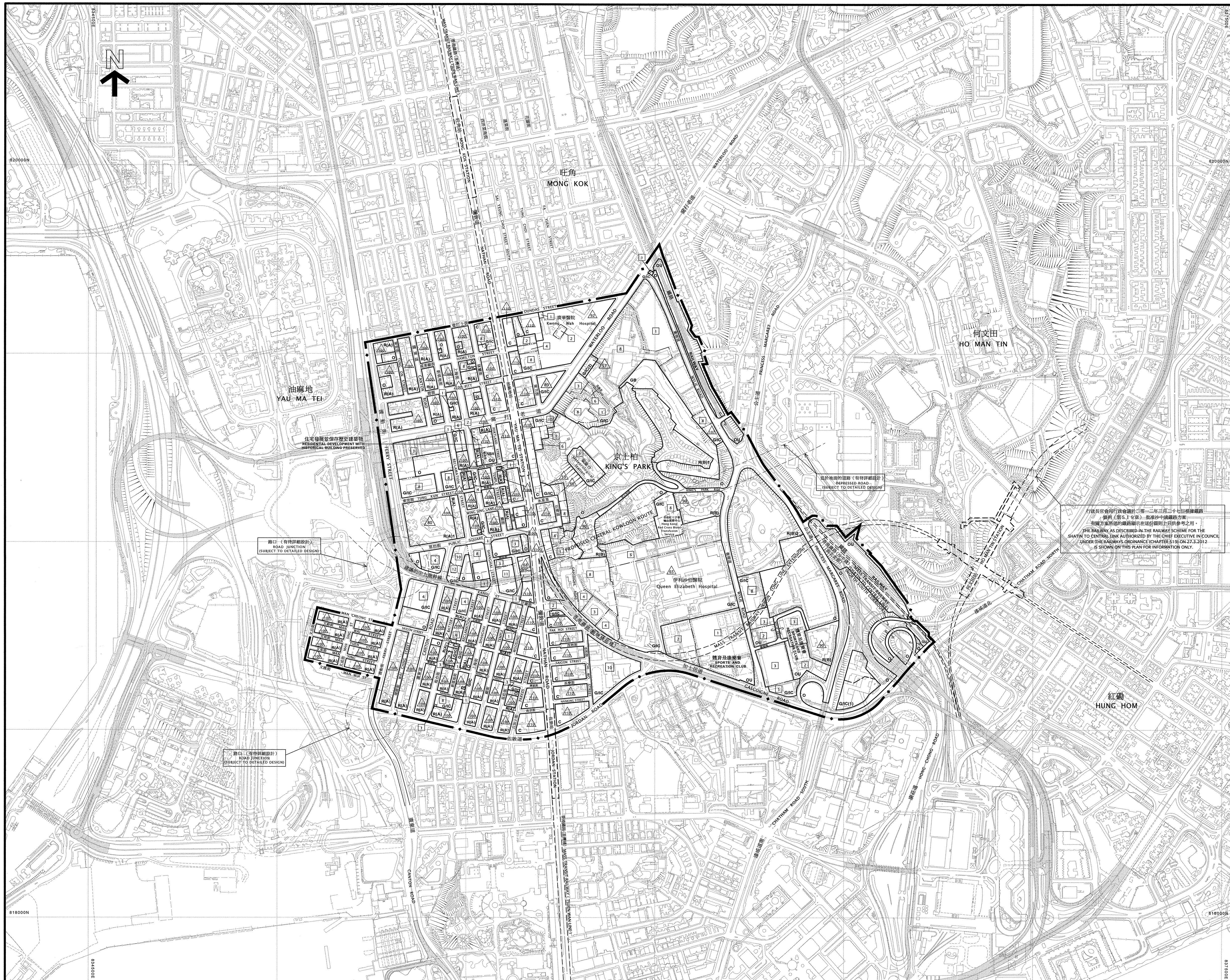
Attachment I of MPC Paper No. 5/23



圖例
NOTATION

ZONES		地帶
COMMERCIAL	C	商業
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
GREEN BELT	GB	綠化地帶

COMMUNICATIONS		交通
RAILWAY AND STATION (UNDERGROUND)	STATION	鐵路及車站（地下）
MAJOR ROAD AND JUNCTION		主要道路及路口
ELEVATED ROAD		高架道路

MISCELLANEOUS		其他
BOUNDARY OF PLANNING SCHEME		規劃範圍界線
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	100	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	1	最高建築物高度（樓層數目）
NON-BUILDING AREA	NBA	非建築用地

行政長官會同行政會議於二零一二年三月二十七日根據鐵路條例（第519章）批准沙中線鐵路方案，有關方案所述的鐵路顯示在這份圖則上只供參考之用。

THE RAILWAY AS DESCRIBED IN THE RAILWAY SCHEME FOR THE SHATIN TO CENTRAL LINK AUTHORIZED BY THE CHIEF EXECUTIVE IN COUNCIL UNDER THE RAILWAYS ORDINANCE (CHAPTER 519) ON 27.3.2012 IS SHOWN ON THIS PLAN FOR INFORMATION ONLY.

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & %		用途
	公頃 HECTARES	% 百分率	
COMMERCIAL	6.77	5.53	商業
RESIDENTIAL (GROUP A)	13.72	11.20	住宅（甲類）
RESIDENTIAL (GROUP B)	7.41	6.05	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	31.39	25.63	政府、機構或社區
OPEN SPACE	18.73	15.30	休憩用地
OTHER SPECIFIED USES	8.87	7.24	其他指定用途
GREEN BELT	2.16	1.76	綠化地帶
MAJOR ROAD ETC.	33.40	27.29	主要道路等
TOTAL PLANNING SCHEME AREA	122.45	100.00	規劃範圍總面積

夾附的《註釋》屬這份圖則的一部分
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN

行政長官會同行政會議於２０２２年１０月１８日根據城市規劃條例第９（１）（ａ）條核准的圖則
APPROVED BY THE CHIEF EXECUTIVE IN COUNCIL UNDER SECTION 9(1)(a) OF THE TOWN PLANNING ORDINANCE ON 18 OCTOBER 2022

Ms Carmen KONG 江嘉敏女士
CLERK TO THE EXECUTIVE COUNCIL 行政會議秘書

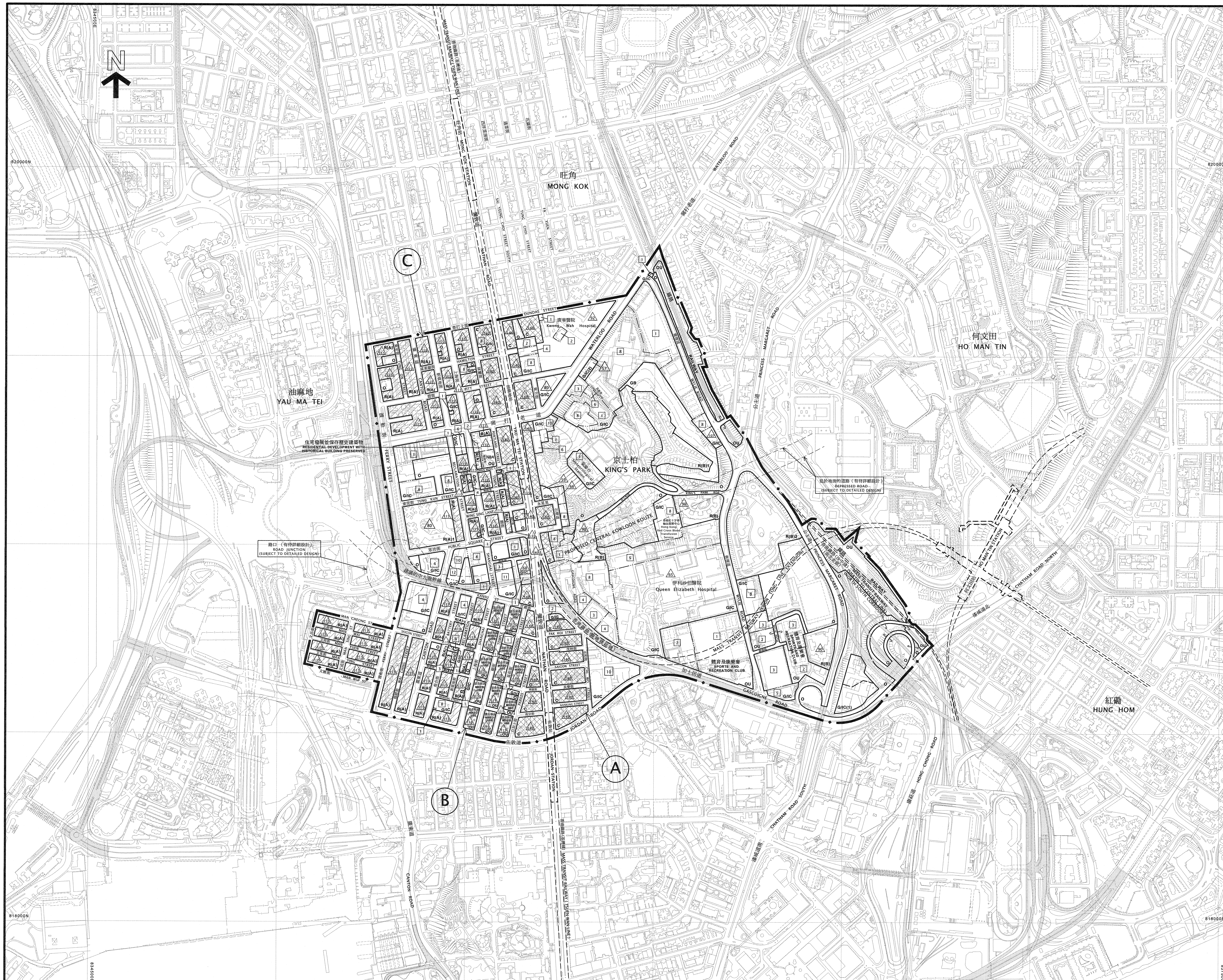
香港城市規劃委員會依據城市規劃條例擬備的油麻地（九龍規劃區第２區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KOWLOON PLANNING AREA No. 2 - YAU MA TEI - OUTLINE ZONING PLAN

SCALE 1:5000 比例尺
米 METRES 100 0 200 400 600 800 METRES 米

規劃署遵照城市規劃委員會指示擬備
PREPARED BY THE PLANNING DEPARTMENT UNDER THE DIRECTION OF THE TOWN PLANNING BOARD

圖則編號
PLAN No. S/K2/24

Attachment II of
MPC Paper No. 5/23



圖例 NOTATION

ZONES		地帶
COMMERCIAL	C	商業
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
GREEN BELT	GB	綠化地帶

COMMUNICATIONS		交通
RAILWAY AND STATION (UNDERGROUND)	STATION	鐵路及車站（地下）
MAJOR ROAD AND JUNCTION		主要道路及路口
ELEVATED ROAD		高架道路

MISCELLANEOUS		其他
BOUNDARY OF PLANNING SCHEME		規劃範圍界線
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	115	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	1	最高建築物高度（樓層數目）
NON-BUILDING AREA	NBA	非建築用地

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & %		用途
	公頃 HECTARES	% 百分率	
COMMERCIAL	6.77	5.53	商業
RESIDENTIAL (GROUP A)	11.50	9.39	住宅（甲類）
RESIDENTIAL (GROUP B)	7.41	6.05	住宅（乙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	31.39	25.63	政府、機構或社區
OPEN SPACE	18.73	15.30	休憩用地
OTHER SPECIFIED USES	11.09	9.05	其他指定用途
GREEN BELT	2.16	1.76	綠化地帶
MAJOR ROAD ETC.	33.40	27.29	主要道路等
TOTAL PLANNING SCHEME AREA	122.45	100.00	規劃範圍總面積

夾附的《註釋》屬這份圖則的一部分，
現經修訂並按照城市規劃條例第 5 條展示。
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN AND HAVE BEEN AMENDED FOR EXHIBITION UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE

核准圖編號 S/K2/24 的修訂
AMENDMENTS TO APPROVED PLAN No. S/K2/24

AMENDMENTS EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE		按照城市規劃條例第5條展示的修訂
AMENDMENT ITEM A		修訂項目A項
AMENDMENT ITEM B		修訂項目B項
AMENDMENT ITEM C		修訂項目C項

（參看附表）
(SEE ATTACHED SCHEDULE)

香港城市規劃委員會依據城市規劃條例擬備的油麻地（九龍規劃區第２區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KOWLOON PLANNING AREA No. 2 - YAU MA TEI - OUTLINE ZONING PLAN

SCALE 1:5000 比例尺
米 METRES 100 0 200 400 600 800 米 METRES

規劃署遵照城市規劃委員會指示擬備
PREPARED BY THE PLANNING DEPARTMENT UNDER THE DIRECTION OF THE TOWN PLANNING BOARD

圖則編號 PLAN No. S/K2/24A

KOWLOON PLANNING AREA NO. 2

~~APPROVED~~ *DRAFT* YAU MA TEI OUTLINE ZONING PLAN NO. S/K2/24*A*

(Being ~~an Approved~~ ***a Draft*** Plan for the Purposes of the Town Planning Ordinance)

NOTES

(N.B. These form part of the Plan)

(1) These Notes show the uses or developments on land falling within the boundaries of the Plan which are always permitted and which may be permitted by the Town Planning Board, with or without conditions, on application. Where permission from the Town Planning Board for a use or development is required, the application for such permission should be made in a prescribed form. The application shall be addressed to the Secretary of the Town Planning Board, from whom the prescribed application form may be obtained.

(2) Any use or development which is always permitted or may be permitted in accordance with these Notes must also conform to any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, as may be applicable.

(3) (a) No action is required to make the existing use of any land or building conform to this Plan until there is a material change of use or the building is redeveloped.

(b) Any material change of use or any other development (except minor alteration and/or modification to the development of the land or building in respect of the existing use which is always permitted) or redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Town Planning Board.

(c) For the purposes of subparagraph (a) above, "existing use of any land or building" means –

(i) before the publication in the Gazette of the notice of the first statutory plan covering the land or building (hereafter referred as 'the first plan'),

- a use in existence before the publication of the first plan which has continued since it came into existence; or
- a use or a change of use approved under the Buildings Ordinance which relates to an existing building; and

(ii) after the publication of the first plan,

- a use permitted under a plan which was effected during the effective period of that plan and has continued since it was effected; or
- a use or a change of use approved under the Buildings Ordinance which relates to an existing building and permitted under a plan prevailing at the time when the use or change of use was approved.

(4) Except as otherwise specified by the Town Planning Board, when a use or material change of use is effected or a development or redevelopment is undertaken, as always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board, all permissions granted by the Town Planning Board in respect of the site of the use or material change of use or development or redevelopment shall lapse.

(5) Road junctions, alignments of roads and railway tracks, and boundaries between zones may be subject to minor adjustments as detailed planning proceeds.

(6) Temporary uses (expected to be 5 years or less) of any land or building are always permitted as long as they comply with any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, and there is no need for these to conform to the zoned use or these Notes. For temporary uses expected to be over 5 years, the uses must conform to the zoned use or these Notes.

(7) The following uses or developments are always permitted on land falling within the boundaries of the Plan except where the uses or developments are specified in Column 2 of the Notes of individual zones:

(a) provision, maintenance or repair of plant nursery, amenity planting, open space, rain shelter, refreshment kiosk, road, bus/public light bus stop or lay-by, cycle track, Mass Transit Railway station entrance, Mass Transit Railway structure below ground level, taxi rank, nullah, public utility pipeline, electricity mast, lamp pole, telephone booth, telecommunications radio base station, automatic teller machine and shrine;

(b) geotechnical works, local public works, road works, sewerage works, drainage works, environmental improvement works, marine related facilities, waterworks (excluding works on service reservoir) and such other public works co-ordinated or implemented by Government; and

(c) maintenance or repair of watercourse and grave.

(8) In any area shown as 'Road', all uses or developments except those specified in paragraph (7) above and those specified below require permission from the Town Planning Board:

toll plaza, on-street vehicle park and railway track.

(9) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted uses and developments within the same zone are always permitted and no separate permission is required.

(10) In these Notes, "existing building" means a building, including a structure, which is physically existing and is in compliance with any relevant legislation and the conditions of the Government lease concerned.

KOWLOON PLANNING AREA NO. 2

~~APPROVED~~ *DRAFT* YAU MA TEI OUTLINE ZONING PLAN NO. S/K2/24*A*

Schedule of Uses

COMMERCIAL

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Eating Place Educational Institution Exhibition or Convention Hall Government Use (not elsewhere specified) Hotel Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project Wholesale Trade	Broadcasting, Television and/or Film Studio Commercial Bathhouse/Massage Establishment Flat Government Refuse Collection Point Hospital Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Residential Institution

Planning Intention

This zone is intended primarily for commercial developments, which may include shop, services, place of entertainment and eating place, functioning mainly as local shopping centres serving the immediate neighbourhood.

(Please see next page)

COMMERCIAL (Cont'd)

Remarks

~~(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 12.0, or the plot ratio of the existing building, whichever is the greater.~~

(~~2~~*1*) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(~~3~~*2*) A minimum setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street, Arthur Street, Woosung Street and Parkes Street shall be provided.

(~~4~~*3*) A minimum setback of 6m from the lot boundary above 15m measured from the mean street level abutting the northern curb of Kansu Street shall be provided.

~~(5) In determining the relevant maximum plot ratio for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.~~

~~(6) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraph (1) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio specified in paragraph (1) above may thereby be exceeded.~~

(~~7~~*4*) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the ~~plot ratio/~~building height restriction~~s~~ stated in paragraph~~s~~ (1) ~~and (2)~~ above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(~~8~~*5*) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the setback requirements stated in paragraphs (~~3~~*2*) and (~~4~~*3*) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP A)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Flat Government Use (not elsewhere specified) House Library Market Place of Recreation, Sports or Culture Public Clinic Public Transport Terminus or Station (excluding open-air terminus or station) Residential Institution School (in free-standing purpose-designed building only) Social Welfare Facility Utility Installation for Private Project	Commercial Bathhouse/Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Government Refuse Collection Point Hospital Hotel Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Office Petrol Filling Station Place of Entertainment Private Club Public Convenience Public Transport Terminus or Station (not elsewhere specified) Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution School (not elsewhere specified) Shop and Services (not elsewhere specified) Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements; or (b) in the purpose-designed non-residential portion of an existing building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room:

Eating Place
Educational Institution
Institutional Use (not elsewhere specified)
Off-course Betting Centre
Office
Place of Entertainment
Private Club
Public Convenience
Recyclable Collection Centre
School
Shop and Services
Training Centre

Planning Intention

This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.

Remarks

(1) On land designated "Residential (Group A)" ("R(A)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the plot ratio for the building upon development and/or redevelopment in excess of ~~7.5~~ ***8.5*** for a domestic building or 9.0 for a building that is partly domestic and partly non-domestic, or the plot ratio of the existing building, whichever is the greater. ~~Except where the plot ratio is permitted to be exceeded under paragraphs (9) and/or (10) hereof, under no circumstances shall the plot ratio for the domestic part of any building, to which this paragraph applies, exceed 7.5.~~

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(2) For a non-domestic building to be erected on the site, the maximum plot ratio shall not exceed 9.0 except where the plot ratio is permitted to be exceeded under paragraphs (9) and/or (10) hereof.

(3) ***For the purposes of paragraph (1) above,*** ~~O~~*o*n land designated "R(A)", no addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the relevant maximum domestic and/or non-domestic plot ratio(s) ~~stated in paragraph (1) above~~, or the domestic and/or non-domestic plot ratio(s) of the existing building, whichever is the greater, subject to, as applicable-

(i) the plot ratio(s) of the existing building shall apply only if any addition, alteration and/or modification to or redevelopment of an existing building is for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building; or

(ii) the maximum domestic and/or non-domestic plot ratio(s) stated in paragraph (1) above shall apply if any addition, alteration and/or modification to or redevelopment of an existing building is not for the same type of building as the existing building, i.e. domestic, non-domestic, or partly domestic and partly non-domestic building.

(4) On land designated "R(A)1", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic gross floor area (GFA) of 87,600m² and a maximum non-domestic GFA of 6,418m² of which not less than 2,088m² shall be provided for Government, institution or community (GIC) facilities. A public open space of not less than 5 850m² at ground level shall be provided.

(5) On land designated "R(A)" and "R(A)1", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of metres above Principal Datum (mPD) as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(6) On land designated "R(A)", a minimum setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street~~,~~ ***and*** Arthur Street~~, Woosung Street (between Kansu Street and Saigon Street) and Parkes Street~~ shall be provided.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(7) In determining the relevant maximum plot ratio for the purposes of paragraphs (1) and (2) above, area of any part of the site that is occupied or intended to be occupied by free-standing purpose-designed buildings (including both developed on ground and on podium level) solely for accommodating GIC facilities including school(s) as may be required by Government shall be deducted in calculating the relevant site area.

(8) In determining the relevant maximum plot ratio or GFA for the purposes of paragraphs (1) , (2) and (4) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(9) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio/GFA for the building on land to which paragraph (1), (2) or (4) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio/GFA specified in paragraphs (1), (2) and (4) above may thereby be exceeded.

(10) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/GFA/building height restrictions stated in paragraphs (1), (2), (4) and (5) above, and any reduction in the total GFA provided for GIC facilities stated in paragraph (4) above, may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(11) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the setback requirements stated in paragraph (6) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP B)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office only) House Library Residential Institution School (in free-standing purpose-designed building only) Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution School (not elsewhere specified) Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board.

(Please see next page)

RESIDENTIAL (GROUP B) (Cont'd)

Remarks

(1) On land designated "Residential (Group B)" ("R(B)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 5.0, or the plot ratio of the existing building, whichever is the greater.

(2) On land designated "R(B)1", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 22,400m² and a maximum building height of 85 metres above Principal Datum (mPD).

(3) On land designated "R(B)2", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum GFA of 84,000m² and a maximum building height of 130mPD. A mini-bus lay-by shall be provided.

(4) On land designated "R(B)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of mPD as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(5) In determining the relevant maximum plot ratio or GFA for the purposes of paragraphs (1) to (3) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(6) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/GFA/building height restrictions stated in paragraphs (1) to (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GOVERNMENT, INSTITUTION OR COMMUNITY

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Animal Quarantine Centre (in Government building only) Broadcasting, Television and/or Film Studio Eating Place (Canteen, Cooked Food Centre only) Educational Institution Exhibition or Convention Hall Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Institutional Use (not elsewhere specified) Library Market Place of Recreation, Sports or Culture Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Research, Design and Development Centre School Service Reservoir Social Welfare Facility Training Centre Wholesale Trade	Animal Boarding Establishment Animal Quarantine Centre (not elsewhere specified) Correctional Institution Driving School Eating Place (not elsewhere specified) Flat Funeral Facility Holiday Camp Hotel House Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Private Club Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Refuse Disposal Installation (Refuse Transfer Station only) Residential Institution Sewage Treatment/Screening Plant Shop and Services (not elsewhere specified) Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments.

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

Remarks

(1) On land designated "Government, Institution or Community" ("G/IC") and "G/IC(2)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storeys or metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(2) In determining the relevant maximum number of storeys for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.

(3) A minimum setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street, Arthur Street, Woosung Street (between Kansu Street and Saigon Street) and Parkes Street shall be provided.

(4) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(5) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the setback requirements stated in paragraph (3) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GOVERNMENT, INSTITUTION OR COMMUNITY (1)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Eating Place (Canteen only) Educational Institution Research, Design and Development Centre Training Centre	Exhibition or Convention Hall Field Study/Education/Visitor Centre Government Use (not elsewhere specified) Institutional Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Public Utility Installation Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Social Welfare Facility Utility Installation for Private Project

Planning Intention

This zone is intended primarily to provide land for higher educational facilities and railway facilities.

Remarks

(1) Any new development, except alteration and/or modification to an existing building, requires permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

(2) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 36,608m² and a maximum building height of 30 metres above Principal Datum (mPD) and 60mPD in the area to the north and south of the pecked line respectively as shown on the Plan. A public open space of not less than 6,080m² shall be provided.

(3) In determining the relevant maximum GFA for the purposes of paragraph (2) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker’s office and railway facilities may be disregarded.

(4) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the GFA and building height restrictions stated in paragraph (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

OPEN SPACE

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Aviary Field Study/Education/Visitor Centre Park and Garden Pavilion Pedestrian Area Picnic Area Playground/Playing Field Public Convenience Sitting Out Area	Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution Service Reservoir Shop and Services Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

OTHER SPECIFIED USES

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Residential Development with Historical Building Preserved" Only

Schedule I : for residential development other than the historical building

Column 1	Column 2
Flat Government Use (Police Reporting Centre only) House Library Residential Institution Utility Installation for Private Project	Educational Institution Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Hotel Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution School Shop and Services Social Welfare Facility Training Centre

Schedule II : for the historical building

Column 1	Column 2
Eating Place Educational Institution Field Study/Education/Visitor Centre Government Use Institutional Use (not elsewhere specified) Library Place of Recreation, Sports or Culture School Shop and Services Training Centre	Religious Institution Social Welfare Facility

(please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Residential Development with Historical Building Preserved" Only (Cont'd)

Planning Intention

This zone is intended primarily for residential development with the provision of public open space and in-situ preservation of the historical building of the former Pumping Station of Water Supplies Department for community/cultural uses.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building, other than the historical building, shall result in a total development and/or redevelopment in excess of a maximum gross floor area (GFA) of 29,017m² and a maximum building height in terms of metres above Principal Datum as stipulated on the Plan. A public open space of not less than 1,650m² at ground level shall be provided.

(2) Any addition, alteration and/or modification to the existing historical building requires permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

(3) No addition, alteration and/or modification to the existing historical building shall result in a total development in excess of the maximum building height in terms of number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(4) A minimum setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street shall be provided.

(5) In determining the relevant maximum GFA for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(6) In determining the relevant maximum number of storeys for the purposes of paragraph (3) above, any basement floor(s) may be disregarded.

(7) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the GFA/building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Residential Development with Historical Building Preserved" Only (Cont'd)

Remarks (Cont'd)

(8) Based on the individual merits of a development proposal, minor relaxation of the building height restrictions stated in paragraph (3) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(9) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the non-building area restriction as shown on the Plan and the setback requirement stated in paragraph (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Sports and Recreation Club" Only

Place of Recreation, Sports or Culture Private Club	Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Public Vehicle Park (excluding container vehicle) Religious Institution Shop and Services Social Welfare Facility Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is primarily to provide land intended for the sports and recreational facilities development at Gascoigne Road and Wylie Road.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(2) In determining the relevant maximum number of storeys for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.

(3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 ***Uses always permitted***	***Column 2*** ***Uses that may be permitted with or without conditions on application to the Town Planning Board***
For "Mixed Use" only	
Ambulance Depot *Flat* *Government Use (not elsewhere specified)* *House* *Library* *Market* *Place of Recreation, Sports or Culture* *Public Clinic* *Public Transport Terminus or Station (excluding open-air terminus or station)* *Residential Institution* *School (in free-standing purpose-designed building only)* *Social Welfare Facility* *Utility Installation for Private Project*	*Commercial Bathhouse/Massage Establishment* *Eating Place* *Educational Institution* *Exhibition or Convention Hall* *Government Refuse Collection Point* *Hospital* *Hotel* *Information Technology and Telecommunication Industries* *Institutional Use (not elsewhere specified)* *Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances* *Office* *Petrol Filling Station* *Place of Entertainment* *Private Club* *Public Convenience* *Public Transport Terminus or Station (not elsewhere specified)* *Public Utility Installation* *Public Vehicle Park (excluding container vehicle)* *Religious Institution* *School (not elsewhere specified)* *Shop and Services (not elsewhere specified)* *Training Centre* *Wholesale Trade*

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Mixed Use" Only (Cont'd)

In addition, the following uses are always permitted (a) on the lowest three floors of an existing building, taken to include basements; or (b) in the purpose-designed non-residential portion of a building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room:

Eating Place
Educational Institution
Institutional Use (not elsewhere specified)
Off-course Betting Centre
Office
Place of Entertainment
Private Club
Public Convenience
Public Vehicle Park (excluding container vehicle)
Recyclable Collection Centre
School
Shop and Services
Training Centre

Planning Intention

This zone is intended primarily for high-density residential developments. Flexibility for the development/redevelopment/conversion to residential uses, or a combination of various types of compatible uses including residential/commercial, educational, cultural, recreational and entertainment uses, vertically within a building, is allowed to meet changing market needs. Physical segregation has to be provided between the residential and non-residential portions within a new/converted building to prevent nuisance causing by non-residential uses to the residents.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Mixed Use" Only (Cont'd)

Remarks (Cont'd)

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in the plot ratio for the building upon development and/or redevelopment in excess of 7.5 for a domestic building or 9.0 for a building that is partly domestic and partly non-domestic, or the plot ratio of the existing building, whichever is the greater.

(2) For a non-domestic building to be erected on the site, the maximum plot ratio shall not exceed 9.0 except where the plot ratio is permitted to be exceeded under paragraphs (7) and/or (8) hereof.

(3) In determining the maximum plot ratio for the purposes of paragraphs (1) and (2) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, or caretaker's quarters and recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.

(4) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(5) A minimum setback of 3m from the lot boundary above 15m measured from the mean street level abutting Woosung Street (between Kansu Street and Saigon Street) and Parkes Street shall be provided.

(6) In determining the relevant maximum plot ratio for the purposes of paragraphs (1) and (2) above, area of any part of the site that is occupied or intended to be occupied by free-standing purpose-designed buildings (including both developed on ground and on podium level) solely for accommodating GIC facilities including school(s) as may be required by Government shall be deducted in calculating the relevant site area.

(7) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraphs (1) or (2) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio specified in paragraphs (1) and (2) above may thereby be exceeded.

(8) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and building height restrictions stated in paragraphs (1), (2) and (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Mixed Use" Only (Cont'd)

Remarks (Cont'd)

(9) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the setback requirements stated in paragraph (5) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Railway" Only	
As Specified on the Plan	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Utility Installation not Ancillary to the Specified Use

Planning Intention

This zone is intended primarily to provide land for the Mass Transit Railway.

GREEN BELT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Barbecue Spot Government Use (Police Reporting Centre only) Nature Reserve Nature Trail On-Farm Domestic Structure Picnic Area Public Convenience Tent Camping Ground Wild Animals Protection Area	Animal Boarding Establishment Broadcasting, Television and/or Film Studio Flat Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp House Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Place of Recreation, Sports or Culture Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Religious Institution Residential Institution School Service Reservoir Social Welfare Facility Utility Installation for Private Project

Planning Intention

The planning intention of this zone is primarily for the conservation of the existing natural environment amid the built-up areas and to provide additional outlets for passive recreational activities. There is a general presumption against development within this zone.

Attachment IV of
<u>MPC Paper No. 5/23</u>

KOWLOON PLANNING AREA NO. 2

~~APPROVED~~ *DRAFT* YAU MA TEI OUTLINE ZONING PLAN NO. S/K2/24*A*

EXPLANATORY STATEMENT

KOWLOON PLANNING AREA NO. 2

~~APPROVED~~ *DRAFT* YAU MA TEI OUTLINE ZONING PLAN NO. S/K2/24*A*

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KOWLOON PLANNING AREA NO. 2

~~APPROVED~~ *DRAFT* YAU MA TEI OUTLINE ZONING PLAN NO. S/K2/24*A*

(Being ~~an Approved~~ ***a Draft*** Plan for the Purposes of the Town Planning Ordinance)

EXPLANATORY STATEMENT

Note: For the purposes of the Town Planning Ordinance, this statement shall not be deemed to constitute a part of the Plan.

1. INTRODUCTION

This explanatory statement is intended to assist an understanding of the ~~approved~~ ***draft*** Yau Ma Tei Outline Zoning Plan (OZP) No. S/K2/24*A*. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the various land use zonings of the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 The first statutory plans covering the Yau Ma Tei area, included Plan No. LK 2/18 (for Yau Ma Tei) and Plan No. S/K6/1 (for Mong Kok and Yau Ma Tei (East)), were gazetted on 11 November 1955 and 17 May 1985 respectively under the Town Planning Ordinance (the Ordinance). Subsequently, opportunity was taken to recast the planning area boundaries to conform with those of the relevant District Boards and one single OZP was prepared for the entire Yau Ma Tei district. Accordingly, the draft Yau Ma Tei OZP No. S/K2/1 was exhibited on 26 September 1986 for public inspection under section 5 of the Ordinance. Since then, the OZP had been amended several times and exhibited for public inspection under section 7 of the Ordinance.

2.2 On 26 October 1993, the then G in C referred the Yau Ma Tei OZP No. S/K2/5 to the Board for amendment under section 9(1)(c) of the Ordinance. Since then, the OZP had been amended three times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.3 On 29 September 1998, the Chief Executive in Council (CE in C), under section 9(1)(a) of the Ordinance, approved the draft Yau Ma Tei OZP, which was subsequently re-numbered as S/K2/9. On 10 October 2000, the CE in C referred the approved OZP No. S/K2/9 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The OZP was subsequently amended five times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.4 On 1 April 2003, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Yau Ma Tei OZP, which was subsequently re-numbered as S/K2/15. On 8 July 2003, the CE in C referred the approved OZP No. S/K2/15 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The OZP was subsequently amended and exhibited for public inspection under section 5 of the Ordinance.

2.5 On 2 November 2004, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Yau Ma Tei OZP, which was subsequently re-numbered as S/K2/17. On 9 May 2006, the CE in C referred the approved OZP No. S/K2/17 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The OZP was subsequently amended twice and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.6 On 6 May 2008, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Yau Ma Tei OZP, which was subsequently re-numbered as S/K2/20. On 21 October 2008, the CE in C referred the approved OZP No. S/K2/20 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 31 October 2008 under section 12(2) of the Ordinance. ***The OZP was subsequently amended three times and exhibited for public inspection under section 5 or 7 of the Ordinance.***

~~2.7 On 29 October 2010, the draft Yau Ma Tei OZP No. S/K2/21, incorporating amendments mainly to impose building height restrictions for various zones as well as to rezone a completed residential development previously covered by Land Development Corporation Development Scheme Plan and a number of sites to appropriate zonings to reflect their existing uses, was exhibited for public inspection under section 5 of the Ordinance. During the plan exhibition period, nine representations were received. In the first three weeks of the public inspection period of the representations, a total of 702 comments were received. Upon consideration of the representations and comments on 13 May 2011, the Board decided to partially meet one representation and not to uphold the remaining representations. The proposed amendment to the OZP was published under section 6C(2) of the Ordinance on 3 June 2011. As no further representation was received, the Board on 29 July 2011 agreed that the plan should be amended by the proposed amendment.~~

~~2.8 On 16 May 2014, the draft Yau Ma Tei OZP No. S/K2/22, incorporating amendments to rezone a site at No. 54 Waterloo Road from "G/IC" to "G/IC(2)" with revision to the building height restriction and stipulation of setback requirement was exhibited for public inspection under section 7 of the Ordinance.~~

~~2.9 The Board's decisions on some representations were the subjects of judicial review (JR) applications. According to the Court's ruling on a JR application, the Board's decision made on 13 May 2011 in respect of the representation related to the JR application has to be remitted to the Board for~~

~~reconsideration. A review of the development restrictions on the draft Yau Ma Tei OZP was therefore conducted.~~

~~2.10 On 15 October 2021, the draft Yau Ma Tei OZP No. S/K2/23 (the Plan), incorporating mainly amendments to the building height restrictions, was exhibited for public inspection under section 7 of the Ordinance. During the two-month exhibition period, three representations were received. On 7 January 2022, the Board published the representations for 3 weeks for public comments and a total of 1 comment was received. After giving consideration to the representations and comments on 27 May 2022, the Board decided not to uphold the representations and that no amendment should be made to the OZP to meet the representations.~~

~~2.11~~*2.7* On 18 October 2022, the CE in C, under section (9)(1)(a) of the Ordinance, approved the draft Yau Ma Tei OZP, which was subsequently renumbered as S/K2/24. ~~On 28 October 2022, the approved Yau Ma Tei OZP No. S/K2/24 (the Plan) was exhibited for public inspection under section 9(5) of the Ordinance.~~ ***On 7 February 2023, the CE in C referred the approved Yau Ma Tei OZP No. S/K2/24 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 17 February 2023 under section 12(2) of the Ordinance***.

2.8 ***On XX XXXX 2023, the draft Yau Ma Tei OZP No. S/K2/25 (the Plan) was exhibited for public inspection under section 5 of the Ordinance. The amendments on the Plan mainly involved (i) removal of the maximum plot ratio restriction on the "Commercial" ("C") zone; (ii) rezoning of the "Residential (Group A)" ("R(A)") sites at Temple Street (southern section) and Woosung Street to "Other Specified Uses" annotated "Mixed Use" ("OU(MU)"); (iii) revising the maximum domestic plot ratio restriction of "R(A)" zone; and (iv) relaxation of the building height restrictions on the "C", "OU(MU)" and "R(A)" zones.***

3. OBJECT OF THE PLAN

3.1 The object of the Plan is to indicate the broad land use zonings and major transport networks so that developments and redevelopments within the Planning Scheme Area (the Area) can be put under statutory planning control.

3.2 The Plan is to illustrate the broad principles of development. It is a small-scale plan and the transport alignments and boundaries between the land use zones may be subject to minor adjustments as detailed planning proceeds.

3.3 Since the Plan is to show broad land use zonings, there would be cases that small strips of land not intended for building development purposes and carry no development right under the lease, such as the areas restricted for garden, slope maintenance and access road purposes, are included in the residential zones. The general principle is that such areas should not be taken into account in plot ratio and site coverage calculations. Development within residential zones should be restricted to building lots carrying development right in order to maintain the character and amenity of the ~~Yau Ma Tei area~~ ***Area*** and not to overload the road network in this area.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Area and in particular zones and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land use planning and better control of development to meet changing needs.

4.2 For the guidance of the general public, a set of definitions that explains some of the terms used in the Notes may be obtained from the Technical Services Division of the Planning Department ***(PlanD)*** and can be downloaded from the Board's website (http://www.info.gov.hk/tpb).

5. THE PLANNING SCHEME AREA

5.1 The Area is located in West Kowloon ~~and forms the central part of the Yau Tsim Mong Administration District~~. It is bounded by Jordan Road and Gascoigne Road to the south, the Mass Transit Railway (MTR) East Rail Line to the east, Dundas Street to the north, and ~~West Kowloon Reclamation~~ ***Ferry Street and Man Cheong Street*** to the west. The boundary of the Area is delineated in a heavy broken line on the Plan. It covers about 122 hectares of land.

5.2 The Area comprises two distinct parts. The area to the west of Nathan Road is one of the older parts of the urban area with predominantly residential use. Whereas the sites along Nathan Road are dominated by commercial or commercial/residential buildings. ***The Temple Street area is a famous and popular night market with various local shops and cooked food stalls.***

5.3 To the east of Nathan Road, flat land gives way to undulating ground. Developments are more dispersed and of more recent origin. Queen Elizabeth Hospital, a number of low-density residential developments, grass pitches and recreation clubs are found in this part of the Area.

5.4 The western part of the Area has a high concentration of old buildings in dilapidated conditions and aging building stock problem. Improvement to the living environment would be brought by comprehensive urban renewal programmes and redevelopments.

6. POPULATION

Based on the 2016 Population By-census, the population of the Area was estimated by ~~the Planning Department~~ ***PlanD*** as about 76,750. It is estimated that the planned population of the Area would be about 84,000.

7. REDEVELOPMENT STRATEGY

7.1 ***In view of the rapid ageing of buildings, more effective policy measures should be adopted to expedite the pace of redevelopment and renewal. As one of the measures, the District Study for Yau Ma Tei and Mong Kok (YMDS) commenced by the Urban Renewal Authority (URA) in 2017 has mapped out a blueprint for restructuring and regenerating the old districts to enhance land use efficiency and optimise redevelopment potential. With a view to incentivising market participation, new urban renewal strategies involving both URA and the private sector as well as institutional and implementation mechanisms have been formulated for adoption in the Yau Ma Tei and Mong Kok areas (the Yau Mong Areas).***

7.2 ***With a view to regenerating the Yau Mong Areas into a livable, sustainable, diverse and vibrant metropolitan hub while reinforcing it as an area representing the rich local and cultural heritage of Hong Kong, URA has developed three sets of Master Urban Renewal Concept Plans (MRCPs), i.e. "+", "0" and "-". The "+" scenario envisions growth and livability, focusing on steering economic growth, and is designed to generate an increase in GFA (but leans more on non-domestic GFA) within the limits of infrastructure and planning capacity. The "-" scenario aspires to create a livable city with major restructuring and population thin-out, requiring higher level of Government initiatives. The "0" scenario lies in the middle ground and seeks to maintain existing permissible level of development under the OZP with improvement in livability. The implementation of the MRCPs would be dependent on resource availability. As a first step, URA will adopt MRCP "+" in its early projects. With the readiness of new land supply in the future rendering it possible to thin out the population in the Yau Mong Areas, the development model would be gradually shifted to the "0" or "-" scenario.***

~~7~~*8*. BUILDING HEIGHT RESTRICTIONS IN THE AREA

~~7~~*8*.1 In order to provide better planning control on the development intensity and building height upon development/redevelopment and to meet public aspirations for greater certainty and transparency in the statutory planning system, the Kowloon OZPs are subject to revisions to incorporate building height restrictions to guide future development/redevelopment.~~ Some of the high-rise redevelopments erected in the Area in recent years following the relocation of the airport in Kai Tak and the removal of the airport height restrictions are considered undesirable from the urban design perspective as~~

~~they are visually incompatible and out-of-context with the local built environment.~~ In order to prevent excessively tall or out-of-context buildings, and to instigate control on the overall building height profile of the Area, building height restrictions are imposed for various zones on the Plan ~~in 2010~~.

~~7~~***8***.2 The ~~review in 2010 has~~ ***building height restrictions have*** taken into account the existing topography and site levels, the foothill setting, the local character, existing townscape and building height profile, the local wind environment and measures suggested for ventilation improvements, areas of local attractions, the building height restriction under the lease, ~~and~~ the Urban Design Guidelines ***under the Hong Kong Planning Standards and Guidelines (HKPSG) and Sustainable Building Design Guidelines (SBDG). Except for the existing high-rise towers up to 132 metres above Principal Datum (mPD) bounded by Waterloo Road, Portland Street, Man Ming Lane and Shanghai Street, the building height bands of 80mPD to 140mPD in the Area for the "R(A)" and "C" zones are in general stepping down from Nathan Road to the west. The "R(B)" sites are located in the King's Park Area to the east of Nathan Road. The King's Park Area is endowed with unique features as the sloping topography and the openness in the southeast. In order to preserve the existing character, building height restrictions of 85mPD, 90mPD and 130mPD are imposed on the "R(B)" sites.***

~~7.3 To comply with the Court's ruling on a JR application on the draft OZP No. S/K2/21, a review of the building height restrictions taking into account the implications of Sustainable Building Design Guidelines (SBDG) and permissible development intensity was conducted in 2018. To provide flexibility for future development to comply with SBDG, a building height restrictions of 100mPD and 110mPD are stipulated for the "Residential (Group A)" ("R(A)") and "Commercial" ("C") zones respectively, except for the "R(A)1" zone.~~

~~7.4~~***8.3*** Moreover, specific building height restrictions for the "G/IC" and "OU" zones in terms of mPD and/or number of storeys, which mainly reflect the existing and planned building heights of developments, have been incorporated into the Plan.

~~7.5~~***8.4*** An air ventilation assessment (AVA) by expert evaluation was undertaken in 2010 (***AVA 2010***) to assess the likely impact of the building heights of the development sites within the Area on the pedestrian wind environment. ***AVA 2010 found that the streets in the Area generally follow a north-south and east-west grid pattern. The street orientation is in parallel with the annual prevailing wind coming from the northeast, east and west, and summer prevailing wind from the southeast and southwest directions. The grid street pattern of the Area serves as an important wind path system and should be preserved as far as possible.***

~~7.6~~***8.5*** An updated AVA was conducted in 2018 to assess the impact of relaxing the building height restrictions for the "C" and "R(A)" sites and to review the non-building area ***(NBA)*** and setback requirements on the draft OZP based on the assumption that redevelopments would follow SBDG. It is recognised that the adoption of SBDG's design measures within the Area in future would enhance the bulding permeability, in particular at the pedestrian level. However, relying on SBDG alone would not be sufficient to ensure good ventilation, and other air ventilation measures, such as ~~non-building area~~ ***NBA*** and setback requirements at different locations across the Area could increase urban permeability for air movements within the existing street canyons and facilitate wind flow into the Area and are considered essential and should be maintained as detailed in paragraphs ~~7~~***8***.9 and ~~7~~***8***.10. To avoid further deterioration of the existing air ventilation performance of the Area, the design principles as set out in ~~the Hong Kong Planning Standards and Guidelines~~ ***HKPSG*** should also be followed by future developments/redevelopments.

8.6 ***The AVA conducted in 2022 concluded that the proposed amendments to the "C", "R(A)" and "OU(MU)" zones would not have significant adverse impact on air ventilation in the Area. To further improve air ventilation in the Area especially the "C" and "OU(MU)" zones, future developments are encouraged to adopt suitable permeable design including smaller/ terraced podium, more building setbacks/ gaps and open area at low level for better ventilation.***

~~7~~***8***.7 In general, a minor relaxation clause in respect of building height restrictions is incorporated into the Notes of the Plan for various zones in order to provide incentive for developments/redevelopments with design merits/planning gains. Each application for minor relaxation of building height restriction will be considered on its own merits and the relevant criteria for consideration of such application are as follows:

(a) amalgamating smaller sites for achieving better urban design and local area improvements,

(b) accommodating the bonus plot ratio granted under the Buildings Ordinance in relation to surrender/dedication of land/area for use as public passage/street widening;

(c) providing better streetscape/good quality street level public urban space;

(d) providing separation between buildings to enhance air ventilation and visual permeability;

(e) accommodating building design to address specific site constraints in achieving the permissible plot ratio under the Plan; and

(f) other factors such as site constraints, the need for tree preservation, innovative building design and planning merits that would bring about improvements to townscape and amenity of the locality, provided that no adverse landscape and visual impacts would be resulted from the innovative building design.

~~7~~***8***.8 However, for existing buildings where the building heights have already exceeded the maximum building height restrictions in terms of mPD or number of storeys as shown on the Plan or stipulated in the Notes, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

~~7~~***8***.9 Building Setbacks

Setback of buildings from streets play a key role in creating/widening air paths to improve air ventilation of the local area.

(a) To enhance the north-south air flow in the inner part of the Kowloon Peninsula, a building setback of 3m from the lot boundary above 15m measured from the mean street level for the sites on both sides of Portland Street, Arthur Street, Woosung Street (between Kansu Street and Saigon Street) and Parkes Street is imposed.

(b) The east-west air path at Kansu Street will be widened by imposing a 6m setback of building from the lot boundary above 15m measured from the mean street level for the "C" zone abutting the northern curb of Kansu Street to improve air penetration and visual permeability upon redevelopment.

~~7~~***8***.10 Non-Building Area

The existing public open space to the south of the residential development of '8 Waterloo' together with Yunnan Lane is situated at a location where the southerly wind changes its course from Temple Street to Portland Street. To preserve this air path, the public open space together with Yunnan Lane is designated as a ~~non-building area (~~NBA~~)~~. The intention for the designation of the NBA is for air ventilation above ground and such a restriction will not apply to underground developments.

~~7~~***8***.11 The above building setbacks and ~~non-building area~~ ***NBA*** should be taken into account upon future redevelopment of the sites. A minor relaxation clause has been incorporated in the Notes of the relevant zones to allow minor relaxation of the stated building setback requirements and NBA restrictions under exceptional circumstances.

~~7.12 The streets in the Area generally follow a north-south and east-west grid pattern. The street orientation is in parallel with the annual prevailing wind coming from the northeast, east and west, and summer prevailing wind from the southeast and southwest directions. The grid street pattern of the Area serves as an important wind path system and should be preserved as far as possible.~~

~~8.~~*9.* LAND USE ZONINGS

~~8~~*9*.1 Commercial ("C") : Total Area 6.77 ha

~~8~~*9*.1.1 This zone is intended primarily for commercial developments, which may include shop, services, place of entertainment and eating place, functioning mainly as local shopping centres serving the immediate neighbourhood.

~~8~~*9*.1.2 Sites zoned "C" are mainly found on both sides of Nathan Road, which is the main commercial spine within the Yau Ma Tei ~~district~~ ***area***. Many of these sites have been developed for commercial purposes including shops, department stores, ~~cinemas,~~ hotels, restaurants and offices. ~~The commercial developments along Nathan Road have been fulfilling the need for commercial expansion in the main urban area. Commercial uses such as retail shops, offices and restaurants are permitted as of right on any floor of a building within this zone.~~

~~8.1.3 Developments within this zone are subject to a maximum plot ratio of 12.0 to restrain traffic growth which will otherwise overload the existing and planned transport networks and sewerage system capacities.~~

~~8.1.4 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratio of 12.0 may be increased by what is permitted to be exceeded under Regulation 22.~~

~~8.1.5~~***9.1.3*** Developments within the "C" zone are subject to a maximum building height restriction of ~~110~~ ***140***mPD.

~~8.1.6~~***9.1.4*** Minor relaxation of ~~plot ratio/~~building height restriction~~s~~ may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph ~~7~~***8***.7 above would be relevant for the assessment of minor relaxation of building height restriction~~s~~. Each application will be considered on its own merits.

~~8.1.7~~***9.1.5*** However, for any existing building with ~~plot ratio/~~building height already exceeding the relevant restriction~~s~~ as stipulated on the Plan or in the Notes of the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

~~8.1.8~~***9.1.6*** In order to enhance the local air ventilation performance, a minimum building setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street, Arthur Street, Woosung Street (between Kansu Street and Saigon Street) and Parkes Street (see paragraph ~~7~~***8***.9(a) above), and a minimum building setback of 6m from the lot boundary above 15m measured from the mean street level abutting the northern curb of Kansu Street (see paragraph ~~7~~***8***.9(b) above) shall be provided. Under exceptional circumstances, minor relaxation of the setback requirements may be considered by the Board on application under section 16 of the Ordinance.

~~8~~***9***.2 Residential (Group A) ("R(A)") : Total Area ***11.5***~~13.72~~ ha

~~8~~***9***.2.1 This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.

~~8~~***9***.2.2 Existing buildings within this zone range from four-storey tenements completed immediately after the World War II to recently developed multi-storey buildings. The ground and first floors of these buildings are mostly occupied by shops and service trades. ~~This land use zoning is designed to allow this pattern of land use to continue, but in a controlled manner.~~

~~8~~***9***.2.3 ~~In consideration of the overall transport, environmental and infrastructural constraints, as well as the adequacy in the provision of community facilities as envisioned in the Kowloon Density Study Review completed in early 2002,~~ ***Taking into account the proposals under YMDS to allow more flexibility for interchangeability between domestic and non-domestic plot ratio for incentivising redevelopment and increasing flat supply,*** developments or redevelopments within this zoning are subject to specific control on plot ratios except otherwise specified in the Notes, i.e. a maximum plot ratio of ~~7~~***8***.5 for a domestic building and a maximum plot ratio of 9.0 for a partly domestic and partly non-domestic building. In calculating the gross floor area (GFA) for these developments/redevelopments, the lands for free-standing purpose-designed buildings that are solely used for accommodating school or other GIC facilities, including those located on ground and on building podium, are not to be taken as parts of the site.

~~8~~***9***.2.4 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratios may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.

~~8~~***9***.2.5 For new developments/redevelopments within the "R(A)" zone that are adjacent to major roads, measures to mitigate the traffic noise impacts should be taken into account. Effort should also be made to reduce the noise level at source, such as provision of noise reducing friction course on road surface.

~~8.2.6 A site at 855-865 Canton Road, which is occupied by an existing commercial/GIC/residential development (known as Winfield Building) with shops on G/F, residential care home for the elderly on 1/F and 2/F and other GIC facilities on 3/F to 5/F, has been rezoned from "G/IC" to "R(A)" to reflect the predominantly residential nature of the existing development at the site.~~

~~8.2.7~~***9.2.6*** Developments and redevelopments within this zone are subject to a maximum building height of ~~100~~***115***mPD***,*** except on land designated "R(A)1".

~~8.2.8~~***9.2.7*** The site bounded by Public Square Street and Tung Kun Street was developed for residential and commercial uses with community facilities and public open space (known as Prosperous Garden) by the Hong Kong Housing Society in 1995. The site is zoned "R(A)1" subject to maximum domestic and non-domestic GFA of 87,600m² and 6,418m² respectively, of which not less than 2,088m² for GIC facilities shall be provided. A public open space of not less than 5,850m² at ground level shall be provided.

~~8.2.9~~***9.2.8*** Minor relaxation of plot ratio/GFA/building height restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph ~~7~~***8***.7 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

~~8.2.10~~***9.2.9*** However, for any existing building with plot ratio/GFA/building height already exceeding the relevant restrictions as stipulated on the Plan or in the Notes of the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

~~8.2.11~~***9.2.10*** In order to enhance the local air ventilation performance, a minimum building setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street ~~,~~***and*** Arthur Street~~, Woosung Street (between Kansu Street and Saigon Street) and Parkes Street~~ (as detailed in paragraph ~~7~~***8***.9(a) above) shall be provided. Under exceptional circumstances, minor relaxation of the setback requirements may be considered by the Board on application under section 16 of the Ordinance.

9.2.11 The plot ratio control under "R(A)" zone is regarded as being stipulated in a "new or amended statutory plan" according to the Joint Practice Note No. 4 "Development Control Parameters Plot Ratio/Gross Floor Area", and shall be subject to the streamlining arrangements stated therein.

~~8~~***9***.3 Residential (Group B) ("R(B)") : Total Area 7.41 ha

~~8~~***9***.3.1 This zone is intended primarily for medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board. The zone covers residential development mainly in the King's Park area. Very few uses other than residential use are permitted as of right in this zone, although provision is made for certain commercial uses to be considered upon application to the Board.

~~8~~***9***.3.2 Developments within this zone are subject to a maximum plot ratio or GFA control in order to restrain traffic growth which will otherwise overload the existing and planned transport networks.

~~8~~***9***.3.3 The ex-Government Quarters site at King's Park Rise has been redeveloped and is now known as King's Park Hill. The site is zoned "R(B)1" subject to a maximum GFA of 22,400m² and a maximum building height of 85mPD.

~~8~~***9***.3.4 Part of the ex-British Military Hospital site at the junction of Princess Margaret Road and Wylie Road has been redeveloped and is now known as Parc Palais. The site is zoned "R(B)2" subject to a maximum GFA of 84,000m² and a maximum building height of 130mPD. A mini-bus layby is provided within this site.

~~8~~***9***.3.5 Developments and redevelopments within the "R(B)" zone are subject to a maximum building height restriction of 90mPD, or the height of the existing building, whichever is the greater.

~~8~~***9***.3.6 Minor relaxation of plot ratio/GFA/building height restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph ~~7~~***8***.7 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

~~8~~***9***.3.7 However, for any existing building with plot ratio/GFA/building height already exceeding the relevant restrictions as stipulated on the Plan or in the Notes of the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

~~8~~***9***.4 Government, Institution or Community ("G/IC") : Total Area 30.43 ha

~~8~~***9***.4.1 Land zoned for this purpose is intended to provide for major Government uses and other community facilities to serve the needs of the residents in the Area and, where appropriate, those in the adjoining districts. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments.

~~8~~*9*.4.2 Major existing GIC uses include Queen Elizabeth Hospital, Kwong Wah Hospital, King's Park Hockey Ground, Yau Ma Tei Fruit Market, Kowloon Government Offices, ~~Yau Ma Tei Police Station,~~ Hong Kong Red Cross Blood Transfusion Centre and several schools. The ex-military staff quarters fronting Wylie Road is reserved for primary school use. A site at 54 Waterloo Road is zoned "G/IC(2)" which is for the provision of religious and social welfare facilities.

~~8~~*9*.4.3 Developments and redevelopments within this zone are subject to building height restrictions in terms of number of storeys (excluding basement floors(s)) or mPD as stipulated on the Plan, or the height of the existing building, whichever is the greater. Building height restrictions for most of the "G/IC" zones are stipulated in terms of number of storeys except the relatively high-rise GIC uses, such as Kwong Wah Hospital (excluding Tung Wah Group of Hospitals Museum) and Queen Elizabeth Hospital, so as to reflect their new development proposals and/or to provide a more clear control over the building height profile.

~~8~~*9*.4.4 Minor relaxation of the building height restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph ~~7~~*8*.7 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

~~8~~*9*.4.5 However, for any existing building with building height already exceeding the relevant restriction as stipulated on the Plan or in the Notes of the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

~~8~~*9*.4.6 In order to enhance the local air ventilation performance, a minimum building setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street, Arthur Street, Woosung Street (between Kansu Street and Saigon Street) and Parkes Street (as detailed in paragraph ~~7~~*8*.9(a) above) shall be provided.

~~8~~*9*.4.7 Under exceptional circumstances, minor relaxation of setback requirements may be considered by the Board on application under section 16 of the Ordinance.

~~8~~***9***.5 <u>Government, Institution or Community (1) ("G/IC(1)")</u> : Total Area 0.96 ha

~~8~~***9***.5.1 A site at the junction of Chatham Road South and Princess Margaret Road is zoned "G/IC(1)" which is intended primarily to provide land for higher educational facilities and railway facilities together with the provision of a public open space. In order to address the concerns of the Board on the proposed development for higher educational facilities, any new development, except alteration and/or modification to an existing building, requires permission from the Board under section 16 of the Ordinance. In submitting the section 16 planning application, the following information should also be provided:

(i) the accessibility of the public open space within the development to the public;

(ii) the pedestrian circulation arrangement of the development;

(iii) landscape and urban design proposals within the development, including a tree preservation proposal;

(iv) the details and proposed area to be reserved for the incorporation of railway-related facilities;

(v) the access arrangement to the MTR Ho Man Tin Substation; and

(vi) such other information as may be required by the Board.

~~8~~***9***.5.2 Minor relaxation of GFA/building height restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph ~~7~~***8***.7 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

~~8~~***9***.5.3 However, for any existing building with GFA/building height already exceeding the relevant restrictions as stipulated in the Notes of the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

~~8~~***9***.6 <u>Open Space ("O")</u> : Total Area 18.73 ha

~~8~~***9***.6.1 This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

~~8~~***9***.6.2 The existing open spaces in the western part of the Area mainly comprise ~~the open ground on top of the Yau Ma Tei Service~~

~~Reservoir,~~ children's playgrounds and small rest gardens. In the east, the ***major*** open space***s include the open ground on top of Yau Ma Tei Service Reservoir Rest Garden, King's Park Recreation Ground and King's Park Sports Ground providing facilities such as*** ~~at King's Park includes a~~ children's playground, basketball and tennis courts, rest garden, walking trails and sitting-out areas. ~~The existing grass pitches within the ex-British Military Hospital site, i.e. King's Park Sports Ground, are retained for open space purposes.~~

~~8~~***9***.7 Other Specified Uses ("OU") : Total Area ***11.09*** ~~8.87~~ ha

~~8~~***9***.7.1 This zone is intended primarily to provide/reserve land for specified purposes/uses.

~~8~~***9***.7.2 The site previously covered by the approved Land Development Corporation Waterloo Road/Yunnan Lane Development Scheme Plan No. S/K2/LDC1/4 has been developed as a residential development (known as 8 Waterloo) with the in-situ preservation of the former pumping station of the Water Supplies Department (also known as Red Brick Building) and the provision of a public open space. The site is zoned "OU (Residential Development with Historical Building Preserved)", intended primarily for residential development, and subject to a maximum GFA of 29,017m² and a maximum building height of 132mPD for the residential portion and a maximum building height of 2 storeys (excluding basement floors(s)) for the historical building. A public open space of area not less than 1,650m² shall be provided at ground level. The Red Brick Building has been renovated and converted by the Leisure and Cultural Services Department into a training venue for the Xiqu Activity Centre at the former Yaumatei Theatre (Grade 2 historical building). In order to enhance the local air ventilation performance, a minimum building setback of 3m from the lot boundary above 15m measured from the mean street level abutting Portland Street shall be provided. The public open space together with Yunnan Lane is at a location where the southerly wind changes its course from Temple Street to Portland Street and is designated as an NBA. This NBA is required for air ventilation purpose and such a restriction will not apply to underground developments. Under exceptional circumstances, minor relaxation of the setback requirement and the NBA restriction may be considered by the Board under section 16 of the Ordinance.

~~8~~***9***.7.3 The sports and recreation clubs, which are located mainly at Gascoigne Road and Wylie Road in the eastern part of the Area, are zoned "OU (Sports and Recreation Club)". In order to ensure that the building height will be in keeping with the character of the surrounding areas, developments/redevelopments within this "OU" zone are restricted to a maximum building height of 1 storey for

Club de Recreio; 2 storeys for India Club, YMCA King's Park Centenary Centre, Hong Kong Chinese Civil Servants' Association, Municipal Services Staff Recreation Club and Pakistan Club; and 3 storeys for The Filipino Club and South China Athletic Association Tennis Centre. For all these sites, basement floor(s) may be disregarded in determining the number of storeys.

~~8~~***9***.7.4 ***The area bounded by Jordan Road to the south, Shanghai Street to the west, Kansu Street to the north and Woosung Street and Parkes Street to the east is zoned "OU(MU)". This zone is intended primarily for high-density residential developments. Flexibility for the development/redevelopment/conversion to residential uses, or a combination of various types of compatible uses including residential/commercial, educational, cultural, recreational and entertainment uses, vertically within a building, is allowed to meet changing market needs. Physical segregation has to be provided between the residential and non-residential portions within a new/converted building to prevent nuisance causing by non-residential uses to the residents. Developments within "OU(MU)" are subject to maximum building height of 115mPD and a maximum plot ratio of 7.5 for a domestic building or a maximum plot ratio of 9.0 for a partly domestic and partly non-domestic building. In order to enrich the commercial mix through more commercial floor spaces, non-domestic use is allowed on the lowest three floors of an existing building (including basements), or in the purpose-designed non-residential portion of a building. The plot ratio control under this zone is regarded as being stipulated in a "new or amended statutory plan" according to the Joint Practice Note No. 4 "Development Control Parameters Plot Ratio/Gross Floor Area", and shall be subject to the streamlining arrangements stated therein.***

~~8.7.4~~***9.7.5*** Minor relaxation of GFA/building height restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph ~~7~~***8***.7 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

~~8.7.5~~***9.7.6*** However, for any existing building with GFA/building height already exceeding the relevant restrictions as stipulated on the Plan or in the Notes of the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

9.7.7 ***A minimum building setback of 3m from the lot boundary above 15m measured from mean street level abutting Woosung Street (between Kansu Street and Saigon Street) and Parkes Street shall***

be provided. Under exceptional circumstances, minor relaxation of the setback requirements may be considered by the Board on application under section 16 of the Ordinance.

~~8.7.6~~*9.7.8* In submitting a planning application to the Board for Red Brick Building, the applicant should make reference to the conservation principles as stated in the Conservation Guidelines drawn up by the Antiquities and Monuments Office (AMO).

~~8~~*9*.8 Green Belt ("GB") : Total Area 2.16 ha

~~8~~*9*.8.1 The planning intention of this zone is primarily for the conservation of the existing natural environment amid the built-up areas and to provide additional outlets for passive recreational activities. There is a general presumption against development within this zone.

~~8~~*9*.8.2 This zoning mainly covers steep hill slopes which are unsuitable for urban development. Development within this zone will be carefully controlled and development proposals will be assessed on individual merits taking into account relevant Town Planning Board Guidelines.

~~8~~*9*.8.3 The vegetated hill slopes near the residential development of King's Park Hill is within this zone.

~~9~~***10***. COMMUNICATIONS

~~9~~***10***.1 Roads

~~9~~***10***.1.1 Nathan Road, Jordan Road, Waterloo Road, Gascoigne Road and Princess Margaret Road are part of the primary distributor road network in the north-south and east-west directions.

~~9~~***10***.1.2 Other major roads in the Area include Hung Hom By-pass, Princess Margaret Road Link and the proposed Central Kowloon Route.

~~9~~***10***.2 Railway

~~9~~***10***.2.1 The Area is served by the MTR Tsuen Wan Line running beneath Nathan Road. There are two stations, namely Yau Ma Tei Station and Jordan Station with entrances distributed at convenient locations.

~~9~~***10***.2.2 ~~The CE in C on 30 November 2010 authroised the MTR Kwun Tong Line Extension (KTE) under the Railways Ordinance (Cap. 519). Pursuant to section 13A of the Ordinance, the authorised~~

~~railway scheme shall be deemed to be approved under the Ordinance.~~ ***The MTR Kwun Tong Line Extension (***KTE***)*** is an extension of the existing Kwun Tong Line from Yau Ma Tei Station to Whampoa, with two new stations at Ho Man Tin and Whampoa. It provides convenient and reliable means of public transport between Yau Ma Tei and Whampoa, and enables residents in Ho Man Tin, Hung Hom and Whampoa to have direct access to MTR service, saving time for interchange from road transport to the railway network. The KTE commenced operation in October 2016.

~~9~~***10***.3 Pedestrian Circulation

~~9~~***10***.3.1 A number of pedestrian subways are provided/proposed along Nathan Road to enhance pedestrian and vehicular traffic. To link up West Kowloon Reclamation area and the hinterland in Yau Ma Tei, a number of footbridges/subways are provided at the junctions of Waterloo Road/Ferry Street, Jordan Road/Ferry Street, and across Ferry Street near Prosperous Garden.

~~9~~***10***.3.2 To improve the pedestrian environment, pedestrian schemes have been implemented in the crowded parts of Jordan area. These include a full-time pedestrian scheme at Nanking Street (between Parkes Street and Shanghai Street) and a part-time pedestrian scheme at Temple Street (between Jordan Road and Kansu Street). Other traffic improvement schemes along sections of Nanking Street, Pilkem Street, Shanghai Street, Bowring Street, Saigon Street, Parkes Street, Woosung Street, Ning Po Street and Pak Hoi Street ~~are~~ ***have been*** implemented ~~or under detailed planning~~.

~~9~~***10.3.3 To strengthen Nathan Road as the major pedestrian corridor in the Area, and to improve the level of services along Parkes Street, setback of building fronting Nathan Road and Parkes Street (between Jordan Road and Ning Po Street) should be provided to meet the requirements under HKPSG upon redevelopment.***

~~10~~***11.*** UTILITY SERVICES

The Area is well served with piped water supply, drainage and sewerage systems. Electricity, gas and telephone services are also available. ***However, as revealed in the Sewerage Impact Assessment (SIA) of YMDS, Anchor Street Sewage Pumping Station and Sham Shui Po No. 1 & 2 Sewage Screening Station, as well as some trunk sewers in the Yau Mong Areas may not have sufficient capacity to cater for the future developments in the Area. Sewerage upgrading works may be required as recommended in the SIA for the possible increase in sewerage generation arising from the future developments subject to the views and agreement of relevant government departments.*** ~~and no difficulties are anticipated in meeting the future requirements.~~

~~11~~*12.* CULTURAL HERITAGE

~~11~~*12*.1 ***Within the boundary of the Plan,*** ~~T~~*t*here are two Declared Monuments ~~within the Area, they are~~ ***i.e.*** Tung Wah Museum at Waterloo Road, and Tin Hau Temple and the adjoining buildings at Temple Street~~. A number of~~ ***, and some*** graded historic buildings ~~are located within the Area~~, namely, Former South Kowloon District Court (Grade 1), Kowloon Methodist Church (Grade 3), Club de Recreio (Grade 3) and India Club (Grade 3) at Gascoigne Road; Yau Ma Tei Police Station (Grade 2) at Canton Road; Yau Ma Tei Theatre (Grade 2) at Waterloo Road; Yau Ma Tei Wholesale Fruit Market (Grade 2) at Shek Lung Street; The Former Pumping Station of Water Supplies Department (Grade 1) at Shanghai Street, Ex-Yaumati Service Reservoir (Grade 1) at King's Park, ~~No.~~ 578 Canton Road (Grade 3) and Municipal Services Staff Recreation Club (Grade 3) at Wylie Path. ***Declared monuments are protected under the Antiquities and Monuments Ordinance (Cap. 53) and graded historic buildings/structures are worthy of preservation.***

~~11~~*12*.2 On 19 March 2009, the Antiquities Advisory Board (AAB) released the list of 1,444 historic buildings.~~, in which some buildings have been accorded grading. AAB also released a list of new items in addition to the list of 1,444 historic buildings. These items are subject to the grading assessment by AAB. Details of the list of 1,444 historic buildings and its new items have been uploaded onto the official website of AAB at http://www.aab.gov.hk.~~ ***There are also a number of new items in addition to the 1,444 historic buildings which are subject to grading assessment by AAB.***

~~11~~*12*.3 ~~Besides, if there are any buildings/structures both at grade level and underground which were built on or before 1969, the Antiquities and Monuments Office (AMO) should be alerted in an early stage or once identified.~~ Prior consultation with ~~the~~ AMO should be made if any ***works,*** development*s*~~, redevelopments~~ or rezoning proposals ~~that~~ ***which*** may affect ~~those~~ declared monument*s*, ***graded*** historic buildings/***structures***, new items pending grading assessment ***by AAB***, ~~and their immediate environs as well as any other historic buildings/ structures identified.~~ ***Government Historic Sites identified by AMO, as well as any other historic buildings/structures identified, both at grade and underground, and their immediate environs.***

12.4 Information of declared monuments, graded historic buildings, new items pending grading assessment, Government Historic Sites identified by AMO will be updated from time to time and are available on the website of AMO.

~~12~~*13.* IMPLEMENTATION

~~12~~*13*.1 Although existing uses non-conforming to the statutory zonings are tolerated, any material change of use and any other development/redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Board. The Board has published a set of guidelines for the interpretation of existing use in the urban and new town areas. Any person who intends to claim an "existing use right" should refer to the guidelines and will need to provide sufficient evidence to support his claim. The enforcement of the zonings mainly rests with the Buildings Department, the Lands Department ***(LandsD)*** and the various licensing authorities.

~~12~~***13***.2 The Plan provides a broad land use framework within which more detailed non-statutory plans for the Area are prepared by ~~the Planning Department~~ ***PlanD***. These detailed plans are used as the basis for public works planning and site reservation within the Government. Disposal of sites is undertaken by ~~the Lands Department~~ ***LandsD***. Public works projects are co-ordinated by the Civil Engineering and Development Department in conjunction with relevant client departments and the works departments, such as the Highways Department and the Architectural Services Department. In the course of implementation of the Plan, the Yau Tsim Mong District Council would also be consulted as appropriate.

~~12~~***13***.3 Planning applications to the Board will be assessed on individual merits. In general, the Board, in considering the planning applications, will take into account all relevant planning considerations which may include the departmental outline development plans, layout plans and the guidelines published by the Board. The outline development plans and layout plans are available for public inspection at ~~the Planning Department~~ ***PlanD***. Guidelines published by the Board are available from the Board's website, the Secretariat of the Board and the Technical Services Division of ~~the Planning Department~~ ***PlanD***. Application forms and Guidance Notes for planning applications can be downloaded from the Board's website and are available from the Secretariat of the Board and the Technical Services Division and the relevant District Planning Office of ~~the Planning Department~~ ***PlanD***. Applications should be supported by such materials as the Board thinks appropriate to enable it to consider the applications.

TOWN PLANNING BOARD
~~OCTOBER~~ *XXXX* 2023

Building Height Restriction for "C" Zone

Proposal

Under the Yau Mong Study, the "Commercial" sites along Nathan Road are proposed to be upzoned after consultation with PlanD, the Notes for "C" zone is proposed to be amended to omit the Plot Ratio (PR) 12 restriction.

This short note sets out the calculation for the corresponding building height restriction.

Assumption

(A) Basic assumptions adopted by PlanD in the recent amendment to the draft Yau Ma Tei OZP No. S/K2/22 as follows*:

Refer to Annex E1 of the above amendment, Assessment of Building Height – "Commercial" Sites in Yau Ma Tei (Plot Ratio 12)	SBD Building Setback cum Separation + Basic Building Profile
Site Class	A
Building Height (mPD)	**108**
Average Street Level (mPD)	5
Absolute Building Height (m)	103
GFA Concession	25%
Basement – No. of Storeys	0
Permissible Maximum Non-domestic Plot Ratio under OZP	12
Plot Ratio at Podium Portion	1.56
Plot Ratio at Tower Portion	10.44
Podium – Site Coverage	65%
Podium – Floor Height (m)	5
Podium – No. of Storeys	3
Typical Floor – Site Coverage above 15m	60%
Typical Floor – Floor-to-Floor Height (m)	4
Typical Flor – No of Storeys	22
No. of Refuge Floor (3m)	0
Total No. of Storeys above Ground	25

*The same assumption is also adopted in the Building Height Restrictions review under the draft Mong Kok OZP No. S/K3/31.

(B) Proposed changes to PlanD's assumptions

	Proposed Change	**Justification**
PR change from 12 to 15, commercial floors increase by 4 storeys	Typical office floors change from 22 storeys to 26 storeys	-
Floor to Floor Height	4m to 4.2m	Higher headroom can allow more daylight to reach the inner interior space and more flexibility for electrical and mechanical plant and equipment planning.
Refuge floor	Addition of 4m	In view of increase in PR, the number of storeys will be more than 25 storeys. According to Code of Practice for Fire Safety in Buildings 2011, Clause B18.1, refuge floor provision should be required for commercial buildings exceeding 25 storeys in height above the lowest ground storey.
Podium Garden	Addition of 6m	As far as SBD is concerned, provision of podium garden is a green feature to promote green and innovative buildings and is qualified for GFA concession. As per the guidelines, clear height of a podium garden should not be less than 4.5m, thus a floor to floor height of 6m is adopted.

(C) Additional storeys required based on the changes in PR and the changes in assumptions

	Result in Building Height Difference	**Remark**
Addition of 4 more commercial floors	+16m	4 storeys x 4m = 16m
Floor-to-floor @4.2m	+5.2m	26 storeys x 0.2m = 5.2m
Refuge Floor	+4m	
Podium Garden	+6m	
Total difference	+31.2m	108+31.2=139.2mPD
Hence, it is recommended that the building height restriction shall be 140mPD. (Details refer to **Annex A**)		

Annex A

"C" PR 15 (140mPD)
OZP Amendment

		ND
Plot Ratio		15
Site Area	1	15.0
SBD Concession (10%)		1.5
Mandatory Plant Room (15%)		2.3
Massing Plot Ratio		18.8

mPD				**Building Height**	**Site Coverage**	
139.2	S		E&M	134.2		18.8
135	30	26	COMMERCIAL	4.2	60%	0.6
130.8	29	25	COMMERCIAL	4.2	60%	0.6
126.6	28	24	COMMERCIAL	4.2	60%	0.6
122.4	27	23	COMMERCIAL	4.2	60%	0.6
118.2	26	22	COMMERCIAL	4.2	60%	0.6
114	25	21	COMMERCIAL	4.2	60%	0.6
109.8	24	20	COMMERCIAL	4.2	60%	0.6
105.6	23	19	COMMERCIAL	4.2	60%	0.6
101.4	22	18	COMMERCIAL	4.2	60%	0.6
97.2	21	17	COMMERCIAL	4.2	60%	0.6
93	20	16	COMMERCIAL	4.2	60%	0.6
88.8	19	15	COMMERCIAL	4.2	60%	0.6
84.6	18	14	COMMERCIAL	4.2	60%	0.6
80.4	17	13	COMMERCIAL	4.2	60%	0.6
76.2	16	12	COMMERCIAL	4.2	60%	0.6
72.2			REFUGE FLOOR	4	60%	0.6
68	15	11	COMMERCIAL	4.2	60%	0.6
63.8	14	10	COMMERCIAL	4.2	60%	0.6
59.6	13	9	COMMERCIAL	4.2	60%	0.6
55.4	12	8	COMMERCIAL	4.2	60%	0.6
51.2	11	7	COMMERCIAL	4.2	60%	0.6
47	10	6	COMMERCIAL	4.2	60%	0.6
42.8	9	5	COMMERCIAL	4.2	60%	0.6
38.6	8	4	COMMERCIAL	4.2	60%	0.6
34.4	7	3	COMMERCIAL	4.2	60%	0.6
30.2	6	2	COMMERCIAL	4.2	60%	0.6
26	5	1	COMMERCIAL	4.2	60%	0.6
20	4		PODIUM GARDEN	6	60%	0.6
15	3		RETAIL	5	65%	0.65
10	2		RETAIL	5	65%	0.65
5	1		RETAIL	5	65%	0.65

Building Height Restriction for "OU(MU)" Zone

Proposal

Under the Yau Mong Study, R(A) sites at character streets are proposed to be changed to OU(MU) zone, with the domestic plot ratio (PR) set at max. 7.5 and overall PR at max. 9. It is also proposed to delete the restriction of restricting retail uses to the lowest three floors.

This short note sets out the calculation for the corresponding building height restriction.

Assumption

(A) Basic assumptions adopted by PlanD in the recent amendment to the draft Yau Ma Tei OZP No. S/K2/22 for R(A) Sites PR 7.5/1.5 as follows*:

Refer to Annex E2a of the above amendment, Assessment of Building Height – "Residential (Group A)" Sites in Yau Ma Tei (with Three Storeys of Non-domestic Podium) Plot Ratio 7.5/1.5	SBD Building Setback cum Separation + Basic Building Profile
Site Class	A
Building Height (mPD)	**98**
Average Street Level (mPD)	5
Absolute Building Height (m)	93
GFA Concession	20%
Basement – No. of Storeys	0
Podium – Site Coverage	65%
Podium – Floor Height (m)	5
Podium – No. of Storeys	3
Maximum Permissible Overall Plot Ratio under OZP	9
Maximum Permissible Domestic Plot Ratio under OZP	7.5
Proposed Non-domestic Plot Ratio	1.625
Proposed Domestic Plot Ratio	7.134
Typical Floor – Site Coverage above 15m	33.33%
Typical Floor – Floor-to-Floor Height (m)	3
Typical Floor – No. of Storeys	26
No. of Refuge Floor (3m)	0
Total No. of Storeys above Ground	29

*The same assumption is also adopted in the Building Height Restrictions review under the draft Mong Kok OZP No. S/K3/31.

(B) Proposed changes to PlanD's assumptions:

	Proposed Change	**Justification**
Floor to Floor Height	3m to 3.15m	Higher headroom can allow more daylight to reach the inner interior space.
Transfer Plate	Addition of 3m	To avoid residential tower structures to inhibit the podium retail floors below and to allow more flexibility in lower floor planning
Podium Garden	Addition of 6m	As far as SBD is concerned, provision of podium garden is a green feature to promote green and innovative buildings and is qualified for GFA concession. As per the guidelines, clear height of a podium garden should not be less than 4.5m, thus a floor to floor height of 6m is adopted.

(C) Additional building height changes due to change in assumptions:

	Result in Building Height Difference	**Remark**
Floor-to-floor @3.15m (Residential floor)	+3.9m	26 storeys x 0.15m = 3.9m
Podium Garden	+6m	
Addition of Transfer Plate	+3m	
Total difference	+12.9m	98+12.9=110.9mPD
Hence, it is recommended that the building height restriction shall be 115mPD. (Details refer to **Annex B**)		

Annex B

"OU(MU)" PR 7.5 + 1.5
OZP Amendment

		D	ND	TOTAL
Plot Ratio		**7.50**	**1.50**	
Site Area	1	7.50	1.50	9.00
SBD Concession (10%)		0.75	0.15	0.90
Mandatory Plant Room (10%)		0.75	0.15	0.90
Massing Plot Ratio		9.00	1.80	10.80

mPD	S	R		**Building Height**	**Site Coverage**		**DGFA**	**NDGFA**
110.9			E&M	105.9		10.80		
107.75	30	26	RESIDENTIAL	3.15	33%	0.33	9.0	
104.6	29	25	RESIDENTIAL	3.15	33%	0.33	8.7	
101.45	28	24	RESIDENTIAL	3.15	33%	0.33	8.3	
98.3	27	23	RESIDENTIAL	3.15	33%	0.33	8.0	
95.15	26	22	RESIDENTIAL	3.15	33%	0.33	7.7	
92	25	21	RESIDENTIAL	3.15	33%	0.33	7.3	
88.85	24	20	RESIDENTIAL	3.15	33%	0.33	7.0	
85.7	23	19	RESIDENTIAL	3.15	33%	0.33	6.7	
82.55	22	18	RESIDENTIAL	3.15	33%	0.33	6.3	
79.4	21	17	RESIDENTIAL	3.15	33%	0.33	6.0	
76.25	20	16	RESIDENTIAL	3.15	33%	0.33	5.7	
73.1	19	15	RESIDENTIAL	3.15	33%	0.33	5.3	
69.95	18	14	RESIDENTIAL	3.15	33%	0.33	5.0	
66.8	17	13	RESIDENTIAL	3.15	33%	0.33	4.7	
63.65	16	12	RESIDENTIAL	3.15	33%	0.33	4.3	
60.5	15	11	RESIDENTIAL	3.15	33%	0.33	4.0	
57.35	14	10	RESIDENTIAL	3.15	33%	0.33	3.7	
54.2	13	9	RESIDENTIAL	3.15	33%	0.33	3.3	
51.05	12	8	RESIDENTIAL	3.15	33%	0.33	3.0	
47.9	11	7	RESIDENTIAL	3.15	33%	0.33	2.7	
44.75	10	6	RESIDENTIAL	3.15	33%	0.33	2.3	
41.6	9	5	RESIDENTIAL	3.15	33%	0.33	2.0	
38.45	8	4	RESIDENTIAL	3.15	33%	0.33	1.7	
35.3	7	3	RESIDENTIAL	3.15	33%	0.33	1.3	
32.15	6	2	RESIDENTIAL	3.15	33%	0.33	1.0	
29	5	1	RESIDENTIAL	3.15	33%	0.33	0.7	
26			TRANSFER PLATE	3				
20	4		PODIUM GARDEN	6	33%	0.34		1.8
15	3		RETAIL	5	49%	0.5		
10	2		RETAIL	5	65%	0.65		
5	1		RETAIL	5	65%	0.65		

Note:
Proposed Plot Ratio: 7.5 (domestic) + 1.5 (non-domestic)

Building Height Restriction for "R(A)" zone

Proposal

Under the Yau Mong Study, interchangeability of domestic and non-domestic plot ratio (7.5/1.5) is advocated to enhance flexibility to cater for market need after consultation with PlanD, the Notes for the R(A) and R(E) zones are proposed to be amended to; -

Maximum PR of 9 with a maximum domestic PR of 8.5

This short note sets out the calculation for the corresponding building height restriction.

Assumption

(A) Basic assumptions adopted by PlanD in the recent amendment to the draft Yau Ma Tei OZP No. S/K2/22 as follows*:

Refer to Annex E2a of the above amendment, Assessment of Building Height – "Residential (Group A)" Sites in Yau Ma Tei (with Three Storeys of Non-domestic Podium) Plot Ratio 7.5/1.5	SBD Building Setback cum Separation + Basic Building Profile
Site Class	A
Building Height (mPD)	**98**
Average Street Level (mPD)	5
Absolute Building Height (m)	93
GFA Concession	20%
Basement – No. of Storeys	0
Podium – Site Coverage	65%
Podium – Floor Height (m)	5
Podium – No. of Storeys	3
Maximum Permissible Overall Plot Ratio under OZP	9
Maximum Permissible Domestic Plot Ratio under OZP	7.5
Proposed Non-domestic Plot Ratio	1.625
Proposed Domestic Plot Ratio	7.134
Typical Floor – Site Coverage above 15m	33.33%
Typical Floor – Floor-to-Floor Height (m)	3
Typical Floor – No. of Storeys	26
No. of Refuge Floor (3m)	0
Total No. of Storeys above Ground	29

*The same assumption is also adopted in the Building Height Restrictions review under the draft Mong Kok OZP No. S/K3/31.

(B) Proposed changes to PlanD's assumptions

	Proposed Change	**Justification**
DPR change from 7.5 to 8.5, residential floors increase by 4 storeys	Typical floors change from 26 storeys to 30 storeys	-
NDPR change from 1.5 to 0.5, podium floors decrease from 3 storeys to 1 storey	Podium floors change from 3 storeys to 1 storey	-
Floor to Floor Height	3m to 3.15m	higher headroom can allow more daylight to reach the inner interior space.
Transfer Plate	Addition of 3m	To avoid residential tower structures to inhibit the podium retail floors below and to allow more flexibility in lower floor planning.
Podium Garden	Addition of 6m	As far as SBD is concerned, provision of podium garden is a green feature to promote green and innovative buildings and is qualified for GFA concession. As per the guidelines, clear height of a podium garden should not be less than 4.5m, thus a floor to floor height of 6m is adopted.

