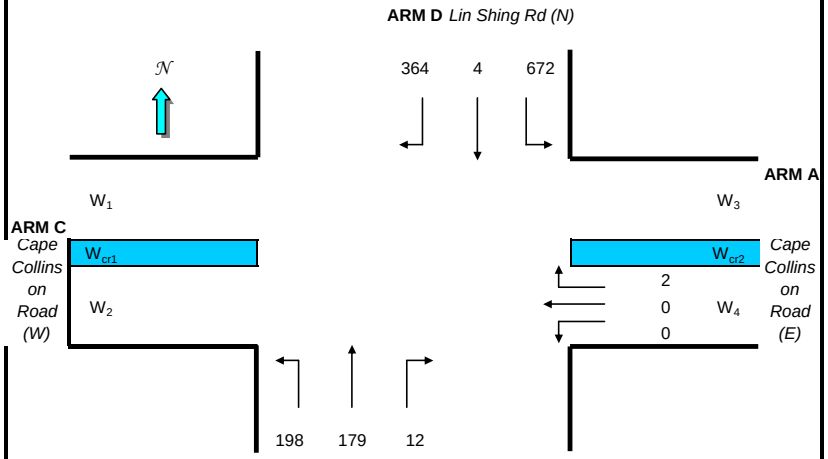
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	121	714		835	0.14	6066			6066	0.138			34		0.000	54	54
LT/ST	A	3.30	2	3	12		Y	6115	126	864		989	0.13	6019			6019	0.164	0.164		41		0.000	64	54
LT	B	3.50	3	1	9		Y	1965	44			44	1.00	1684			1684	0.026	0.026		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	57		463	521	1.00	3583			3583	0.145	0.145		36		0.000	51	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a | **Prepared By:** KC

Junction Capacity Analysis | **Checked By:** OC

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	2	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	11.633	(pcu/hr)
q_{b-c}	=	197.53	(pcu/hr)
q_{b-d}	=	178.53	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	672.35	(pcu/hr)
q_{d-b}	=	3.909	(pcu/hr)
q_{d-c}	=	363.85	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

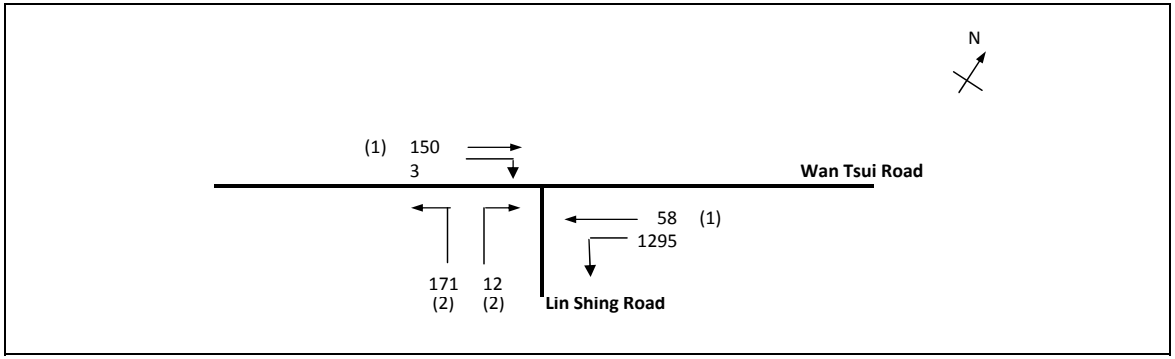
Q_{b-a}	=	393
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	532
Q_{d-c}	=	427
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

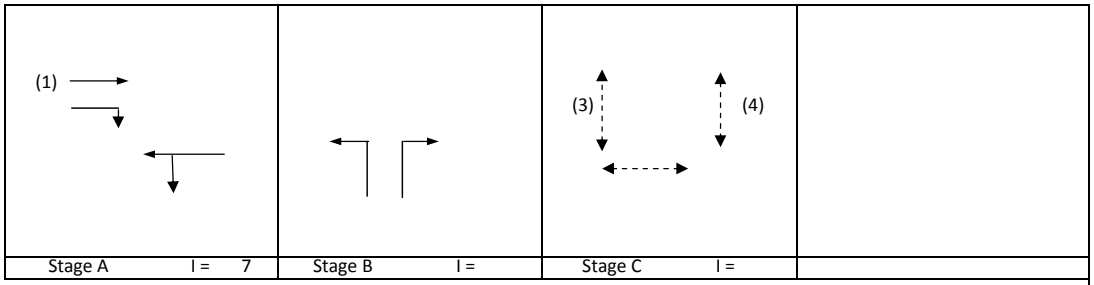
DFC_{b-a}	=	0.030
DFC_{b-c}	=	0.264
DFC_{b-d}	=	0.292
DFC_{d-a}	=	0.997
DFC_{d-b}	=	0.007
DFC_{d-c}	=	0.853
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.003

Critical DFC = 0.997

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.768
Loss time		L =	25 sec
Total Flow		=	1503 pcu
Co	= (1.5*L+5)/(1-Y)	=	183.2 sec
Cm	= L/(1-Y)	=	107.8 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	-7.2 %
Cp	= 0.9*L/(0.9-Y)	=	170.5 sec
Ymax	= 1-L/C	=	0.792
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-7.2 %

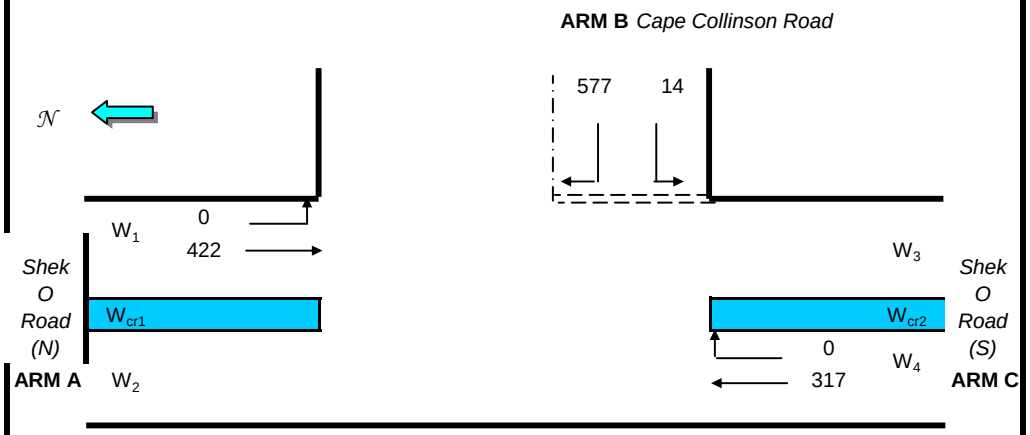


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		150		150	0.00	1915			1915	0.078			10	95	0.099	6	2
ST/LT	A	4.00	1	1	10		N	2015	1295	58		1353	0.96	1762			1762	0.768	0.768		95	95	0.970	114	4
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	421.95	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	317.26	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	576.87	(pcu/hr)
q_{b-c}	=	14.212	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

Q_{b-c}	=	634
Q_{c-b}	=	706
Q_{b-a}	=	293

COMPARISION OF DESIGN FLOW TO CAPACITY

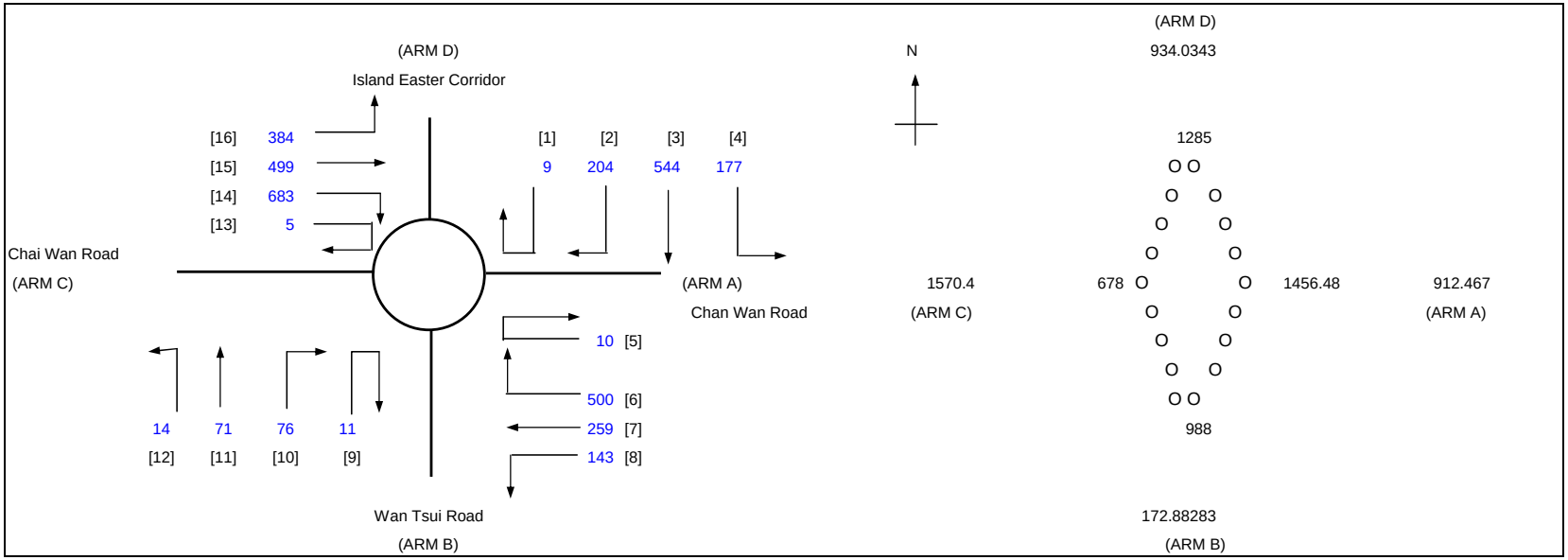
DFC_{b-a}	=	1.972
DFC_{b-c}	=	0.022
DFC_{c-b}	=	0.000

Critical DFC = 1.972

REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV2 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4_LV2_Sen2_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV2 Peak Hour			REVIEWED BY:	OC	Sep-13

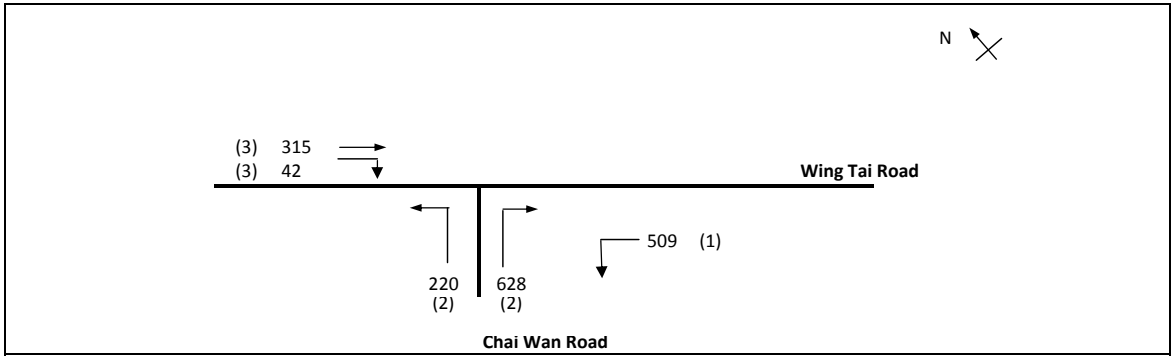


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	912	173	1570	934
Qc	=	Circulating flow across entry (pcu/h)	1456	988	678	1285
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1364	923	1966	1249
DFC	=	Design flow/Capacity = Q/Qe	0.67	0.19	0.80	0.75

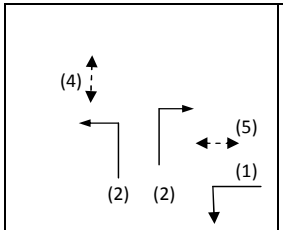
Total In Sum = 2872.18 PCU

DFC of Critical Approach = 0.80

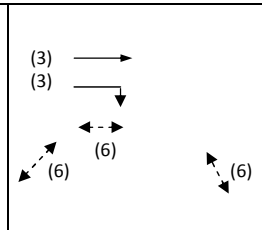
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.253
Loss time		L =	10 sec
Total Flow		=	1713 pcu
Co	= (1.5*L+5)/(1-Y)	=	26.8 sec
Cm	= L/(1-Y)	=	13.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	226.7 %
Cp	= 0.9*L/(0.9-Y)	=	13.9 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	220.8 %



Stage A I = 7

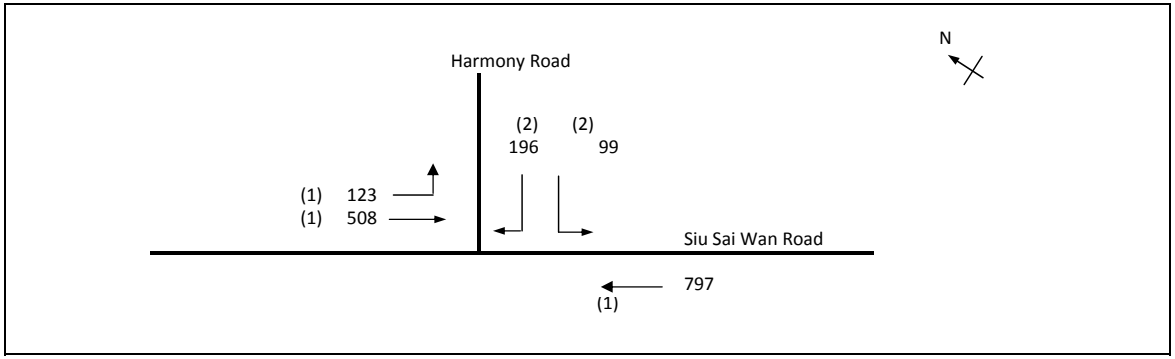


Stage B I = 5

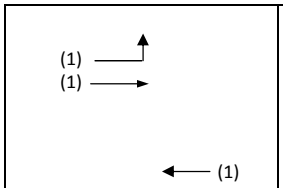
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	509			509	1.00	3857			3857	0.132			47	62	0.211	15	6
LT	A	4.00	2	2	24			4310	220			220	1.00	4056			4056	0.054			19	62	0.087	6	6
RT	A	3.50	2	2	11		y	4070			628	628	1.00	3582			3582	0.175	0.175		62	62	0.281	18	6
ST	B	3.50	3	2			y	4070		315		315	0.00	4070			4070	0.077	0.077		28	28	0.281	18	22
RT	B	4.50	3	2	13		y	4270			42	42	1.00	3828			3828	0.011			4	28	0.040	0	23
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

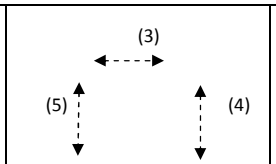
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



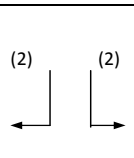
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.305	
Loss time	L =	48	sec
Total Flow	=	1723	pcu
Co = (1.5*L+5)/(1-Y)	=	110.7	sec
Cm = L/(1-Y)	=	69.0	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	77.3	%
Cp = 0.9*L/(0.9-Y)	=	72.5	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	53.7	%



Stage A I = 10



Stage B I = 15

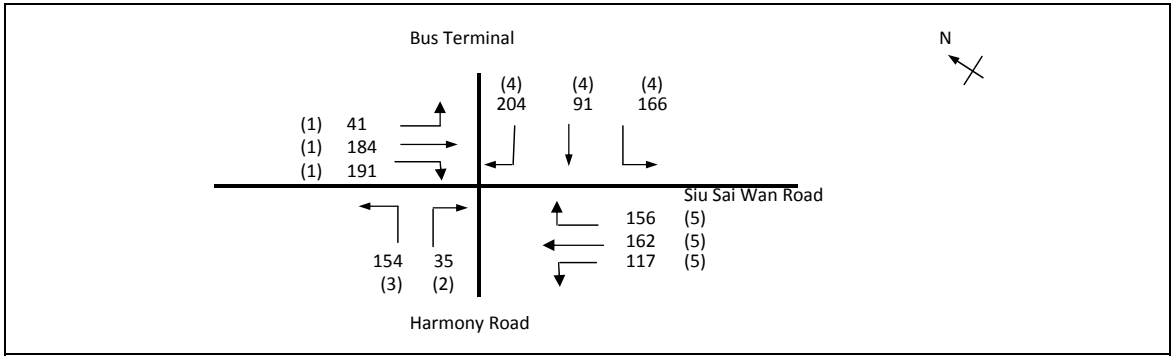


Stage C I = 6

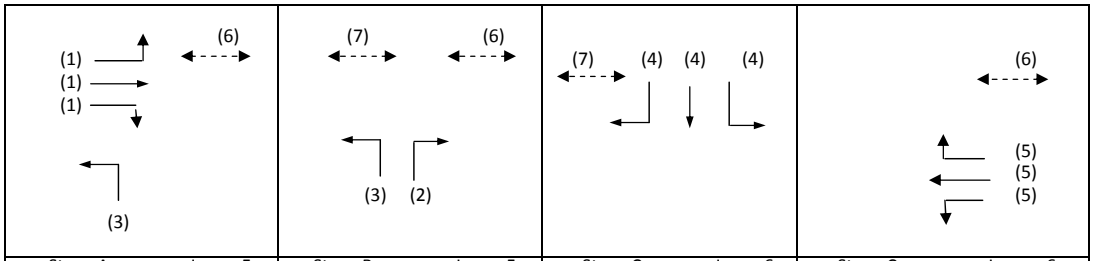
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	123	152		275	0.45	1833			1833	0.150			26	34	0.437	30	19
ST	A	3.20	1	1				2075		356		356	0.00	2075			2075	0.171			29	34	0.500	36	18
ST	A	3.00	1	2			y	3970		797		797	0.00	3970			3970	0.201	0.201		34	34	0.586	42	17
LT	C	3.75	2	1	12		y	1990	99			99	1.00	1769			1769	0.056			10	18	0.316	12	31
RT	C	3.75	2	1	12			2130			196	196	1.00	1893			1893	0.104	0.104		18	18	0.586	24	34
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.396	
Loss time	L =	18	sec
Total Flow	=	1501	pcu
Co = (1.5*L+5)/(1-Y)	=	53.0	sec
Cm = L/(1-Y)	=	29.8	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	93.2	%
Cp = 0.9*L/(0.9-Y)	=	32.1	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	88.4	%

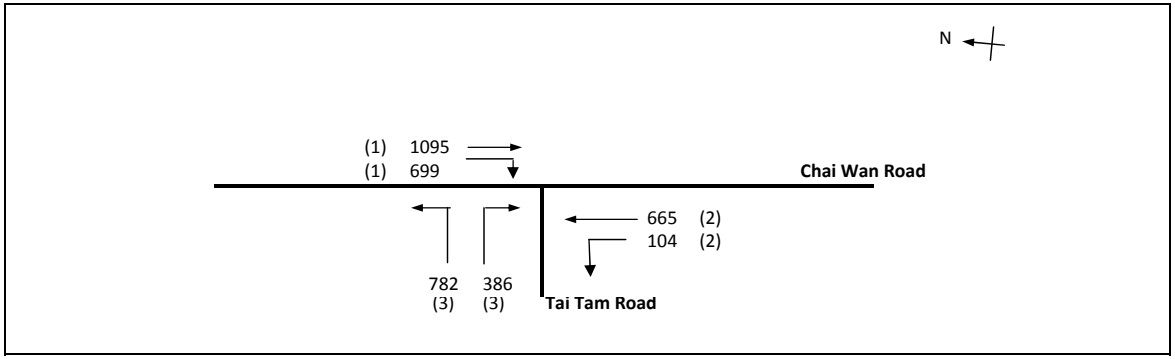


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

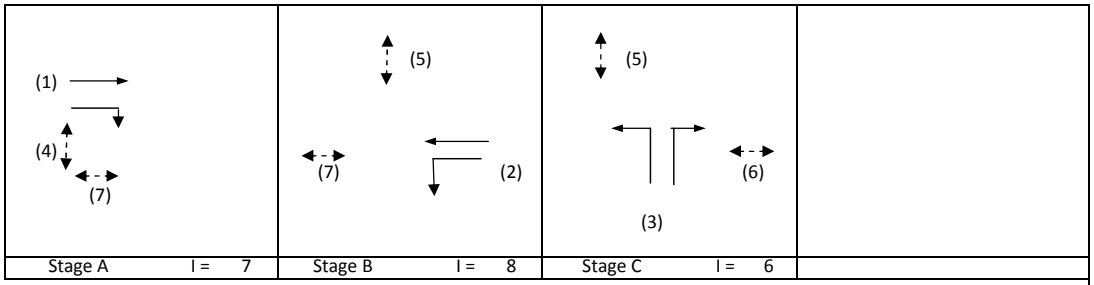
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																			18					
LT/ST	A	3.30	1	1	11		y	1945	41	81		122	0.34	1860			1860	0.066			14	33	0.206	12	21
ST/RT	A	3.30	1	1	12			2085		103	191	294	0.65	1928			1928	0.152	0.152		33	33	0.478	30	21
RT	B	3.50	2	1	12			2105			35	35	1.00	1871			1871	0.019	0.019		4	4	0.478	6	63
LT	A,B	3.75	3	1	13		y	1990	154			154	1.00	1784			1784	0.086			19	43	0.212	12	16
RT	C	3.50	4	1	12			2105			204	204	1.00	1871			1871	0.109			24	31	0.369	24	23
LT/ST	C	3.50	4	1	12		y	1965	166	91		257	0.64	1818			1818	0.141	0.141		31	31	0.478	30	23
ST/RT	D	3.50	5	1	12			2105			156	156	1.00	1871			1871	0.083	0.083		18	18	0.478	18	34
LT/ST	D	3.50	5	1	11		y	1965	117	162		279	0.42	1859			1859	0.150			33	33	0.478	30	21
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.807
Loss time		L =	18 sec
Total Flow		=	3732 pcu
Co	= (1.5*L+5)/(1-Y)	=	165.9 sec
Cm	= L/(1-Y)	=	93.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-5.2 %
Cp	= 0.9*L/(0.9-Y)	=	174.3 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-7.6 %

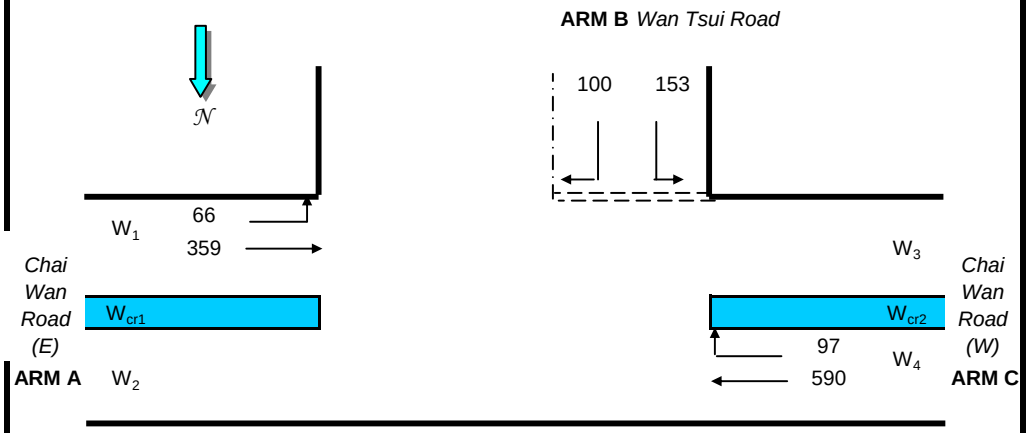


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		1095		1095	0.00	4120			4120	0.266			29	29	0.974	99	40
RT	A	3.00	1	1	13			2055			699	699	1.00	1842			1842	0.380	0.380		41	29	1.390	84	34
ST	B	3.50	2	2				4210		665		665	0.00	4210			4210	0.158	0.158		17	17	0.974	87	45
LT	B	3.10	2	1	12		y	1925	104			104	1.00	1711			1711	0.061			7	17	0.376	12	35
LT	C	4.00	3	1	15		y	2015	640			640	1.00	1832			1832	0.349			38	38	0.974	144	26
LT/RT	C	4.00	3	1	15			2155	142		386	528	1.00	1959			1959	0.270	0.270		29	38	0.752	54	21
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 2 - Site 1
Time - Level 2 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	65.567	(pcu/hr)
q_{a-c}	=	359.46	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	590.35	(pcu/hr)
q_{c-b}	=	97.293	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	100.47	(pcu/hr)
q_{b-c}	=	153.28	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

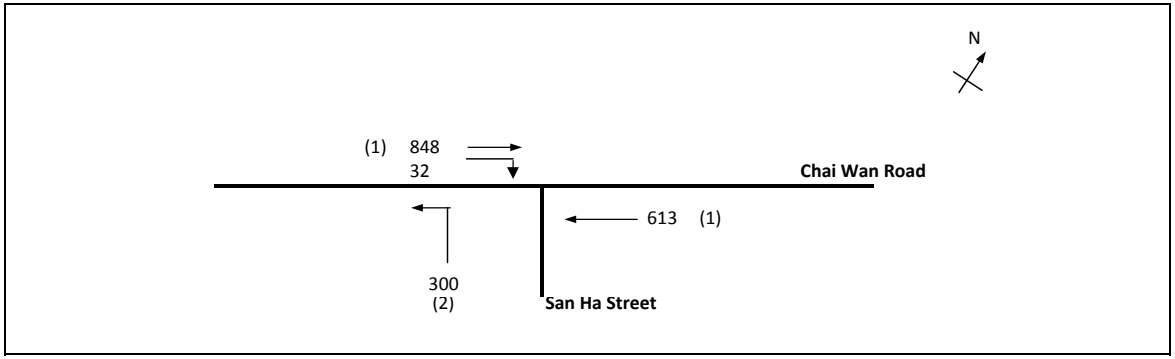
Q_{b-c}	=	776
Q_{c-b}	=	691
Q_{b-a}	=	380

COMPARISION OF DESIGN FLOW TO CAPACITY

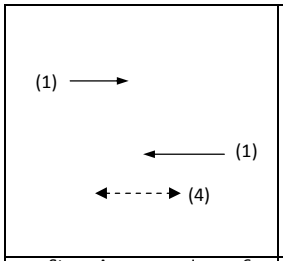
DFC_{b-a}	=	0.264
DFC_{b-c}	=	0.197
DFC_{c-b}	=	0.141

Critical DFC = 0.264

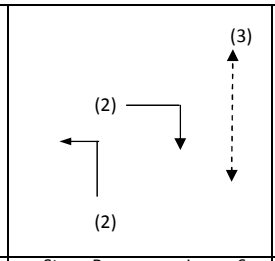
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.388
Loss time		L =	10 sec
Total Flow		=	1792 pcu
Co	= (1.5*L+5)/(1-Y)	=	32.7 sec
Cm	= L/(1-Y)	=	16.3 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	112.5 %
Cp	= 0.9*L/(0.9-Y)	=	17.6 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	108.6 %



Stage A I = 6



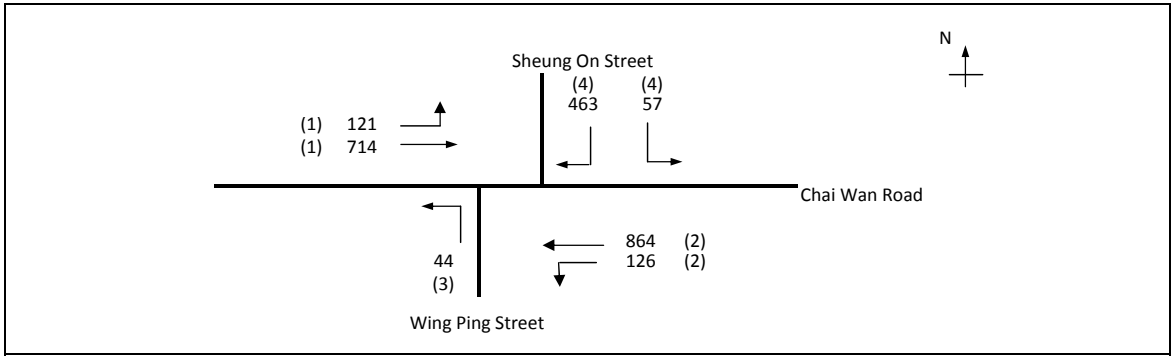
Stage B I = 6

Stage C I =

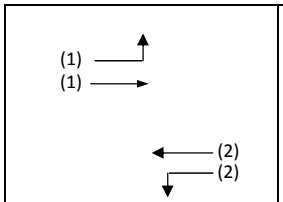
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		848		848	0.00	4070			4070	0.208	0.208		48	47	0.443	36	11
ST	A	3.50	1	2	10		N	4070		613		613	0.00	4070			4070	0.151			35	47	0.320	27	11
LT	B	3.00	2	1	10		N	1915	300			300	1.00	1665			1665	0.180	0.180		42	53	0.339	18	9
RT	B	3.50	2	1	12			2105			32	32	1.00	1871			1871	0.017			4	53	0.032	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