(C) Additional storeys required based on the changes in maximum domestic PR and the changes in assumptions

	Result in Building Height Difference	**Remark**
Addition of 4 more residential floors	+12m	4 storeys x 3m = 12m
Reduce 2 retail floors	-10m	2 storeys x 5m = 10m
Floor-to-floor @3.15m (Residential floor)	+4.5m	30 storeys x 0.15m = 4.5m
Podium Garden	+6m	
Addition of Transfer Plate	+3m	
Total difference	+15.5m	98+15.5=113.5mPD
Hence, it is recommended that the building height restriction shall be 115mPD. (Details refer to **Annex C**)		

Annex C

"R(A)" & "R(E)" PR 8.5 + 0.5
OZP Amendment

		D	ND	TOTAL
Plot Ratio		**8.5**	**0.5**	
Site Area	1	8.5	0.5	9.0
SBD Concession (10%)		0.9	0.1	0.9
Mandatory Plant Room (10%)		0.9	0.1	0.9
Massing Plot Ratio		10.2	0.6	10.8

mPD				**Building Height**	**Site Coverage**			
113.5	S	R	E&M	108.5		10.80	**DGFA**	**NDGFA**
110.35	32	30	RESIDENTIAL	3.15	33%	0.21	10.2	
107.2	31	29	RESIDENTIAL	3.15	33%	0.33	10.0	
104.05	30	28	RESIDENTIAL	3.15	33%	0.33	9.7	
100.9	29	27	RESIDENTIAL	3.15	33%	0.33	9.3	
97.75	28	26	RESIDENTIAL	3.15	33%	0.33	9.0	
94.6	27	25	RESIDENTIAL	3.15	33%	0.33	8.7	
91.45	26	24	RESIDENTIAL	3.15	33%	0.33	8.3	
88.3	25	23	RESIDENTIAL	3.15	33%	0.33	8.0	
85.15	24	22	RESIDENTIAL	3.15	33%	0.33	7.7	
82	23	21	RESIDENTIAL	3.15	33%	0.33	7.3	
78.85	22	20	RESIDENTIAL	3.15	33%	0.33	7.0	
75.7	21	19	RESIDENTIAL	3.15	33%	0.33	6.7	
72.55	20	18	RESIDENTIAL	3.15	33%	0.33	6.3	
69.4	19	17	RESIDENTIAL	3.15	33%	0.33	6.0	
66.25	18	16	RESIDENTIAL	3.15	33%	0.33	5.7	
63.1	17	15	RESIDENTIAL	3.15	33%	0.33	5.3	
59.95	16	14	RESIDENTIAL	3.15	33%	0.33	5.0	
56.8	15	13	RESIDENTIAL	3.15	33%	0.33	4.7	
53.65	14	12	RESIDENTIAL	3.15	33%	0.33	4.3	
50.5	13	11	RESIDENTIAL	3.15	33%	0.33	4.0	
47.35	12	10	RESIDENTIAL	3.15	33%	0.33	3.7	
44.2	11	9	RESIDENTIAL	3.15	33%	0.33	3.3	
41.05	10	8	RESIDENTIAL	3.15	33%	0.33	3.0	
37.9	9	7	RESIDENTIAL	3.15	33%	0.33	2.7	
34.75	8	6	RESIDENTIAL	3.15	33%	0.33	2.3	
31.6	7	5	RESIDENTIAL	3.15	33%	0.33	2.0	
28.45	6	4	RESIDENTIAL	3.15	33%	0.33	1.7	
25.3	5	3	RESIDENTIAL	3.15	33%	0.33	1.3	
22.15	4	2	RESIDENTIAL	3.15	33%	0.33	1.0	
19	3	1	RESIDENTIAL	3.15	33%	0.33	0.7	
16			TRANSFER PLATE	3				
10	2		PODIUM GARDEN	6	33%	0.33	0.33	0.6
5	1		RETAIL	5	60%	0.6		

Note:
Proposed Plot Ratio: 8.5 (domestic) + 0.5 (non-domestic)
Proposed Building Hieght Restriction: 115mPD
Residential Floor to Floor height is 3.15m

Attachment VIa of
MPC Paper No. 5/23

17/06/2022

Reference number CHK50648010

OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

REVISED TRAFFIC IMPACT ASSESSMENT

SYSTRA MVA

OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

REVISED TRAFFIC IMPACT ASSESSMENT

IDENTIFICATION TABLE	
Client/Project owner	Urban Renewal Authority
Project	Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Study	Revised Traffic Impact Assessment
Type of document	Report
Date	17/06/2022
Reference number	CHK50648010

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1. INTRODUCTION

1.1 Background

1.1.1 Urban decay is a perennial problem across Hong Kong. The volume of aging building stock is dramatically increasing, a rate which significantly outpaces redevelopment. Coupled with the diminishing residual plot ratio in the urban area, conventional urban renewal efforts were primarily project-based initiatives, limited in scope and dimension in resolving various urban issues. A more holistic, district-based approach is needed to deal with the extent, pace and multi-dimensional nature of urban decay.

1.1.2 In 2017, Urban Renewal Authority (URA, herein referred as “the Authority”) commenced the District Study for Yau Ma Tei and Mong Kok with the aim to devise a district-based urban renewal plan for the study area, and to explore new planning mechanisms to facilitate implementation. Master urban renewal concept plans (MRCPs) were prepared with different assumptions on population, development intensity and resource allocation to meet the public aspiration for a livable and quality environment. Traffic Impact Assessment (TIA) Report has been included in the Study submitted to Government in February 2021 to ascertain the feasibility of the MRCPs from traffic / transport engineering perspectives.

1.1.3 Following up on the Yau Mong Study, proposal for OZP amendment based on the selected proposals identified in the MRCP is formulated.

1.1.4 MVA Hong Kong Limited was commissioned to undertake the traffic impact assessment study in support of the latest proposal for OZP amendment.

1.2 Objectives

1.2.1 The purpose of this Report is to present the findings of the traffic impact assessment of the proposals under the OZP amendment with the key redevelopments in the MRCP taken as assumptions; as well as the possible mitigation measures to address any adverse traffic impacts arising from the planning proposals.

1.3 Structure of Report

1.3.1 Following this introductory chapter, there are other chapters covering:

- **Chapter 2 – EXISTING TRAFFIC CONDITIONS**, which describes the existing road network, public transport, pedestrian facilities in the vicinity of the Study Area;
- **Chapter 3 – OZP AMENDMENTS AND MAJOR ASSUMPTIONS**, which presents the existing OZP and land use, development schedule of the proposed Proposal for the OZP amendment and the key assumptions on planned developments by 2047;
- **Chapter 4 – FUTURE YEAR TRAFFIC FORECAST**, which describes the methodology of traffic forecast, future road network in the vicinity, and future developments on the surrounding road network;
- **Chapter 5 – TRAFFIC IMPACT ASSESSMENT**, which presents the findings of the traffic impact assessment for the reference (i.e. without development) and design (with development) scenarios and the sensitivity test on a different plot ratio for OU;
- **Chapter 6 – PROPOSED TRAFFIC AND PEDESTRIAN IMPROVEMENT MEASURES**, which recommends improvement measures to accommodate the future traffic demands;
- **Chapter 7 – SUMMARY AND CONCLUSION**, which summarizes the findings of this TIA and presents the conclusions regarding the traffic issues associated with the latest planning proposal.

2. EXISTING TRAFFIC CONDITIONS

2.1 Existing Road Network

2.1.1 The Study Area covers Yau Ma Tei and Mong Kok Districts, bounded by Boundary Street to the north, Sai Yee Street / Yim Po Fong Street / Nathan Road (Yau Ma Tei section) to the east, Jordan Road to the south and Sham Mong Road / Ferry Street / Hoi Wang Road to the west. **Figure 2.1** shows the Study Area.

2.1.2 West Kowloon Corridor is a flyover connecting Lai Chi Kok Road in Cheung Sha Wan and Gascoigne Road Flyover near Yau Ma Tei. It is an urban trunk road varying from dual-one to dual-three carriageway.

2.1.3 Within the Study Area, Boundary Street, Prince Edward Road West, Argyle Street and Waterloo Road act as the key East-West primary distributors, whereas Ferry Street, Lai Chi Kok Road and Nathan Road serve as the key North-South primary distributors for local/thru traffic.

2.1.4 Other district distributors such as Embankment Road and Lai Cheung Road / Cherry Street / Sham Mong Road / Tai Kok Tsui Road / Hoi Wang Road provide connection to East Kowloon and West Kowloon / Hong Kong Island (via Western Harbour Tunnel) / West New Territories respectively.

2.1.5 Tai Kok Tsui Road / Embankment Road and Shanghai Street provide district distributors function to serve traffic to the north and south / Hong Kong Island (via Cross-Harbour Tunnel) respectively.

2.1.6 Urban Trunk Roads, Primary Distributors and District Distributors within the Study Area are generally dual carriageway. Their intersections are usually in the form of signal-controlled junctions.

2.1.7 Most of the local roads are either provided with metered parking spaces, or are characterised by intensive kerbside activities. These streets are mostly for local access to the adjoining developments. Intersections of local road network are generally in the form of priority junctions.

2.1.8 The major road network within the Study Area is illustrated in **Figure 2.2**.

2.2 Existing Pedestrian Facilities

2.2.1 The existing pedestrian facilities in the vicinity of Study Area are summarised in **Figure 2.3**.

Pedestrian Footpath

2.2.2 In the Study Area, pedestrians mostly rely on footpaths and pedestrian crossing facilities. Pedestrian footpath/ streetscape is generally of standard minimum width with footpaths along Nathan Road, the major commercial spine of generally 4.5m; some parts of Argyle Street (especially near Nathan Road junction) with footpath width over 5.5m; local roads such as Shanghai Street, Reclamation Street, Tung Choi Street, etc. of about 2.5m to 3.5m. However, some areas have footpaths as narrow as less than 1.5m wide, which are below the HKPSG standards. Examples of these narrow footpaths include Cheong Lok Street and Changsha Street. The existing footpath condition is presented in **Figure 2.4**.

2.2.3 At present, there are pedestrianisation schemes implemented by TD in the vicinity of Study Area as listed in **Table 2.1**.

Table 2.1 Pedestrianisation Schemes by TD

Types of Pedestrian Schemes	Location
Full-time Pedestrian Street (Vehicular access restricted to emergency services only)	- Nanking Street (between Parkes Street and Shanghai Street)
Part-time Pedestrian Street (Vehicular access only allowed in specific periods)	- Tung Choi Street (between Argyle Street and Dundas Street) - Temple Street (between Jordan Road and Kansu Street) - Bowring Street (between Parkes Street and Shanghai Street)
Traffic Calming Street (Vehicles slowed down through the use of traffic calming measures)	- Fa Yuen Street - Nelson Street - Sai Yeung Choi Street South - Shan Tung Street - Soy Street - Nanking Street (between Nathan Road and Parkes Street) - Pilkem Street - Shanghai Street (between Jordan Road and Kansu Street) - Bowring Street (between Parkes Street and Nathan Road) - Saigon Street (between Parkes Street and Shanghai Street) - Ning Po Street (between Nathan Road and Shanghai Street) - Pak Hoi Street (between Nathan Road and Shanghai Street) - Parkes Street (between Jordan Road and Saigon Street) - Woosung Street (between Jordan Road and Kansu Street)

Footbridge

2.2.4 A number of footbridges are provided within the Study Area to provide grade-separated pedestrian walkway across main roads or between key public transport nodes.

2.2.5 A comprehensive footbridge system is provided along Mong Kok Road connecting the elevated Mong Kok East MTR Station to Nathan Road where the Mong Kok MTR Station is located (**Figure 2.3**). This footbridge is about 10m wide with exit points along each street block, effectively increasing the pedestrian capacity of Mong Kok Road which is of very high demand, especially with bus stops located alongside on the grade level taking up portion of the at-grade pedestrian footpath. Another footbridge is located across Argyle Street to connect pedestrian from Mong Kok East MTR Station to Yim Po Fong Street.

2.2.6 The extension of Mong Kok Road footbridge across Nathan Road commenced service in September 2021. With the commissioning of footbridge extension, the pedestrian crossing at Nathan Road at its junction with Mong Kok Road was removed.

2.2.7 In Tai Kok Tsui, there is a footbridge network to connect the Olympic MTR Station with the adjacent developments such as Olympian City and HSBC Centre.

2.2.8 Localised footbridges are also located at Ferry Street / West Kowloon Corridor, Jordan Road (towards West Kowloon District) and Waterloo Road, with relatively low pedestrian flows.

Pedestrian Subways and Mong Kok MTR Exits

2.2.9 Pedestrian subways are provided at Cherry Street and Ferry Street to facilitate pedestrian movement across the major roads. The utilisation of these pedestrian subways is relatively low. Based on the proposed design of the Central Kowloon Route, the existing Tung Kun Street Pedestrian Subway across Ferry Street adjacent to Prosperous Garden is proposed to be demolished upon the construction of the Central Kowloon Route, and pedestrian movement shall be facilitated through at-grade pedestrian crossings.

2.2.10 The more utilized subways are the three subways facilitating pedestrian movements across Nathan Road along Bute Street, Soy Street and Saigon Street.

2.2.11 Apart from the above, pedestrians also utilise various exits of Mong Kok MTR stations to travel across and along Nathan Road.

2.3 Existing Public Transport

2.3.1 There is a well-established public transport system including railway, franchised buses, green mini-buses, public light buses and taxis in the Study Area. **Figure 2.5** summarised the existing public transport facilities in the vicinity of Study Area.

MTR

2.3.2 The Study Area are served by numerous MTR Stations as listed below.

- Kwun Tong Line and Tsuen Wan Line
  - Prince Edward Station
  - Mong Kok Station
  - Yau Ma Tei Station
- Tsuen Wan Line
  - Jordan Station
- Tung Chung Line
  - Olympic Station
- East Rail Line
  - Mong Kok East Station
- West Rail Line
  - Austin Station
- Expressway Rail Link
  - Hong Kong West Kowloon Station

Public Transport Interchanges (PTI)

2.3.3 Major PTIs within and in the vicinity of the Study Area are listed below.

- Mong Kok East Station Public Transport Interchange
- Yau Ma Tei (To Wah Road) Bus Terminus
- Mong Kok (Park Avenue) Bus Terminus
- Olympic Station Public Transport Interchange
- Tai Kok Tsui (Island Harbourview) Bus Terminus

Buses & Light Buses

2.3.4 Bus stops are mainly concentrated along both sides of Nathan Road. Some of the bus stops are located at Mong Kok Road, Boundary Street, Prince Edward Road West, Lai Chi Kok Road, Tai Kok Tsui Road, Sai Yee Street, Argyle Street, Waterloo Road, Shanghai Street and Jordan Road.

2.3.5 As for public light bus services, the main indoor light bus terminus within the Study Area is the Langham Place Public Light Bus Terminus in Mong Kok. Other Public Light Bus pick-up/drop-off points in Mong Kok or Yau Ma Tei are scattered along Fa Yuen Street near Bute Street, Tung Choi Street near Bute Street, Sai Yeung Choi Street near Bute Street, Sai Yee Street near Shantung Street, Fa Yuen Street near Soy Street, Soy Street near Canton Road, Changsha Street near Nathan Road, Portland Street near Changsha Street, Dundas Street near Kwong Wah Hospital, etc.

2.3.6 In Yau Ma Tei, Public Light Bus pick-up/drop-off points within the Study Area include Pak Hoi Street near Nathan Road, Woosung Street near Jordan Road, Shanghai Street near Nanking Street, Shanghai Street near Jordan Road, Battery Street near Ning Po Street, etc.

2.3.7 The Green Mini Bus terminus in Mong Kok are situated at Mong Kok East Station Public Transport Interchange, Sai Yeung Choi Street (between Prince Edward Road West and fife Street), Argyle Street near Sai Yeung Choi Street, Mong Kok Road near Sai Yeung Choi Street, Mong Kok Road near Tung Choi Street, Tung Choi Street near Prince Edward Road West, Lai Chi Kok Road near Bute Street, etc.

2.3.8 In Tai Kok Tsui, Green Mini Bus termini are located at Fuk Lee Street near Metro Harbour View, Ivy Street near Cosmopolitan Estate, Olympic Station Public Transport Interchange, etc. In Yau Ma Tei, Green Mini Bus terminus is located at Nanking Street near Chi Wo Street.

Taxi

2.3.9 There are 19 Taxi Stands in the Study Area, of which 9 are in Mong Kok near shopping and commercial districts. 6 others are provided in Yau Ma Tei, and 4 more in Tai Kok Tsui, the latter mainly located near Olympic station.

2.4 Existing Parking Facilities

2.4.1 According to TD's statistic, there are approximately 1,400 nos. of on-street parking spaces, and about 30,000 nos. of public/private off-street parking spaces in the YTM district. In large scale developments such as Langham Place, Grand Century Place and the Canton Road car park at Hang Tung Building, parking facilities are provided to serve their own needs. There are about 1,600 nos. of overnight illegal car parking observed. **Figure 2.6** shows the existing major parking facilities within Study Area.

2.5 Existing Traffic Conditions

2.5.1 Comprehensive surveys including vehicular and pedestrian traffic counts were carried out at the key road junctions, links and pedestrian walkway with the Study Area.

2.5.2 Traffic count surveys at selected junctions and road links were carried out during AM peak (7:30-9:30) and PM peak (17:00-19:00) hours on a normal weekday in September 2018. The survey data were reviewed for the existing condition and would be used for the junction assessments and model development.

2.5.3 The observed traffic flows during the peak hours are presented in **Figures 2.7 – 2.8**.

Road Link Performance

2.5.4 Based on the observed traffic flows, the road link assessment is summarised in **Table 2.2** below.

Table 2.2 Existing Road Link Performance

Ref. No.	Key Road Links		Design Capacity (pcu/hr)	Traffic Flow (pcu/hr)		V/C Ratio	
				AM	PM	AM	PM
L1	Boundary Street	EB	4100	3,130	3,515	0.76	0.86
L2	Prince Edward Road West	WB	4700	3,795	3,760	0.81	0.80
L3	Argyle Street	EB	2800	2,265	2,165	0.81	0.77
		WB	2800	2,040	1,830	0.73	0.65
L4	Waterloo Road	EB	4700	1,260	1,160	0.27	0.25
		WB	4700	1,270	1,145	0.27	0.24
L5	Gascoigne Road Flyover	EB	1900	2,500	2,530	1.32	1.33
		WB	1900	2,095	2,225	1.10	1.17
L6	Nathan Road	NB	2800	880	1,220	0.31	0.44
		SB	2800	1,010	855	0.36	0.31
L7	Ferry Street	NB	2800	650	790	0.23	0.28
		SB	2800	1,025	975	0.37	0.35
L8	Jordan Road	EB	4700	1,265	1,560	0.27	0.33
		WB	4700	1,070	1,140	0.23	0.24
L9	Lin Cheung Road	NB	6200	1,770	2,215	0.29	0.36
		SB	6100	3,210	3,070	0.53	0.50
L10	Waterloo Road	EB	3300	1,520	1,470	0.46	0.44
		WB	2000	900	1,150	0.44	0.57
L11	W Kowloon Highway	NB	6100	1,825	2,920	0.30	0.48
		SB	6100	5,060	3,815	0.83	0.63
L12	Sham Mong Road	NB	2800	515	550	0.18	0.20
		SB	2800	1,215	825	0.43	0.29
L13	West Kowloon Corridor	NB	4000	2,730	3,135	0.68	0.78
		SB	6100	4,715	4,075	0.77	0.67
L14	Lai Chi Kok Road	NB	4700	2,165	2,330	0.46	0.50
		SB	4700	325	335	0.07	0.07
L15	Nathan Road	NB	2800	785	1,180	0.28	0.42
		SB	4100	1,115	1,010	0.40	0.36

2.5.5 The result of road link assessment shows that the assessed road links are generally below capacity in existing condition, except for Gascoigne Road Flyover (L5) which have V/C ratio over 1.0.

Junction Performance

2.5.6 The existing junction performance is summarised in **Table 2.3**. The calculation details are provided shown in **Appendix A.**

Table 2.3 Existing Junction Performance

Ref. No.	Junctions	Type of Junction	Reserve Capacity (RC) (1)	
			AM	PM
J1	Tung Chau Street / Nam Cheong Street	Signalised	>100%	>100%
J2	Lai Chi Kok Road / Boundary Street / Wong Chuk Street	Signalised	>100%	>100%
J3	Nathan Road / Cheung Sha Wan Road / Boundary Street	Signalised	21%	24%
J4	Boundary Street / Embankment Road	Signalised	>100%	>100%
J5	Sham Mong Road / Chui Yu Road	Signalised	27%	34%
J6	Sham Mong Road / Hoi Fai Road	Signalised	32%	35%
J7	Prince Edward Road West / Sai Yee Street / Fa Yuen Street	Signalised	26%	20%
J8	Prince Edward Road West / Embankment Road	Signalised	35%	39%
J9	Cherry Street / Hoi Wang Road / Tai Kok Tsui Road	Signalised	26%	34%
J10	Argyle Street / Sai Yee Street	Signalised	-14%	-10%
J11	Argyle Street / Yim Po Fong Street / Luen Wan Street	Signalised	13%	5%
J12	Waterloo Road / Yim Po Fong Street / Wylie Road	Signalised	17%	16%
J13	Hoi Wang Road / Lai Cheung Road	Signalised	47%	54%
J14	Waterloo Road / Ferry Street / Lai Cheung Road	Signalised	22%	41%
J15	Nathan Road / Waterloo Road	Signalised	22%	12%
J16	Hoi Wang Road / Ngo Cheung Road	Signalised	13%	23%
J17	Nathan Road / Public Square Street	Signalised	32%	43%
J18	Nathan Road / Kansu Street / Gascoigne Road	Signalised	61%	28%
J19	Jordan Road / Hoi Wang Road / Wui Man Road	Signalised	91%	79%
J20	Jordan Road / Ferry Street	Signalised	30%	25%
J21	Jordan Road / Nathan Road	Signalised	20%	10%
J22	Gascoigne Road / Jordan Road	Signalised	3%	8%
J23	Boundary Street / Tai Hang Tung Road	Signalised	31%	17%
J24	Lai Chi Kok Road / Tong Mi Road	Signalised	>100%	>100%
J25	Nathan Road / Mong Kok Road	Signalised	32%	42%
J26	Argyle Street / Nathan Road	Signalised	4%	0%
J27	Argyle Street / Tong Mi Road	Signalised	13%	8%
J28	Nathan Road / Prince Edward Road West	Signalised	34%	22%
J29	Tong Mi Road / Prince Edward Road West	Signalised	12%	18%
J30	Tai Kok Tsui Road / Ivy Street	Signalised	26%	-3%
J31	Sai Yee Street / Mong Kok Road	Signalised	3%	4%
J32	Nathan Road / Dundas Street	Signalised	46%	34%
J33	Ferry Street / Kansu Street	Signalised	60%	27%
J34	Jordan Road / Shanghai Street	Signalised	44%	40%

2.5.7 The result of the junction assessment shows that the performances of all assessed junction are currently operating within capacity during the AM and PM Peak, except for the following junctions.

- J10 – Argyle Street / Sai Yee Street (AM and PM peaks)
- J30 – Tai Kok Tsui Road / Ivy Street (PM peak)

2.5.8 Apart from the above, the following junctions are operating with RC less than 15%.

- J11 – Argyle Street / Yim Po Fong Street / Luen Wan Street (PM peak)
- J15 – Nathan Road / Waterloo Road (PM peak)
- J16 – Hoi Wang Road / Ngo Cheung Road (AM peak)
- J21 – Jordan Road / Nathan Road (PM peak)
- J22 – Gascoigne Road / Jordan Road (AM and PM peaks)
- J26 – Argyle Street / Nathan Road (AM and PM peaks)
- J27 – Argyle Street / Tong Mi Road (AM and PM peaks)
- J29 – Tong Mi Road / Prince Edward Road West (AM peak)
- J31 – Sai Yee Street / Mong Kok Road (AM and PM peaks)

Pedestrian Assessment

2.5.9 Pedestrian link counts were conducted at the selected pedestrian walkways during AM and PM periods between 7:30-9:30 and 17:00-19:00 respectively on normal weekdays in January and February 2022. Some key corridors were also surveyed during noon period (10:00-14:00) on normal weekends (i.e. Saturday and Sunday).

2.5.10 As the travel restrictions and social distancing measures were in place during that period, the pedestrian survey may be underestimated due to the reduced tourist and pedestrian flows. An adjustment factor is derived based on the MTR domestic patronage figures of Jan 2022 and Jan 2018 for the adjustment on the pedestrian flow obtained in the survey.

2.5.11 The peak 15-minute pedestrian flows were recorded at the selected footpaths in weekday and weekend. While only some key corridors are surveyed in general weekends, a "weekend factor" was derived by comparing the weekday and weekend survey flows along Nathan Road and applied to the weekday survey flows counts to project the pedestrian flow at weekend.

2.5.12 Pedestrian assessment were carried out for both weekday and weekend. The assessment results are summarized in **Table 2.4.**

Table 2.4 Existing Pedestrian Flow in Weekday and Weekend

Index	Pedestrian Link	Actual Width (m)	Effective Width(1) (m)	Peak 15-min Flow(2) (Ped/15-min)		LOS	
				Weekday	Weekend	Weekday	Weekend
P1	Boundary Street	3.55	2.55	155	190	A	A
P2	Ki Lung Street	3.05	2.05	115	145	A	A
P3	Cedar Street	2.95	1.95	170	205	A	A
P4	Lai Chi Kok Road	3.3	2.3	295	360	A	A
P5	Boundary Street	3.45	2.45	55	70	A	A
P6	Sai Yee Street	1.85	0.85	20	25	A	A
P7	Prince Edward Road West	3.15	2.15	340	420	A	A
P8	Canton Road	3.05	2.05	50	60	A	A
P9	Shanghai Street	2.55	1.55	245	300	A	A
P10	Bute Street	2.65	1.65	335	415	A	B
P11	Prince Edward Road West	3.55	2.55	805	990	B	C
P12	Prince Edward Road West	3.45	2.45	150	185	A	A
P13	Portland Street	2.7	1.7	115	145	A	A
P14	Nathan Road	4.05	3.05	395	440	A	A
P15	Prince Edward Road West	2.4	1.4	475	585	B	C

Index	Pedestrian Link	Actual Width (m)	Effective Width(1) (m)	Peak 15-min Flow(2) (Ped/15-min)		LOS	
				Weekday	Weekend	Weekday	Weekend
P16	Nathan Road	4.35	3.35	625	445	A	A
P17	Sai Yeung Choi Street	3.2	2.2	475	585	A	B
P18	Tung Choi Street	2.65	1.65	315	385	A	A
P19	Fa Yuen Street	3	2	420	520	A	B
P20	Cheung Wong Road	2.8	1.8	390	480	A	B
P21	Tong Mi Road	3.3	2.3	170	210	A	A
P22	Reclamation Street	2.5	1.5	355	440	A	B
P23	Argyle Street	3.7	2.7	900	1110	B	C
P24	Argyle Street	2.7	1.7	935	1155	**D**	**D**
P25	Reclamation Street	3.25	2.25	560	690	B	B
P26	Portland Street	5.35	4.35	490	605	A	A
P27	Nathan Road	3.95	2.95	1330	1120	C	C
P28	Nathan Road	3.95	2.95	810	840	B	B
P29	Sai Yeung Choi Street	5.15	4.15	1265	1555	B	C
P30	Tung Choi Street	3.3	2.3	190	235	A	A
P31	Fa Yuen Street	4.25	3.25	335	415	A	A
P32	Reclamation Street	2.65	1.65	115	145	A	A
P33	Shanghai Street	2.35	1.35	310	380	A	B
P34	Hamilton Street	2.15	1.15	55	70	A	A
P35	Canton Road	3.2	2.2	65	80	A	A
P36	Portland Street	3	2	335	415	A	A
P37	Waterloo Road	3.4	2.4	870	1075	C	C
P38	Nathan Road	4.25	3.25	950	605	B	A
P39	Nathan Road	4	3	880	775	B	B
P40	Kansu Street	1.75	0.75	175	215	A	B
P41	Battery Street	3.15	2.15	90	110	A	A
P42	Saigon Street	1.9	0.9	290	360	B	C
P43	Canton Road	2.8	1.8	85	110	A	A
P44	Nanking Street	1.25	0.25	670	825	**F**	**F**
P45	Shanghai Street	2.55	1.55	505	625	B	C
P46	Temple Street	3.05	2.05	315	385	A	A
P47	Woosung Street	3	2	305	375	A	A
P48	Parkes Street	3	2	800	985	C	**D**
P49	Nathan Road	3.85	2.85	855	620	B	A
P50	Nathan Road	3.3	2.3	545	670	A	B

Notes:

(1) Effective width = existing width – dead width. Dead widths 0.5m as clearance for building side, curbs or fixed objects, trees and plants, building face and other clearance is adopted in calculating the effective width.

(2) The figures are rounded to the nearest 5.

2.5.13 The result indicates that most of the pedestrian walkways have an acceptable Level of Service (LOS) of C or above, except for the sections of footpath at Argyle Street, Nanking Street and Parkes Street which have a LOS below C.

3. OZP AMENDMENTS AND MAJOR ASSUMPTIONS

3.1 Background

3.1.1 With the aim to promote livability and urban regeneration in the Study Area, the MRCP had been developed to guide urban renewal and restructuring of the Study Area under a holistic approach. Specific objectives of the MRCP include.

- Optimize strategic locations to form feature Development Nodes with the aim to steer economic growth and urban regeneration;
- Promote diversity in terms of uses, development typologies and design/development themes to enhance district identity and branding;
- Improve livability through improvement in open space provision (size and type), living density, GIC provision and walkability;
- Achieve better land utilization through appropriate consolidation of public uses;
- Encourage a more comprehensive urban renewal approach through integration or mix of different urban renewal initiatives (5R).

3.1.2 Three MRCP scenarios have been prepared based on different assumptions on development intensity, population size and resource implication. A total of 5 Development Nodes (DNs) and 14 Street Consolidation Areas (SCAs) are proposed in the MRCP scenarios. Other special design and community areas, an open space network, GIC provision as well as other planning and place making initiatives are also prepared.

3.1.3 Apart from the above, a series of planning strategy regarding traffic and walkability such as "Park n' Walk" concept, major underground car parks at DNs and a total of 3 public transport interchanges, widening proposals for footpaths, additional footbridges and other traffic improvement measures (including additional traffic lanes, etc.), face-lifting of selected back alleys and pedestrianisation are also formulated.

3.2 Key Proposals for OZP Amendment

3.2.1 To support the OZP Amendment, the following items (as indicated in **Figure 3.1**) are included in the assessment.

- "R(A)" and "R(E)" maximum Domestic Plot Ratio revised from 7.5 to 8.5 while total Plot Ratio remains at 9
- "R(A)" and "R(E)" Non-domestic Plot Ratio assumed to be 0.5
- "C" Zone Plot Ratio increased from 12 to 15
- Rezone "R(A)" sites along Character Streets and Woosung Street to "Other Specified Uses (Mixed Use)" at Plot Ratio 4.5/4.5 representing a worst case scenario, and at Plot Ratio 7.5/1.5 for sensitivity testing

Major Assumptions

3.2.2 As agreed with concerned departments at the inter-departmental meeting on 17 November 2021, the following key development proposals from the MRCP are taken as assumptions for medium and long term assessments:

Medium Term (2037)

- Mong Kok Market DN (North)
- Nullah Road DN (North)
- Hamilton Street
- Saigon Street

Long Term (2047)

3.2.3 In addition to those implemented in 2037, it is assumed that the following developments would be achieved in the long term, including:

- Development Nodes:
  - Mong Kok Market DN (South)
  - Nullah Road DN (South)
- Street Consolidated Area:
  - Tai Nan Street SCA
  - Arran Street SCA

3.2.4 The assumptions and parameters for these sites are based on those adopted in the YM Study as listed in **Table 3.1**. Public vehicle parks are also assumed to be provided in the 2 DNs (Mong Kok Market DN and Nullah Road DN), the 2 SCAs (Tai Nan Street SCA and Arran Street SCA) as well as Saigon Street Redevelopment.

Table 3.1 Development Parameters of DNs and SCAs

	Domestic GFA	Non-Domestic GFA
Tai Nan Street SCA	235,000 m^2	20,000 m^2
Arran Street SCA	120,000 m^2	7,000 m^2
Mong Kok Market DN	238,100 m^2	196,600 m^2
Nullah Road DN	178,500 m^2	332,200 m^2
Hamilton Street	176,700 m^2	26,200 m^2
Saigon Street	202,000 m^2	25,300 m^2

Note:
The above parameters have been rounded off and are adopted for the purpose of technical assessment for the OZP Amendments. These are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account.

Overall Development Quantum

3.2.5 In summary, the proposed overall development quantum for the OZP amendment and the above-mentioned redevelopments in terms of GFA in 2047 are listed in **Table 3.2**.

Table 3.2 Overall Development Schedules

	Existing (2017)	Long Term (2047)	% increase
GFA			
- Domestic	~3,914,000m^2	~ 4,658,000m^2	+19%
- Non-Domestic	~3,012,000m^2	~ 3,696,000m^2	+23%

4. FUTURE YEAR TRAFFIC FORECASTS

4.1 Design Year and Demand Forecast Scenario

4.1.1 The assessment year for the Medium and Long Term of the latest planning proposal is taken as year 2037 and 2047 respectively.

4.1.2 The key road links and junctions in the Study Area to be assessed are listed below and shown in **Figure 4.1**.

Key Road links:

- L1 – Boundary Street
- L2 – Prince Edward Road
- L3 – Argyle Street
- L4 – Waterloo Road
- L5 – Gascoigne Road Flyover
- L6 – Nathan Road
- L7 – Ferry Street
- L8 – Jordan Road
- L9 – Lin Cheung Road
- L10 – Waterloo Road
- L11 – W Kowloon Highway
- L12 – Sham Mong Road
- L13 – West Kowloon Corridor
- L14 – Lai Chi Kok Road
- L15 – Nathan Road

Key Junctions:

- J1 – Tung Chau Street / Nam Cheong Street
- J2 - Lai Chi Kok Road / Boundary Street / Wong Chuk
- J3 – Nathan Road / Cheung Sha Wan Road / Boundary
- J4 – Boundary Street / Embankment Road
- J5 – Sham Mong Road / Chui Yu Road
- J6 – Sham Mong Road / Hoi Fai Road
- J7 – Prince Edward Road West / Sai Yee Street / Fa
- J8 – Prince Edward Road West / Embankment Road
- J9 – Cherry Street / Hoi Wang Road / Tai Kok Tsui
- J10 – Argyle Street / Sai Yee Street
- J11 – Argyle Street / Yim Po Fong Street / Luen Wan

- J12 – Waterloo Road / Yim Po Fong Street / Wylie
- J13 – Hoi Wang Road / Lai Cheung Road
- J14 – Waterloo Road / Ferry Street / Lai Cheung Road
- J15 – Nathan Road / Waterloo Road
- J16 – Hoi Wang Road / Ngo Cheung Road
- J17 – Nathan Road / Public Square Street
- J18 – Nathan Road / Kansu Street / Gascoigne Road
- J19 – Jordan Road / Hoi Wang Road / Wui Man Road
- J20 – Jordan Road / Ferry Street
- J21 – Jordan Road / Nathan Road
- J22 – Gascoigne Road / Jordan Road
- J23 – Boundary Street / Tai Hang Tung Road
- J24 – Lai Chi Kok Road / Tong Mi Road
- J25 – Nathan Road / Mong Kok Road
- J26 – Argyle Street / Nathan Road
- J27 – Argyle Street / Tong Mi Road
- J28 – Nathan Road / Prince Edward Road West
- J29 – Tong Mi Road / Prince Edward Road West
- J30 – Tai Kok Tsui Road / Ivy Street
- J31 – Sai Yee Street / Mong Kok Road
- J32 – Nathan Road / Dundas Street
- J33 – Ferry Street / Kansu Street
- J34 – Jordan Road / Shanghai Street
- J35 – Tong Mi Road / Mong Kok Road
- J36 – Canton Road / Argyle Street
- J37 – Reclamation Street / Dundas Street
- J38 – Canton Road / Gascoigne Road
- J39 – Prince Edward Road West / Lai Chi Kok Road
- J40 – Lai Chi Kok Road / Shanghai Street
- J41 – Lai Chi Kok Road / Nathan Road
- J42 – Bute Street / Shanghai Street

4.2 Planned Infrastructures

4.2.1 A dual three-lane carriageway with a total length of 4.7km, namely Central Kowloon Route ("CKR"), will be provided to link Yau Ma Tei Interchange of West Kowloon with Kai Tak Development Area and road network of Kowloon Bay, forming a trunk road across central Kowloon. The CKR is an alternative express route, alleviating the traffic congestion of the existing major east-west transport corridors in central Kowloon.

4.2.2 The Planning Department (PlanD) commissioned a consultancy to undertake the Planning and Design Study on the Redevelopment of Government Sites at Sai Yee Street and Mong Kok East Station – Feasibility Study. The proposed development design schemes include a Public Light Bus Public Transport Interchange (PTI) and loading/unloading facilities for cross-boundary coaches. Works for widening the carriageway and footpath portions for the sections of Sai Yee Street, Argyle Street and Luen Wan Street abutting the Site were proposed under the study.

4.2.3 According to the DC Paper YTMTTHC Paper No. 2/2017, an elevated pedestrian footbridge to connect pedestrian from Mong Kok East MTR Station towards Tai Kok Tsui area is under study by Highways Department. The scheme consists of two sections – the proposed footbridge along Argyle Street – from Tong Mi Road Footbridge to Hak Po Street, and the proposed footbridge along Tong Mi Road – from Tong Mi Road Footbridge to Fuk Tsun Street. It is anticipated to provide convenience for pedestrians in the district, improve the walking environment and relieve the crowded pedestrian environment, especially to minimise the vehicle-pedestrian conflicts in Argyle Street, by creating more space for pedestrian movement in the centre of Mong Kok, and to improve the connectivity between the central district of Mong Kok and the Mong Kok and Mong Kok East MTR Stations. It is understood that the said pedestrian footbridge is under review.

4.3 General and Modelling Assumption

4.3.1 Local Area Traffic Model (LATM) was developed for base year 2018 and design years 2037 and 2047 to produce traffic forecast. An integrated two-tier modelling approach would be adopted for this Assignment to develop the LATM.

4.3.2 The integrated two-tier modelling approach includes the Strategic Transport Model (STM) as the upper tier model and LATM as the lower tier model. The STM is calibrated and updated to 2016-based Territorial Population and Employment Data Matrix (TPEDM) planning data. The STM would be able to provide both the traffic demands to investigate strategic route choices and to generate cordoned matrices for the development of the more detailed LATM.

4.3.3 The latest Base District Traffic Model (BDTM) – 2016 update K1 model developed by TD has been available for the development of the LATM. The K1 model covers all critical road junctions within AOI for further assessment.

4.4 Development of Local Area Traffic Model – Base Year Model

4.4.1 A 2018 base year LATM is developed for the purpose of the development of design years model. The calibration and validation for the base year LATM development would focus on the checking, updating and enhancement of the traffic model within the AOI to the existing traffic conditions.

4.4.2 In the calibration and validation process, the 2018 initial base year LATM road network and matrices needs to be developed first. The BDTM road network will be reviewed and updated to existing road network to build the LATM initial base year road network. The road network and zones will also be refined as necessary to include more local details within the AOI. The refinement process makes extensive use of the traffic aids drawings, signal plan data sheets, franchised and non-franchised bus routes and schedules as well as site visits.

4.4.3 The LATM initial base year matrices will be derived by applying appropriate zonal growth factor the BDTM matrices. The per annum zonal growth factors are derived from the zonal growth of trips in BDTM between base year and design years. The strategic external-to-external (E-E) trips would be obtained from the STM cordoned matrices. The refinement in the road network details may also lead to the need to further disaggregate the BDTM zone system.

4.4.4 The LATM initial base year matrices will then assigned to the LATM initial base year road network. The model flows will be compared with the 2018 traffic counts. The validation includes examination of the modelled flows against the observed flows at the screenlines and critical junctions. Subject to the validation results, the LATM base year road network and LATM base year matrices may require further calibration. The network may require detailed refinements and the matrices will be calibrated using the matrix estimation SATME2 function. SATME2 is a sub-programme within the SATURN suite of programmes that recalculates the origin and destination matrices to give the best overall fit with the observed traffic count data. SATME2 is used to fill in any missing trips in the refined road network as well.

4.4.5 Proposed screenlines and junctions identified for validation are as used in the calibration and validation process. The model will be validated against the following criteria:

- observed traffic flows crossing the cordon and screenlines; and
- arm flows comparison at key junctions

4.4.6 The road network and matrices within the study area would be further reviewed and, if necessary, to be refined and recalibrated such that they could reproduce the observed traffic flows in year 2018. The aim of the base year modelling exercise is to validate a base year model against the observed traffic flow such that a robust basis would be available to forecast traffic flows up to the design years 2037 and 2047.

4.4.7 The calibration and validation process continues until the assignment of the matrices reproduces a set of model flows satisfactorily. The checking criterion includes comparison of percentage differences and "Geoffrey E. Havers" (GEH) measure. The GEH is a modified chi squared test, and provides a statistic for both the magnitude of the difference and the percentage difference between the modelled and observed flows. It is used in preference to percentage differences which may over-emphasize differences in relatively small traffic volumes.

4.4.8 The BDTM validation criteria would be adopted in the Assignment and are listed in **Table 4.1** below.

Table 4.1 BDTM Validation Guidelines

Validation Criteria	Validation Target
Junction Arm Flows and Screenline Link Flows	GEH 5 or less on 85% of links GEH 10 or less on 100% of links
Screenline Link Flows	85% within ± 10% 100% within ±20%

4.4.9 The Geoff E. Havers (GEH) statistic is a modified chi-square test of the form,

$$\sqrt{\frac{(V_2-V_1)^2}{\frac{1}{2}(V_1+V_2)}}$$

where V1 and V2 are the observed and modelled flows on a specific link.

4.4.10 This volumetric assessment will be paralleled by a qualitative examination of the modelled routings between major origins and destinations in the local traffic model areas.

4.5 Development of Local Area Traffic Model – Future Years Model

4.5.1 A 2-tier modelling method will be adopted for the traffic forecast of design years 2037 and 2047. In addition to the 2018 base year matrices, the 2037 and 2047 cordon matrices will also be obtained from the upper tier STM, which has been calibrated and updated with latest 2016-based TPEDM planning data. Zonal growth factors are then derived from the relevant cordon matrices.

4.5.2 The "initial" 2037 and 2047 matrices for the LATM are obtained by applying the growth patterns from the cordon matrices of STM to the validated 2018 LATM matrices, such that the growth patterns for the STM would be carried to the LATM. The strategic E-E trips would be obtained from the STM cordoned matrices. The "initial" LATM matrices for year 2037 and 2047 will be further modified to reflect any changes in the latest planned and committed development in the vicinity.

4.5.3 Similarly the networks will also be checked to ascertain whether the known committed traffic measures and infrastructure schemes have been included. For the forecast years of 2037 and 2047, the traffic model would be produced from BDTM 2026 network incorporating future network changes. The road networks would be updated to reflect the future year's network assumptions. The future year's network will be checked to ensure that the latest planned and committed projects are included in the traffic model.

4.5.4 In producing future year forecasts, close liaison with the relevant government departments will be held to ensure that the on-going, committed and planned infrastructure and major developments in the study area are included in the traffic model. These infrastructure and developments will be included in the future year traffic forecast for year 2037 and 2047.

4.5.5 The 2037 and 2047 reference (i.e. no development at Subject Site) traffic flows are illustrated in **Figures 4.2** to **4.5.** In general, it is anticipated that there will be about 10% increase of traffic flows in the district in long term.

5. TRAFFIC IMPACT ASSESSMENT

5.1 Reference Scenarios Capacity Assessment

5.1.1 Road link and junction capacity assessment for design years 2037 and 2047 for reference scenario are carried out.

Road Link Performance

5.1.2 The results of road link assessment for years 2037 and 2047 reference scenarios are shown in **Table 5.1**.

Table 5.1 Road Link Performance for Reference Case

Ref. No.	Key Road Links		Design Capacity (pcu/hr)	Traffic Flow (pcu/hr) (V/C Ratio)			
				2037 Reference		2047 Reference	
				AM	PM	AM	PM
L1	Boundary Street	EB	4100	2960 (0.72)	3010 (0.73)	3145 (0.77)	3160 (0.77)
L2	Prince Edward Road West	WB	4700	3160 (0.67)	3320 (0.70)	3270 (0.70)	3455 (0.74)
L3	Argyle Street	EB	2800	1860 (0.67)	1755 (0.63)	1935 (0.69)	1820 (0.65)
		WB	2800	1765 (0.63)	1415 (0.51)	1800 (0.64)	1455 (0.52)
L4	Waterloo Road	EB	4700	970 (0.21)	955 (0.20)	1005 (0.21)	985 (0.21)
		WB	4700	1205 (0.26)	1070 (0.23)	1260 (0.27)	1120 (0.24)
L5	Gascoigne Road Flyover	EB	1900	2570 (1.35)	2435 (1.28)	2615 (1.37)	2455 (1.29)
		WB	1900	2060 (1.08)	2350 (1.23)	2130 (1.12)	2390 (1.26)
L6	Nathan Road	NB	2800	850 (0.30)	1130 (0.41)	880 (0.31)	1175 (0.42)
		SB	2800	1025 (0.37)	805 (0.28)	1070 (0.38)	840 (0.30)
L7	Ferry Street	NB	2800	520 (0.19)	680 (0.25)	535 (0.19)	700 (0.25)
		SB	2800	930 (0.33)	895 (0.32)	1030 (0.37)	985 (0.35)
L8	Jordan Road	EB	4700	1535 (0.33)	1890 (0.4)	1625 (0.35)	2000 (0.43)
		WB	4700	1280 (0.27)	1355 (0.29)	1330 (0.28)	1530 (0.33)
L9	Lin Cheung Road	NB	6100	2085 (0.34)	2675 (0.44)	2100 (0.34)	2745 (0.45)
		SB	6100	4345 (0.71)	4405 (0.72)	4425 (0.73)	4505 (0.74)
L10	Waterloo Road	EB	3300	1225 (0.37)	1325 (0.40)	1265 (0.38)	1355 (0.41)
		WB	2000	930 (0.46)	1135 (0.56)	950 (0.47)	1160 (0.57)

Ref. No.	Key Road Links		Design Capacity (pcu/hr)	Traffic Flow (pcu/hr) (V/C Ratio)			
				2037 Reference		2047 Reference	
				AM	PM	AM	PM
L11	W Kowloon Highway	NB	6100	5550 (0.91)	6770 (1.11)	5860 (0.96)	7120 (1.17)
		SB	6100	7270 (1.19)	6385 (1.05)	7380 (1.21)	6650 (1.09)
L12	Sham Mong Road	NB	2800	495 (0.18)	525 (0.19)	515 (0.18)	550 (0.20)
		SB	2800	815 (0.29)	740 (0.27)	845 (0.3)	765 (0.27)
L13	West Kowloon Corridor	NB	4000	2350 (0.59)	3050 (0.76)	2360 (0.59)	3060 (0.77)
		SB	6100	4960 (0.82)	4240 (0.70)	5085 (0.83)	4245 (0.70)
L14	Lai Chi Kok Road	NB	4700	1730 (0.36)	2190 (0.47)	1785 (0.38)	2300 (0.49)
		SB	4700	475 (0.10)	305 (0.07)	490 (0.10)	325 (0.07)
L15	Nathan Road	NB	2800	805 (0.28)	1155 (0.41)	830 (0.30)	1200 (0.43)
		SB	4100	1360 (0.49)	1055 (0.38)	1400 (0.50)	1085 (0.39)

5.1.3 As shown in the above table, it is estimated that the V/C ratio for all assessed road links would be generally below 1.0 in years 2037 and 2047, except Gascoigne Road Flyover (L5) and West Kowloon Highway (L11) which would have a V/C ratio approaching or exceeding 1.20 in 2037 and 2047 reference case due to various planned developments in future years.

Junction Performance

5.1.4 The results of junction assessment for the Year 2037 and 2047 reference scenarios are shown in **Table 5.2** and the detailed calculation sheets are shown in **Appendix A**.

5.1.5 As shown in Table 5.2, it is estimated that junction J10 will operate over capacity since year 2037, whereas J11, J21, J22, J23, J26, J27, J29 and J30 are estimated to operate close to capacity in at least one of the future year Reference Scenarios. All other junctions are estimated to operate within capacity in all the future year Reference Scenarios.

Table 5.2 Junction Performance for Reference Case

Ref. No.	Junctions	Type of Junction	Reserve Capacity (RC)			
			2037 Reference		2047 Reference	
			AM	PM	AM	PM
J1	Tung Chau St/ Nam Cheong St	Signalised	>100%	>100%	>100%	>100%
J2	Lai Chi Kok St/ Boundary St/ Wong Chuk Rd	Signalised	>100%	>100%	>100%	>100%
J3	Nathan Rd/ Cheung Sha Wan Rd/ Boundary St	Signalised	62%	63%	56%	56%
J4	Boundary St/ Embankment Rd	Signalised	>100%	89%	>100%	77%
J5	Sham Mong Rd/ Chui Yu Rd	Signalised	30%	31%	27%	25%
J6	Sham Mong Rd/ Hoi Fai Rd	Signalised	33%	43%	30%	40%
J7	Prince Edward Rd W/ Sai Yee St/ Fa Yuen St	Signalised	32%	26%	28%	23%
J8	Prince Edward Rd W/ Embankment Rd	Signalised	62%	57%	56%	51%
J9	Cherry St/ Hoi Wang Rd/ Tai Kok Tsui Rd	Signalised	52%	41%	49%	37%
J10	Argyle St/ Sai Yee St	Signalised	5%	-1%	1%	-3%
J11	Argyle St/ Yim Po Fong St/ Luen Wan St	Signalised	21%	16%	16%	12%
J12	Waterloo Rd/ Yim Po Fong St/ Wylie Rd	Signalised	26%	34%	21%	30%
J13	Hoi Wang Rd/ Lai Cheung Rd	Signalised	48%	53%	42%	47%
J14	Waterloo Rd/ Ferry St/ Lai Cheung Rd	Signalised	55%	45%	48%	41%
J15	Nathan Rd/ Waterloo Rd	Signalised	27%	21%	22%	16%
J16	Hoi Wang Rd/ Ngo Cheung Rd	Signalised	44%	61%	40%	53%
J17	Nathan Rd/ Public Square St	Signalised	41%	46%	35%	42%
J18	Nathan Rd/ Kansu St/ Gascoigne Rd	Signalised	68%	44%	62%	38%
J19	Jordan Rd/ Hoi Wang Rd/ Wui Man Rd	Signalised	58%	49%	52%	39%
J20	Jordan Rd/ Ferry St	Signalised	30%	37%	24%	28%
J21	Jordan Rd/ Nathan Rd	Signalised	37%	13%	31%	9%
J22	Gascoigne Rd/ Jordan Rd	Signalised	18%	12%	11%	6%
J23	Boundary St/ Tai Hang Tung Rd	Signalised	48%	15%	39%	8%
J24	Lai Chi Kok Rd/ Tong Mi Rd	Signalised	>100%	>100%	>100%	>100%
J25	Nathan Rd/ Mong Kok Rd	Signalised	34%	44%	29%	40%
J26	Argyle St/ Nathan Rd	Signalised	8%	12%	6%	9%
J27	Argyle St/ Tong Mi Rd	Signalised	11%	16%	9%	12%
J28	Nathan Rd/ Prince Edward Rd W	Signalised	46%	26%	43%	23%
J29	Tong Mi Rd/ Prince Edward Rd W	Signalised	12%	28%	8%	25%
J30	Tai Kok Tsui Rd/ Ivy St	Signalised	8%	12%	8%	11%
J31	Sai Yee St/ Mong Kok Rd	Signalised	26%	25%	22%	22%
J32	Nathan Rd/ Dundas S	Signalised	61%	38%	60%	38%
J33	Ferry St/ Kansu St	Signalised	40%	27%	35%	20%
J34	Jordan Rd/ Shanghai St	Signalised	63%	35%	57%	28%
J35	Tong Mi Rd/ Mong Kok Rd	Signalised	57%	60%	56%	56%
J36	Canton Rd/ Argyle St	Signalised	>100%	>100%	>100%	>100%
J37	Reclamation St/ Dundas St	Signalised	80%	55%	78%	48%
J38	Canton Rd/ Gascoigne Rd	Signalised	>100%	33%	>100%	26%
J39	Prince Edward Rd W/ Lai Chi Kok Rd	Signalised	46%	57%	42%	51%
J40	Lai Chi Kok Rd/ Shanghai St	Signalised	>100%	>100%	>100%	>100%
J41	Lai Chi Kok Rd/ Nathan Rd	Signalised	28%	38%	21%	37%
J42	Bute St/ Shanghai St	Signalised	>100%	>100%	>100%	>100%

Note: (1) RC are rounded to the nearest 5% for the Reserve Capacity (RC).

5.2 Design Scenario Capacity Assessment

5.2.1 The distribution of development-generated traffic is based on references to other development zones in the traffic model and their respective trip origin-destination (O-D) patterns. Years 2037 and 2047 Design traffic flows are illustrated in **Figures 5.1** to **5.4**.

Road Link Performance

5.2.2 Road link capacity is assessed for the key road links within the Study Area based on the proposals. The assessment results for both the reference and design scenario (with developments) of design years 2037 and 2047 were presented in **Table 5.3**.

Table 5.3 Link Capacity Assessment for Design Scenario in Year 2037 and 2047

Ref. No.	Key Road Links		Design Capacity (pcu/hr)	Traffic Flow (pcu/hr) (V/C Ratio)							
				2037 Reference		2037 Design		2047 Reference		2047 Design	
				AM	PM	AM	PM	AM	PM	AM	PM
L1	Boundary Street	EB	4100	2960 (0.72)	3010 (0.73)	3035 (0.74)	3070 (0.75)	3145 (0.77)	3160 (0.77)	3430 (0.84)	3310 (0.81)
L2	Prince Edward Road West	WB	4700	3160 (0.67)	3320 (0.70)	3805 (0.80)	3870 (0.82)	3270 (0.70)	3455 (0.74)	4255 (0.91)	4415 (0.94)
L3	Argyle Street	EB	2800	1860 (0.67)	1755 (0.63)	2050 (0.73)	1915 (0.68)	1935 (0.69)	1820 (0.65)	2300 (0.82)	2120 (0.75)
		WB	2800	1765 (0.63)	1415 (0.51)	1955 (0.70)	1545 (0.55)	1800 (0.64)	1455 (0.52)	2020 (0.72)	1605 (0.58)
L4	Waterloo Road	EB	4700	970 (0.21)	955 (0.20)	990 (0.21)	995 (0.22)	1005 (0.21)	985 (0.21)	970 (0.21)	1040 (0.22)
		WB	4700	1205 (0.26)	1070 (0.23)	1260 (0.27)	1085 (0.23)	1260 (0.27)	1120 (0.24)	1445 (0.31)	1255 (0.27)
L5	Gascoigne Road Flyover	EB	1900	2570 (1.35)	2435 (1.28)	2590 (1.36)	2450 (1.29)	2615 (1.37)	2455 (1.29)	2650 (1.39)	2495 (1.31)
		WB	1900	2060 (1.08)	2350 (1.23)	2070 (1.08)	2400 (1.26)	2130 (1.12)	2390 (1.26)	2190 (1.16)	2490 (1.31)
L6	Nathan Road	NB	2800	850 (0.3)	1130 (0.41)	920 (0.33)	1160 (0.41)	880 (0.31)	1175 (0.42)	1150 (0.42)	1265 (0.45)
		SB	2800	1025 (0.37)	805 (0.28)	1055 (0.37)	825 (0.29)	1070 (0.38)	840 (0.30)	1130 (0.40)	920 (0.32)
L7	Ferry Street	NB	2800	520 (0.19)	680 (0.25)	540 (0.20)	700 (0.25)	535 (0.19)	700 (0.25)	750 (0.27)	815 (0.29)
		SB	2800	930 (0.33)	895 (0.32)	1455 (0.52)	1595 (0.57)	1030 (0.37)	985 (0.35)	1070 (0.38)	1085 (0.18)
L8	Jordan Road	EB	4700	1535 (0.33)	1890 (0.4)	1560 (0.34)	1985 (0.42)	1625 (0.35)	2000 (0.43)	2050 (0.44)	2165 (0.46)
		WB	4700	1280 (0.27)	1355 (0.29)	1870 (0.40)	1915 (0.41)	1330 (0.28)	1530 (0.33)	1480 (0.31)	1870 (0.40)
L9	Lin Cheung Road	NB	6100	2085 (0.34)	2675 (0.44)	2115 (0.35)	2815 (0.46)	2100 (0.34)	2745 (0.45)	2270 (0.38)	3135 (0.51)
		SB	6100	4345 (0.71)	4405 (0.72)	4405 (0.72)	4490 (0.74)	4425 (0.73)	4505 (0.74)	4775 (0.78)	4630 (0.75)
L10	Waterloo Road	EB	3300	1225 (0.37)	1325 (0.40)	1250 (0.37)	1380 (0.42)	1265 (0.38)	1355 (0.41)	1315 (0.39)	1470 (0.44)
		WB	2000	930 (0.46)	1135 (0.56)	1075 (0.53)	1250 (0.61)	950 (0.47)	1160 (0.57)	1245 (0.61)	1390 (0.69)

Ref. No.	Key Road Links		Design Capacity (pcu/hr)	Traffic Flow (pcu/hr) (V/C Ratio)							
				2037 Reference		2037 Design		2047 Reference		2047 Design	
				AM	PM	AM	PM	AM	PM	AM	PM
L11	W Kowloon Highway	NB	6100	5550 (0.91)	6770 (1.11)	5575 (0.92)	6775 (1.11)	5860 (0.96)	7120 (1.17)	5875 (0.96)	7150 (1.17)
		SB	6100	7270 (1.19)	6385 (1.05)	7280 (1.20)	6395 (1.05)	7380 (1.21)	6650 (1.09)	7550 (1.24)	6695 (1.10)
L12	Sham Mong Road	NB	2800	495 (0.18)	525 (0.19)	520 (0.19)	570 (0.21)	515 (0.18)	550 (0.20)	610 (0.22)	690 (0.24)
		SB	2800	815 (0.29)	740 (0.27)	1020 (0.37)	830 (0.30)	845 (0.30)	765 (0.27)	975 (0.35)	800 (0.28)
L13	West Kowloon Corridor	NB	4000	2350 (0.59)	3050 (0.76)	2340 (0.58)	3080 (0.77)	2360 (0.59)	3060 (0.77)	2475 (0.62)	3205 (0.80)
		SB	6100	4960 (0.82)	4240 (0.70)	5025 (0.83)	4325 (0.71)	5085 (0.83)	4245 (0.70)	5200 (0.85)	4300 (0.70)
L14	Lai Chi Kok Road	NB	4700	1730 (0.36)	2190 (0.47)	1945 (0.41)	2380 (0.51)	1785 (0.38)	2300 (0.49)	2070 (0.44)	2485 (0.53)
		SB	4700	475 (0.10)	305 (0.07)	760 (0.16)	475 (0.10)	490 (0.10)	325 (0.07)	910 (0.19)	600 (0.13)
L15	Nathan Road	NB	2800	805 (0.28)	1155 (0.41)	815 (0.29)	1190 (0.43)	830 (0.30)	1200 (0.43)	800 (0.28)	1270 (0.46)
		SB	4100	1360 (0.49)	1055 (0.38)	1480 (0.53)	1070 (0.38)	1400 (0.50)	1085 (0.39)	1585 (0.57)	1145 (0.41)

5.2.3 As shown in the above table, all road links are estimated to be within capacity in years 2037 and 2047, except Gascoigne Road Flyover (L5) and West Kowloon Highway (L11) which would have a V/C ratio approaching or exceeding 1.20 in 2037 and 2047 reference and design case.

5.2.4 The above assessment results indicated the concerned road links L5 and L11 are estimated to be approaching or exceed capacity in reference case, even without the proposed OZP amendment. The proposal of OZP amendment would only have marginal increase of traffic to Gascoigne Road Flyover (L5) and West Kowloon Highway (L11), 170 pcu/hr or less in the peak direction, and hence the traffic impact to the concerned road section is considered to be immaterial.

5.2.5 Apart from the above, the assessment was based on a conservative approach without taking into account of the other on-going infrastructures (outside Study Area) under study by government, such as the priority road and priority rail link connecting the artificial islands in the Central Waters which will provide an additional route from the existing 3 Road Harbour Crossings and also extra road capacity to cater for the future demand for traffic crossing across the Harbour. It is expected that the introduction of this new route would significantly change the existing travel pattern across the Harbour. Together with the study of the toll-rationalisation of the Road Harbour Crossings and Land tunnels with an aim to utilise the 3 Harbour Crossings and alleviate traffic congestion issue at CHT and EHC, it is expected that the above on-going improvement proposal would relieve the traffic pressure along the key North-South strategic traffic corridor and re-distribute the traffic in a more balanced manner and hence improving the traffic conditions on the concerned Gascoigne Road Flyover (L5) and West Kowloon Highway (L11), which are forecasted to be overloaded in the reference case.

5.2.6 Furthermore, the northern metropolis development strategy would also provide opportunities for formulation potential improvement of traffic conditions in NTE area in the future studies. This would also provide a positive impact on shifting the existing traffic pattern and potentially reducing the southbound and northbound trips of the transportation system between Urban and New Territories along the busiest traffic corridors.

5.2.7 With the implementation of all the above on-going projects, it is anticipated that the traffic pressure on Gascoigne Road Flyover (L5) and West Kowloon Highway (L11) will be relieved and will operate to a manageable condition in the long run.

5.2.8 According to the TIA report under the *Detailed Urban Renewal District Study in Yau Ma Tei and Mong Kok Districts*, a sensitivity test was conducted for the potential 4th road harbour crossing. The results indicated that there would be about 15% - 25% reduction of traffic flows on Gascoigne Road Flyover (L5) and West Kowloon Highway (L11) with the 4th road harbour crossing (on top of the proposed Gascoigne Road Flyover widening). Since the planning and modelling assumption under this TIA for proposed OZP Amendment is the same as that for previous study. Therefore, it is envisaged that the results of sensitivity test in previous study is still valid for the proposed OZP Amendment.

Junction Performance

5.2.9 Junction capacity assessment has been carried out for design scenario in Years 2037 and 2047. The assessment has incorporated the traffic condition with the proposed road closure under Tai Nan Street and Arran Street SCAs taken as assumptions for evaluation. The concerned junctions related to road closure, including (1) J2 and J24 for Tai Nan Street SCA; and (2) J27, J29, J35, J36, J39 and J42 for Arran Street SCA, are also assessed.

5.2.10 The results of junction capacity assessment for years 2037 and 2047 are shown in **Tables 5.4** and **5.5** respectively. The detailed calculation sheets are shown in **Appendix A**.

5.2.11 As shown in the tables, it is estimated that J5, J10, J11, J15, J21, J22, J23, J26, J27, J29 and J30 will operate close to or exceed their capacities in at least one of the planning horizons. For J23, the RC is estimated to remain the same at 8% in the PM peak in year 2047 compared to the 2047 Reference Scenario. Traffic impact induced by the proposed redevelopment is insignificant and due to site constraints, it would be impracticable to require the project proponent to implement any improvement scheme to alleviate impact not caused by his development. Other than that, improvement measures will be proposed for those above-mentioned critical junctions to mitigate the potential traffic impact induced by the proposed redevelopments under the assumptions. The proposed improvement measures will be presented in the next Chapter.

Table 5.4 Junction Performance for Design Scenario in Year 2037

Ref. No.	Junctions	Type of Junction	Reserve Capacity (RC)			
			2037 Reference		2037 Design	
			AM	PM	AM	PM
J1	Tung Chau St/ Nam Cheong St	Signalised	>100%	>100%	64%	>100%
J2	Lai Chi Kok St/ Boundary St/ Wong Chuk Rd	Signalised	>100%	>100%	>100%	>100%
J3	Nathan Rd/ Cheung Sha Wan Rd/ Boundary St	Signalised	62%	63%	57%	60%
J4	Boundary St/ Embankment Rd	Signalised	>100%	89%	>100%	89%
J5	Sham Mong Rd/ Chui Yu Rd	Signalised	30%	31%	16%	22%
J6	Sham Mong Rd/ Hoi Fai Rd	Signalised	33%	43%	33%	41%
J7	Prince Edward Rd W/ Sai Yee St/ Fa Yuen St	Signalised	32%	26%	32%	25%
J8	Prince Edward Rd W/ Embankment Rd	Signalised	62%	57%	42%	40%
J9	Cherry St/ Hoi Wang Rd/ Tai Kok Tsui Rd	Signalised	52%	41%	45%	40%
J10	Argyle St/ Sai Yee St	Signalised	5%	-1%	3%	-1%
J11	Argyle St/ Yim Po Fong St/ Luen Wan St	Signalised	21%	16%	20%	16%
J12	Waterloo Rd/ Yim Po Fong St/ Wylie Rd	Signalised	26%	34%	23%	33%
J13	Hoi Wang Rd/ Lai Cheung Rd	Signalised	48%	53%	45%	43%
J14	Waterloo Rd/ Ferry St/ Lai Cheung Rd	Signalised	55%	45%	38%	41%
J15	Nathan Rd/ Waterloo Rd	Signalised	27%	21%	22%	17%
J16	Hoi Wang Rd/ Ngo Cheung Rd	Signalised	44%	61%	44%	58%
J17	Nathan Rd/ Public Square St	Signalised	41%	46%	40%	33%
J18	Nathan Rd/ Kansu St/ Gascoigne Rd	Signalised	68%	44%	67%	36%
J19	Jordan Rd/ Hoi Wang Rd/ Wui Man Rd	Signalised	58%	49%	54%	41%
J20	Jordan Rd/ Ferry St	Signalised	30%	37%	29%	37%
J21	Jordan Rd/ Nathan Rd	Signalised	37%	13%	31%	9%
J22	Gascoigne Rd/ Jordan Rd	Signalised	18%	12%	18%	11%
J23	Boundary St/ Tai Hang Tung Rd	Signalised	48%	15%	44%	15%
J24	Lai Chi Kok Rd/ Tong Mi Rd	Signalised	>100%	>100%	>100%	>100%
J25	Nathan Rd/ Mong Kok Rd	Signalised	34%	44%	33%	36%
J26	Argyle St/ Nathan Rd	Signalised	8%	12%	7%	12%
J27	Argyle St/ Tong Mi Rd	Signalised	11%	16%	11%	15%
J28	Nathan Rd/ Prince Edward Rd W	Signalised	46%	26%	45%	22%
J29	Tong Mi Rd/ Prince Edward Rd W	Signalised	12%	28%	3%	27%
J30	Tai Kok Tsui Rd/ Ivy St	Signalised	8%	12%	0%	7%
J31	Sai Yee St/ Mong Kok Rd	Signalised	26%	25%	24%	23%
J32	Nathan Rd/ Dundas S	Signalised	61%	38%	60%	36%
J33	Ferry St/ Kansu St	Signalised	40%	27%	40%	27%
J34	Jordan Rd/ Shanghai St	Signalised	63%	35%	49%	22%
J35	Tong Mi Rd/ Mong Kok Rd	Signalised	57%	60%	51%	55%
J36	Canton Rd/ Argyle St	Signalised	>100%	>100%	>100%	97%
J37	Reclamation St/ Dundas St	Signalised	80%	55%	79%	54%
J38	Canton Rd/ Gascoigne Rd	Signalised	>100%	33%	>100%	33%
J39	Prince Edward Rd W/ Lai Chi Kok Rd	Signalised	46%	57%	31%	45%
J40	Lai Chi Kok Rd/ Shanghai St	Signalised	>100%	>100%	>100%	>100%
J41	Lai Chi Kok Rd/ Nathan Rd	Signalised	28%	38%	28%	34%
J42	Bute St/ Shanghai St	Signalised	>100%	>100%	>100%	>100%

Table 5.5 Junction Performance for Design Scenario in Year 2047

Ref. No.	Junctions	Type of Junction	Reserve Capacity (RC)			
			2047 Reference		2047 Design	
			AM	PM	AM	PM
J1	Tung Chau St/ Nam Cheong St	Signalised	>100%	>100%	36%	82%
J2	Lai Chi Kok St/ Boundary St/ Wong Chuk Rd	Signalised	>100%	>100%	>100%	59%
J3	Nathan Rd/ Cheung Sha Wan Rd/ Boundary St	Signalised	56%	56%	19%	52%
J4	Boundary St/ Embankment Rd	Signalised	>100%	77%	>100%	76%
J5	Sham Mong Rd/ Chui Yu Rd	Signalised	27%	25%	8%	11%
J6	Sham Mong Rd/ Hoi Fai Rd	Signalised	30%	40%	29%	37%
J7	Prince Edward Rd W/ Sai Yee St/ Fa Yuen St	Signalised	28%	23%	27%	22%
J8	Prince Edward Rd W/ Embankment Rd	Signalised	56%	51%	37%	33%
J9	Cherry St/ Hoi Wang Rd/ Tai Kok Tsui Rd	Signalised	49%	37%	29%	25%
J10	Argyle St/ Sai Yee St	Signalised	1%	-3%	-12%	-4%
J11	Argyle St/ Yim Po Fong St/ Luen Wan St	Signalised	16%	12%	15%	11%
J12	Waterloo Rd/ Yim Po Fong St/ Wylie Rd	Signalised	21%	30%	15%	19%
J13	Hoi Wang Rd/ Lai Cheung Rd	Signalised	42%	47%	37%	28%
J14	Waterloo Rd/ Ferry St/ Lai Cheung Rd	Signalised	48%	41%	30%	36%
J15	Nathan Rd/ Waterloo Rd	Signalised	22%	16%	11%	10%
J16	Hoi Wang Rd/ Ngo Cheung Rd	Signalised	40%	53%	38%	42%
J17	Nathan Rd/ Public Square St	Signalised	35%	42%	21%	20%
J18	Nathan Rd/ Kansu St/ Gascoigne Rd	Signalised	62%	38%	42%	21%
J19	Jordan Rd/ Hoi Wang Rd/ Wui Man Rd	Signalised	52%	39%	20%	31%
J20	Jordan Rd/ Ferry St	Signalised	24%	28%	21%	27%
J21	Jordan Rd/ Nathan Rd	Signalised	31%	9%	12%	2%
J22	Gascoigne Rd/ Jordan Rd	Signalised	11%	6%	4%	-10%
J23	Boundary St/ Tai Hang Tung Rd	Signalised	39%	8%	29%	8%
J24	Lai Chi Kok Rd/ Tong Mi Rd	Signalised	>100%	>100%	>100%	>100%
J25	Nathan Rd/ Mong Kok Rd	Signalised	29%	40%	26%	36%
J26	Argyle St/ Nathan Rd	Signalised	6%	9%	5%	6%
J27	Argyle St/ Tong Mi Rd	Signalised	9%	12%	-1%	2%
J28	Nathan Rd/ Prince Edward Rd W	Signalised	43%	23%	42%	19%
J29	Tong Mi Rd/ Prince Edward Rd W	Signalised	8%	25%	-7%	14%
J30	Tai Kok Tsui Rd/ Ivy St	Signalised	8%	11%	-5%	4%
J31	Sai Yee St/ Mong Kok Rd	Signalised	22%	22%	19%	15%
J32	Nathan Rd/ Dundas S	Signalised	60%	38%	47%	30%
J33	Ferry St/ Kansu St	Signalised	35%	20%	34%	20%
J34	Jordan Rd/ Shanghai St	Signalised	57%	28%	26%	15%
J35	Tong Mi Rd/ Mong Kok Rd	Signalised	56%	56%	31%	31%
J36	Canton Rd/ Argyle St	Signalised	>100%	>100%	>100%	90%
J37	Reclamation St/ Dundas St	Signalised	78%	48%	58%	46%
J38	Canton Rd/ Gascoigne Rd	Signalised	>100%	26%	>100%	25%
J39	Prince Edward Rd W/ Lai Chi Kok Rd	Signalised	42%	51%	23%	36%
J40	Lai Chi Kok Rd/ Shanghai St	Signalised	>100%	>100%	>100%	>100%
J41	Lai Chi Kok Rd/ Nathan Rd	Signalised	21%	37%	21%	29%
J42	Bute St/ Shanghai St	Signalised	>100%	>100%	90%	>100%

5.3 Sensitivity Test for Plot Ratio

5.3.1 A sensitivity test for distribution of plot ratio for domestic and non-domestic for OU(MU) was carried out for the following cases.

- Case 1 - Domestic / Non-domestic Plot Ratio = 4.5 / 4.5
- Case 2 - Domestic / Non-domestic Plot Ratio = 7.5 / 1.5

5.3.2 The trip generation in accordance with TPDM requirement based on the same total GFA is calculated for both cases and the result is summarised in **Table 5.6**.

Table 5.6 Sensitivity Test for Plot Ratio

	Case 1						Case 2					
	GFA (sqm)	No. of flat	Trip Generation				GFA (sqm)	No. of flat	Trip Generation			
			AM		PM				AM		PM	
			Gen	Att	Gen	Att			Gen	Att	Gen	Att
Private Housing(1)	4500	82	6	3	2	3	7500	136	10	6	4	5
Retail(2)	4500	-	10	11	14	16	1500	-	3	4	5	5
Subtotal	-		**16**	**14**	**16**	**19**	-		**13**	**9**	**9**	**10**
Difference (Case 1 – Case 2)			***3 (+23%)***	***5 (+56%)***	***7 (+78%)***	***9 (+90%)***	-					
Total	-		**30**		**35**		-		**22**		**19**	
Difference (Case 1 – Case 2)			***8 (+36%)***		***16 (+84%)***		-					

Note:
(1) TPDM mean value for Private Housing average flat size 60sqm.
(2) TPDM mean value for Retail

5.3.3 As shown in **Table 5.6**, the trip generation for Domestic / Non-domestic Plot Ratio of 4.5 / 4.5 is higher in both directions. The current traffic assessment based on this plot ratio assumption is on the conservative side.

5.4 Pedestrian Assessment

5.4.1 The year 2047 peak hour pedestrian flow is estimated by applying an annual growth rate to the existing pedestrian flow. The annual growth rate from existing year to 2047 was estimated based on the future population and employment data in 2016-based TPEDM. The adopted growth rates are 0.39% per annum.

5.4.2 The assessed pedestrian walkways are shown in **Figure 5.5**. The estimated 2-way peak hour pedestrian flows during weekday and weekend in year 2047 are shown in **Table 5.7**.

Table 5.7 Year 2047 Pedestrian Flow in Weekday and Weekend

Index	Pedestrian Link	Actual Width (m)	Effective Width[1] (m)	Peak 15-min Flow[2] (Ped/15-min)		LOS	
				Weekday	Weekend	Weekday	Weekend
P1	Boundary Street	3.55	2.55	200	230	A	A
P2	Ki Lung Street	3.05	2.05	470	470	A	A
P3	Cedar Street	2.95	1.95	200	240	A	A
P4	Lai Chi Kok Road	3.3	2.3	470	470	A	A
P5	Boundary Street	3.45	2.45	800	800	B	B
P6	Sai Yee Street	1.85	0.85	800	800	**E**	**E**
P7	Prince Edward Road West	3.15	2.15	390	480	A	A
P8	Canton Road	3.05	2.05	115	115	A	A
P9	Shanghai Street	2.55	1.55	280	350	A	A
P10	Bute Street	2.65	1.65	380	470	A	B
P11	Prince Edward Road West	3.55	2.55	900	1110	C	C
P12	Prince Edward Road West	3.45	2.45	225	225	A	A
P13	Portland Street	2.7	1.7	225	225	A	A
P14	Nathan Road	4.35	3.35	680	680	A	A
P15	Prince Edward Road West	2.4	1.4	890	890	**D**	**D**
P16	Nathan Road	4.55	3.05	1105	1105	C	C
P17	Sai Yeung Choi Street South	3.2	2.2	950	950	C	C
P18	Tung Choi Street	2.65	1.65	360	430	A	B
P19	Fa Yuen Street	3	2	480	580	A	B
P20	Cheung Wong Road	2.8	1.8	430	530	B	B
P21	Tong Mi Road	3.3	2.3	580	580	B	B
P22	Reclamation Street	2.5	1.5	400	490	B	B
P23	Argyle Street	3.7	2.7	1010	1240	C	C
P24	Argyle Street	2.7	1.7	1040	1280	**D**	**E**
P25	Reclamation Street	3.25	2.25	940	940	C	C
P26	Portland Street	5.35	4.35	645	780	A	A
P27	Nathan Road	4.6	3.1	1700	1425	**D**	C
P28	Nathan Road	4.5	3	1045	1080	C	C
P29	Sai Yeung Choi Street South	5.15	4.15	1610	1980	C	C
P30	Tung Choi Street	3.3	2.3	240	310	A	A
P31	Fa Yuen Street	4.25	3.25	435	540	A	A
P32	Reclamation Street	2.65	1.65	265	265	A	A
P33	Shanghai Street	2.35	1.35	350	420	B	B
P34	Hamilton Street	2.15	1.15	265	265	A	A
P35	Canton Road	3.2	2.2	265	265	A	A
P36	Portland Street	3	2	380	470	A	A
P37	Waterloo Road	3.4	2.4	1115	1230	C	**D**
P38	Nathan Road	4.8	3.3	1220	780	C	A
P39	Nathan Road	4	3	1115	990	C	B
P40	Kansu Street	1.75	0.75	200	250	B	B
P41	Battery Street	3.15	2.15	105	130	A	A
P42	Saigon Street	1.9	0.9	425	425	C	C
P43	Canton Road	2.8	1.8	315	315	A	A
P44	Nanking Street	1.25	0.25	740	920	**F**	**F**

Index	Pedestrian Link	Actual Width (m)	Effective Width(1) (m)	Peak 15-min Flow(2) (Ped/15-min)		LOS	
				Weekday	Weekend	Weekday	Weekend
P45	Shanghai Street	2.55	1.55	570	700	C	C
P46	Temple Street	3.05	2.05	415	495	A	B
P47	Woosung Street	3	2	405	485	A	B
P48	Parkes Street	3	2	990	1210	**D**	**D**
P49	Nathan Road	3.85	2.85	1095	805	C	B
P50	Nathan Road	3.3	2.3	700	850	B	C

Notes:

(1) Effective width = existing width – dead width. Dead widths 0.5m as clearance for building side, curbs or fixed objects, trees and plants, building face and other clearance is adopted in calculating the effective width.

(2) The figures are rounded to the nearest 5.

5.4.3 The result indicates that most of the pedestrian walkways are estimated to have an acceptable Level of Service (LOS) of C or above, except for the sections of footpath at Sai Yee Street (P6), Prince Edward Road West (P15), Argyle Street (P24), Nanking Street (P44) and Parkes Street (P48) which will have a LOS below C on both weekday and weekend, and Nathan Road (P27) and Waterloo Road (P37) which will have a LOS below C on either weekday or weekend in year 2047**.**

5.4.4 Besides, the sections of footpath at Sai Yeung Choi Street South (P17), Reclamation Street (P25), Saigon Street (P42) and Shanghai Street (P45) have widths below the current HKPSG and would reach LOS of C in 2047.

5.4.5 Improvement measures to improve the footpath performance and/ or widen their widths up to the current HKPSG standard will be discussed in the next chapter.

6. PROPOSED TRAFFIC AND PEDESTRIAN IMPROVEMENT MEASURES

6.1 Overview of Traffic Improvement Measures

6.1.1 According to the result of junction assessment, the following junctions will operate with RC less than 15%.

- Sham Mong Road / Chui Yu Road (J5)
- Sai Yee Street / Argyle Street (J10)
- Argyle Street / Yim Po Fong Street / Luen Wan Street (J11)
- Nathan Road / Waterloo Road (J15)
- Nathan Road / Jordan Road (J21)
- Gascoigne Road / Jordan Road (J22)
- Nathan Road / Argyle Road (J26)
- Tong Mi Road / Argyle Road (J27)
- Tong Mi Road / Prince Edward Road West (J29)
- Tai Kok Tsui Road / Ivy Street (J30)

6.2 Proposed Traffic Improvement Measures

6.2.1 Traffic improvements measure are proposed for the problematic junctions as summarized in **Figure 6.1** and described below.

Sham Mong Road / Chui Yu Road (J5)

6.2.2 It is proposed to convert the lane configuration of 2nd nearside lane of Sham Mong Road westbound from straight ahead only to straight ahead and right turn movement. **Figure 6.2** shows the proposed improvement scheme. The improvement in terms of junction performance is summarized in the table below.

Table 6.1 Junction Performance with Improvement for J5

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J5	Sham Mong Road / Chui Yu Road	16%	22%	44%	41%	8%	11%	34%	32%

Sai Yee Street / Argyle Street (J10)

6.2.3 Based on the Study on the Redevelopment on Government Sites at Sai Yee Street and Mong Kok East Station (Sai Yee Street Redevelopment Site Study), junction modification works are planned at the Sai Yee Street and Argyle Street junction.

6.2.4 Under the planned works, the kerbline of Sai Yee Street southbound would be setback to provide an additional left turning traffic lane. The eastern section of Argyle Street eastbound will also be setback to facilitate the additional left turning movement from Sai Yee Street southbound.

6.2.5 In addition to the planned works, it is proposed to widen the existing pedestrian crossing at Argyle Street by approx. 2m and reduce the pedestrian green time accordingly. The proposed improvement scheme is illustrated in **Figure 6.3**. The improvement in terms of junction performance is summarized in the table below.

Table 6.2 Junction Performance with Improvement for J10

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J10	Argyle Street / Sai Yee Street	3%	-1%	31%	24%	-12%	-4%	15%	24%

Argyle Street / Yim Po Fong Street / Luen Wan Street (J11)

6.2.6 Similar to J10, junction modification works are planned at the Argyle Street / Yim Po Fong Street / Luen Wan Street junction under the Sai Yee Street Redevelopment Site Study. The kerbline of Argyle Street eastbound would be setback to provide a full traffic lane for left turn traffic. Luen Wan Street would also be widened for the northbound traffic as shown in **Figure 6.3**. The improvement in terms of junction performance is summarized in the table below.

Table 6.3 Junction Performance with Improvement for J11

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J11	Argyle Street / Yim Po Fong Street / Luen Wan Street	20%	16%	47%	60%	15%	11%	27%	40%

Nathan Road / Waterloo Road (J15)

6.2.7 A channelising island at Nathan Road northbound is proposed by setting back of the eastern road kerb such that split phase for traffic movement at Nathan Road northbound could be provided. The method of control would be revised to allow 2 stages of green time for straight ahead movement from Nathan Road northbound. The proposed layout is shown in **Figure 6.4**.

6.2.8 The improvement in terms of junction performance is summarized in the table below.

Table 6.4 Junction Performance with Improvement for J15

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J15	Nathan Road / Waterloo Road	22%	17%	34%	25%	11%	10%	20%	14%

Nathan Road / Jordan Road (J21)

6.2.9 It is proposed to widen the pedestrian crossing at northern section of Nathan Road by approx. 2m in order to reduce the green time at the corresponding pedestrian stage accordingly and subsequently reserve more green time for vehicular phases. The proposed improvement scheme is illustrated in **Figure 6.5**. The improvement in terms of junction performance is summarized in the table below.

Table 6.5 Junction Performance with Improvement for J21

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J21	Jordan Road / Nathan Road	31%	9%	49%	22%	12%	2%	28%	15%

Gascoigne Road / Jordan Road (J22)

6.2.10 It is proposed to convert the pedestrian crossing at the north of Jordon Road to a staggered crossing and thus modify the method of control of the junction in order to enhance the junction capacity. The proposed improvement scheme is illustrated in **Figure 6.6**. The improvement in terms of junction performance is summarized in the table below.

Table 6.6 Junction Performance with Improvement for J22

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J22	Gascoigne Road / Jordan Road	18%	11%	41%	26%	4%	-10%	33%	21%

Nathan Road / Argyle Road (J26)

6.2.11 The existing 1st and 2nd farside lanes of Argyle Street westbound are proposed to convert from "right turn" and "straight ahead and right turn" to "straight ahead and right turn" and "straight ahead" traffic lane respectively. The proposed improvement scheme is illustrated in **Figure 6.7**. The improvement in terms of junction performance is summarized in the table below.

6.2.12 Subject to further analysis and future traffic demand, further setback along Nathan Road and/ or Argyle Street may be required for enhancing the junction reserve capacity.

Table 6.7 Junction Performance with Improvement for J26

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J26	Argyle Street / Nathan Road	7%	12%	26%	22%	5%	6%	17%	11%

Tong Mi Road / Argyle Road (J27)

6.2.13 In consideration of the implementation phase of Mong Kok Market Development Node, it is proposed to divert the junction improvement into 2 stages.

6.2.14 For 2037, it is proposed to setback the kerb line at the southeast corner of the junction in order to provide a longer left turning lane at Argyle Street westbound. A minimum of 2m footpath would be maintained for the southern footpath at Argyle Street. Also, it is proposed to modify the configuration for middle lane of Tong Mi Road southbound from straight-ahead to straight-ahead and right turning traffic lane. The proposed layout is shown in **Figure 6.8**.

6.2.15 For 2047, it is proposed to setback the designated redevelopment site along Argyle Street westbound for an additional dedicated left-turning traffic lane to improve junction performance. This improvement works is proposed in conjunction with the Mong Kok Market Revitalization (South).

6.2.16 In addition, it is proposed to setback the Mong Kok Market Revitalization (North) development in order to realign the existing kerbside along Tong Mi Road southbound for an additional right-turn lane at the northern entry arm. The proposed layout is shown in **Figure 6.9**. The improvement in terms of junction performance is summarized in the table below.

Table 6.8 Junction Performance with Improvement for J27

Ref. No.	Junctions	Reserve Capacity (RC)									
		2037 Design (without Improvem't)		2037 Design (with 2037 Improvem't)		2047 Design (without Improvem't)		2047 Design (with 2037 Improvem't)		2047 Design (with 2047 improvem't)	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
J27	Argyle St/ Tong Mi Rd	11%	15%	21%	18%	-1%	2%	4%	-3%	29%	25%

Tong Mi Road / Prince Edward Road West (J29)

6.2.17 With the change in traffic flow pattern in future, the right-turn movement of Prince Edward Road West eastbound is anticipated to be more critical than straight-ahead movement resulting in traffic congestion based on the existing traffic lane arrangement. To address this, it is proposed to convert 1 straight-ahead lane at the eastbound approach of Prince Edward Road West into "straight-ahead and right-turn" shared lane. The proposed layout is shown in **Figure 6.10**. The improvement in terms of junction performance is summarized in the table below.

Table 6.9 Junction Performance with Improvement for J29

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J29	Tong Mi Rd / Prince Edward Rd W	3%	27%	36%	55%	-7%	14%	16%	42%

Tai Kok Tsui Road / Ivy Street (J30)

6.2.18 To enhance the junction performance, it is proposed to provide an additional traffic lane on Ivy Street by relocating the existing loading/unloading bay alongside Dorsett Mongkok, Hong Kong and On Yip Factory Building. The existing road kerb along Tai Kok Tsui Road in front of Ivy Street Rest Garden could be temporarily setback to accommodate an approximately 27m long loading/unloading bay so that a dedicated right-turn traffic lane could be provided on Ivy Street. The proposed layout is presented in **Figure 6.11**. The improvement in terms of junction performance is summarized in the table below.

Table 6.10 Junction Performance with Improvement for J30

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J30	Tai Kok Tsui Road / Ivy Street	0%	7%	22%	34%	-5%	4%	16%	27%

6.2.19 The junction performance with the above-mentioned proposed improvement measures are assessed and the results are shown in **Table 6.1**. The detailed calculation sheets are shown in **Appendix A.**

Table 6.11 Summary of Junction Performance with Improvement

Ref. No.	Junctions	Reserve Capacity (RC)							
		2037 Design (without Improvement)		2037 Design (with Improvement)		2047 Design (without Improvement)		2047 Design (with Improvement)	
		AM	PM	AM	PM	AM	PM	AM	PM
J5	Sham Mong Rd/ Chui Yu Rd	16%	22%	44%	41%	8%	11%	34%	32%
J10	Argyle St/ Sai Yee St	3%	-1%	31%	24%	-12%	-4%	15%	24%
J11	Argyle/ Yim Po Fong/ Luen Wan	20%	16%	47%	60%	15%	11%	27%	40%
J15	Nathan Rd/ Waterloo Rd	22%	17%	34%	25%	11%	10%	20%	14%
J21	Jordan Rd/ Nathan Rd	31%	9%	49%	22%	12%	2%	28%	15%
J22	Gascoigne Rd/ Jordan Rd	18%	11%	41%	26%	4%	-10%	33%	21%
J26	Argyle St/ Nathan Rd	7%	12%	26%	22%	5%	6%	17%	11%
J27	Argyle Street / Tong Mi Road	11%	15%	21%	18%	-1%	2%	29%	25%
J29	Tong Mi Rd / Prince Edward Rd W	3%	27%	36%	55%	-7%	14%	16%	42%
J30	Tai Kok Tsui Rd / Ivy St	0%	7%	22%	34%	-5%	4%	16%	27%

6.2.20 With the proposed junction improvement, the above concerned junctions will all operate with ample capacity during the AM and PM peak hours in year 2037 and 2047.

6.2.21 All junction improvement schemes are proposed to be implemented by year 2037, except part of the junction improvement schemes for Tong Mi Road / Argyle Road (J27) which is proposed to be implemented by year 2047.

6.2.22 Based on the nature of improvement works and affected land lot, the proposed implementation agent is summarised in the **Table 6.12**.

Table 6.12 Proposed Implementation Agent for Traffic Improvement Measures

Junction	Timing for Implementat'n	Improvement works	Land lot to be affected	Proposed Implementat'n Agent
J10 & J11 – Sai Yee Street / Argyle Street & Argyle Street / Yim Po Fong Street / Luen Wan Street	2037	(i) set back at easterly kerb of Sai Yee Street for a 120m additional southbound lane and a lay-by (ii) set back at northerly kerb of Argyle Street for a 70m additional eastbound lane and a lay-by (iii) realign Luen Wan Street and provision of development run-in/ out	Sai Yee Street redevelopment site	Project proponent of Sai Yee Street redevelopment
J15 – Nathan Road / Waterloo Road	2037	(i) build channelising island at Nathan Road NB approach (ii) set back at easterly kerb of Nathan Road and displace the central divider for the provision of (i)	None	Transport Department/ Highways Department
J27 – Tong Mi Road / Argyle Street	2037	(i) set back of kerb at the southeast corner for a longer left turning lane at Argyle Street WB approach	None	Transport Department/ Highways Department
	2047	(ii) set back at southerly kerb of Argyle Street for a 50m additional westbound lane (iii) set back at easterly kerb of Tong Mi Road for a 50m additional southbound lane	Mong Kok Market DN (South), Mong Kok Market Revitalization (North)	Project Proponent(s) of Mong Kok Market DN
J30 – Tai Kok Tsui Road / Ivy Street	2037	(i) set back at easterly kerb of Tai Kok Tsui Road for a 27m lay-by (ii) set back at southeast corner of the junction to convert the existing Ivy Street layby to a traffic lane	Ivy Street Rest Garden	Transport Department/ Highways Department

6.2.23 For other junction improvement measures encompass modification of traffic island, signaling and/ or road marking, etc., which the works are carried out in the road zone are proposed to be implemented by Transport Department/ Highways Department. The proposed setback requirement for road widening is recommended for implementation of the adjoining lots upon redevelopment.

6.2.24 The improvement proposals and implementation agents for the associated works would be further reviewed at project implementation stage when necessary.

6.3 Proposed Pedestrian Improvement Measures

6.3.1 Over the years, it has been the Government's Transport Policy to develop Hong Kong into a walkable city. The "Walk in HK" initiative with aim to make walking a pleasant experience and provide a safe and quality walking environment. Provision of a footpath meeting the planning requirement is the first step to improve the pedestrian environment and enhance the walking experience especially for area with high pedestrian volume, commercial activities or key public transport hubs or stations.

6.3.2 According to YMDS, Nathan Road and Argyle Street are the major commercial spines and the key N-S and E-W pedestrian corridors of the Yau Mong District. To provide a pedestrian friendly walking environment for locals and tourists to shop and enjoy the city life in the Yau Mong District, it is important to ensure that a sufficient width of footpath will be provided in the future.

6.3.3 With a long term vision to transform the Yau Mong area to a better walkable district, a long term pedestrian improvement plan on footpath width along Nathan Road and Argyle Street with an objective to match the HKPSG and Transport Planning and Design Manual (TPDM) requirements is proposed. That is, the footpath on both sides of these two N-S and E-W corridors shall have widths in accordance with the prevailing standard for commercial area in the HKPSG (currently minimum 5.5m) as indicated in **Figure 6.12**. And that the setback at ground floor is considered essential to enhance walkability and benefit the public.

6.3.4 As identified in **Section 5.4**, some of the footpath fall short of the LOS C performance or have widths below the current standards, which are recommended to provide footpath widening to improve the pedestrian walking conditions. To enhance the performance of those concerned footpaths, widening is proposed at various sections of footpaths where high pedestrian traffic flows are anticipated after the redevelopment.

6.3.5 Apart from the widening proposals at Nathan Road and Argyle Street mentioned above, the recommended locations for footpath widening at ground floor with performance issues or in concern are illustrated below and in **Figure 6.12**.

- P6 – Sai Yee Street (between Boundary Street and Flower Market Road)
- P15 – Prince Edward Road West (between Nathan Road and Sai Yee Street)
- P17 – Sai Yeung Choi Street South (between Nullah Street and Bute Street)
- P25 – Reclamation Street (between Argyle Street and Shantung Street)
- P37 – Waterloo Road (between Canton Road and Portland Street)
- P42 – Saigon Street (between Canton Road and Shanghai Street)
- P44 – Nanking Street (between Canton Road and Shanghai Street)
- P45 – Shanghai Street (between Saigon Street and Nanking Street)
- P48 – Parkes Street (between Ning Po Street and Jordan Road)

6.3.6 With the proposed footpath widening mentioned above, the result of pedestrian assessment are summarized in **Table 6.13**.

Table 6.13 Year 2047 Pedestrian Flow in Weekday and Weekend (with Footpath Widening)

Index	Pedestrian Link	Actual Width (m)	Effective Width(1) (m)	Peak 15-min Flow(2) (Ped/15-min)		LOS	
				Weekday	Weekend	Weekday	Weekend
P6	Sai Yee Street	3.5	2.5	800	800	B	B
P14	Nathan Road	5.5	3.5	680	680	A	A
P15	Prince Edward Road West	3.5	2.5	890	890	C	C
P16	Nathan Road	5.5	3.5	1105	1105	B	B
P17	Sai Yeung Choi Street South	3.5	2.5	950	950	C	C
P23	Argyle Street	5.5	3.5	1010	1240	B	C
P24	Argyle Street	5.5	3.5	1040	1280	B	C
P25	Reclamation Street	3.5	2.5	940	940	C	C
P27	Nathan Road	5.5	3.5	1700	1425	C	C
P28	Nathan Road	5.5	3.5	1045	1080	B	B
P37	Waterloo Road	3.5	2.5	1115	1230	C	C
P38	Nathan Road	5.5	3.5	1220	780	C	A
P39	Nathan Road	5.5	3.5	1115	990	B	B
P42	Saigon Street	3.5	2.5	425	425	A	A
P44	Nanking Street	3.5	2.5	740	920	B	C
P45	Shanghai Street	3.5	2.5	570	700	A	B
P48	Parkes Street	3.5	2.5	990	1210	C	C
P49	Nathan Road	5.5	3.5	1095	805	B	A
P50	Nathan Road	5.5	3.5	700	850	A	B

(1) Effective width = existing width – dead width. Dead widths 0.5m as clearance for building side, curbs or fixed objects, trees and plants, building face and other clearance is adopted in calculating the effective width.
(2) The figures are rounded to the nearest 5.

6.3.7 As shown in **Table 6.13**, all the concerned pedestrian walkways are estimated to have an acceptable Level of Service (LOS) of C or above with the proposed footpath widening in year 2047.

6.3.8 The proposed at-grade footpath widening shall be implemented by the project proponents of abutting redevelopment sites / DNs / SCAs. Since the implementation of DNs and SCAs are not subject of the current OZP amendments, the footpath widening proposals for these sites would be dealt with separately. As for the ground floor widening requirements along Nathan Road and Argyle Street as well as sections of Parkes Street between Jordan Road and Ning Po Street, they are recommended for inclusion in the Explanatory Statement of OZP.

7. SUMMARY AND CONCLUSION

7.1 Summary

7.1.1 In future years with the OZP amendments and key assumptions, it is estimated that the following junctions will operate close to or exceed their capacities in at least one of the future years.

- J5 – Sham Mong Road / Chui Yu Road
- J10 – Sai Yee Street / Argyle Street
- J11 – Argyle Street / Yim Po Fong Street / Luen Wan Street
- J15 – Nathan Road / Waterloo Road
- J21 – Jordan Road / Nathan Road
- J22 – Gascoigne Road / Jordan Road
- J26 – Argyle Street / Nathan Road
- J27 – Argyle Street / Tong Mi Road
- J29 – Tong Mi Road / Prince Edward Road
- J30 – Tai Kok Tsui Road / Ivy Street

7.1.2 Traffic improvement measures are proposed for the problematic junctions as abovementioned. With the proposed improvement schemes, all the key junctions will be operating within capacity in year 2037 and 2047.

7.1.3 All assessed road links are estimated to be within capacity in years 2037 and 2047, except Gascoigne Road Flyover (L5) and West Kowloon Highway (L11) which would have a V/C ratio approaching or exceeding 1.20 in 2037 and 2047 reference and design case. However, the increase in traffic flow contributed from the proposals of this OZP amendment is considered not significant. With the implementation of all the other strategic projects under planning, it is anticipated that the traffic pressure will be relieved to manageable condition in long term.

7.1.4 For junction improvement measures encompass modification of traffic island, signaling and/ or road marking, etc., which the works are carried out in the road zone are proposed to be implemented by Transport Department/ Highways Department. The proposed setback requirement for road widening is recommended for implementation of the adjoining lots upon redevelopment.

7.1.5 The proposed implementation agents for traffic improvement measures are summarised in Section 6.2, subject to further review at project implementation stage.

7.1.6 Nathan Road and Argyle Street are the major commercial spines and the key N-S and E-W pedestrian corridors of the Yau Mong District. With a long term vision to transform the Yau Mong area to a better walkable district, a long term pedestrian improvement plan on footpath width along Nathan Road and Argyle Street with an objective to manifest and cope with their functions as the commercial spines is proposed, the footpaths along the roads shall be upgraded to the prevailing standard in the HKPSG (currently minimum 5.5m). And that the setback at ground floor is considered essential to enhance walkability and benefit the public.

7.1.7 The result of pedestrian assessment indicates that most of the pedestrian walkways are estimated to have an acceptable Level of Service (LOS) of C or above, except for the sections of footpath at Sai Yee Street (P6), Prince Edward Road West (P15), Argyle Street (P24), Nanking Street (P44) and Parkes Street (P48) which will have a LOS below C on both weekday and weekend, and Nathan Road (P27) and Waterloo Road (P37) which will have a LOS below C in year 2047. In addition, the sections of footpath at Sai Yeung Choi Street South (P17), Reclamation Street (P25), Saigon Street (P42) and Shanghai Street (P45) have widths below the current HKPSG and would reach LOS of C in 2047.

7.1.8 Apart from the footpath widening proposals at Nathan Road and Argyle Street, provision of wider footpath at ground level at other road sections are proposed as listed below to provide adequate capacity and enhance the level of service.

- P6 – Sai Yee Street (between Boundary Street and Flower Market Road)
- P15 – Prince Edward Road West (between Nathan Road and Sai Yee Street)
- P17 – Sai Yeung Choi Street South (between Nullah Street and Bute Street)
- P25 – Reclamation Street (between Argyle Street and Shantung Street)
- P37 – Waterloo Road (between Canton Road and Portland Street)
- P42 – Saigon Street (between Canton Road and Shanghai Street)
- P44 – Nanking Street (between Canton Road and Shanghai Street)
- P45 – Shanghai Street (between Saigon Street and Nanking Street)
- P48 – Parkes Street (between Ning Po Street and Jordan Road)

7.1.9 With the implementation of the footpath widening proposals mentioned above, all assessed pedestrian walkways will have LOS of C or above in year 2047.

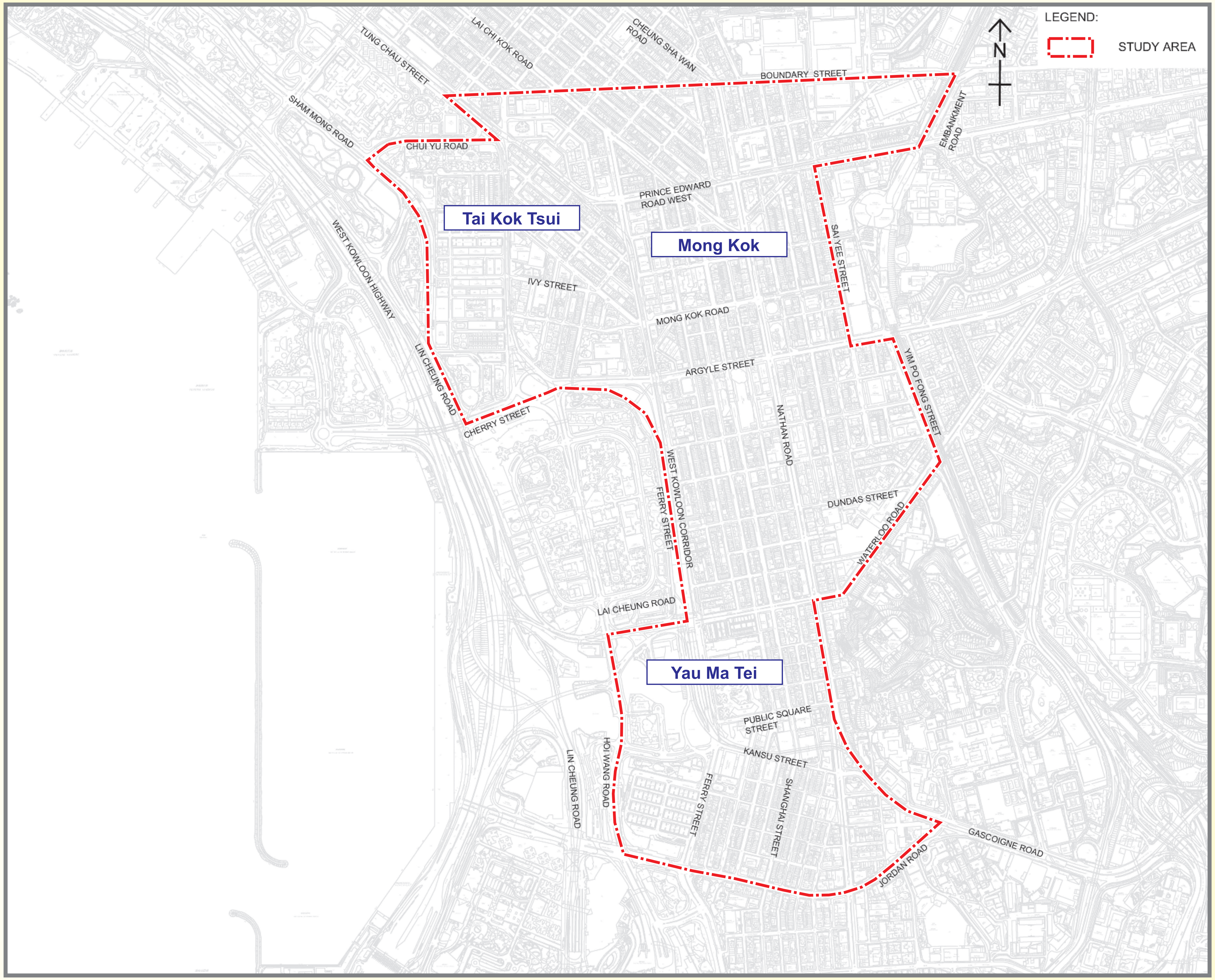
7.1.10 The proposed at-grade footpath widening shall be implemented by the project proponents of abutting redevelopment sites / DNs / SCAs. Since the implementation of DNs and SCAs are not subject of the current OZP amendments, the footpath widening proposals for these sites would be dealt with separately. As for the ground floor widening requirements along Nathan Road and Argyle Street as well as sections of Parkes Street between Jordan Road and Ning Po Street, they are recommended for inclusion in the Explanatory Statement of OZP.

7.2 Conclusion

7.2.1 This TIA has presented the traffic impact assessment result and formulated possible traffic improvement measures to support the proposal for OZP Amendment.

7.2.2 With the implementation of proposed junction improvement works and footpath widening works, it is anticipated that the proposed OZP amendment would not induce insurmountable traffic impact onto the adjacent road network. The planning proposal is acceptable from a traffic point of view.

FIGURES



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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

STUDY AREA

Designed	Checked	Scale	Date	Drawing No.	Rev.
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CHK50648010/TS/F21.CDR/LLH/14MAR22

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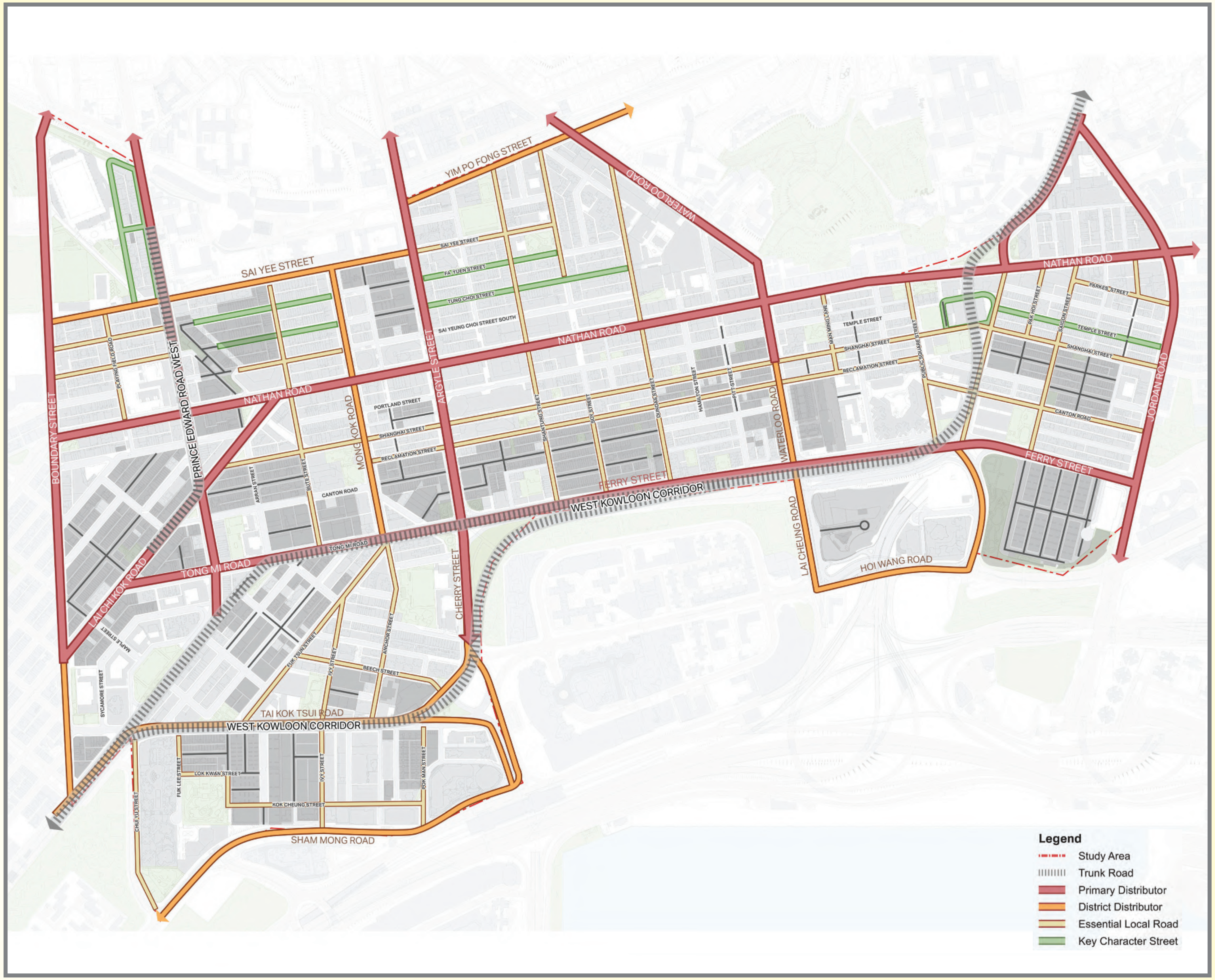

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

EXISTING ROAD HIERARCHY

Designed	Checked	Scale	Date	Drawing No.	Rev.
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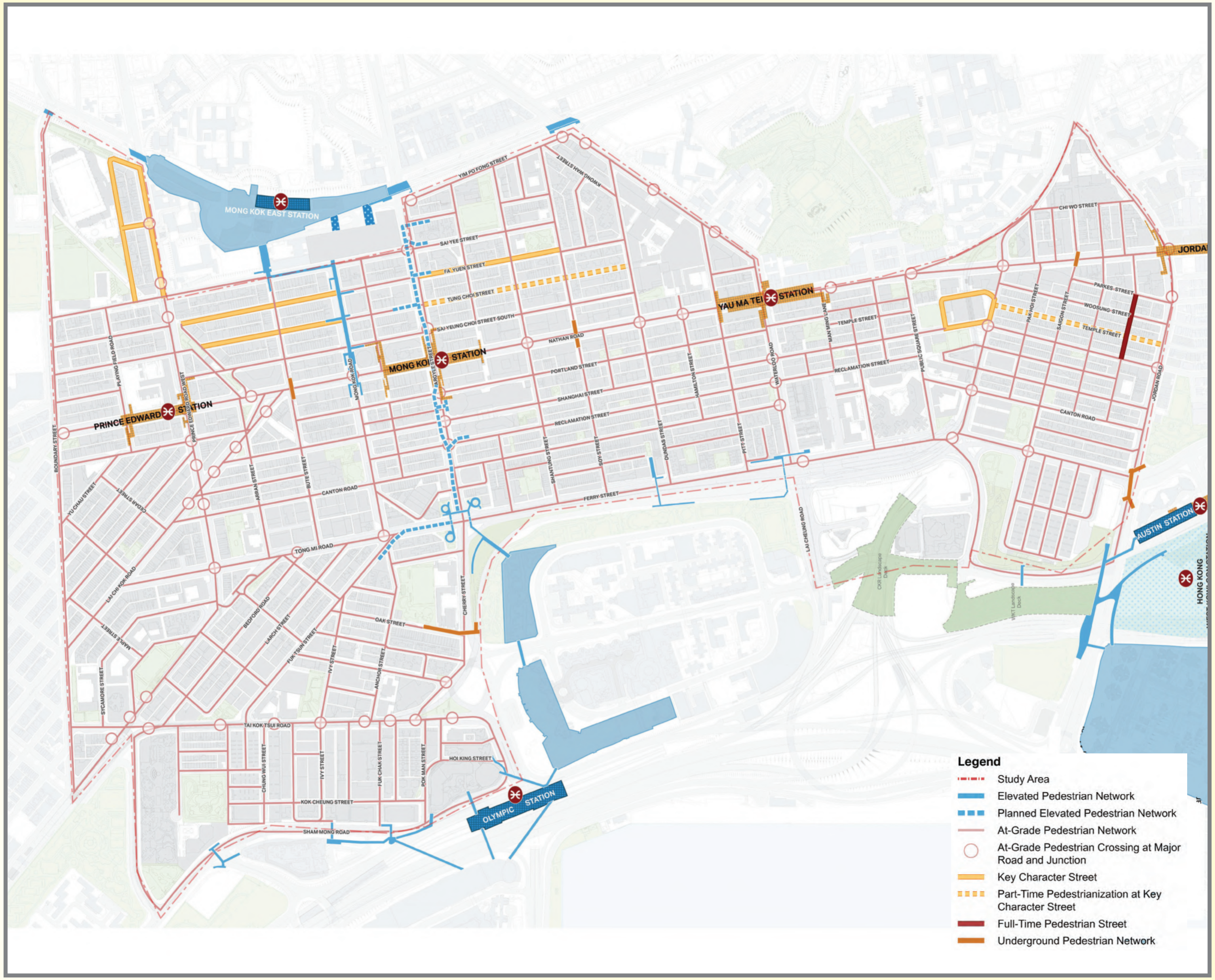

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

EXISTING AND PLANNED PEDESTRIAN NETWORK

Designed	Checked	Scale	Date	Drawing No.	Rev.
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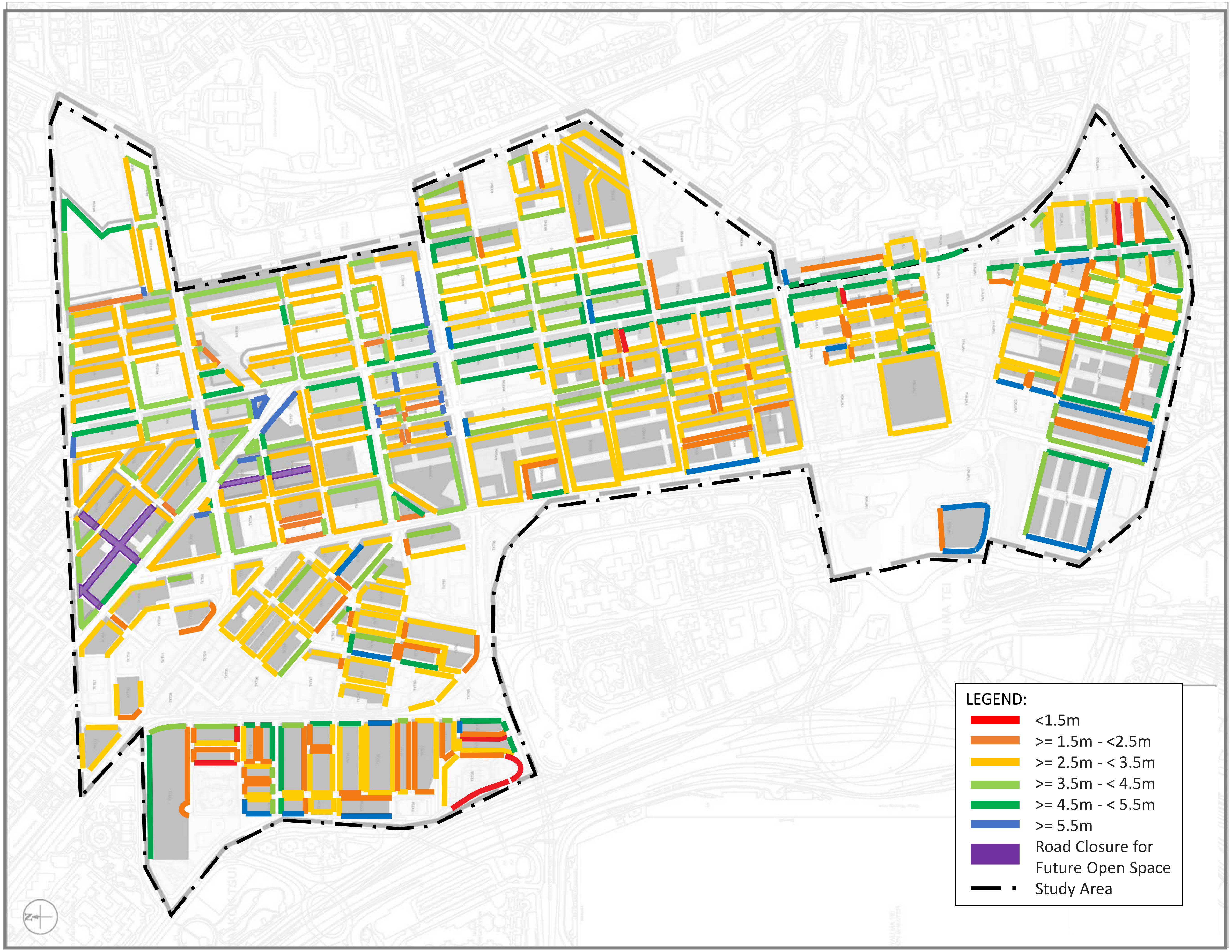

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A	MINOR AMENDMENT	EDC	13JUN22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

EXISTING FOOTPATH CONDITION

Designed	Checked	Scale	Date	Drawing No.	Rev.
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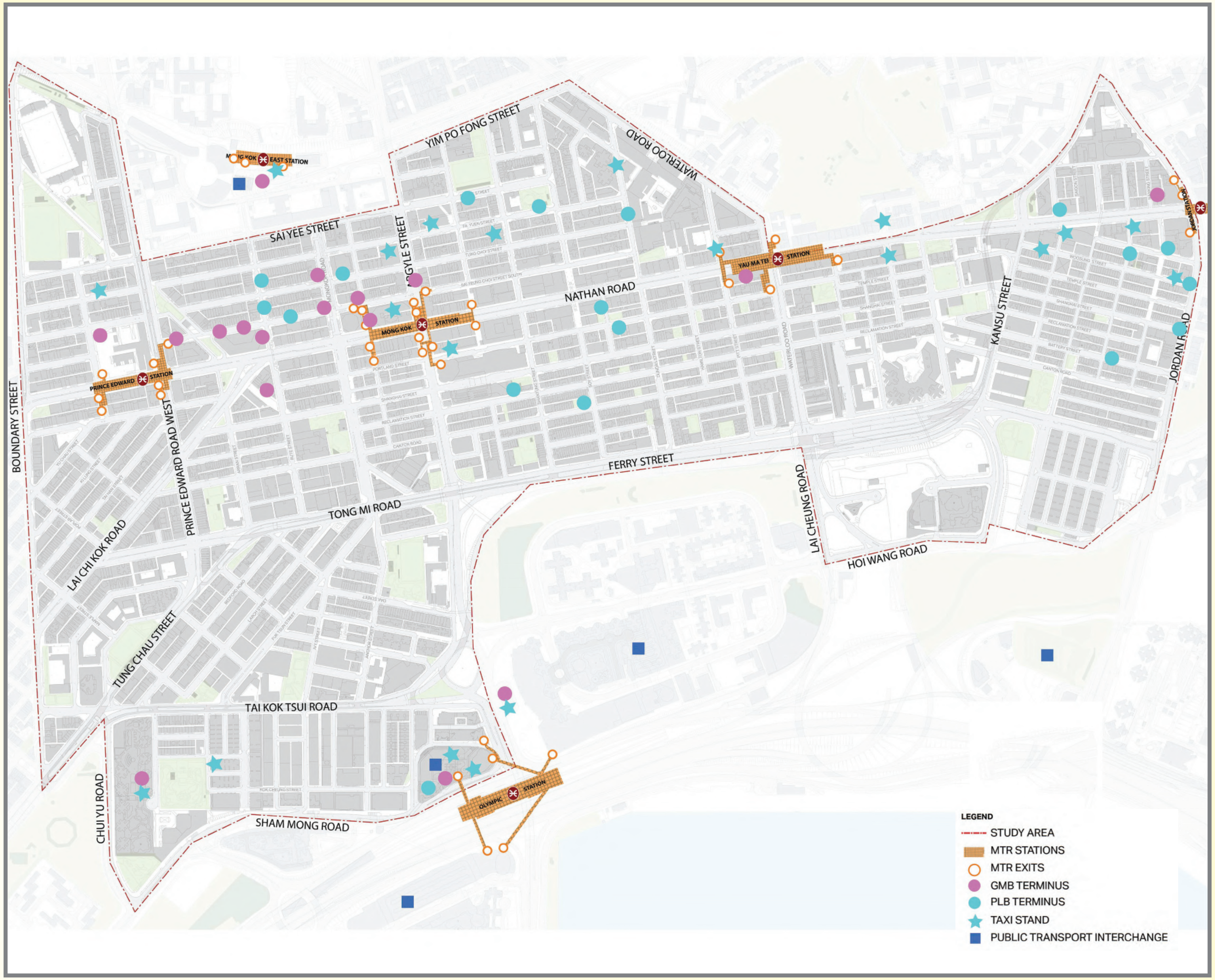

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

EXISTING PUBLIC TRANSPORT FACILITIES IN THE STUDY AREA

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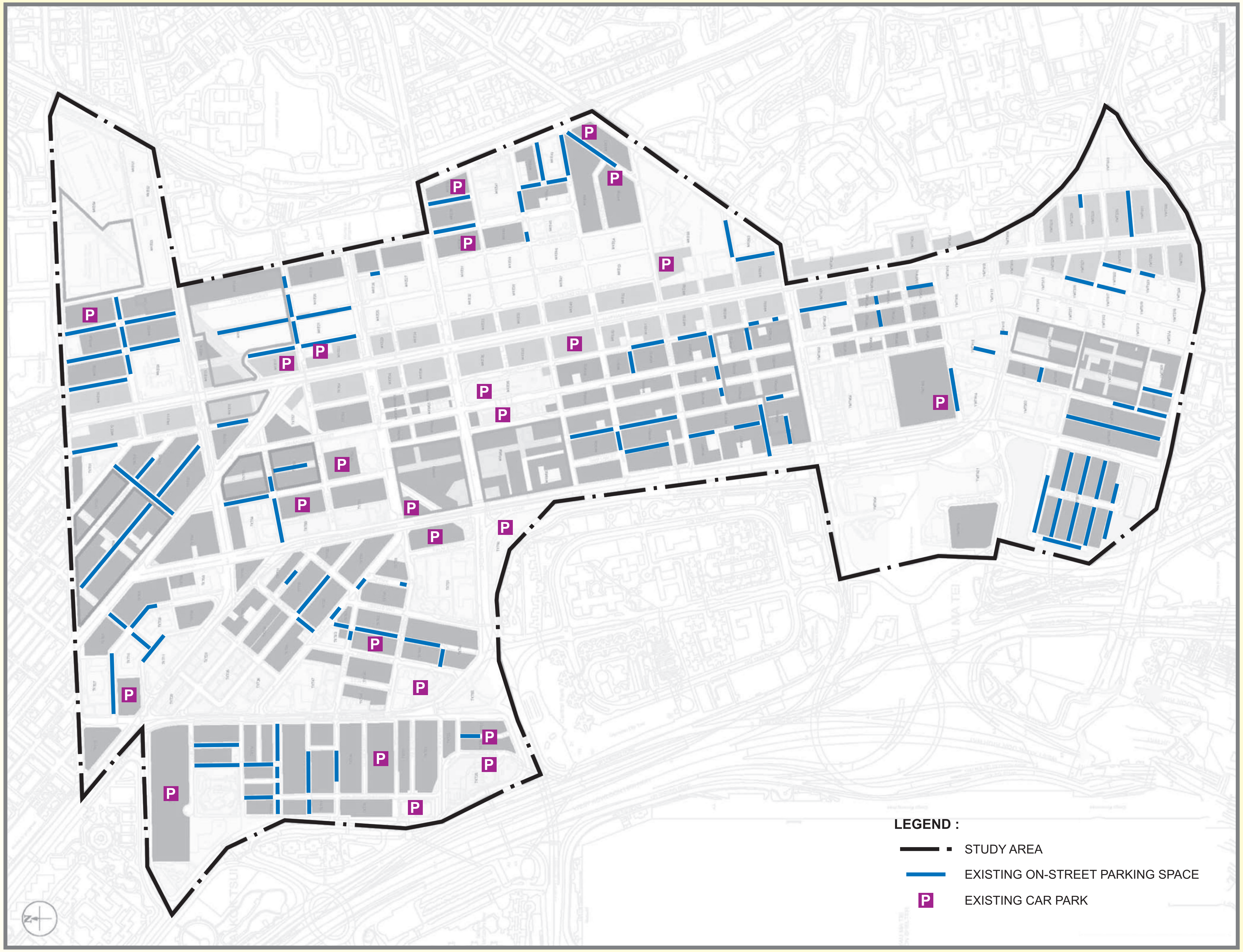

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

EXISTING CAR PARKING FACILITIES IN THE STUDY AREA

Designed	Checked	Scale	Date	Drawing No.	Rev.
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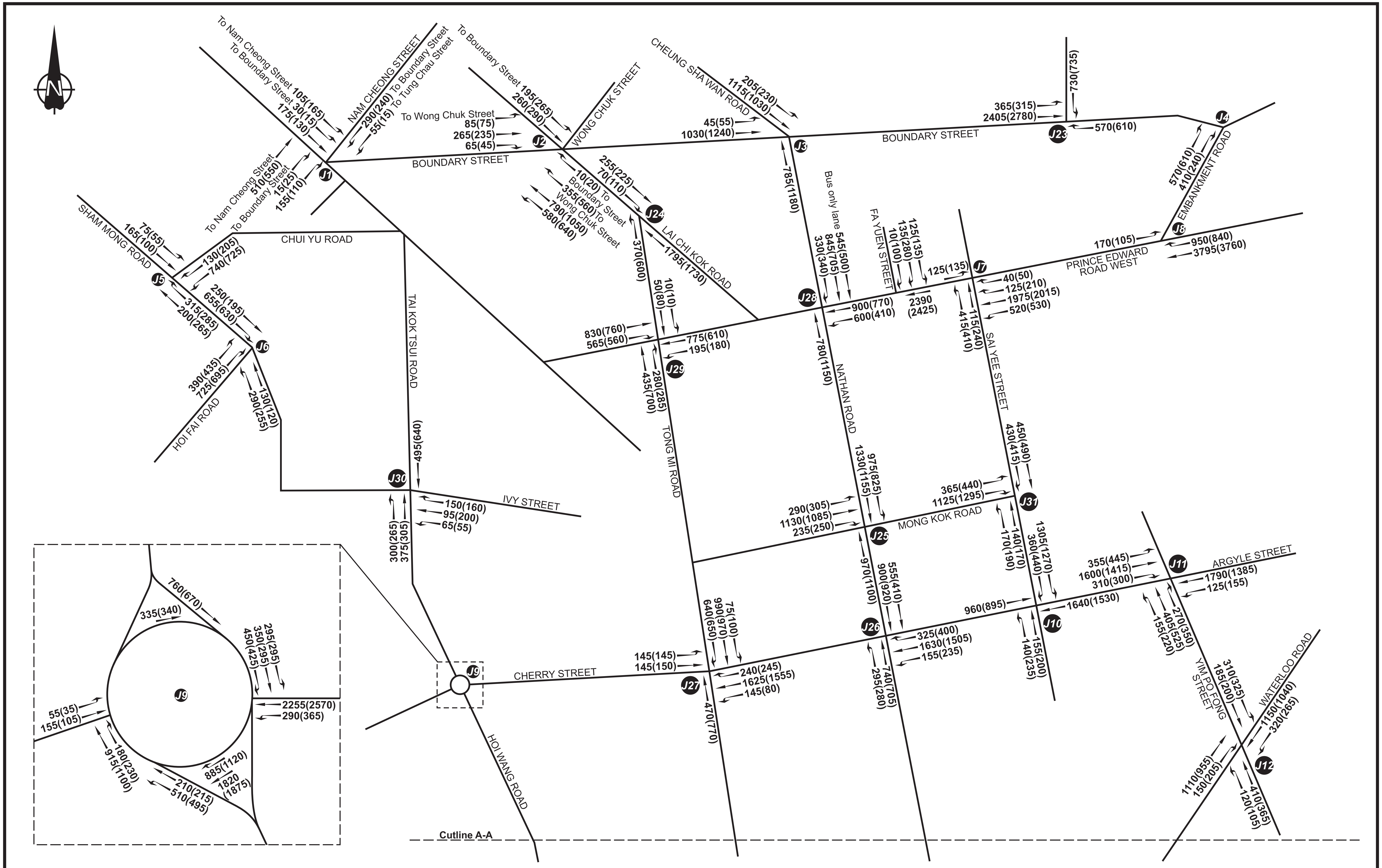

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Rev.	Description	Checked	Date

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

OBSERVED TRAFFIC FLOWS

Designed	Checked	Scale	Date	Drawing No.	Rev.
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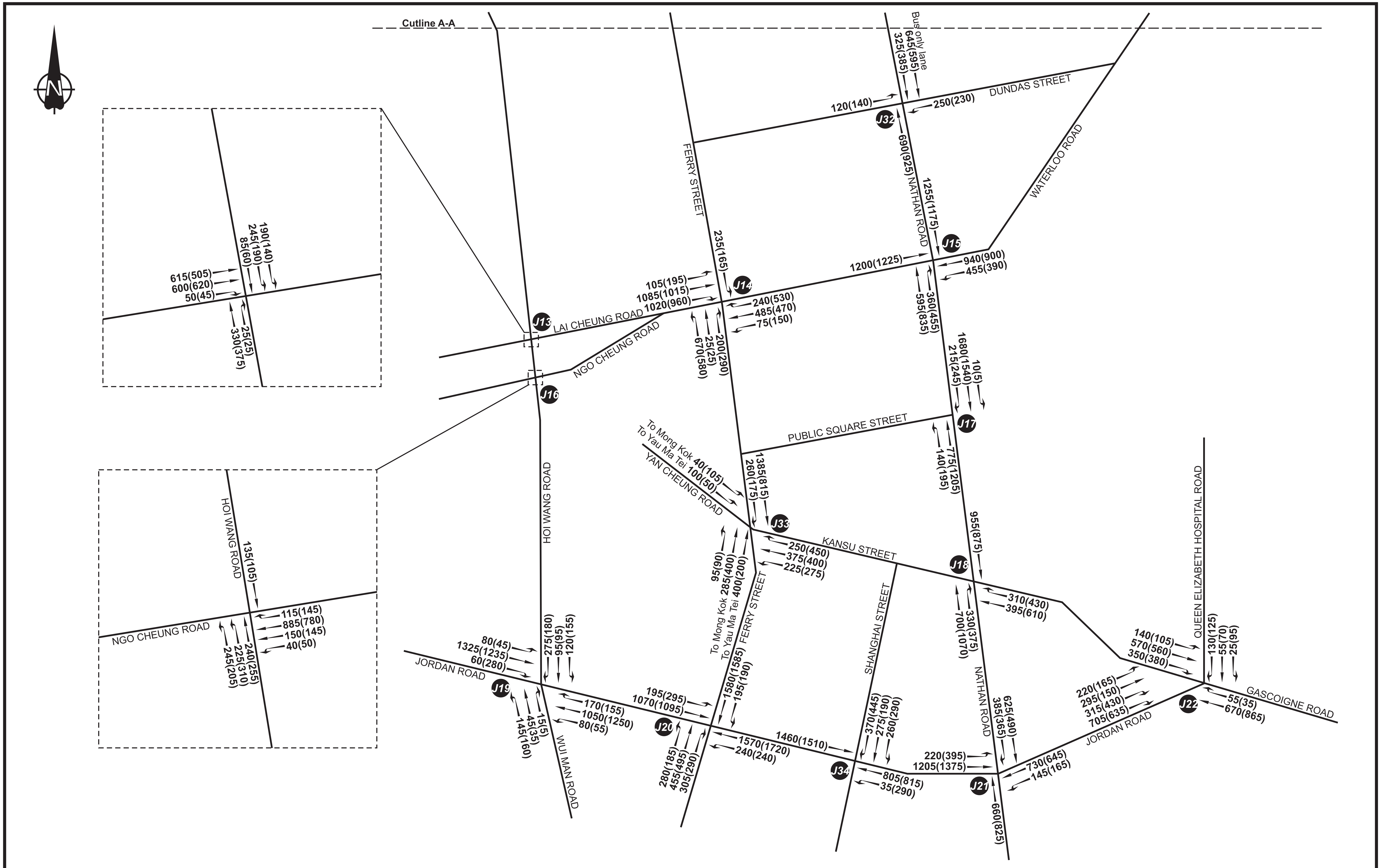

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

OBSERVED TRAFFIC FLOWS

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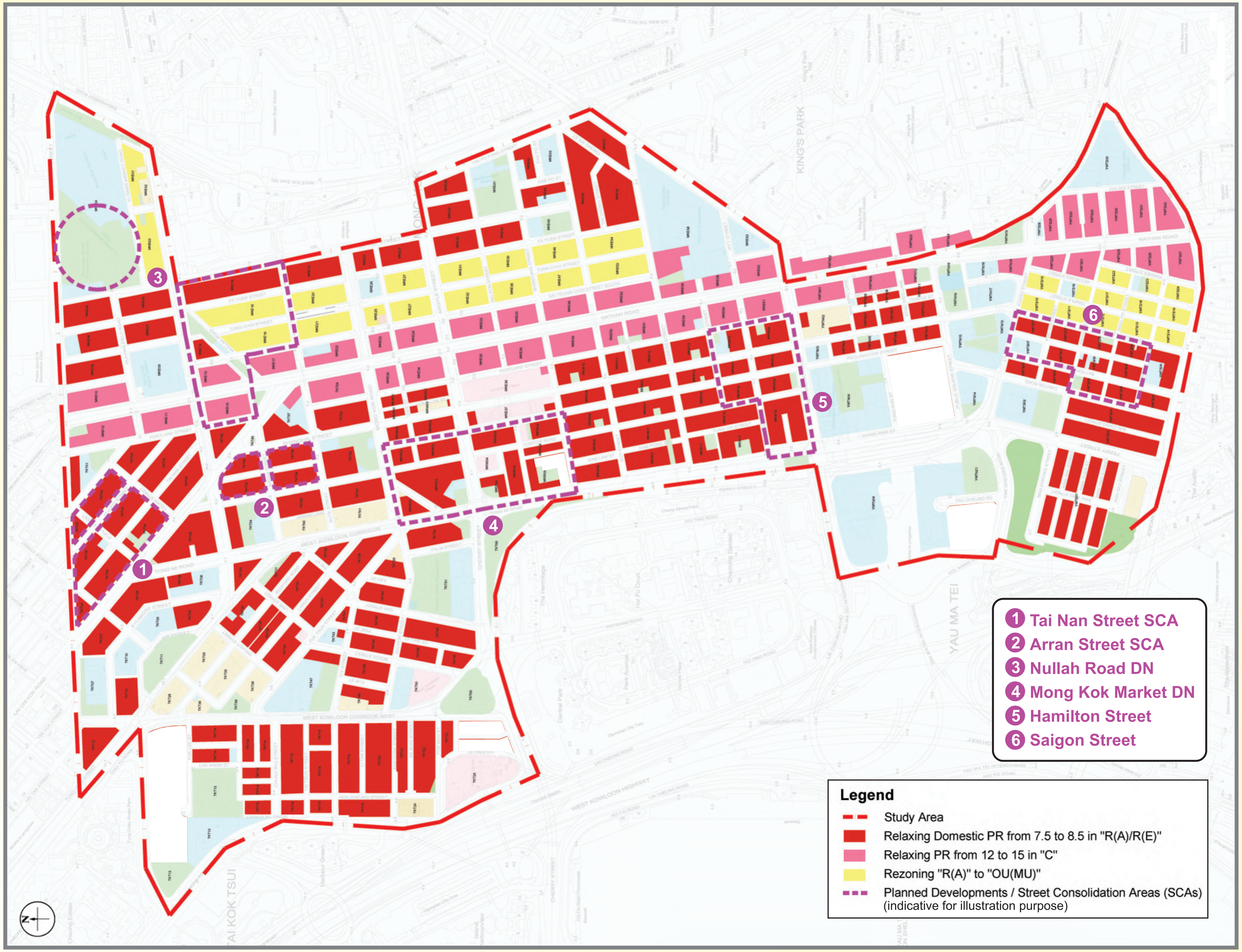

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A	MINOR AMENDMENT	EDC	13JUN22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

PROPOSAL OF OZP AMENDMENT

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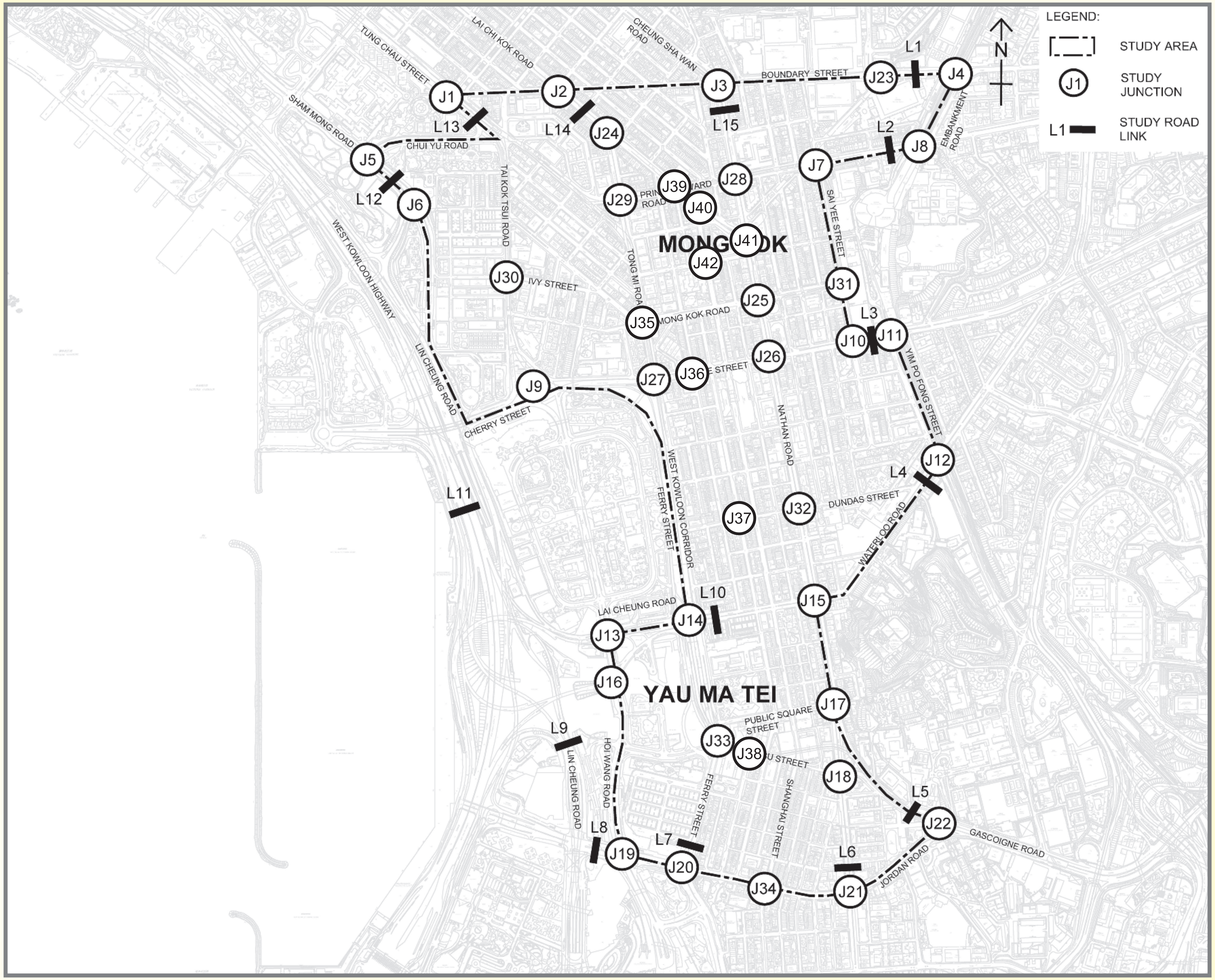

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

LOCATION OF STUDY JUNCTION AND ROAD LINK

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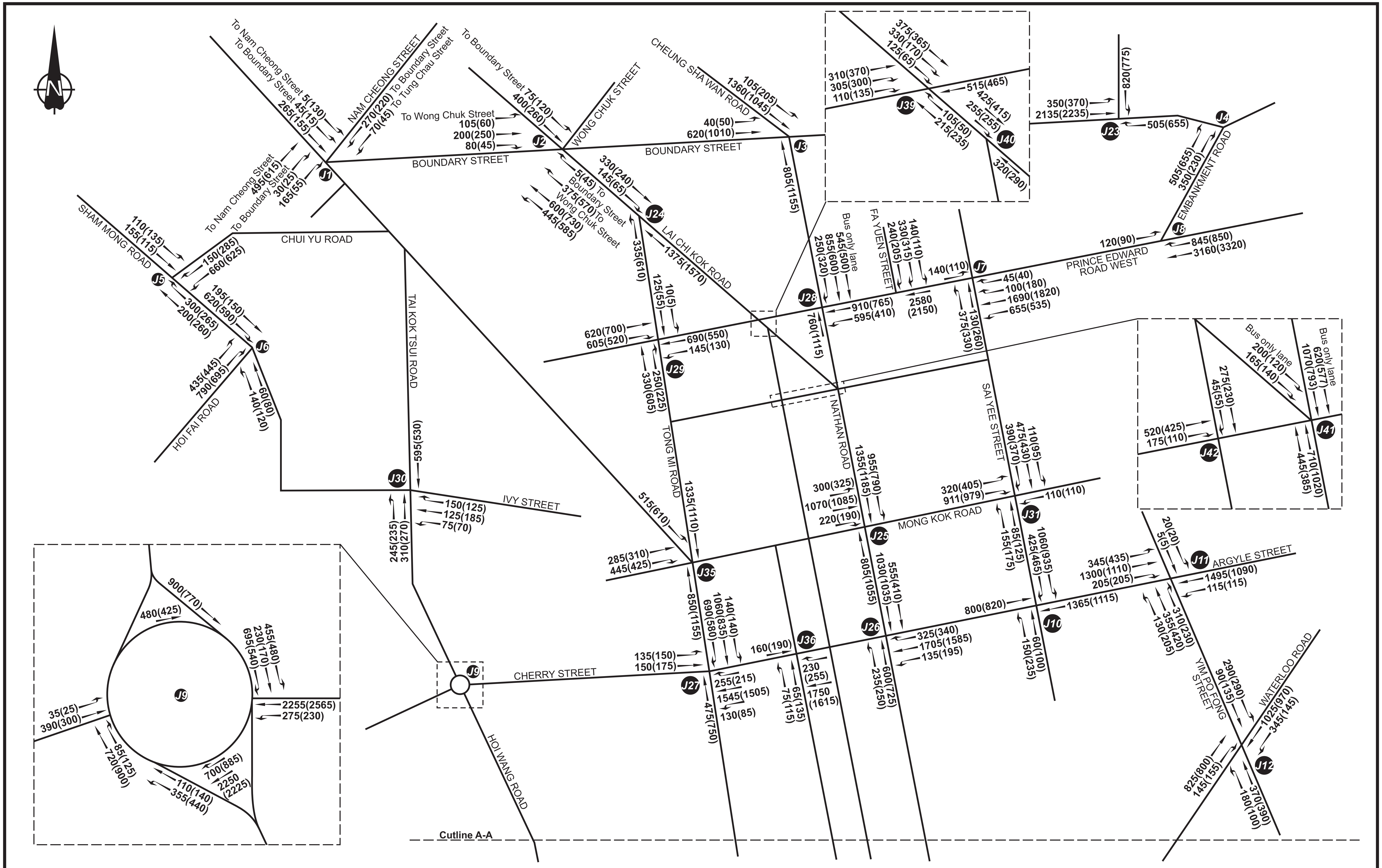

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

2037 REFERENCE TRAFFIC FLOWS

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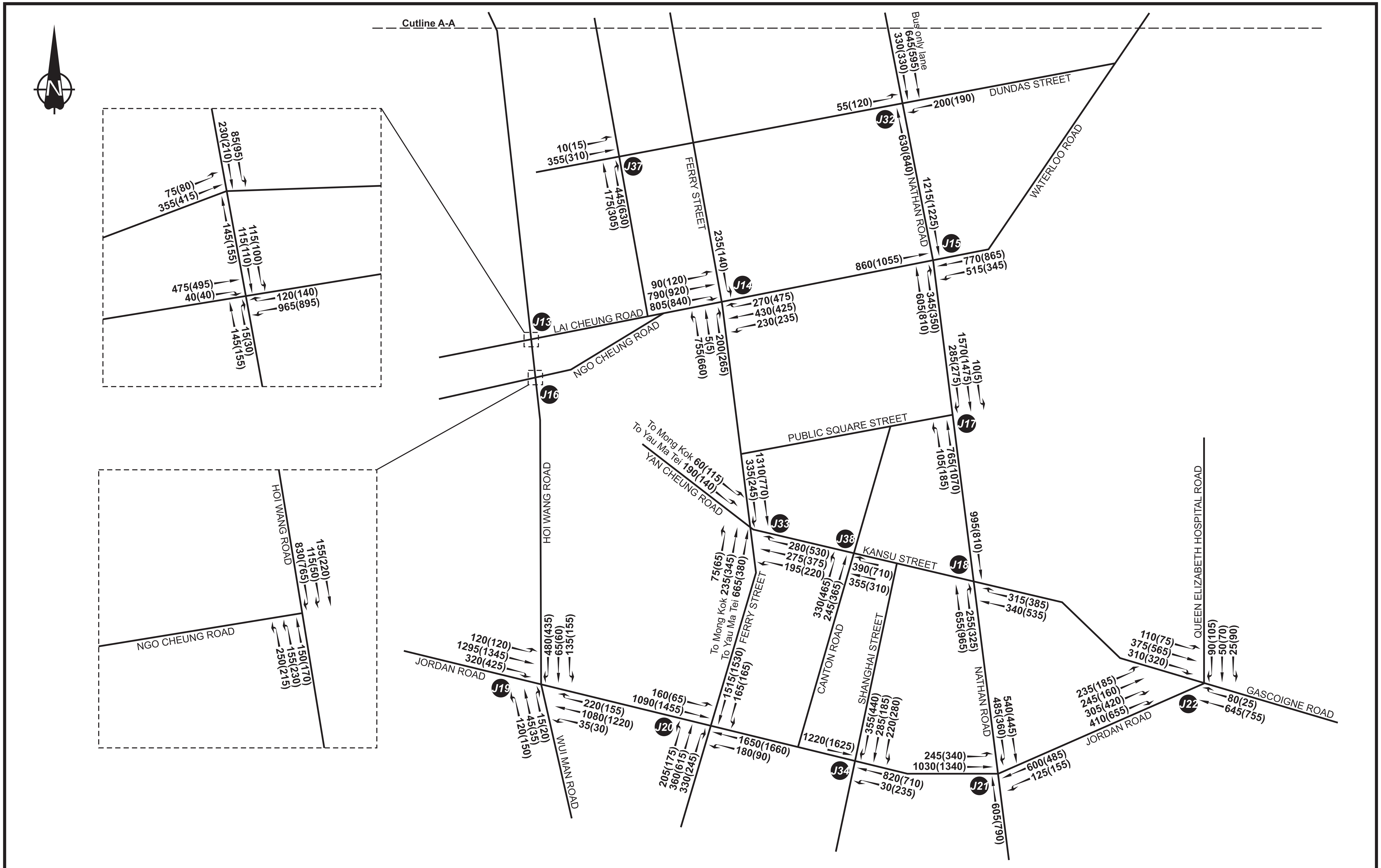

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

2037 REFERENCE TRAFFIC FLOWS

Designed	Checked	Scale	Date	Drawing No.	Rev.
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CHK50648010/TS/F43.CDR/LLH/15JUN22

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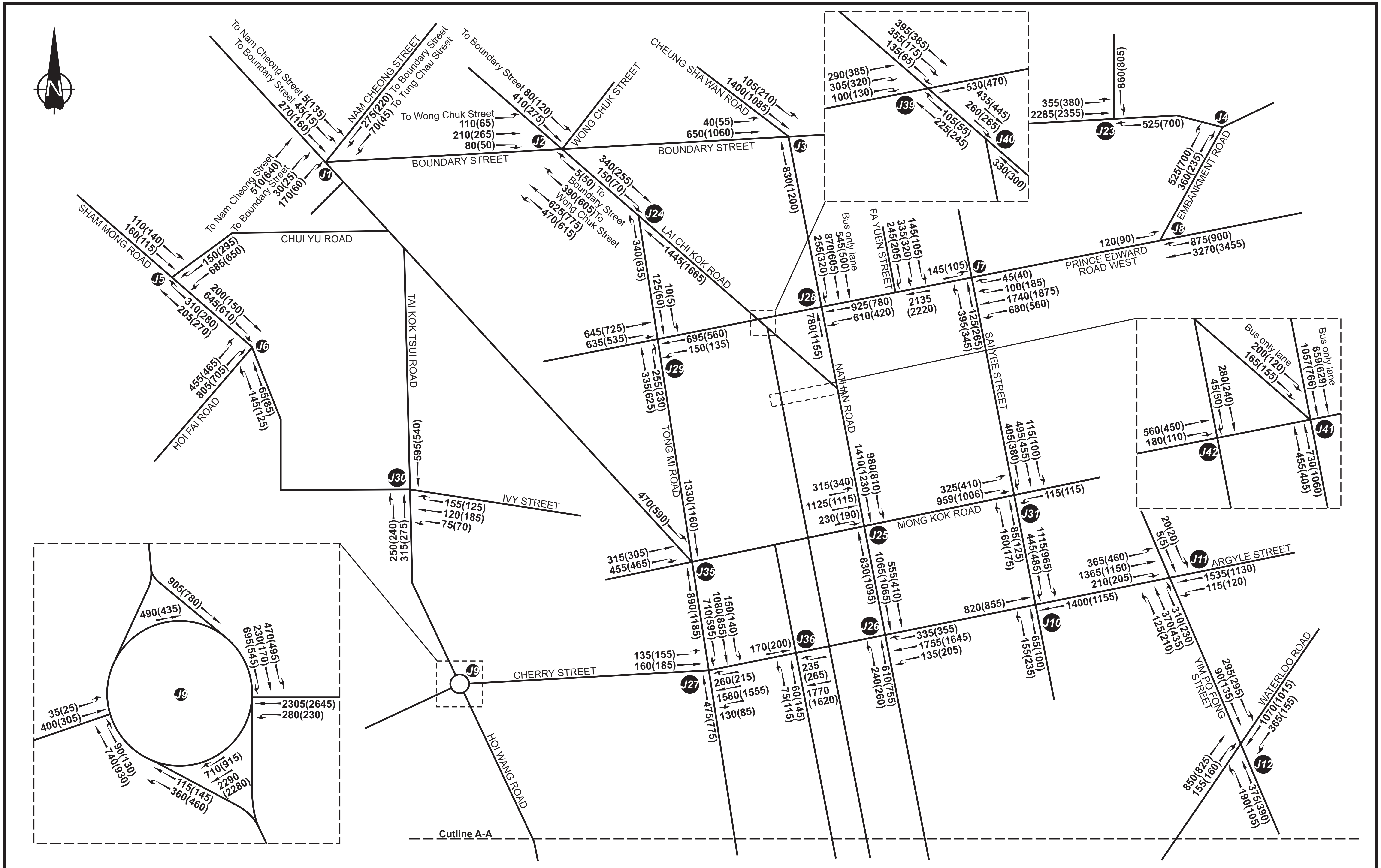

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

2047 REFERENCE TRAFFIC FLOWS

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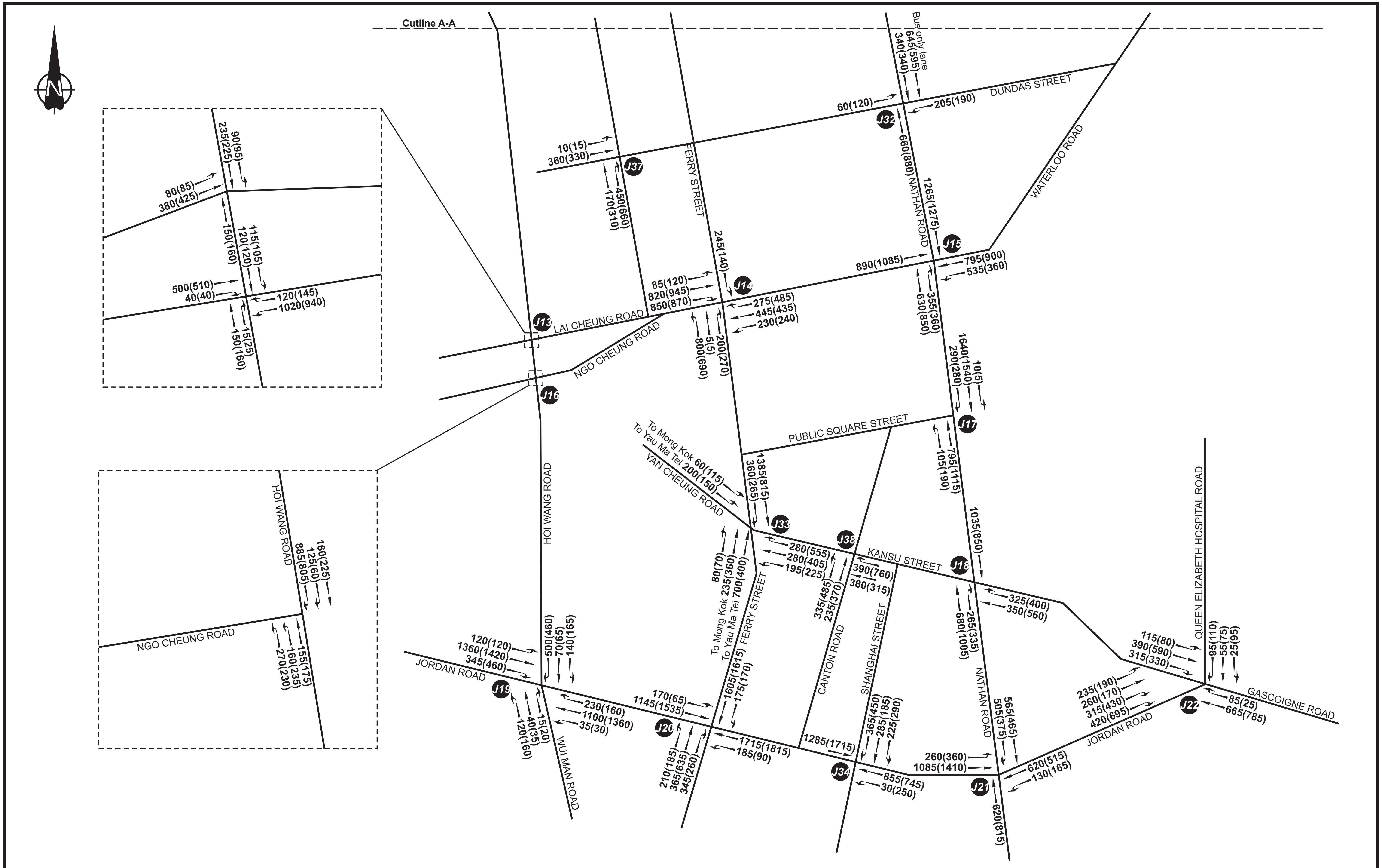

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Project Title

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Drawing Title

2047 REFERENCE TRAFFIC FLOWS

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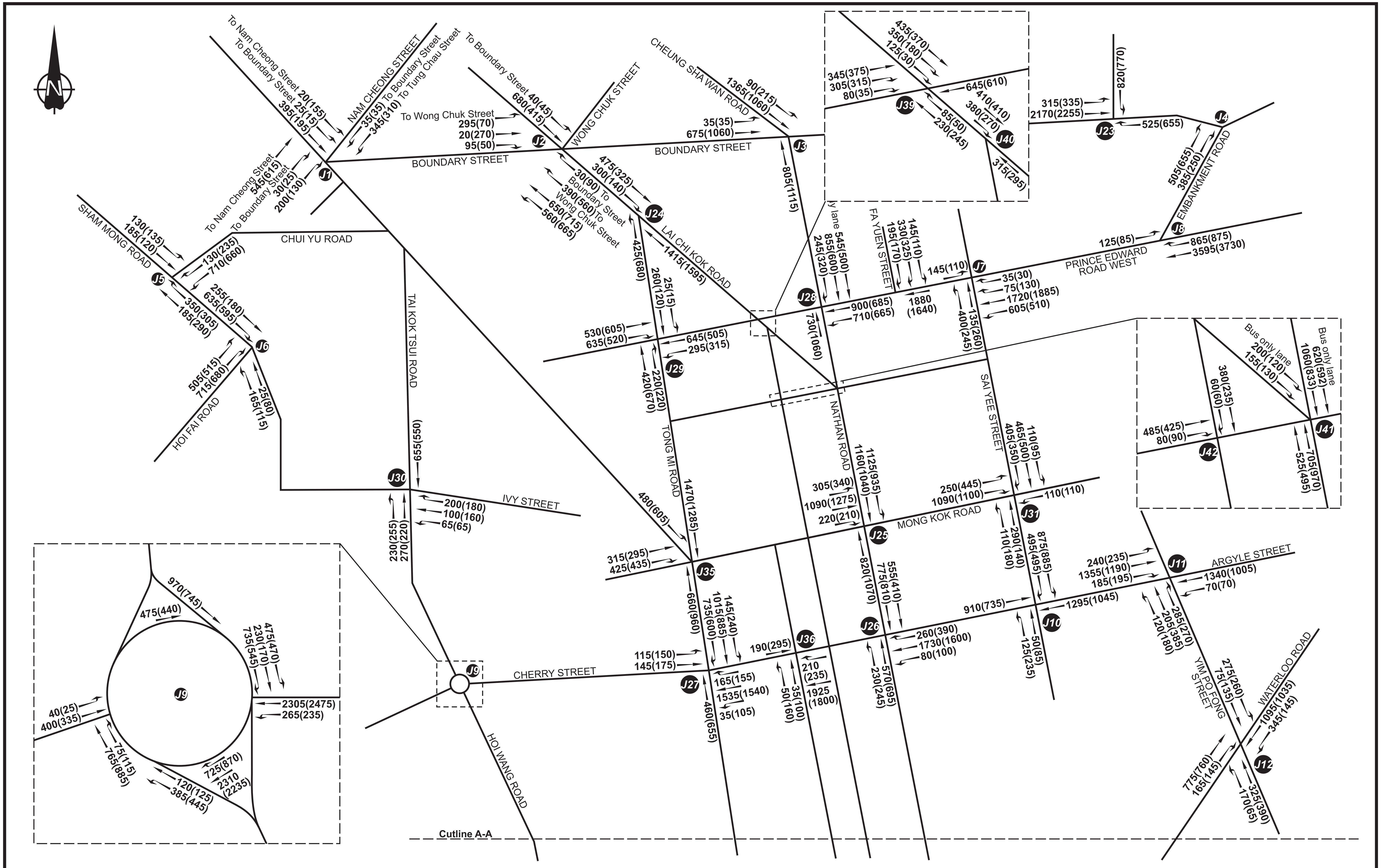

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

2037 DESIGN TRAFFIC FLOWS

Designed	Checked	Scale	Date	Drawing No.	Rev.
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CHK50648010/TS/F51.CDR/LLH/15JUN22

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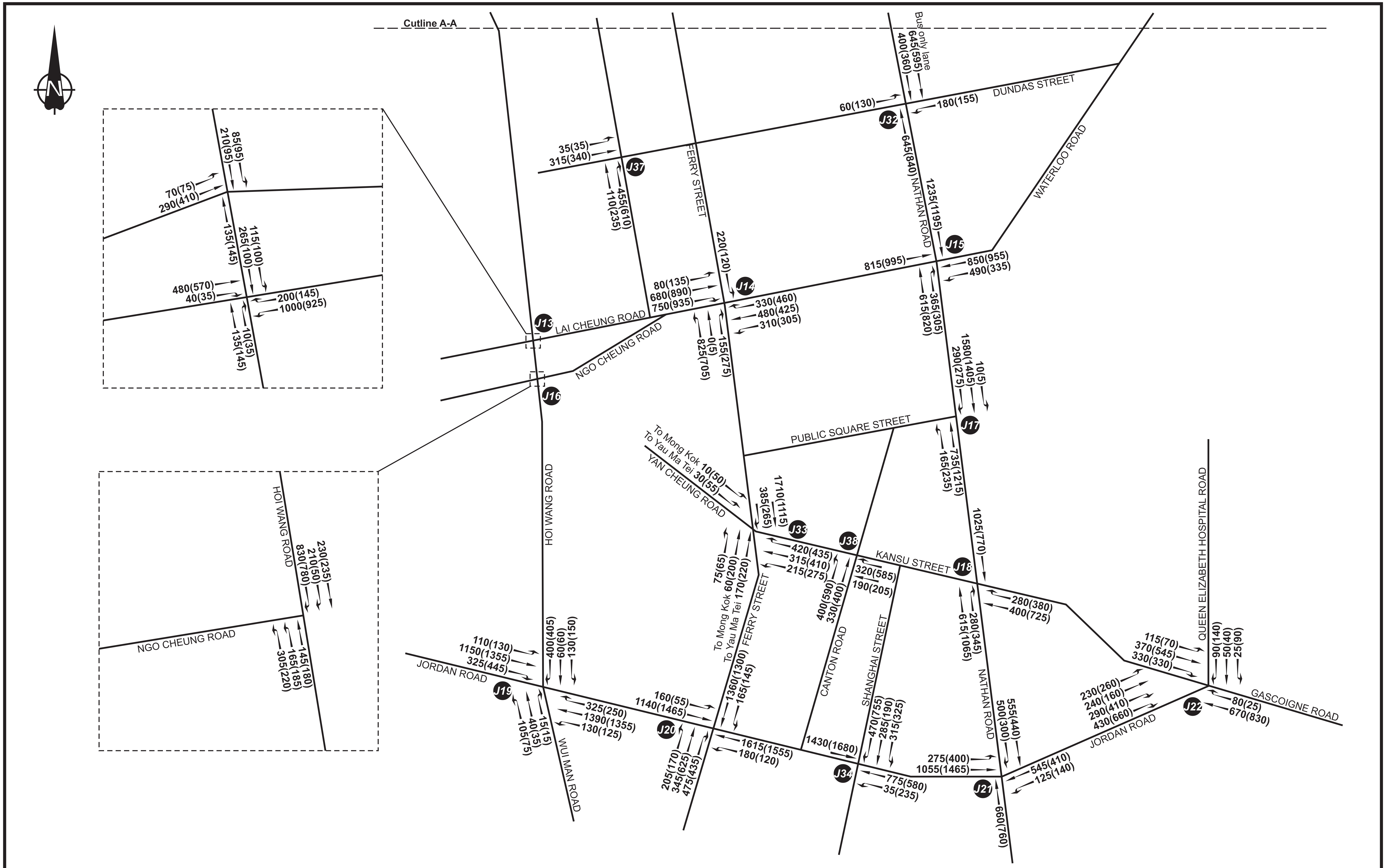

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

2037 DESIGN TRAFFIC FLOWS

SYSTRA MVA

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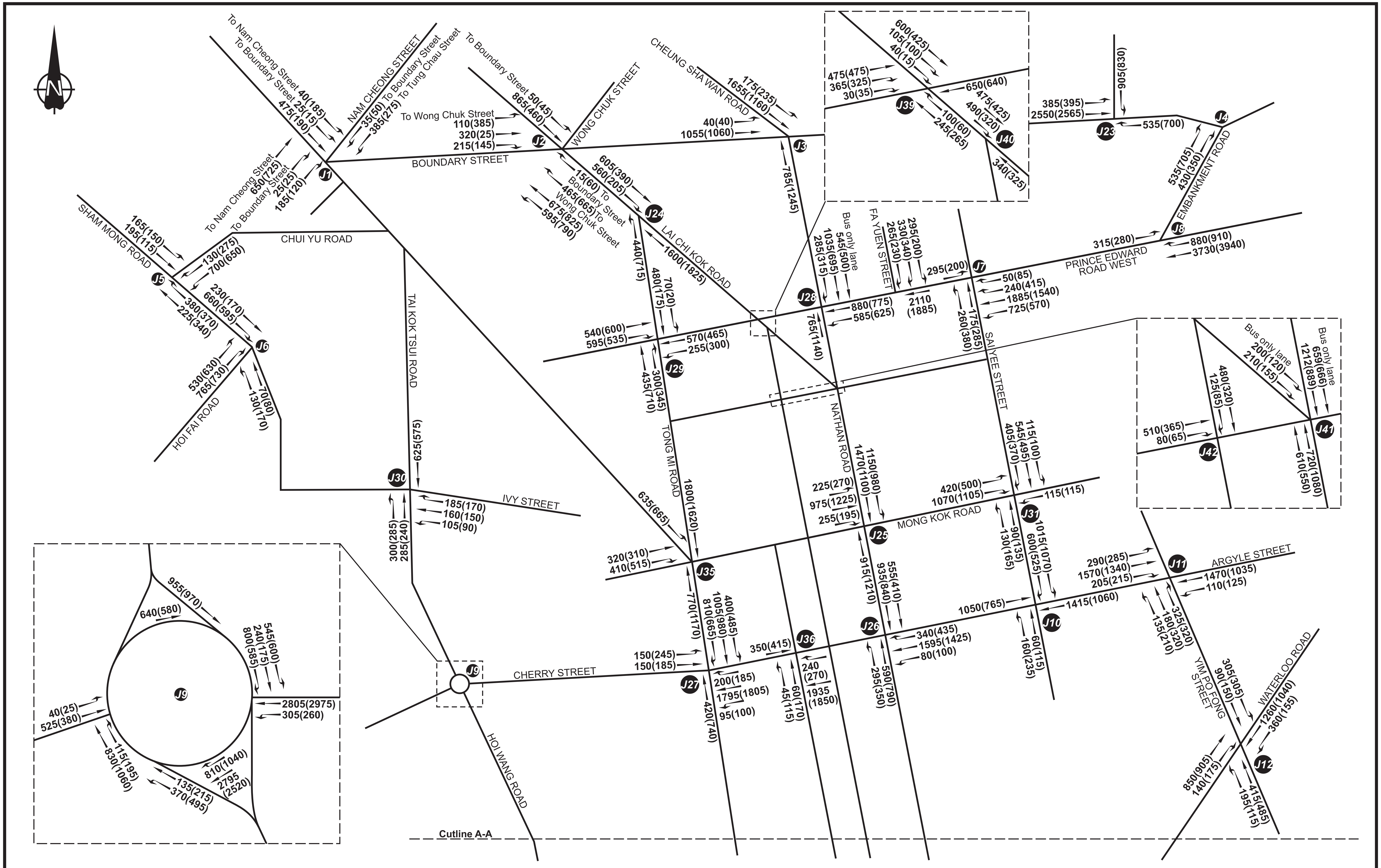

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

2047 DESIGN TRAFFIC FLOWS

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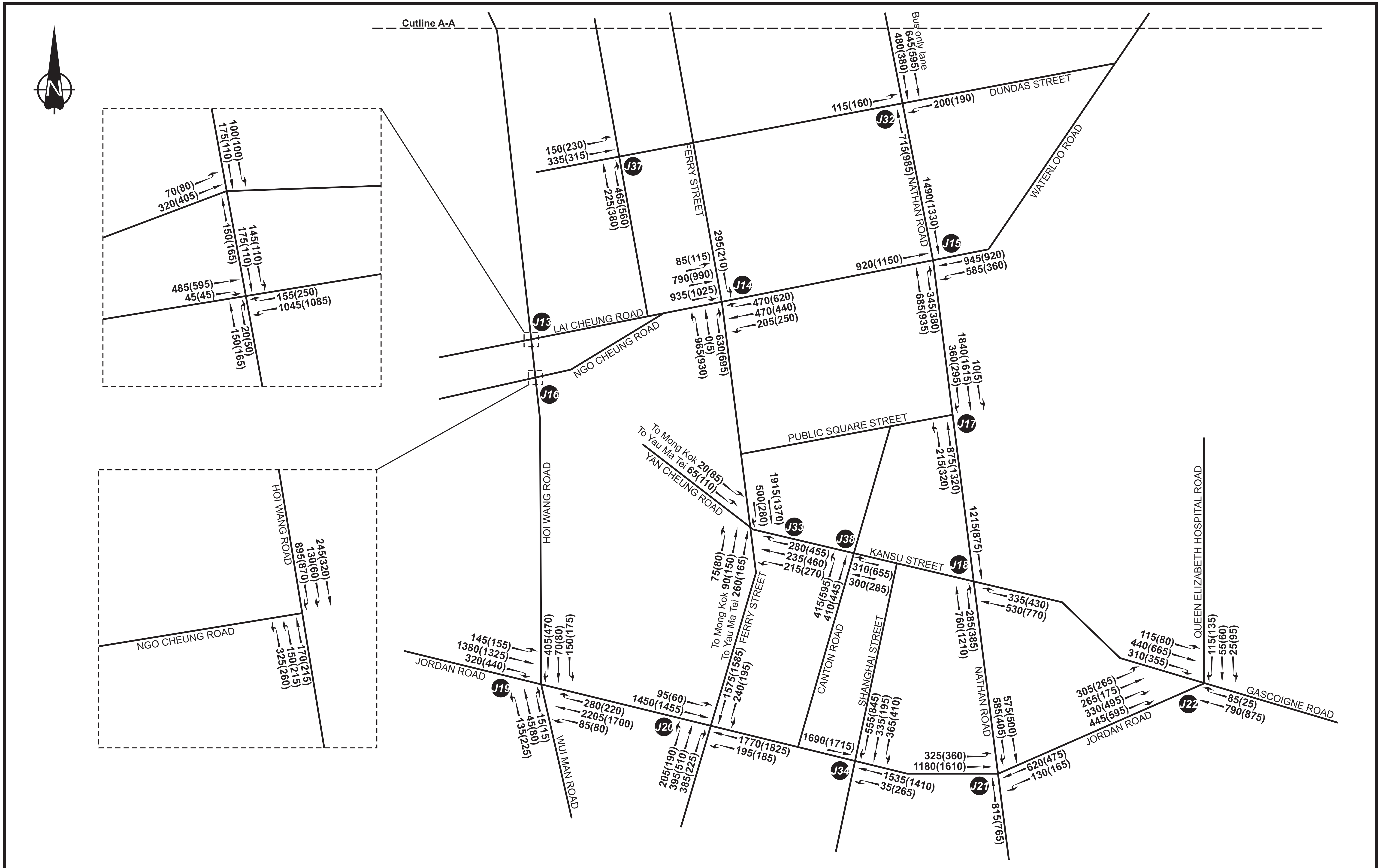