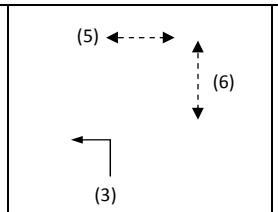
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



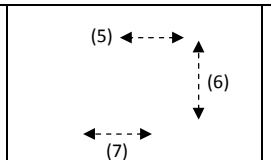
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.336
Loss time		L =	37 sec
Total Flow		=	2389 pcu
Co	= (1.5*L+5)/(1-Y)	=	91.1 sec
Cm	= L/(1-Y)	=	55.7 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	85.2 %
Cp	= 0.9*L/(0.9-Y)	=	59.0 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	85.2 %



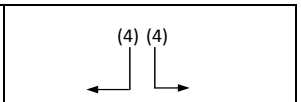
Stage A I = 8



Stage B I = 5



Stage C I = 7

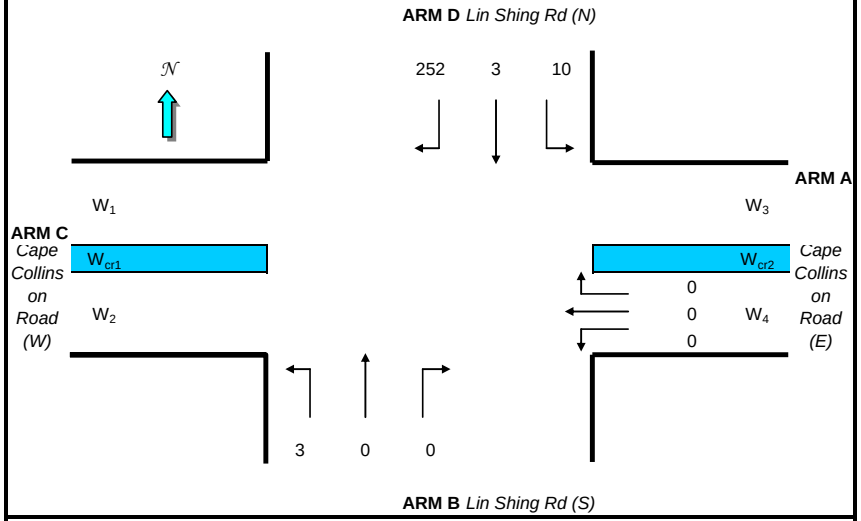


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	121	714		835	0.14	6066			6066	0.138			34		0.000	54	54
LT/ST	A	3.30	2	3	12		Y	6115	126	864		989	0.13	6019			6019	0.164	0.164		41		0.000	64	54
LT	B	3.50	3	1	9		Y	1965	44			44	1.00	1684			1684	0.026	0.026		7		0.000	6	54
LT/RT	D	3.75	4	2	10		y	4120	57		463	521	1.00	3583			3583	0.145	0.145		36		0.000	51	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	3	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	10	(pcu/hr)
q_{d-b}	=	3	(pcu/hr)
q_{d-c}	=	252	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

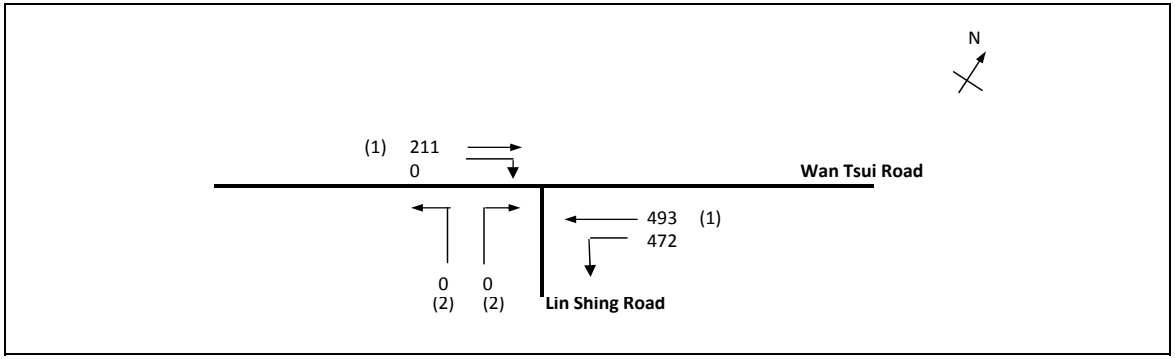
Q_{b-a}	=	610
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

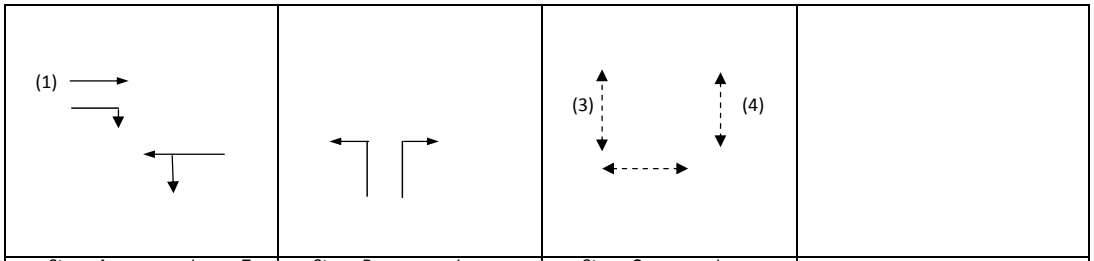
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.015
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.487
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.487

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.514	
Loss time	L =	25	sec
Total Flow	=	1176	pcu
Co = (1.5*L+5)/(1-Y)	=	87.5	sec
Cm = L/(1-Y)	=	51.5	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	38.5	%
Cp = 0.9*L/(0.9-Y)	=	58.3	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	38.5	%



Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		211		211	0.00	1915			1915	0.110			20	95	0.139	6	2
ST/LT	A	4.00	1	1	10		N	2015	472	493		965	0.49	1877			1877	0.514	0.514		95	95	0.650	36	3
Ped	B	6.0	3																	20					

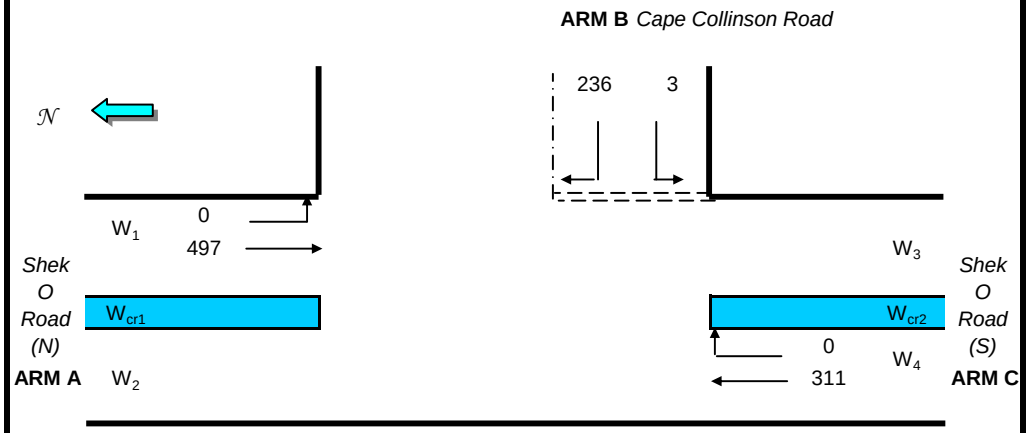
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Halcrow

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at (
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	497	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	311	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	236	(pcu/hr)
q_{b-c}	=	3	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

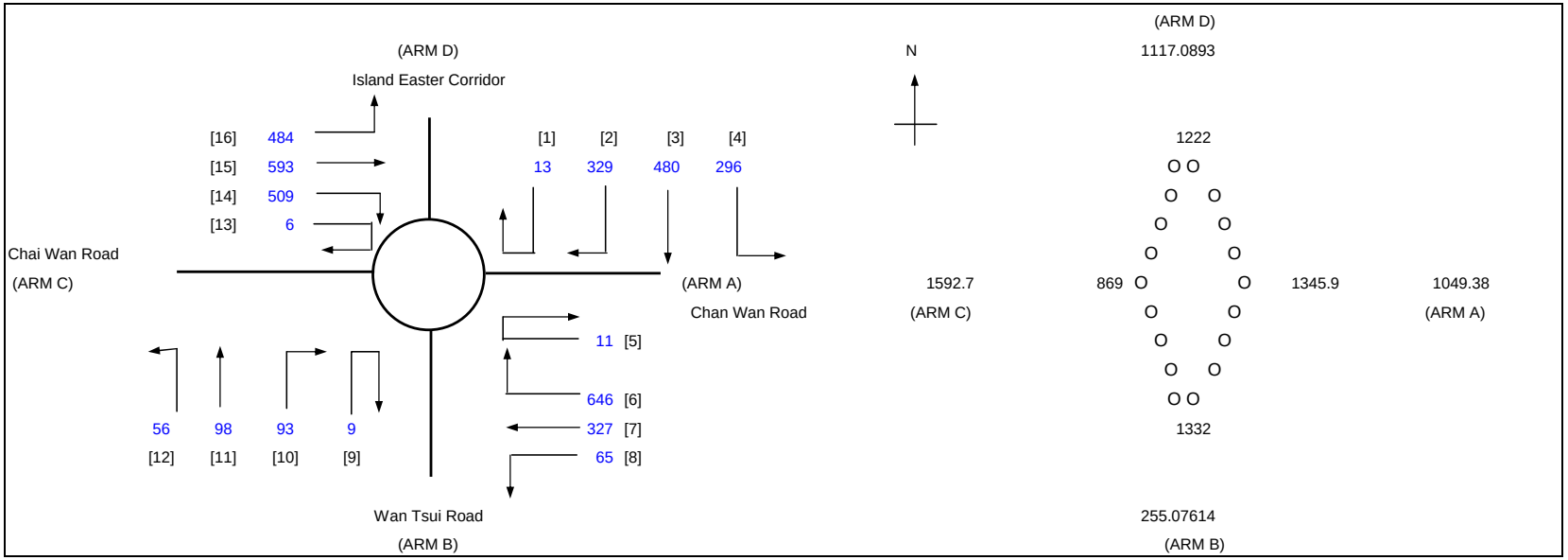
Q_{b-c}	=	615
Q_{c-b}	=	685
Q_{b-a}	=	281

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.842
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.842

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4LV3_Sen2_Ref_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

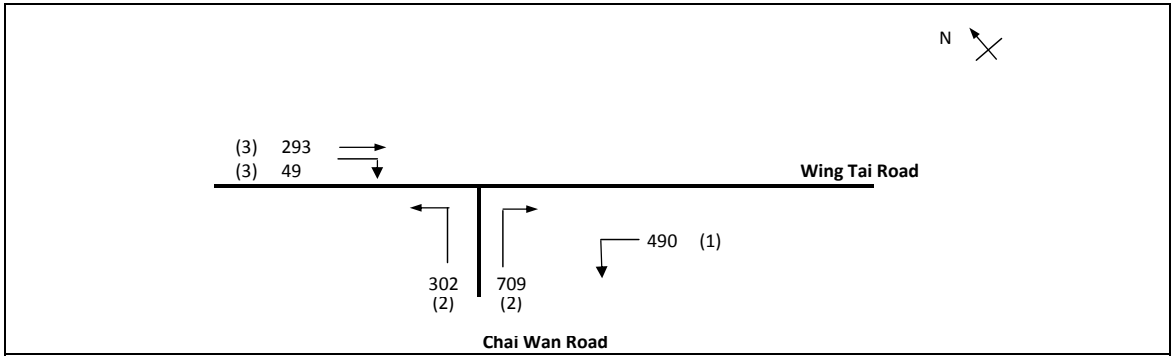


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	1049	255	1593	1117
Qc	=	Circulating flow across entry (pcu/h)	1346	1332	869	1222
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1448	732	1822	1293
DFC	=	Design flow/Capacity = Q/Qe	0.72	0.35	0.87	0.86

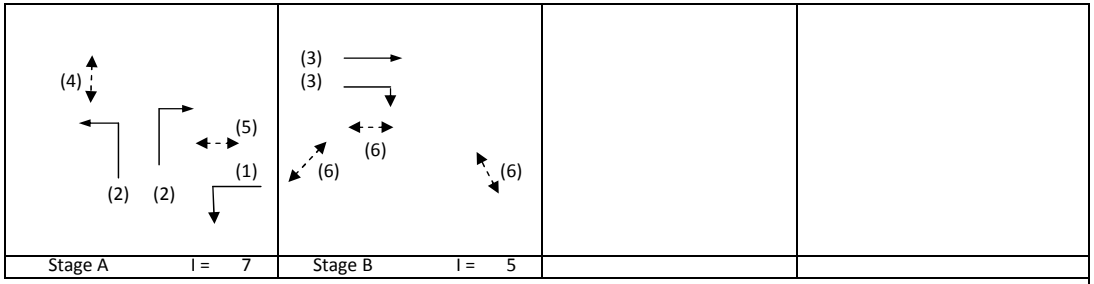
Total In Sum = 3113.64 PCU

DFC of Critical Approach = 0.87

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	100	sec
Sum(y)	Y =	0.270	
Loss time	L =	10	sec
Total Flow	=	1844	pcu
Co = (1.5*L+5)/(1-Y)	=	27.4	sec
Cm = L/(1-Y)	=	13.7	sec
Yult	=	0.825	
R.C.ult = (Yult-Y)/Y*100%	=	205.4	%
Cp = 0.9*L/(0.9-Y)	=	14.3	sec
Ymax = 1-L/C	=	0.900	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	199.8	%