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

2047 DESIGN TRAFFIC FLOWS

Designed	Checked	Scale	Date	Drawing No.	Rev.
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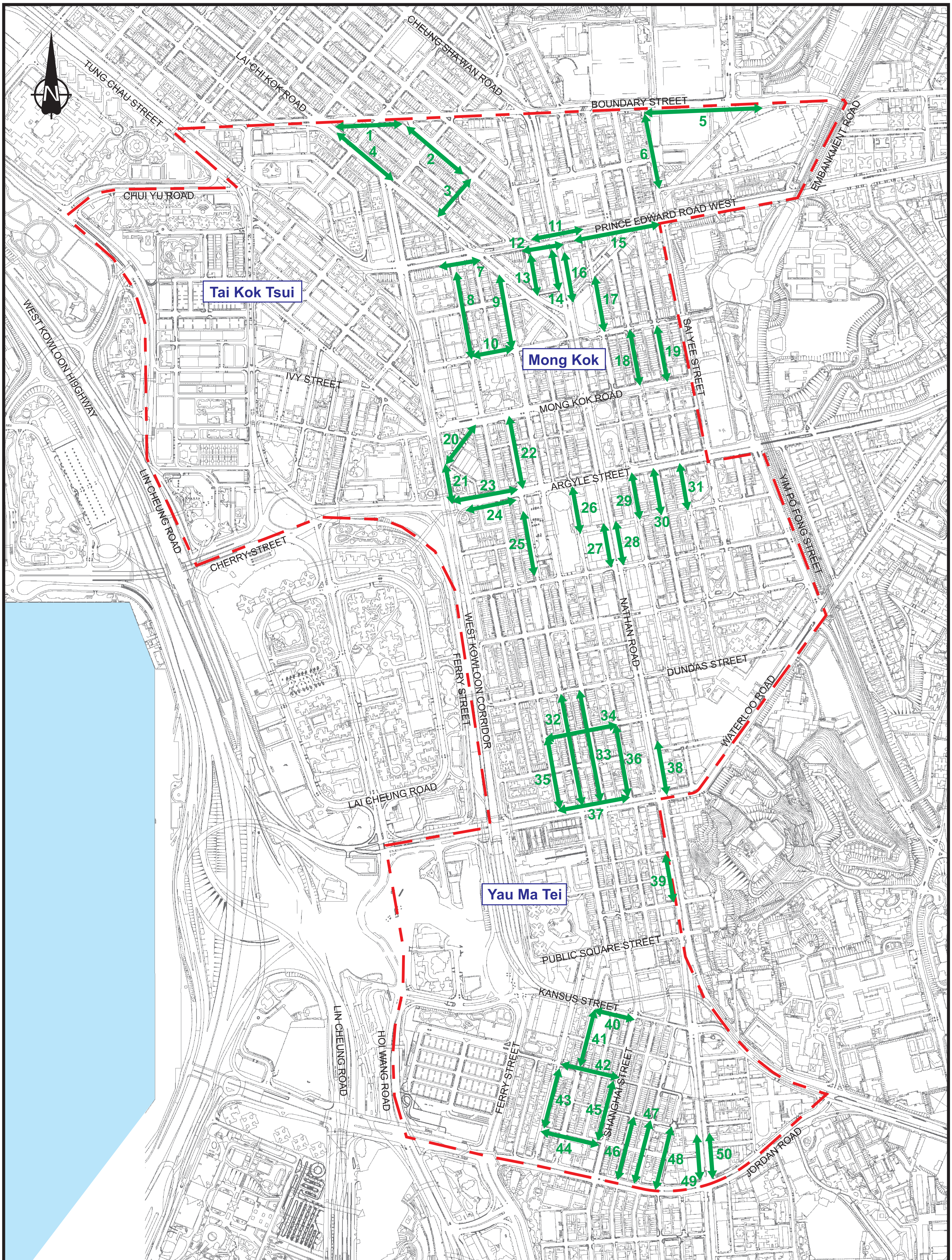

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

PEDESTRIAN SURVEY LOCATIONS

SYSTRA MVA

Designed	Checked	Scale	Date	Drawing No.	Rev.
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CHK50648010/TS/F26.CDR/LLH/9MAR22

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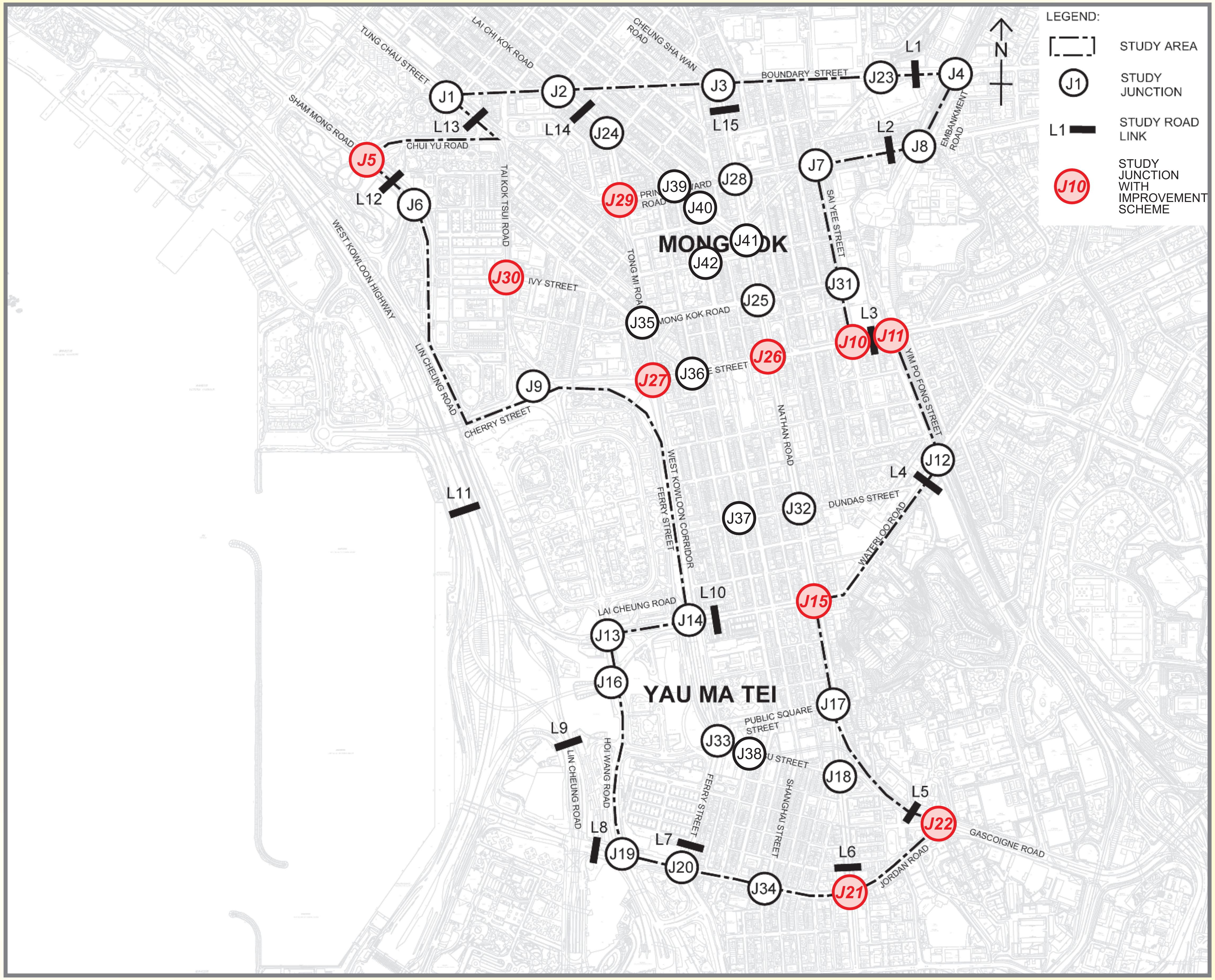

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Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

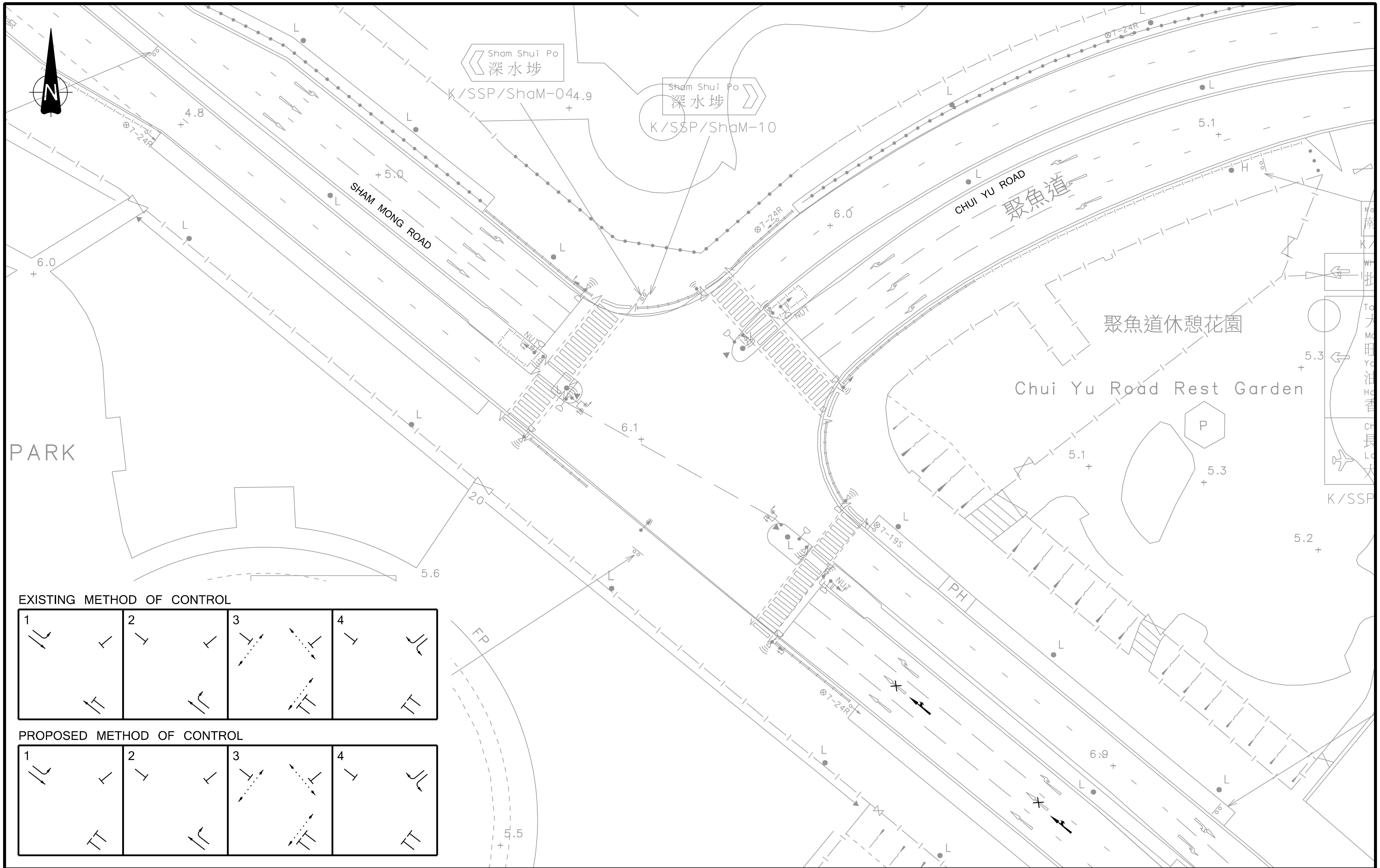
STUDY JUNCTION WITH IMPROVEMENT SCHEME

Designed	Checked	Scale	Date	Drawing No.	Rev.
MSH	KSC	NTS	MAR 2022	6.1	-

SYSTRA MVA

CHK50648010/TS/F61.CDR/LLH/14MAR22

Original Size : A3



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
A	MINOR AMENDMENT	LMS	23MAY22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

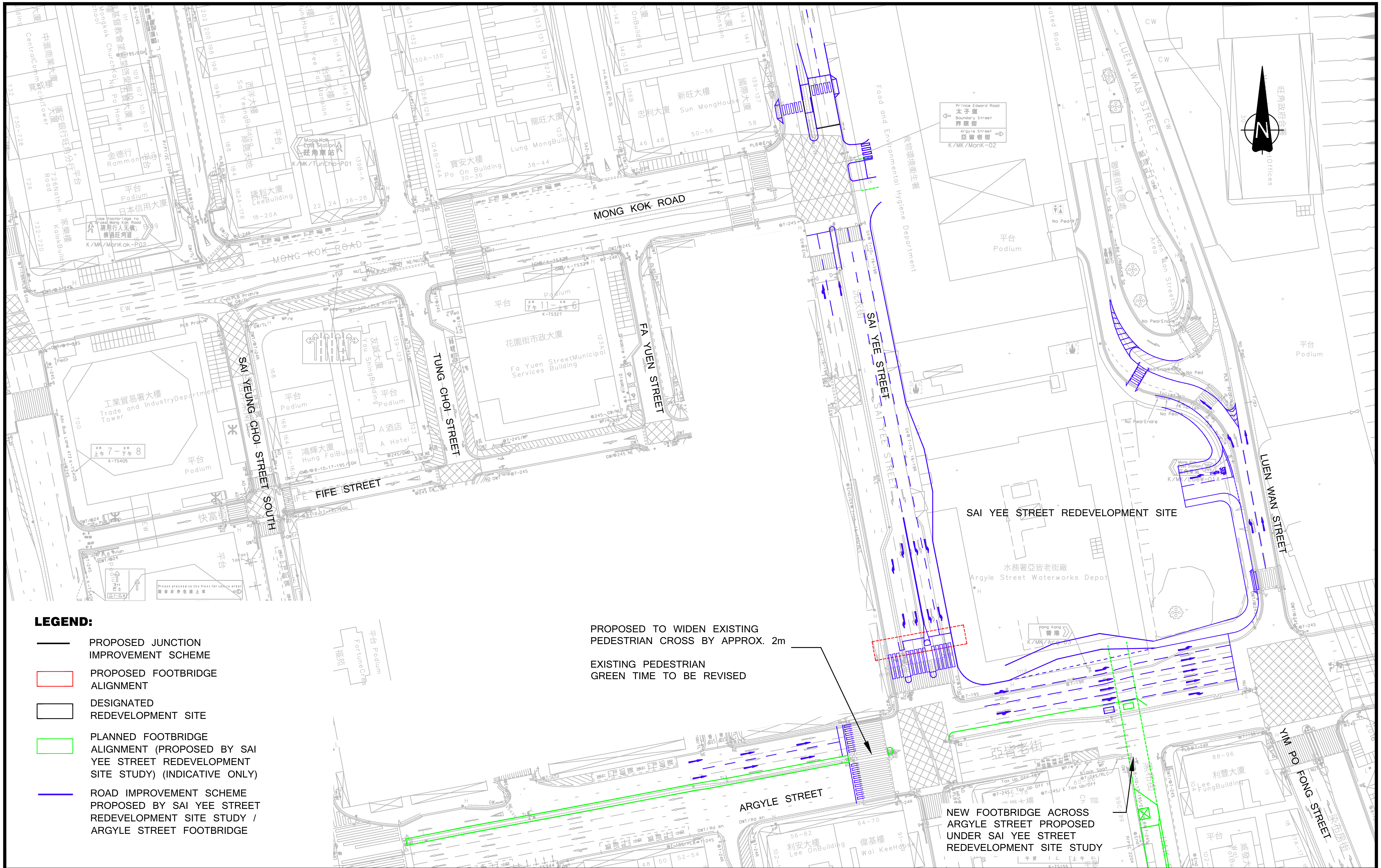
Drawing Title

TRAFFIC IMPROVEMENT SCHEME FOR J5 SHAM MONG ROAD / CHUI YU ROAD

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:500(A3)	MAR 2022	6.2	A

CHK50648010/TIA/F62-A.DGN/CKC/23MAY22

Original Size : A3



LEGEND:

- PROPOSED JUNCTION IMPROVEMENT SCHEME
- PROPOSED FOOTBRIDGE ALIGNMENT
- DESIGNATED REDEVELOPMENT SITE
- PLANNED FOOTBRIDGE ALIGNMENT (PROPOSED BY SAI YEE STREET REDEVELOPMENT SITE STUDY) (INDICATIVE ONLY)
- ROAD IMPROVEMENT SCHEME PROPOSED BY SAI YEE STREET REDEVELOPMENT SITE STUDY / ARGYLE STREET FOOTBRIDGE

Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
A	MINOR AMENDMENT	LMS	17MAY22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

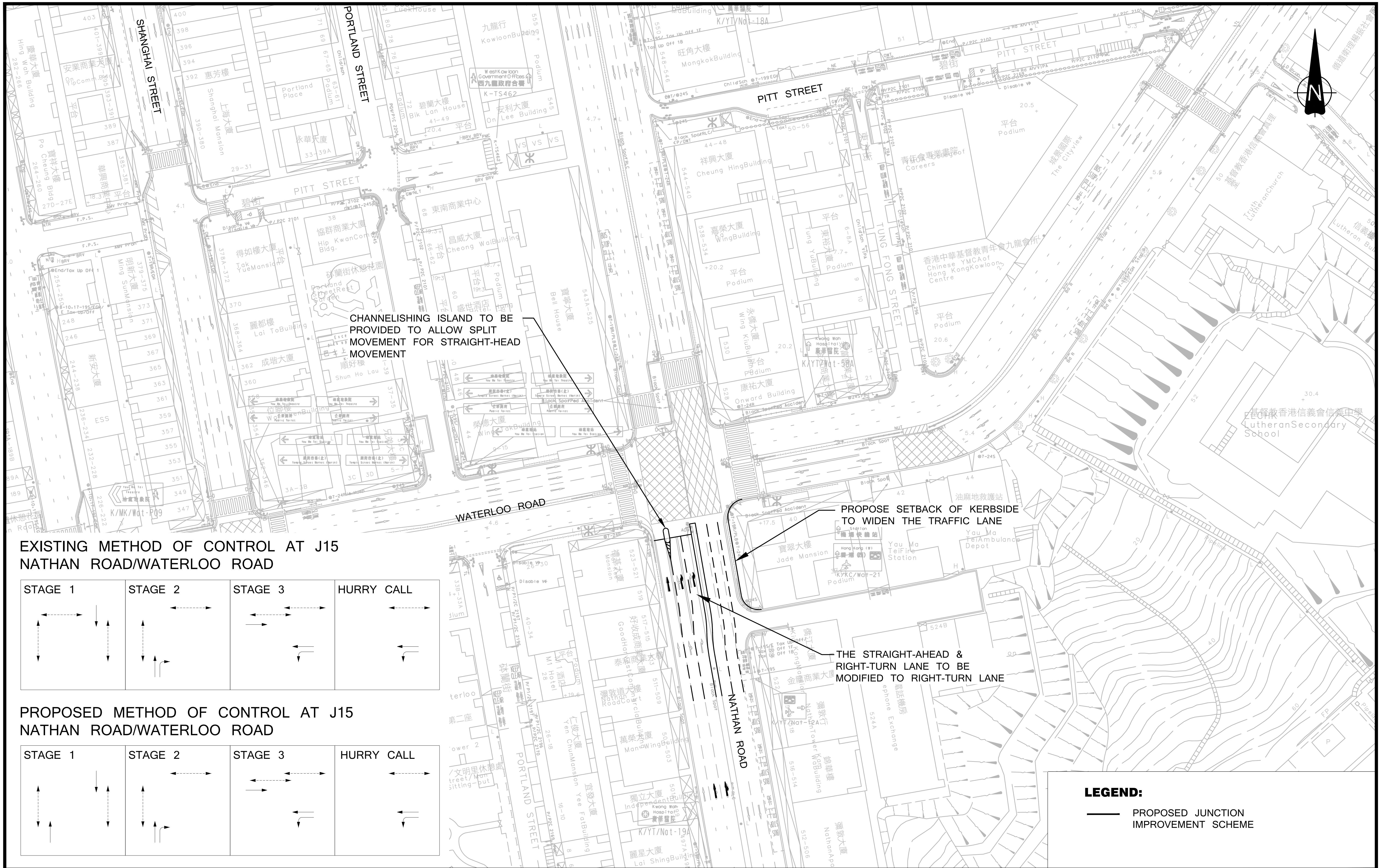
TRAFFIC IMPROVEMENT SCHEME FOR J10 SAI YEE STREET / ARGYLE STREET AND J11 ARGYLE STREET / YIM PO FONG STREET / LUEN WAN STREET

SYSTRA MVA

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:1000(A3)	MAR 2022	6.3	A

CHK50648010/TIA/F63-A.DWG/CWY/17MAY22

Original Size : A3



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
B	REVISED IMPROVEMENT SCHEME	LMS	13JUN22
A	MINOR AMENDMENT	LMS	17MAY22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

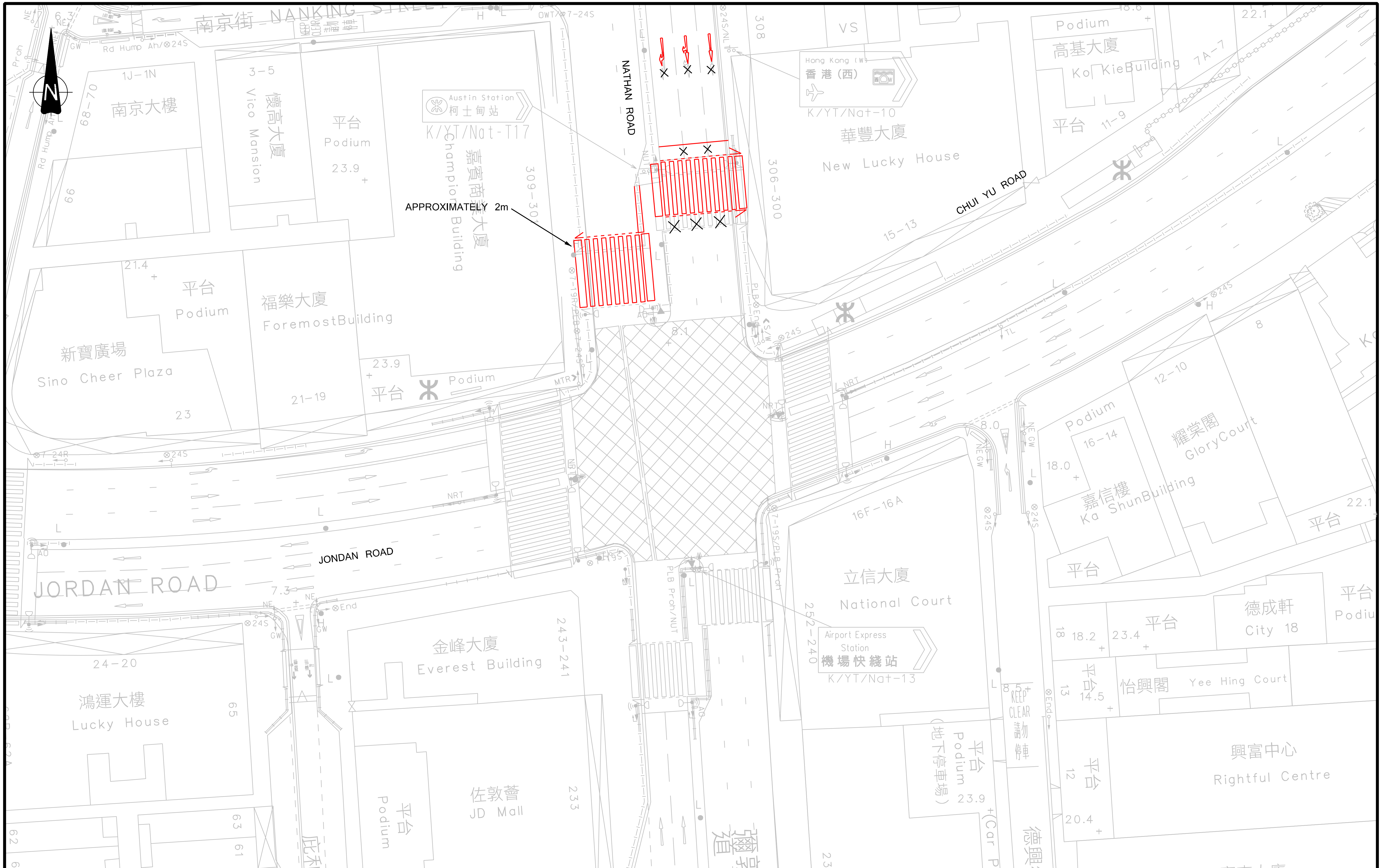
TRAFFIC IMPROVEMENT SCHEME FOR J15 NATHAN ROAD / WATERLOO ROAD

SYSTRA MVA

Designed	Checked	Scale	Date	Drawing No.	Rev.
TON	LMS	1:1500(A3)	MAR 2022	6.4	B

CHK50648010/TIA/F64-B.DWG/CKC/13JUN22

Original Size : A3



Rev.	Description	Checked	Date
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-	-	-	-
-	-	-	-
-	-	-	-

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

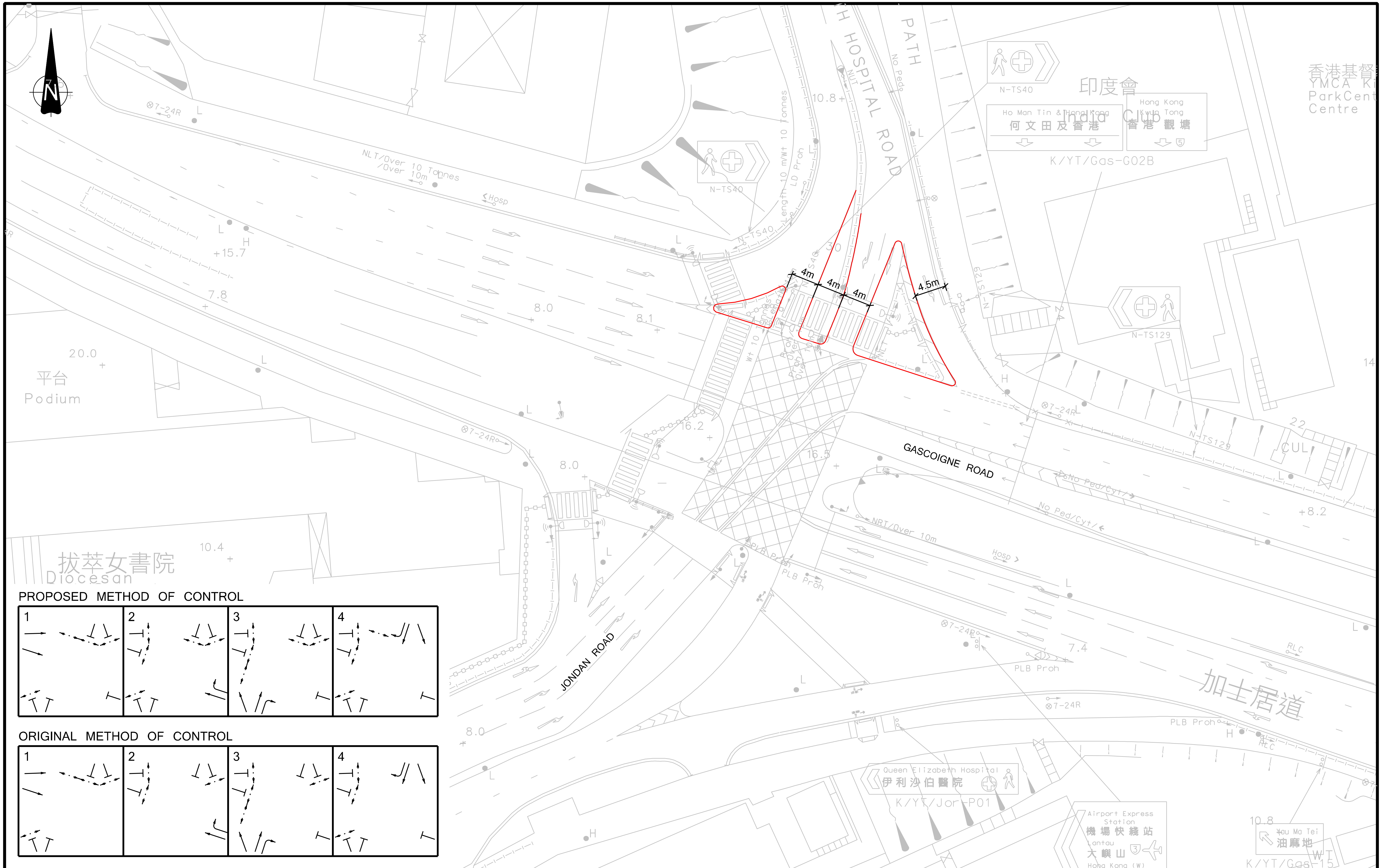
TRAFFIC IMPROVEMENT SCHEME FOR J21 NATHAN ROAD / JORDAN ROAD

SYSTRA MVA

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:500(A3)	MAR 2022	6.5	-

CHK50648010/TIA/F65.DGN/CKC/05MAY22

Original Size : A3



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
A	MINOR AMENDMENT	LMS	05MAY22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

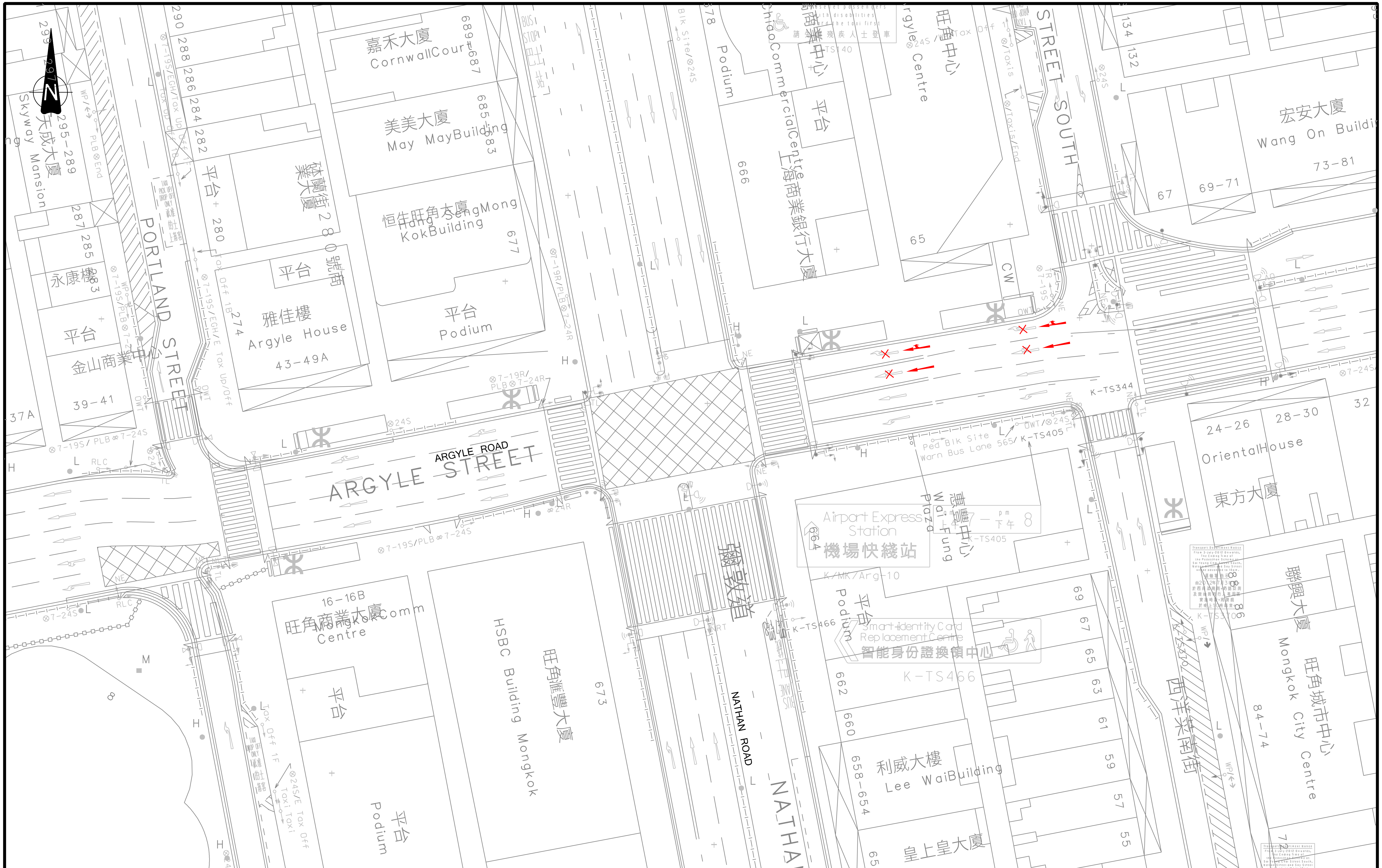
TRAFFIC IMPROVEMENT SCHEME FOR J22 GASCOIGNE ROAD / JORDAN ROAD

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:500(A3)	MAY 2022	6.6	A

SYSTRA MVA

CHK50648010/TIA/F66-A.DGN/CKC/05MAY22

Original Size : A3



Rev.	Description	Checked	Date
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-	-	-	-
-	-	-	-
-	-	-	-

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

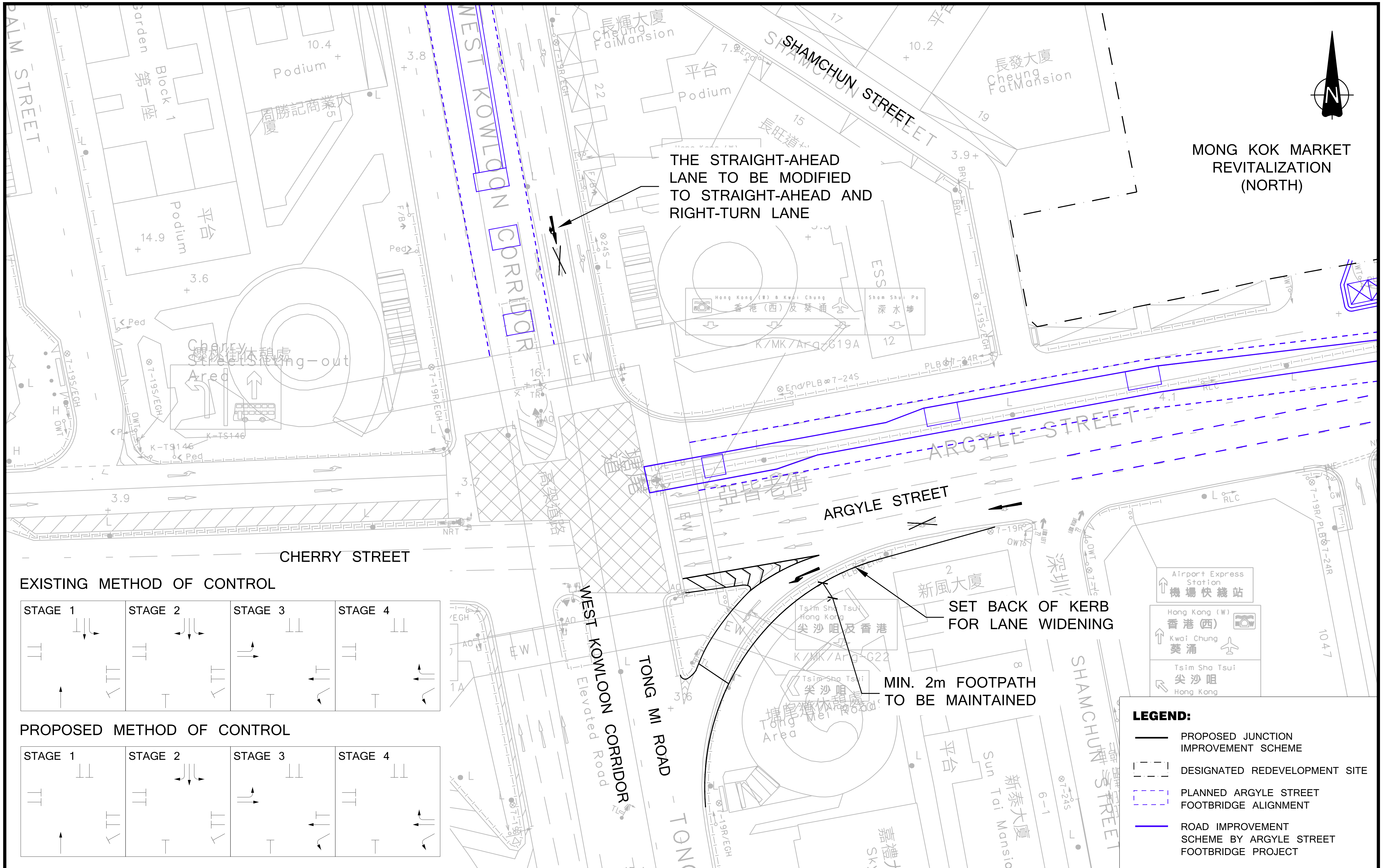
TRAFFIC IMPROVEMENT SCHEME FOR J26 NATHAN ROAD / ARGYLE STREET

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:500(A3)	MAR 2022	6.7	-

SYSTRA MVA

CHK50648010/TIA/F67.DGN/CKC/05MAY22

Original Size : A3



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
A	REVISED IMPROVEMENT SCHEME	LMS	18MAY22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

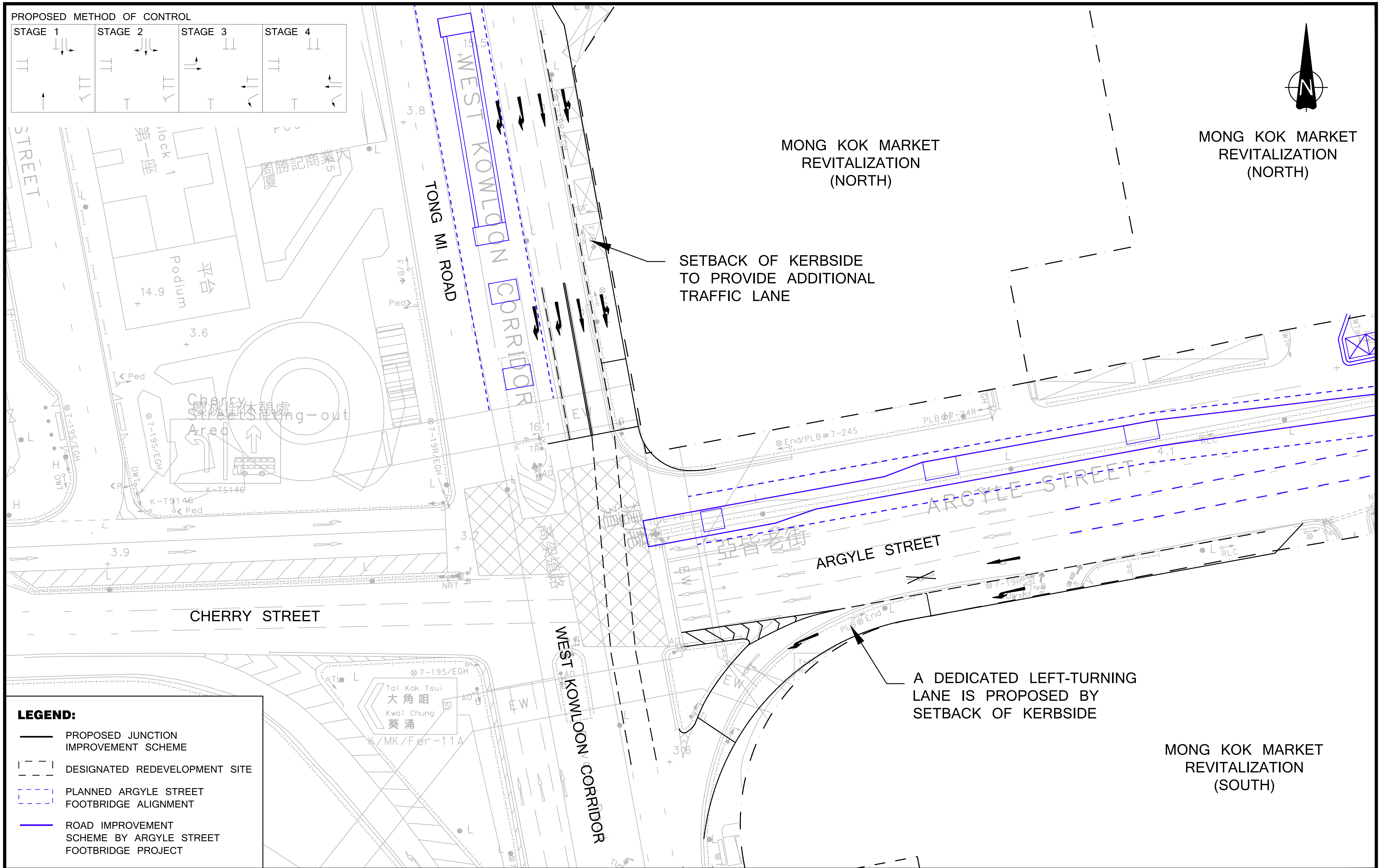
TRAFFIC IMPROVEMENT SCHEME FOR J27 TONG MI ROAD / ARGYLE STREET (PHASE 1)

SYSTRA MVA

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:500(A3)	MAR 2022	6.8	A

CHK50648010/TIA/F68-A.DWG/KCM/18MAY22

Original Size : A3



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
B	MINOR AMENDMENT	LMS	13JUN22
A	MINOR AMENDMENT	LMS	23MAY22

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

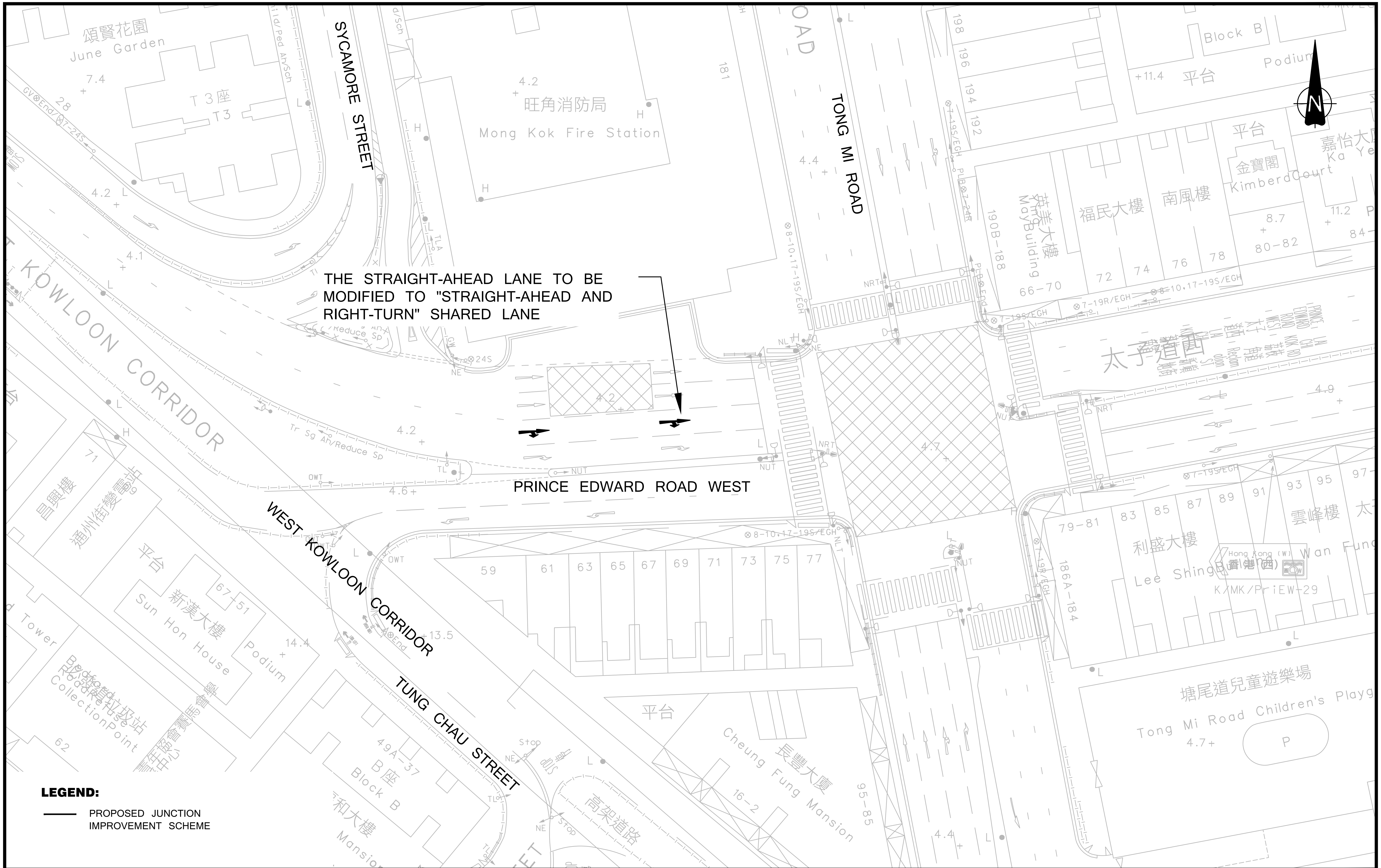
TRAFFIC IMPROVEMENT SCHEME FOR J27 TONG MI ROAD / ARGYLE STREET (PHASE 2)

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:500(A3)	MAR 2022	6.9	B

SYSTRA MVA

CHK50648010/TIA/F69-B.DWG/CKC/13JUN22

Original Size : A3



LEGEND:

PROPOSED JUNCTION IMPROVEMENT SCHEME

Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

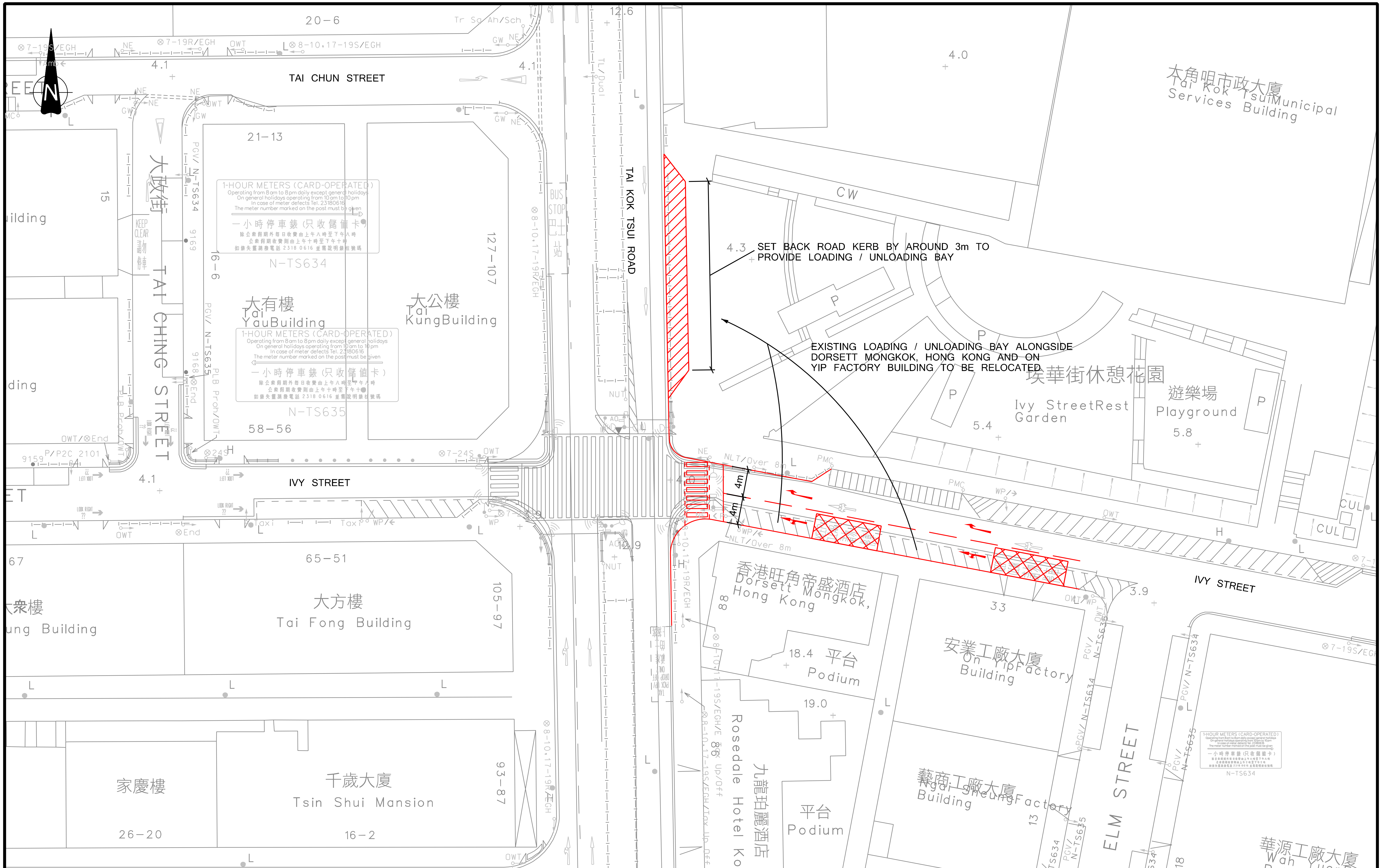
TRAFFIC IMPROVEMENT SCHEME FOR J29 TONG MI ROAD / PRINCE EDWARD ROAD WEST

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:1500(A3)	MAR 2022	6.10	-

SYSTRA MVA

CHK50648010/TIA/F610.DWG/CKC/05MAY22

Original Size : A3



-	-	-	-
-	-	-	-
-	-	-	-
A	MINOR AMENDMENT	LMS	17MAY22
Rev.	Description	Checked	Date

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENT IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

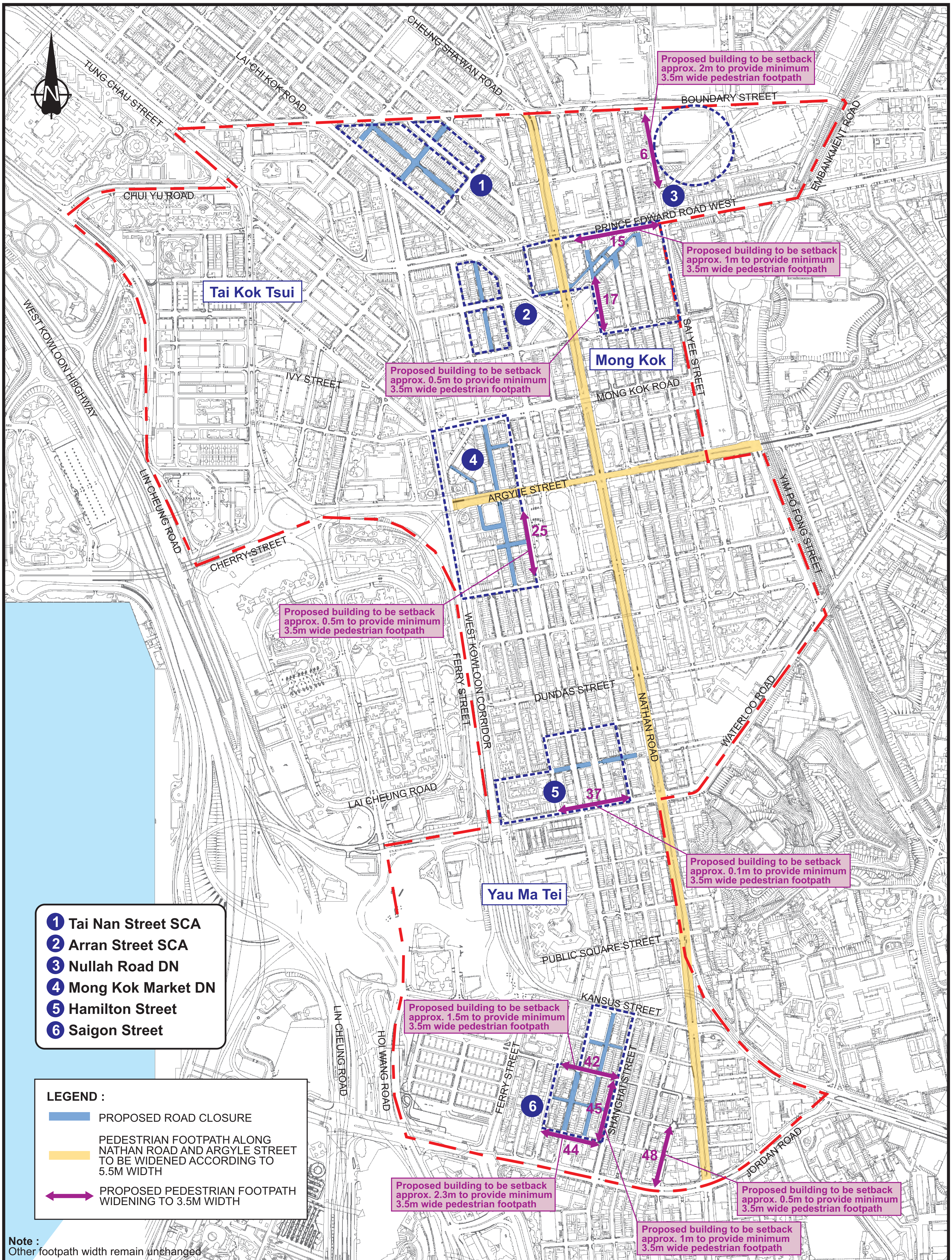
TRAFFIC IMPROVEMENT SCHEME FOR J30 TAI KOK TSUI ROAD / IVY STREET

Designed	Checked	Scale	Date	Drawing No.	Rev.
HAP	LMS	1:500(A3)	MAR 2022	6.11	A

SYSTRA MVA

CHK50648010/TIA/F611-A.DGN/KCM/17MAY22

Original Size : A3



Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date
A	UPDATE OF PROPOSED FOOTPATH WIDENING SCHEME	EDC	13JUN22	-	-	-	-	-	-	-	-

Project Title

TECHNICAL SUPPORT ON TIA FOR OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

Drawing Title

PROPOSED FOOTPATH WIDENING

SYSTRA MVA

Designed	Checked	Scale	Date	Drawing No.	Rev.
MSH	EDC	NTS	MAR 2022	6.12	A

CHK50648010/TS/F612-A.CDR/LLH/13JUN22

Original Size : A3

APPENDIX A JUNCTION CALCULATION SHEETS

OBSERVED FLOWS

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

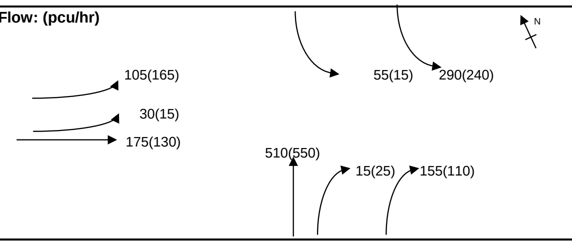
Junction: Boundry Street/Tung Chau Street/Nam Cheong Street Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tung Chau Street - EB		A	1	3.200	10		0	100%		1685	1685	105	0.062		165	0.098	0.098
		A	1	3.200	15		0	100%		1885	1885	30	0.016		15	0.008	
		A	1	3.200			0			1935	1935	175	0.090	0.090	130	0.067	
Chui Yu Road- NB		B	2	3.500			0			1965	1965	246	0.125		266	0.135	0.135
		B	2	3.500			0			2105	2105	264	0.125	0.125	284	0.135	
Chui Yu Road- NB		B	2	4.000		15	0		100%	1960	1960	15	0.008		25	0.013	
Chui Yu Road- NB		B	2	4.000		10	0		100%	1750	1750	155	0.089		110	0.063	
Nam Cheong Street-SB		C	3	3.000	15		0	100%		1740	1740	140	0.080		116	0.067	
		C	3	3.000	15		0	100%		1870	1870	150	0.080		124	0.066	
Nam Cheong Street-SB		C	3	3.000	10		0			1665	1665	55	0.033		15	0.009	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			6	+	10	=	16						
		Ep	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Fp	3	MIN GREEN + FLASH =			14	+	9	=	23			*			*

Notes:

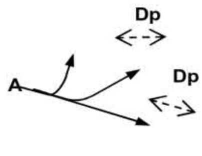
Flow: (pcu/hr)



Group	A,B,Fp	A,B,C	Group	A,B,C	A,B,Fp
y	0.216	0.296	y	0.300	0.233
L (sec)	24	19	L (sec)	19	40
C (sec)	96	96	C (sec)	96	96
y pract.	0.675	0.722	y pract.	0.722	0.525
R.C. (%)	213%	144%	R.C. (%)	141%	125%

Stage / Phase Diagrams

1.



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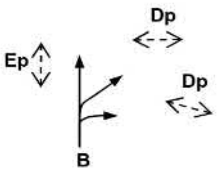
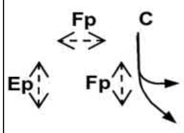


3.



4.

5.

I/G= 5		I/G= 8		I/G= 9		I/G=		I/G=	
I/G= 11		I/G= 8		I/G= 9	14	I/G=		I/G=	

Date: MAY, 2022 **Junction:** J1 Boundry Street/Tung Chau Street/Nam Cheong Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Boundry St./Lai Chi Kok Rd./Wong Chuk St.

Design Year: 2022

Description: Observed Flow

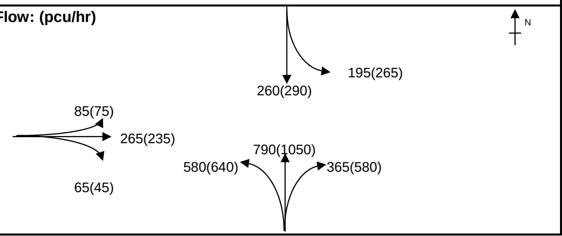
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road-SB		A	1	3.000	15					1740	1740	195	0.112	0.112	265	0.152	0.152
		A	1	3.000						2055	2055	87	0.042		97	0.047	
		A	1	3.000						2055	2055	86	0.042		96	0.047	
		A	1	3.000						2055	2055	87	0.042		97	0.047	
Lai Chi Kok Road-NB		B	1,2	3.100	15			92%	82%	1765	1780	631	0.358		782	0.439	
		B	1,2	3.100						2065	2065	739	0.358		908	0.440	
		C	2	3.000		15		100%	100%	1870	1870	183	0.098	0.098	290	0.155	0.155
		C	2	3.000		15				1870	1870	182	0.097		290	0.155	
Boundary Street - EB		D	3	3.500	15			43%	44%	1885	1880	199	0.106		170	0.090	
		D	3	3.500		15		30%	24%	2045	2055	216	0.106		185	0.090	
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			6	+	9	=	15						
		Fp	1	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Hp	3	MIN GREEN + FLASH =			6	+	12	=	18			*			*

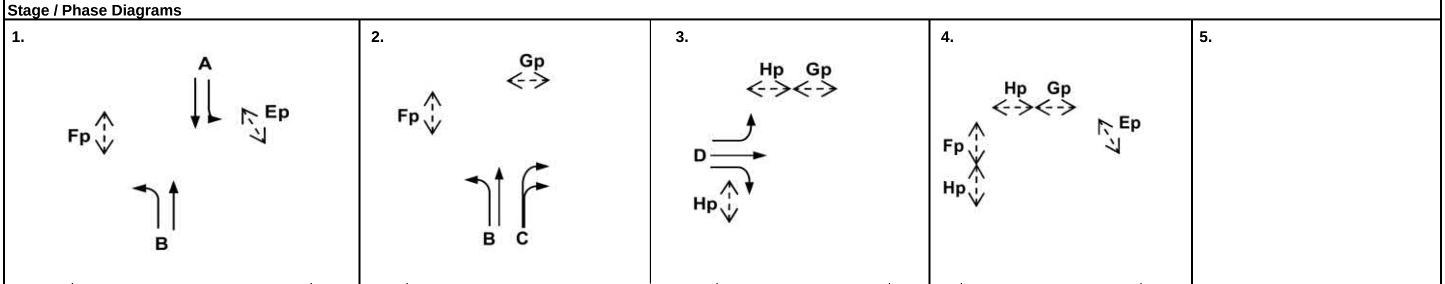
Notes:

Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.210	y		0.307
L (sec)		39	L (sec)		39
C (sec)		120	C (sec)		130
y pract.		0.608	y pract.		0.630
R.C. (%)		189%	R.C. (%)		105%

Stage / Phase Diagrams



I/G= 14		I/G= 9		I/G= 12	6	I/G=		I/G=	
I/G= 14		I/G= 9		I/G= 12	6	I/G=		I/G=	

Date: MAY, 2022

Junction: J2
Boundry St./Lai Chi Kok Rd./Wong Chuk St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

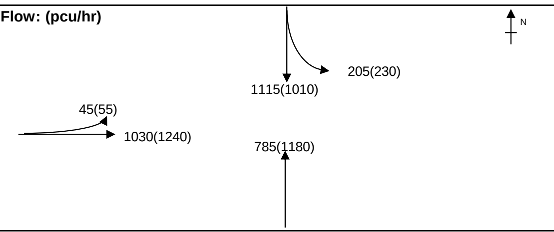
Junction: Boundry St./Nathan Rd./Cheung Sha Wan Rd Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cheung Sha Wan Road-SB	↰	A	1	3.500	15			100%		1785	1785	205	0.115		230	0.129	
	↑	A	1	3.300						2085	2085	372	0.178	0.178	337	0.162	0.162
	↑	A	1	3.300						2085	2085	371	0.178		336	0.161	
	↑	A	1	3.300						2085	2085	372	0.178		337	0.162	
Nathan Road-NB	↑	B	1,3	3.500						1965	1965	250	0.127		375	0.191	
	↑	B	1,3	3.500						2105	2105	267	0.127		403	0.191	
	↑	B	1,3	3.500						2105	2105	268	0.127		402	0.191	
Boundary Street-EB	↰↑	C	2	3.500	15			13%	13%	1940	1940	342	0.176	0.176	411	0.212	0.212
	↑	C	2	3.600						2190	2190	385	0.176		465	0.212	
	↑	C	2	3.600						1975	1975	348	0.176		419	0.212	
Pedestrian Crossing		Ep	1,3	MIN GREEN + FLASH =			13	+	13	=	26						
		Fp	2,3	MIN GREEN + FLASH =			14	+	13	=	27						
		Gp	2	MIN GREEN + FLASH =			31	+	10	=	41						
		Hp	3	MIN GREEN + FLASH =			19	+	13	=	32			*			*

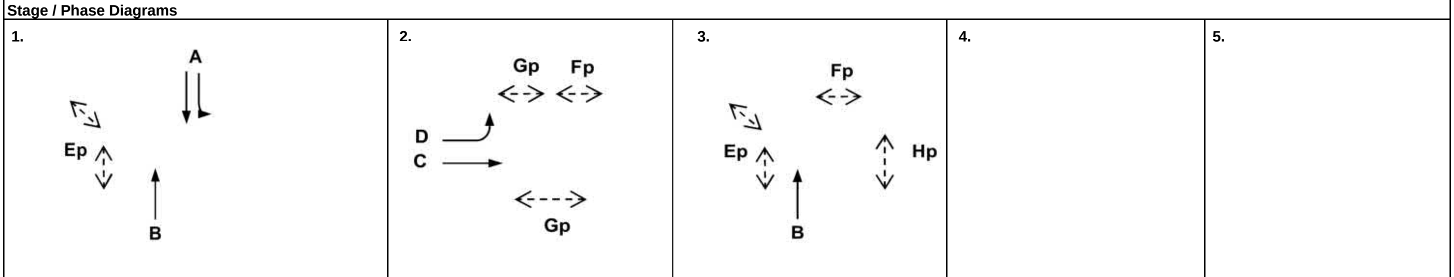
Notes:

Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.355	y		0.373
L (sec)		63	L (sec)		63
C (sec)		120	C (sec)		130
y pract.		0.428	y pract.		0.464
R.C. (%)		21%	R.C. (%)		24%

Stage / Phase Diagrams



I/G= 16		I/G= 6		I/G= 11	32	I/G=		I/G=	
I/G= 16		I/G= 6		I/G= 11	32	I/G=		I/G=	

Date: MAY, 2022 **Junction:** Boundry St./Nathan Rd./Cheung Sha Wan Rd J3

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

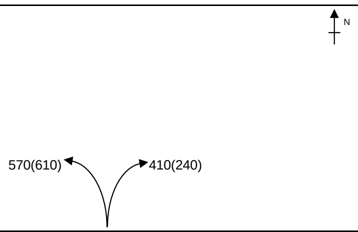
Junction: Boundry St./Embankment Rd. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary Street-WB	↰	A	1	5.500	15			100%	100%	1970	1970	570	0.289	0.289	610	0.310	0.310
Boundary Street-EB	↱	A	1	4.500		25		100%	100%	1950	1950	410	0.210		240	0.123	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			10	+	10	=	20			*			*

Notes:

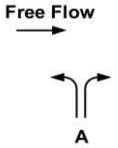
Flow: (pcu/hr)



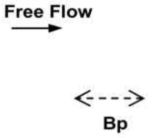
Group		A,Bp	Group		A,Bp
y		0.289	y		0.310
L (sec)		27	L (sec)		27
C (sec)		108	C (sec)		90
y pract.		0.675	y pract.		0.630
R.C. (%)		133%	R.C. (%)		103%

Stage / Phase Diagrams

1.



2.



3. **4.** **5.**

I/G= 13		I/G= 5	10	I/G=		I/G=		I/G=	
I/G= 13		I/G= 5	10	I/G=		I/G=		I/G=	

Date: MAY, 2022 **Junction:** Boundry St./Embankment Rd. J4

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

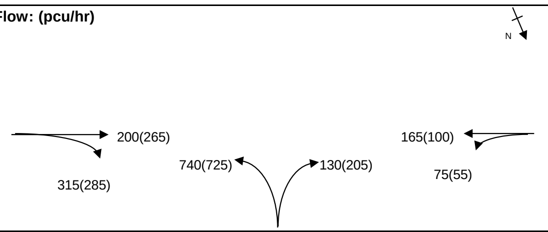
Junction: Sham Mong Rd./Chui Yu Rd. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road-WB	↑	A	1,2	3.500						1965	1965	97	0.049		128	0.065	
	↑	A	1,2	3.500						2105	2105	103	0.049		137	0.065	
Sham Mong Road-WB	↱	C	2	3.300		25		100%	100%	1965	1965	315	0.160	0.160	285	0.145	0.145
Sham Mong Road-EB	↰	B	1	3.300	15			100%	100%	1770	1770	75	0.042	0.042	55	0.031	0.031
Sham Mong Road-EB	↑	B	1	3.500						2105	2105	83	0.039		50	0.024	
	↑	B	1	3.500						2105	2105	82	0.039		50	0.024	
Chui Yu Road - SB	↰	D	4	3.500	15					1785	1785	357	0.200		350	0.196	
	↰	D	4	3.500	15					1915	1915	383	0.200	0.200	375	0.196	0.196
Chui Yu Road - SB	↱	D	4	3.500		25				1985	1985	130	0.065		205	0.103	
Pedestrian Crossing		Ep	3	MIN GREEN + FLASH =			32	+	11	=	43			*			*
		Fp	3	MIN GREEN + FLASH =			20	+	13	=	33						
		Gp	3	MIN GREEN + FLASH =			23	+	11	=	34						

Notes:

Flow: (pcu/hr)



Group		B,C,Ep,D	Group		B,C,Ep,D
y		0.403	y		0.372
L (sec)		55	L (sec)		58
C (sec)		128	C (sec)		130
y pract.		0.513	y pract.		0.498
R.C. (%)		27%	R.C. (%)		34%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**

I/G= 5		I/G= 5		I/G= 5	29	I/G= 14		I/G=	
I/G= 5		I/G= 5		I/G= 5	32	I/G= 14		I/G=	

Date: MAY, 2022 **Junction:** Sham Mong Rd./Chui Yu Rd. J5

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

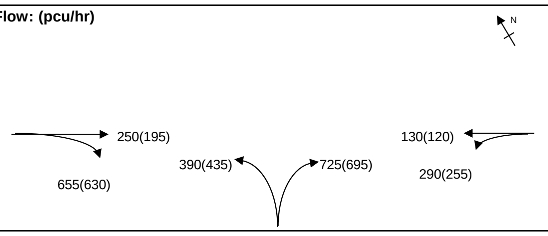
Junction: Sham Mong Rd./Hoi Fai Rd. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road -EB		A	1	3.500		15		55%	61%	2040	2030	481	0.236		437	0.215	0.215
		A	1	3.300		10		100%	100%	1815	1815	424	0.234	0.234	388	0.214	
Hoi Fai Road-NB		B	1,2	4.000	20			100%	100%	1875	1875	390	0.208		435	0.232	
		C	2	3.700		15		100%	100%	1930	1930	363	0.188	0.188	348	0.180	0.180
		C	2	3.700		15		100%	100%	1930	1930	362	0.188		347	0.180	
Sham Mong Road-WB		D	2,3	3.700	15			100%	100%	1805	1805	290	0.161		255	0.141	
		E	3	3.600						2115	2115	65	0.031		60	0.028	
		E	3	3.600						2115	2115	65	0.031		60	0.028	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						
		Gp	1	MIN GREEN + FLASH =			44	+	7	=	51						
		Hp	3	MIN GREEN + FLASH =			22	+	10	=	32			*			*

Notes:

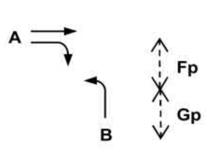
Flow: (pcu/hr)



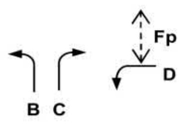
Group		A,C,Hp	Group		A,C,Hp
y		0.422	y		0.396
L (sec)		49	L (sec)		53
C (sec)		128	C (sec)		130
y pract.		0.555	y pract.		0.533
R.C. (%)		32%	R.C. (%)		35%

Stage / Phase Diagrams

1.



2.



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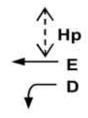


4.

5.

I/G= 12		I/G= 9		I/G= 12	18	I/G=		I/G=	
I/G= 12		I/G= 9		I/G= 12	22	I/G=		I/G=	

Date: MAY, 2022 **Junction:** Sham Mong Rd./Hoi Fai Rd. J6

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

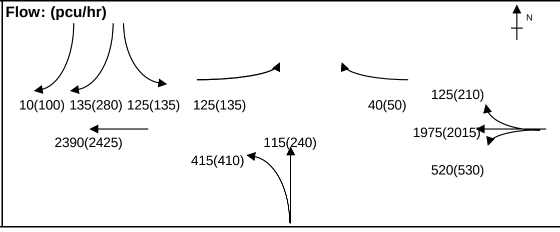
Junction: Prince Edward Rd. West/Sai Yee Street Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West		A	1	5.500	10					1885	1885	125	0.066		135	0.072	
		A	1	4.000	10					1750	1750	520	0.297		530	0.303	
		A	1	3.300	15			0%	0%	2085	2085	706	0.339		752	0.361	0.361
		A	1	3.300						2085	2085	706	0.339		752	0.361	
		A	1	3.300		10		18%	29%	2030	2000	688	0.339	0.339	721	0.361	
Prince Edward Road West		B	1,2	3.500						2175	2175	814	0.374		826	0.380	
		B	1,2	3.500						2105	2105	788	0.374		800	0.380	
		B	1,2	3.500						2105	2105	788	0.374		799	0.380	
Sai Yee Street		C	2	3.300	10			100%	100%	1690	1690	200	0.118		198	0.117	0.117
		C	2	3.300	10			100%	100%	1815	1815	215	0.118	0.118	212	0.117	
		C	2	3.300						2085	2085	115	0.055		240	0.115	
		C	2	3.300		10		100%	100%	1690	1690	40	0.024		50	0.030	
Fa Yuen Street		D	3	3.500		10		100%	100%	1710	1710	10	0.006		100	0.058	
		D	3	3.500		15		100%	100%	1915	1915	135	0.070		280	0.146	
		D	3	3.500	10			100%	100%	1710	1710	125	0.073		135	0.079	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			9	+	11	=	20						
		Fp	3	MIN GREEN + FLASH =			24	+	11	=	35			*			*
		Gp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Hp	3	MIN GREEN + FLASH =			18	+	11	=	29						
		Ip	1,3	MIN GREEN + FLASH =			6	+	9	=	15						

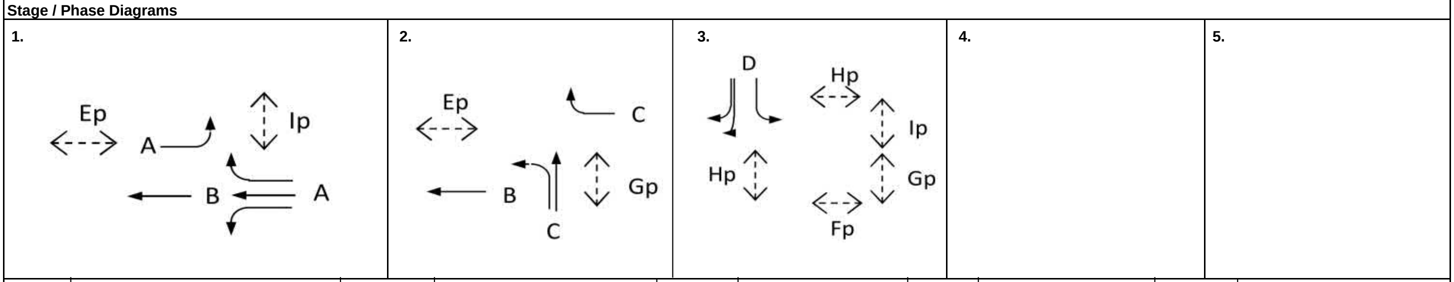
Notes:

Flow: (pcu/hr)



Group		A,C,Fp	Group		A,C,Fp
y		0.457	y		0.478
L (sec)		47	L (sec)		47
C (sec)		130	C (sec)		130
y pract.		0.575	y pract.		0.575
R.C. (%)		26%	R.C. (%)		20%

Stage / Phase Diagrams



I/G= 13		I/G= 6		I/G= 6	24	I/G=		I/G=	
I/G= 13		I/G= 6		I/G= 6	24	I/G=		I/G=	

Date: MAY, 2022 **Junction:** Prince Edward Rd. West/Sai Yee Street J7

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Prince Edward Rd. West/Embankment Rd. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West-WB		A	1	3.300		15		100%	100%	1770	1770	459	0.259		406	0.229	
		A	1	3.300		15		100%	100%	1895	1895	491	0.259		434	0.229	
Prince Edward Road West-WB		B	1,2	4.000						2015	2015	902	0.448	0.448	893	0.443	0.443
		B	1,2	4.000						2155	2155	964	0.448		956	0.443	
		B	1,2	4.000						2155	2155	964	0.448		956	0.443	
		B	1,2	4.000						2155	2155	964	0.448		956	0.443	
Prince Edward Road West-EB		C	2,3	4.500	15			100%	100%	1875	1875	170	0.091		105	0.056	
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			73	+	6	=	79						
		Ep	2	MIN GREEN + FLASH =			5	+	9	=	14						
		Fp	3	MIN GREEN + FLASH =			21	+	14	=	35			*			*

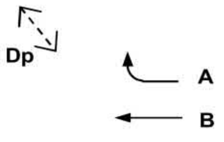
Notes:

Flow: (pcu/hr)

Group		B,Fp	Group		B,Fp
y		0.448	y		0.443
L (sec)		43	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.602	y pract.		0.616
R.C. (%)		35%	R.C. (%)		39%

Stage / Phase Diagrams

1.



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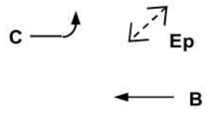
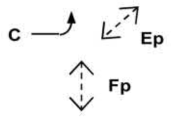


3.



4.

5.

I/G= 18		I/G=		I/G= 5	21	I/G=		I/G=	
I/G= 18		I/G=		I/G= 5	19	I/G=		I/G=	

Date: MAY, 2022 **Junction:** Prince Edward Rd. West/Embankment Rd. J8

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

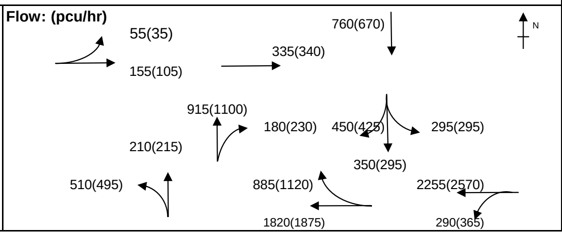
Junction: Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cherry St - WB		A	1	4.900	30			44%	32%	2140	2155	637	0.298		734	0.341	
		A	1	3.800						2135	2135	636	0.298		734	0.344	
		A	1	3.800						2135	2135	636	0.298		734	0.344	
		A	1	3.800						2135	2135	636	0.298		733	0.343	
Cherry St - WB		B	1,2	3.400						2095	2095	607	0.290		625	0.298	
		B	1,2	3.400						2095	2095	606	0.289		625	0.298	
		B	1,2	3.400						2095	2095	607	0.290		625	0.298	
Cherry St - WB		B	1,2	3.400		40		100%	100%	2020	2020	443	0.219		560	0.277	
		B	1,2	3.400		40		100%	100%	2020	2020	442	0.219		560	0.277	
Hoi Wang Rd - NB		C	1,2	4.300						2185	2185	458	0.210		550	0.252	
		C	1,2	4.300						2185	2185	457	0.209		550	0.252	
Hoi Wang Rd - NB		C	1,2	4.400		20		100%	100%	2040	2040	180	0.088		230	0.113	
Tai Kok Tsui Rd - SB		D	1,2	3.300						1945	1945	242	0.124		213	0.110	
		D	1,2	3.300						2085	2085	259	0.124		229	0.110	
		D	1,2	3.300						2085	2085	259	0.124		228	0.109	
Tai Kok Tsui Rd - SB		I	2,3	3.500	15			100%	100%	1880	1880	295	0.157		295	0.157	
		E	2,3	3.500						2105	2105	350	0.166		295	0.140	
		E	2,3	5.200		20		100%	100%	2115	2115	225	0.106		213	0.101	
		E	2,3	5.200		20		100%	100%	2115	2115	225	0.106		212	0.100	
Cherry St - EB		F	3	6.000		30		100%	100%	2245	2245	168	0.075		170	0.076	
		F	3	6.000		30		100%	100%	2245	2245	167	0.074		170	0.076	
Cherry St - EB		G	3	3.800	45			100%	100%	2065	2065	28	0.014		18	0.009	
		G	3	3.800	45			100%	100%	2065	2065	27	0.013		17	0.008	
Cherry St - EB		G	3	3.800						2135	2135	78	0.037		53	0.025	
		G	3	3.800						2135	2135	77	0.036		52	0.024	
Hoi Wang Rd - NB		H	3	3.800	75					2250	2250	510	0.227	0.227	495	0.220	0.220
		H	3	4.000						2155	2155	105	0.049		108	0.050	
		H	3	4.000						2155	2155	105	0.049		107	0.050	
Pedestrian Crossing		Jp	1,2	MIN GREEN + FLASH =			7	+	15	=	22						
		Kp	1	MIN GREEN + FLASH =			34	+	8	=	42						
		Lp	3	MIN GREEN + FLASH =			11	+	11	=	22						
		Mp	2,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Np	1	MIN GREEN + FLASH =			36	+	7	=	43			*			*
		Op	2,3	MIN GREEN + FLASH =			7	+	13	=	20						

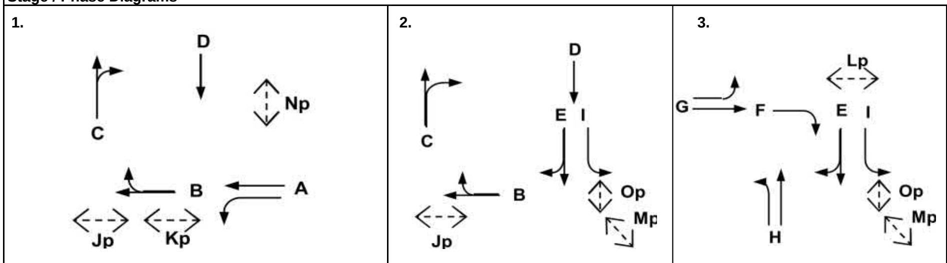
Notes:

Flow: (pcu/hr)



Group	A,H	Np,H	Group	Np,H	A,H
y	0.525	0.227	y	0.220	0.564
L (sec)	-2	58	L (sec)	14	13
C (sec)	85	85	C (sec)	80	80
y pract.	0.921	0.286	y pract.	0.743	0.754
R.C. (%)	76%	26%	R.C. (%)	238%	34%

Stage / Phase Diagrams



I/G= 6	36	I/G= 15		I/G= 2		I/G=		I/G=	
I/G= 5		I/G= 8		I/G= 2		I/G=		I/G=	

Date: JUN, 2022 **Junction:** J9 Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

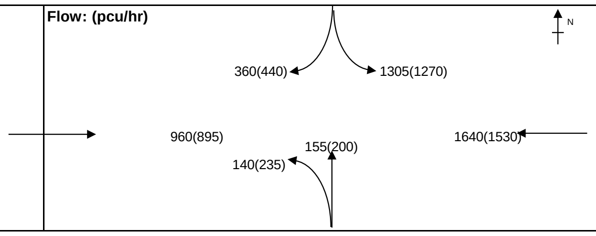
Junction: Argyle St/Sai Yee St. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1	3.500						1965	1965	463	0.236		432	0.220	
		A	1	3.500						2105	2105	497	0.236		463	0.220	
Argyle Street-WB		B	1	3.200						2095	2095	550	0.263		513	0.245	
		B	1	3.200						2075	2075	545	0.263		509	0.245	
		B	1	3.200						2075	2075	545	0.263		508	0.245	
Sai Yee Street-SB		C	2,3,4	3.300	10					1690	1690	1305	0.772	0.772	1270	0.751	0.751
Sai Yee Street-SB		D	2	3.500		20		100%	100%	2110	2110	360	0.171		440	0.209	
Sai Yee Street-NB		E	3	3.700	15			100%	100%	1805	1805	140	0.078		235	0.130	
		E	3	3.700						2125	2125	155	0.073		200	0.094	
Pedestrian Crossing		Fp	1,2,4	MIN GREEN + FLASH =			8	+	8	=	16						
		Gp	4	MIN GREEN + FLASH =			19	+	12	=	31						
		Hp	1	MIN GREEN + FLASH =			27	+	11	=	38			*			*

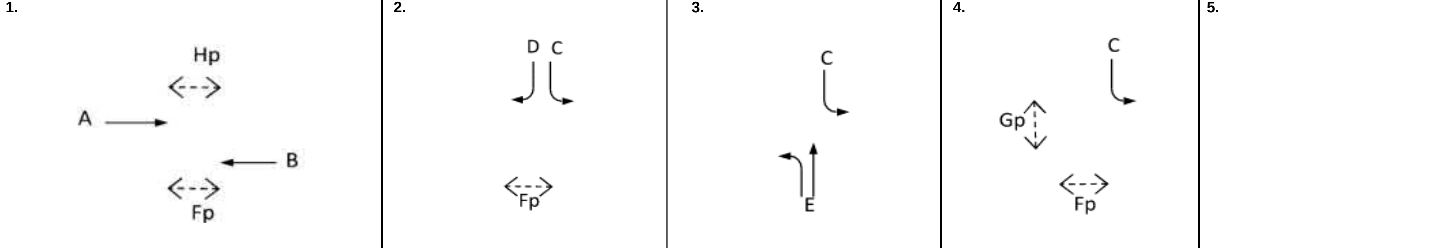
Notes:

Flow: (pcu/hr)



Group	B,D,E,Gp	Hp,C	Group	Hp,C	B,D,E,Gp
y	0.511	0.772	y	0.751	0.584
L (sec)	48	34	L (sec)	19	54
C (sec)	130	130	C (sec)	130	130
y pract.	0.568	0.665	y pract.	0.768	0.526
R.C. (%)	11%	-14%	R.C. (%)	2%	-10%

Stage / Phase Diagrams



I/G= 5	15	I/G= 15		I/G=		I/G=		I/G=	
I/G= 14		I/G= 6		I/G= 9		I/G= 9	19	I/G=	

Date: JUN, 2022 **Junction:** Argyle St/Sai Yee St. J10

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

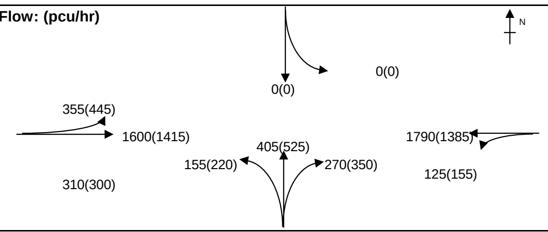
Junction: Argyle St/Yim Po Fong St/Luen Wan St Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1,2	3.100	10			100%	100%	1675	1675	355	0.212		445	0.266	
		B	1,2	3.000						2145	2145	817	0.381		723	0.337	
		B	1,2	3.000						2055	2055	783	0.381		692	0.337	
Argyle Street-EB		D	2	3.000		15		100%	100%	1870	1870	310	0.166		300	0.160	
Argyle Street-WB		E	4	3.800	10			100%	100%	1735	1735	125	0.072		155	0.089	
		C	1	3.300						2085	2085	597	0.286	0.286	462	0.222	0.222
		C	1	3.300						2085	2085	596	0.286		461	0.221	
		C	1	3.300						2085	2085	597	0.286		462	0.222	
Yim Po Fong St - NB		F	4	3.000	10			100%	100%	1665	1665	155	0.093		220	0.132	
		F	4	2.800		15		2%	0%	2030	2035	405	0.200	0.200	525	0.258	0.258
		F	4	3.000		12		100%	100%	1700	1700	270	0.159		350	0.206	
Luen Wan St - SB		I	3	3.500	10			80%	80%	1755	1755	0	0.000		0	0.000	
Pedestrian Crossing		Gp	1	MIN GREEN + FLASH =			43	+	9	=	52						
		Hp	3	MIN GREEN + FLASH =			26	+	8	=	34			*			*
		Jp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

Notes:

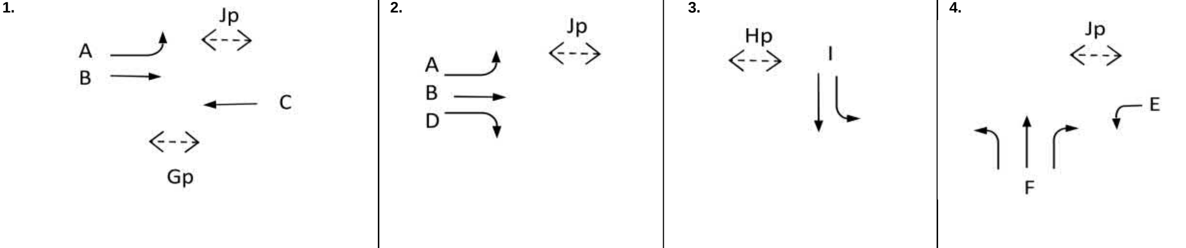
Flow: (pcu/hr)



Group		C,Hp,F	Group		C,Hp,F
y		0.486	y		0.480
L (sec)		51	L (sec)		57
C (sec)		130	C (sec)		130
y pract.		0.547	y pract.		0.505
R.C. (%)		13%	R.C. (%)		5%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 7		I/G= 8		I/G= 8	20	I/G= 10		I/G=	
I/G= 7		I/G= 8		I/G= 8	26	I/G= 10		I/G=	

Date: MAY, 2022 **Junction:** J11 Argyle St/Yim Po Fong St/Luen Wan St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Waterloo Rd./Yim Po Fong St/Wylie Rd.