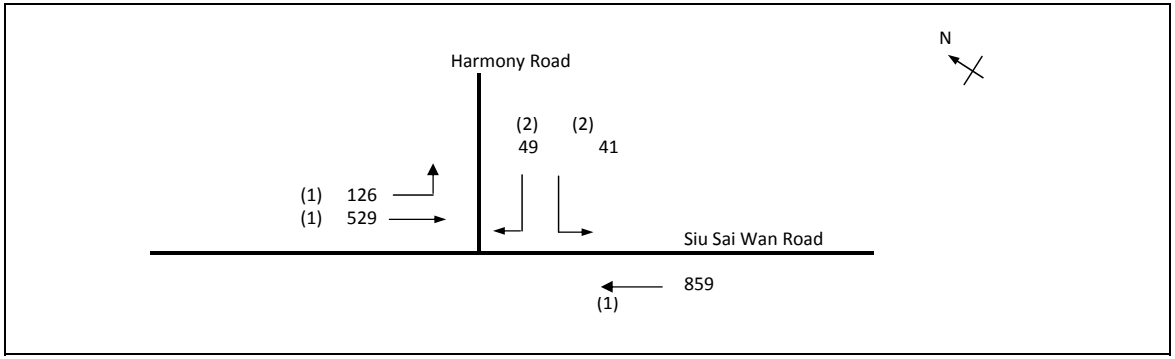


Stage A I = 7 Stage B I = 5

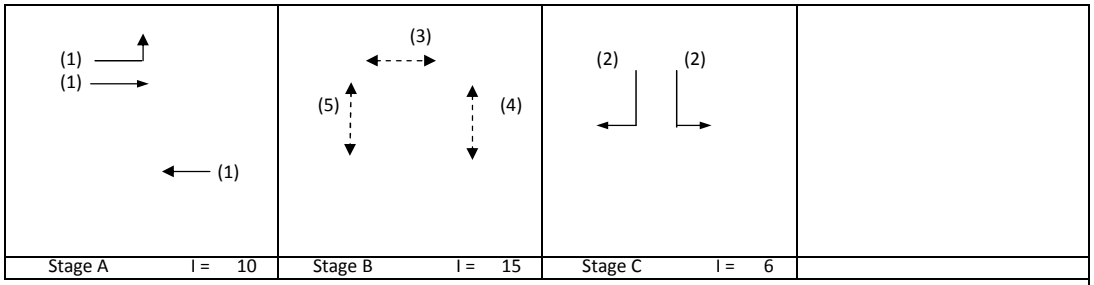
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	490			490	1.00	3857			3857	0.127			42	66	0.192	12	5
LT	A	4.00	2	2	24			4310	302			302	1.00	4056			4056	0.074			25	66	0.113	6	5
RT	A	3.50	2	2	11		y	4070			709	709	1.00	3582			3582	0.198	0.198		66	66	0.300	18	4
ST	B	3.50	3	2			y	4070		293		293	0.00	4070			4070	0.072	0.072		24	24	0.300	18	25
RT	B	4.50	3	2	13		y	4270			49	49	1.00	3828			3828	0.013			4	24	0.054	3	26
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.243	
Loss time	L =	48	sec
Total Flow	=	1604	pcu
Co = (1.5*L+5)/(1-Y)	=	101.7	sec
Cm = L/(1-Y)	=	63.4	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	122.6	%
Cp = 0.9*L/(0.9-Y)	=	65.7	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	93.0	%

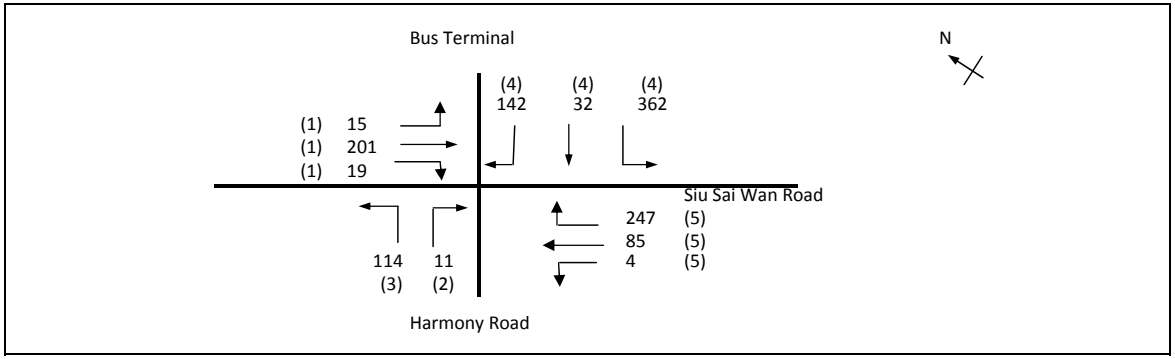


Stage A	I = 10	Stage B	I = 15	Stage C	I = 6

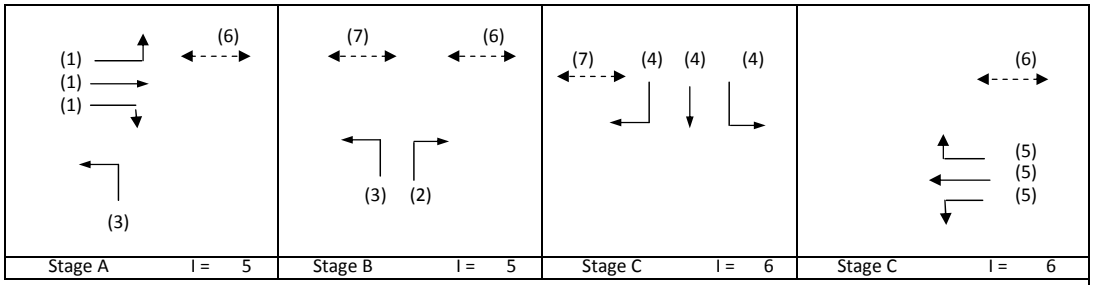
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	126	152		278	0.45	1832			1832	0.152			32	46	0.327	24	12
ST	A	3.20	1	1				2075		377		377	0.00	2075			2075	0.182			39	46	0.392	30	12
ST	A	3.00	1	2			y	3970		859		859	0.00	3970			3970	0.216	0.216		46	46	0.466	36	11
LT	C	3.75	2	1	12		y	1990	41			41	1.00	1769			1769	0.023			5	6	0.410	6	51
RT	C	3.75	2	1	12			2130			49	49	1.00	1893			1893	0.026	0.026		6	6	0.466	6	52
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	4	
Cycle time	C =	105	sec
Sum(y)	Y =	0.429	
Loss time	L =	18	sec
Total Flow	=	1232	pcu
Co = (1.5*L+5)/(1-Y)	=	56.1	sec
Cm = L/(1-Y)	=	31.5	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	78.3	%
Cp = 0.9*L/(0.9-Y)	=	34.4	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	73.8	%

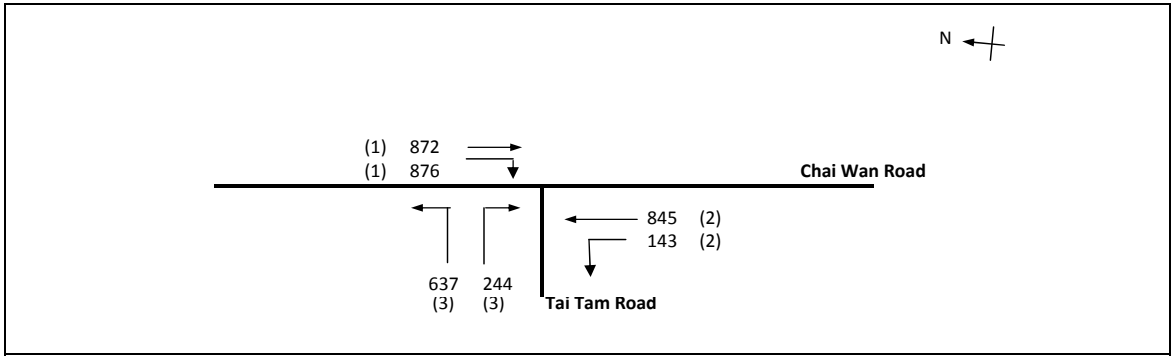


Stage A	I = 5	Stage B	I = 5	Stage C	I = 6	Stage C	I = 6

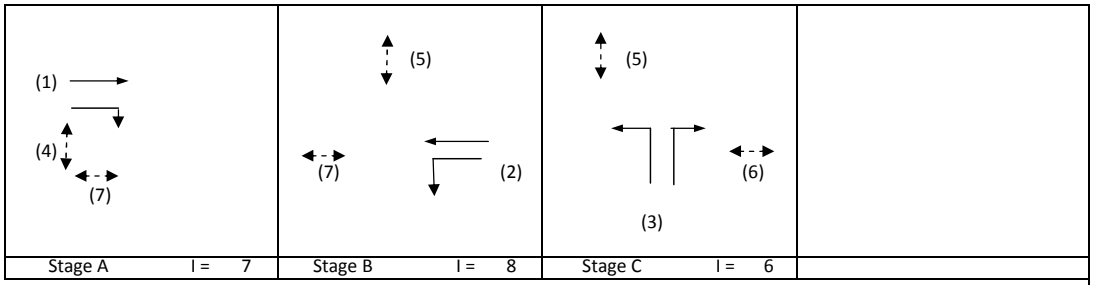
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																			18					
LT/ST	A	3.30	1	1	11		y	1945	15	81		96	0.16	1904			1904	0.051			10	14	0.387	12	38
ST/RT	A	3.30	1	1	12			2085		120	19	139	0.14	2050			2050	0.068	0.068		14	14	0.518	18	40
RT	B	3.50	2	1	12			2105			11	11	1.00	1871			1871	0.006	0.006		1	1	0.518	0	125
LT	A,B	3.75	3	1	13		y	1990	114			114	1.00	1784			1784	0.064			13	20	0.337	12	31
RT	C	3.50	4	1	12			2105			142	142	1.00	1871			1871	0.076			15	45	0.176	12	15
LT/ST	C	3.50	4	1	12		y	1965	362	32		393	0.92	1762			1762	0.223	0.223		45	45	0.518	36	14
ST/RT	D	3.50	5	1	12			2105		0	247	247	1.00	1871			1871	0.132	0.132		27	27	0.518	30	26
LT/ST	D	3.50	5	1	11		y	1965	4	85		89	0.04	1954			1954	0.045			9	9	0.518	12	48
Ped	D,A,B	4.00	6																					
Ped	B,C	4.00	7																					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	3
Cycle time		C =	105 sec
Sum(y)		Y =	0.923
Loss time		L =	18 sec
Total Flow		=	3617 pcu
Co	= (1.5*L+5)/(1-Y)	=	417.4 sec
Cm	= L/(1-Y)	=	234.8 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	-17.1 %
Cp	= 0.9*L/(0.9-Y)	=	-694.0 sec
Ymax	= 1-L/C	=	0.829
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-19.2 %



Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

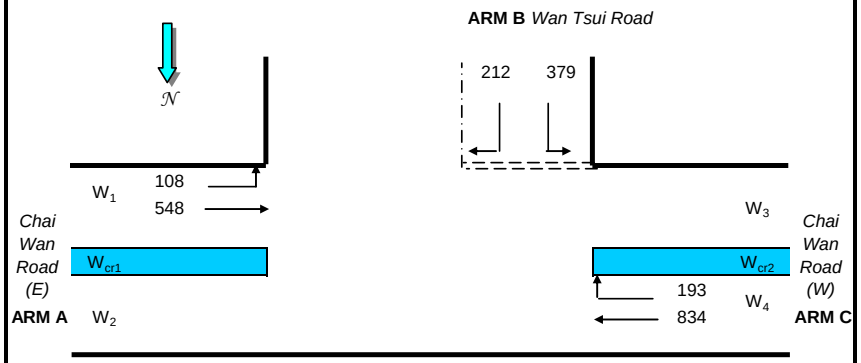
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.50	1	2			y	4070		872		872	0.00	4070			4070	0.214			20	20	1.114	60	45
RT	A	3.50	1	1	13			2105			876	876	1.00	1887			1887	0.464	0.464		44	20	2.413	120	45
ST	B	3.50	2	2				4210		845		845	0.00	4210			4210	0.201	0.201		19	19	1.114	60	46
LT	B	3.10	2	1	12		y	1925	143			143	1.00	1711			1711	0.084			8	19	0.466	18	34
LT	C	4.00	3	1	15		y	2015	474			474	1.00	1832			1832	0.259	0.259		24	24	1.114	60	36
LT/RT	C	4.00	3	1	15			2155	163		244	407	1.00	1959			1959	0.208			20	24	0.895	60	35
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at
Junction Capacity Analysis

Prepared By: KC
Checked By: OC

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 3 - Reference Case
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	107.87	(pcu/hr)
q_{a-c}	=	548	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	834	(pcu/hr)
q_{c-b}	=	192.89	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	212	(pcu/hr)
q_{b-c}	=	379	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

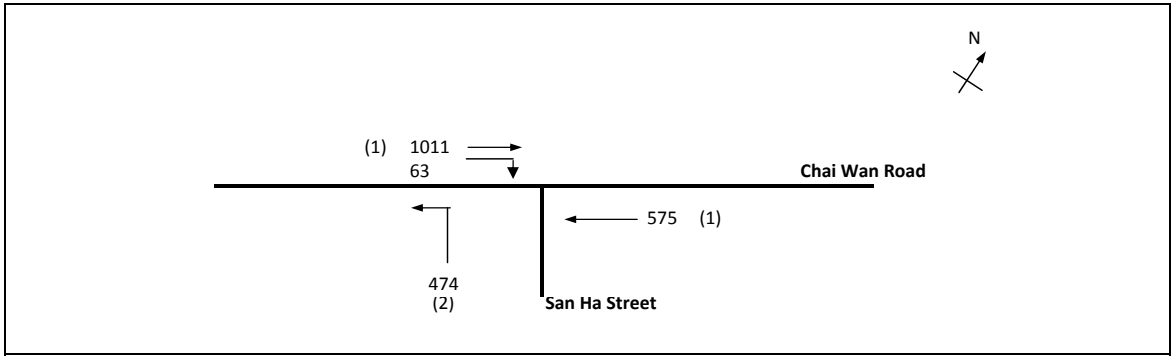
Q_{b-c}	=	750
Q_{c-b}	=	664
Q_{b-a}	=	341