Design Year: 2022

Description: Observed Flow

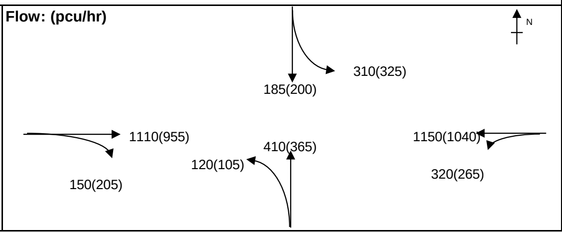
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Road-EB		A	1,2	3.000						1915	1915	555	0.290		478	0.250	
		A	1,2	3.000						1915	1915	555	0.290		477	0.249	
		I	1	3.000		15		100%	100%	1660	1660	150	0.090	0.090	205	0.123	0.123
Waterloo Road-WB		B	1	3.600	10			75%	69%	1775	1790	429	0.242		383	0.214	0.214
		B	1	4.000						2155	2155	521	0.242	0.242	461	0.214	
		B	1	4.000						2155	2155	520	0.241		461	0.214	
Yim Po Fong Street-SB		C	4	3.100	10					1675	1675	310	0.185		325	0.194	0.194
		C	4	3.200						2075	2075	185	0.089		200	0.096	
Wylie Road-NB		C	4	3.500	10					1710	1710	120	0.070		105	0.061	
		C	4	3.400						2095	2095	410	0.196	0.196	365	0.174	
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			9	+	10	=	19						
		Fp	2	MIN GREEN + FLASH =			5	+	14	=	19						
		Gp	3	MIN GREEN + FLASH =			7	+	12	=	19			*			*
		Hp	3	MIN GREEN + FLASH =			5	+	14	=	19						

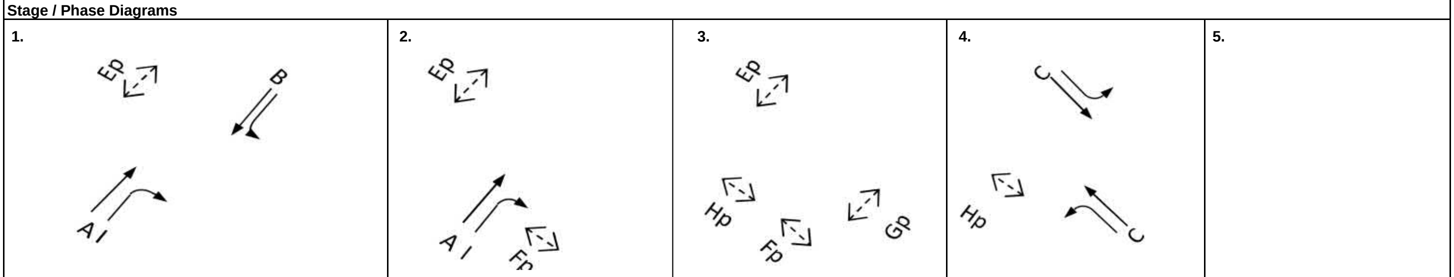
Notes:

Flow: (pcu/hr)



Group		B,I,Gp,C	**Group**		B,I,Gp,C
y		0.528	**y**		0.531
L (sec)		41	**L (sec)**		41
C (sec)		130	**C (sec)**		130
y pract.		0.616	**y pract.**		0.616
R.C. (%)		17%	**R.C. (%)**		16%

Stage / Phase Diagrams



I/G= 12		I/G=		I/G= 9	7	I/G= 16		I/G=	
I/G= 12		I/G=		I/G= 9	7	I/G= 16		I/G=	

Date: MAY, 2022

Junction: J12 Waterloo Rd./Yim Po Fong St/Wylie Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

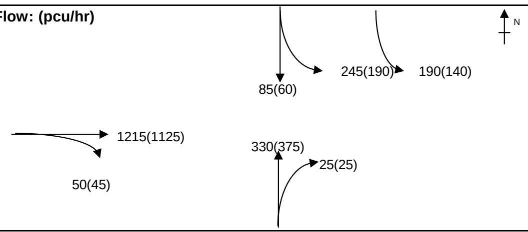
Junction: Hoi Wang Rd/Lai Cheung Rd Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Cheung Rd - EB		A	1	4.000						2155	2155	613	0.284		567	0.263	
		B	1	3.500		20		8%	7%	2295	2295	652	0.284	0.284	603	0.263	0.263
Hoi Wang Rd - NB		C	2,3,4	3.400						1955	1955	114	0.058		128	0.065	
		C	2,3,4	3.400						2095	2095	122	0.058		137	0.065	
		G	4	3.400		15		21%	19%	2050	2055	119	0.058	0.058	135	0.066	0.066
Hoi Wang Rd - SB		F	3,4	4.300	45					1980	1980	190	0.096		140	0.071	
Hoi Wang Rd - NB		D	2,3,4	3.400						2095	2095	110	0.053		125	0.060	
		D	2,3,4	3.400						2095	2095	110	0.053		125	0.060	
		D	2,3,4	3.400						2095	2095	110	0.053		125	0.060	
Hoi Wang Rd - SB		E	3	3.000	10					1785	1785	245	0.137	0.137	190	0.106	0.106
Hoi Wang Rd - SB		E	3	3.000						2055	2055	43	0.021		30	0.015	
		E	3	3.000						2055	2055	42	0.020		30	0.015	
Pedestrian Crossing		Hp	1,2	MIN GREEN + FLASH =			5	+	5	=	10						
		Ip	2,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Jp	2	MIN GREEN + FLASH =			9	+	6	=	15			*			*

Notes:

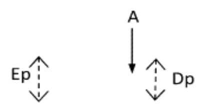
Flow: (pcu/hr)



Group		B,Jp,E,G	Group		B,Jp,E,G
y		0.479	y		0.435
L (sec)		28	L (sec)		33
C (sec)		130	C (sec)		129
y pract.		0.706	y pract.		0.670
R.C. (%)		47%	R.C. (%)		54%

Stage / Phase Diagrams

1.



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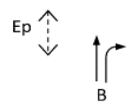

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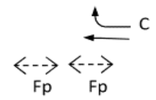


4.

5.

I/G= 5		I/G= 9	2	I/G= 9		I/G= 6		I/G=	
I/G= 6		I/G= 5	10	I/G= 9		I/G= 6		I/G=	

Date: MAY, 2022 **Junction:** J13 Hoi Wang Rd/Lai Cheung Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

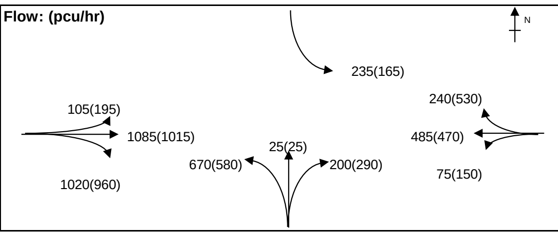
Junction: Lai Cheung Rd./Ferry St./Waterloo Rd. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Rd-WB		A	1	3.100	15			28%	52%	1870	1830	266	0.142		291	0.159	
		A	1	3.100						2065	2065	294	0.142		329	0.159	
		A	1	3.300		30				1985	1985	120	0.060		265	0.134	
		A	1	3.300		30				1985	1985	120	0.060		265	0.134	
Ferry St- SB		B	1	3.500	25					1855	1855	114	0.061		80	0.043	
		B	1	3.500	25					1985	1985	121	0.061		85	0.043	
Lai Cheung Rd-EB		C	3	3.300	5					1495	1495	105	0.070		195	0.130	
		C	3	3.300	10			0%	0%	2085	2085	542	0.260		507	0.243	
		C	3	3.300						2085	2085	543	0.260	0.260	508	0.244	0.244
Lai Cheung Rd-EB		D	3	3.700		35				2305	2305	541	0.235		509	0.221	
		D	3	3.700		35				2040	2040	479	0.235		451	0.221	
Ferry St-NB		E	2,3	3.400	35					2080	2080	670	0.322		580	0.279	
Ferry St-NB		F	2	4.700		35		79%	85%	2150	2145	118	0.055		165	0.077	
		F	2	3.000		30		100%	100%	1955	1955	107	0.055		150	0.077	
Waterloo Rd-WB		G	1	3.600						2115	2115	243	0.115		235	0.111	
		G	1	3.600						2115	2115	242	0.114		235	0.111	
Pedestrian Crossing		Hp	1	MIN GREEN + FLASH =			31	+	8	=	39			*			*
		Ip	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Jp	2	MIN GREEN + FLASH =			15	+	19	=	34			*			*
		Kp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						

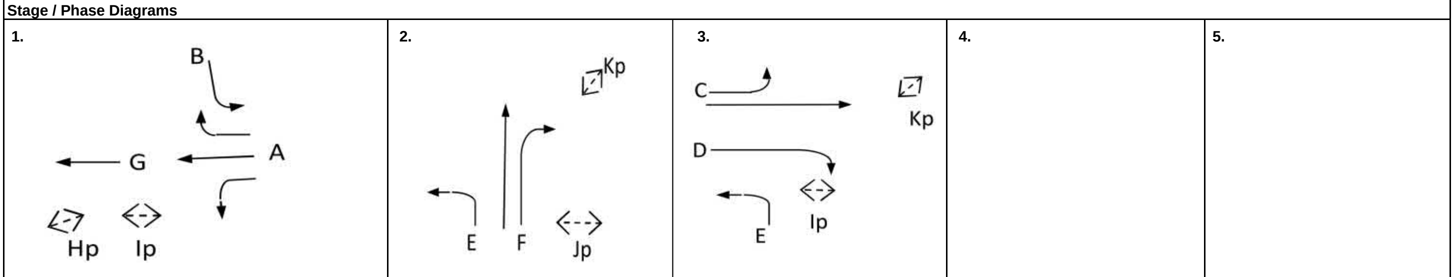
Notes:

Flow: (pcu/hr)



Group	A,Jp,C	Hp,Jp,C	Group	Hp,Jp,C	A,Jp,C
y	0.403	0.260	y	0.244	0.403
L (sec)	48	84	L (sec)	49	48
C (sec)	130	130	C (sec)	130	130
y pract.	0.568	0.318	y pract.	0.561	0.568
R.C. (%)	41%	22%	R.C. (%)	130%	41%

Stage / Phase Diagrams



I/G= 5	31	I/G= 11	15	I/G= 23		I/G=		I/G=	
I/G= 5		I/G= 7	15	I/G= 23		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J14 Lai Cheung Rd./Ferry St./Waterloo Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

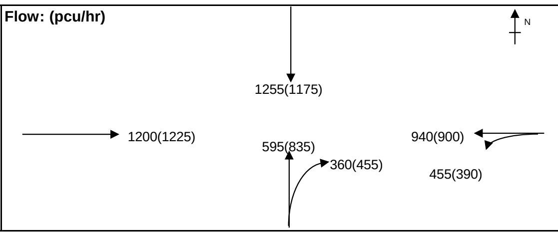
Junction: Waterloo Rd/Nathan Rd   Design Year: 2022

Description: Observed Flow   Designed By: HAP   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road-SB		A	1	3.400						1465	1465	325	0.222		304	0.208	
		A	1	3.400						2095	2095	465	0.222		436	0.208	
		A	1	3.400						2095	2095	465	0.222		435	0.208	
Nathan Road-NB		B	2	3.300						1945	1945	319	0.164	0.164	430	0.221	
		B	2	3.300		15		18%	11%	2050	2060	336	0.164		456	0.221	0.221
		B	2	3.500		10		100%	100%	1830	1830	300	0.164		404	0.221	
Waterloo Road-EB		C	3	3.400						1955	1955	382	0.195		390	0.199	
		C	3	3.400						2095	2095	409	0.195		417	0.199	
		C	3	3.400						2095	2095	409	0.195		418	0.200	
Waterloo Road-WB		D	3	3.200	5					1490	1490	375	0.252	0.252	344	0.231	
		D	3	3.200	5			16%	10%	1980	2015	498	0.252		466	0.231	0.231
		D	3	3.200				100%	100%	2075	2075	522	0.252		480	0.231	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			10	+	9	=	19						
		Fp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Gp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						
		Hp	1	MIN GREEN + FLASH =			33	+	9	=	42			*			*

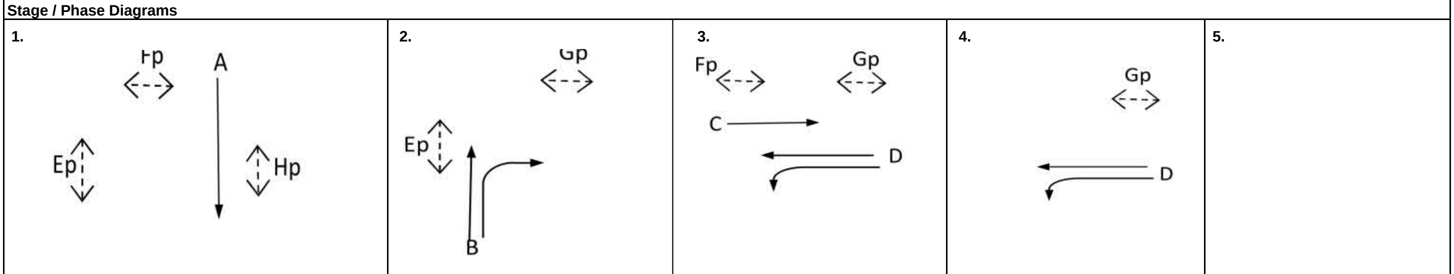
Notes:

Flow: (pcu/hr)



Group		Hp,B,D	Group		Hp,B,D
y		0.416	y		0.453
L (sec)		57	L (sec)		57
C (sec)		130	C (sec)		130
y pract.		0.505	y pract.		0.505
R.C. (%)		22%	R.C. (%)		12%

Stage / Phase Diagrams



I/G= 9	33	I/G= 11		I/G= 6		I/G=		I/G=	
I/G= 9	33	I/G= 11		I/G= 6		I/G=		I/G=	

Date: MAY, 2022 **Junction:** Waterloo Rd/Nathan Rd J15

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

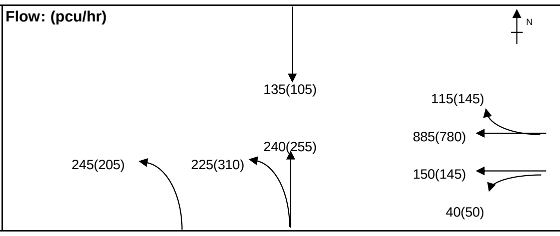
Junction: Hoi Wang Road/Ngo Cheung Rd. Design Year: 2022

Description: Observed Flow Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Ngo Cheung Rd - WB	↑	A	1,2	3.300						2085	2085	885	0.424	0.424	780	0.374	0.374
	↑	A	1,2	3.500						2105	2105	150	0.071		145	0.069	
	↱	A	1,2	4.000		10				1750	1750	115	0.066		145	0.083	
Ngo Cheung Rd - WB	↰	B	2	3.600	15					1795	1795	19	0.011		24	0.013	
	↰	B	2	3.600	15					1925	1925	21	0.011		26	0.014	
Hoi Wang Rd - SB	↑	C	3	3.400						1955	1955	65	0.033		51	0.026	
	↑	C	3	3.400						2095	2095	70	0.033		54	0.026	
Hoi Wang Rd - NB	↰	I	3	4.000	25					1900	1900	245	0.129		205	0.108	
	↰	I	3	3.300	25					1965	1965	225	0.115		310	0.158	
	↑	I	3	3.600						2115	2115	120	0.057		128	0.061	
	↑	I	3	3.600						2115	2115	120	0.057		127	0.060	
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			29	+	7	=	36						
		Ep	1,2	MIN GREEN + FLASH =			17	+	13	=	30						*
		Fp	3	MIN GREEN + FLASH =			43	+	10	=	53			*			
		Gp	1,2	MIN GREEN + FLASH =			8	+	8	=	16						
		Hp	1,2	MIN GREEN + FLASH =			8	+	8	=	16						

Notes:

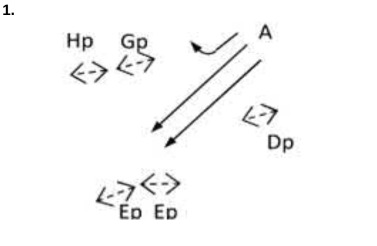
Flow: (pcu/hr)



Group		A,Fp	Group		A,Ep
y		0.424	y		0.374
L (sec)		61	L (sec)		63
C (sec)		130	C (sec)		129
y pract.		0.478	y pract.		0.460
R.C. (%)		13%	R.C. (%)		23%

Stage / Phase Diagrams

1.



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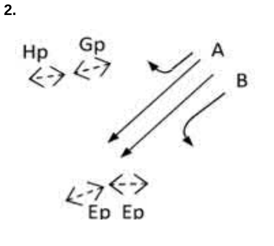

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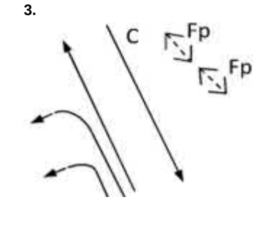


4.

5.

I/G= 13		I/G=		I/G= 6	43	I/G=		I/G=	
I/G= 13		I/G=		I/G= 6	45	I/G=		I/G=	

Date: MAY, 2022 **Junction:** Hoi Wang Road/Ngo Cheung Rd. J16

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

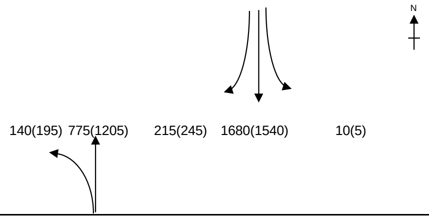
Junction: Nathan Rd / Public Square St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - NB		A	1	3.400	10			51%	46%	1815	1830	277	0.153		425	0.232	0.232
Nathan Rd - NB		A	1	3.400						2095	2095	319	0.152		488	0.233	
		A	1	3.400						2095	2095	319	0.152		487	0.232	
Nathan Rd - SB		B	1,2	3.200	5			1%	1%	1930	1930	788	0.408		721	0.374	
Nathan Rd - SB		B	1,2	3.400						2205	2205	902	0.409	0.409	824	0.374	
Nathan Rd - SB		G	2	3.000		15				1870	1870	215	0.115		245	0.131	0.131
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Dp	3	MIN GREEN + FLASH =			29	+	14	=	43			*			*
		Ep	3	MIN GREEN + FLASH =			32	+	8	=	40						

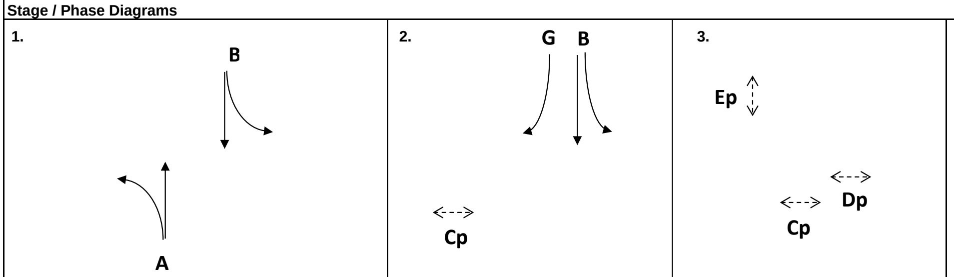
Notes:

Flow: (pcu/hr)



Group	A,G,Dp	B,Dp	Group	B,Dp	A,G,Dp
y	0.267	0.409	y	0.374	0.363
L (sec)	57	52	L (sec)	50	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.540	y pract.	0.554	0.519
R.C. (%)	89%	32%	R.C. (%)	48%	43%

Stage / Phase Diagrams



I/G= 3		I/G=		I/G= 7	43	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 7	41	I/G=		I/G=	

Date: MAY, 2022 **Junction:** J17 Nathan Rd / Public Square St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

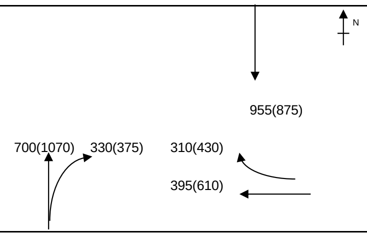
Junction: Nathan Rd / Gascoigne Rd / Kansu St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road - SB		A	1	3.100						1925	1925	304	0.158		278	0.144	
		A	1	3.100						2065	2065	325	0.157	0.157	299	0.145	
		A	1	3.100						2065	2065	326	0.158		298	0.144	
Nathan Rd - NB		B	2	3.300						1945	1945	337	0.173		471	0.242	
Nathan Rd - NB		B	2	3.300						2085	2085	362	0.174	0.174	504	0.242	0.242
		B	2	3.400		15		100%	80%	1905	1940	331	0.174		470	0.242	
Gascoigne Rd - WB		C	3	3.500						1965	1965	191	0.097		295	0.150	
		C	3	3.500						2105	2105	204	0.097		315	0.150	
Gascoigne Rd - WB		C	3	3.500		20				2190	2190	310	0.142		430	0.196	0.196
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			20	+	12	=	32						*
		Ep	1,2	MIN GREEN + FLASH =			5	+	10	=	15						
		Fp	3	MIN GREEN + FLASH =			29	+	9	=	38			*			

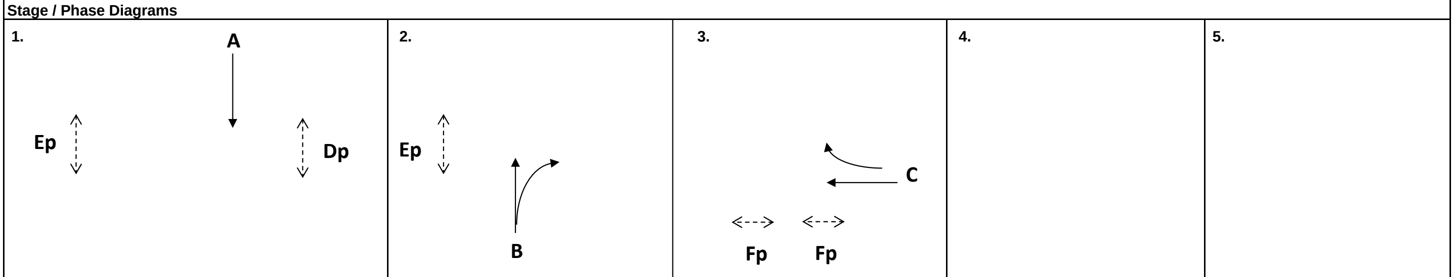
Notes:

Flow: (pcu/hr)



Group	Dp,B,C	A,B,Fp	Group	A,B,Fp	Dp,B,C
y	0.315	0.331	y	0.386	0.438
L (sec)	45	49	L (sec)	51	45
C (sec)	120	120	C (sec)	120	120
y pract.	0.563	0.533	y pract.	0.518	0.563
R.C. (%)	78%	61%	R.C. (%)	34%	28%

Stage / Phase Diagrams



I/G= 3		I/G= 5		I/G= 5	38	I/G=		I/G=	
I/G= 5	32	I/G= 3		I/G= 7		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J18 Nathan Rd / Gascoigne Rd / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

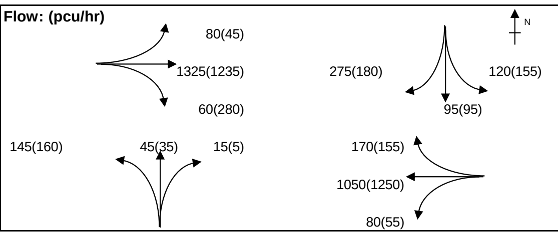
Junction: Jorden Rd / Wui Man Rd / Hoi Wang Rd Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Wui Man Rd - NB		C	1,4	3.500	15					1785	1785	145	0.081		160	0.090	
		H	1	3.500						2105	2105	30	0.014		20	0.010	
		H	1	3.500		25		50%	25%	2045	2075	30	0.015		20	0.010	
Hoi Wang Rd - SB		G	2,3	3.500	15					1785	1785	120	0.067		155	0.087	
		B	3	3.500						2105	2105	95	0.045		95	0.045	0.045
		B	3	3.500		25				1985	1985	92	0.046	0.046	60	0.030	
		B	3	3.500		25				1985	1985	91	0.046		60	0.030	
		B	3	3.500		25				1985	1985	92	0.046		60	0.030	
Jordan Road - EB		A	4	3.500	15					1785	1785	65	0.036		35	0.020	
		A	4	3.500	15			3%	2%	2100	2100	460	0.219		483	0.230	
		A	4	3.500						2105	2105	461	0.219		484	0.230	
		A	4	3.500		25		9%	41%	2095	2055	459	0.219	0.219	473	0.230	0.230
		A	4	3.500		25				1985	1985	20	0.010		85	0.043	
Jorden Rd - WB		D	2	3.500	15			31%	18%	1905	1930	262	0.138	0.138	306	0.159	0.159
		D	2	3.500						4210	4210	579	0.138		666	0.158	
		D	2	3.500		25		0%	0%	2105	2105	289	0.137		333	0.158	
		D	2	3.500		25				1985	1985	170	0.086		155	0.078	
Pedestrian Crossing		Fp	1,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			14	+	14	=	28						

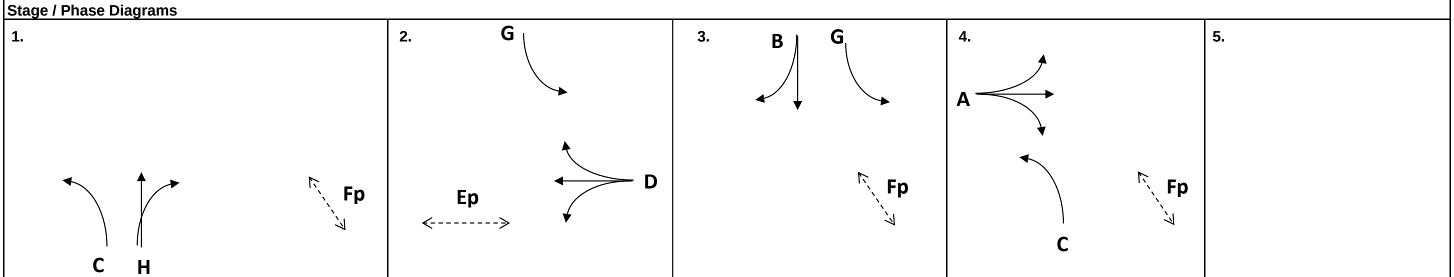
Notes:

Flow: (pcu/hr)



Group		H,D,B,A	Group		H,D,B,A
y		0.403	y		0.434
L (sec)		19	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.768	y pract.		0.775
R.C. (%)		91%	R.C. (%)		79%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 6		I/G= 5		I/G=	
I/G= 5		I/G= 6		I/G= 6		I/G= 5		I/G=	

Date: JUN, 2022 **Junction:** J19 Jorden Rd / Wui Man Rd / Hoi Wang Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

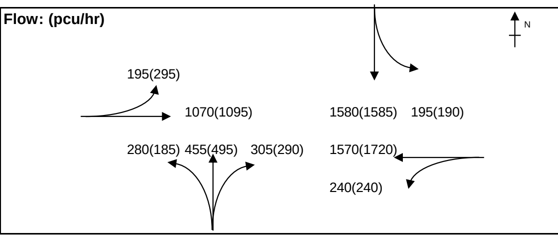
Junction: Jorden Rd/ Ferry St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - WB		A	3	3.500	15			43%	40%	1885	1890	560	0.297		607	0.321	0.321
		A	3	3.500						2105	2105	625	0.297	0.297	677	0.322	
		A	3	3.500						2105	2105	625	0.297		676	0.321	
Jorden Rd - EB		B	3	3.300	15					1770	1770	195	0.110		295	0.167	
		B	3	3.500						2105	2105	357	0.170		365	0.173	
		B	3	3.500						2105	2105	356	0.169		365	0.173	
		B	3	3.500						2105	2105	357	0.170		365	0.173	
Canton Rd - NB		C	1,2	3.500	15			76%	54%	2105	2150	368	0.175		344	0.160	
		C	1,2	3.500						2105	2105	367	0.174		336	0.160	
Canton Rd - NB		D	2	3.500		20				1960	1960	153	0.078	0.078	145	0.074	0.074
		D	2	3.500		20				1960	1960	152	0.078		145	0.074	
Ferry St - SB		E	1	3.500	15					1785	1785	195	0.109		190	0.106	
		E	3	3.500						2105	2105	527	0.250	0.250	528	0.251	0.251
		E	3	3.500						2105	2105	526	0.250		529	0.251	
		E	3	3.500						2105	2105	527	0.250		528	0.251	
Pedestrian Crossing																	

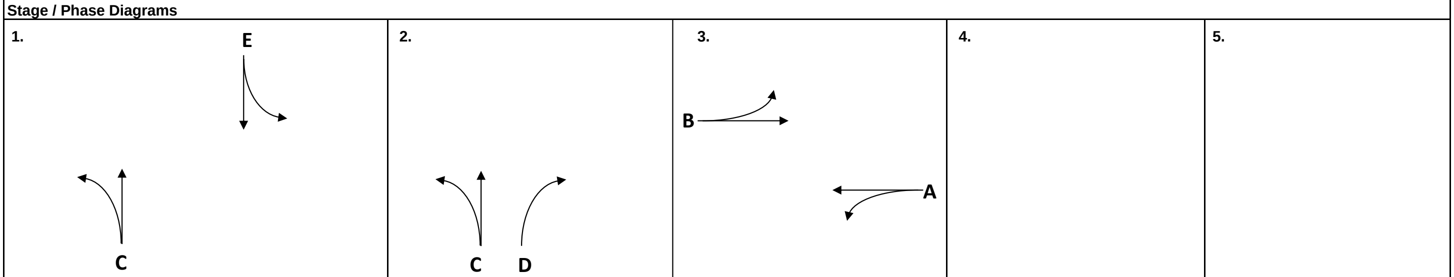
Notes:

Flow: (pcu/hr)



Group		E,D,A	Group		E,D,A
y		0.625	y		0.646
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		30%	R.C. (%)		25%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J20 Jorden Rd/ Ferry St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

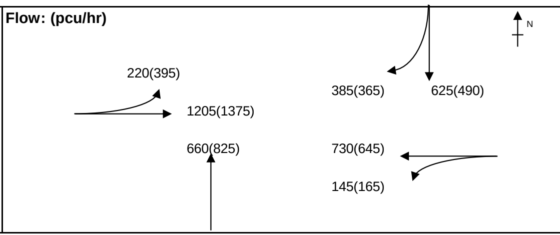
Junction: Jorden Rd / Nathan Rd Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.600	10					1715	1715	220	0.128		395	0.230	
		A	1	3.600						2115	2115	603	0.285	0.285	688	0.325	0.325
		A	1	3.600						2115	2115	602	0.285		687	0.325	
Jorden Rd - WB		A	1	3.600	5			57%	72%	1685	1625	255	0.151		229	0.141	
		A	1	3.000						2055	2055	310	0.151		291	0.142	
		A	1	3.000						2055	2055	310	0.151		290	0.141	
Nathan Rd - NB		B	2	3.300						1945	1945	319	0.164		398	0.205	0.205
		B	2	3.300						2085	2085	341	0.164	0.164	427	0.205	
Nathan Rd - SB		C	3	3.500						1965	1965	327	0.166		278	0.141	
		C	3	3.500		35		15%	28%	2090	2080	349	0.167		294	0.141	
		C	3	3.500		30				2005	2005	334	0.167		283	0.141	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			5	+	9	=	14						
		Ep	2	MIN GREEN + FLASH =			19	+	10	=	29						
		Fp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Gp	3	MIN GREEN + FLASH =			25	+	8	=	33			*			*
		Hp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						

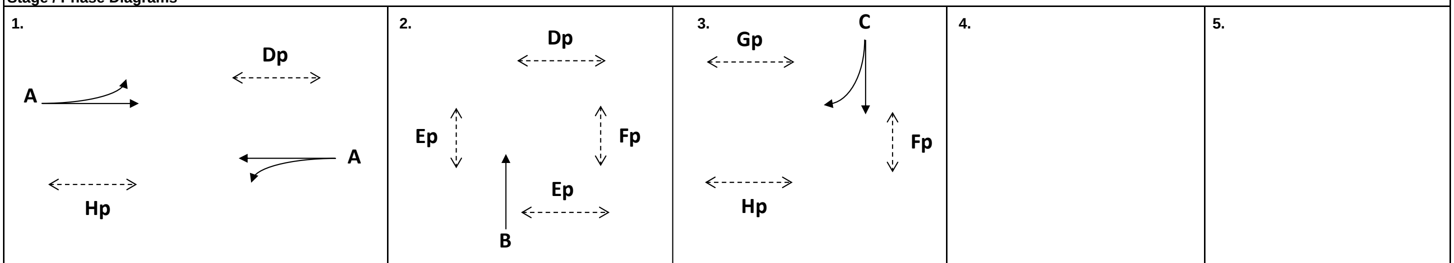
Notes:

Flow: (pcu/hr)



Group		A,B,Gp	Group		A,B,Gp
y		0.449	y		0.530
L (sec)		52	L (sec)		46
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.582
R.C. (%)		20%	R.C. (%)		10%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 12	33	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 12	27	I/G=		I/G=	

Date: MAY, 2022 **Junction:** Jorden Rd / Nathan Rd J21

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Jorden Rd / Gascoigne Rd

Design Year: 2022

Description: Observed Flow

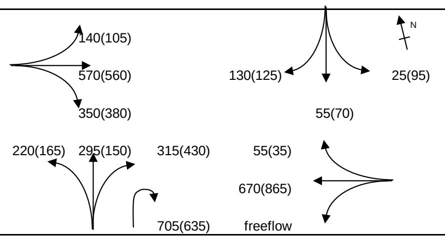
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Gascoigne Rd - EB		A	1	6.100	15					2025	2025	140	0.069		105	0.052	
Gascoigne Rd - EB		A	1	4.500						2205	2205	285	0.129		280	0.127	
		A	1	4.500						2205	2205	285	0.129		280	0.127	
Gascoigne Rd - EB		A	1	4.500						2205	2205	350	0.159		380	0.172	
Gascoigne Rd - WB		B1	1,2	3.100						1925	1925	323	0.168		417	0.217	
		B1	1,2	3.100						2065	2065	347	0.168		448	0.217	
Gascoigne Rd - WB		B2	2	3.000		10				1785	1785	55	0.031		35	0.020	
Jorden Rd - NB		C	3	3.300	20			43%	52%	1885	1870	515	0.273		315	0.168	
Jorden Rd - NB																	
Jorden Rd - NB		C	3	3.300		20				1940	1940	315	0.162		430	0.222	
Jorden Rd - NB		C	3	3.400		15				1905	1905	705	0.370	0.370	635	0.333	0.333
Queen Elizabeth Hospital Rd - SB		D	4	6.000	20	25		62% / 12%	43% / 33%	2100	2105	210	0.100	0.100	290	0.138	0.138
Queen Elizabeth Hospital Rd - SB																	
Queen Elizabeth Hospital Rd - SB																	
Pedestrian Crossing		Ep	2,3,4	MIN GREEN + FLASH =			6	+	12	=	18						
		Fp	3	MIN GREEN + FLASH =			51	+	7	=	58						
		Gp	1,2,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1	MIN GREEN + FLASH =			21	+	11	=	32			*			*
		Ip	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

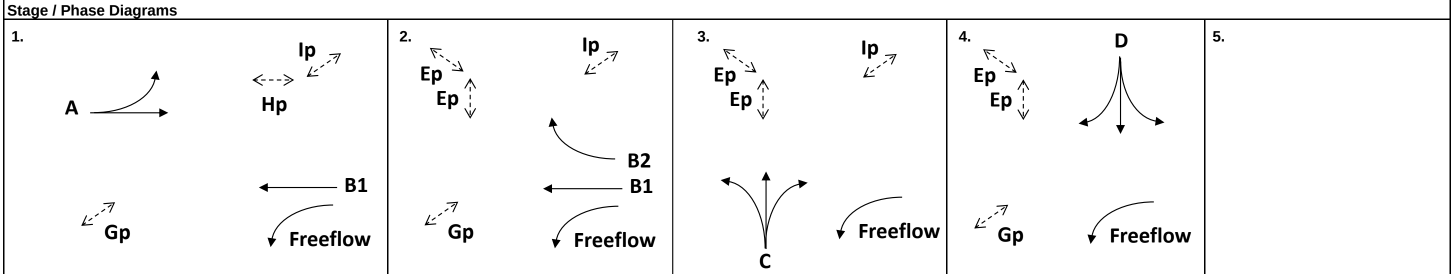
Notes:

Flow: (pcu/hr)



Group	A,B2,C,D	Hp,B2,C,D	Group	Hp,B2,C,D	A,B2,C,D
y	0.629	0.470	y	0.471	0.643
L (sec)	30	60	L (sec)	31	30
C (sec)	130	130	C (sec)	130	130
y pract.	0.692	0.485	y pract.	0.685	0.692
R.C. (%)	10%	3%	R.C. (%)	45%	8%

Stage / Phase Diagrams



I/G= 5	21	I/G= 13	5	I/G= 9		I/G= 9		I/G=	
I/G= 5		I/G= 5	5	I/G= 9		I/G= 9		I/G=	

Date: MAY, 2022

Junction: J22 Jorden Rd / Gascoigne Rd

TRAFFIC SIGNALS CALCULATION **Job No.:** CHK50648010 **MVA HONG KONG LIMITED**

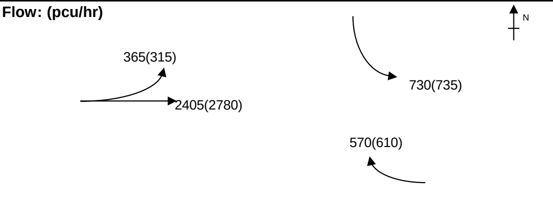
Junction: Boundary St / Tai Hang Tung Rd Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary St - WB		A	1	3.300		20				1810	1810	275	0.152	0.152	294	0.162	
		A	1	3.300		20				1940	1940	295	0.152		316	0.163	0.163
Tai Hang Tung Rd - SB		B	1,2	3.300	15					1770	1770	232	0.131		234	0.132	
		B	1,2	3.300	15					1895	1895	249	0.131		250	0.132	
		B	1,2	3.300	15					1895	1895	249	0.131		251	0.132	
Boundary St - EB		D	3	3.800	10					1735	1735	365	0.210		315	0.182	
Boundary St - EB		C	3	3.300						2085	2085	601	0.288	0.288	695	0.333	0.333
		C	3	3.300						2085	2085	601	0.288		695	0.333	
		C	3	3.300						2085	2085	601	0.288		695	0.333	
		C	3	3.300						2085	2085	601	0.288		695	0.333	
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			17	+	10	=	27			*			*
		Fp	3	MIN GREEN + FLASH =			33	+	8	=	41						
		Gp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						

Notes:

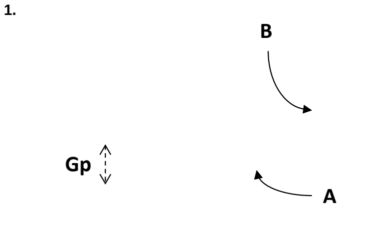
Flow: (pcu/hr)



Group	A,Ep,Fp	A,Ep,C	Group	A,Ep,Fp	A,Ep,C
y	0.152	0.440	y	0.163	0.496
L (sec)	80	43	L (sec)	101	46
C (sec)	120	120	C (sec)	130	130
y pract.	0.300	0.578	y pract.	0.201	0.582
R.C. (%)	97%	31%	R.C. (%)	23%	17%

Stage / Phase Diagrams

1.



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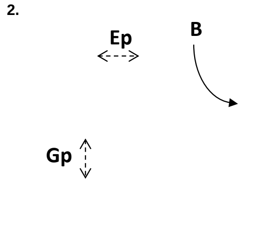

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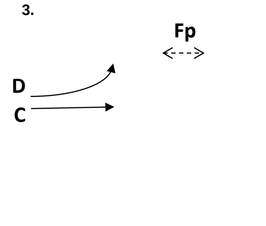


4.

5.

I/G= 5		I/G= 11	27	I/G= 2		I/G=		I/G=	
I/G= 5		I/G= 11	30	I/G= 2		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J23 Boundary St / Tai Hang Tung Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

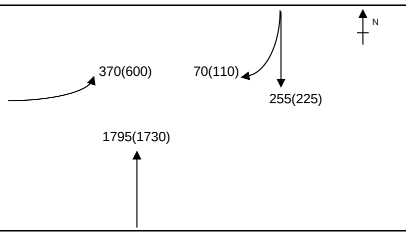
Junction: Nathan Rd / Gascoigne Rd / Kansu St   Design Year: 2022

Description: Observed Flow   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Rd - SB	↑	A	1	3.000						1915	1915	123	0.064		109	0.057	
Tong Mi Rd	↑→	A	1	3.000		70		0%	0%	2055	2055	132	0.064		116	0.056	
	↱	A	1	3.000		65				2010	2010	70	0.035		110	0.055	
Lai Chi Kok Rd - NB	↰	A	1	3.500	15					1320	1320	116	0.088		188	0.142	
	↰	A	1	3.500	15					1445	1445	127	0.088		206	0.143	
	↰	A	1	3.500	15					1445	1445	127	0.088		206	0.143	
Lai Chi Kok Rd - NB	↑	B	2	3.300						1430	1430	418	0.292		403	0.282	0.282
	↑	B	2	3.300						1570	1570	459	0.292	0.292	442	0.282	
	↑	B	2	3.300						1575	1575	460	0.292		443	0.282	
	↑	B	2	3.250						1570	1570	459	0.292		442	0.282	
Pedestrian Crossing		Cp	1,3	MIN GREEN + FLASH =			6	+	11	=	17			*			*
		Dp	2,3	MIN GREEN + FLASH =			6	+	9	=	15						
		Ep	2,3	MIN GREEN + FLASH =			6	+	13	=	19						

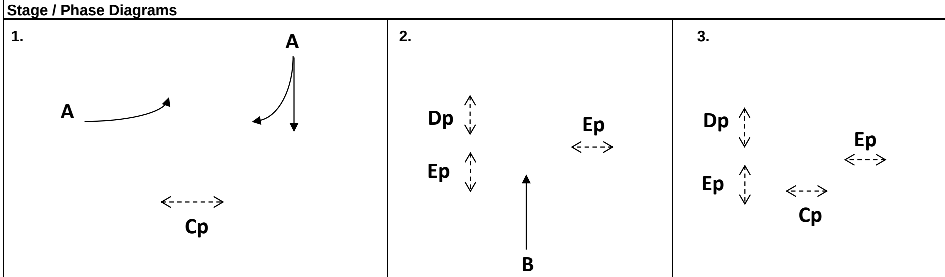
Notes:

Flow: (pcu/hr)



Group		Cp,B	Group		Cp,B
y		0.292	y		0.282
L (sec)		25	L (sec)		25
C (sec)		120	C (sec)		130
y pract.		0.713	y pract.		0.727
R.C. (%)		144%	R.C. (%)		158%

Stage / Phase Diagrams



I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=
I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=

Date: JUN, 2022   **Junction:** J24 Nathan Rd / Gascoigne Rd / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

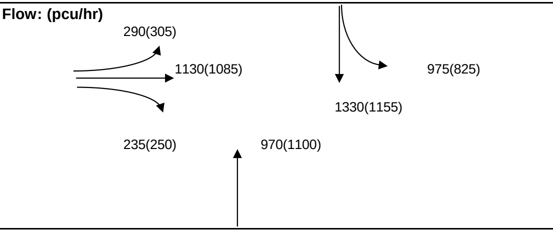
Junction: Nathan Rd / Mong Kok Rd Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.400	10			78%	83%	1750	1740	374	0.214	0.214	369	0.212	0.212
Mong Kok Rd - EB		A	1	3.300						2085	2085	444	0.213		442	0.212	
Mong Kok Rd - EB		A	1	3.300						2085	2085	445	0.213		442	0.212	
		A	1	3.300		15		60%	65%	1835	1825	392	0.214		387	0.212	
Nathan Rd - SB		B	2	3.200	5					1490	1490	603	0.405		518	0.348	
Nathan Rd - SB		B	2	3.300	10			47%	45%	1945	1950	789	0.406	0.406	678	0.348	0.348
		B	2	3.000						2255	2255	913	0.405		784	0.348	
Nathan Rd - NB		C	2	3.600						1975	1975	468	0.237		531	0.269	
		C	2	3.600						2115	2115	502	0.237		569	0.269	
Pedestrian Crossing																	

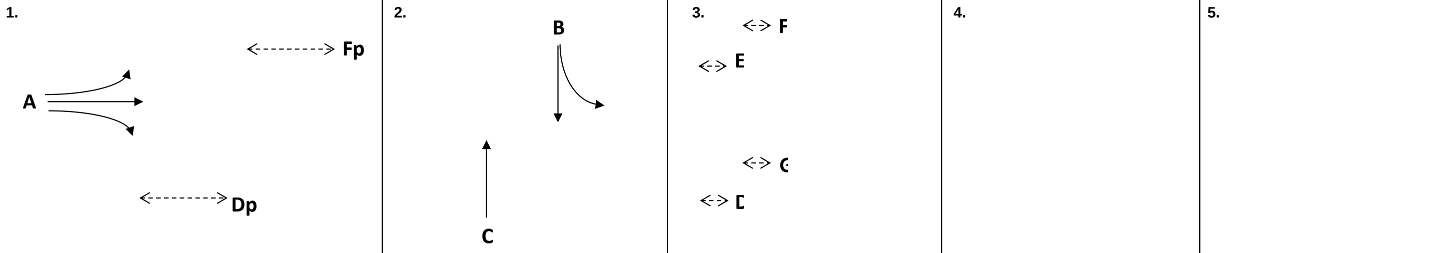
Notes:

Flow: (pcu/hr)



Group		A,B	Group		A,B
y		0.619	y		0.560
L (sec)		12	L (sec)		15
C (sec)		130	C (sec)		130
y pract.		0.817	y pract.		0.796
R.C. (%)		32%	R.C. (%)		42%

Stage / Phase Diagrams



I/G=		I/G= 7		I/G= 7		I/G=		I/G=	
I/G= 3		I/G= 7		I/G= 7		I/G=		I/G=	

Date: JUN, 2022 **Junction:** Nathan Rd / Mong Kok Rd J25

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

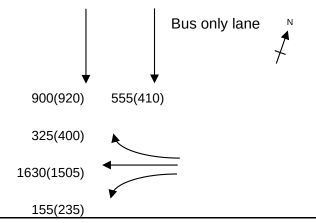
Junction: Nathan Rd / Argyle St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle St - WB		E	2	3.000	5					1475	1475	155	0.105	0.105	235	0.159	0.159
Argyle St - WB		D	1,2	3.200						2075	2075	811	0.391		749	0.361	
Argyle St - WB		D	1,2	3.400		10		0%	0%	2095	2095	819	0.391		756	0.361	
		D	1,2	3.300		5				1495	1495	325	0.217		400	0.268	
Nathan Rd - SB		A	3,4	3.300						2085	2085	450	0.216		460	0.221	
		A	3,4	3.300						2085	2085	450	0.216		460	0.221	
Nathan Rd - SB (Bus only lane)		A	3,4	3.300						1945	1945	555	0.285		410	0.211	
Nathan Rd - NB		C	4	3.500	5					1510	1510	295	0.195	0.195	280	0.185	0.185
Nathan Rd - NB		B	3,4	3.200						2075	2075	370	0.178		353	0.170	
		B	3,4	3.200						2075	2075	370	0.178		352	0.170	
Pedestrian Crossing		Fp	3	MIN GREEN + FLASH =			11	+	15	=	26			*			*
		Gp	3,4	MIN GREEN + FLASH =			6	+	16	=	22						
		Hp	1	MIN GREEN + FLASH =			26	+	12	=	38			*			*

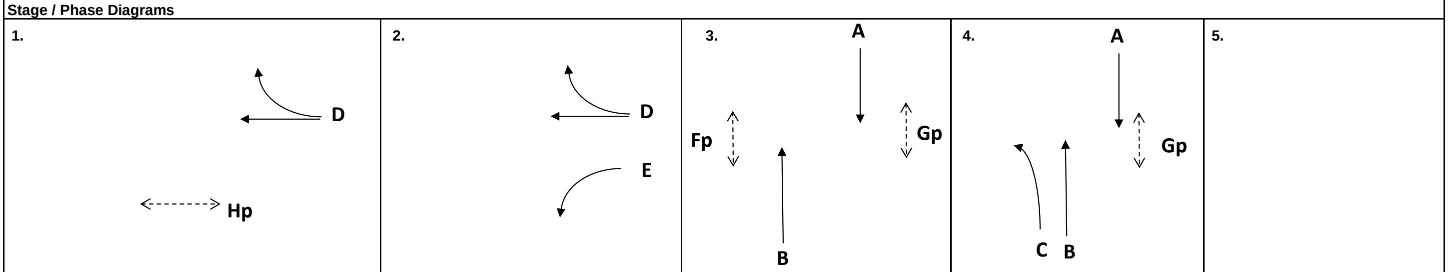
Notes:

Flow: (pcu/hr)



Group	Hp,E,Fp,C	D,Fp,C	Group	D,Fp,C	Hp,E,Fp,C
y	0.300	0.586	y	0.546	0.345
L (sec)	80	42	L (sec)	42	80
C (sec)	130	130	C (sec)	130	130
y pract.	0.346	0.609	y pract.	0.609	0.346
R.C. (%)	15%	4%	R.C. (%)	12%	0%

Stage / Phase Diagrams



I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	
I/G= 6	23	I/G= 15		I/G= 9	11	I/G= 18		I/G=	

Date: MAY, 2022 **Junction:** J26 Nathan Rd / Argyle St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

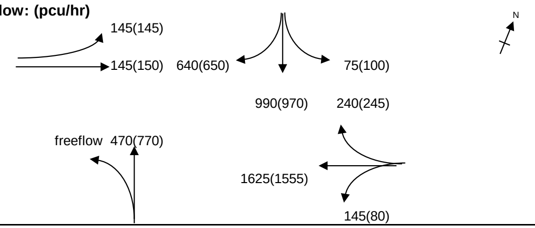
Junction: Argyle St / Tong Mi Rd Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	157	0.075		257	0.123	
		A	1	3.300						2085	2085	156	0.075	0.075	256	0.123	0.123
		A	1	3.300						2085	2085	157	0.075		257	0.123	
Tong Mi Rd - SB		B	1,2	3.300	10			15%	20%	1905	1890	508	0.267		509	0.269	
Tong Mi Rd - SB		B	1,2	3.300						2085	2085	557	0.267		561	0.269	
Tong Mi Rd - SB		E	2	3.600		15				1925	1925	640	0.332	0.332	650	0.338	0.338
Argyle St - EB		C	3	3.300	10					1690	1690	145	0.086		145	0.086	
Argyle St - EB		C	3	3.400						2095	2095	145	0.069		150	0.072	
Argyle St - WB		G	3,4	4.500	50			24%	14%	2165	2170	599	0.277	0.277	554	0.255	0.255
Argyle St - WB		D	3,4	3.600						2115	2115	586	0.277		541	0.256	
		D	3,4	3.600						2115	2115	585	0.277		540	0.255	
Argyle St - WB		F	4	3.300		10				1815	1815	240	0.132		245	0.135	
Pedestrian Crossing																	

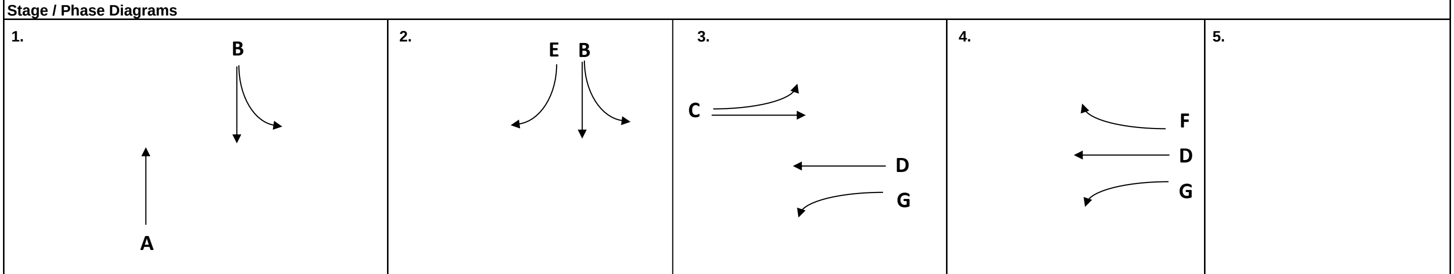
Notes:

Flow: (pcu/hr)



Group		A,E,G	Group		A,E,G
y		0.684	y		0.716
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		13%	R.C. (%)		8%

Stage / Phase Diagrams



I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	
I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	

Date: MAY, 2022 **Junction:** Argyle St / Tong Mi Rd J27

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

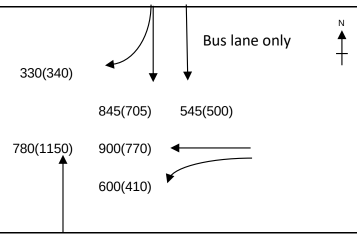
Junction: Nathan Rd / Prince Edward Rd West Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)		A	1,2	3.200						1935	1935	545	0.282		500	0.258	
Nathan Rd - SB		A	1,2	3.200						2075	2075	423	0.204		353	0.170	
		A	1,2	3.200						2075	2075	422	0.203		352	0.170	
Nathan Rd - SB		B	1	3.100		15				1875	1875	330	0.176	0.176	340	0.181	0.181
Nathan Rd - NB		C	2	3.350						1950	1950	376	0.193		555	0.285	
		C	2	3.350						2090	2090	404	0.193	0.193	595	0.285	0.285
Prince Edward Rd West - WB		D	3	3.000	10					1665	1665	325	0.195		254	0.153	
Prince Edward Rd West - WB		D	3	3.000	15			74%	52%	1915	1955	373	0.195		298	0.152	
		D	3	3.000						2055	2055	401	0.195	0.195	314	0.153	0.153
		D	3	3.000						2055	2055	401	0.195		314	0.153	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			13	+	14	=	27						
		Fp	2	MIN GREEN + FLASH =			17	+	10	=	27						
		Gp	3	MIN GREEN + FLASH =			42	+	13	=	55						

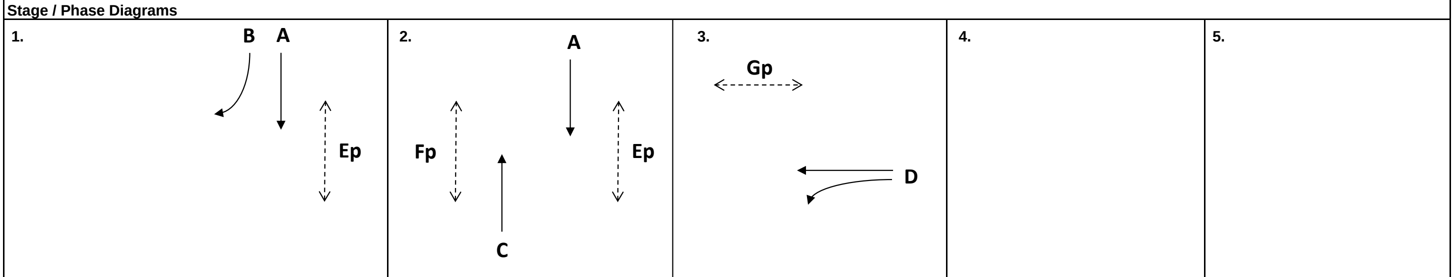
Notes:

Flow: (pcu/hr)



Group		B,C,D	Group		B,C,D
y		0.564	y		0.619
L (sec)		21	L (sec)		21
C (sec)		130	C (sec)		130
y pract.		0.755	y pract.		0.755
R.C. (%)		34%	R.C. (%)		22%

Stage / Phase Diagrams



I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	
I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J28 Nathan Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

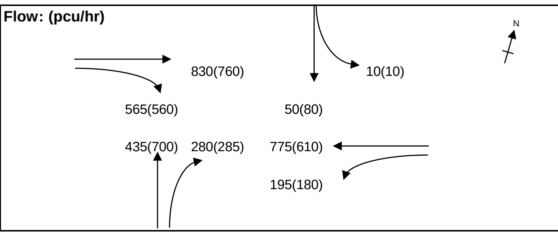
Junction: Tong Mi Rd / Prince Edward Rd West Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - SB		A	1	3.800	10			36%	23%	1895	1930	28	0.015		43	0.022	
Tong Mi Rd - SB		A	1	3.800						2135	2135	32	0.015		47	0.022	
Tong Mi Rd - NB		B	2	3.100						1925	1925	175	0.091		239	0.124	
Tong Mi Rd - NB		B	2	3.100						2065	2065	187	0.091		256	0.124	
		B	2	3.300		20		60%	20%	1995	2055	181	0.091		255	0.124	
		B	2	3.250		15				1890	1890	172	0.091		235	0.124	
Prince Edward Rd West - WB		C	3	3.200	10					1685	1685	195	0.116		180	0.107	
Prince Edward Rd West - WB		C	3	3.400	15			0%	0%	2095	2095	386	0.184	0.184	304	0.145	0.145
		C	3	3.600						2115	2115	389	0.184		306	0.145	
Prince Edward Rd West - EB		D	4	3.400						2115	2115	417	0.197		382	0.181	
		D	4	3.400						2095	2095	413	0.197		378	0.180	
Prince Edward Rd West - EB		D	4	3.800		15				1940	1940	565	0.291	0.291	560	0.289	0.289
Pedestrian Crossing		Ep	1,2,4	MIN GREEN + FLASH =			9	+	9	=	18						
		Fp	2	MIN GREEN + FLASH =			17	+	8	=	25			*			*
		Gp	1,3,4	MIN GREEN + FLASH =			11	+	11	=	22						
		Hp	1	MIN GREEN + FLASH =			14	+	13	=	27						
		Ip	3,4	MIN GREEN + FLASH =			11	+	10	=	21						
		Jp	3	MIN GREEN + FLASH =			15	+	9	=	24						

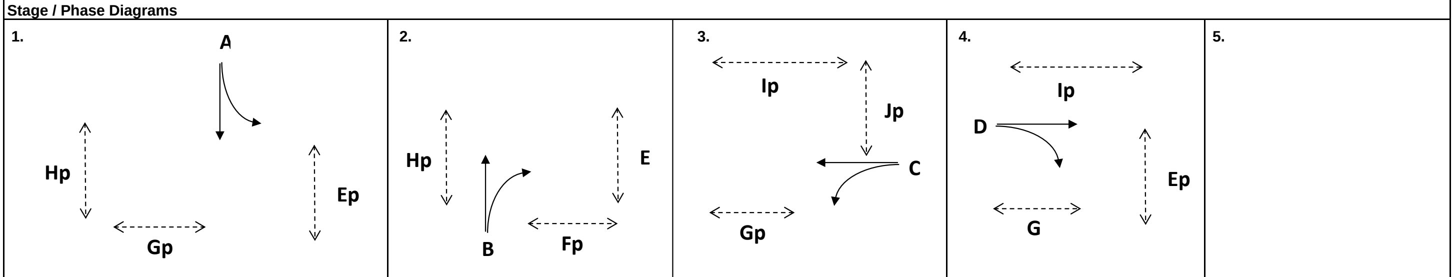
Notes:

Flow: (pcu/hr)



Group		A,Fp,C,D	**Group**		A,Fp,C,D
y		0.475	**y**		0.434
L (sec)		53	**L (sec)**		56
C (sec)		130	**C (sec)**		130
y pract.		0.533	**y pract.**		0.512
R.C. (%)		12%	**R.C. (%)**		18%

Stage / Phase Diagrams



I/G= 7	5	I/G= 11	25	I/G= 2		I/G= 5		I/G=	
I/G= 7	5	I/G= 11	28	I/G= 2		I/G= 5		I/G=	

Date: MAY, 2022 **Junction:** J29 Tong Mi Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

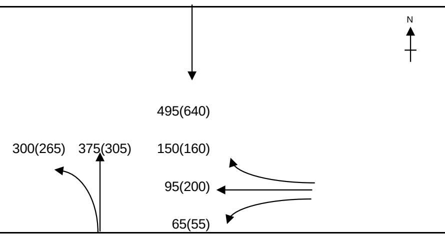
Junction: Tai Kok Tsui Rd / Ivy St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tai Kok Tsui Rd - SB		A	1	4.300						2045	2045	495	0.242	0.242	640	0.313	0.313
Tai Kok Tsui Rd - NB		A	1	3.200	10			85%	91%	1715	1705	275	0.160		232	0.136	
Tai Kok Tsui Rd - NB		A	1	3.300						2085	2085	335	0.161		283	0.136	
Ivy St - WB		B	3	4.600	10	15		21% / 48%	13% / 39%	1920	1960	310	0.161	0.161	415	0.212	0.212
Ivy St - WB																	
Ivy St - WB																	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			22	+	20	=	42			*			*

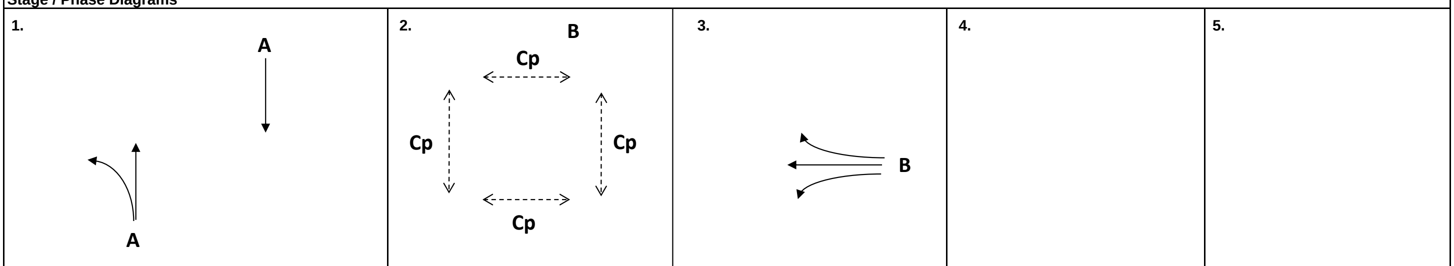
Notes:

Flow: (pcu/hr)



Group		A,Cp,B	Group		A,Cp,B
y		0.404	y		0.525
L (sec)		59	L (sec)		59
C (sec)		136	C (sec)		136
y pract.		0.510	y pract.		0.510
R.C. (%)		26%	R.C. (%)		-3%

Stage / Phase Diagrams



I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	
I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J30 Tai Kok Tsui Rd / Ivy St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

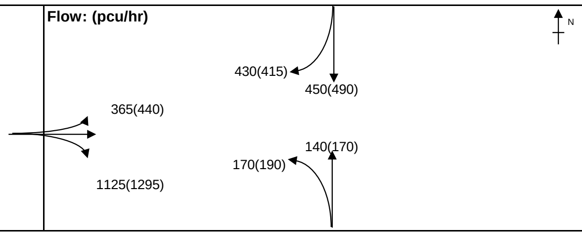
Junction: Sai Yee St / Mong Kok Rd Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.100	10					1675	1675	365	0.218		440	0.263	
Mong Kok Rd - EB		A	1	3.400		15				1905	1905	563	0.296		648	0.340	
		A	1	3.400		15				1905	1905	562	0.295		647	0.340	
Sai Yee St - SB		B	2	3.650						1980	1980	450	0.227		463	0.234	
		B	2	3.650		30		100%	94%	1885	1890	430	0.228	0.228	442	0.234	0.234
Sai Yee St - NB		C	3	3.400	10			100%	100%	1700	1700	170	0.100		190	0.112	
Sai Yee St - NB		C	3	3.400						2095	2095	140	0.067		170	0.081	
Pedestrian Crossing		Dp	2,3	MIN GREEN + FLASH =			7	+	12	=	19						
		Ep	3	MIN GREEN + FLASH =			9	+	6	=	15			*			*
		Fp	1,2	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1	MIN GREEN + FLASH =			60	+	5	=	65			*			*

Notes:

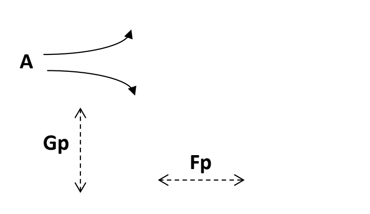
Flow: (pcu/hr)



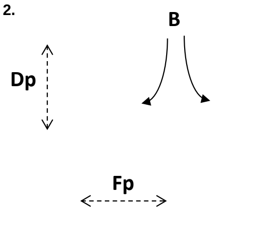
Group		Gp,B,Ep	Group		Gp,B,Ep
y		0.228	y		0.234
L (sec)		96	L (sec)		95
C (sec)		130	C (sec)		130
y pract.		0.235	y pract.		0.242
R.C. (%)		3%	R.C. (%)		4%

Stage / Phase Diagrams

1.



2.



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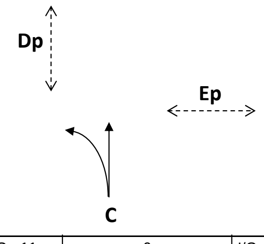


4.

5.

I/G= 10	60	I/G= 7		I/G= 11	9	I/G=		I/G=	
I/G= 10	51	I/G= 7		I/G= 11	17	I/G=		I/G=	

Date: JUN, 2022 **Junction:** Sai Yee St / Mong Kok Rd J31

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

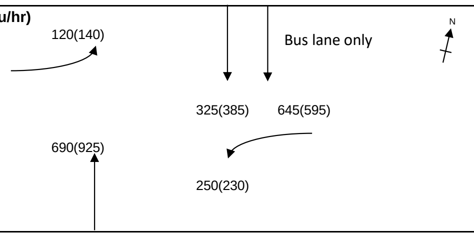
Junction: Nathan Rd / Dundas St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)	↑	A	1,3	3.250						1940	1940	645	0.332	0.332	595	0.307	0.307
Nathan Rd - SB	↑	A	1,3	3.400						2095	2095	163	0.078		193	0.092	
	↑	A	1,3	3.400						2095	2095	162	0.077		192	0.092	
Nathan Rd - NB	↑	B	1	3.300						1945	1945	219	0.113		294	0.151	
	↑	B	1	3.300						2085	2085	236	0.113		316	0.152	
	↑	B	1	3.300						2085	2085	235	0.113		315	0.151	
Dundas St - WB	↰	C	2	4.600	10					1805	1805	250	0.139		230	0.127	
Dundas St - EB	↰	D	3	3.500	10					1710	1710	120	0.070	0.070	140	0.082	0.082
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			24	+	11	=	35			*			*
		Fp	1,3	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						

Notes:

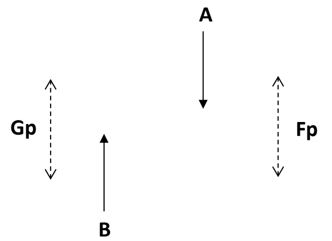
Flow: (pcu/hr)



Group		A,Ep,D	Group		A,Ep,D
y		0.403	y		0.389
L (sec)		45	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.519
R.C. (%)		46%	R.C. (%)		34%

Stage / Phase Diagrams

1.



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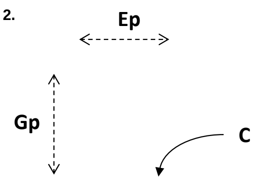
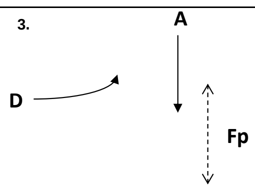


3.



4.

5.

I/G= 3		I/G= 5	35	I/G= 4		I/G=		I/G=	
I/G= 3		I/G= 5	45	I/G= 4		I/G=		I/G=	

Date: MAY, 2022 **Junction:** Nathan Rd / Dundas St J32

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

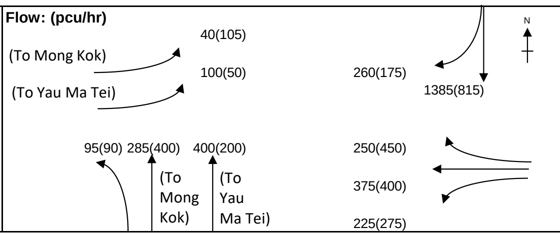
Junction: Yau Cheung Rd / Ferry St / Kansu St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu St - WB		A	1	3.300	15			81%	78%	1800	1805	278	0.154	0.154	353	0.196	
Kansu St - WB		A	1	3.300		50		0%	20%	2085	2070	322	0.154		405	0.196	0.196
Kansu St - WB		A	1	3.300		45				1880	1880	250	0.133		367	0.195	
Ferry St - NB		B	2	3.500	30			52%	38%	1915	1930	181	0.095		234	0.121	
Ferry St - NB (To Mong Kok)		B	2	3.500						2105	2105	199	0.095		256	0.122	
Ferry St - NB (To Yau Ma Tei)		B	2	3.650						2120	2120	400	0.189	0.189	200	0.094	
Ferry St - SB		B	2	3.500						1965	1965	441	0.224		259	0.132	
		B	2	3.500						2105	2105	472	0.224		278	0.132	
		B	2	3.500						2105	2105	472	0.224		278	0.132	
Ferry St - SB		D	3	3.650		45				2050	2050	130	0.063		88	0.043	
		D	3	3.650		45				2050	2050	130	0.063		87	0.042	
Yan Cheung Rd - EB (To Mong Kok)		E	3	3.500	50					1910	1910	19	0.010		51	0.027	
		E	3	3.500	50					2045	2045	21	0.010		54	0.026	
Yan Cheung Rd - EB (To Yau Ma Tei)		D	3	4.000	60					2100	2100	100	0.048	0.048	50	0.024	
.																	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	10	=	15						
		Hp	2	MIN GREEN + FLASH =			38	+	14	=	52						*
		Ip	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Jp	3	MIN GREEN + FLASH =			9	+	12	=	21						*

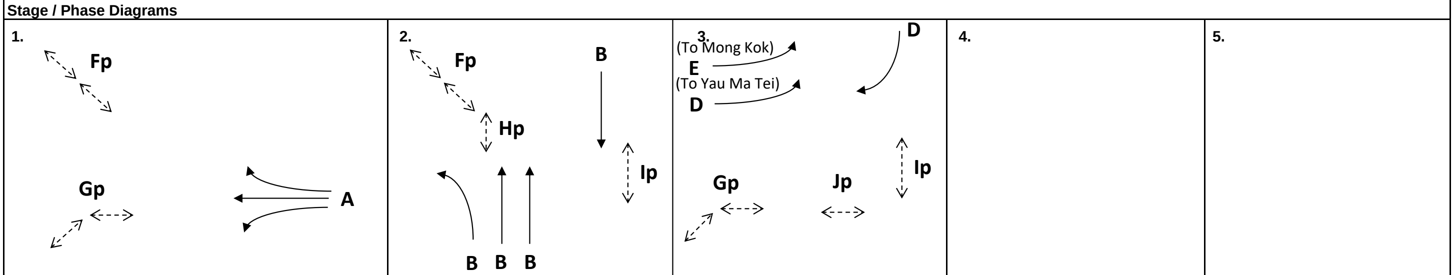
Notes:

Flow: (pcu/hr)



Group	A,B,D	A,Hp,Jp	Group	A,B,D	A,Hp,Jp
y	0.391	0.154	y	0.314	0.196
L (sec)	20	87	L (sec)	20	87
C (sec)	120	120	C (sec)	120	120
y pract.	0.750	0.248	y pract.	0.750	0.248
R.C. (%)	92%	60%	R.C. (%)	139%	27%

Stage / Phase Diagrams



I/G= 2		I/G= 10	52	I/G= 3	21	I/G=		I/G=
I/G= 2		I/G= 10	52	I/G= 3	21	I/G=		I/G=

Date: MAY, 2022 **Junction:** J33 Yau Cheung Rd / Ferry St / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

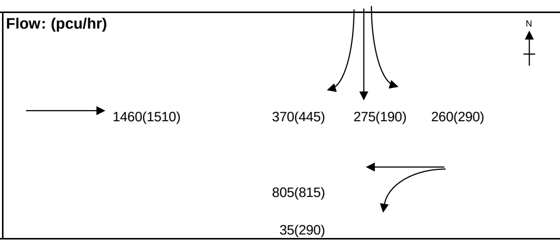
Junction: Jorden Rd / Shanghai St Design Year: 2022

Description: Observed Flow Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m)		Gradient (%)	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Jorden Rd - EB		A	1	3.000						1915	1915	464	0.242		480	0.251	0.251
		A	1	3.000						2055	2055	498	0.242	0.242	515	0.251	
		A	1	3.000						2055	2055	498	0.242		515	0.251	
Jorden Rd - WB		A	1	3.300	10			13%	90%	1905	1715	264	0.139		322	0.188	
Jorden Rd - WB		A	1	3.250						2080	2080	288	0.138		392	0.188	
		A	1	3.250						2080	2080	288	0.138		391	0.188	
Shanghai St - SB		D	3	3.000	10			93%	100%	1680	1665	280	0.167		290	0.174	
Shanghai St - SB		D	3	3.000		15		24%	44%	2005	1970	335	0.167		337	0.171	0.171
Shanghai St - SB		D	3	3.000		15				1740	1740	290	0.167	0.167	298	0.171	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			16	+	12	=	28			*			*
		Cp	1	MIN GREEN + FLASH =			10	+	12	=	22						

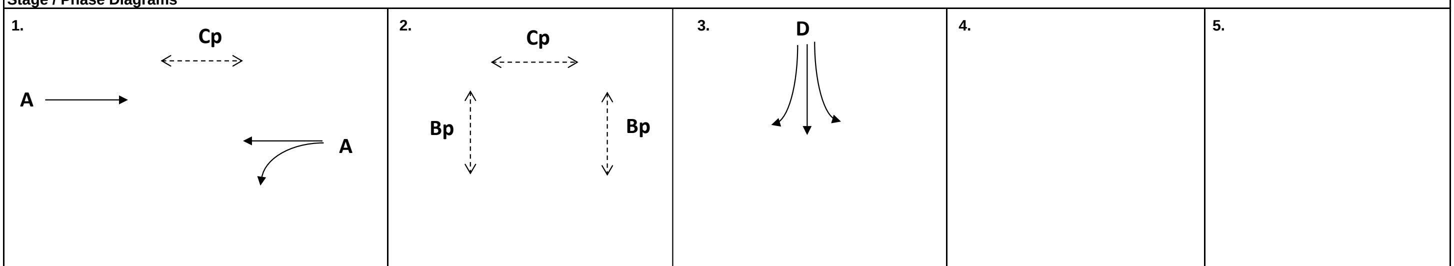
Notes:

Flow: (pcu/hr)



Group		A,Bp,D	Group		A,Bp,D
y		0.409	y		0.422
L (sec)		45	L (sec)		45
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.588
R.C. (%)		44%	R.C. (%)		40%

Stage / Phase Diagrams



I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	
I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	

Date: MAY, 2022 **Junction:** Jorden Rd / Shanghai St J34

2037 REFERENCE FLOWS

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

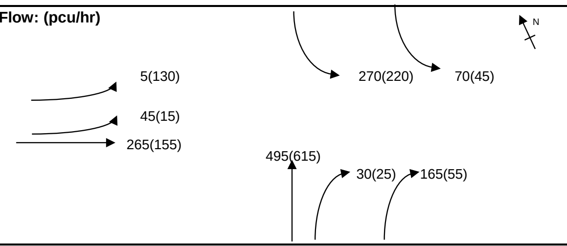
Junction: Boundry Street/Tung Chau Street/Nam Cheong Street Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tung Chau Street - EB		A	1	3.200	10		0	100%		1685	1685	5	0.003		130	0.077	
		A	1	3.200	15		0	100%		1885	1885	45	0.024		15	0.008	
		A	1	3.200			0			1935	1935	265	0.137	0.137	155	0.080	0.080
Chui Yu Road- NB		B	2	3.500			0			1965	1965	239	0.122		297	0.151	
		B	2	3.500			0			2105	2105	256	0.122	0.122	318	0.151	0.151
Chui Yu Road- NB		B	2	4.000		15	0		100%	1960	1960	30	0.015		25	0.013	
Chui Yu Road- NB		B	2	4.000		10	0		100%	1750	1750	165	0.094		55	0.031	
Nam Cheong Street-SB		C	3	3.000	15		0	100%		1740	1740	34	0.020		22	0.013	
		C	3	3.000	15		0	100%		1870	1870	36	0.019		23	0.012	
Nam Cheong Street-SB		C	3	3.000	10		0			1665	1665	270	0.162		220	0.132	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			6	+	10	=	16						
		Ep	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Fp	3	MIN GREEN + FLASH =			14	+	9	=	23			*			*

Notes:

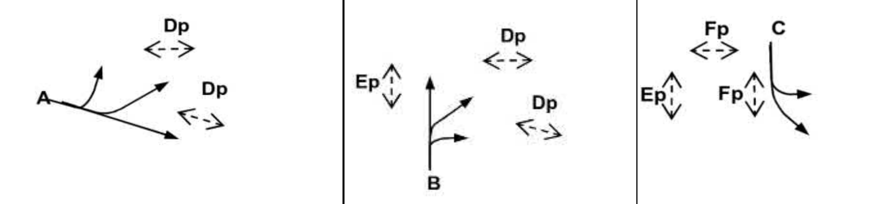
Flow: (pcu/hr)



Group		A,B,Fp	Group		A,B,Fp
y		0.259	y		0.231
L (sec)		37	L (sec)		40
C (sec)		96	C (sec)		96
y pract.		0.553	y pract.		0.525
R.C. (%)		114%	R.C. (%)		127%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 11		I/G= 8		I/G= 9	11	I/G=		I/G=	
I/G= 11		I/G= 8		I/G= 9	14	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J1 Boundry Street/Tung Chau Street/Nam Cheong Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

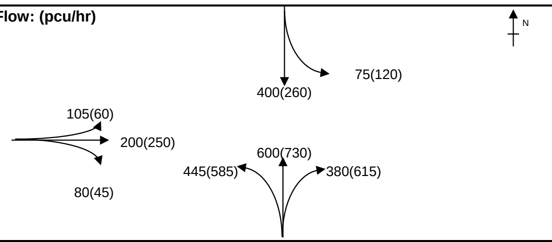
Junction: Boundry St./Lai Chi Kok Rd./Wong Chuk St. Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road-SB		A	1	3.000	15					1740	1740	75	0.043		120	0.069	
		A	1	3.000						2055	2055	133	0.065		87	0.042	
		A	1	3.000						2055	2055	134	0.065		86	0.042	
		A	1	3.000						2055	2055	133	0.065		87	0.042	
Lai Chi Kok Road-NB		B	1,2	3.100	15			93%	97%	1760	1755	481	0.273		604	0.344	
		B	1,2	3.100						2065	2065	564	0.273		711	0.344	
		C	2	3.000		15		100%	100%	1870	1870	190	0.102	0.102	308	0.165	0.165
		C	2	3.000		15				1870	1870	190	0.102		307	0.164	
Boundary Street - EB		D	3	3.500	15			57%	35%	1860	1900	184	0.099	0.099	170	0.089	0.089
		D	3	3.500		15		40%	24%	2025	2055	201	0.099		185	0.090	
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			6	+	9	=	15			*			*
		Fp	1	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Hp	3	MIN GREEN + FLASH =			6	+	12	=	18						

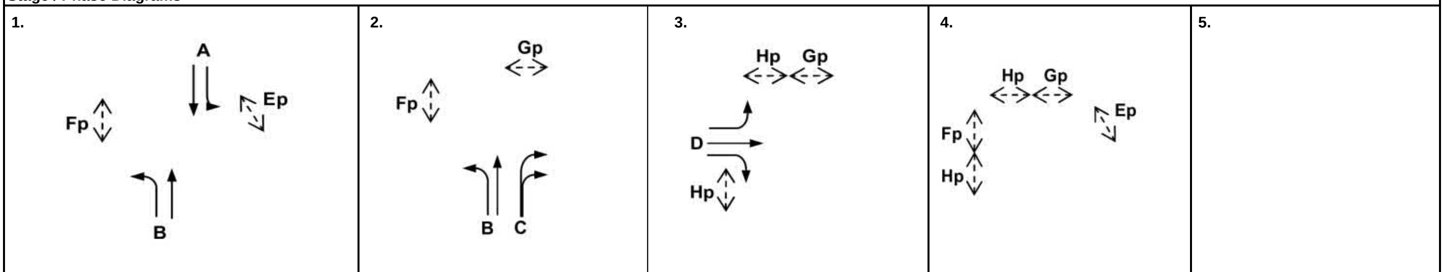
Notes:

Flow: (pcu/hr)



Group		C,D,Ep	Group		C,D,Ep
y		0.201	y		0.254
L (sec)		36	L (sec)		36
C (sec)		120	C (sec)		130
y pract.		0.630	y pract.		0.651
R.C. (%)		214%	R.C. (%)		156%

Stage / Phase Diagrams



I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	
I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	

Date: MAR, 2022 **Junction:** J2 Boundry St./Lai Chi Kok Rd./Wong Chuk St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

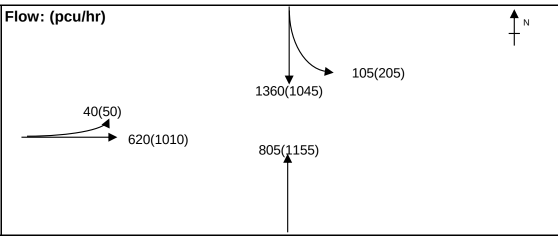
Junction: Boundry St./Nathan Rd./Cheung Sha Wan Rd Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cheung Sha Wan Road-SB		A	1	3.500	15			100%		1785	1785	105	0.059		205	0.115	
		A	1	3.300						2085	2085	453	0.217	0.217	348	0.167	0.167
		A	1	3.300						2085	2085	454	0.218		349	0.167	
		A	1	3.300						2085	2085	453	0.217		348	0.167	
Nathan Road-NB		B	1,3	3.500						1965	1965	256	0.130		368	0.187	
		B	1,3	3.500						2105	2105	275	0.131		393	0.187	
		B	1,3	3.500						2105	2105	274	0.130		394	0.187	
Boundary Street-EB		C	2	3.500	15			19%	15%	1930	1935	207	0.107		333	0.172	
		C	2	3.600						2115	2115	227	0.107	0.107	364	0.172	0.172
		C	2	3.600						2115	2115	226	0.107		363	0.172	
Pedestrian Crossing		Ep	1,3	MIN GREEN + FLASH =			13	+	13	=	26						
		Fp	2,3	MIN GREEN + FLASH =			14	+	13	=	27						
		Gp	2	MIN GREEN + FLASH =			31	+	10	=	41						
		Hp	3	MIN GREEN + FLASH =			19	+	13	=	32			*			*

Notes:

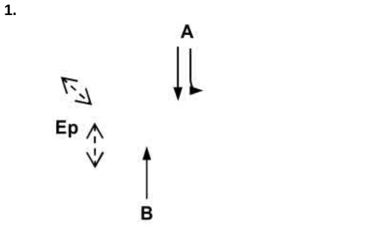
Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.325	y		0.339
L (sec)		50	L (sec)		50
C (sec)		120	C (sec)		130
y pract.		0.525	y pract.		0.554
R.C. (%)		62%	R.C. (%)		63%

Stage / Phase Diagrams

1.