COMPARISION OF DESIGN FLOW TO CAPACITY

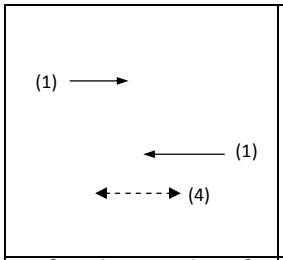
DFC_{b-a}	=	0.623
DFC_{b-c}	=	0.505
DFC_{c-b}	=	0.291

Critical DFC = 0.623

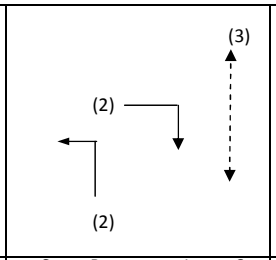
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.533
Loss time		L =	10 sec
Total Flow		=	2124 pcu
Co	= (1.5*L+5)/(1-Y)	=	42.8 sec
Cm	= L/(1-Y)	=	21.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	54.7 %
Cp	= 0.9*L/(0.9-Y)	=	24.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51.9 %



Stage A I = 6



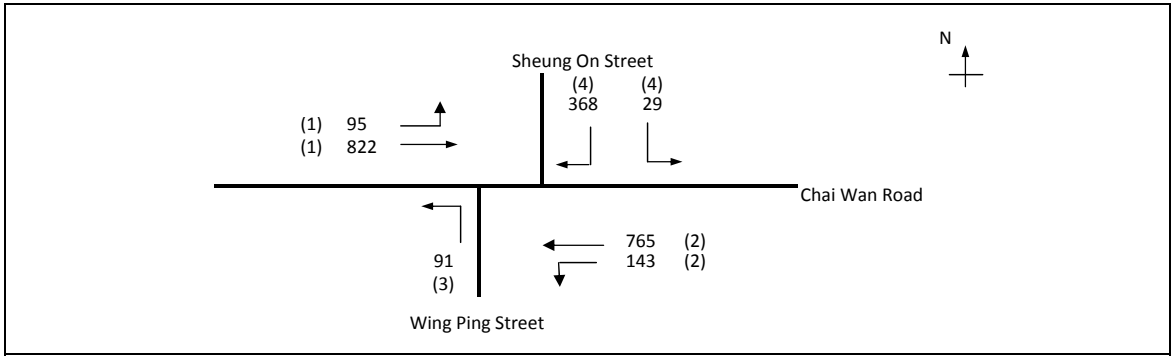
Stage B I = 6

Stage C I =

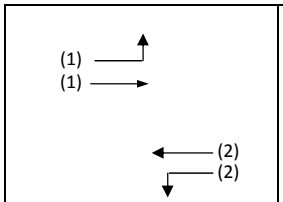
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1011		1011	0.00	4070			4070	0.248	0.248		42	47	0.529	42	10
ST	A	3.50	1	2	10		N	4070		575		575	0.00	4070			4070	0.141			24	47	0.301	24	11
LT	B	3.00	2	1	10		N	1915	474			474	1.00	1665			1665	0.285	0.285		48	53	0.537	36	9
RT	B	3.50	2	1	12			2105			63	63	1.00	1871			1871	0.034			6	53	0.064	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

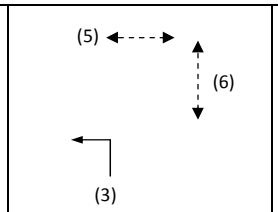
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



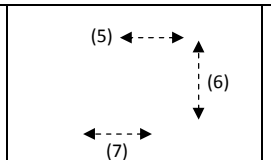
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.317
Loss time		L =	37 sec
Total Flow		=	2315 pcu
Co	= (1.5*L+5)/(1-Y)	=	88.5 sec
Cm	= L/(1-Y)	=	54.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	96.6 %
Cp	= 0.9*L/(0.9-Y)	=	57.1 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	96.6 %



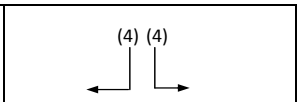
Stage A I = 8



Stage B I = 5



Stage C I = 7

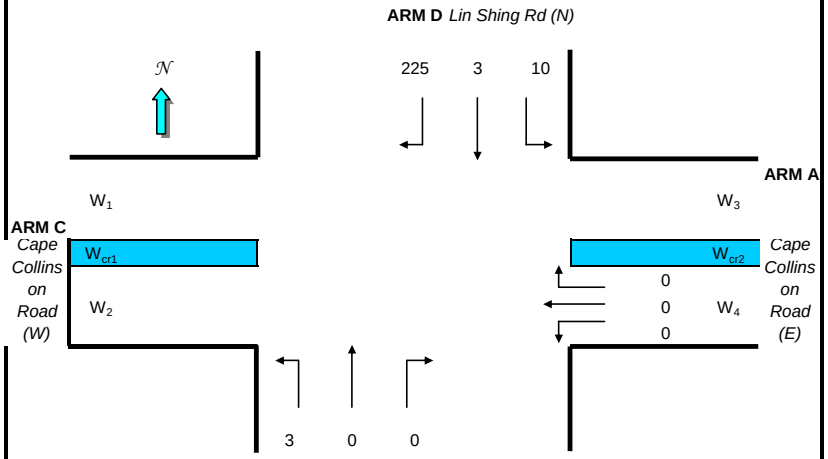


Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	95	822		918	0.10	6096			6096	0.151			39		0.000	60	54
LT/ST	A	3.30	2	3	12		Y	6115	143	765		909	0.16	5997			5997	0.152	0.152		40		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	91			91	1.00	1684			1684	0.054	0.054		14		0.000	18	54
LT/RT	D	3.75	4	2	10		y	4120	29		368	397	1.00	3583			3583	0.111	0.111		29		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
W_{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A
W_{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C
Vr_{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
Vl_{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C
Vr_{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A
X_A	=	GEOMETRIC PARAMETERS FOR STREAM A-D
X_B	=	GEOMETRIC PARAMETERS FOR STREAM B-A
X_C	=	GEOMETRIC PARAMETERS FOR STREAM C-B
X_D	=	GEOMETRIC PARAMETERS FOR STREAM D-C
Z_B	=	GEOMETRIC PARAMETERS FOR STREAM B-C
Z_D	=	GEOMETRIC PARAMETERS FOR STREAM D-A
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=		(metres)
W_2	=	6.00	(metres)
W_3	=	3.00	(metres)
W_4	=	3.00	(metres)
W	=	6.00	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

W_{a-d}	=	3.00	(metres)
Vr_{a-d}	=	100	(metres)
q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	0	(pcu/hr)
q_{a-d}	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=		(metres)
Vr_{c-b}	=		(metres)
q_{c-a}	=	0	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)
q_{c-d}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	5.00	(metres)
W_{b-c}	=	5.00	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	65	(metres)
Vr_{b-c}	=	0	(metres)
q_{b-a}	=	0	(pcu/hr)
q_{b-c}	=	2.5381	(pcu/hr)
q_{b-d}	=	0	(pcu/hr)

MINOR ROAD (ARM D)

W_{d-a}	=	3.00	(metres)
W_{d-c}	=	3.00	(metres)
Vl_{d-c}	=	50	(metres)
Vr_{d-c}	=	50	(metres)
Vr_{d-a}	=	80	(metres)
q_{d-a}	=	10.152	(pcu/hr)
q_{d-b}	=	2.5381	(pcu/hr)
q_{d-c}	=	224.69	(pcu/hr)

GEOMETRIC PARAMETERS

X_A	=	0.922
X_B	=	1.039
X_C	=	0.586
X_D	=	0.827
Y	=	0.793
Z_B	=	1.005
Z_D	=	0.905

THE CAPACITY OF MOVEMENT

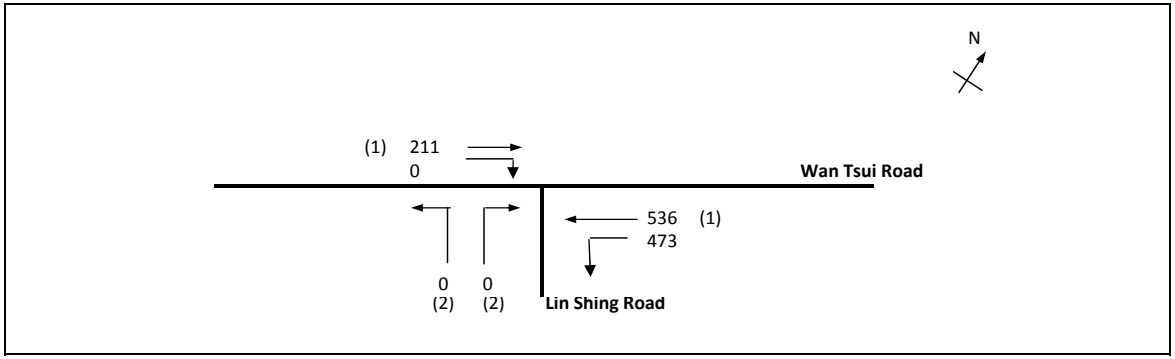
Q_{b-a}	=	614
Q_{b-c}	=	749
Q_{b-d} is nearside	=	TRUE
Q_{b-d}	=	611
Q_{d-a}	=	674
Q_{d-b} is nearside	=	TRUE
Q_{d-b}	=	533
Q_{d-c}	=	518
Q_{c-b}	=	437
Q_{a-d}	=	616

COMPARISION OF DESIGN FLOW TO CAPACITY

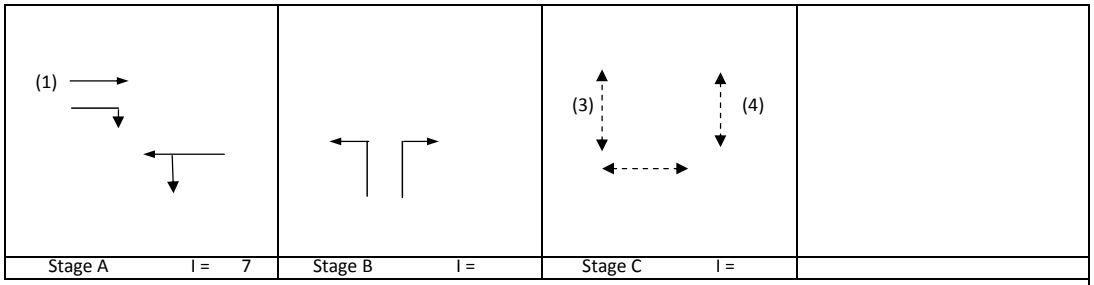
DFC_{b-a}	=	0.000
DFC_{b-c}	=	0.003
DFC_{b-d}	=	0.000
DFC_{d-a}	=	0.015
DFC_{d-b}	=	0.005
DFC_{d-c}	=	0.434
DFC_{c-b}	=	0.000
DFC_{a-d}	=	0.000

Critical DFC = 0.434

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME J2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.536	
Loss time	L =	25	sec
Total Flow	=	1219	pcu
Co = (1.5*L+5)/(1-Y)	=	91.5	sec
Cm = L/(1-Y)	=	53.8	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	33.0	%
Cp = 0.9*L/(0.9-Y)	=	61.8	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	33.0	%

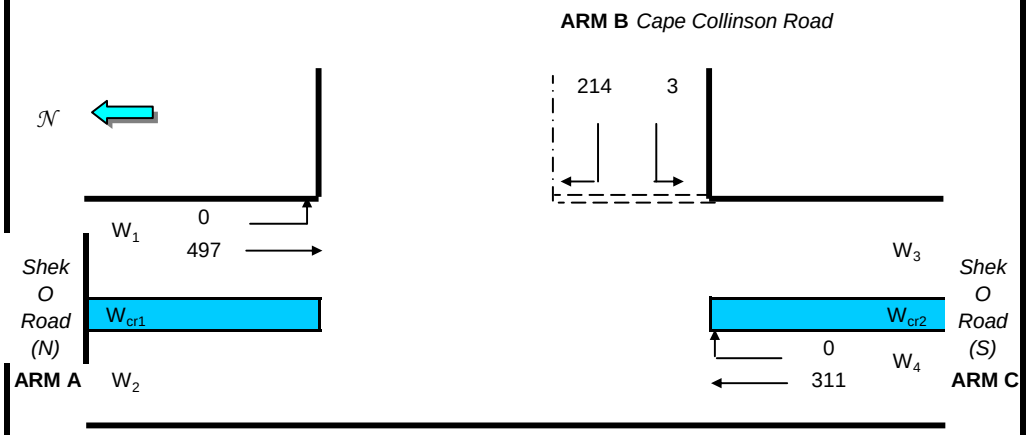


Stage A	I = 7	Stage B	I =	Stage C	I =

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				5					
ST	A	3.00	1	1			N	1915		211		211	0.00	1915			1915	0.110			20	95	0.139	6	2
ST/LT	A	4.00	1	1	10		N	2015	473	536		1009	0.47	1883			1883	0.536	0.536		95	95	0.677	42	3
Ped	B	6.0	3																	20					

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J3: J/O Cape Collinson Road and Lin Shing Road
Design Year - 2021 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	3.90	(metres)
W_2	=	3.90	(metres)
W_3	=	4.80	(metres)
W_4	=	4.50	(metres)
W	=	8.55	(metres)
W_{cr1}	=	0.00	(metres)
W_{cr2}	=	0.00	(metres)
W_{cr}	=	0.00	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	0	(pcu/hr)
q_{a-c}	=	497.46	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	4.50	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	310.91	(pcu/hr)
q_{c-b}	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	3.80	(metres)
Vl_{b-a}	=	100	(metres)
Vr_{b-a}	=	100	(metres)
Vr_{b-c}	=	100	(metres)
q_{b-a}	=	214.03	(pcu/hr)
q_{b-c}	=	2.5381	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.626
E	=	0.996
F	=	1.109
Y	=	0.705