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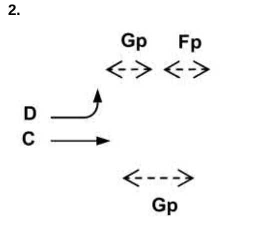
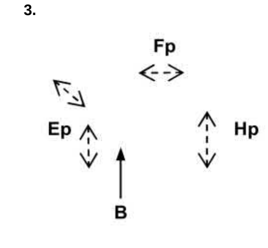


3.



4.

5.

I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J3 Boundry St./Nathan Rd./Cheung Sha Wan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Boundry St./Embankment Rd. Design Year: 2037

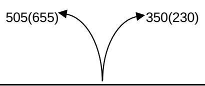
Description: ~~2037 AM&PM Reference Flows~~ Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary Street-WB	↰	A	1	5.500	15			100%	100%	1970	1970	505	0.256	0.256	655	0.332	0.332
Boundary Street-EB	↱	A	1	4.500		25		100%	100%	1950	1950	350	0.179		230	0.118	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			10	+	10	=	20			*			*

Notes:

Flow: (pcu/hr)

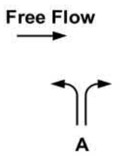
N



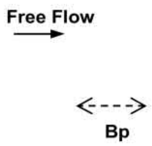
Group		A,Bp	Group		A,Bp
y		0.256	y		0.332
L (sec)		27	L (sec)		27
C (sec)		108	C (sec)		90
y pract.		0.675	y pract.		0.630
R.C. (%)		163%	R.C. (%)		89%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 13		I/G= 5	10	I/G=		I/G=		I/G=	
I/G= 13		I/G= 5	10	I/G=		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Boundry St./Embankment Rd. J4

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

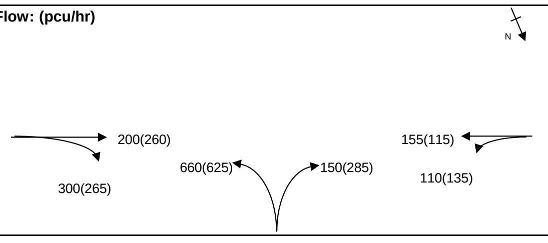
Junction: Sham Mong Rd./Chui Yu Rd. Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road-WB	↑	A	1,2	3.500						1965	1965	97	0.049		126	0.064	
	↑	A	1,2	3.500						2105	2105	103	0.049		134	0.064	
Sham Mong Road-WB	↱	C	2	3.300		25		100%	100%	1965	1965	300	0.153	0.153	265	0.135	0.135
Sham Mong Road-EB	↰	B	1	3.300	15			100%	100%	1770	1770	110	0.062	0.062	135	0.076	0.076
Sham Mong Road-EB	↑	B	1	3.500						2105	2105	78	0.037		58	0.028	
	↑	B	1	3.500						2105	2105	77	0.037		57	0.027	
Chui Yu Road - SB	↰	D	4	3.500	15					1785	1785	318	0.178		302	0.169	
	↰	D	4	3.500	15					1915	1915	342	0.179	0.179	323	0.169	0.169
Chui Yu Road - SB	↱	D	4	3.500		25				1985	1985	150	0.076		285	0.144	
Pedestrian Crossing		Ep	3	MIN GREEN + FLASH =			32	+	11	=	43			*			*
		Fp	3	MIN GREEN + FLASH =			20	+	13	=	33						
		Gp	3	MIN GREEN + FLASH =			23	+	11	=	34						

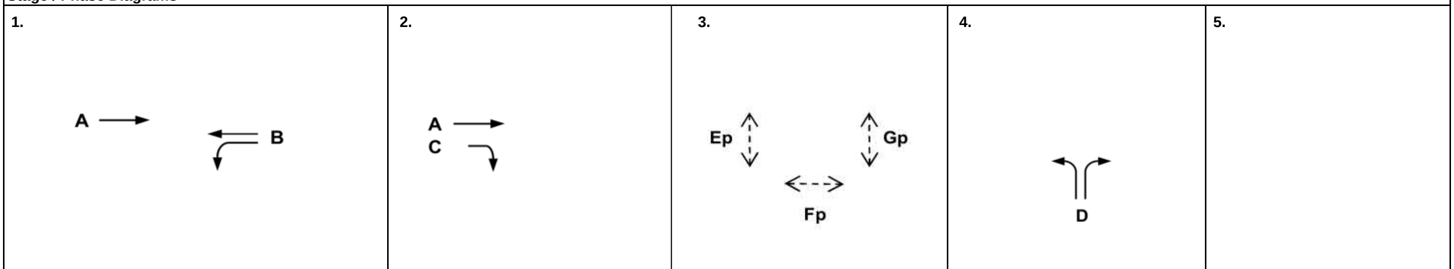
Notes:

Flow: (pcu/hr)



Group		B,C,Ep,D	Group		B,C,Ep,D
y		0.393	y		0.380
L (sec)		55	L (sec)		58
C (sec)		128	C (sec)		130
y pract.		0.513	y pract.		0.498
R.C. (%)		30%	R.C. (%)		31%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 5	29	I/G= 14		I/G=	
I/G= 5		I/G= 5		I/G= 5	32	I/G= 14		I/G=	

Date: MAR, 2022 **Junction:** Sham Mong Rd./Chui Yu Rd. J5

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

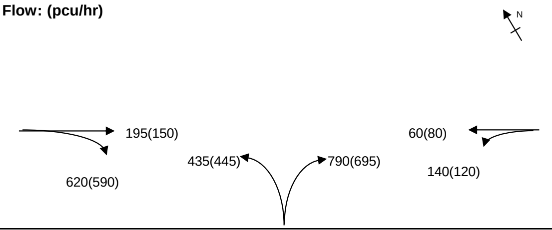
Junction: Sham Mong Rd./Hoi Fai Rd. Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road -EB		A	1	3.500		15		55%	61%	2040	2030	431	0.211		391	0.193	0.193
		A	1	3.300		10		100%	100%	1815	1815	384	0.212	0.212	349	0.192	
Hoi Fai Road-NB		B	1,2	4.000	20			100%	100%	1875	1875	435	0.232		445	0.237	
		C	2	3.700		15		100%	100%	1930	1930	395	0.205	0.205	348	0.180	0.180
		C	2	3.700		15		100%	100%	1930	1930	395	0.205		347	0.180	
Sham Mong Road-WB		D	2,3	3.700	15			100%	100%	1805	1805	140	0.078		120	0.066	
		E	3	3.600						2115	2115	30	0.014		40	0.019	
		E	3	3.600						2115	2115	30	0.014		40	0.019	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						
		Gp	1	MIN GREEN + FLASH =			44	+	7	=	51						
		Hp	3	MIN GREEN + FLASH =			22	+	10	=	32			*			*

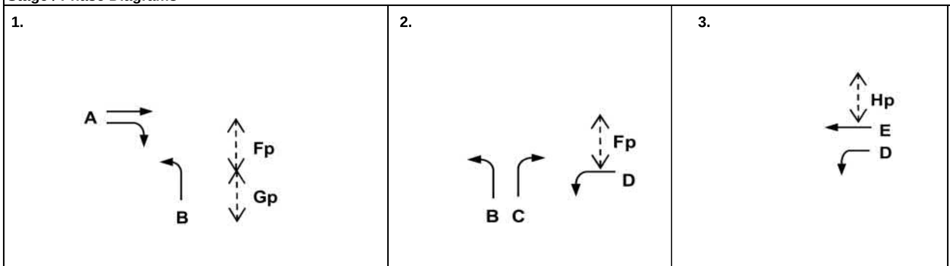
Notes:

Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.416	y		0.373
L (sec)		49	L (sec)		53
C (sec)		128	C (sec)		130
y pract.		0.555	y pract.		0.533
R.C. (%)		33%	R.C. (%)		43%

Stage / Phase Diagrams



I/G= 12		I/G= 9		I/G= 12	18	I/G=		I/G=	
I/G= 12		I/G= 9		I/G= 12	22	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Sham Mong Rd./Hoi Fai Rd. J6

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

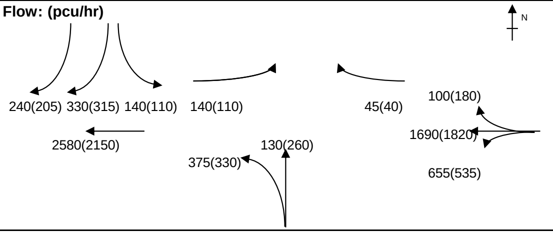
Junction: Prince Edward Rd. West/Sai Yee Street | Design Year: 2037

Description: 2037 AM&PM Reference Flows | Designed By: HAP | Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West		A	1	5.500	10					1885	1885	140	0.074		110	0.058	
		A	1	4.000	10					1750	1750	540	0.309		535	0.306	
		A	1	3.300	15			18%	0%	2050	2085	632	0.308		676	0.324	
		A	1	3.300						2085	2085	644	0.309		675	0.324	
		A	1	3.300		10		16%	28%	2035	2000	629	0.309	0.309	649	0.325	0.325
Prince Edward Road West		B	1,2	3.500						2175	2175	879	0.404		732	0.337	
		B	1,2	3.500						2105	2105	850	0.404		709	0.337	
		B	1,2	3.500						2105	2105	851	0.404		709	0.337	
Sai Yee Street		C	2	3.300	10			100%	100%	1690	1690	181	0.107		159	0.094	
		C	2	3.300	10			100%	100%	1815	1815	194	0.107	0.107	171	0.094	
		C	2	3.300						2085	2085	130	0.062		260	0.125	0.125
		C	2	3.300		10		100%	100%	1690	1690	45	0.027		40	0.024	
Fa Yuen Street		D	3	3.500		10		100%	100%	1710	1710	240	0.140		205	0.120	
		D	3	3.500		15		100%	100%	1915	1915	330	0.172	0.172	315	0.164	0.164
		D	3	3.500	10			100%	100%	1710	1710	140	0.082		110	0.064	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			9	+	11	=	20						
		Fp	3	MIN GREEN + FLASH =			24	+	11	=	35						
		Gp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Hp	3	MIN GREEN + FLASH =			18	+	11	=	29						
		Ip	1,3	MIN GREEN + FLASH =			6	+	9	=	15						

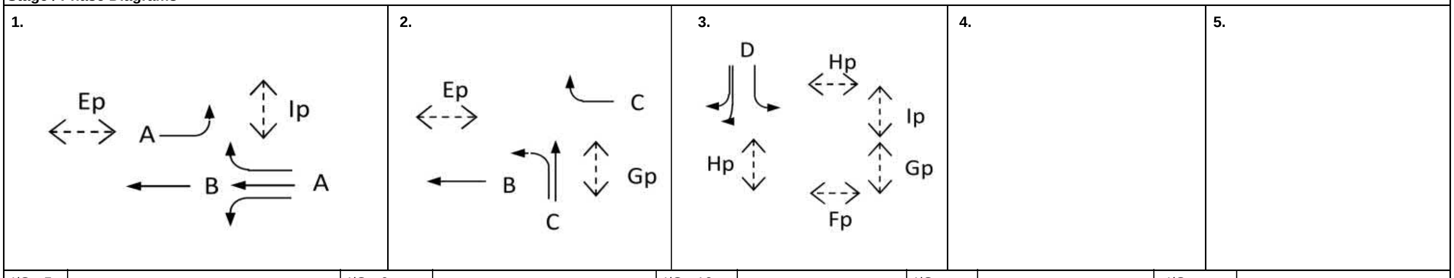
Notes:

Flow: (pcu/hr)



Group		A,C,D	Group		A,C,D
y		0.588	y		0.614
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		32%	R.C. (%)		26%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 10		I/G=	I/G=
I/G= 5		I/G= 6		I/G= 10		I/G=	I/G=

Date: MAR, 2022 **Junction:** Prince Edward Rd. West/Sai Yee Street J7

TRAFFIC SIGNALS CALCULATION **Job No.:** CHK50648010 **MVA HONG KONG LIMITED**

Junction: Prince Edward Rd. West/Embankment Rd. Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West-WB		A	1	3.300		15		100%	100%	1770	1770	408	0.231		411	0.232	
		A	1	3.300		15		100%	100%	1895	1895	437	0.231		439	0.232	
Prince Edward Road West-WB		B	1,2	4.000						2015	2015	751	0.373	0.373	789	0.392	0.392
		B	1,2	4.000						2155	2155	803	0.373		844	0.392	
		B	1,2	4.000						2155	2155	803	0.373		844	0.392	
		B	1,2	4.000						2155	2155	803	0.373		844	0.392	
Prince Edward Road West-EB		C	2,3	4.500	15			100%	100%	1875	1875	120	0.064		90	0.048	
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			73	+	6	=	79						
		Ep	2	MIN GREEN + FLASH =			5	+	9	=	14						
		Fp	3	MIN GREEN + FLASH =			21	+	14	=	35			*			*

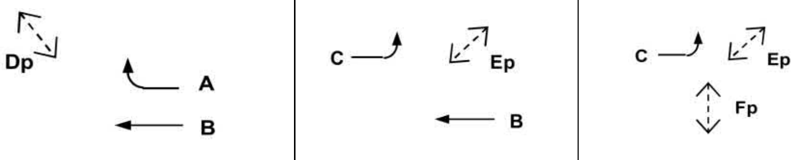
Notes:

Flow: (pcu/hr)

Group		B,Fp	Group		B,Fp
y		0.373	y		0.392
L (sec)		43	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.602	y pract.		0.616
R.C. (%)		62%	R.C. (%)		57%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 18		I/G=		I/G= 5	21	I/G=		I/G=	
I/G= 18		I/G=		I/G= 5	19	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J8 Prince Edward Rd. West/Embankment Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

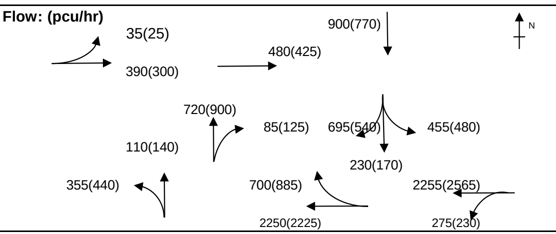
Junction: Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd. Design Year: 2037

Description: ~~2037 AM&PM Reference Flows~~ Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cherry St - WB		A	1	4.900	30			44%	32%	2140	2155	634	0.296		703	0.326	
		A	1	3.800						2135	2135	632	0.296		697	0.326	
		A	1	3.800						2135	2135	632	0.296		697	0.326	
		A	1	3.800						2135	2135	632	0.296		698	0.327	
Cherry St - WB		B	1,2	3.400						2095	2095	750	0.358	0.358	742	0.354	0.354
		B	1,2	3.400						2095	2095	750	0.358		741	0.354	
		B	1,2	3.400						2095	2095	750	0.358		742	0.354	
Cherry St - WB		B	1,2	3.400		40		100%	100%	2020	2020	350	0.173		443	0.219	
		B	1,2	3.400		40		100%	100%	2020	2020	350	0.173		442	0.219	
Hoi Wang Rd - NB		C	1,2	4.300						2185	2185	360	0.165		450	0.206	
		C	1,2	4.300						2185	2185	360	0.165		450	0.206	
Hoi Wang Rd - NB		C	1,2	4.400		20		100%	100%	2040	2040	85	0.042		125	0.061	
Tai Kok Tsui Rd - SB		D	1,2	3.300						1945	1945	286	0.147		245	0.126	
		D	1,2	3.300						2085	2085	307	0.147		262	0.126	
		D	1,2	3.300						2085	2085	307	0.147		263	0.126	
Tai Kok Tsui Rd - SB		I	2,3	3.500	15			100%	100%	1880	1880	455	0.242		480	0.255	
		E	2,3	3.500						2105	2105	230	0.109		170	0.081	
		E	2,3	5.200		20		100%	100%	2115	2115	348	0.165		270	0.128	
		E	2,3	5.200		20		100%	100%	2115	2115	347	0.164		270	0.128	
Cherry St - EB		F	3	6.000		30		100%	100%	2245	2245	240	0.107		213	0.095	
		F	3	6.000		30		100%	100%	2245	2245	240	0.107		212	0.094	
Cherry St - EB		G	3	3.800	45			100%	100%	2065	2065	18	0.009		13	0.006	
		G	3	3.800	45			100%	100%	2065	2065	17	0.008		12	0.006	
Cherry St - EB		G	3	3.800						2135	2135	195	0.091		150	0.070	
		G	3	3.800						2135	2135	195	0.091		150	0.070	
Hoi Wang Rd - NB		H	3	3.800	75					2250	2250	355	0.158	0.158	440	0.196	0.196
		H	3	4.000						2155	2155	55	0.026		70	0.032	
		H	3	4.000						2155	2155	55	0.026		70	0.032	
Pedestrian Crossing		Jp	1,2	MIN GREEN + FLASH =			7	+	15	=	22						
		Kp	1	MIN GREEN + FLASH =			34	+	8	=	42						
		Lp	3	MIN GREEN + FLASH =			11	+	11	=	22						
		Mp	2,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Np	1	MIN GREEN + FLASH =			36	+	7	=	43						
		Op	2,3	MIN GREEN + FLASH =			7	+	13	=	20						

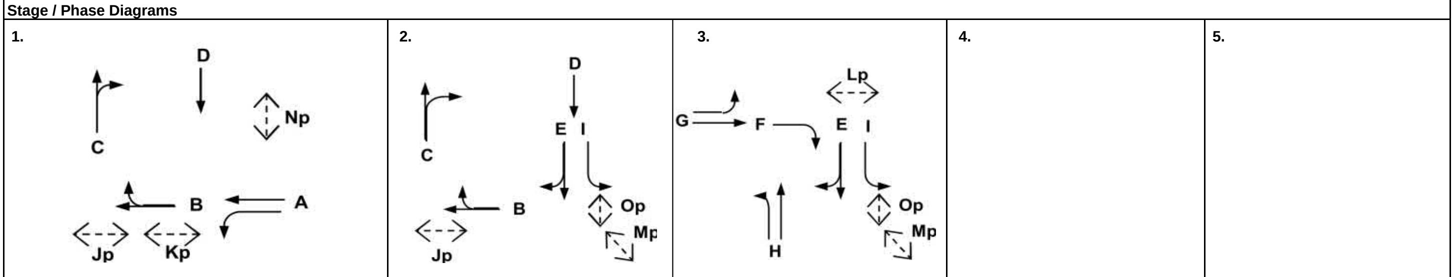
Notes:

Flow: (pcu/hr)



AM Peak			PM Peak		
Group		B,H	Group		B,H
y		0.516	y		0.550
L (sec)		11	L (sec)		11
C (sec)		85	C (sec)		80
y pract.		0.784	y pract.		0.776
R.C. (%)		52%	R.C. (%)		41%

Stage / Phase Diagrams



I/G= 7		I/G=		I/G= 6		I/G=		I/G=	
I/G= 7		I/G=		I/G= 6		I/G=		I/G=	

Date: JUN, 2022 **Junction:** J9 Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

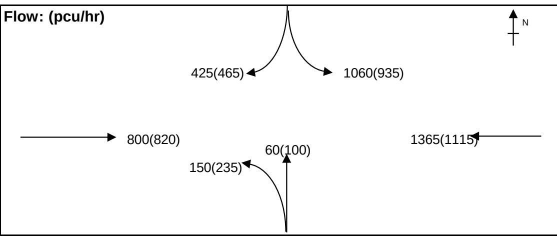
Junction: Argyle St/Sai Yee St. Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB	↑	A	1	3.500						1965	1965	386	0.196		396	0.202	
	↑	A	1	3.500						2105	2105	414	0.197		424	0.201	
Argyle Street-WB	↑	B	1	3.200						2095	2095	458	0.219		374	0.179	
	↑	B	1	3.200						2075	2075	453	0.218	0.218	371	0.179	0.179
	↑	B	1	3.200						2075	2075	454	0.219		370	0.178	
Sai Yee Street-SB	↰	C	2,3,4	3.500	10			100%	100%	1710	1710	512	0.299		452	0.264	
	↰	C	2,3,4	3.500	10			100%	100%	1830	1830	548	0.299		483	0.264	
Sai Yee Street-SB	↱	D	2	3.500		20		100%	100%	2110	2110	425	0.201	0.201	465	0.220	0.220
Sai Yee Street-NB	↰	E	3	3.700	15			100%	100%	1805	1805	150	0.083	0.083	235	0.130	0.130
	↑	E	3	3.700						2125	2125	60	0.028		100	0.047	
Pedestrian Crossing		Fp	1,2,4	MIN GREEN + FLASH =			8	+	8	=	16						
		Gp	4	MIN GREEN + FLASH =			19	+	12	=	31			*			*
		Hp	1	MIN GREEN + FLASH =			27	+	11	=	38						

Notes:

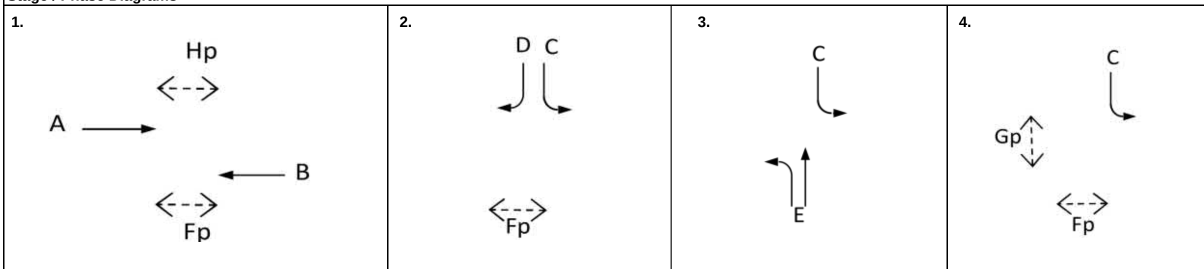
Flow: (pcu/hr)



Group		B,D,E,Gp	Group		B,D,E,Gp
y		0.503	y		0.529
L (sec)		54	L (sec)		54
C (sec)		130	C (sec)		130
y pract.		0.526	y pract.		0.526
R.C. (%)		5%	R.C. (%)		-1%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 14		I/G= 6		I/G= 9		I/G= 9	19	I/G=	
I/G= 14		I/G= 6		I/G= 9		I/G= 9	19	I/G=	

Date: MAR, 2022 **Junction:** Argyle St/Sai Yee St. J10

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

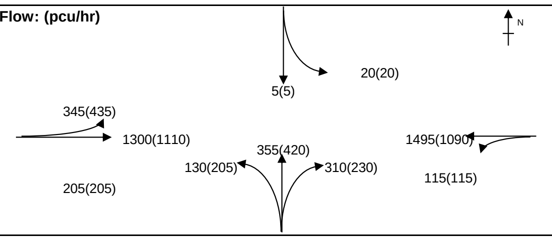
Junction: Argyle St/Yim Po Fong St/Luen Wan St Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1,2	3.100	10			100%	100%	1675	1675	345	0.206		435	0.260	
		B	1,2	3.000						2145	2145	664	0.310	0.310	567	0.264	0.264
		B	1,2	3.000						2055	2055	636	0.309		543	0.264	
Argyle Street-EB		D	2	3.000		15		100%	100%	1870	1870	205	0.110		205	0.110	
Argyle Street-WB		E	4	3.800	10			100%	100%	1735	1735	115	0.066		115	0.066	
		C	1	3.300						2085	2085	498	0.239		363	0.174	
		C	1	3.300						2085	2085	499	0.239		364	0.175	
		C	1	3.300						2085	2085	498	0.239		363	0.174	
Yim Po Fong St - NB		F	4	3.000	10			100%	100%	1665	1665	130	0.078		205	0.123	
		F	4	2.800		15		2%	0%	2030	2035	362	0.178	0.178	420	0.206	0.206
		F	4	3.000		12		100%	100%	1700	1700	303	0.178		230	0.135	
Luen Wan St - SB		I	3	3.500	10			80%	80%	1755	1755	25	0.014		25	0.014	
Pedestrian Crossing		Gp	1	MIN GREEN + FLASH =			43	+	9	=	52						
		Hp	3	MIN GREEN + FLASH =			26	+	8	=	34			*			*
		Jp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

Notes:

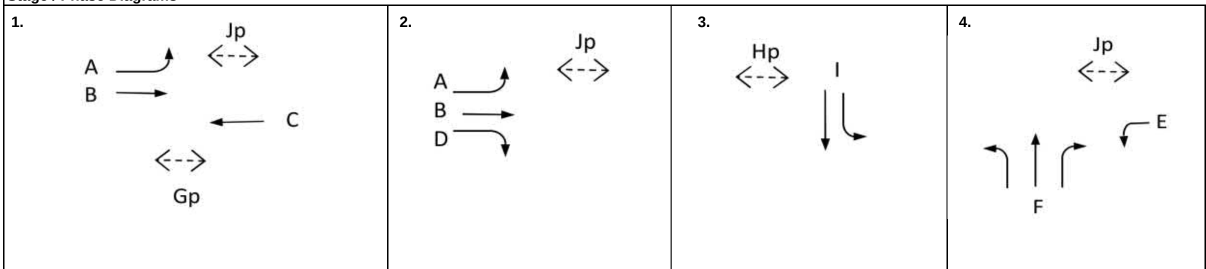
Flow: (pcu/hr)



Group		B,Hp,F	Group		B,Hp,F
y		0.488	y		0.471
L (sec)		45	L (sec)		51
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.547
R.C. (%)		21%	R.C. (%)		16%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 8		I/G=		I/G= 11	20	I/G= 8		I/G=
I/G= 8		I/G=		I/G= 11	26	I/G= 8		I/G=

Date: MAR, 2022 **Junction:** J11 Argyle St/Yim Po Fong St/Luen Wan St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

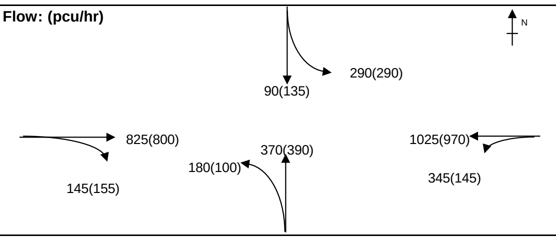
Junction: Waterloo Rd./Yim Po Fong St/Wylie Rd. Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Road-EB		A	1,2	3.000						1915	1915	413	0.216		400	0.209	
		A	1,2	3.000						1915	1915	412	0.215		400	0.209	
		I	1	3.000		15		100%	100%	1660	1660	145	0.087	0.087	155	0.093	0.093
Waterloo Road-WB		B	1	3.600	10			87%	43%	1745	1855	395	0.226	0.226	335	0.181	
		B	1	4.000						2155	2155	488	0.226		390	0.181	0.181
		B	1	4.000						2155	2155	487	0.226		390	0.181	
Yim Po Fong Street-SB		C	4	3.100	10					1675	1675	290	0.173		290	0.173	
		C	4	3.200						2075	2075	90	0.043		135	0.065	
Wylie Road-NB		C	4	3.500	10					1710	1710	180	0.105		100	0.058	
		C	4	3.400						2095	2095	370	0.177	0.177	390	0.186	0.186
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			9	+	10	=	19						
		Fp	2	MIN GREEN + FLASH =			5	+	14	=	19						
		Gp	3	MIN GREEN + FLASH =			7	+	12	=	19			*			*
		Hp	3	MIN GREEN + FLASH =			5	+	14	=	19						

Notes:

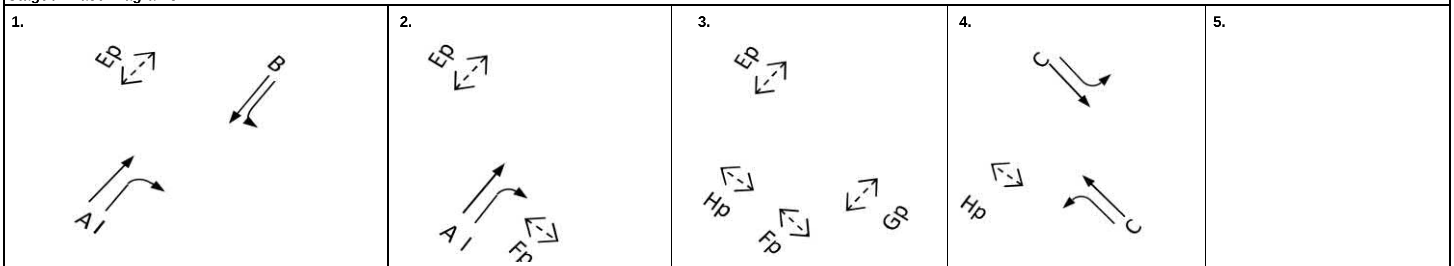
Flow: (pcu/hr)



Group		B,I,Gp,C	Group		B,I,Gp,C
y		0.490	y		0.461
L (sec)		41	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.616	y pract.		0.616
R.C. (%)		26%	R.C. (%)		34%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 12		I/G=		I/G= 9	7	I/G= 16		I/G=	
I/G= 12		I/G=		I/G= 9	7	I/G= 16		I/G=	

Date: MAR, 2022 **Junction:** J12 Waterloo Rd./Yim Po Fong St/Wylie Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

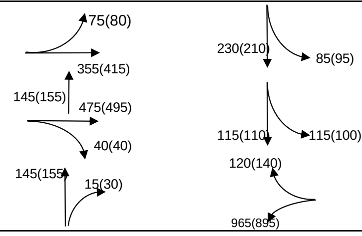
Junction: Hoi Wang Rd/Lai Cheung Rd — Design Year: 2037

Description: 2037 AM&PM Reference Flows — Designed By: HAP — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Cheung Rd		A	1	3.500						2105	2105	355	0.169		415	0.197	
Lai Cheung Rd		A	1	3.500	15					1915	1915	75	0.039		80	0.042	
Lai Cheung Rd		B	1	3.500		20		7%	7%	2295	2295	515	0.224	0.224	535	0.233	0.233
Hoi Wang Rd		F	4	3.500						2105	2105	58	0.028		55	0.026	
		F	4	3.500						2105	2105	57	0.027		55	0.026	
Hoi Wang Rd		F	4	3.500	15			100%	100%	1915	1915	115	0.060	0.060	100	0.052	0.052
Hoi Wang Rd		F	4	3.500						1965	1965	73	0.037		67	0.034	
		F	4	3.500						2105	2105	79	0.038		71	0.034	
		F	4	3.500						2105	2105	78	0.037		72	0.034	
Hoi Wang Rd		C	2	3.500						2105	2105	48	0.023		52	0.025	
		C	2	3.500						2105	2105	49	0.023		51	0.024	
		C	2	3.500						2105	2105	48	0.023		52	0.025	
Hoi Wang Rd		C	2	3.500						1965	1965	78	0.040		91	0.046	
Hoi Wang Rd		C	2	3.500		15		17%	30%	2070	2045	82	0.040		94	0.046	
Hoi Wang Rd		F	4	3.500	25			100%	100%	1855	1855	85	0.046		95	0.051	
Lai Cheung Rd		E	3	3.500		20		100%	100%	1960	1960	120	0.061		140	0.071	
Lai Cheung Rd		D	2,3	3.000	20					1780	1780	466	0.262	0.262	432	0.243	
		D	2,3	3.000	20					1910	1910	499	0.261		463	0.242	0.242
Pedestrian Crossing		Hp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Ip	1,2,4	MIN GREEN + FLASH =			5	+	5	=	10						
		Jp	1,4	MIN GREEN + FLASH =			5	+	11	=	16						
		Kp	2,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Lp	2,3,4	MIN GREEN + FLASH =			5	+	4	=	9						
		Mp	2,3,4	MIN GREEN + FLASH =			5	+	4	=	9						
		Np	2,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Op	3	MIN GREEN + FLASH =			13	+	9	=	22						

Notes:

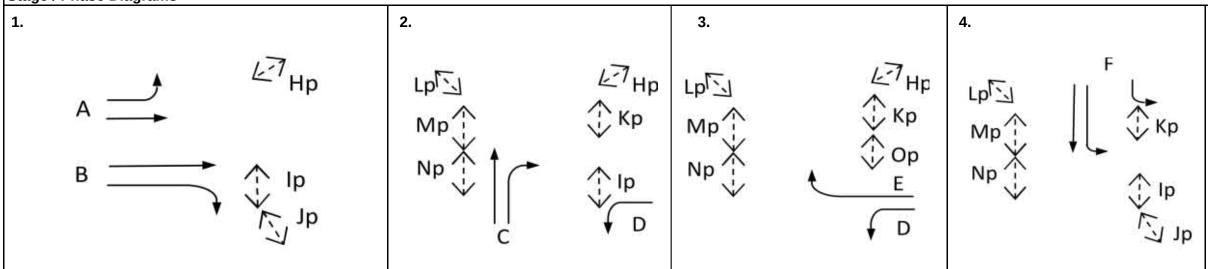
Flow: (pcu/hr)



Group		B,D,F	Group		B,D,F
y		0.546	y		0.528
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		48%	R.C. (%)		53%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=	
I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=	

Date: MAR, 2022 **Junction:** J13 Hoi Wang Rd/Lai Cheung Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Lai Cheung Rd./Ferry St./Waterloo Rd.

Design Year: 2037

Description: 2037 AM&PM Reference Flows

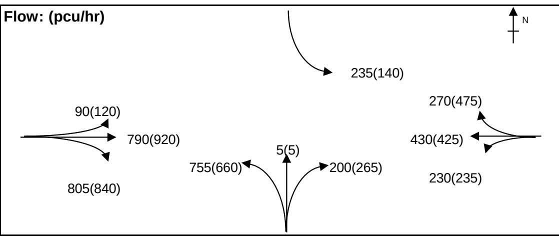
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Rd-WB		A	1	3.100	15			75%	77%	1790	1790	307	0.172	0.172	306	0.171	
		A	1	3.100						2065	2065	353	0.171		354	0.171	0.171
		A	1	3.300		30				1985	1985	135	0.068		238	0.120	
		A	1	3.300		30				1985	1985	135	0.068		237	0.119	
Ferry St- SB		B	1	3.500	25					1855	1855	114	0.061		68	0.037	
		B	1	3.500	25					1985	1985	121	0.061		72	0.036	
Lai Cheung Rd-EB		C	3	3.300	5					1495	1495	90	0.060		120	0.080	
		C	3	3.300	10			0%	0%	2085	2085	395	0.189		460	0.221	0.221
		C	3	3.300						2085	2085	395	0.189		460	0.221	
Lai Cheung Rd-EB		D	3	3.700		35				2305	2305	427	0.185		446	0.193	
		D	3	3.700		35				2040	2040	378	0.185		394	0.193	
Ferry St-NB		E	2,3	3.400	35					2080	2080	755	0.363	0.363	660	0.317	
Ferry St-NB		F	2	4.700		35		95%	96%	2140	2135	107	0.050		141	0.066	
		F	2	3.000		30		100%	100%	1955	1955	98	0.050		129	0.066	
Waterloo Rd-WB		G	1	3.600						2115	2115	215	0.102		213	0.101	
		G	1	3.600						2115	2115	215	0.102		212	0.100	
Pedestrian Crossing		Hp	1	MIN GREEN + FLASH =			31	+	8	=	39						
		Ip	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Jp	2	MIN GREEN + FLASH =			15	+	19	=	34						*
		Kp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						

Notes:

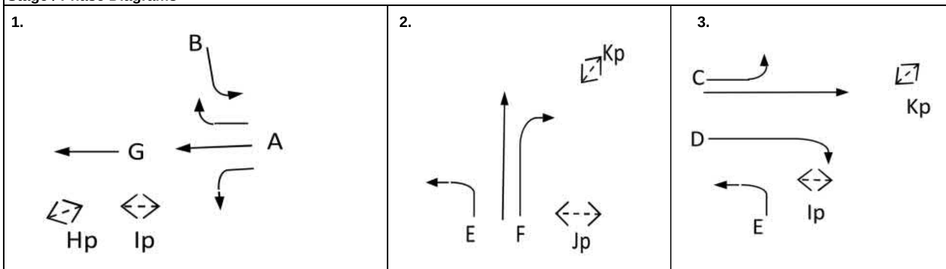
Flow: (pcu/hr)



Group		A,E	Group		A,Jp,C
y		0.534	y		0.392
L (sec)		10	L (sec)		48
C (sec)		130	C (sec)		130
y pract.		0.831	y pract.		0.568
R.C. (%)		55%	R.C. (%)		45%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 5		I/G= 7		I/G=		I/G=		I/G=	
I/G= 5		I/G= 7	15	I/G= 23		I/G=		I/G=	

Date: MAR, 2022

Junction: J14 Lai Cheung Rd./Ferry St./Waterloo Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

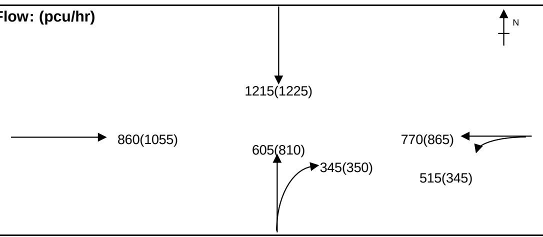
Junction: Waterloo Rd/Nathan Rd Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road-SB		A	1	3.400						1465	1465	315	0.215		317	0.216	
		A	1	3.400						2095	2095	450	0.215		454	0.217	
		A	1	3.400						2095	2095	450	0.215		454	0.217	
Nathan Road-NB		B	2	3.300						1945	1945	317	0.163	0.163	391	0.201	0.201
		B	2	3.300		15		14%	0%	2055	2085	335	0.163		419	0.201	
		B	2	3.500		10		100%	100%	1830	1830	298	0.163		350	0.191	
Waterloo Road-EB		C	3	3.400						1955	1955	274	0.140		336	0.172	
		C	3	3.400						2095	2095	293	0.140		359	0.171	
		C	3	3.400						2095	2095	293	0.140		360	0.172	
Waterloo Road-WB		D	3	3.200	5					1490	1490	352	0.236		322	0.216	0.216
		D	3	3.200	5			37%	5%	1870	2045	442	0.236	0.236	440	0.215	
		D	3	3.200				100%	100%	2075	2075	491	0.237		448	0.216	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			10	+	9	=	19						
		Fp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Gp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						
		Hp	1	MIN GREEN + FLASH =			33	+	9	=	42			*			*

Notes:

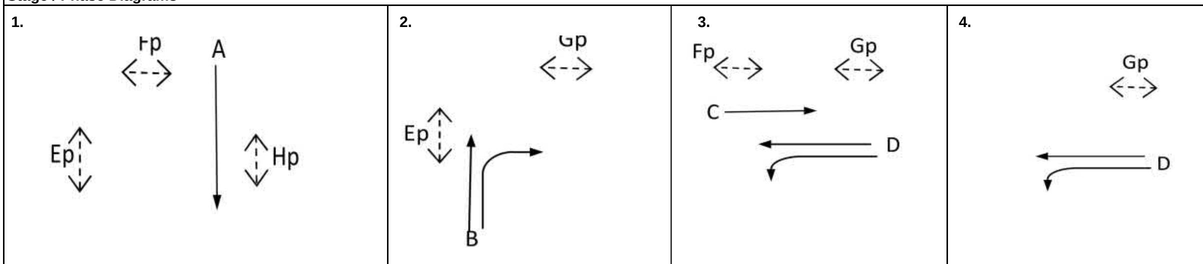
Flow: (pcu/hr)



Group		B,D,Hp	Group		B,D,Hp
y		0.399	y		0.417
L (sec)		57	L (sec)		57
C (sec)		130	C (sec)		130
y pract.		0.505	y pract.		0.505
R.C. (%)		27%	R.C. (%)		21%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 9	33	I/G= 11		I/G= 6		I/G=		I/G=	
I/G= 9	33	I/G= 11		I/G= 6		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J15 Waterloo Rd/Nathan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

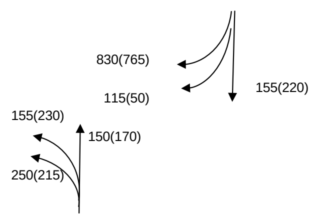
Junction: Hoi Wang Road/Ngo Cheung Rd. Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hoi Wang Road	↱	A	1	3.500		20				1960	1960	830	0.423	0.423	765	0.390	0.390
Hoi Wang Road	↱	A	1	3.500		25				1985	1985	115	0.058		50	0.025	
Hoi Wang Road	↑	A	1	3.500						1965	1965	155	0.079		220	0.112	
Hoi Wang Road	↰	B	2	3.500	25					1855	1855	250	0.135		215	0.116	
Hoi Wang Road	↰	B	2	3.500	28					2000	2000	155	0.078		230	0.115	
Hoi Wang Road	↑	B	2	3.500						2105	2105	150	0.071		170	0.081	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			84	+	7	=	91						
		Dp	1	MIN GREEN + FLASH =			86	+	5	=	91						
		Ep	2	MIN GREEN + FLASH =			23	+	10	=	33			*			*
		Fp	2	MIN GREEN + FLASH =			30	+	5	=	35						

Notes:

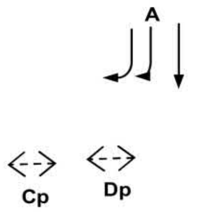
Flow: (pcu/hr)



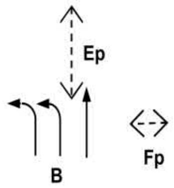
Group		A,Ep	Group		A,Ep
y		0.423	y		0.390
L (sec)		42	L (sec)		39
C (sec)		130	C (sec)		130
y pract.		0.609	y pract.		0.630
R.C. (%)		44%	R.C. (%)		61%

Stage / Phase Diagrams

1.



2.



3. **4.** **5.**

I/G= 12		I/G= 8	23	I/G=		I/G=		I/G=	
I/G= 7		I/G= 10	23	I/G=		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J16 Hoi Wang Road/Ngo Cheung Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

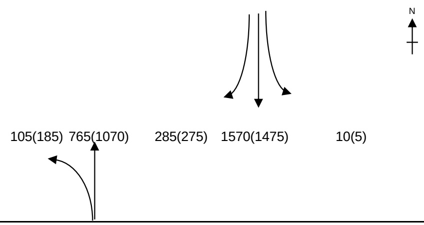
Junction: Nathan Rd / Public Square St Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - NB		A	1	3.400	10			39%	49%	1845	1820	266	0.144		380	0.209	0.209
Nathan Rd - NB		A	1	3.400						2095	2095	302	0.144		438	0.209	
		A	1	3.400						2095	2095	302	0.144		437	0.209	
Nathan Rd - SB		B	1,2	3.200	5			1%	1%	1925	1930	737	0.383		691	0.358	
Nathan Rd - SB		B	1,2	3.400						2205	2205	843	0.382	0.382	789	0.358	
Nathan Rd - SB		G	2	3.000		15				1870	1870	285	0.152		275	0.147	0.147
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Dp	3	MIN GREEN + FLASH =			29	+	14	=	43			*			*
		Ep	3	MIN GREEN + FLASH =			32	+	8	=	40						

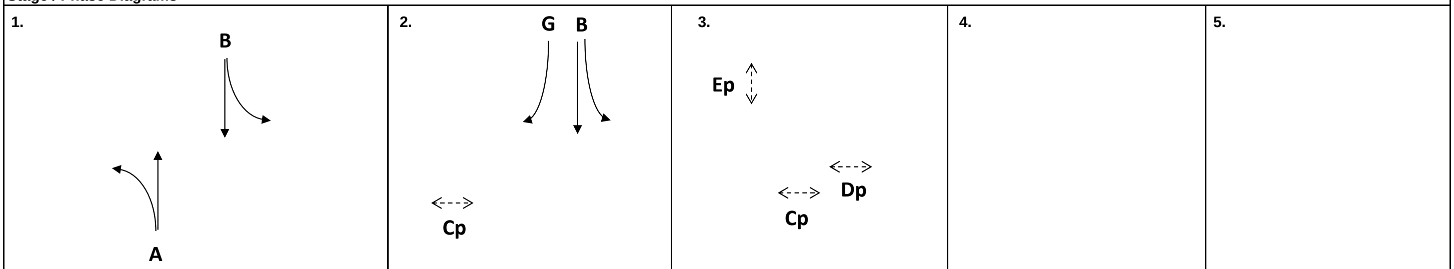
Notes:

Flow: (pcu/hr)



Group	A,G,Dp	B,Dp	Group	B,Dp	A,G,Dp
y	0.297	0.382	y	0.358	0.356
L (sec)	57	52	L (sec)	50	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.540	y pract.	0.554	0.519
R.C. (%)	70%	41%	R.C. (%)	55%	46%

Stage / Phase Diagrams



I/G= 3		I/G=		I/G= 7	43	I/G=		I/G=
I/G= 3		I/G= 6		I/G= 7	41	I/G=		I/G=

Date: MAR, 2022 **Junction:** J17 Nathan Rd / Public Square St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

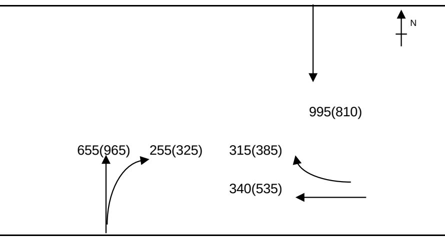
Junction: Nathan Rd / Gascoigne Rd / Kansu St Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road - SB		A	1	3.100						1925	1925	316	0.164		258	0.134	
		A	1	3.100						2065	2065	340	0.165	0.165	276	0.134	
		A	1	3.100						2065	2065	339	0.164		276	0.134	
Nathan Rd - NB		B	2	3.300						1945	1945	297	0.153		420	0.216	
Nathan Rd - NB		B	2	3.300						2085	2085	319	0.153	0.153	450	0.216	0.216
		B	2	3.400		15		87%	77%	1930	1945	294	0.152		420	0.216	
Gascoigne Rd - WB		C	3	3.500						1965	1965	164	0.083		258	0.131	
		C	3	3.500						2105	2105	176	0.084		277	0.132	
Gascoigne Rd - WB		C	3	3.500		20				2190	2190	315	0.144		385	0.176	0.176
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			20	+	12	=	32						*
		Ep	1,2	MIN GREEN + FLASH =			5	+	10	=	15						
		Fp	3	MIN GREEN + FLASH =			29	+	9	=	38			*			

Notes:

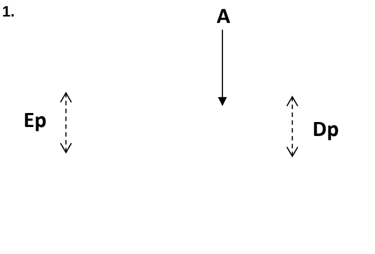
Flow: (pcu/hr)



Group	Dp,B,C	A,B,Fp	Group	A,B,Fp	Dp,B,C
y	0.297	0.318	y	0.349	0.392
L (sec)	45	49	L (sec)	51	45
C (sec)	120	120	C (sec)	120	120
y pract.	0.563	0.533	y pract.	0.518	0.563
R.C. (%)	90%	68%	R.C. (%)	48%	44%

Stage / Phase Diagrams

1.



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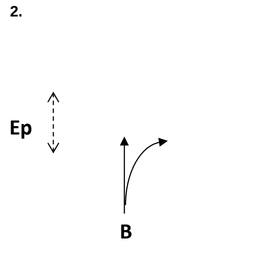

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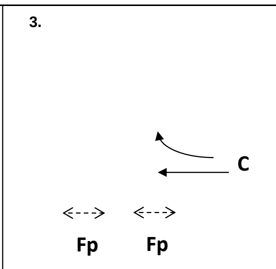


4.

5.

I/G= 3		I/G= 5		I/G= 5	38	I/G=		I/G=	
I/G= 5	32	I/G= 3		I/G= 7		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J18 Nathan Rd / Gascoigne Rd / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

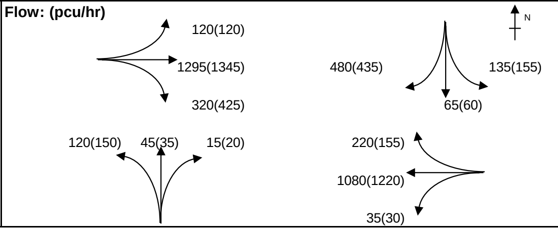
Junction: Jorden Rd / Wui Man Rd / Hoi Wang Rd Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Wui Man Rd - NB		C	1,4	3.500	15					1785	1785	120	0.067		150	0.084	
		H	1	3.500						2105	2105	30	0.014		28	0.013	
		H	1	3.500		25		50%	74%	2045	2015	30	0.015		27	0.013	
Hoi Wang Rd - SB		G	2,3	3.500	15					1785	1785	135	0.076		155	0.087	
		B	3	3.500						2105	2105	65	0.031		60	0.029	
		B	3	3.500		25				1985	1985	160	0.081		145	0.073	
		B	3	3.500		25				1985	1985	160	0.081	0.081	145	0.073	0.073
		B	3	3.500		25				1985	1985	160	0.081		145	0.073	
Jordan Road - EB		A	4	3.500	15					1785	1785	95	0.053		90	0.050	
		A	4	3.500	15			5%	5%	2095	2095	518	0.247		562	0.268	
		A	4	3.500						2105	2105	520	0.247		566	0.269	
		A	4	3.500		25		44%	55%	2050	2040	507	0.247	0.247	547	0.268	0.268
		A	4	3.500		25				1985	1985	95	0.048		125	0.063	
Jorden Rd - WB		D	2	3.500	15			13%	10%	1940	1945	262	0.135		294	0.151	0.151
		D	2	3.500						4210	4210	569	0.135	0.135	637	0.151	
		D	2	3.500		25		0%	0%	2105	2105	284	0.135		319	0.152	
		D	2	3.500		25				1985	1985	220	0.111		155	0.078	
Pedestrian Crossing		Fp	1,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			13	+	14	=	27						

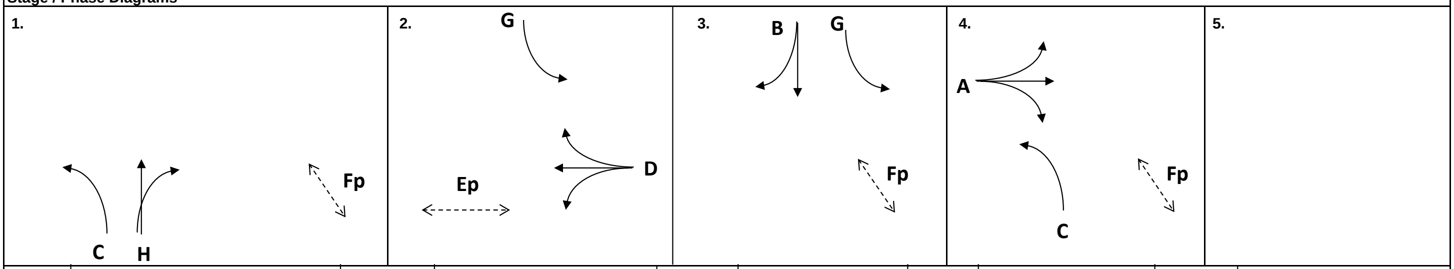
Notes:

Flow: (pcu/hr)



	AM			PM	
Group		H,D,B,A	Group		H,D,B,A
y		0.463	y		0.492
L (sec)		24	L (sec)		24
C (sec)		130	C (sec)		130
y pract.		0.734	y pract.		0.734
R.C. (%)		58%	R.C. (%)		49%

Stage / Phase Diagrams



I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	
I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	

Date: JUN, 2022 **Junction:** J19 Jorden Rd / Wui Man Rd / Hoi Wang Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

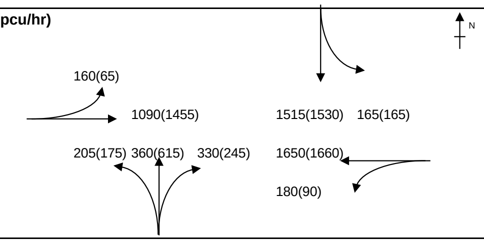
Junction: Jorden Rd/ Ferry St — Design Year: 2037

Description: 2037 AM&PM Reference Flows — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - WB		A	3	3.500	15			32%	16%	1905	1935	570	0.299		551	0.285	0.285
		A	3	3.500						2105	2105	630	0.299	0.299	600	0.285	
		A	3	3.500						2105	2105	630	0.299		599	0.285	
Jorden Rd - EB		B	3	3.300	15					1770	1770	160	0.090		65	0.037	
		B	3	3.500						2105	2105	363	0.172		485	0.230	
		B	3	3.500						2105	2105	364	0.173		485	0.230	
		B	3	3.500						2105	2105	363	0.172		485	0.230	
Canton Rd - NB		C	1,2	3.500	15			72%	44%	2115	2170	283	0.134		401	0.185	
		C	1,2	3.500						2105	2105	282	0.134		389	0.185	
Canton Rd - NB		D	2	3.500		20				1960	1960	165	0.084	0.084	123	0.063	0.063
		D	2	3.500		20				1960	1960	165	0.084		122	0.062	
Ferry St - SB		E	1	3.500	15					1785	1785	165	0.092		165	0.092	
		E	3	3.500						2105	2105	505	0.240	0.240	510	0.242	0.242
		E	3	3.500						2105	2105	505	0.240		510	0.242	
		E	3	3.500						2105	2105	505	0.240		510	0.242	
Pedestrian Crossing																	

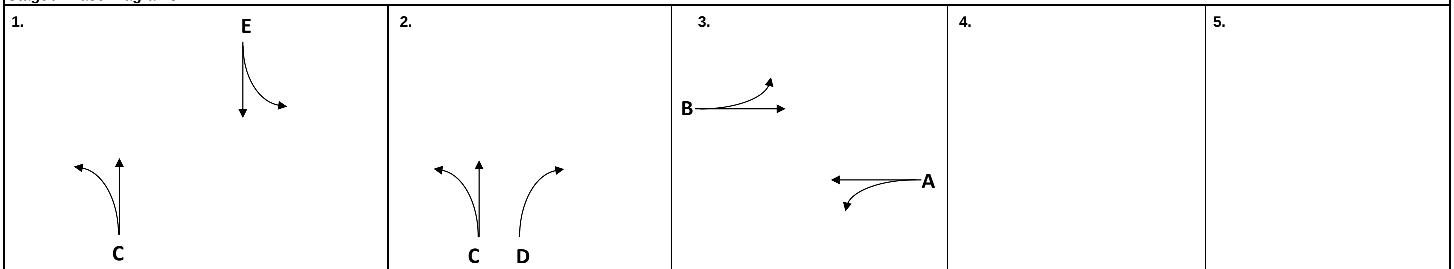
Notes:

Flow: (pcu/hr)



Group		E,D,A	Group		E,D,A
y		0.623	y		0.590
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		30%	R.C. (%)		37%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	

Date: MAR, 2022 — Junction: Jorden Rd/ Ferry St — J20

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

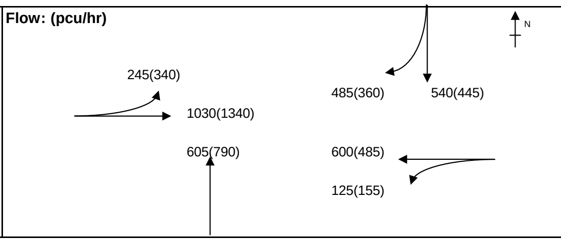
Junction: Jorden Rd / Nathan Rd Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.600	10					1715	1715	245	0.143		340	0.198	
		A	1	3.600						2115	2115	515	0.243	0.243	670	0.317	0.317
		A	1	3.600						2115	2115	515	0.243		670	0.317	
Jorden Rd - WB		A	1	3.600	5			60%	88%	1675	1560	210	0.125		176	0.113	
		A	1	3.000						2055	2055	258	0.126		232	0.113	
		A	1	3.000						2055	2055	257	0.125		232	0.113	
Nathan Rd - NB		B	2	3.300						1945	1945	292	0.150		381	0.196	0.196
		B	2	3.300						2085	2085	313	0.150	0.150	409	0.196	
Nathan Rd - SB		C	3	3.500						1965	1965	334	0.170		262	0.133	
		C	3	3.500		35		41%	34%	2070	2075	351	0.170		276	0.133	
		C	3	3.500		30				2005	2005	340	0.170		267	0.133	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			5	+	9	=	14						
		Ep	2	MIN GREEN + FLASH =			19	+	10	=	29						
		Fp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Gp	3	MIN GREEN + FLASH =			25	+	8	=	33			*			*
		Hp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						

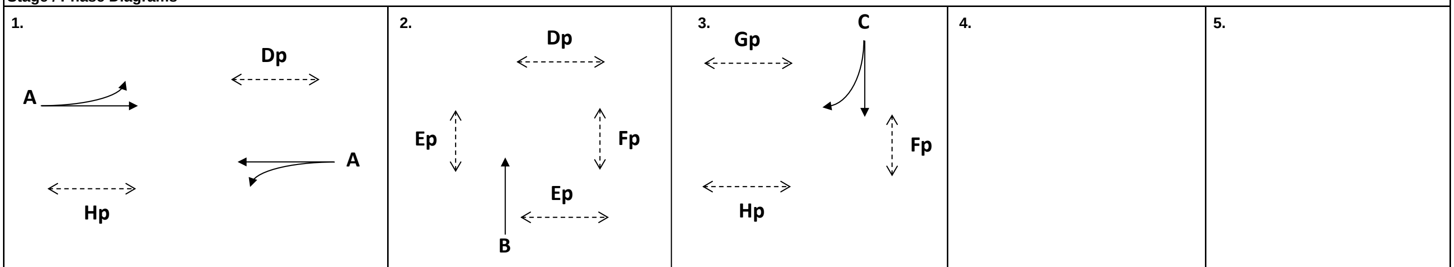
Notes:

Flow: (pcu/hr)



Group		A,B,Gp	Group		A,B,Gp
y		0.394	y		0.513
L (sec)		52	L (sec)		46
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.582
R.C. (%)		37%	R.C. (%)		13%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 12	33	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 12	27	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd / Nathan Rd J21

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

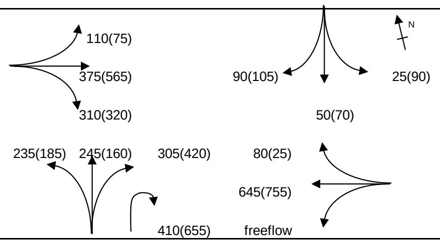
Junction: Jorden Rd / Gascoigne Rd Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Gascoigne Rd - EB		A	1	6.100	15					2025	2025	110	0.054		75	0.037	
Gascoigne Rd - EB		A	1	4.500						2205	2205	188	0.085		283	0.128	
		A	1	4.500						2205	2205	187	0.085		282	0.128	
Gascoigne Rd - EB		A	1	4.500						2205	2205	310	0.141		320	0.145	
Gascoigne Rd - WB		B1	1,2	3.100						1925	1925	311	0.162		364	0.189	
		B1	1,2	3.100						2065	2065	334	0.162		391	0.189	
Gascoigne Rd - WB		B2	2	3.000		10				1785	1785	80	0.045	0.045	25	0.014	
Jorden Rd - NB		C	3	3.300	20			49%	54%	1875	1870	480	0.256		345	0.184	
Jorden Rd - NB																	
Jorden Rd - NB		C	3	3.300		20				1940	1940	305	0.157		420	0.216	
Jorden Rd - NB		C	3	3.400		15				1905	1905	410	0.215		655	0.344	
Queen Elizabeth Hospital Rd - SB		D	4	6.000	20	25		55% / 15%	40% / 34%	2110	2110	165	0.078	0.078	265	0.126	0.126
Queen Elizabeth Hospital Rd - SB																	
Queen Elizabeth Hospital Rd - SB																	
Pedestrian Crossing		Ep	2,3,4	MIN GREEN + FLASH =			6	+	12	=	18						
		Fp	3	MIN GREEN + FLASH =			51	+	7	=	58			*			*
		Gp	1,2,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1	MIN GREEN + FLASH =			21	+	11	=	32			*			*
		Ip	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

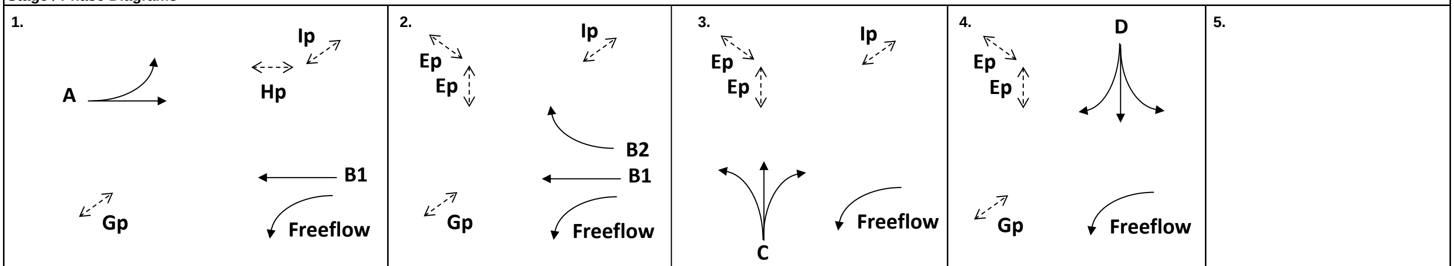
Notes:

Flow: (pcu/hr)



Group	Hp,B2,C,D	Hp,B2,Fp,D	Group	Hp,B2,Fp,D	Hp,B2,C,D
y	0.379	0.123	y	0.126	0.469
L (sec)	51	109	L (sec)	106	54
C (sec)	130	130	C (sec)	130	130
y pract.	0.547	0.145	y pract.	0.166	0.526
R.C. (%)	44%	18%	R.C. (%)	32%	12%

Stage / Phase Diagrams



I/G= 5	32	I/G= 2		I/G= 8	58	I/G= 6		I/G=	
I/G= 5	26	I/G= 2	5	I/G= 9		I/G= 9		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd / Gascoigne Rd J22

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

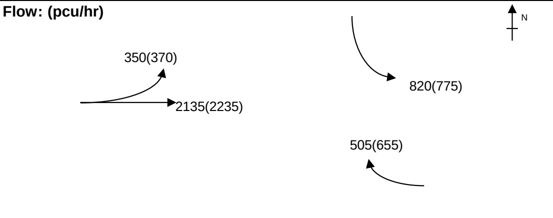
Junction: Boundary St / Tai Hang Tung Rd | Design Year: 2037

Description: 2037 AM&PM Reference Flows | Designed By: CHJ | Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary St - WB		A	1	3.300		20				1810	1810	244	0.135	0.135	316	0.175	
		A	1	3.300		20				1940	1940	261	0.135		339	0.175	0.175
Tai Hang Tung Rd - SB		B	1,2	3.300	15					1770	1770	261	0.147		247	0.140	
		B	1,2	3.300	15					1895	1895	280	0.148		264	0.139	
		B	1,2	3.300	15					1895	1895	279	0.147		264	0.139	
Boundary St - EB		D	3	3.800	10					1735	1735	350	0.202		370	0.213	
Boundary St - EB		C	3	3.300						2085	2085	534	0.256	0.256	559	0.268	0.268
		C	3	3.300						2085	2085	534	0.256		559	0.268	
		C	3	3.300						2085	2085	534	0.256		559	0.268	
		C	3	3.300						2085	2085	534	0.256		559	0.268	
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			17	+	10	=	27			*			*
		Fp	3	MIN GREEN + FLASH =			33	+	8	=	41						
		Gp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						

Notes:

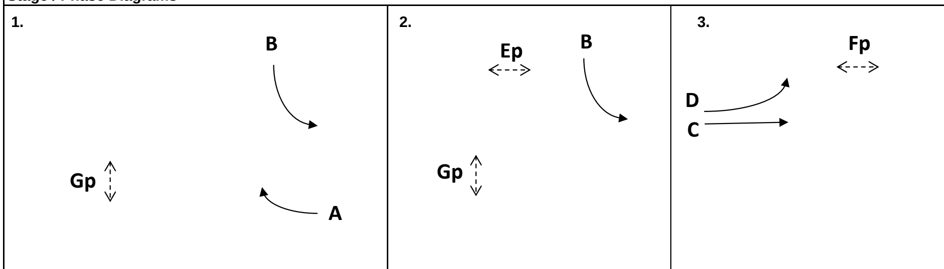
Flow: (pcu/hr)



Group	A,Ep,Fp	A,Ep,C	Group	A,Ep,C	A,Ep,Fp
y	0.135	0.391	y	0.443	0.175
L (sec)	80	43	L (sec)	46	101
C (sec)	120	120	C (sec)	130	130
y pract.	0.300	0.578	y pract.	0.582	0.201
R.C. (%)	123%	48%	R.C. (%)	31%	15%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 5		I/G= 11	27	I/G= 2		I/G=		I/G=	
I/G= 3		I/G= 11	30	I/G= 2	56	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Boundary St / Tai Hang Tung Rd J23

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Lai Chi Kok Rd / Tong Mi Rd

Design Year: 2037

Description: 2037 AM&PM Reference Flows

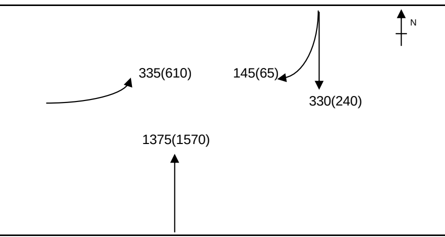
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Rd - SB		A	1	3.000						1915	1915	159	0.083		116	0.061	
Tong Mi Rd		A	1	3.000		70		0%	0%	2055	2055	171	0.083		124	0.060	
		A	1	3.000		65				2010	2010	145	0.072		65	0.032	
Lai Chi Kok Rd - NB		A	1	3.500	15					1320	1320	105	0.080		191	0.145	
		A	1	3.500	15					1445	1445	115	0.080		210	0.145	
		A	1	3.500	15					1445	1445	115	0.080		209	0.145	
Lai Chi Kok Rd - NB		B	2	3.300						1430	1430	320	0.224		365	0.255	0.255
		B	2	3.300						1570	1570	351	0.224	0.224	401	0.255	
		B	2	3.300						1575	1575	352	0.224		402	0.255	
		B	2	3.250						1570	1570	351	0.224		401	0.255	
Pedestrian Crossing		Cp	1,3	MIN GREEN + FLASH =			6	+	11	=	17			*			*
		Dp	2,3	MIN GREEN + FLASH =			6	+	9	=	15						
		Ep	2,3	MIN GREEN + FLASH =			6	+	13	=	19						

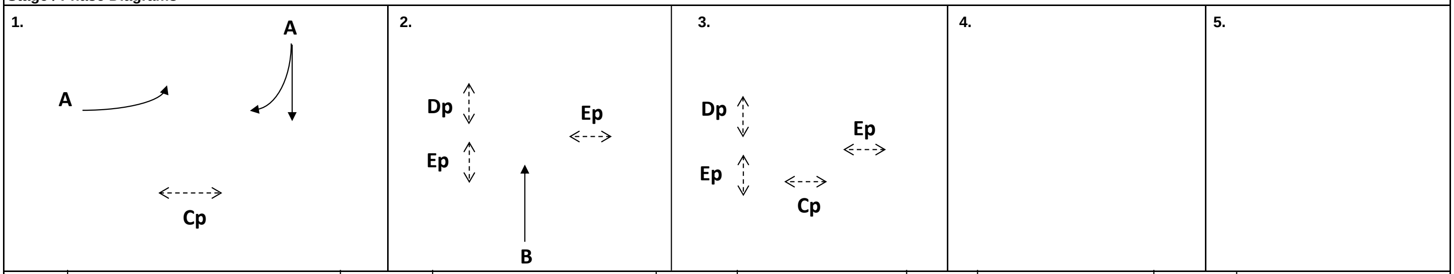
Notes:

Flow: (pcu/hr)



Group		Cp,B	Group		Cp,B
y		0.224	y		0.255
L (sec)		25	L (sec)		25
C (sec)		120	C (sec)		130
y pract.		0.713	y pract.		0.727
R.C. (%)		218%	R.C. (%)		185%

Stage / Phase Diagrams



I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	
I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	

Date: MAR, 2022

Junction: Lai Chi Kok Rd / Tong Mi Rd J24

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

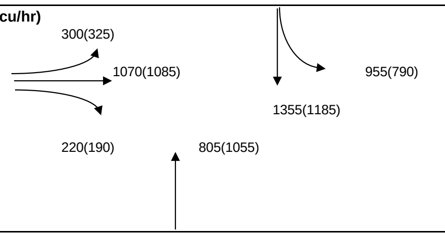
Junction: Nathan Rd / Mong Kok Rd Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.400	10			84%	92%	1735	1720	356	0.205		355	0.206	
Mong Kok Rd - EB		A	1	3.300						2085	2085	428	0.205	0.205	431	0.207	
Mong Kok Rd - EB		A	1	3.300						2085	2085	429	0.206		431	0.207	0.207
		A	1	3.300		15		58%	50%	1840	1855	377	0.205		383	0.206	
Nathan Rd - SB		B	2	3.200	5					1490	1490	604	0.405		515	0.346	
Nathan Rd - SB		B	2	3.300	10			44%	40%	1955	1965	792	0.405	0.405	680	0.346	0.346
		B	2	3.000						2255	2255	914	0.405		780	0.346	
Nathan Rd - NB		C	2	3.600						1975	1975	389	0.197		509	0.258	
		C	2	3.600						2115	2115	416	0.197		546	0.258	
Pedestrian Crossing																	

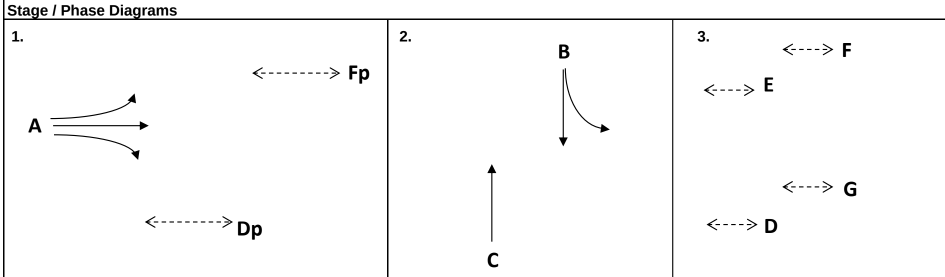
Notes:

Flow: (pcu/hr)



Group		A,B	Group		A,B
y		0.610	y		0.553
L (sec)		12	L (sec)		15
C (sec)		130	C (sec)		130
y pract.		0.817	y pract.		0.796
R.C. (%)		34%	R.C. (%)		44%

Stage / Phase Diagrams



I/G= 7	I/G= 7	I/G=	I/G=	I/G=
I/G= 7	I/G= 7	I/G=	I/G=	I/G=

Date: JUN, 2022 **Junction:** J25 Nathan Rd / Mong Kok Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

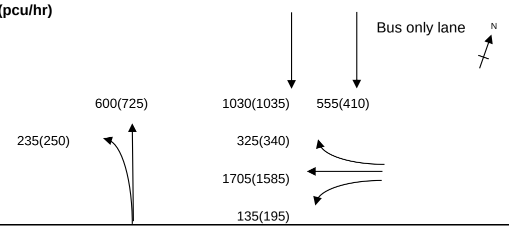
Junction: Nathan Rd / Argyle St Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle St - WB		E	2	3.000	5					1475	1475	135	0.092		195	0.132	
Argyle St - WB		D	1,2	3.200						2075	2075	848	0.409		789	0.380	0.380
Argyle St - WB		D	1,2	3.400		10		0%	0%	2095	2095	857	0.409	0.409	796	0.380	
		D	1,2	3.300		5				1495	1495	325	0.217		340	0.227	
Nathan Rd - SB		A	3,4	3.300						2085	2085	515	0.247		518	0.248	
		A	3,4	3.300						2085	2085	515	0.247		517	0.248	
Nathan Rd - SB (Bus only lane)		A	3,4	3.300						1945	1945	555	0.285		410	0.211	
Nathan Rd - NB		C	4	3.500	5					1510	1510	235	0.156	0.156	250	0.166	0.166
Nathan Rd - NB		B	3,4	3.200						2075	2075	300	0.145		363	0.175	
		B	3,4	3.200						2075	2075	300	0.145		362	0.174	
Pedestrian Crossing		Fp	3	MIN GREEN + FLASH =			11	+	15	=	26			*			*
		Gp	3,4	MIN GREEN + FLASH =			6	+	16	=	22						
		Hp	1	MIN GREEN + FLASH =			26	+	12	=	38						

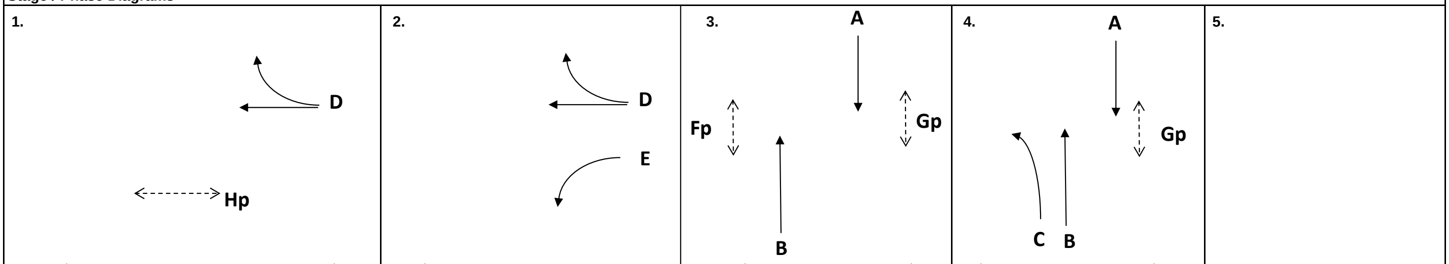
Notes:

Flow: (pcu/hr)



Group		D,Fp,C	Group		D,Fp,C
y		0.565	y		0.546
L (sec)		42	L (sec)		42
C (sec)		130	C (sec)		130
y pract.		0.609	y pract.		0.609
R.C. (%)		8%	R.C. (%)		12%

Stage / Phase Diagrams



I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	
I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Argyle St J26

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Argyle St / Tong Mi Rd

Design Year: 2037

Description: 2037 AM&PM Reference Flows

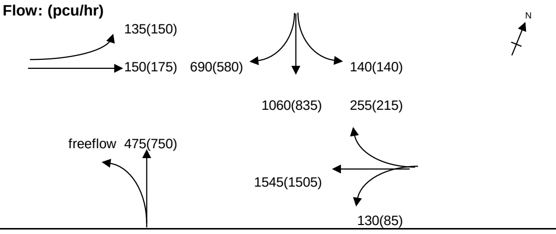
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	158	0.076	0.076	250	0.120	
		A	1	3.300						2085	2085	159	0.076		250	0.120	0.120
		A	1	3.300						2085	2085	158	0.076		250	0.120	
Tong Mi Rd - SB		B	1,2	3.300	10			25%	30%	1875	1860	568	0.303		460	0.247	
Tong Mi Rd - SB		B	1,2	3.300						2085	2085	632	0.303		515	0.247	
Tong Mi Rd - SB		E	2	3.600		15				1925	1925	690	0.358	0.358	580	0.301	0.301
Argyle St - EB		C	3	3.300	10					1690	1690	135	0.080		150	0.089	
Argyle St - EB		C	3	3.400						2095	2095	150	0.072		175	0.084	
Argyle St - WB		G	3,4	4.500	50			23%	16%	2165	2170	567	0.262	0.262	539	0.248	0.248
Argyle St - WB		D	3,4	3.600						2115	2115	554	0.262		526	0.249	
		D	3,4	3.600						2115	2115	554	0.262		525	0.248	
Argyle St - WB		F	4	3.300		10				1815	1815	255	0.140		215	0.118	
Pedestrian Crossing																	

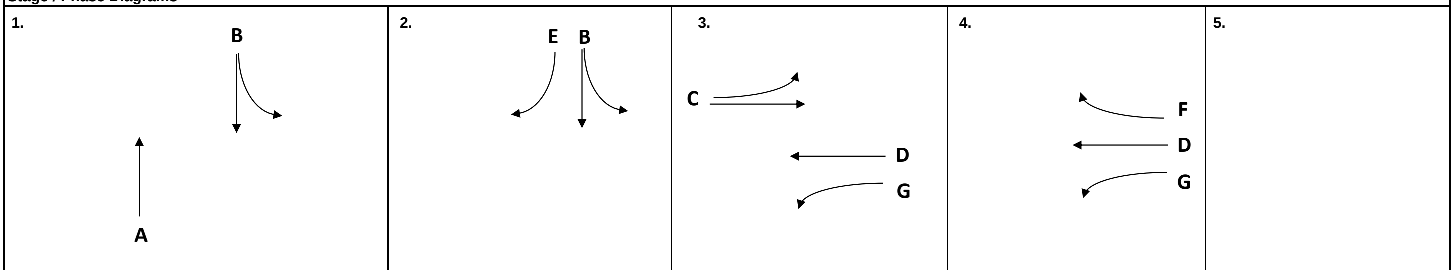
Notes:

Flow: (pcu/hr)



Group		A,E,G	Group		A,E,G
y		0.696	y		0.670
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		11%	R.C. (%)		16%

Stage / Phase Diagrams



I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	
I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Argyle St / Tong Mi Rd J27

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

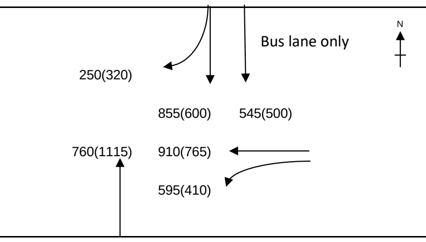
Junction: Nathan Rd / Prince Edward Rd West Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)		A	1,2	3.200						1935	1935	545	0.282		500	0.258	
Nathan Rd - SB		A	1,2	3.200						2075	2075	428	0.206		300	0.145	
		A	1,2	3.200						2075	2075	427	0.206		300	0.145	
Nathan Rd - SB		B	1	3.100		15				1875	1875	250	0.133	0.133	320	0.171	0.171
Nathan Rd - NB		C	2	3.350						1950	1950	367	0.188		538	0.276	
		C	2	3.350						2090	2090	393	0.188	0.188	577	0.276	0.276
Prince Edward Rd West - WB		D	3	3.000	10					1665	1665	326	0.196		253	0.152	
Prince Edward Rd West - WB		D	3	3.000	15			72%	53%	1915	1950	375	0.196		297	0.152	
		D	3	3.000						2055	2055	402	0.196	0.196	313	0.152	0.152
		D	3	3.000						2055	2055	402	0.196		312	0.152	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			13	+	14	=	27						
		Fp	2	MIN GREEN + FLASH =			17	+	10	=	27						
		Gp	3	MIN GREEN + FLASH =			42	+	13	=	55						

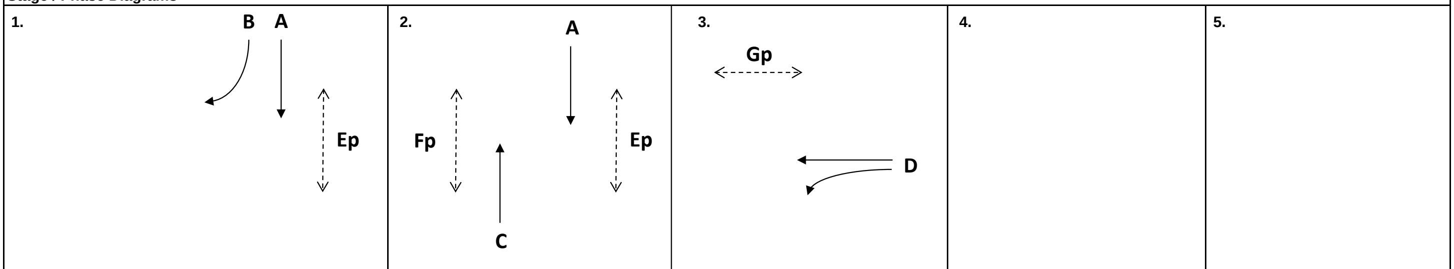
Notes:

Flow: (pcu/hr)



Group		B,C,D	Group		B,C,D
y		0.517	y		0.599
L (sec)		21	L (sec)		21
C (sec)		130	C (sec)		130
y pract.		0.755	y pract.		0.755
R.C. (%)		46%	R.C. (%)		26%

Stage / Phase Diagrams



I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	
I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J28 Nathan Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — **MVA HONG KONG LIMITED**

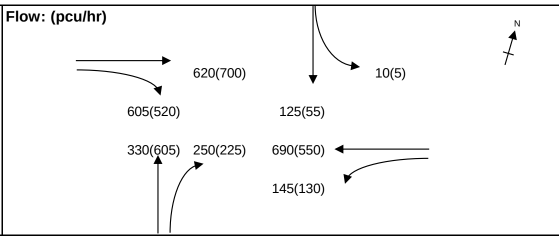
Junction: Tong Mi Rd / Prince Edward Rd West — Design Year: 2037

Description: 2037 AM&PM Reference Flows — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - SB		A	1	3.800	10			16%	17%	1950	1945	64	0.033		29	0.015	
Tong Mi Rd - SB		A	1	3.800						2135	2135	71	0.033		31	0.015	
Tong Mi Rd - NB		B	2	3.100						1925	1925	142	0.074		201	0.104	
Tong Mi Rd - NB		B	2	3.100						2065	2065	152	0.074		216	0.105	
		B	2	3.300		20		75%	13%	1975	2065	146	0.074		216	0.105	
		B	2	3.250		15				1890	1890	140	0.074		197	0.104	
Prince Edward Rd West - WB		C	3	3.200	10					1685	1685	145	0.086		130	0.077	
Prince Edward Rd West - WB		C	3	3.400	15			0%	0%	2095	2095	343	0.164	0.164	274	0.131	0.131
		C	3	3.600						2115	2115	347	0.164		276	0.130	
Prince Edward Rd West - EB		D	4	3.400						2115	2115	311	0.147		352	0.166	
		D	4	3.400						2095	2095	309	0.147		348	0.166	
Prince Edward Rd West - EB		D	4	3.800		15				1940	1940	605	0.312	0.312	520	0.268	0.268
Pedestrian Crossing		Ep	1,2,4	MIN GREEN + FLASH =			9	+	9	=	18						
		Fp	2	MIN GREEN + FLASH =			17	+	8	=	25			*			*
		Gp	1,3,4	MIN GREEN + FLASH =			11	+	11	=	22						
		Hp	1	MIN GREEN + FLASH =			14	+	13	=	27						
		Ip	3,4	MIN GREEN + FLASH =			11	+	10	=	21						
		Jp	3	MIN GREEN + FLASH =			15	+	9	=	24						

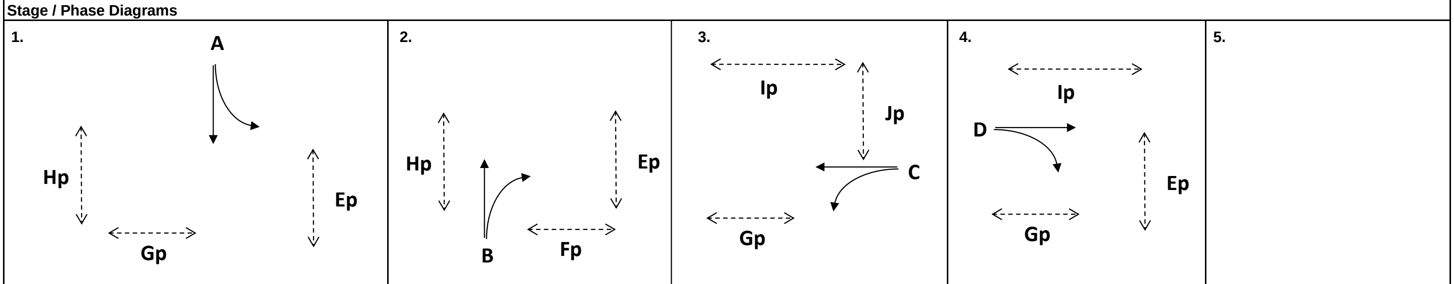
Notes:

Flow: (pcu/hr)



Group		A,Fp,C,D	Group		A,Fp,C,D
y		0.476	y		0.399
L (sec)		53	L (sec)		56
C (sec)		130	C (sec)		130
y pract.		0.533	y pract.		0.512
R.C. (%)		12%	R.C. (%)		28%

Stage / Phase Diagrams



I/G= 7	5	I/G= 11	25	I/G= 2		I/G= 5		I/G=	
I/G= 7	5	I/G= 11	28	I/G= 2		I/G= 5		I/G=	

Date: MAR, 2022 — **Junction:** J29 Tong Mi Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

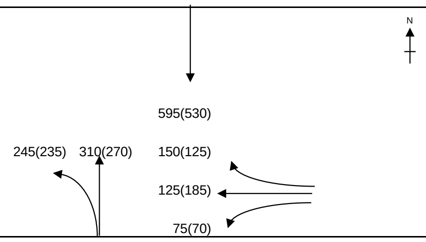
Junction: Tai Kok Tsui Rd / Ivy St   Design Year: 2037

Description: 2037 AM&PM Reference Flows   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tai Kok Tsui Rd - SB		A	1	4.300						2045	2045	595	0.291	0.291	530	0.259	0.259
Tai Kok Tsui Rd - NB		A	1	3.200	10			78%	84%	1730	1720	218	0.126		197	0.115	
Tai Kok Tsui Rd - NB		A	1	3.300						2085	2085	262	0.126		238	0.114	
Ivy St - WB		B	3	4.600	10	15		21% / 43%	18% / 33%	1930	1955	350	0.181	0.181	380	0.194	0.194
Ivy St - WB																	
Ivy St - WB																	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			22	+	20	=	42			*			*

Notes:

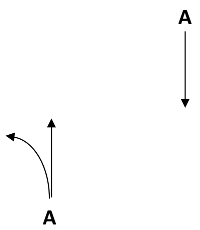
Flow: (pcu/hr)



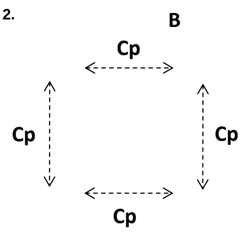
Group		A,Cp,B	Group		A,Cp,B
y		0.472	y		0.454
L (sec)		59	L (sec)		59
C (sec)		136	C (sec)		136
y pract.		0.510	y pract.		0.510
R.C. (%)		8%	R.C. (%)		12%

Stage / Phase Diagrams

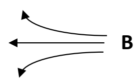
1.