THE CAPACITY OF MOVEMENT

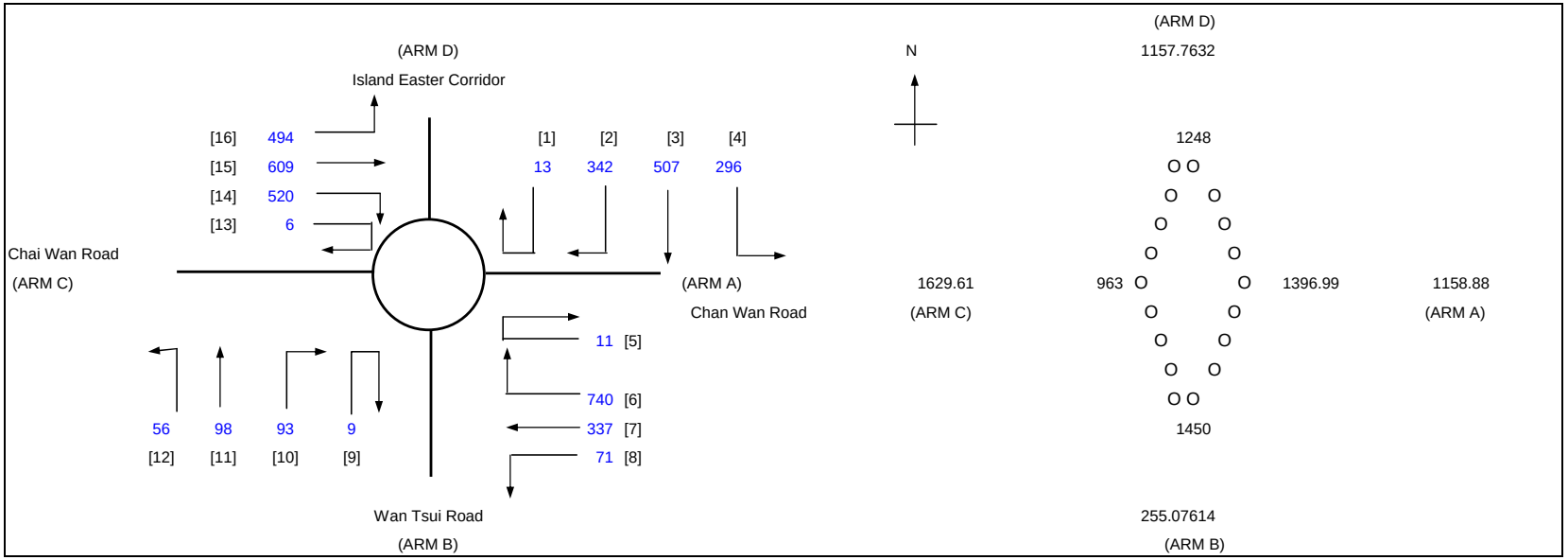
Q_{b-c}	=	615
Q_{c-b}	=	685
Q_{b-a}	=	281

COMPARISION OF DESIGN FLOW TO CAPACITY

DFC_{b-a}	=	0.762
DFC_{b-c}	=	0.004
DFC_{c-b}	=	0.000

Critical DFC = 0.762

	ROUNDABOUT CAPACITY ASSESSMENT			INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	**J4LV3 Peak Hour**	PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junction 4: Chai Wan Road Roundabout		FILENAME: J4_LV3_Sen2_S1_J2_J5_J6_J7_J8.xls	CHECKED BY:	OC	Sep-13
J4LV3 Peak Hour			REVIEWED BY:	OC	Sep-13

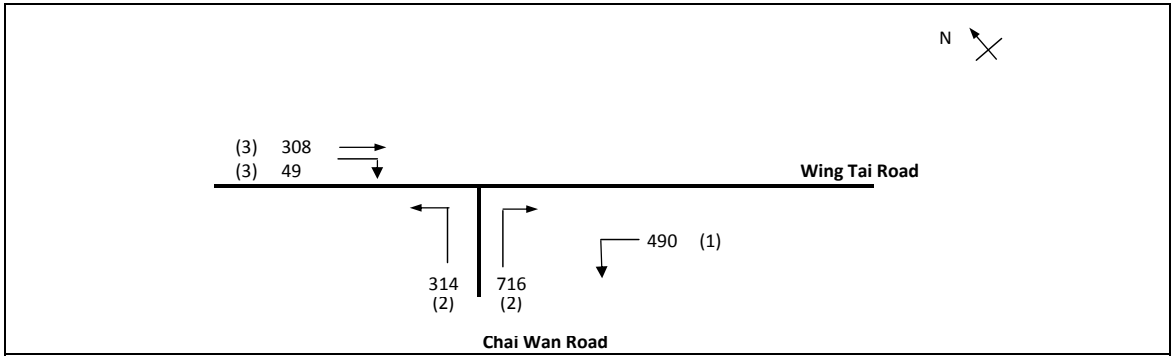


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.00	4.00	7.00	7.00
E	=	Entry width (m)	9.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	6.00	5.00	6.00	6.00
R	=	Entry radius (m)	40.00	15.00	40.00	25.00
D	=	Inscribed circle diameter (m)	50.00	50.00	50.00	50.00
A	=	Entry angle (degree)	30.00	35.00	36.00	30.00
Q	=	Entry flow (pcu/h)	1159	255	1630	1158
Qc	=	Circulating flow across entry (pcu/h)	1397	1450	963	1248
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.53	0.96	0.80	0.00
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.97	1.00	1.01
X2	=	V + ((E-V)/(1+2S))	7.97	5.03	8.15	7.00
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2414	1523	2471	2121
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.74	0.58	0.75	0.69
Qe	=	K(F-Fc*Qc)	1409	666	1750	1274
DFC	=	Design flow/Capacity = Q/Qe	0.82	0.38	0.93	0.91

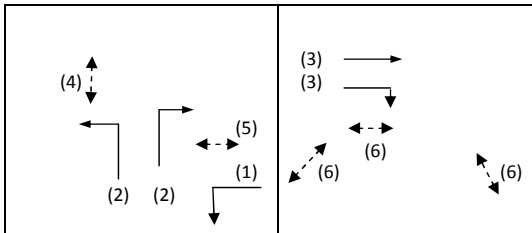
Total In Sum = 3284.74 PCU

DFC of Critical Approach = 0.93

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.276
Loss time		L =	10 sec
Total Flow		=	1878 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.6 sec
Cm	= L/(1-Y)	=	13.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	199.2 %
Cp	= 0.9*L/(0.9-Y)	=	14.4 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	193.7 %



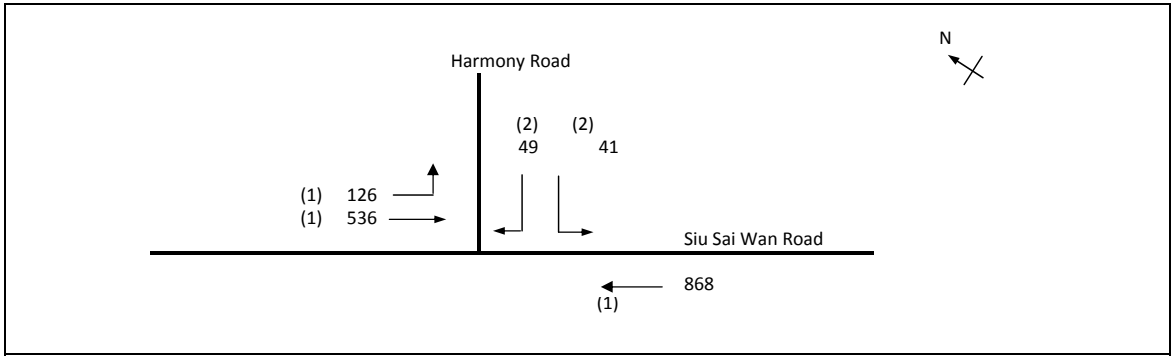
Stage A I = 7

Stage B I = 5

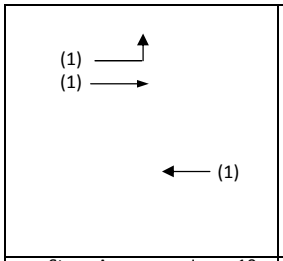
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
LT	A	3.75	1	2	22		y	4120	490			490	1.00	3857			3857	0.127			41	65	0.195	12	5
LT	A	4.00	2	2	24			4310	314			314	1.00	4056			4056	0.077			25	65	0.119	9	5
RT	A	3.50	2	2	11		y	4070			716	716	1.00	3582			3582	0.200	0.200		65	65	0.306	18	5
ST	B	3.50	3	2			y	4070		308		308	0.00	4070			4070	0.076	0.076		25	25	0.306	18	24
RT	B	4.50	3	2	13		y	4270			49	49	1.00	3828			3828	0.013			4	25	0.052	3	25
Ped	A	4.50	4																						
Ped	A	4.50	5																						
Ped	B	4.50	6																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

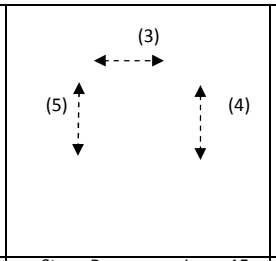
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



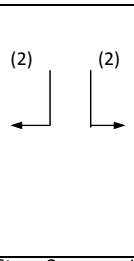
No. of stages per cycle	N =	3	
Cycle time	C =	100	sec
Sum(y)	Y =	0.245	
Loss time	L =	48	sec
Total Flow	=	1620	pcu
Co = (1.5*L+5)/(1-Y)	=	102.0	sec
Cm = L/(1-Y)	=	63.6	sec
Yult	=	0.540	
R.C.ult = (Yult-Y)/Y*100%	=	120.5	%
Cp = 0.9*L/(0.9-Y)	=	65.9	sec
Ymax = 1-L/C	=	0.520	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	91.1	%



Stage A I = 10



Stage B I = 15

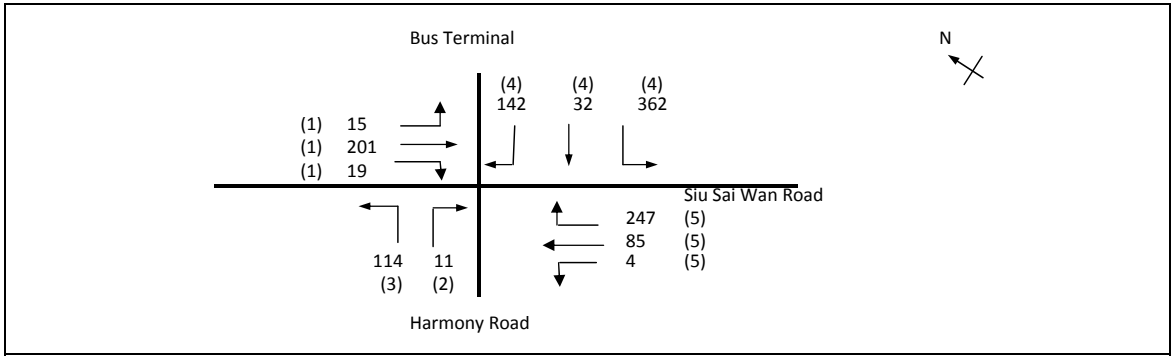


Stage C I = 6

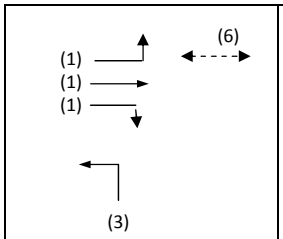
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				28					
LT/ST	A	3.30	1	1	11		y	1945	126	152		278	0.45	1832			1832	0.152			32	46	0.326	24	12
ST	A	3.20	1	1				2075		384		384	0.00	2075			2075	0.185			39	46	0.398	30	12
ST	A	3.00	1	2			y	3970		868		868	0.00	3970			3970	0.219	0.219		46	46	0.471	36	11
LT	C	3.75	2	1	12		y	1990	41			41	1.00	1769			1769	0.023			5	6	0.414	6	51
RT	C	3.75	2	1	12			2130			49	49	1.00	1893			1893	0.026	0.026		6	6	0.471	6	53
Ped	B	11.00	3																	20					
Ped	B	6.50	4																						
Ped	B	6.50	5																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

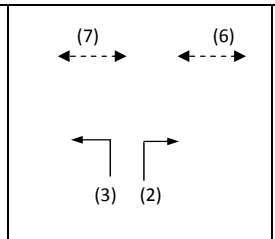
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



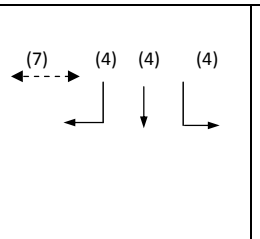
No. of stages per cycle	N =	4
Cycle time	C =	105 sec
Sum(y)	Y =	0.429
Loss time	L =	18 sec
Total Flow	=	1232 pcu
Co = (1.5*L+5)/(1-Y)	=	56.1 sec
Cm = L/(1-Y)	=	31.5 sec
Yult	=	0.765
R.C.ult = (Yult-Y)/Y*100%	=	78.3 %
Cp = 0.9*L/(0.9-Y)	=	34.4 sec
Ymax = 1-L/C	=	0.829
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	73.8 %