2.



3.



4.

5.

I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	
I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	

Date: MAR, 2022   **Junction:** J30 Tai Kok Tsui Rd / Ivy St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

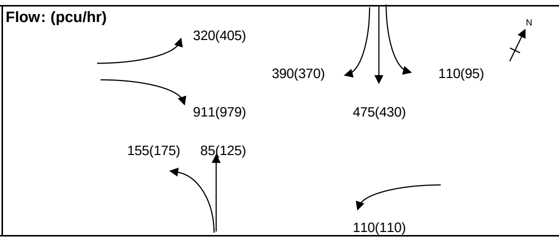
Junction: Sai Yee St / Mong Kok Rd Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.100	10	15		77% / 23%	93% / 7%	1690	1680	414	0.245	0.245	436	0.260	0.260
Mong Kok Rd - EB																	
Mong Kok Rd - EB		A	1	3.400		15				1905	1905	456	0.239		490	0.257	
		A	1	3.400		15				1905	1905	455	0.239		489	0.257	
Sai Yee St - SB		B	2	3.650	10			22%	21%	1915	1920	491	0.256	0.256	452	0.235	0.235
Sai Yee St - SB		B	2	3.650		10		81%	84%	1890	1885	484	0.256		443	0.235	
Sai Yee St - SB																	
Mong Kok Rd - WB		H	3	3.500	10					1710	1710	53	0.031		53	0.031	
		H	3	3.500	10					1830	1830	57	0.031		57	0.031	
Sai Yee St - NB		C	4	3.400	10			100%	100%	1700	1700	155	0.091	0.091	175	0.103	0.103
Sai Yee St - NB		C	4	3.400						2095	2095	85	0.041		125	0.060	
Pedestrian Crossing		Dp	2,3,4	MIN GREEN + FLASH =			7	+	12	=	19						
		Ep	1,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Fp	2,3	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Ip	1,3,4	MIN GREEN + FLASH =			5	+	8	=	13						
		Jp	1,2,4	MIN GREEN + FLASH =			5	+	10	=	15						

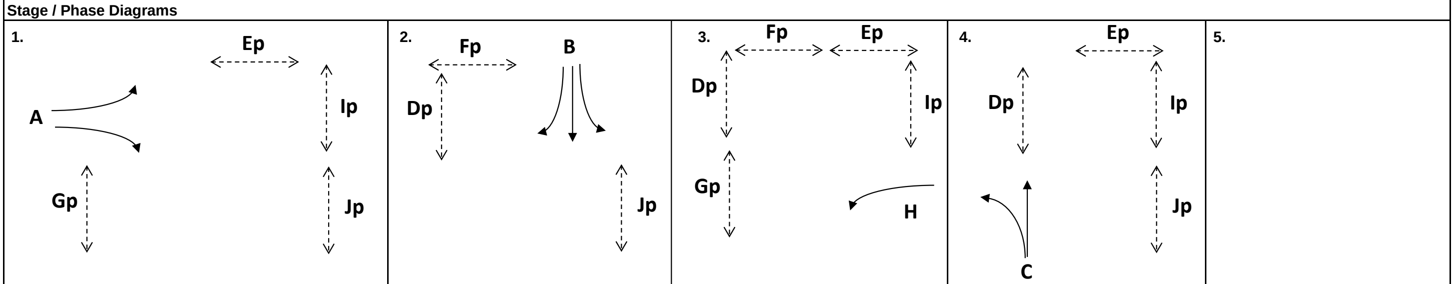
Notes:

Flow: (pcu/hr)



Group		A,B,H,C	Group		A,B,H,C
y		0.593	y		0.598
L (sec)		22	L (sec)		22
C (sec)		130	C (sec)		130
y pract.		0.748	y pract.		0.748
R.C. (%)		26%	R.C. (%)		25%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 5	5	I/G= 5		I/G=
I/G= 5		I/G= 5		I/G= 5	5	I/G= 5		I/G=

Date: MAR, 2022 **Junction:** Sai Yee St / Mong Kok Rd J31

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

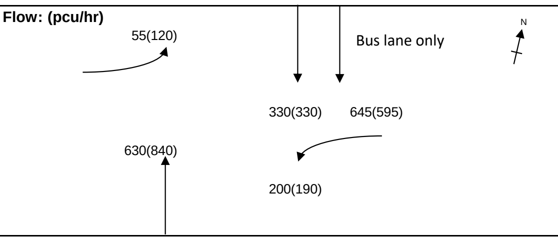
Junction: Nathan Rd / Dundas St Design Year: 2037

Description: 2037 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)	↑	A	1,3	3.250						1940	1940	645	0.332	0.332	595	0.307	0.307
Nathan Rd - SB	↑	A	1,3	3.400						2095	2095	165	0.079		165	0.079	
	↑	A	1,3	3.400						2095	2095	165	0.079		165	0.079	
Nathan Rd - NB	↑	B	1	3.300						1945	1945	200	0.103		267	0.137	
	↑	B	1	3.300						2085	2085	215	0.103		287	0.138	
	↑	B	1	3.300						2085	2085	215	0.103		286	0.137	
Dundas St - WB	↰	C	2	4.600	10					1805	1805	200	0.111		190	0.105	
Dundas St - EB	↰	D	3	3.500	10					1710	1710	55	0.032	0.032	120	0.070	0.070
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			24	+	11	=	35			*			*
		Fp	1,3	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						

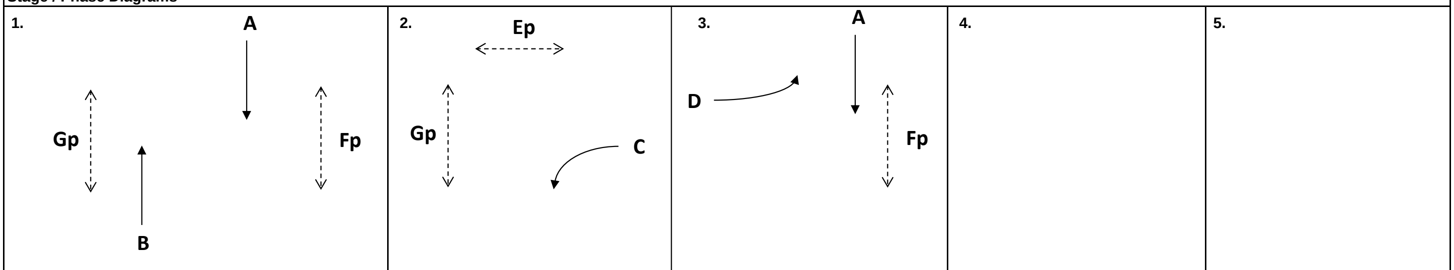
Notes:

Flow: (pcu/hr)



Group		A,Ep,D	Group		A,Ep,D
y		0.365	y		0.377
L (sec)		45	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.519
R.C. (%)		61%	R.C. (%)		38%

Stage / Phase Diagrams



I/G= 3		I/G= 5	35	I/G= 4		I/G=		I/G=	
I/G= 3		I/G= 5	45	I/G= 4		I/G=		I/G=	

Date:	Junction: J32
MAR, 2022	Nathan Rd / Dundas St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

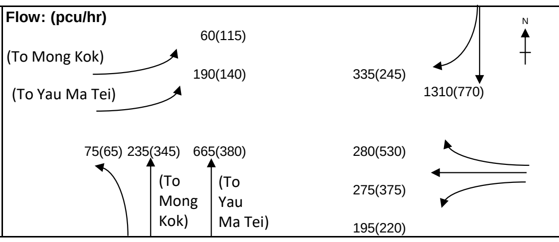
Junction: Yau Cheung Rd / Ferry St / Kansu St Design Year: 2037

Description: ~~2037 AM&PM Reference Flows~~ Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu St - WB		A	1	3.300	15			83%	62%	1795	1830	234	0.130	0.130	357	0.195	
Kansu St - WB		A	1	3.300		50		13%	41%	2075	2060	271	0.131		402	0.195	0.195
Kansu St - WB		A	1	3.300		45				1880	1880	245	0.130		366	0.195	
Ferry St - NB		B	2	3.500	30			51%	33%	1915	1935	148	0.077		196	0.101	
Ferry St - NB (To Mong Kok)		B	2	3.500						2105	2105	162	0.077		214	0.102	
Ferry St - NB (To Yau Ma Tei)		B	2	3.650						2120	2120	665	0.314	0.314	380	0.179	
Ferry St - SB		B	2	3.500						1965	1965	417	0.212		245	0.125	
		B	2	3.500						2105	2105	446	0.212		263	0.125	
		B	2	3.500						2105	2105	447	0.212		262	0.124	
Ferry St - SB		D	3	3.650		45				2050	2050	168	0.082		123	0.060	
		D	3	3.650		45				2050	2050	167	0.081		122	0.060	
Yan Cheung Rd - EB (To Mong Kok)		E	3	3.500	50					1910	1910	29	0.015		56	0.029	
		E	3	3.500	50					2045	2045	31	0.015		59	0.029	
Yan Cheung Rd - EB (To Yau Ma Tei)		D	3	4.000	60					2100	2100	190	0.090	0.090	140	0.067	
.																	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	10	=	15						
		Hp	2	MIN GREEN + FLASH =			38	+	14	=	52						*
		Ip	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Jp	3	MIN GREEN + FLASH =			9	+	12	=	21						*

Notes:

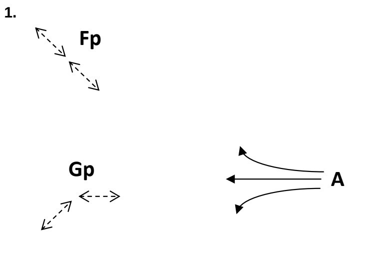
Flow: (pcu/hr)



Group	A,Hp,Jp	A,B,D	Group	A,B,D	A,Hp,Jp
y	0.130	0.535	y	0.441	0.195
L (sec)	87	20	L (sec)	20	87
C (sec)	120	120	C (sec)	120	120
y pract.	0.248	0.750	y pract.	0.750	0.248
R.C. (%)	90%	40%	R.C. (%)	70%	27%

Stage / Phase Diagrams

1.



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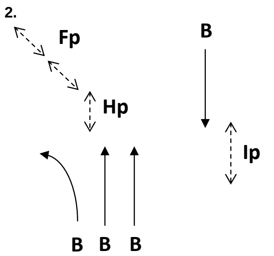

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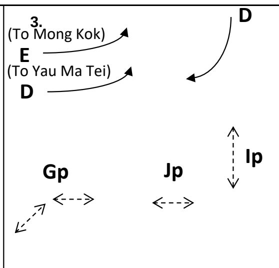


4.

5.

I/G= 8		I/G= 7		I/G= 8		I/G=		I/G=
I/G= 2		I/G= 10	52	I/G= 3	21	I/G=		I/G=

Date: MAR, 2022 **Junction:** J33 Yau Cheung Rd / Ferry St / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Jorden Rd / Shanghai St

Design Year: 2037

Description: 2037 AM&PM Reference Flows

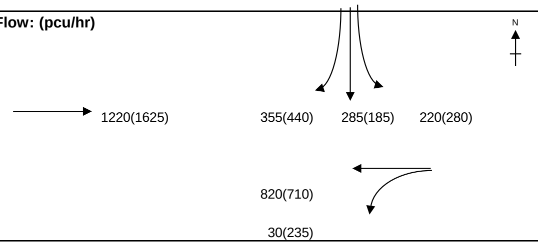
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.000						1915	1915	388	0.203		516	0.269	0.269
		A	1	3.000						2055	2055	416	0.202	0.202	555	0.270	
		A	1	3.000						2055	2055	416	0.202		554	0.270	
Jorden Rd - WB		A	1	3.300	10			11%	85%	1915	1725	268	0.140		277	0.161	
Jorden Rd - WB		A	1	3.250						2080	2080	291	0.140		334	0.161	
		A	1	3.250						2080	2080	291	0.140		334	0.161	
Shanghai St - SB		D	3	3.000	10			82%	100%	1705	1665	269	0.158		281	0.169	
Shanghai St - SB		D	3	3.000		15		25%	44%	2005	1970	316	0.158		331	0.168	0.168
Shanghai St - SB		D	3	3.000		15				1740	1740	275	0.158	0.158	293	0.168	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			16	+	12	=	28			*			*
		Cp	1	MIN GREEN + FLASH =			10	+	12	=	22						

Notes:

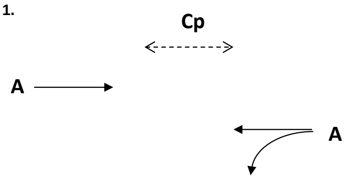
Flow: (pcu/hr)



Group		A,Bp,D	Group		A,Bp,D
y		0.360	y		0.437
L (sec)		45	L (sec)		45
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.588
R.C. (%)		63%	R.C. (%)		35%

Stage / Phase Diagrams

1.



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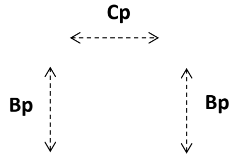

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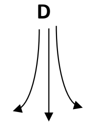


4.

5.

I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	
I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	

Date: MAR, 2022

Junction: J34 Jorden Rd / Shanghai St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street Design Year: 2037

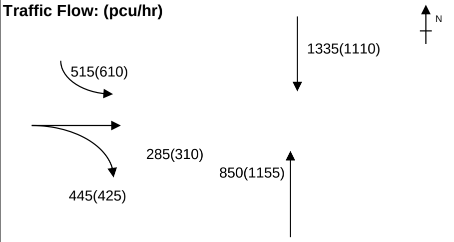
Description: 2037 Reference Designed By: ____________ Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Road - NB		A	1	3.000						1915	1915	271	0.142		368	0.192	
		A	1	3.000						2055	2055	291	0.142		396	0.193	
		A	1	2.800						2035	2035	288	0.142		391	0.192	0.192
Anchor Street		D	3	3.300		20		22%	16%	1915	1920	367	0.192		370	0.193	
		D	3	3.300		15				1895	1895	363	0.192	0.192	365	0.193	0.193
Fuk Tsun Street		C	2	4.200	15					1850	1850	158	0.085	0.085	187	0.101	
		C	2	4.600	20					2060	2060	176	0.085		208	0.101	0.101
		C	2	5.000	25					2125	2125	181	0.085		215	0.101	
Tong Mi Road - SB		B	1	3.500						1965	1965	428	0.218	0.218	356	0.181	
		B	1	3.300						2085	2085	455	0.218		378	0.181	
		B	1	3.200						2075	2075	452	0.218		376	0.181	

Pedestrian Crossing	Ep	1,3	MIN GREEN + FLASH =	13	+	13	=	26
	Fp	1,2	MIN GREEN + FLASH =	7	+	7	=	14
	Gp	2,3	MIN GREEN + FLASH =	8	+	8	=	16
	Hp	2	MIN GREEN + FLASH =	8	+	8	=	16
	Ip	1	MIN GREEN + FLASH =	11	+	11	=	22
	Jp	2,3	MIN GREEN + FLASH =	13	+	9	=	22

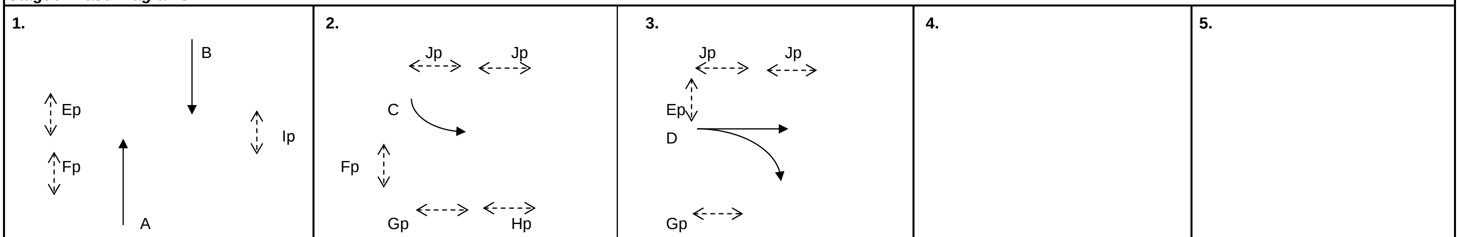
Notes:

Traffic Flow: (pcu/hr)



Group	A,C,D	B,C,D	Group	B,C,D	A,C,D
y	0.419	0.495	y	0.475	0.486
L (sec)	18	18	L (sec)	18	18
C (sec)	130	130	C (sec)	130	130
y pract.	0.775	0.775	y pract.	0.775	0.775
R.C. (%)	85%	57%	R.C. (%)	63%	60%

Stage / Phase Diagrams



1.	2.	3.	4.	5.
I/G= 8	I/G= 7	I/G= 6	I/G=	I/G=
I/G= 8	I/G= 7	I/G= 6	I/G=	I/G=

Date: MAR, 2022 **Junction:** J35

J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

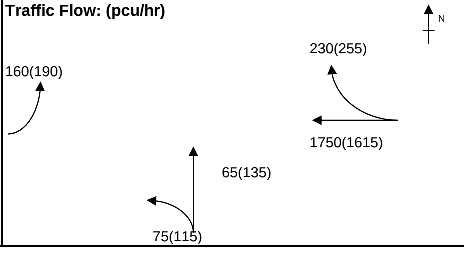
Junction: J36 - Argyule Street / Reclamation Street   Design Year: 2037

Description: 2037 Reference   Designed By: ____________   Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street - WB		B	1	3.200						1935	1935	412	0.213	0.213	380	0.196	0.196
		B	1	3.600						2115	2115	450	0.213		416	0.196	
		B	1	3.200						2075	2075	442	0.213		408	0.196	
		B	1	3.400						2095	2095	446	0.213		412	0.196	
Argyle Street - WB		B	1	3.700		15				1930	1930	230	0.119		255	0.132	
clamation Street - NB		A	3	3.700	15					1805	1805	43	0.024	0.024	76	0.042	0.042
		A	3	3.600	20			68%	45%	2010	2045	47	0.023		86	0.042	
		A	3	3.500						2105	2105	50	0.024		88	0.042	
Argyle Street - EB		B	1	5.300	15					1950	1950	160	0.082		190	0.097	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			9	+	19	=	28						
		Dp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						
		Ep	2	MIN GREEN + FLASH =			23	+	15	=	38			*			*

Notes:

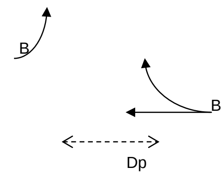
Traffic Flow: (pcu/hr)



Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.213	0.237	y	0.196	0.239
L (sec)	34	60	L (sec)	34	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.665	0.485	y pract.	0.665	0.519
R.C. (%)	212%	105%	R.C. (%)	238%	118%

Stage / Phase Diagrams

1.



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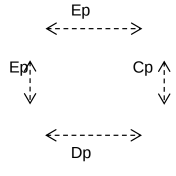

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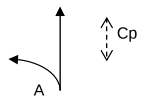


4.

5.

I/G= 7		I/G= 9	38	I/G= 3	5	I/G=		I/G=	
I/G= 7		I/G= 9	38	I/G= 3		I/G=		I/G=	

Date: MAR, 2022

Junction: J36

J36 - Argyule Street / Reclamation Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: J37 - Reclamation Street / Dundas Street

Design Year: 2037

Description: 2037 Reference

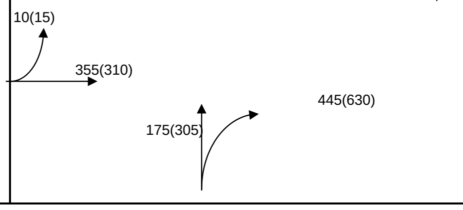
Designed By: ____________

Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
clamation Street - NB		B	1	3.200						1935	1935	84	0.043		146	0.075	
		B	1	3.400						2095	2095	91	0.043		159	0.076	
clamation Street - NB		B	1	3.600		15				1925	1925	445	0.231	0.231	630	0.327	0.327
Dundas Street - EB		A	3	3.100	15			6%	10%	1915	1905	175	0.091		155	0.081	
		A	3	3.300						2085	2085	190	0.091	0.091	170	0.082	0.082
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	1,2	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			11	+	9	=	20			*			*

Notes:

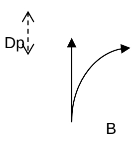
Traffic Flow: (pcu/hr)



Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.231	0.322	y	0.327	0.409
L (sec)	25	32	L (sec)	25	32
C (sec)	90	90	C (sec)	108	108
y pract.	0.650	0.580	y pract.	0.692	0.633
R.C. (%)	181%	80%	R.C. (%)	111%	55%

Stage / Phase Diagrams

1.



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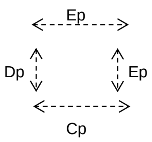

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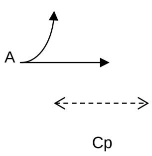


4.

5.

I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	
I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	

Date: MAR, 2022

Junction: J37 - Reclamation Street / Dundas Street

J37

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Kansu Street / Canton Road Design Year: 2037

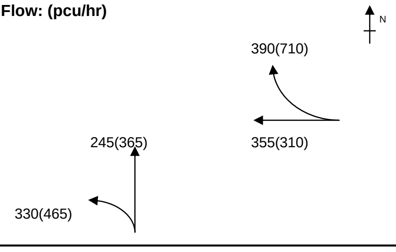
Description: 2037 Reference Designed By: ____________ Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu Street - WB		A	1	3.400						1955	1955	355	0.182		310	0.159	
		A	1	3.400		15		100%	100%	1905	1905	390	0.205	0.205	710	0.373	0.373
Canton Road - NB		B	2	3.700	15			100%	100%	1805	1805	330	0.183	0.183	465	0.258	0.258
		B	2	3.700						2125	2125	122	0.057		182	0.086	
		B	2	3.900						2145	2145	123	0.057		183	0.085	

Pedestrian Crossing	Cp	1	MIN GREEN + FLASH =	8	+	10	=	18
	Dp	2	MIN GREEN + FLASH =	7	+	10	=	17

Notes:

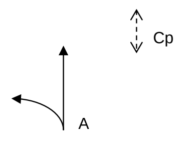
Traffic Flow: (pcu/hr)



Group	A,Dp	A,B	Group	A,Dp	A,B
y	0.205	0.388	y	0.373	0.630
L (sec)	25	8	L (sec)	25	8
C (sec)	120	120	C (sec)	120	120
y pract.	0.713	0.840	y pract.	0.713	0.840
R.C. (%)	248%	117%	R.C. (%)	91%	33%

Stage / Phase Diagrams

1.



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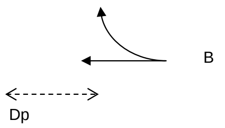


3.

4.

5.

I/G= 5	I/G= 5	I/G=	I/G=	I/G=
I/G= 5	I/G= 5	I/G=	I/G=	I/G=

Date: MAR, 2022 **Junction:** Kansu Street / Canton Road J38

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J39 - Prince Edward Road West / Lai Chi Kok Road

Design Year: 2037

Description: 2037 Reference

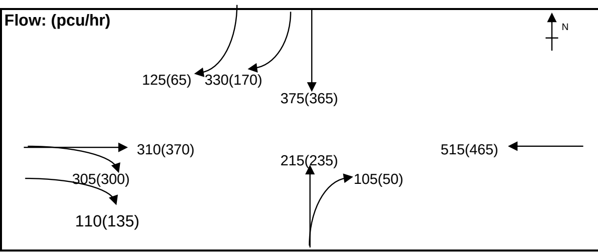
Designed By: ____________

Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward		C	1	3.200						1935	1935	164	0.085	0.085	148	0.076	0.076
Road West		C	1	3.200						2075	2075	175	0.084		158	0.076	
WB		C	1	3.200						2075	2075	176	0.085		159	0.077	
Lai Chi Kok		A	4	3.500						1965	1965	105	0.053		113	0.058	
Road - NB		A	4	3.500		15		3%	0%	2100	2105	113	0.054		122	0.058	
		A	4	3.500		15				1915	1915	102	0.053		50	0.026	
Prince Edward		D	3	3.600						1975	1975	308	0.156	0.156	334	0.169	
Road West		D	3	3.600		20		99%	89%	1970	1980	307	0.156		336	0.170	0.170
EB		D	3	3.600		15				1925	1925	110	0.057		135	0.070	
Lai Chi Kok		B	2	3.200						1935	1935	340	0.176		257	0.133	0.133
Road - SB		B	2	3.500		100		90%	61%	2075	2085	365	0.176	0.176	278	0.133	
		B	2	3.200		15				1885	1885	125	0.066		65	0.034	
Pedestrian Crossing		Lp	4	MIN GREEN + FLASH =			12	+	8	=	20			*			*

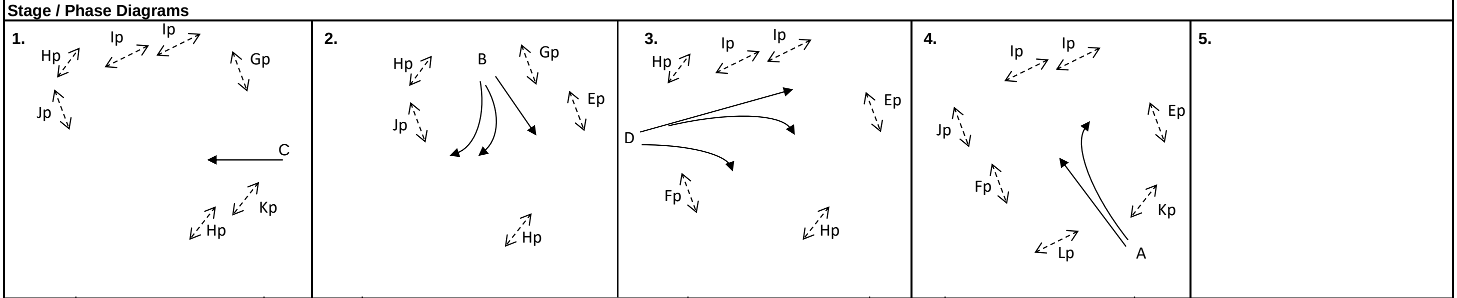
Notes:

Flow: (pcu/hr)



Group	C,B,D,A	C,B,D,Lp	Group	C,B,D,A	C,B,D,Lp
y	0.470	0.417	y	0.437	0.379
L (sec)	22	42	L (sec)	22	44
C (sec)	130	130	C (sec)	130	130
y pract.	0.748	0.609	y pract.	0.748	0.595
R.C. (%)	59%	46%	R.C. (%)	71%	57%

Stage / Phase Diagrams



I/G= 2		I/G= 8		I/G= 5		I/G= 12	18	I/G=	
I/G= 2		I/G= 8		I/G= 5		I/G= 12	20	I/G=	

Date: MAY, 2022

Junction: J39

J39 - Prince Edward Road West / Lai Chi Kok Road

TRAFFIC SIGNALS CALCULATION **Job No.: CHK50648010** **MVA HONG KONG LIMITED**

Junction: J40 - Lai Chi Kok Road / Shanghai Street

Design Year: 2037

Description: 2037 Reference

Designed By: ____________

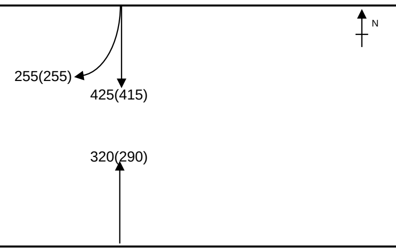
Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road - SB		A	1	3.400						1955	1955	220	0.113		217	0.111	0.111
		A	1	3.400		30		13%	14%	2080	2080	235	0.113		231	0.111	
		A	1	3.400		30				1995	1995	225	0.113	0.113	222	0.111	
Lai Chi Kok Road - NB		B	2	3.300						1945	1945	104	0.053		94	0.048	
		B	2	3.300						2085	2085	112	0.054		102	0.049	
		B	2	3.300						1945	1945	104	0.053		94	0.048	

Pedestrian Crossing	Cp	1	MIN GREEN + FLASH =	56	+	9	=	65			
	Dp	2	MIN GREEN + FLASH =	39	+	9	=	48	*		*

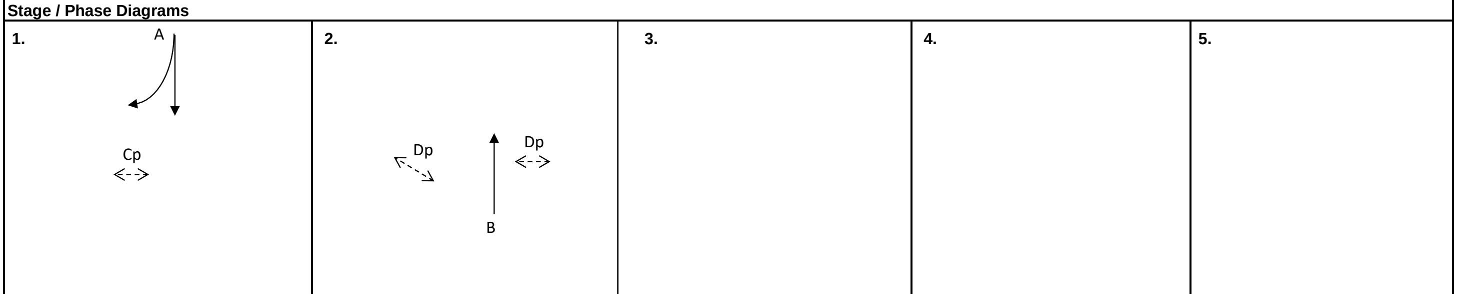
Notes:

Flow: (pcu/hr)



Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.166	0.113	y	0.160	0.111
L (sec)	12	66	L (sec)	12	66
C (sec)	130	130	C (sec)	130	130
y pract.	0.817	0.443	y pract.	0.817	0.443
R.C. (%)	391%	293%	R.C. (%)	411%	299%

Stage / Phase Diagrams



I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	
I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	

Date: MAY, 2022

Junction: J40 - Lai Chi Kok Road / Shanghai Street J40

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J41 - Lai Chi Kok Road / Nathan Road

Design Year: 2037

Description: 2037 Reference

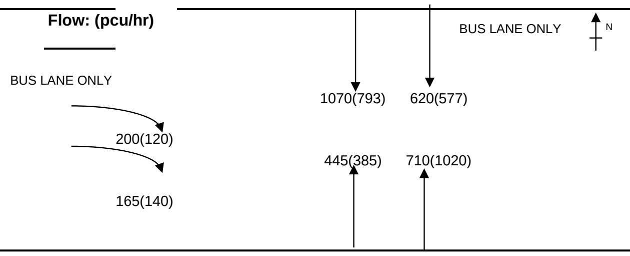
Designed By: ____________

Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road SB	↑	A	1	3.300						1945	1945	620	0.319	0.319	577.2	0.297	0.297
	↑	A	1	3.300						2085	2085	535	0.257		396	0.190	
	↑	A	1	3.300						2085	2085	535	0.257		397	0.190	
Nathan Road NB	↑	B	2	3.500						1570	1570	141	0.090		122	0.078	
	↑	B	2	3.500						1685	1685	152	0.090		132	0.078	
	↑	B	2	3.500						1685	1685	152	0.090		131	0.078	
	↑	A	1	3.400						195	195	32	0.164		45	0.231	
	↑	A	1	3.400						2095	2095	339	0.162		488	0.233	
	↑	A	1	3.400						2095	2095	339	0.162		487	0.232	
Lai Chi Kok Road EB	↱	B	2	3.300		25				1835	1835	200	0.109		120	0.065	
	↱	B	2	3.300		20				1940	1940	83	0.043		71	0.037	
	↱	B	2	3.300		15				1895	1895	82	0.043		69	0.036	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			65	+	10	=	75						
		Dp	2	MIN GREEN + FLASH =			47	+	10	=	57			*			*

Notes:

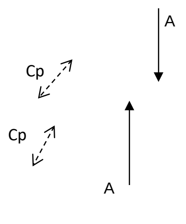
Flow: (pcu/hr)



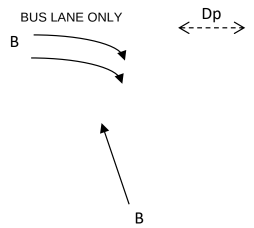
Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.428	0.319	y	0.375	0.297
L (sec)	20	71	L (sec)	20	71
C (sec)	130	130	C (sec)	130	130
y pract.	0.762	0.408	y pract.	0.762	0.408
R.C. (%)	78%	28%	R.C. (%)	103%	38%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 5		I/G= 10	57	I/G=		I/G=		I/G=	
I/G= 5		I/G= 10	57	I/G=		I/G=		I/G=	

Date: JUN, 2022

Junction: J41 - Lai Chi Kok Road / Nathan Road (J41)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

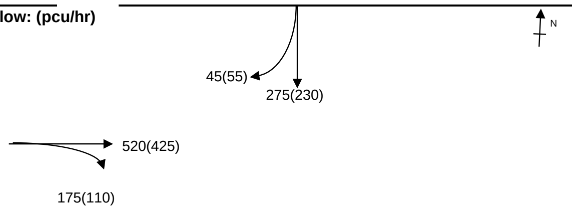
Junction: J42 - Bute Street / Shanghai Street | Design Year: 2037

Description: 2037 Reference | Designed By: ______ | Checked By: ______

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Shanghai Street SB		A	1	3.300						1945	1945	87	0.045		74	0.038	
		A	1	3.300						2085	2085	94	0.045		78	0.037	
		A	1	3.300						2085	2085	94	0.045		78	0.037	
		A	1	3.300		5		100%	100%	800	800	45	0.056	0.056	55	0.069	0.069
Bute Street EB		B	2	3.200						1935	1935	255	0.132	0.132	205	0.106	
		B	2	3.200		10		3%	0%	2065	2075	272	0.132		220	0.106	0.106
		B	2	3.200		5				1275	1275	168	0.132		110	0.086	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	2,3	MIN GREEN + FLASH =			10	+	12	=	22						
		Ep	3	MIN GREEN + FLASH =			6	+	8	=	14						
		Fp	3	MIN GREEN + FLASH =			22	+	12	=	34			*			*

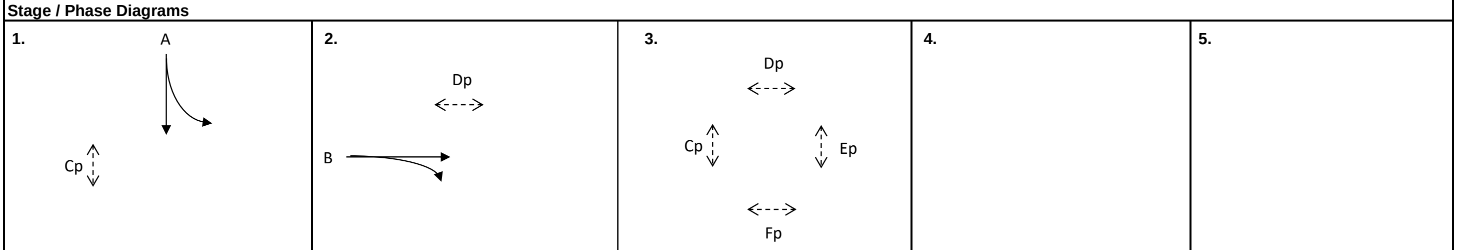
Notes:

Flow: (pcu/hr)



Group		A,B,Fp	Group		A,B,Fp
y		0.188	y		0.175
L (sec)		52	L (sec)		52
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.540
R.C. (%)		187%	R.C. (%)		209%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	

Date: MAY, 2022 | **Junction:** J42 - Bute Street / Shanghai Street | J42

2047 REFERENCE FLOWS

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Boundry Street/Tung Chau Street/Nam Cheong Street

Design Year: 2047

Description: 2047 AM&PM Reference Flows

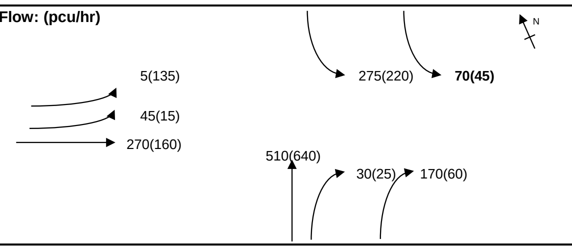
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tung Chau Street - EB		A	1	3.200	10		0	100%		1685	1685	5	0.003		135	0.080	
		A	1	3.200	15		0	100%		1885	1885	45	0.024		15	0.008	
		A	1	3.200			0			1935	1935	270	0.140	0.140	160	0.083	0.083
Chui Yu Road- NB		B	2	3.500			0			1965	1965	246	0.125		309	0.157	
		B	2	3.500			0			2105	2105	264	0.125	0.125	331	0.157	0.157
Chui Yu Road- NB		B	2	4.000		15	0		100%	1960	1960	30	0.015		25	0.013	
Chui Yu Road- NB		B	2	4.000		10	0		100%	1750	1750	170	0.097		60	0.034	
Nam Cheong Street-SB		C	3	3.000	15		0	100%		1740	1740	34	0.020		22	0.013	
		C	3	3.000	15		0	100%		1870	1870	36	0.019		23	0.012	
Nam Cheong Street-SB		C	3	3.000	10		0			1665	1665	275	0.165		220	0.132	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			6	+	10	=	16						
		Ep	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Fp	3	MIN GREEN + FLASH =			14	+	9	=	23			*			*

Notes:

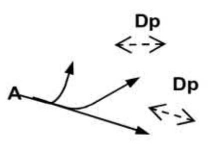
Flow: (pcu/hr)



Group		A,B,Fp	Group		A,B,Fp
y		0.265	y		0.240
L (sec)		37	L (sec)		40
C (sec)		96	C (sec)		96
y pract.		0.553	y pract.		0.525
R.C. (%)		109%	R.C. (%)		119%

Stage / Phase Diagrams

1.



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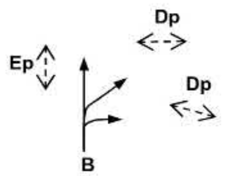

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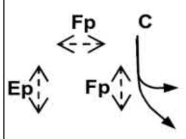


4.

5.

I/G= 11		I/G= 8		I/G= 9	11	I/G=		I/G=	
I/G= 11		I/G= 8		I/G= 9	14	I/G=		I/G=	

Date: MAR, 2022

Junction: J1 Boundry Street/Tung Chau Street/Nam Cheong Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

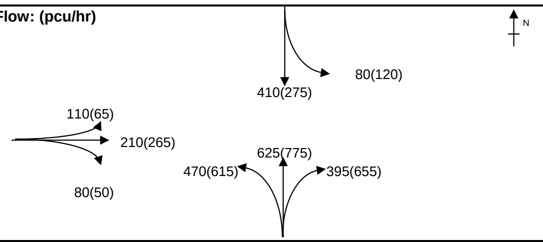
Junction: Boundry St./Lai Chi Kok Rd./Wong Chuk St. Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road-SB		A	1	3.000	15					1740	1740	80	0.046		120	0.069	
		A	1	3.000						2055	2055	137	0.067		92	0.045	
		A	1	3.000						2055	2055	136	0.066		91	0.044	
		A	1	3.000						2055	2055	137	0.067		92	0.045	
Lai Chi Kok Road-NB		B	1,2	3.100	15			93%	96%	1760	1755	504	0.286		639	0.364	
		B	1,2	3.100						2065	2065	591	0.286		751	0.364	
		C	2	3.000		15		100%	100%	1870	1870	198	0.106	0.106	328	0.175	0.175
		C	2	3.000		15				1870	1870	197	0.105		327	0.175	
Boundary Street - EB		D	3	3.500	15			58%	36%	1860	1900	191	0.103		183	0.096	0.096
		D	3	3.500		15		38%	25%	2025	2055	209	0.103	0.103	197	0.096	
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			6	+	9	=	15			*			*
		Fp	1	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Hp	3	MIN GREEN + FLASH =			6	+	12	=	18						

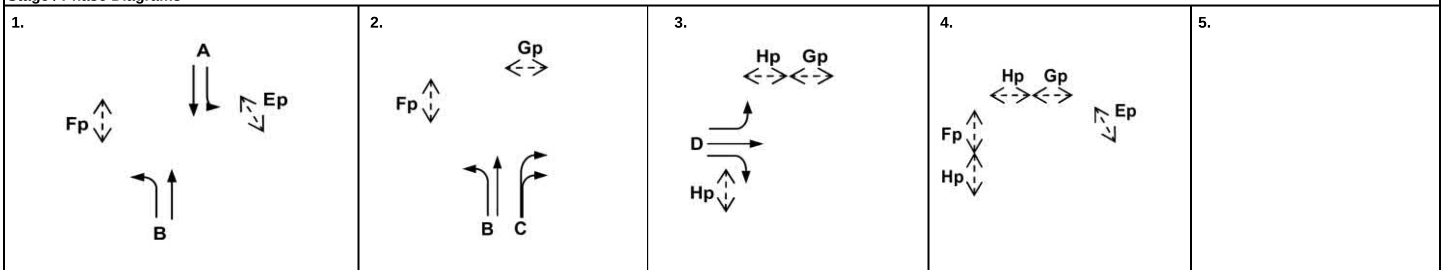
Notes:

Flow: (pcu/hr)



Group		C,D,Ep	Group		C,D,Ep
y		0.209	y		0.272
L (sec)		36	L (sec)		36
C (sec)		120	C (sec)		130
y pract.		0.630	y pract.		0.651
R.C. (%)		201%	R.C. (%)		140%

Stage / Phase Diagrams



I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	
I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	

Date: MAR, 2022 **Junction:** J2 Boundry St./Lai Chi Kok Rd./Wong Chuk St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

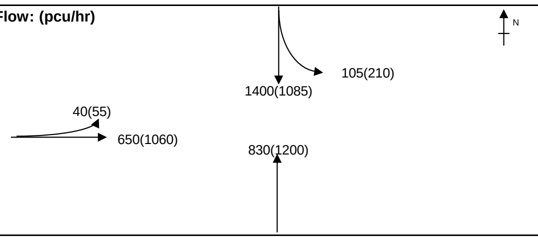
Junction: Boundry St./Nathan Rd./Cheung Sha Wan Rd Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cheung Sha Wan Road-SB		A	1	3.500	15			100%		1785	1785	105	0.059		210	0.118	
		A	1	3.300						2085	2085	467	0.224	0.224	362	0.174	0.174
		A	1	3.300						2085	2085	466	0.224		361	0.173	
		A	1	3.300						2085	2085	467	0.224		362	0.174	
Nathan Road-NB		B	1,3	3.500						1965	1965	264	0.134		382	0.194	
		B	1,3	3.500						2105	2105	283	0.134		409	0.194	
		B	1,3	3.500						2105	2105	283	0.134		409	0.194	
Boundary Street-EB		C	2	3.500	15			19%	16%	1930	1935	216	0.112		350	0.181	
		C	2	3.600						2115	2115	237	0.112	0.112	383	0.181	0.181
		C	2	3.600						2115	2115	237	0.112		382	0.181	
Pedestrian Crossing		Ep	1,3	MIN GREEN + FLASH =			13	+	13	=	26						
		Fp	2,3	MIN GREEN + FLASH =			14	+	13	=	27						
		Gp	2	MIN GREEN + FLASH =			31	+	10	=	41						
		Hp	3	MIN GREEN + FLASH =			19	+	13	=	32			*			*

Notes:

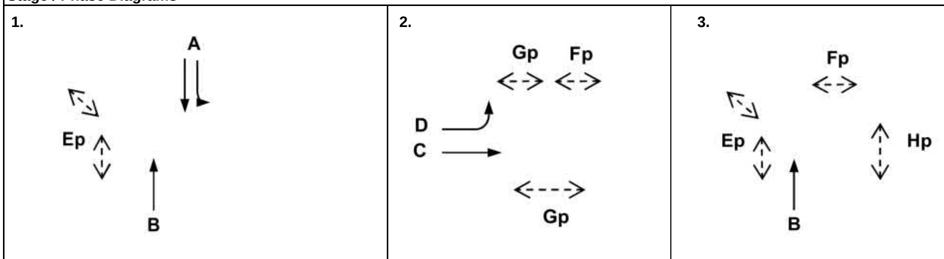
Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.336	y		0.355
L (sec)		50	L (sec)		50
C (sec)		120	C (sec)		130
y pract.		0.525	y pract.		0.554
R.C. (%)		56%	R.C. (%)		56%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J3 Boundry St./Nathan Rd./Cheung Sha Wan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Boundry St./Embankment Rd.

Design Year: 2047

Description: 2047 AM&PM Reference Flows

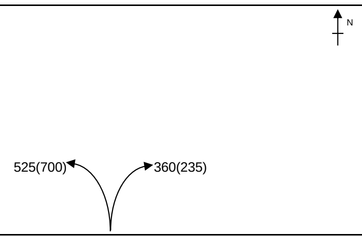
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m)		Gradient (%)	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Boundary Street-NB	↰	A	1	5.500	15			100%	100%	1970	1970	525	0.266	0.266	700	0.355	0.355
	↱	A	1	4.500		25		100%	100%	1950	1950	360	0.185		235	0.121	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			10	+	10	=	20			*			*

Notes:

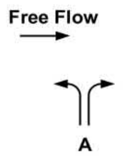
Flow: (pcu/hr)



Group		A,Bp	Group		A,Bp
y		0.266	y		0.355
L (sec)		27	L (sec)		27
C (sec)		108	C (sec)		90
y pract.		0.675	y pract.		0.630
R.C. (%)		153%	R.C. (%)		77%

Stage / Phase Diagrams

1.



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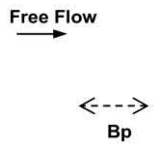


3.

4.

5.

I/G= 13		I/G= 5	10	I/G=		I/G=		I/G=	
I/G= 13		I/G= 5	10	I/G=		I/G=		I/G=	

Date: MAR, 2022

Junction: Boundry St./Embankment Rd. J4

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

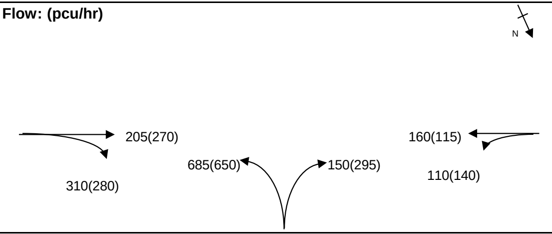
Junction: Sham Mong Rd./Chui Yu Rd. Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road-WB	↑	A	1,2	3.500						1965	1965	99	0.050		130	0.066	
	↑	A	1,2	3.500						2105	2105	106	0.050		140	0.067	
Sham Mong Road-WB	↱	C	2	3.300		25		100%	100%	1965	1965	310	0.158	0.158	280	0.142	0.142
Sham Mong Road-EB	↰	B	1	3.300	15			100%	100%	1770	1770	110	0.062	0.062	140	0.079	0.079
Sham Mong Road-EB	↑	B	1	3.500						2105	2105	80	0.038		58	0.028	
	↑	B	1	3.500						2105	2105	80	0.038		57	0.027	
Chui Yu Road - SB	↰	D	4	3.500	15					1785	1785	330	0.185		314	0.176	0.176
	↰	D	4	3.500	15					1915	1915	355	0.185	0.185	336	0.175	
Chui Yu Road - SB	↱	D	4	3.500		25				1985	1985	150	0.076		295	0.149	
Pedestrian Crossing		Ep	3	MIN GREEN + FLASH =			32	+	11	=	43			*			*
		Fp	3	MIN GREEN + FLASH =			20	+	13	=	33						
		Gp	3	MIN GREEN + FLASH =			23	+	11	=	34						

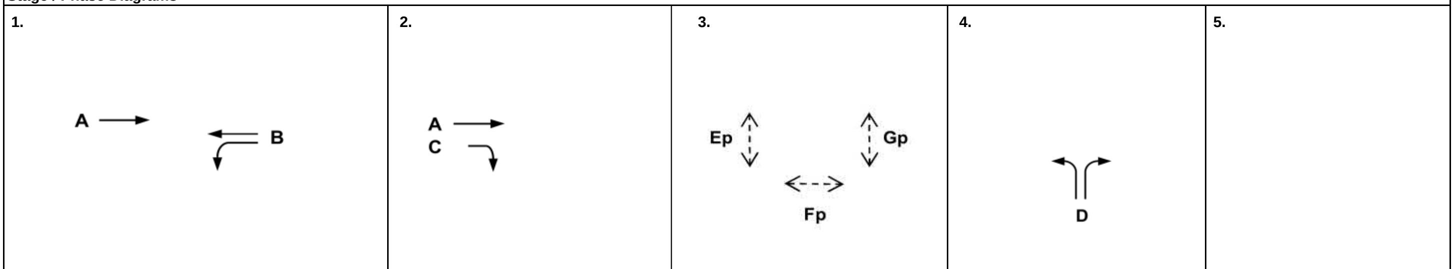
Notes:

Flow: (pcu/hr)



Group		B,C,Ep,D	Group		B,C,Ep,D
y		0.405	y		0.398
L (sec)		55	L (sec)		58
C (sec)		128	C (sec)		130
y pract.		0.513	y pract.		0.498
R.C. (%)		27%	R.C. (%)		25%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 5	29	I/G= 14		I/G=	
I/G= 5		I/G= 5		I/G= 5	32	I/G= 14		I/G=	

Date: MAR, 2022 **Junction:** Sham Mong Rd./Chui Yu Rd. J5

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Sham Mong Rd./Hoi Fai Rd.

Design Year: 2047

Description: 2047 AM&PM Reference Flows

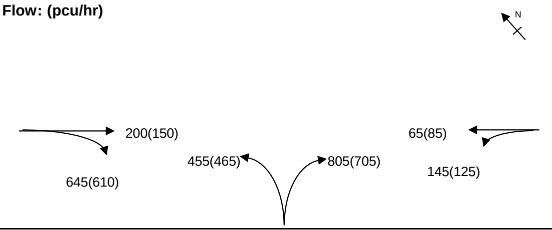
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road -EB		A	1	3.500		15		55%	61%	2040	2030	447	0.219		401	0.198	
		A	1	3.300		10		100%	100%	1815	1815	398	0.219	0.219	359	0.198	0.198
Hoi Fai Road-NB		B	1,2	4.000	20			100%	100%	1875	1875	455	0.243		465	0.248	
		C	2	3.700		15		100%	100%	1930	1930	403	0.209	0.209	353	0.183	0.183
		C	2	3.700		15		100%	100%	1930	1930	402	0.208		352	0.182	
Sham Mong Road-WB		D	2,3	3.700	15			100%	100%	1805	1805	145	0.080		125	0.069	
		E	3	3.600						2115	2115	33	0.016		43	0.020	
		E	3	3.600						2115	2115	32	0.015		42	0.020	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						
		Gp	1	MIN GREEN + FLASH =			44	+	7	=	51						
		Hp	3	MIN GREEN + FLASH =			22	+	10	=	32			*			*

Notes:

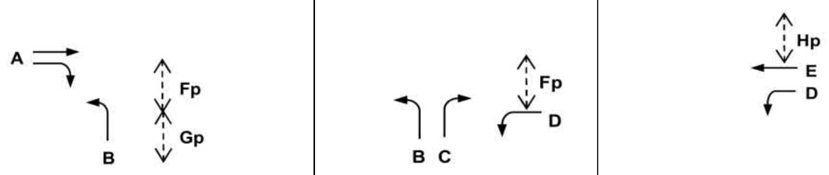
Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.428	y		0.381
L (sec)		49	L (sec)		53
C (sec)		128	C (sec)		130
y pract.		0.555	y pract.		0.533
R.C. (%)		30%	R.C. (%)		40%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 12		I/G= 9		I/G= 12	18	I/G=		I/G=	
I/G= 12		I/G= 9		I/G= 12	22	I/G=		I/G=	

Date: MAR, 2022

Junction: Sham Mong Rd./Hoi Fai Rd. J6

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Prince Edward Rd. West/Sai Yee Street Design Year: 2047

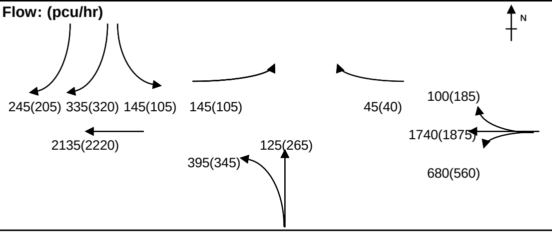
Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West - EB		A	1	5.500	10					1885	1885	145	0.077		105	0.056	
Prince Edward Road West - WB		A	1	4.000	10					1750	1750	557	0.318		560	0.320	
		A	1	3.300	15			19%	0%	2045	2085	651	0.318		696	0.334	
		A	1	3.300						2085	2085	664	0.318		696	0.334	
		A	1	3.300		10		15%	28%	2040	2000	648	0.318	0.318	668	0.334	0.334
Prince Edward Road West -WB		B	1,2	3.500						2175	2175	727	0.334		756	0.348	
		B	1,2	3.500						2105	2105	704	0.334		732	0.348	
		B	1,2	3.500						2105	2105	704	0.334		732	0.348	
Sai Yee Street - NB		C	2	3.300	10			100%	100%	1690	1690	190	0.112		166	0.098	
		C	2	3.300	10			100%	100%	1815	1815	205	0.113	0.113	179	0.099	
Sai Yee Street - NB		C	2	3.300						2085	2085	125	0.060		265	0.127	0.127
Prince Edward Road West -WB		C	2	3.300		10		100%	100%	1690	1690	45	0.027		40	0.024	
Fa Yuen Street - SB		D	3	3.500		10		100%	100%	1710	1710	245	0.143		205	0.120	
		D	3	3.500		15		100%	100%	1915	1915	335	0.175	0.175	320	0.167	0.167
		D	3	3.500	10			100%	100%	1710	1710	145	0.085		105	0.061	

Pedestrian Crossing	Phase	Stage		Min Green		Flash		Total
Pedestrian Crossing	Ep	1,2	MIN GREEN + FLASH =	9	+	11	=	20
	Fp	3	MIN GREEN + FLASH =	24	+	11	=	35
	Gp	2,3	MIN GREEN + FLASH =	5	+	13	=	18
	Hp	3	MIN GREEN + FLASH =	18	+	11	=	29
	Ip	1,3	MIN GREEN + FLASH =	6	+	9	=	15

Notes:

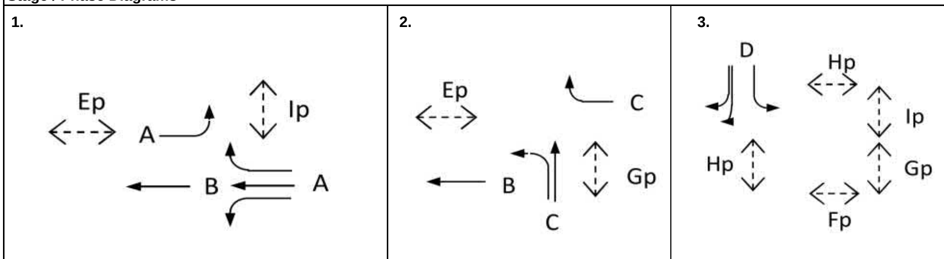
Flow: (pcu/hr)



Group		A,C,D	Group		A,C,D
y		0.606	y		0.628
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		28%	R.C. (%)		23%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 5		I/G= 6		I/G= 10		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 10		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Prince Edward Rd. West/Sai Yee Street J7

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Prince Edward Rd. West/Embankment Rd. Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

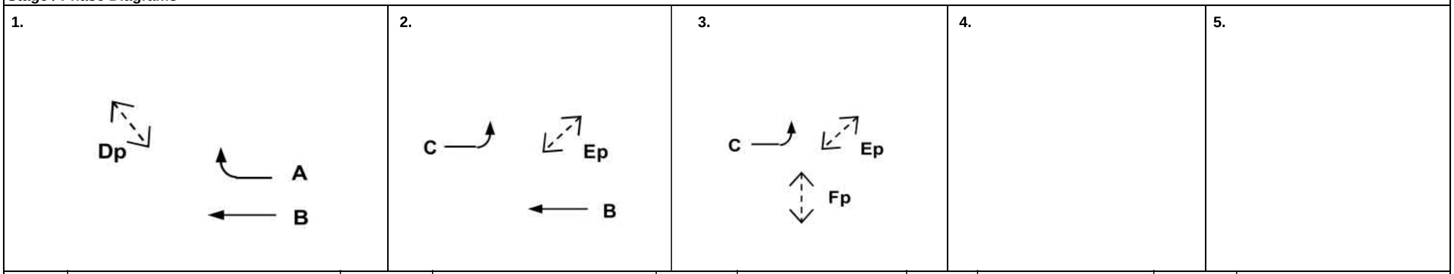
Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West-WB		A	1	3.300		15		100%	100%	1770	1770	423	0.239		435	0.246	
		A	1	3.300		15		100%	100%	1895	1895	452	0.239		465	0.245	
Prince Edward Road West-WB		B	1,2	4.000						2015	2015	777	0.386	0.386	821	0.407	0.407
		B	1,2	4.000						2155	2155	831	0.386		878	0.407	
		B	1,2	4.000						2155	2155	831	0.386		878	0.407	
		B	1,2	4.000						2155	2155	831	0.386		878	0.407	
Prince Edward Road West-EB		C	2,3	4.500	15			100%	100%	1875	1875	120	0.064		90	0.048	
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			73	+	6	=	79						
		Ep	2	MIN GREEN + FLASH =			5	+	9	=	14						
		Fp	3	MIN GREEN + FLASH =			21	+	14	=	35			*			*

Notes:

Flow: (pcu/hr)

Group		B,Fp	Group		B,Fp
y		0.386	y		0.407
L (sec)		43	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.602	y pract.		0.616
R.C. (%)		56%	R.C. (%)		51%

Stage / Phase Diagrams



I/G= 18		I/G=		I/G= 5	21	I/G=		I/G=	
I/G= 18		I/G=		I/G= 5	19	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Prince Edward Rd. West/Embankment Rd. J8

TRAFFIC SIGNALS CALCULATION Job No.: CHK50648010 **MVA HONG KONG LIMITED**

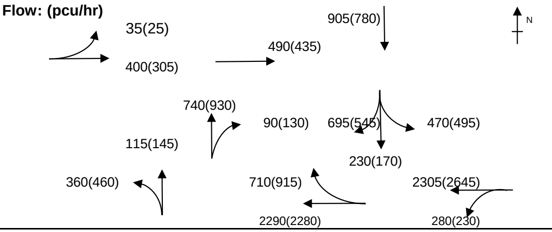
Junction: Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd. Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cherry St - WB		A	1	4.900	30			44%	32%	2140	2155	648	0.303		723	0.335	
		A	1	3.800						2135	2135	646	0.303		717	0.336	
		A	1	3.800						2135	2135	646	0.303		717	0.336	
		A	1	3.800						2135	2135	645	0.302		718	0.336	
Cherry St - WB		B	1,2	3.400						2095	2095	763	0.364	0.364	760	0.363	0.363
		B	1,2	3.400						2095	2095	764	0.365		760	0.363	
		B	1,2	3.400						2095	2095	763	0.364		760	0.363	
Cherry St - WB		B	1,2	3.400		40		100%	100%	2020	2020	355	0.176		458	0.227	
		B	1,2	3.400		40		100%	100%	2020	2020	355	0.176		457	0.226	
Hoi Wang Rd - NB		C	1,2	4.300						2185	2185	370	0.169		465	0.213	
		C	1,2	4.300						2185	2185	370	0.169		465	0.213	
Hoi Wang Rd - NB		C	1,2	4.400		20		100%	100%	2040	2040	90	0.044		130	0.064	
Tai Kok Tsui Rd - SB		D	1,2	3.300						1945	1945	288	0.148		248	0.128	
		D	1,2	3.300						2085	2085	308	0.148		266	0.128	
		D	1,2	3.300						2085	2085	309	0.148		266	0.128	
Tai Kok Tsui Rd - SB		I	2,3	3.500	15			100%	100%	1880	1880	470	0.250		495	0.263	
		E	2,3	3.500						2105	2105	230	0.109		170	0.081	
		E	2,3	5.200		20		100%	100%	2115	2115	348	0.165		273	0.129	
		E	2,3	5.200		20		100%	100%	2115	2115	347	0.164		272	0.129	
Cherry St - EB		F	3	6.000		30		100%	100%	2245	2245	245	0.109		218	0.097	
		F	3	6.000		30		100%	100%	2245	2245	245	0.109		217	0.097	
Cherry St - EB		G	3	3.800	45			100%	100%	2065	2065	18	0.009		13	0.006	
		G	3	3.800	45			100%	100%	2065	2065	17	0.008		12	0.006	
Cherry St - EB		G	3	3.800						2135	2135	200	0.094		153	0.072	
		G	3	3.800						2135	2135	200	0.094		152	0.071	
Hoi Wang Rd - NB		H	3	3.800	75					2250	2250	360	0.160	0.160	460	0.204	0.204
		H	3	4.000						2155	2155	58	0.027		73	0.034	
		H	3	4.000						2155	2155	57	0.026		72	0.033	
Pedestrian Crossing		Jp	1,2	MIN GREEN + FLASH =			7	+	15	=	22						
		Kp	1	MIN GREEN + FLASH =			34	+	8	=	42						
		Lp	3	MIN GREEN + FLASH =			11	+	11	=	22						
		Mp	2,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Np	1	MIN GREEN + FLASH =			36	+	7	=	43						
		Op	2,3	MIN GREEN + FLASH =			7	+	13	=	20						

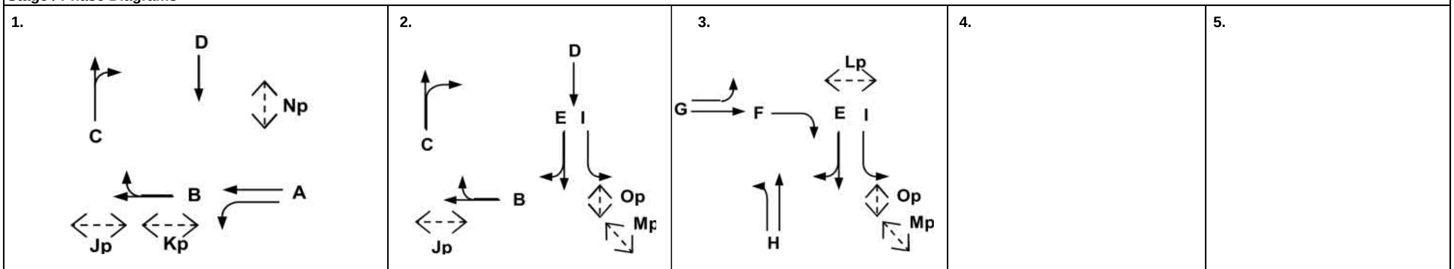
Notes:

Flow: (pcu/hr)



Group		B,H	Group		B,H
y		0.524	y		0.567
L (sec)		11	L (sec)		11
C (sec)		85	C (sec)		80
y pract.		0.784	y pract.		0.776
R.C. (%)		49%	R.C. (%)		37%

Stage / Phase Diagrams



I/G= 7		I/G=		I/G= 6		I/G=		I/G=	
I/G= 7		I/G=		I/G= 6		I/G=		I/G=	

Date: MAR, 2022 Junction: J9 Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — **MVA HONG KONG LIMITED**

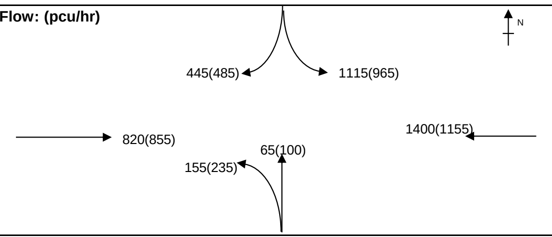
Junction: Argyle St/Sai Yee St. — Design Year: 2047

Description: 2047 AM&PM Reference Flows — Designed By: HAP — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1	3.500						1965	1965	396	0.202		413	0.210	
		A	1	3.500						2105	2105	424	0.201		442	0.210	
Argyle Street-WB		B	1	3.200						2095	2095	470	0.224		387	0.185	
		B	1	3.200						2075	2075	465	0.224	0.224	384	0.185	0.185
		B	1	3.200						2075	2075	465	0.224		384	0.185	
Sai Yee Street-SB		C	2,3,4	3.500	10			100%	100%	1710	1710	539	0.315		466	0.273	
		C	2,3,4	3.500	10			100%	100%	1830	1830	576	0.315		499	0.273	
Sai Yee Street-SB		D	2	3.500		20		100%	100%	2110	2110	445	0.211	0.211	485	0.230	0.230
Sai Yee Street-NB		E	3	3.700	15			100%	100%	1805	1805	155	0.086	0.086	235	0.130	0.130
		E	3	3.700						2125	2125	65	0.031		100	0.047	
Pedestrian Crossing		Fp	1,2,4	MIN GREEN + FLASH =			8	+	8	=	16						
		Gp	4	MIN GREEN + FLASH =			19	+	12	=	31			*			*
		Hp	1	MIN GREEN + FLASH =			27	+	11	=	38						

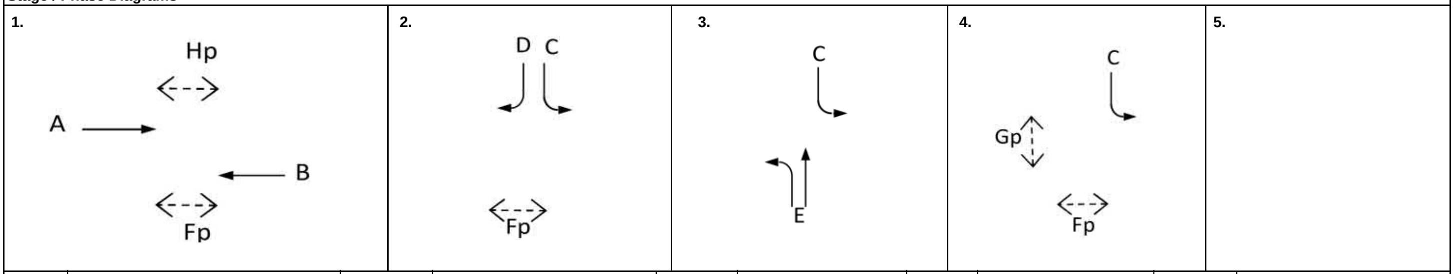
Notes:

Flow: (pcu/hr)



Group		B,D,E,Gp	Group		B,D,E,Gp
y		0.521	y		0.545
L (sec)		54	L (sec)		54
C (sec)		130	C (sec)		130
y pract.		0.526	y pract.		0.526
R.C. (%)		1%	R.C. (%)		-3%

Stage / Phase Diagrams



I/G= 14		I/G= 6		I/G= 9		I/G= 9	19	I/G=	
I/G= 14		I/G= 6		I/G= 9		I/G= 9	19	I/G=	

Date: MAR, 2022 — **Junction:** Argyle St/Sai Yee St. — J10

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

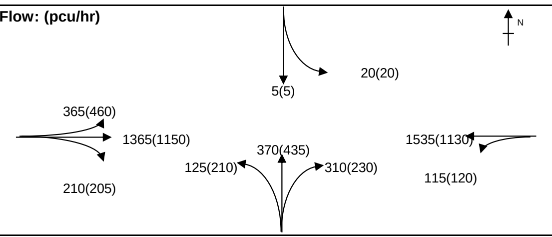
Junction: Argyle St/Yim Po Fong St/Luen Wan St — Design Year: 2047

Description: 2047 AM&PM Reference Flows — Designed By: HAP — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1,2	3.100	10			100%	100%	1675	1675	365	0.218		460	0.275	
		B	1,2	3.000						2145	2145	697	0.325	0.325	587	0.274	0.274
		B	1,2	3.000						2055	2055	668	0.325		563	0.274	
Argyle Street-EB		D	2	3.000		15		100%	100%	1870	1870	210	0.112		205	0.110	
Argyle Street-WB		E	4	3.800	10			100%	100%	1735	1735	115	0.066		120	0.069	
		C	1	3.300						2085	2085	512	0.246		377	0.181	
		C	1	3.300						2085	2085	511	0.245		376	0.180	
		C	1	3.300						2085	2085	512	0.246		377	0.181	
Yim Po Fong St - NB		F	4	3.000	10			100%	100%	1665	1665	125	0.075		210	0.126	
		F	4	2.800		15		2%	0%	2030	2035	370	0.182	0.182	435	0.214	0.214
		F	4	3.000		12		100%	100%	1700	1700	310	0.182		230	0.135	
Luen Wan St - SB		I	3	3.500	10			80%	80%	1755	1755	25	0.014		25	0.014	
Pedestrian Crossing		Gp	1	MIN GREEN + FLASH =			43	+	9	=	52						
		Hp	3	MIN GREEN + FLASH =			26	+	8	=	34			*			*
		Jp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

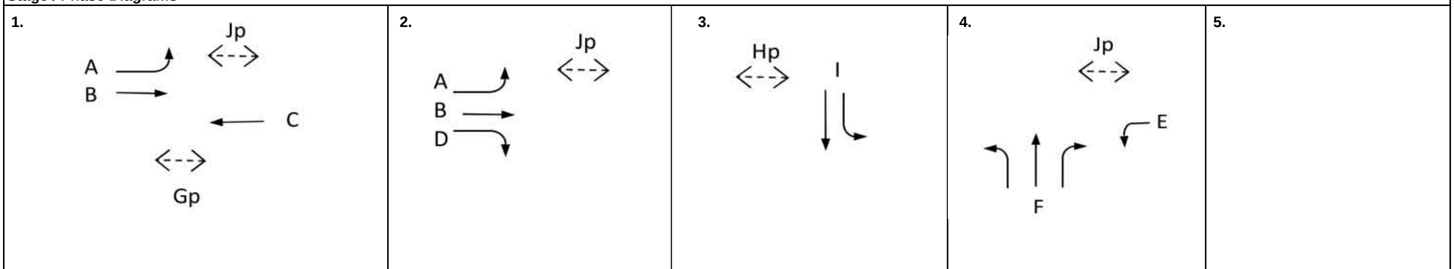
Notes:

Flow: (pcu/hr)



Group		B,Hp,F	Group		B,Hp,F
y		0.507	y		0.487
L (sec)		45	L (sec)		51
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.547
R.C. (%)		16%	R.C. (%)		12%

Stage / Phase Diagrams



I/G= 8		I/G=		I/G= 11	20	I/G= 8		I/G=	
I/G= 8		I/G=		I/G= 11	26	I/G= 8		I/G=	

Date: MAR, 2022 **Junction:** Argyle St/Yim Po Fong St/Luen Wan St J11

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

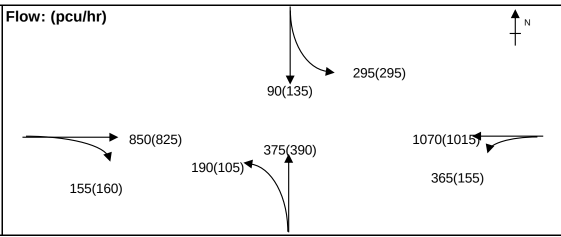
Junction: Waterloo Rd./Yim Po Fong St/Wylie Rd. Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Road-EB		A	1,2	3.000						1915	1915	425	0.222		413	0.216	
		A	1,2	3.000						1915	1915	425	0.222		412	0.215	
		I	1	3.000		15		100%	100%	1660	1660	155	0.093	0.093	160	0.096	0.096
Waterloo Road-WB		B	1	3.600	10			88%	44%	1745	1855	413	0.237	0.237	352	0.190	
		B	1	4.000						2155	2155	511	0.237		409	0.190	0.190
		B	1	4.000						2155	2155	511	0.237		409	0.190	
Yim Po Fong Street-SB		C	4	3.100	10					1675	1675	295	0.176		295	0.176	
		C	4	3.200						2075	2075	90	0.043		135	0.065	
Wylie Road-NB		C	4	3.500	10					1710	1710	190	0.111		105	0.061	
		C	4	3.400						2095	2095	375	0.179	0.179	390	0.186	0.186
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			9	+	10	=	19						
		Fp	2	MIN GREEN + FLASH =			5	+	14	=	19						
		Gp	3	MIN GREEN + FLASH =			7	+	12	=	19			*			*
		Hp	3	MIN GREEN + FLASH =			5	+	14	=	19						

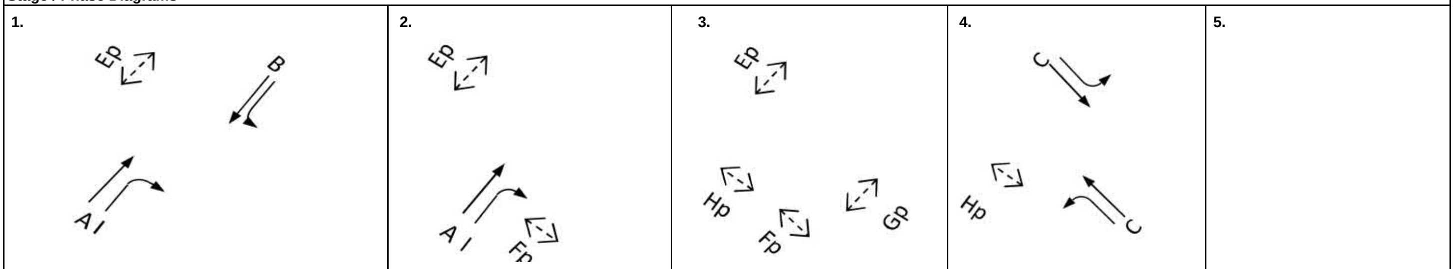
Notes:

Flow: (pcu/hr)



Group		B,I,Gp,C	Group		B,I,Gp,C
y		0.509	y		0.472
L (sec)		41	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.616	y pract.		0.616
R.C. (%)		21%	R.C. (%)		30%

Stage / Phase Diagrams



I/G= 12		I/G=		I/G= 9	7	I/G= 16		I/G=	
I/G= 12		I/G=		I/G= 9	7	I/G= 16		I/G=	

Date: MAR, 2022 **Junction:** J12 Waterloo Rd./Yim Po Fong St/Wylie Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

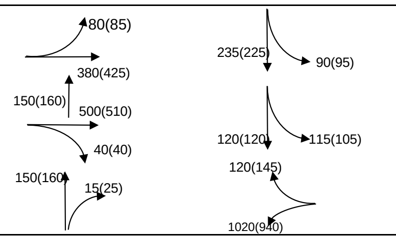
Junction: Hoi Wang Rd/Lai Cheung Rd Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Cheung Rd - EB		A	1	3.500						2105	2105	380	0.181		425	0.202	
		A	1	3.500	15					1915	1915	80	0.042		85	0.044	
Lai Cheung Rd - EB		B	1	3.500		20		7%	7%	2295	2295	540	0.235	0.235	550	0.240	0.240
Hoi Wang Rd - SB		F	4	3.500						2105	2105	60	0.029		60	0.029	
		F	4	3.500						2105	2105	60	0.029		60	0.029	
Hoi Wang Rd - SB		F	4	3.500	15			100%	100%	1915	1915	115	0.060	0.060	105	0.055	0.055
Hoi Wang Rd - SB		F	4	3.500						1965	1965	75	0.038		72	0.037	
		F	4	3.500						2105	2105	80	0.038		76	0.036	
		F	4	3.500						2105	2105	80	0.038		77	0.037	
Hoi Wang Rd - NB		C	2	3.500						2105	2105	50	0.024		53	0.025	
		C	2	3.500						2105	2105	50	0.024		54	0.026	
		C	2	3.500						2105	2105	50	0.024		53	0.025	
Hoi Wang Rd - NB		C	2	3.500						1965	1965	80	0.041		91	0.046	
		C	2	3.500		15		17%	30%	2070	2045	85	0.041		94	0.046	
Hoi Wang Rd - SB		F	4	3.500	25			100%	100%	1855	1855	90	0.049		95	0.051	
Lai Cheung Rd - WB		E	3	3.500		20		100%	100%	1960	1960	120	0.061		145	0.074	
		D	2,3	3.000	20					1780	1780	492	0.276	0.276	453	0.254	
		D	2,3	3.000	20					1910	1910	528	0.276		487	0.255	0.255
Pedestrian Crossing		Hp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Ip	1,2,4	MIN GREEN + FLASH =			5	+	5	=	10						
		Jp	1,4	MIN GREEN + FLASH =			5	+	11	=	16						
		Kp	2,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Lp	2,3,4	MIN GREEN + FLASH =			5	+	4	=	9						
		Mp	2,3,4	MIN GREEN + FLASH =			5	+	4	=	9						
		Np	2,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Op	3	MIN GREEN + FLASH =			13	+	9	=	22						

Notes:

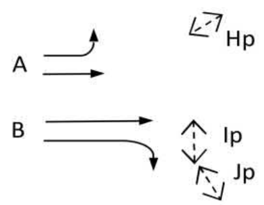
Flow: (pcu/hr)



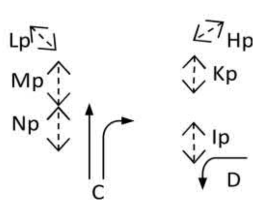
Group		B,D,F	Group		B,D,F
y		0.572	y		0.549
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		42%	R.C. (%)		47%

Stage / Phase Diagrams

1.



2.



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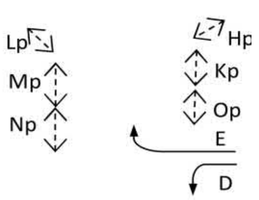

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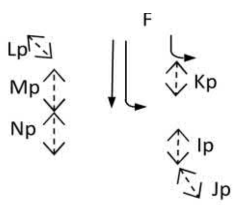


5.