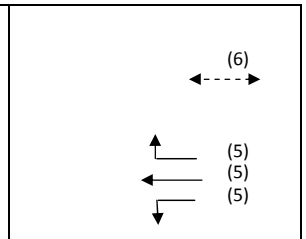
Stage A I = 5



Stage B I = 5



Stage C I = 6

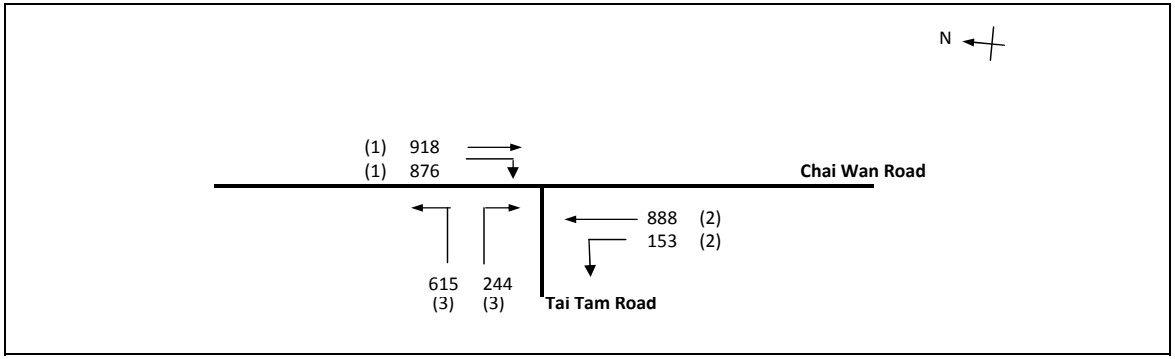


Stage C I = 6

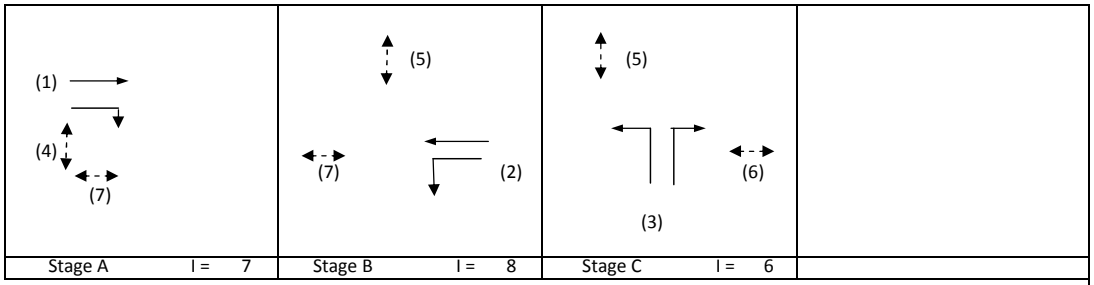
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
LT/ST	A	3.30	1	1	11		y	1945	15	81		96	0.16	1904			1904	0.051			10	14	0.387	12	38
ST/RT	A	3.30	1	1	12			2085		120	19	139	0.14	2050			2050	0.068	0.068		14	14	0.518	18	40
RT	B	3.50	2	1	12			2105			11	11	1.00	1871			1871	0.006	0.006		1	1	0.518	0	125
LT	A,B	3.75	3	1	13		y	1990	114			114	1.00	1784			1784	0.064			13	20	0.337	12	31
RT	C	3.50	4	1	12			2105			142	142	1.00	1871			1871	0.076			15	45	0.176	12	15
LT/ST	C	3.50	4	1	12		y	1965	362	32		393	0.92	1762			1762	0.223	0.223		45	45	0.518	36	14
ST/RT	D	3.50	5	1	12			2105			247	247	1.00	1871			1871	0.132	0.132		27	27	0.518	30	26
LT/ST	D	3.50	5	1	11		y	1965	4	85		89	0.04	1954			1954	0.045			9	9	0.518	12	48
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle	N =	3	
Cycle time	C =	105	sec
Sum(y)	Y =	0.883	
Loss time	L =	18	sec
Total Flow	=	3693	pcu
Co = (1.5*L+5)/(1-Y)	=	274.2	sec
Cm = L/(1-Y)	=	154.2	sec
Yult	=	0.765	
R.C.ult = (Yult-Y)/Y*100%	=	-13.4	%
Cp = 0.9*L/(0.9-Y)	=	969.5	sec
Ymax = 1-L/C	=	0.829	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	-15.6	%

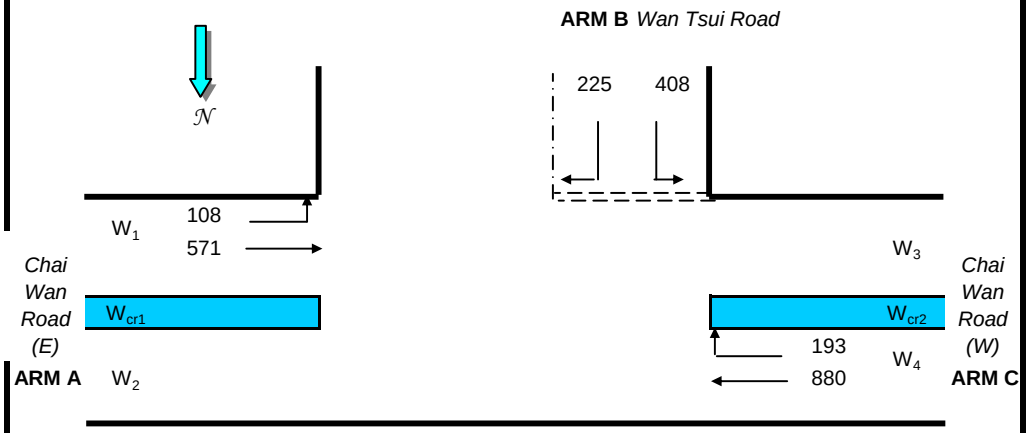


Stage A	I = 7	Stage B	I = 8	Stage C	I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				18					
ST	A	3.75	1	2			y	4120		918		918	0.00	4120			4120	0.223			22	22	1.066	63	44
RT	A	3.00	1	1	13			2055			876	876	1.00	1842			1842	0.475	0.475		47	22	2.273	120	43
ST	B	3.50	2	2				4210		888		888	0.00	4210			4210	0.211	0.211		21	21	1.066	60	45
LT	B	3.10	2	1	12		y	1925	153			153	1.00	1711			1711	0.089			9	21	0.451	18	32
LT	C	4.00	3	1	15		y	2015	473			473	1.00	1832			1832	0.258			25	25	1.066	60	35
LT/RT	C	4.00	3	1	15			2155	142		244	386	1.00	1959			1959	0.197	0.197		19	25	0.815	48	37
Ped	A	4.50	4																						
Ped	B,C	3.50	5																						
Ped	C	3.50	6																						
Ped	A,B	3.50	7																						

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road
Design Year - 2021 Level 3 - Site 1
Time - Level 3 Peak Hour



REMARK: (GEOMETRIC INPUT DATA)

W	=	AVERAGE MAJOR ROAD WIDTH
W_{cr}	=	AVERAGE CENTRAL RESERVE WIDTH
W_{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A
W_{b-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C
W_{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B
Vl_{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A
Vr_{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C
Vr_{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B
D	=	GEOMETRIC PARAMETERS FOR STREAM B-C
E	=	GEOMETRIC PARAMETERS FOR STREAM B-A
F	=	GEOMETRIC PARAMETERS FOR STREAM C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS

W_1	=	10.90	(metres)
W_2	=	7.70	(metres)
W_3	=	10.60	(metres)
W_4	=	10.20	(metres)
W	=	19.70	(metres)
W_{cr1}	=	4.10	(metres)
W_{cr2}	=	1.70	(metres)
W_{cr}	=	2.90	(metres)

MAJOR ROAD (ARM A)

q_{a-b}	=	107.87	(pcu/hr)
q_{a-c}	=	571.19	(pcu/hr)

MAJOR ROAD (ARM C)

W_{c-b}	=	3.30	(metres)
Vr_{c-b}	=	150	(metres)
q_{c-a}	=	880.37	(pcu/hr)
q_{c-b}	=	192.89	(pcu/hr)

MINOR ROAD (ARM B)

W_{b-a}	=	0.00	(metres)
W_{b-c}	=	4.50	(metres)
Vl_{b-a}	=	150	(metres)
Vr_{b-a}	=	150	(metres)
Vr_{b-c}	=	150	(metres)
q_{b-a}	=	225.08	(pcu/hr)
q_{b-c}	=	408.45	(pcu/hr)

GEOMETRIC PARAMETERS

D		0.675
E	=	1.109
F	=	0.993
Y	=	0.320

THE CAPACITY OF MOVEMENT

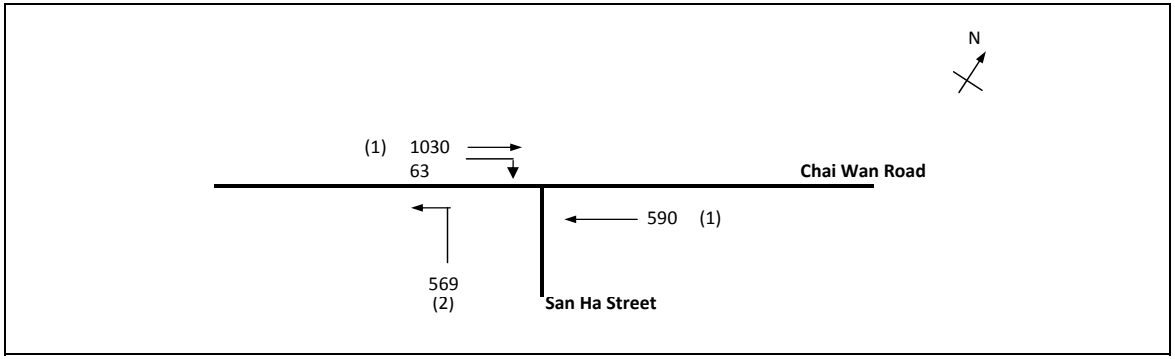
Q_{b-c}	=	747
Q_{c-b}	=	661
Q_{b-a}	=	337

COMPARISION OF DESIGN FLOW TO CAPACITY

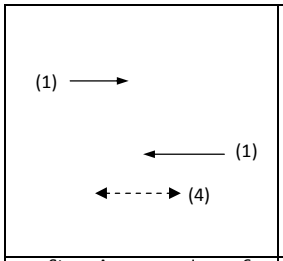
DFC_{b-a}	=	0.668
DFC_{b-c}	=	0.547
DFC_{c-b}	=	0.292

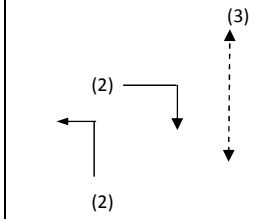
Critical DFC = 0.668

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



No. of stages per cycle		N =	2
Cycle time		C =	100 sec
Sum(y)		Y =	0.595
Loss time		L =	10 sec
Total Flow		=	2253 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.3 sec
Cm	= L/(1-Y)	=	24.7 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	38.7 %
Cp	= 0.9*L/(0.9-Y)	=	29.5 sec
Ymax	= 1-L/C	=	0.900
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.2 %



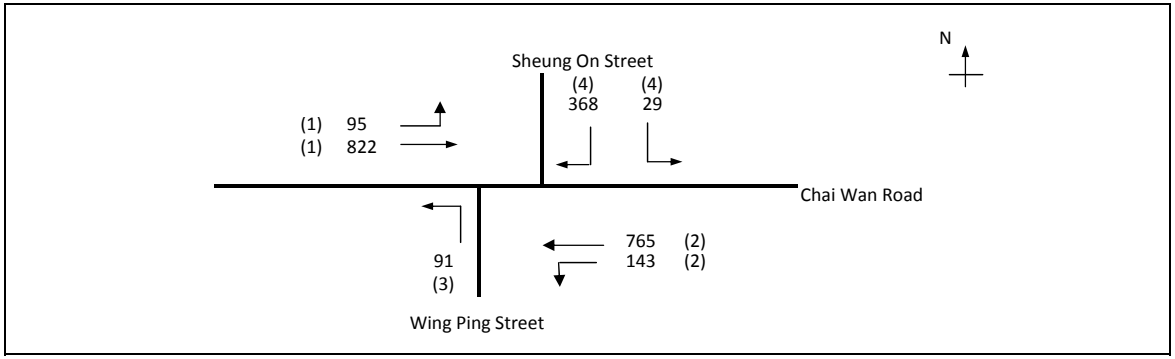


Stage A	I = 6	Stage B	I = 6	Stage C	I =

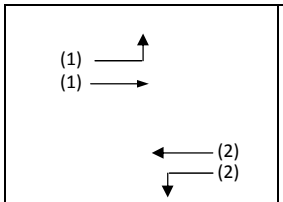
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				10					
ST	A	3.50	1	2	10		N	4070		1030		1030	0.00	4070			4070	0.253	0.253		38	47	0.539	45	10
ST	A	3.50	1	2	10		N	4070		590		590	0.00	4070			4070	0.145			22	47	0.309	24	11
LT	B	3.00	2	1	10		N	1915	569			569	1.00	1665			1665	0.342	0.342		52	53	0.644	42	10
RT	B	3.50	2	1	12			2105			63	63	1.00	1871			1871	0.034			5	53	0.064	0	10
Ped	B	19.0	3																						
Ped	A	8.0	4																						

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

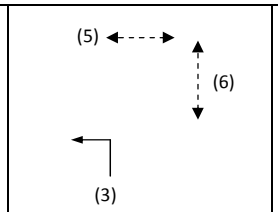
TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.:	Reviewed By:	OC	3-5-2011



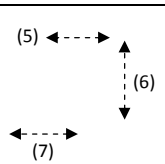
No. of stages per cycle		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.317
Loss time		L =	37 sec
Total Flow		=	2315 pcu
Co	= (1.5*L+5)/(1-Y)	=	88.5 sec
Cm	= L/(1-Y)	=	54.1 sec
Yult		=	0.623
R.C.ult	= (Yult-Y)/Y*100%	=	96.6 %
Cp	= 0.9*L/(0.9-Y)	=	57.1 sec
Ymax	= 1-L/C	=	0.692
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	96.6 %



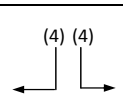
Stage A I = 8



Stage B I = 5



Stage C I = 7



Stage C I = 6

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	Opposing Traffic?	Near-side lane?	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				22					
LT/ST	A	3.50	1	3	12		y	6175	95	822		918	0.10	6096			6096	0.151			39		0.000	60	54
LT/ST	A	3.30	2	3	12		Y	6115	143	765		909	0.16	5997			5997	0.152	0.152		40		0.000	60	54
LT	B	3.50	3	1	9		Y	1965	91			91	1.00	1684			1684	0.054	0.054		14		0.000	18	54
LT/RT	D	3.75	4	2	10		y	4120	29		368	397	1.00	3583			3583	0.111	0.111		29		0.000	39	54
Ped	B,C	4.00	5																						
Ped	B,C	5.00	6																						
Ped	C	3.00	7																	15					

NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

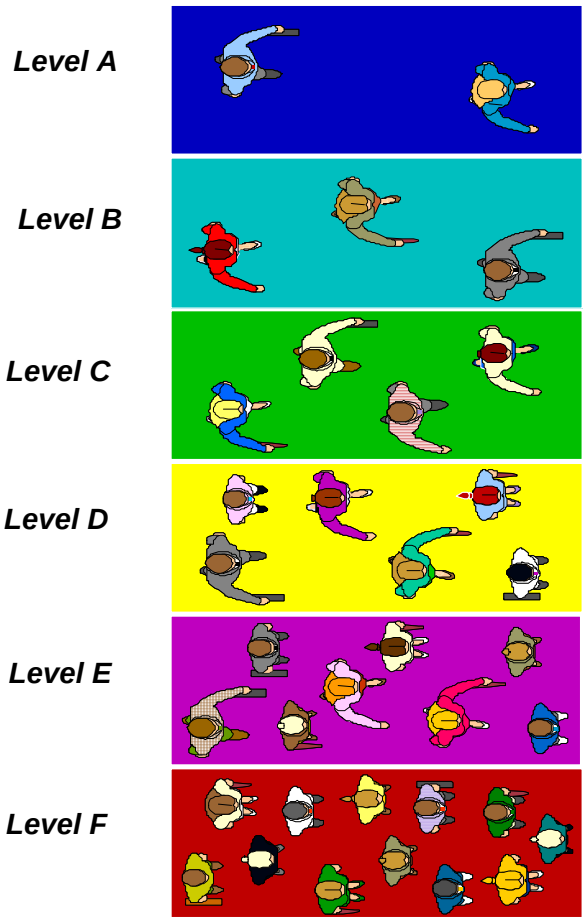
Appendix C

Level of Services Guidelines

Appendix C Description of Level-of-Service (LOS)

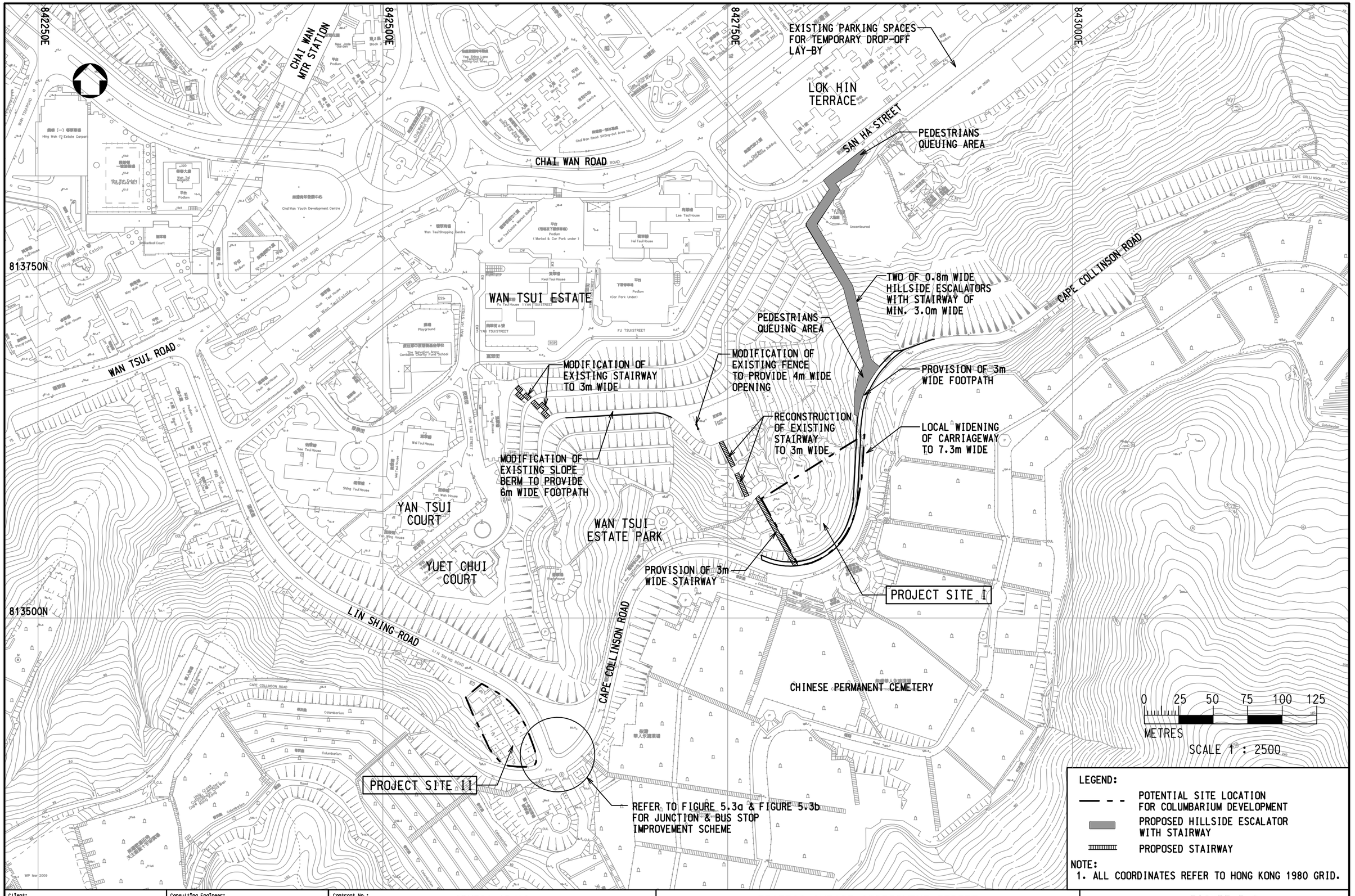
LOS	Flow Rate (ped/min/m)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 - 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 - 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exists, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33 - 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 - 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

Graph 3-3: Graphical Presentation of LOS



Appendix D

Reference Drawings extracted from 2012 TIA Study



Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED IMPROVEMENT SCHEMES FOR PEDESTRIAN FACILITIES

FIGURE 5.2a

Checked	Scale	Rev.
OC	1:2500 @ A3	2
Designed	Drawn	Date
YC	PF	16/02/2012

HN_Kaml 24/02/2012
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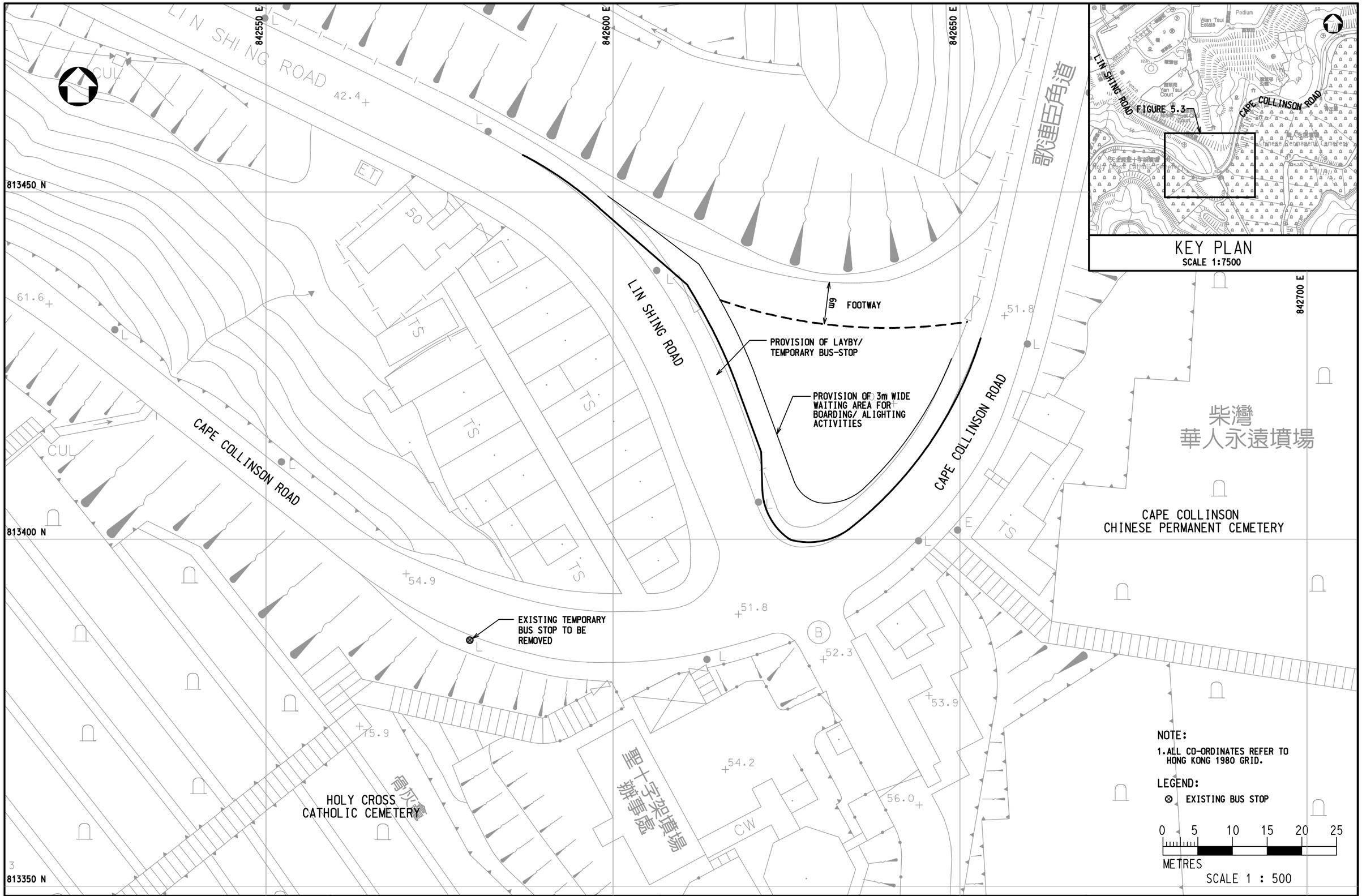

KEY PLAN
SCALE 1:7500

NOTE:
1. ALL CO-ORDINATES REFER TO HONG KONG 1980 GRID.

LEGEND:
⊗ EXISTING BUS STOP

0 5 10 15 20 25
METRES
SCALE 1 : 500

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 5.3a**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED IMPROVEMENT SCHEME AT LIN SHING ROAD & CAPE COLLINSON ROAD JUNCTION (OPTION A)	Checked: OC; Scale: 1:500 @ A3; Rev.: 1; Designed: KC; Drawn: PF; Date: 01/06/2012

HN_Kam1 25/06/2012
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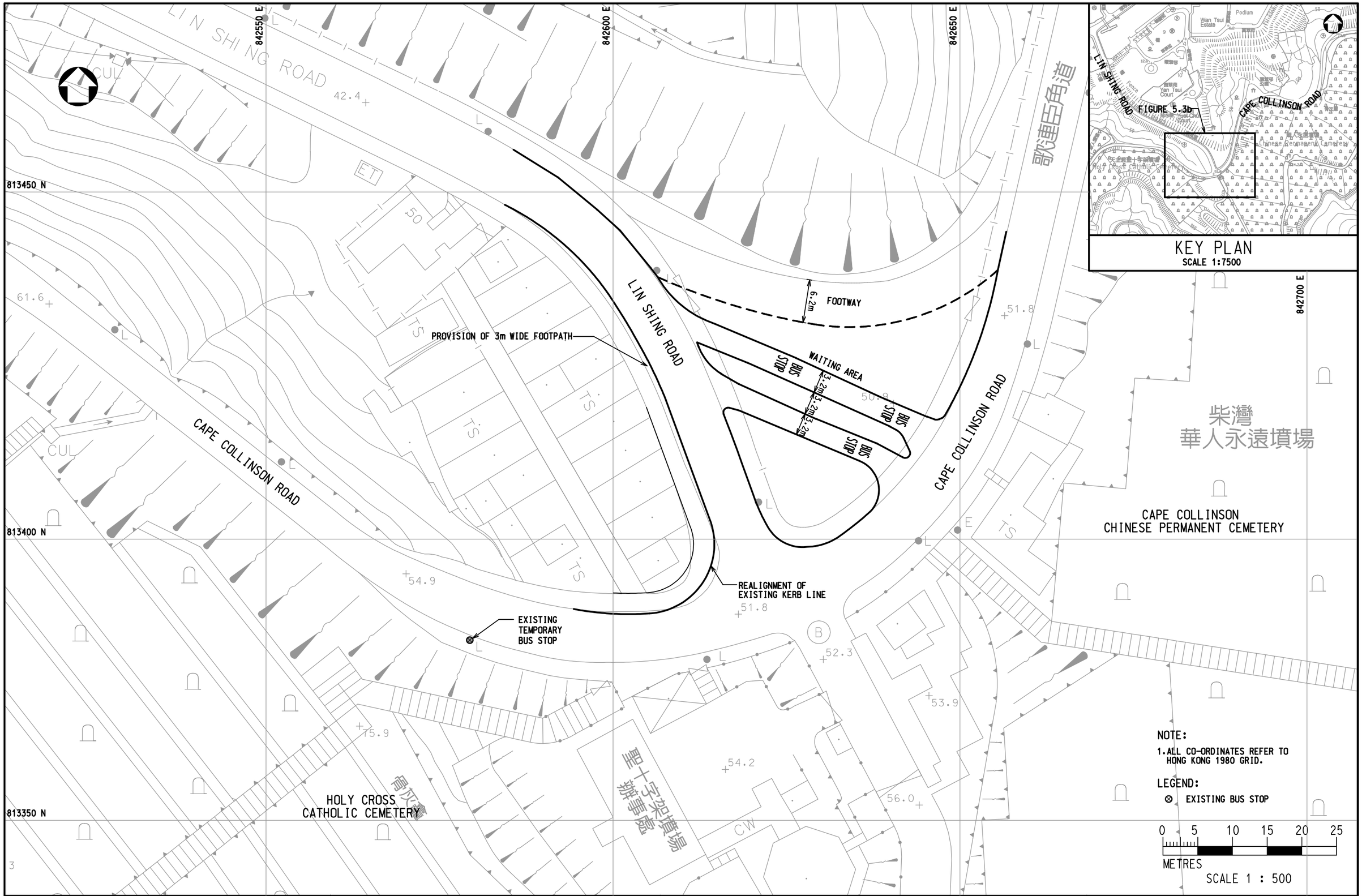

NOTE:

1. ALL CO-ORDINATES REFER TO HONG KONG 1980 GRID.

LEGEND:

⊗ EXISTING BUS STOP

0 5 10 15 20 25

METRES

SCALE 1 : 500

Client: ARCHITECTURAL SERVICES DEPARTMENT	Consulting Engineer: Halcrow China Ltd.	Contract No.: CPM301_15/10	TRAFFIC IMPACT ASSESSMENT REPORT	**FIGURE 5.3b**
		Project Title: TRAFFIC IMPACT ASSESSMENT STUDY FOR COLUMBARIUM DEVELOPMENT AT CAPE COLLINSON ROAD, CHAI WAN	Drawing Title: PROPOSED IMPROVEMENT SCHEME AT LIN SHING ROAD & CAPE COLLINSON ROAD JUNCTION (OPTION B)	Checked: OC; Scale: 1:500 @ A3; Rev.: 0; Designed: KC; Drawn: PF; Date: 16/02/2012

HN_Kam1 24/02/2012

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