I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=	
I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=	

Date: MAR, 2022 **Junction:** Hoi Wang Rd/Lai Cheung Rd J13

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

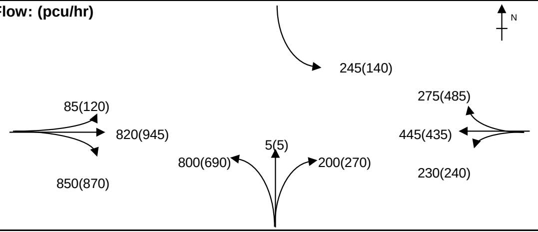
Junction: Lai Cheung Rd./Ferry St./Waterloo Rd. Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Rd-WB		A	1	3.100	15			73%	77%	1795	1790	314	0.175	0.175	313	0.175	
		A	1	3.100						2065	2065	361	0.175		362	0.175	0.175
		A	1	3.300		30				1985	1985	138	0.070		243	0.122	
		A	1	3.300		30				1985	1985	137	0.069		242	0.122	
Ferry St- SB		B	1	3.500	25					1855	1855	118	0.064		68	0.037	
		B	1	3.500	25					1985	1985	127	0.064		72	0.036	
Lai Cheung Rd-EB		C	3	3.300	5					1495	1495	85	0.057		120	0.080	
		C	3	3.300	10			0%	0%	2085	2085	410	0.197		472	0.226	0.226
		C	3	3.300						2085	2085	410	0.197		473	0.227	
Lai Cheung Rd-EB		D	3	3.700		35				2305	2305	451	0.196		462	0.200	
		D	3	3.700		35				2040	2040	399	0.196		408	0.200	
Ferry St-NB		E	2,3	3.400	35					2080	2080	800	0.385	0.385	690	0.332	
Ferry St-NB		F	2	4.700		35		95%	97%	2140	2135	107	0.050		144	0.067	
		F	2	3.000		30		100%	100%	1955	1955	98	0.050		131	0.067	
Waterloo Rd-WB		G	1	3.600						2115	2115	223	0.105		218	0.103	
		G	1	3.600						2115	2115	222	0.105		217	0.103	
Pedestrian Crossing		Hp	1	MIN GREEN + FLASH =			31	+	8	=	39						
		Ip	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Jp	2	MIN GREEN + FLASH =			15	+	19	=	34						*
		Kp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						

Notes:

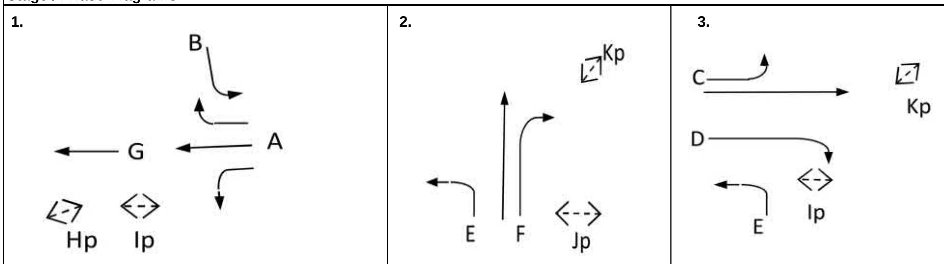
Flow: (pcu/hr)



Group		A,E	Group		A,Jp,C
y		0.560	y		0.402
L (sec)		10	L (sec)		48
C (sec)		130	C (sec)		130
y pract.		0.831	y pract.		0.568
R.C. (%)		48%	R.C. (%)		41%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 5		I/G= 7		I/G=		I/G=		I/G=	
I/G= 5		I/G= 7	15	I/G= 23		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J14 Lai Cheung Rd./Ferry St./Waterloo Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

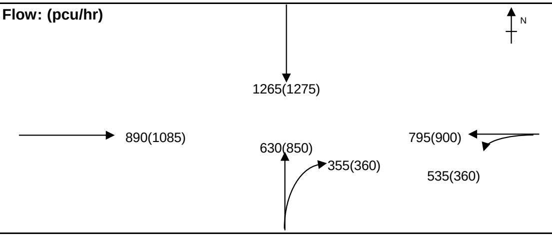
Junction: Waterloo Rd/Nathan Rd Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road-SB		A	1	3.400						1465	1465	328	0.224		330	0.225	
		A	1	3.400						2095	2095	468	0.223		473	0.226	
		A	1	3.400						2095	2095	469	0.224		472	0.225	
Nathan Road-NB		B	2	3.300						1945	1945	328	0.169		410	0.211	
		B	2	3.300		15		13%	0%	2060	2085	348	0.169	0.169	440	0.211	0.211
		B	2	3.500		10		100%	100%	1830	1830	309	0.169		360	0.197	
Waterloo Road-EB		C	3	3.400						1955	1955	283	0.145		345	0.176	
		C	3	3.400						2095	2095	304	0.145		370	0.177	
		C	3	3.400						2095	2095	303	0.145		370	0.177	
Waterloo Road-WB		D	3	3.200	5					1490	1490	365	0.245		335	0.225	
		D	3	3.200	5			37%	5%	1865	2040	457	0.245	0.245	459	0.225	0.225
		D	3	3.200				100%	100%	2075	2075	508	0.245		466	0.225	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			10	+	9	=	19						
		Fp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Gp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						
		Hp	1	MIN GREEN + FLASH =			33	+	9	=	42			*			*

Notes:

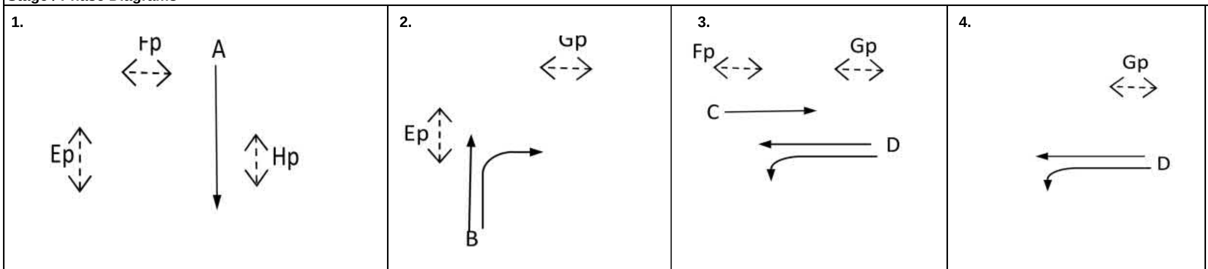
Flow: (pcu/hr)



		AM			PM
Group		B,D,Hp	Group		B,D,Hp
y		0.414	y		0.436
L (sec)		57	L (sec)		57
C (sec)		130	C (sec)		130
y pract.		0.505	y pract.		0.505
R.C. (%)		22%	R.C. (%)		16%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 9	42	I/G= 2		I/G= 6		I/G=		I/G=	
I/G= 9	42	I/G= 2		I/G= 6		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Waterloo Rd/Nathan Rd J15

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Hoi Wang Road/Ngo Cheung Rd.

Design Year: 2047

Description: 2047 AM&PM Reference Flows

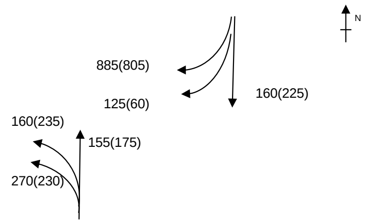
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hoi Wang Road - SB	↱	A	1	3.500		20				1960	1960	885	0.452	0.452	805	0.411	0.411
	↱	A	1	3.500		25				1985	1985	125	0.063		60	0.030	
	↑	A	1	3.500						1965	1965	160	0.081		225	0.115	
Hoi Wang Road - NB	↰	B	2	3.500	25					1855	1855	270	0.146		230	0.124	
	↰	B	2	3.500	28					2000	2000	160	0.080		235	0.118	
	↑	B	2	3.500						2105	2105	155	0.074		175	0.083	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			84	+	7	=	91						
		Dp	1	MIN GREEN + FLASH =			86	+	5	=	91						
		Ep	2	MIN GREEN + FLASH =			23	+	10	=	33			*			*
		Fp	2	MIN GREEN + FLASH =			30	+	5	=	35						

Notes:

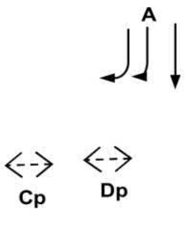
Flow: (pcu/hr)



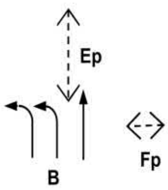
Group		A,Ep	Group		A,Ep
y		0.452	y		0.411
L (sec)		39	L (sec)		39
C (sec)		130	C (sec)		130
y pract.		0.630	y pract.		0.630
R.C. (%)		40%	R.C. (%)		53%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 7		I/G= 10	23	I/G=		I/G=		I/G=	
I/G= 7		I/G= 10	23	I/G=		I/G=		I/G=	

Date: MAR, 2022

Junction: Hoi Wang Road/Ngo Cheung Rd. J16

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

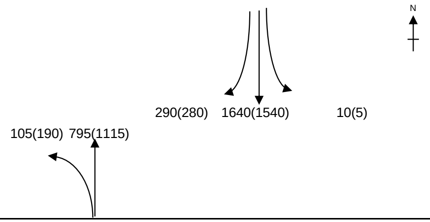
Junction: Nathan Rd / Public Square St Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - NB		A	1	3.400	10			38%	48%	1850	1825	276	0.149		396	0.217	
		A	1	3.400						2095	2095	312	0.149		455	0.217	0.217
		A	1	3.400						2095	2095	312	0.149		454	0.217	
Nathan Rd - SB		B	1,2	3.200	5			1%	1%	1925	1930	769	0.399		721	0.374	
		B	1,2	3.400						2205	2205	881	0.400	0.400	824	0.374	
		G	2	3.000		15				1870	1870	290	0.155		280	0.150	0.150
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Dp	3	MIN GREEN + FLASH =			29	+	14	=	43			*			*
		Ep	3	MIN GREEN + FLASH =			32	+	8	=	40						

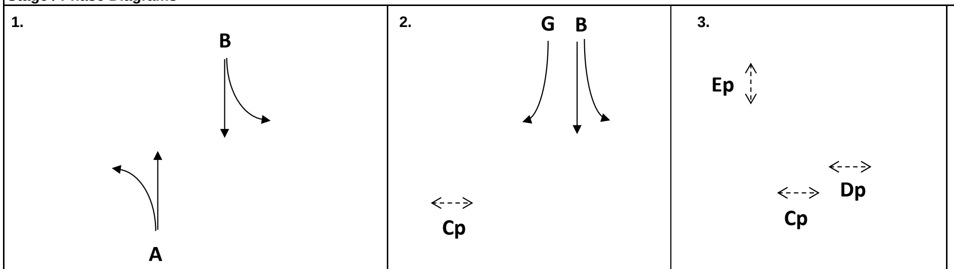
Notes:

Flow: (pcu/hr)



Group	A,G,Dp	B,Dp	Group	B,Dp	A,G,Dp
y	0.304	0.400	y	0.374	0.367
L (sec)	57	52	L (sec)	50	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.540	y pract.	0.554	0.519
R.C. (%)	66%	35%	R.C. (%)	48%	42%

Stage / Phase Diagrams



I/G= 3		I/G=		I/G= 7	43	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 7	41	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J17 Nathan Rd / Public Square St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

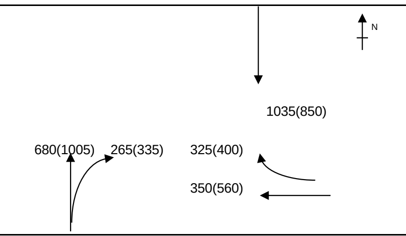
Junction: Nathan Rd / Gascoigne Rd / Kansu St Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road - SB		A	1	3.100						1925	1925	329	0.171		270	0.140	
		A	1	3.100						2065	2065	353	0.171	0.171	290	0.140	
		A	1	3.100						2065	2065	353	0.171		290	0.140	
Nathan Rd - NB		B	2	3.300						1945	1945	308	0.158		436	0.224	
Nathan Rd - NB		B	2	3.300						2085	2085	331	0.159	0.159	468	0.224	0.224
		B	2	3.400		15		87%	77%	1930	1945	306	0.159		436	0.224	
Gascoigne Rd - WB		C	3	3.500						1965	1965	169	0.086		270	0.137	
		C	3	3.500						2105	2105	181	0.086		290	0.138	
Gascoigne Rd - WB		C	3	3.500		20				2190	2190	325	0.148		400	0.183	0.183
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			20	+	12	=	32						*
		Ep	1,2	MIN GREEN + FLASH =			5	+	10	=	15						
		Fp	3	MIN GREEN + FLASH =			29	+	9	=	38			*			

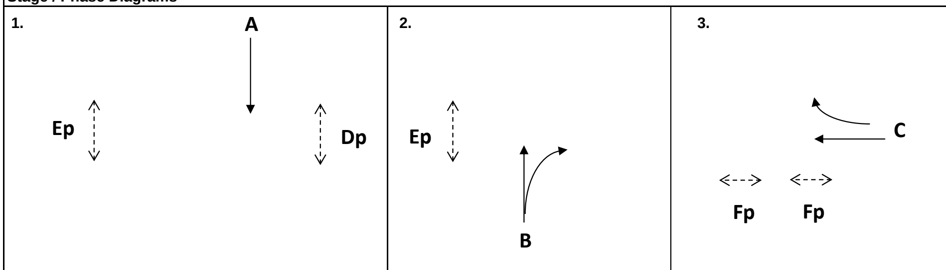
Notes:

Flow: (pcu/hr)



Group	Dp,B,C	A,B,Fp	Group	A,B,Fp	Dp,B,C
y	0.307	0.330	y	0.365	0.407
L (sec)	45	49	L (sec)	51	45
C (sec)	120	120	C (sec)	120	120
y pract.	0.563	0.533	y pract.	0.518	0.563
R.C. (%)	83%	62%	R.C. (%)	42%	38%

Stage / Phase Diagrams



I/G= 3		I/G= 5		I/G= 5	38	I/G=		I/G=	
I/G= 5	32	I/G= 3		I/G= 7		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J18 Nathan Rd / Gascoigne Rd / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

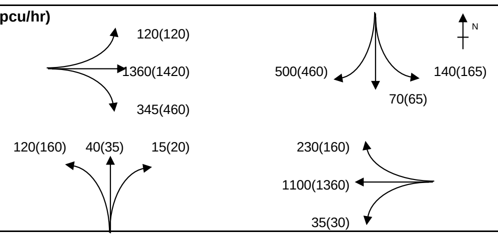
Junction: Jorden Rd / Wui Man Rd / Hoi Wang Rd   Design Year: 2047

Description: 2047 AM&PM Reference Flows   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Wui Man Rd - NB		C	1,4	3.500	15					1785	1785	120	0.067		160	0.090	
		H	1	3.500						2105	2105	28	0.013		28	0.013	
		H	1	3.500		25		56%	74%	2035	2015	27	0.013		27	0.013	
Hoi Wang Rd - SB		G	2,3	3.500	15					1785	1785	140	0.078		165	0.092	
		B	3	3.500						2105	2105	70	0.033		65	0.031	
		B	3	3.500		25				1985	1985	167	0.084	0.084	153	0.077	
		B	3	3.500		25				1985	1985	166	0.084		154	0.078	0.078
		B	3	3.500		25				1985	1985	167	0.084		153	0.077	
Jordan Road - EB		A	4	3.500	15					1785	1785	85	0.048		105	0.059	
		A	4	3.500	15			6%	3%	2090	2100	547	0.262		590	0.281	
		A	4	3.500						2105	2105	551	0.262	0.262	592	0.281	0.281
		A	4	3.500		25		45%	56%	2050	2035	537	0.262		573	0.282	
		A	4	3.500		25				1985	1985	105	0.053		140	0.071	
Jorden Rd - WB		D	2	3.500	15			13%	9%	1940	1945	267	0.138	0.138	328	0.169	0.169
		D	2	3.500						4210	4210	579	0.138		708	0.168	
		D	2	3.500		25		0%	0%	2105	2105	289	0.137		354	0.168	
		D	2	3.500		25				1985	1985	230	0.116		160	0.081	
Pedestrian Crossing		Fp	1,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			13	+	14	=	27						

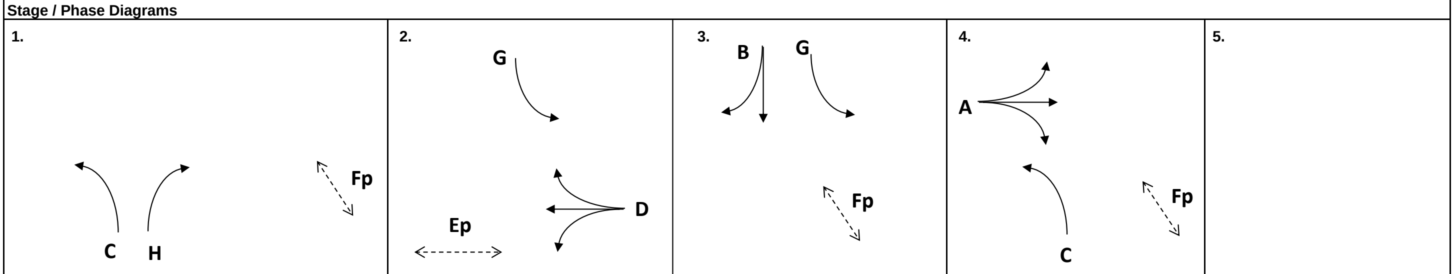
Notes:

Flow: (pcu/hr)



Group		H,D,B,A	Group		H,D,B,A
y		0.484	y		0.527
L (sec)		24	L (sec)		24
C (sec)		130	C (sec)		130
y pract.		0.734	y pract.		0.734
R.C. (%)		52%	R.C. (%)		39%

Stage / Phase Diagrams



I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	
I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	

Date: JUN, 2022   **Junction:** J19 Jorden Rd / Wui Man Rd / Hoi Wang Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

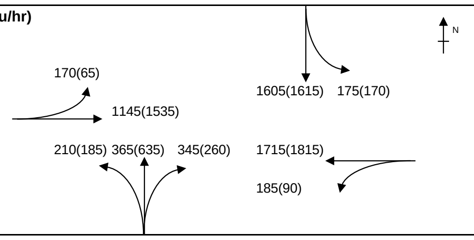
Junction: Jorden Rd/ Ferry St Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - WB		A	3	3.500	15			31%	15%	1905	1935	592	0.311	0.311	600	0.310	
		A	3	3.500						2105	2105	654	0.311		653	0.310	0.310
		A	3	3.500						2105	2105	654	0.311		652	0.310	
Jorden Rd - EB		B	3	3.300	15					1770	1770	170	0.096		65	0.037	
		B	3	3.500						2105	2105	382	0.181		512	0.243	
		B	3	3.500						2105	2105	381	0.181		511	0.243	
		B	3	3.500						2105	2105	382	0.181		512	0.243	
Canton Rd - NB		C	1,2	3.500	15			73%	44%	2115	2170	288	0.136		416	0.192	
		C	1,2	3.500						2105	2105	287	0.136		404	0.192	
Canton Rd - NB		D	2	3.500		20				1960	1960	173	0.088	0.088	130	0.066	0.066
		D	2	3.500		20				1960	1960	172	0.088		130	0.066	
Ferry St - SB		E	1	3.500	15					1785	1785	175	0.098		170	0.095	
		E	3	3.500						2105	2105	535	0.254	0.254	538	0.256	
		E	3	3.500						2105	2105	535	0.254		539	0.256	0.256
		E	3	3.500						2105	2105	535	0.254		538	0.256	
Pedestrian Crossing																	

Notes:

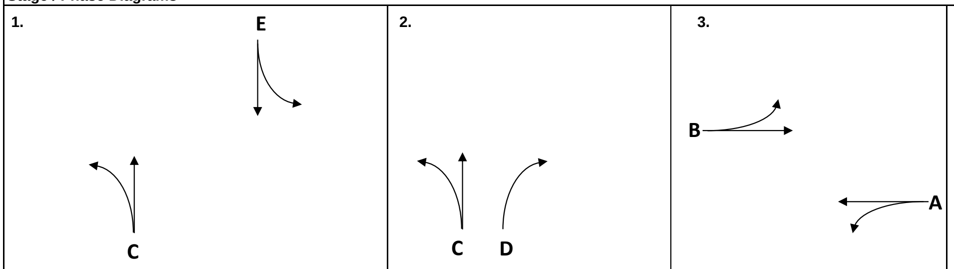
Flow: (pcu/hr)



Group		E,D,A	Group		E,D,A
y		0.653	y		0.633
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		24%	R.C. (%)		28%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd/ Ferry St J20

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Jorden Rd / Nathan Rd Design Year: 2047

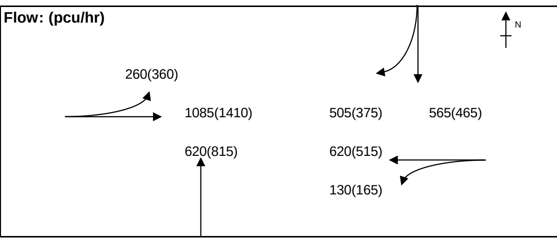
Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.600	10					1715	1715	260	0.152		360	0.210	
		A	1	3.600						2115	2115	543	0.257	0.257	705	0.333	0.333
		A	1	3.600						2115	2115	542	0.256		705	0.333	
Jorden Rd - WB		A	1	3.600	5			60%	88%	1675	1560	217	0.130		187	0.120	
		A	1	3.000						2055	2055	267	0.130		247	0.120	
		A	1	3.000						2055	2055	266	0.129		246	0.120	
Nathan Rd - NB		B	2	3.300						1945	1945	299	0.154		393	0.202	
		B	2	3.300						2085	2085	321	0.154	0.154	422	0.202	0.202
Nathan Rd - SB		C	3	3.500						1965	1965	348	0.177		273	0.139	
		C	3	3.500		35		41%	33%	2070	2075	367	0.177		288	0.139	
		C	3	3.500		30				2005	2005	355	0.177		279	0.139	

Pedestrian Crossing	Phase	Stage		Min Green		Flash		Total	AM Critical	PM Critical
Pedestrian Crossing	Dp	1,2	MIN GREEN + FLASH =	5	+	9	=	14		
	Ep	2	MIN GREEN + FLASH =	19	+	10	=	29		
	Fp	2	MIN GREEN + FLASH =	6	+	10	=	16		
	Gp	3	MIN GREEN + FLASH =	25	+	8	=	33	*	*
	Hp	1,3	MIN GREEN + FLASH =	5	+	7	=	12		

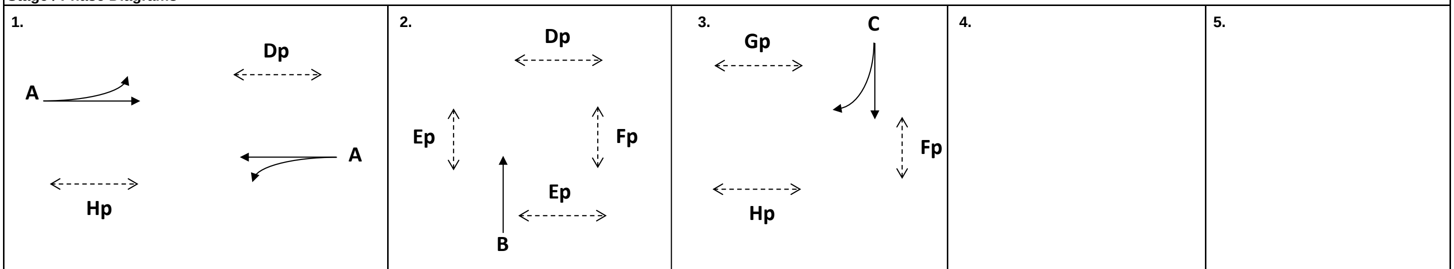
Notes:

Flow: (pcu/hr)



Group		A,B,Gp	Group		A,B,Gp
y		0.411	y		0.536
L (sec)		52	L (sec)		46
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.582
R.C. (%)		31%	R.C. (%)		9%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 12	33	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 12	27	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd / Nathan Rd J21

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

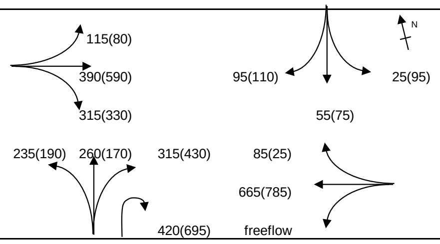
Junction: Jorden Rd / Gascoigne Rd — Design Year: 2047

Description: 2047 AM&PM Reference Flows — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Gascoigne Rd - EB		A	1	6.100	15					2025	2025	115	0.057		80	0.040	
		A	1	4.500						2205	2205	195	0.088		295	0.134	
		A	1	4.500						2205	2205	195	0.088		295	0.134	
		A	1	4.500						2205	2205	315	0.143		330	0.150	
Gascoigne Rd - WB		B1	1,2	3.100						1925	1925	321	0.167		379	0.197	
		B1	1,2	3.100						2065	2065	344	0.167		406	0.197	
		B2	2	3.000		10				1785	1785	85	0.048	0.048	25	0.014	
Jorden Rd - NB		C	3	3.300	20			47%	53%	1880	1870	495	0.263		360	0.193	
Jorden Rd - NB		C	3	3.300		20				1940	1940	315	0.162		430	0.222	
		C	3	3.400		15				1905	1905	420	0.220		695	0.365	
Queen Elizabeth Hospital Rd - SB		D	4	6.000	20	25		54% / 14%	39% / 34%	2110	2110	175	0.083	0.083	280	0.133	0.133
Pedestrian Crossing		Ep	2,3,4	MIN GREEN + FLASH =			6	+	12	=	18						
		Fp	3	MIN GREEN + FLASH =			51	+	7	=	58			*			*
		Gp	1,2,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1	MIN GREEN + FLASH =			21	+	11	=	32			*			*
		Ip	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

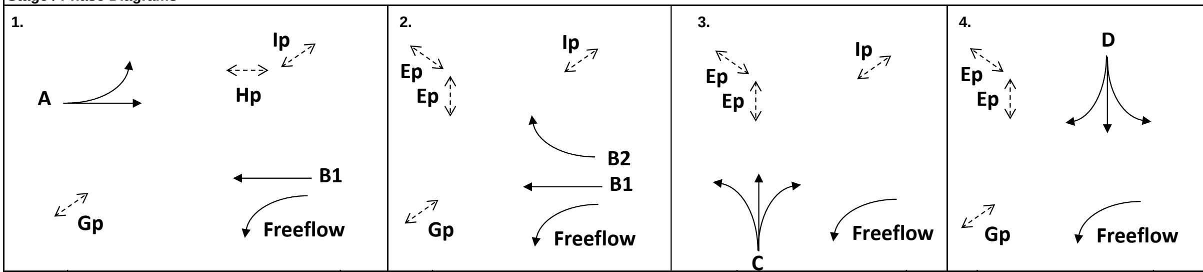
Notes:

Flow: (pcu/hr)



Group	Hp,B2,C,D	Hp,B2,Fp,D	Group	Hp,B2,Fp,D	Hp,B2,C,D
y	0.394	0.131	y	0.133	0.498
L (sec)	57	109	L (sec)	106	54
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.145	y pract.	0.166	0.526
R.C. (%)	28%	11%	R.C. (%)	25%	6%

Stage / Phase Diagrams



I/G= 5	32	I/G= 2		I/G= 8	58	I/G= 6		I/G=	
I/G= 5	26	I/G= 2	5	I/G= 9		I/G= 9		I/G=	

Date: MAR, 2022 — **Junction:** Jorden Rd / Gascoigne Rd — J22

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

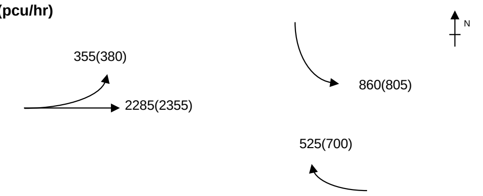
Junction: Boundary St / Tai Hang Tung Rd — Design Year: 2047

Description: 2047 AM&PM Reference Flows — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary St - WB		A	1	3.300		20				1810	1810	253	0.140		338	0.187	0.187
		A	1	3.300		20				1940	1940	272	0.140	0.140	362	0.187	
Tai Hang Tung Rd - SB		B	1,2	3.300	15					1770	1770	274	0.155		256	0.145	
		B	1,2	3.300	15					1895	1895	293	0.155		275	0.145	
		B	1,2	3.300	15					1895	1895	293	0.155		274	0.145	
Boundary St - EB		D	3	3.800	10					1735	1735	355	0.205		380	0.219	
Boundary St - EB		C	3	3.300						2085	2085	571	0.274	0.274	589	0.282	0.282
		C	3	3.300						2085	2085	571	0.274		589	0.282	
		C	3	3.300						2085	2085	571	0.274		589	0.282	
		C	3	3.300						2085	2085	571	0.274		589	0.282	
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			17	+	10	=	27			*			*
		Fp	3	MIN GREEN + FLASH =			33	+	8	=	41						
		Gp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						

Notes:

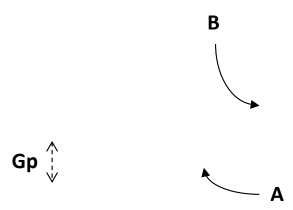
Flow: (pcu/hr)



Group	A,Ep,Fp	A,Ep,C	Group	A,Ep,C	A,Ep,Fp
y	0.140	0.414	y	0.469	0.187
L (sec)	80	43	L (sec)	43	101
C (sec)	120	120	C (sec)	130	130
y pract.	0.300	0.578	y pract.	0.602	0.201
R.C. (%)	114%	39%	R.C. (%)	28%	8%

Stage / Phase Diagrams

1.



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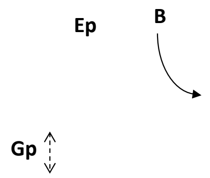

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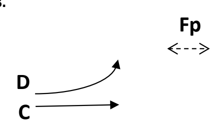


4.

5.

I/G= 5		I/G= 11	27	I/G= 2		I/G=		I/G=	
I/G= 3		I/G= 11	30	I/G= 2	56	I/G=		I/G=	

Date: MAR, 2022 — **Junction:** Boundary St / Tai Hang Tung Rd — J23

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

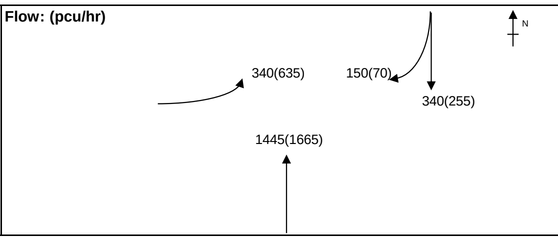
Junction: Lai Chi Kok Rd / Tong Mi Rd Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Rd - SB		A	1	3.000						1915	1915	164	0.086		123	0.064	
		A	1	3.000		70		0%	0%	2055	2055	176	0.086		132	0.064	
		A	1	3.000		65				2010	2010	150	0.075		70	0.035	
Tong Mi Rd - EB		A	1	3.500	15					1320	1320	107	0.081		199	0.151	
		A	1	3.500	15					1445	1445	116	0.080		218	0.151	
		A	1	3.500	15					1445	1445	117	0.081		218	0.151	
Lai Chi Kok Rd - NB		B	2	3.300						1430	1430	336	0.235		387	0.271	0.271
		B	2	3.300						1570	1570	369	0.235		425	0.271	
		B	2	3.300						1575	1575	370	0.235	0.235	427	0.271	
		B	2	3.250						1570	1570	369	0.235		425	0.271	
Pedestrian Crossing		Cp	1,3	MIN GREEN + FLASH =			6	+	11	=	17			*			*
		Dp	2,3	MIN GREEN + FLASH =			6	+	9	=	15						
		Ep	2,3	MIN GREEN + FLASH =			6	+	13	=	19						

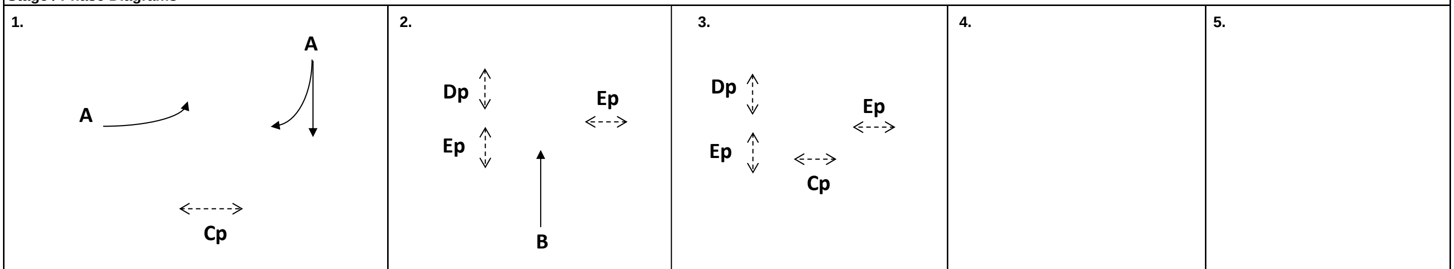
Notes:

Flow: (pcu/hr)



Group		Cp,B	Group		Cp,B
y		0.235	y		0.271
L (sec)		25	L (sec)		25
C (sec)		120	C (sec)		130
y pract.		0.713	y pract.		0.727
R.C. (%)		203%	R.C. (%)		168%

Stage / Phase Diagrams



I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	
I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Lai Chi Kok Rd / Tong Mi Rd J24

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Nathan Rd / Mong Kok Rd

Design Year: 2047

Description: 2047 AM&PM Reference Flows

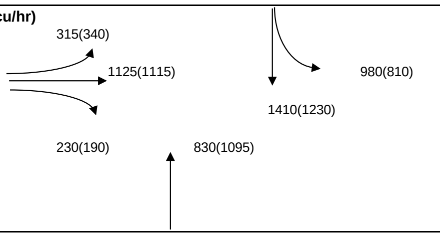
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.400	10			84%	93%	1735	1715	374	0.216		364	0.212	
		A	1	3.300						2085	2085	450	0.216	0.216	443	0.212	
		A	1	3.300						2085	2085	450	0.216		444	0.213	0.213
		A	1	3.300		15		58%	48%	1840	1855	396	0.215		394	0.212	
Nathan Rd - SB		B	2	3.200	5					1490	1490	624	0.419		532	0.357	0.357
		B	2	3.300	10			43%	40%	1960	1970	821	0.419		703	0.357	
		B	2	3.000						2255	2255	945	0.419	0.419	805	0.357	
Nathan Rd - NB		C	2	3.600						1975	1975	401	0.203		529	0.268	
		C	2	3.600						2115	2115	429	0.203		566	0.268	
Pedestrian Crossing																	

Notes:

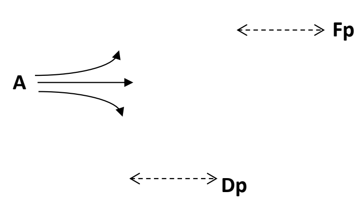
Flow: (pcu/hr)



Group		A,B	Group		A,B
y		0.635	y		0.570
L (sec)		12	L (sec)		15
C (sec)		130	C (sec)		130
y pract.		0.817	y pract.		0.796
R.C. (%)		29%	R.C. (%)		40%

Stage / Phase Diagrams

1.



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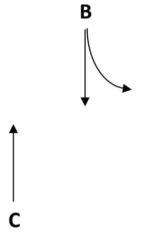

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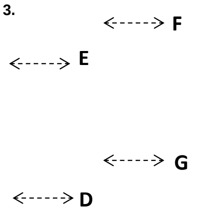


4.

5.

I/G= 7		I/G= 7		I/G=		I/G=		I/G=	
I/G= 7		I/G= 7		I/G=		I/G=		I/G=	

Date: JUN, 2022

Junction: J25 Nathan Rd / Mong Kok Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — **MVA HONG KONG LIMITED**

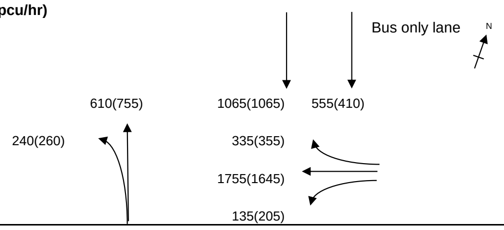
Junction: Nathan Rd / Argyle St — Design Year: 2047

Description: 2047 AM&PM Reference Flows — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle St - WB		E	2	3.000	5					1475	1475	135	0.092		205	0.139	
		D	1,2	3.200						2075	2075	873	0.421		819	0.395	0.395
		D	1,2	3.400		10		0%	0%	2095	2095	882	0.421	0.421	826	0.394	
		D	1,2	3.300		5				1495	1495	335	0.224		355	0.237	
Nathan Rd - SB		A	3,4	3.300						2085	2085	533	0.256		533	0.256	
		A	3,4	3.300						2085	2085	532	0.255		532	0.255	
Nathan Rd - SB (Bus only lane)		A	3,4	3.300						1945	1945	555	0.285		410	0.211	
Nathan Rd - NB		C	4	3.500	5					1510	1510	240	0.159	0.159	260	0.172	0.172
Nathan Rd - NB		B	3,4	3.200						2075	2075	305	0.147		378	0.182	
		B	3,4	3.200						2075	2075	305	0.147		377	0.182	
Pedestrian Crossing		Fp	3	MIN GREEN + FLASH =			11	+	15	=	26			*			*
		Gp	3,4	MIN GREEN + FLASH =			6	+	16	=	22						
		Hp	1	MIN GREEN + FLASH =			26	+	12	=	38						

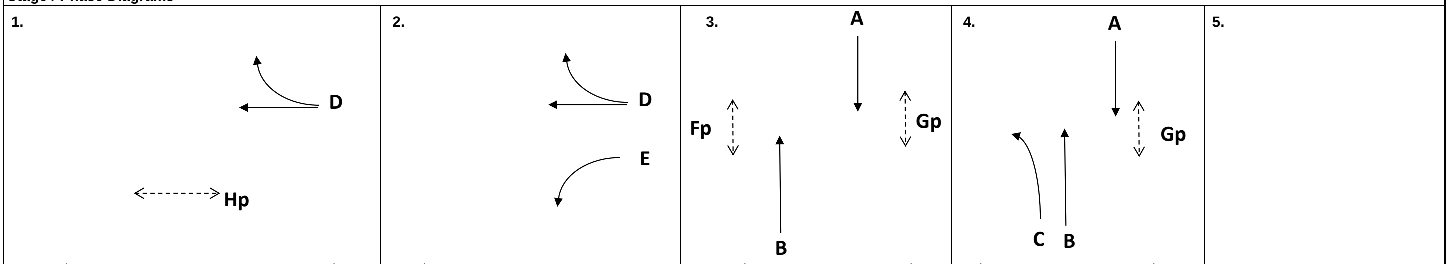
Notes:

Flow: (pcu/hr)



Group		D,Fp,C	Group		D,Fp,C
y		0.580	y		0.567
L (sec)		41	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.616	y pract.		0.616
R.C. (%)		6%	R.C. (%)		9%

Stage / Phase Diagrams



I/G= 5		I/G=		I/G= 9	26	I/G= 3		I/G=	
I/G= 5		I/G=		I/G= 9	26	I/G= 3		I/G=	

Date: MAR, 2022 — **Junction:** Nathan Rd / Argyle St — J26

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

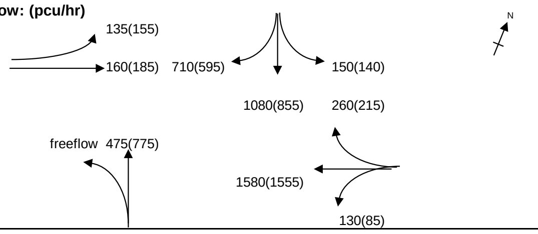
Junction: Argyle St / Tong Mi Rd Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	158	0.076		258	0.124	
		A	1	3.300						2085	2085	159	0.076	0.076	259	0.124	0.124
		A	1	3.300						2085	2085	158	0.076		258	0.124	
Tong Mi Rd - SB		B	1,2	3.300	10			26%	30%	1875	1860	582	0.310		469	0.252	
Tong Mi Rd - SB		B	1,2	3.300						2085	2085	648	0.311		526	0.252	
Tong Mi Rd - SB		E	2	3.600		15				1925	1925	710	0.369	0.369	595	0.309	0.309
Argyle St - EB		C	3	3.300	10					1690	1690	135	0.080		155	0.092	
Argyle St - EB		C	3	3.400						2095	2095	160	0.076		185	0.088	
Argyle St - WB		G	3,4	4.500	50			22%	15%	2165	2170	579	0.267	0.267	556	0.256	0.256
Argyle St - WB		D	3,4	3.600						2115	2115	566	0.268		542	0.256	
		D	3,4	3.600						2115	2115	565	0.267		542	0.256	
Argyle St - WB		F	4	3.300		10				1815	1815	260	0.143		215	0.118	
Pedestrian Crossing																	

Notes:

Flow: (pcu/hr)

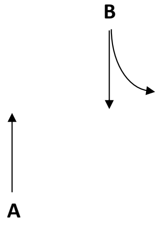


Group		A,E,G
y		0.713
L (sec)		18
C (sec)		130
y pract.		0.775
R.C. (%)		9%

Group		A,E,G
y		0.690
L (sec)		18
C (sec)		130
y pract.		0.775
R.C. (%)		12%

Stage / Phase Diagrams

1.



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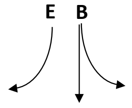

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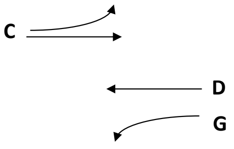

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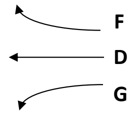


5.

I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	
I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Argyle St / Tong Mi Rd J27

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

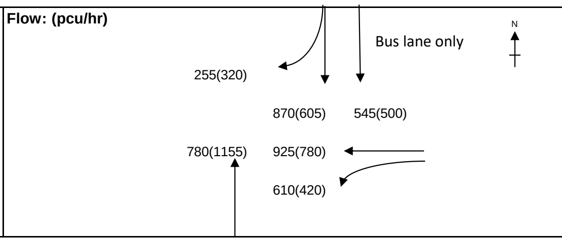
Junction: Nathan Rd / Prince Edward Rd West Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)		A	1,2	3.200						1935	1935	545	0.282		500	0.258	
Nathan Rd - SB		A	1,2	3.200						2075	2075	435	0.210		303	0.146	
		A	1,2	3.200						2075	2075	435	0.210		302	0.146	
Nathan Rd - SB		B	1	3.100		15				1875	1875	255	0.136	0.136	320	0.171	0.171
Nathan Rd - NB		C	2	3.350						1950	1950	376	0.193		557	0.286	
		C	2	3.350						2090	2090	404	0.193	0.193	598	0.286	0.286
Prince Edward Rd West - WB		D	3	3.000	10					1665	1665	332	0.199		259	0.156	0.156
Prince Edward Rd West - WB		D	3	3.000	15			73%	53%	1915	1950	383	0.200	0.200	303	0.155	
		D	3	3.000						2055	2055	410	0.200		319	0.155	
		D	3	3.000						2055	2055	410	0.200		319	0.155	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			13	+	14	=	27						
		Fp	2	MIN GREEN + FLASH =			17	+	10	=	27						
		Gp	3	MIN GREEN + FLASH =			42	+	13	=	55						

Notes:

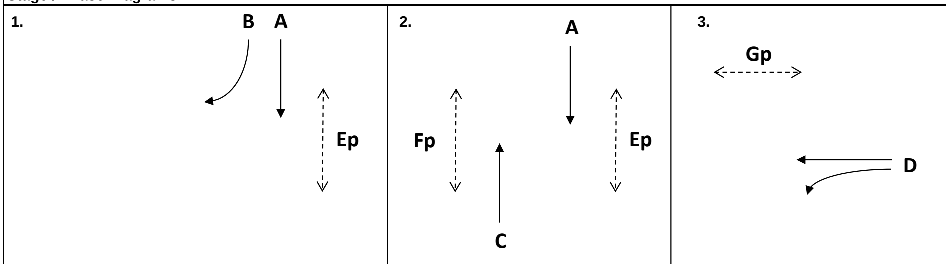
Flow: (pcu/hr)



Group		B,C,D	Group		B,C,D
y		0.529	y		0.612
L (sec)		21	L (sec)		21
C (sec)		130	C (sec)		130
y pract.		0.755	y pract.		0.755
R.C. (%)		43%	R.C. (%)		23%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	
I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Prince Edward Rd West J28

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Tong Mi Rd / Prince Edward Rd West

Design Year: 2047

Description: 2047 AM&PM Reference Flows

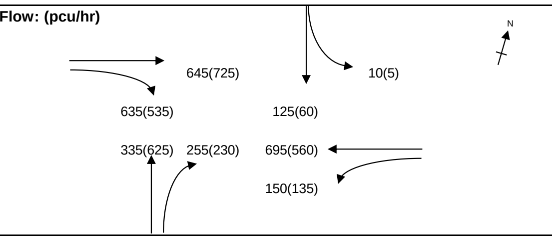
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - SB		A	1	3.800	10			16%	16%	1950	1950	64	0.033		31	0.016	
Tong Mi Rd - SB		A	1	3.800						2135	2135	71	0.033		34	0.016	
Tong Mi Rd - NB		B	2	3.100						1925	1925	145	0.075		207	0.108	
Tong Mi Rd - NB		B	2	3.100						2065	2065	155	0.075		222	0.108	
		B	2	3.300		20		76%	12%	1970	2065	148	0.075		223	0.108	
		B	2	3.250		15				1890	1890	142	0.075		203	0.107	
Prince Edward Rd West - WB		C	3	3.200	10					1685	1685	150	0.089		135	0.080	
Prince Edward Rd West - WB		C	3	3.400	15			0%	0%	2095	2095	346	0.165	0.165	279	0.133	0.133
		C	3	3.600						2115	2115	349	0.165		281	0.133	
Prince Edward Rd West - EB		D	4	3.400						2115	2115	324	0.153		364	0.172	
		D	4	3.400						2095	2095	321	0.153		361	0.172	
Prince Edward Rd West - EB		D	4	3.800		15				1940	1940	635	0.327	0.327	535	0.276	0.276
Pedestrian Crossing		Ep	1,2,4	MIN GREEN + FLASH =			9	+	9	=	18						
		Fp	2	MIN GREEN + FLASH =			17	+	8	=	25			*			*
		Gp	1,3,4	MIN GREEN + FLASH =			11	+	11	=	22						
		Hp	1	MIN GREEN + FLASH =			14	+	13	=	27						
		Ip	3,4	MIN GREEN + FLASH =			11	+	10	=	21						
		Jp	3	MIN GREEN + FLASH =			15	+	9	=	24						

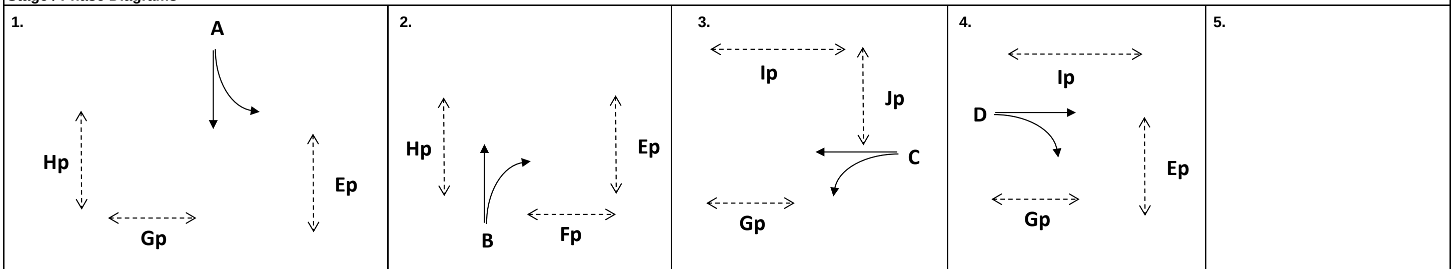
Notes:

Flow: (pcu/hr)



Group		A,Fp,C,D	Group		A,Fp,C,D
y		0.492	y		0.409
L (sec)		53	L (sec)		56
C (sec)		130	C (sec)		130
y pract.		0.533	y pract.		0.512
R.C. (%)		8%	R.C. (%)		25%

Stage / Phase Diagrams



I/G= 7	5	I/G= 11	25	I/G= 2		I/G= 5		I/G=	
I/G= 7	5	I/G= 11	28	I/G= 2		I/G= 5		I/G=	

Date:	Junction: J29
MAR, 2022	Tong Mi Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

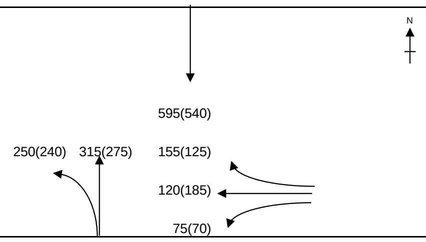
Junction: Tai Kok Tsui Rd / Ivy St   Design Year: 2047

Description: 2047 AM&PM Reference Flows   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tai Kok Tsui Rd - SB		A	1	4.300						2045	2045	595	0.291	0.291	540	0.264	0.264
Tai Kok Tsui Rd - NB		A	1	3.200	10			79%	85%	1730	1715	222	0.128		201	0.117	
Tai Kok Tsui Rd - NB		A	1	3.300						2085	2085	268	0.129		244	0.117	
Ivy St - WB		B	3	4.600	10	15		21% / 44%	18% / 33%	1930	1955	350	0.181	0.181	380	0.194	0.194
Ivy St - WB																	
Ivy St - WB																	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			22	+	20	=	42			*			*

Notes:

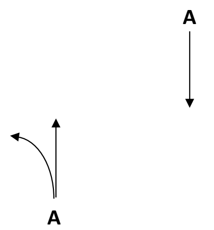
Flow: (pcu/hr)



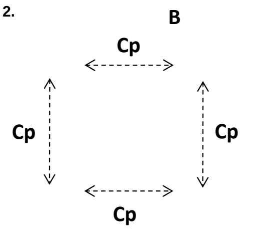
Group		A,Cp,B	Group		A,Cp,B
y		0.472	y		0.458
L (sec)		59	L (sec)		59
C (sec)		136	C (sec)		136
y pract.		0.510	y pract.		0.510
R.C. (%)		8%	R.C. (%)		11%

Stage / Phase Diagrams

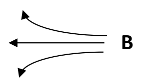
1.



2.



3.



4.

5.

I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	
I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	

Date: MAR, 2022   **Junction:** J30 Tai Kok Tsui Rd / Ivy St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

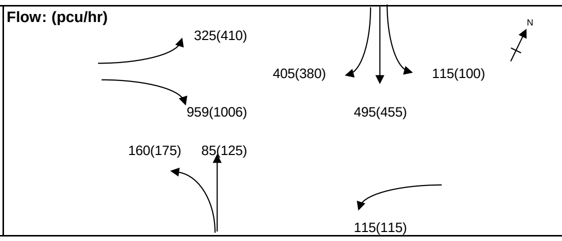
Junction: Sai Yee St / Mong Kok Rd Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.100	10	15		76% / 24%	92% / 8%	1690	1680	426	0.252	0.252	444	0.264	0.264
		A	1	3.400		15				1905	1905	480	0.252		503	0.264	
		A	1	3.400		15				1905	1905	479	0.251		503	0.264	
Sai Yee St - SB		B	2	3.650	10			23%	21%	1915	1920	511	0.267	0.267	471	0.245	
Sai Yee St - SB		B	2	3.650		10		80%	82%	1890	1890	504	0.267		464	0.246	0.246
Sai Yee St - SB																	
Mong Kok Rd - WB		H	3	3.500	10					1710	1710	56	0.033		56	0.033	
		H	3	3.500	10					1830	1830	59	0.032		59	0.032	
Sai Yee St - NB		C	4	3.400	10			100%	100%	1700	1700	160	0.094	0.094	175	0.103	0.103
Sai Yee St - NB		C	4	3.400						2095	2095	85	0.041		125	0.060	
Pedestrian Crossing		Dp	2,3,4	MIN GREEN + FLASH =			7	+	12	=	19						
		Ep	1,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Fp	2,3	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Ip	1,3,4	MIN GREEN + FLASH =			5	+	8	=	13						
		Jp	1,2,4	MIN GREEN + FLASH =			5	+	10	=	15						

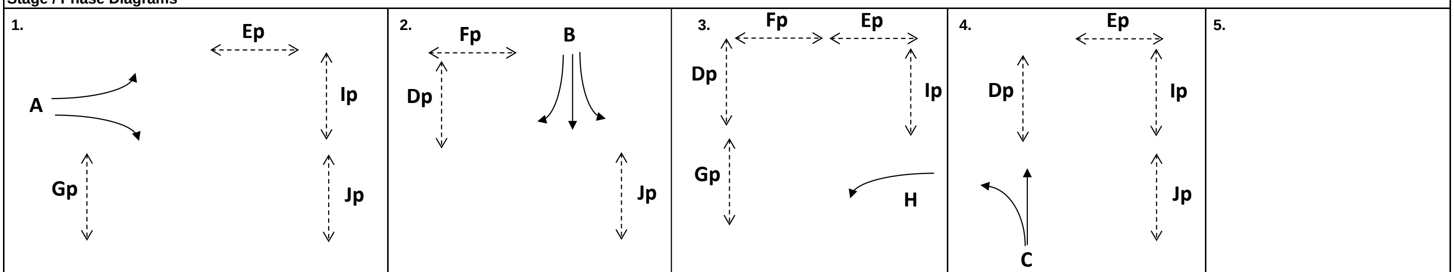
Notes:

Flow: (pcu/hr)



Group		A,B,H,C	Group		A,B,H,C
y		0.613	y		0.613
L (sec)		22	L (sec)		22
C (sec)		130	C (sec)		130
y pract.		0.748	y pract.		0.748
R.C. (%)		22%	R.C. (%)		22%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 5	5	I/G= 5		I/G=	
I/G= 5		I/G= 5		I/G= 5	5	I/G= 5		I/G=	

Date: MAR, 2022 **Junction:** Sai Yee St / Mong Kok Rd J31

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Nathan Rd / Dundas St

Design Year: 2047

Description: 2047 AM&PM Reference Flows

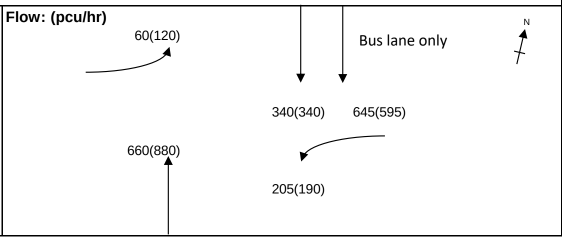
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)	↑	A	1,3	3.250						1940	1940	645	0.332	0.332	595	0.307	0.307
Nathan Rd - SB	↑	A	1,3	3.400						2095	2095	170	0.081		170	0.081	
	↑	A	1,3	3.400						2095	2095	170	0.081		170	0.081	
Nathan Rd - NB	↑	B	1	3.300						1945	1945	210	0.108		280	0.144	
	↑	B	1	3.300						2085	2085	225	0.108		300	0.144	
	↑	B	1	3.300						2085	2085	225	0.108		300	0.144	
Dundas St - WB	↰	C	2	4.600	10					1805	1805	205	0.114		190	0.105	
Dundas St - EB	↰	D	3	3.500	10					1710	1710	60	0.035	0.035	120	0.070	0.070
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			24	+	11	=	35			*			*
		Fp	1,3	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						

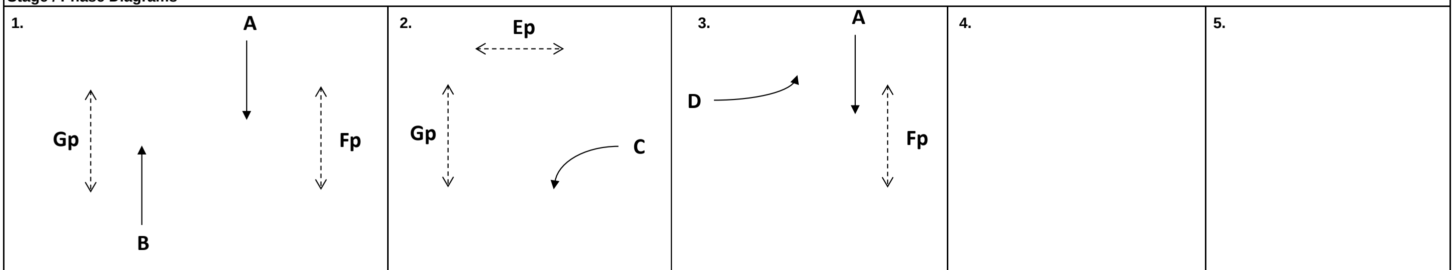
Notes:

Flow: (pcu/hr)



Group		A,Ep,D	Group		A,Ep,D
y		0.368	y		0.377
L (sec)		45	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.519
R.C. (%)		60%	R.C. (%)		38%

Stage / Phase Diagrams



I/G= 3		I/G= 5	35	I/G= 4		I/G=		I/G=	
I/G= 3		I/G= 5	45	I/G= 4		I/G=		I/G=	

Date: MAR, 2022

Junction: Nathan Rd / Dundas St J32

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

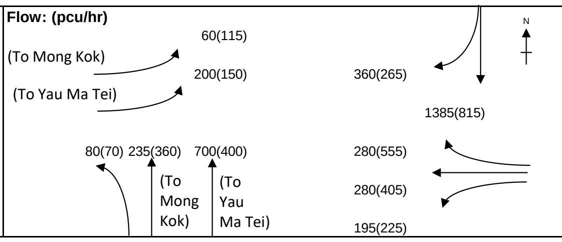
Junction: Yau Cheung Rd / Ferry St / Kansu St Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu St - WB		A	1	3.300	15			83%	60%	1795	1835	236	0.131	0.131	377	0.205	0.205
Kansu St - WB		A	1	3.300		50		12%	40%	2075	2060	272	0.131		422	0.205	
Kansu St - WB		A	1	3.300		45				1880	1880	247	0.131		386	0.205	
Ferry St - NB		B	2	3.500	30			53%	34%	1915	1930	150	0.078		206	0.107	
Ferry St - NB (To Mong Kok)		B	2	3.500						2105	2105	165	0.078		224	0.106	
Ferry St - NB (To Yau Ma Tei)		B	2	3.650						2120	2120	700	0.330	0.330	400	0.189	
Ferry St - SB		B	2	3.500						1965	1965	441	0.224		259	0.132	
		B	2	3.500						2105	2105	472	0.224		278	0.132	
		B	2	3.500						2105	2105	472	0.224		278	0.132	
Ferry St - SB		D	3	3.650		45				2050	2050	180	0.088		133	0.065	
		D	3	3.650		45				2050	2050	180	0.088		132	0.064	
Yan Cheung Rd - EB (To Mong Kok)		E	3	3.500	50					1910	1910	29	0.015		56	0.029	
		E	3	3.500	50					2045	2045	31	0.015		59	0.029	
Yan Cheung Rd - EB (To Yau Ma Tei)		D	3	4.000	60					2100	2100	200	0.095	0.095	150	0.071	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	10	=	15						
		Hp	2	MIN GREEN + FLASH =			38	+	14	=	52						*
		Ip	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Jp	3	MIN GREEN + FLASH =			9	+	12	=	21						*

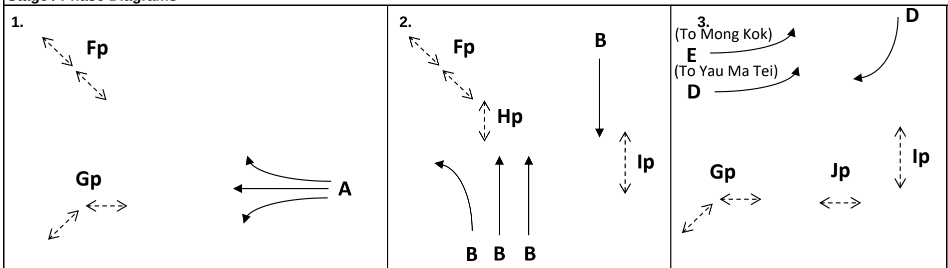
Notes:

Flow: (pcu/hr)



Group	A,Hp,Jp	A,B,D	Group	A,B,D	A,Hp,Jp
y	0.131	0.557	y	0.466	0.205
L (sec)	87	20	L (sec)	20	87
C (sec)	120	120	C (sec)	120	120
y pract.	0.248	0.750	y pract.	0.750	0.248
R.C. (%)	88%	35%	R.C. (%)	61%	20%

Stage / Phase Diagrams



I/G= 8		I/G= 7		I/G= 8		I/G=		I/G=	
I/G= 2		I/G= 10	52	I/G= 3	21	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J33 Yau Cheung Rd / Ferry St / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

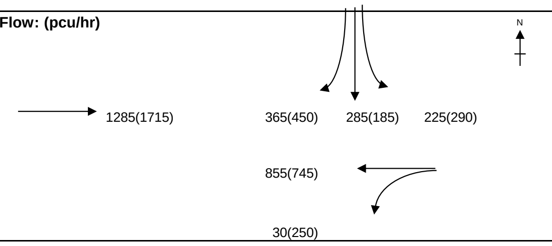
Junction: Jorden Rd / Shanghai St Design Year: 2047

Description: 2047 AM&PM Reference Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.000						1915	1915	408	0.213		545	0.285	
		A	1	3.000						2055	2055	439	0.214	0.214	585	0.285	0.285
		A	1	3.000						2055	2055	438	0.213		585	0.285	
Jorden Rd - WB		A	1	3.300	10			11%	86%	1915	1725	279	0.146		291	0.169	
Jorden Rd - WB		A	1	3.250						2080	2080	303	0.146		352	0.169	
		A	1	3.250						2080	2080	303	0.146		352	0.169	
Shanghai St - SB		D	3	3.000	10			82%	100%	1705	1665	274	0.161		290	0.174	0.174
Shanghai St - SB		D	3	3.000		15		26%	45%	2000	1965	321	0.161		337	0.172	
Shanghai St - SB		D	3	3.000		15				1740	1740	280	0.161	0.161	298	0.171	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			16	+	12	=	28			*			*
		Cp	1	MIN GREEN + FLASH =			10	+	12	=	22						

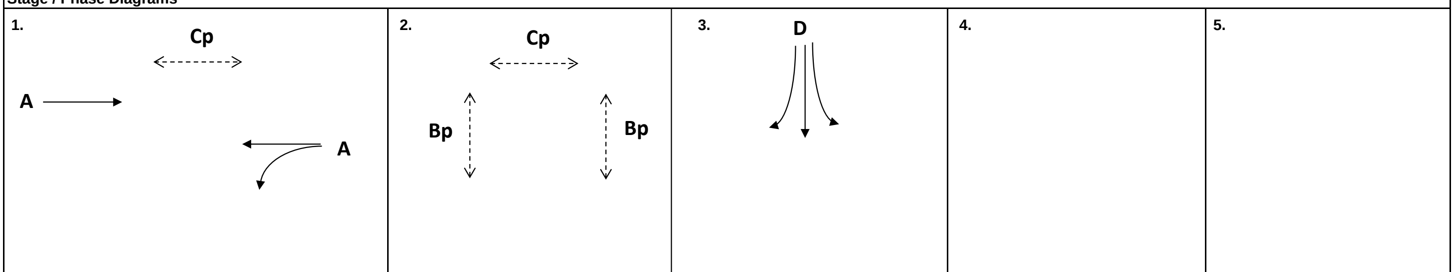
Notes:

Flow: (pcu/hr)



Group		A,Bp,D	Group		A,Bp,D
y		0.375	y		0.459
L (sec)		45	L (sec)		45
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.588
R.C. (%)		57%	R.C. (%)		28%

Stage / Phase Diagrams



I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	
I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd / Shanghai St J34

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — MVA HONG KONG LIMITED

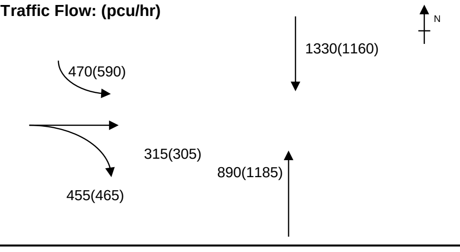
Junction: J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street — Design Year: 2047

Description: 2047 Reference — Designed By: HAP — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Road - NB		A	1	3.000						1915	1915	284	0.148		378	0.197	
		A	1	3.000						2055	2055	304	0.148		405	0.197	
		A	1	2.800						2035	2035	302	0.148		402	0.198	0.198
Anchor Street		D	3	3.300		20		19%	21%	1920	1915	387	0.202		387	0.202	
		D	3	3.300		15				1895	1895	383	0.202	0.202	383	0.202	0.202
Fuk Tsun Street		C	2	4.200	15					1850	1850	144	0.078		181	0.098	
		C	2	4.600	20					2060	2060	161	0.078	0.078	201	0.098	
		C	2	5.000	25					2125	2125	165	0.078		208	0.098	0.098
Tong Mi Road - SB		B	1	3.500						1965	1965	427	0.217		372	0.189	
		B	1	3.300						2085	2085	452	0.217		395	0.189	
		B	1	3.200						2075	2075	451	0.217	0.217	393	0.189	
Pedestrian Crossing		Ep	1,3	MIN GREEN + FLASH =			13	+	13	=	26						
		Fp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						
		Gp	2,3	MIN GREEN + FLASH =			8	+	8	=	16						
		Hp	2	MIN GREEN + FLASH =			8	+	8	=	16						
		Ip	1	MIN GREEN + FLASH =			11	+	11	=	22						
		Jp	2,3	MIN GREEN + FLASH =			13	+	9	=	22						

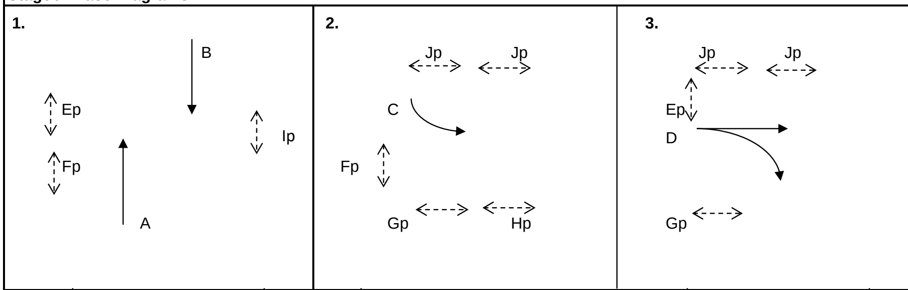
Notes:

Traffic Flow: (pcu/hr)



Group	A,C,D	B,C,D	Group	B,C,D	A,C,D
y	0.429	0.498	y	0.489	0.498
L (sec)	18	18	L (sec)	18	18
C (sec)	130	130	C (sec)	130	130
y pract.	0.775	0.775	y pract.	0.775	0.775
R.C. (%)	81%	56%	R.C. (%)	58%	56%

Stage / Phase Diagrams



1.	2.	3.	4.	5.
I/G= 8	I/G= 7	I/G= 6	I/G=	I/G=
I/G= 8	I/G= 7	I/G= 6	I/G=	I/G=

Date: MAR, 2022 — **Junction:** J35 — J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

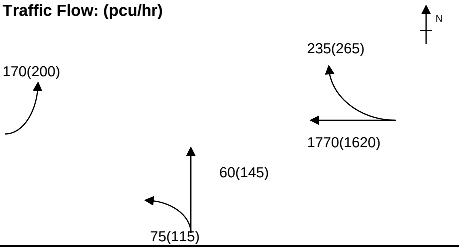
Junction: J36 - Argyule Street / Reclamation Street Design Year: 2047

Description: 2047 Reference Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street - WB	↑	B	1	3.200						1935	1935	417	0.215	0.215	381	0.197	0.197
	↑	B	1	3.600						2115	2115	455	0.215		417	0.197	
	↑	B	1	3.200						2075	2075	447	0.215		409	0.197	
	↑	B	1	3.400						2095	2095	451	0.215		413	0.197	
Argyle Street - WB	↱	B	1	3.700		15				1930	1930	235	0.122		265	0.137	
clamation Street - NB	↰	A	3	3.700	15					1805	1805	41	0.023		79	0.044	0.044
	↰↑	A	3	3.600	20			74%	40%	2005	2055	46	0.023	0.023	89	0.043	
	↑	A	3	3.500						2105	2105	48	0.023		92	0.044	
Argyle Street - EB	↰	B	1	5.300	15					1950	1950	170	0.087		200	0.103	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			9	+	19	=	28						
		Dp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						
		Ep	2	MIN GREEN + FLASH =			23	+	15	=	38			*			*

Notes:

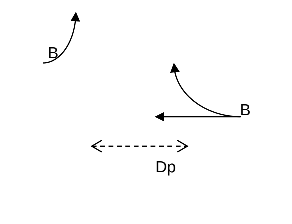
Traffic Flow: (pcu/hr)



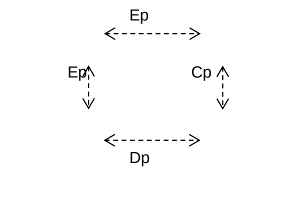
Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.215	0.238	y	0.197	0.241
L (sec)	34	60	L (sec)	34	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.665	0.485	y pract.	0.665	0.519
R.C. (%)	209%	103%	R.C. (%)	237%	116%

Stage / Phase Diagrams

1.



2.



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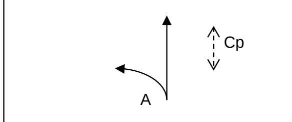


4.

5.

I/G= 7		I/G= 9	38	I/G= 3	5	I/G=		I/G=	
I/G= 7		I/G= 9	38	I/G= 3		I/G=		I/G=	

Date: MAR, 2022

Junction: J36

J36 - Argyule Street / Reclamation Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

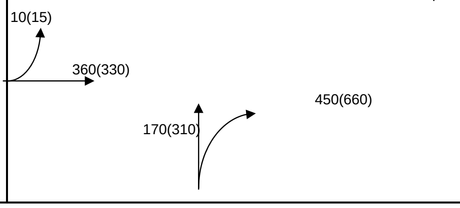
Junction: J37 - Reclamation Street / Dundas Street Design Year: 2047

Description: 2047 Reference Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
clamation Street - NB		B	1	3.200						1935	1935	82	0.042		149	0.077	
		B	1	3.400						2095	2095	88	0.042		161	0.077	
clamation Street - NB		B	1	3.600		15				1925	1925	450	0.234	0.234	660	0.343	0.343
Dundas Street - EB		A	3	3.100	15			6%	9%	1915	1910	177	0.092		165	0.086	0.086
		A	3	3.300						2085	2085	193	0.093	0.093	180	0.086	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	1,2	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			11	+	9	=	20			*			*

Notes:

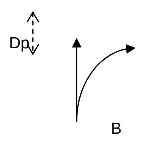
Traffic Flow: (pcu/hr)



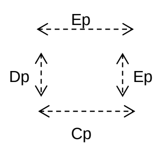
Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.234	0.326	y	0.343	0.429
L (sec)	25	32	L (sec)	25	32
C (sec)	90	90	C (sec)	108	108
y pract.	0.650	0.580	y pract.	0.692	0.633
R.C. (%)	178%	78%	R.C. (%)	102%	48%

Stage / Phase Diagrams

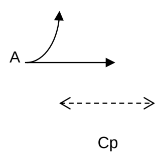
1.



2.



3.



4.

5.

I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	
I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J37

J37 - Reclamation Street / Dundas Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Kansu Street / Canton Road

Design Year: 2047

Description: 2047 Reference

Designed By: HAP

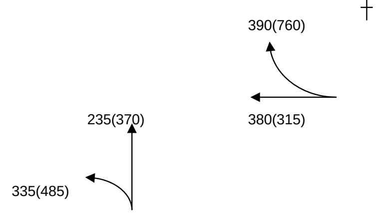
Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu Street - WB		A	1	3.400						1955	1955	380	0.194		315	0.161	
		A	1	3.400		15		100%	100%	1905	1905	390	0.205	0.205	760	0.399	0.399
Canton Road - NB		B	2	3.700	15			100%	100%	1805	1805	335	0.186	0.186	485	0.269	0.269
		B	2	3.700						2125	2125	117	0.055		184	0.087	
		B	2	3.900						2145	2145	118	0.055		186	0.087	

Pedestrian Crossing	Phase	Stage		Min Green		Flash		Total
Pedestrian Crossing	Cp	1	MIN GREEN + FLASH =	8	+	10	=	18
	Dp	2	MIN GREEN + FLASH =	7	+	10	=	17

Notes:

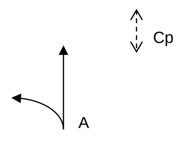
Traffic Flow: (pcu/hr)



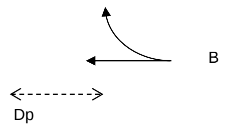
Group	A,Dp	A,B	Group	A,Dp	A,B
y	0.205	0.390	y	0.399	0.668
L (sec)	25	8	L (sec)	25	8
C (sec)	120	120	C (sec)	120	120
y pract.	0.713	0.840	y pract.	0.713	0.840
R.C. (%)	248%	115%	R.C. (%)	79%	26%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 5	I/G= 5	I/G=	I/G=	I/G=
I/G= 5	I/G= 5	I/G=	I/G=	I/G=

Date: MAR, 2022 **Junction:** Kansu Street / Canton Road J38

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

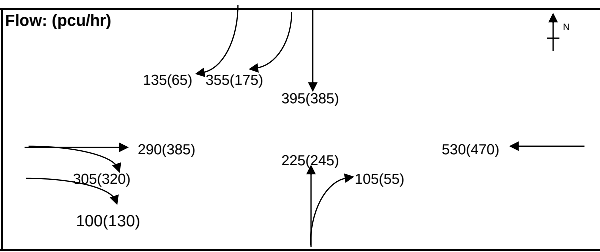
Junction: J39 - Prince Edward Road West / Lai Chi Kok Road Design Year: 2047

Description: 2047 Reference Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward	↑	C	1	3.200						1935	1935	169	0.087	0.087	149	0.077	
Road West	↑	C	1	3.200						2075	2075	180	0.087		161	0.078	0.078
WB	↑	C	1	3.200						2075	2075	181	0.087		160	0.077	
Lai Chi Kok	↑	A	4	3.500						1965	1965	109	0.055		118	0.060	
Road - NB	↑↱	A	4	3.500		15		0%	0%	2105	2105	116	0.055		127	0.060	
	↱	A	4	3.500		15				1915	1915	105	0.055		55	0.029	
Prince Edward	↑	D	3	3.600						1975	1975	290	0.147		352	0.178	
Road West	↑↱	D	3	3.600		20		100%	91%	1965	1980	305	0.155	0.155	353	0.178	0.178
EB	↱	D	3	3.600		15				1925	1925	100	0.052		130	0.068	
Lai Chi Kok	↑	B	2	3.200						1935	1935	362	0.187	0.187	269	0.139	
Road - SB	↑↱	B	2	3.500		100		91%	60%	2075	2085	388	0.187		291	0.140	0.140
	↱	B	2	3.200		15				1885	1885	135	0.072		65	0.034	
Pedestrian Crossing		Lp	4	MIN GREEN + FLASH =			12	+	8	=	20			*			*

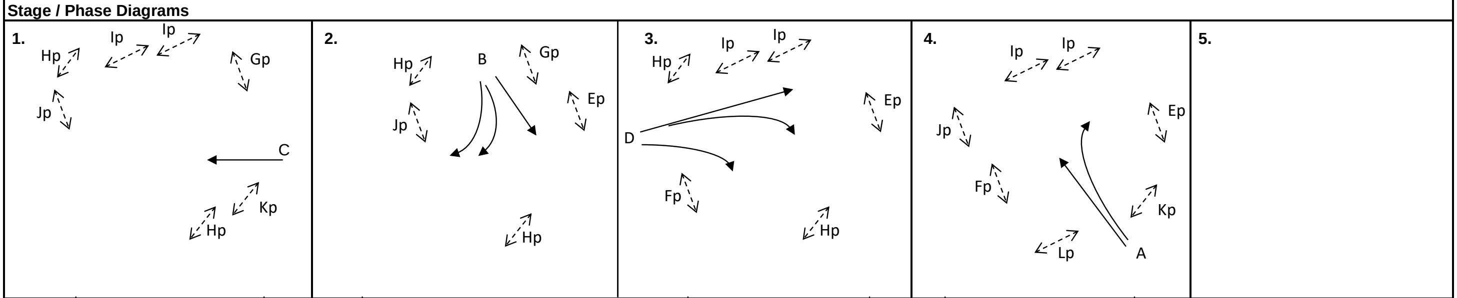
Notes:

Flow: (pcu/hr)



Group	C,B,D,A	C,B,D,Lp	Group	C,B,D,A	C,B,D,Lp
y	0.485	0.430	y	0.456	0.395
L (sec)	22	42	L (sec)	22	44
C (sec)	130	130	C (sec)	130	130
y pract.	0.748	0.609	y pract.	0.748	0.595
R.C. (%)	54%	42%	R.C. (%)	64%	51%

Stage / Phase Diagrams



I/G= 2		I/G= 8		I/G= 5		I/G= 12	18	I/G=	
I/G= 2		I/G= 8		I/G= 5		I/G= 12	20	I/G=	

Date: MAY, 2022 **Junction:** J39 - Prince Edward Road West / Lai Chi Kok Road (J39)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J40 - Lai Chi Kok Road / Shanghai Street

Design Year: 2047

Description: 2047 Reference

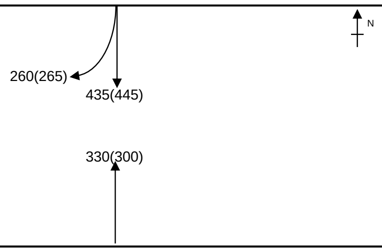
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road - SB		A	1	3.400						1955	1955	225	0.115		230	0.118	
		A	1	3.400		30		13%	12%	2080	2080	240	0.115	0.115	245	0.118	
		A	1	3.400		30				1995	1995	230	0.115		235	0.118	0.118
Lai Chi Kok Road - NB		B	2	3.300						1945	1945	107	0.055		98	0.050	
		B	2	3.300						2085	2085	116	0.056		104	0.050	
		B	2	3.300						1945	1945	107	0.055		98	0.050	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			56	+	9	=	65						
		Dp	2	MIN GREEN + FLASH =			39	+	9	=	48			*			*

Notes:

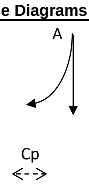
Flow: (pcu/hr)



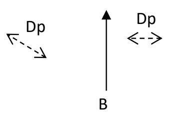
Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.171	0.115	y	0.168	0.118
L (sec)	12	66	L (sec)	12	66
C (sec)	130	130	C (sec)	130	130
y pract.	0.817	0.443	y pract.	0.817	0.443
R.C. (%)	378%	284%	R.C. (%)	386%	276%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	
I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	

Date: MAY, 2022

Junction: J40 - Lai Chi Kok Road / Shanghai Street J40

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

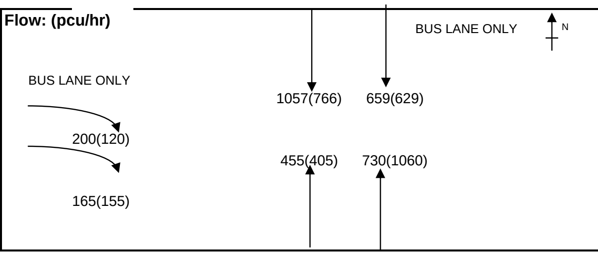
Junction: J41 - Lai Chi Kok Road / Nathan Road Design Year: 2047

Description: 2047 Reference Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road SB	↑	A	1	3.300						1945	1945	658.75	0.339	0.339	629	0.323	0.323
	↑	A	1	3.300						2085	2085	528	0.253		383	0.184	
	↑	A	1	3.300						2085	2085	528	0.253		383	0.184	
Nathan Road NB	↑	B	2	3.500						1570	1570	145	0.092		129	0.082	
	↑	B	2	3.500						1685	1685	155	0.092		138	0.082	
	↑	B	2	3.500						1685	1685	155	0.092		138	0.082	
	↑	A	1	3.400						195	195	32	0.164		47	0.241	
	↑	A	1	3.400						2095	2095	349	0.167		507	0.242	
	↑	A	1	3.400						2095	2095	349	0.167		506	0.242	
Lai Chi Kok Road EB	↱	B	2	3.300		25				1835	1835	200	0.109		120	0.065	
	↱	B	2	3.300		20				1940	1940	83	0.043		78	0.040	
	↱	B	2	3.300		15				1895	1895	82	0.043		77	0.041	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			65	+	10	=	75						
		Dp	2	MIN GREEN + FLASH =			47	+	10	=	57			*			*

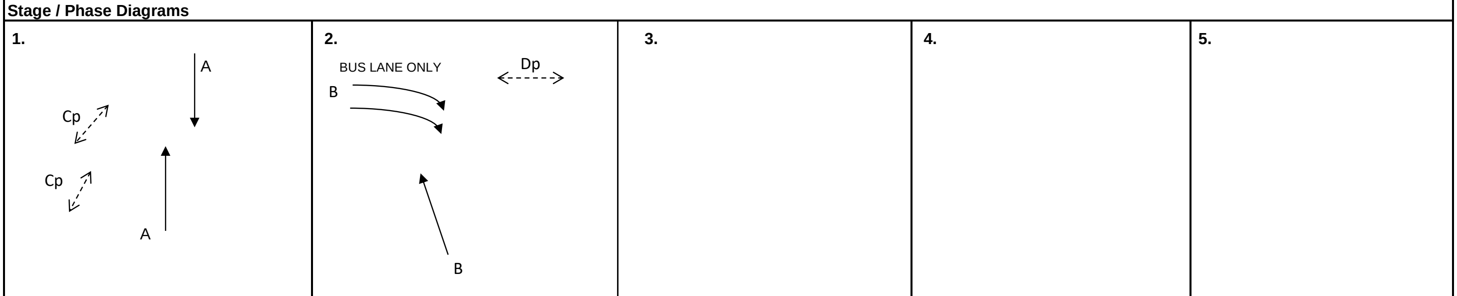
Notes:

Flow: (pcu/hr)



Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.448	0.339	y	0.406	0.323
L (sec)	20	71	L (sec)	20	66
C (sec)	130	130	C (sec)	130	130
y pract.	0.762	0.408	y pract.	0.762	0.443
R.C. (%)	70%	21%	R.C. (%)	88%	37%

Stage / Phase Diagrams



I/G= 5		I/G= 10	57	I/G=		I/G=		I/G=	
I/G= 5		I/G= 10	52	I/G=		I/G=		I/G=	

Date: JUN, 2022 **Junction:** J41 - Lai Chi Kok Road / Nathan Road (J41)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

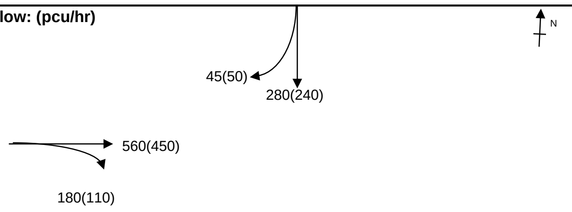
Junction: J42 - Bute Street / Shanghai Street Design Year: 2047

Description: 2047 Reference Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Shanghai Street SB		A	1	3.300						1945	1945	90	0.046		76	0.039	
		A	1	3.300						2085	2085	95	0.046		82	0.039	
		A	1	3.300						2085	2085	95	0.046		82	0.039	
		A	1	3.300		5		100%	100%	800	800	45	0.056	0.056	50	0.063	0.063
Bute Street EB		B	2	3.200						1935	1935	271	0.140		217	0.112	
		B	2	3.200		10		0%	0%	2075	2075	290	0.140		233	0.112	0.112
		B	2	3.200		5				1275	1275	179	0.140	0.140	110	0.086	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	2,3	MIN GREEN + FLASH =			10	+	12	=	22						
		Ep	3	MIN GREEN + FLASH =			6	+	8	=	14						
		Fp	3	MIN GREEN + FLASH =			22	+	12	=	34			*			*

Notes:

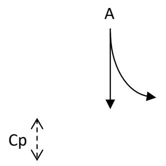
Flow: (pcu/hr)



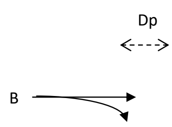
Group		A,B,Fp	Group		A,B,Fp
y		0.197	y		0.175
L (sec)		52	L (sec)		52
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.540
R.C. (%)		175%	R.C. (%)		209%

Stage / Phase Diagrams

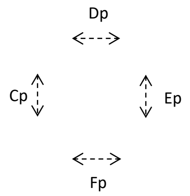
1.



2.



3.



4.

5.

I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	

Date: MAY, 2022 **Junction:** J42 - Bute Street / Shanghai Street J42

2037 DESIGN FLOWS

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

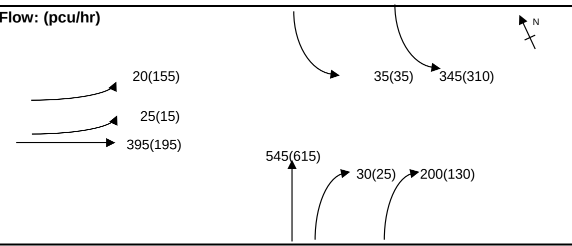
Junction: Boundry Street/Tung Chau Street/Nam Cheong Street Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tung Chau Street - EB		A	1	3.200	10		0	100%		1685	1685	20	0.012		155	0.092	
		A	1	3.200	15		0	100%		1885	1885	25	0.013		15	0.008	
		A	1	3.200			0			1935	1935	395	0.204	0.204	195	0.101	0.101
Chui Yu Road- NB		B	2	3.500			0			1965	1965	263	0.134		297	0.151	
		B	2	3.500			0			2105	2105	282	0.134	0.134	318	0.151	0.151
Chui Yu Road- NB		B	2	4.000		15	0		100%	1960	1960	30	0.015		25	0.013	
Chui Yu Road- NB		B	2	4.000		10	0		100%	1750	1750	200	0.114		130	0.074	
Nam Cheong Street-SB		C	3	3.000	15		0	100%		1740	1740	166	0.095		149	0.086	
		C	3	3.000	15		0	100%		1870	1870	179	0.096		161	0.086	
Nam Cheong Street-SB		C	3	3.000	10		0			1665	1665	35	0.021		35	0.021	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			6	+	10	=	16						
		Ep	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Fp	3	MIN GREEN + FLASH =			14	+	9	=	23			*			*

Notes:

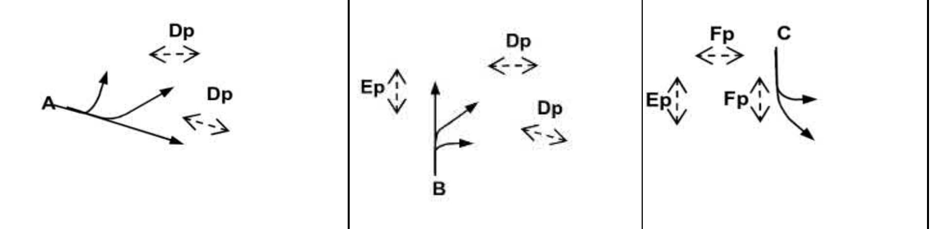
Flow: (pcu/hr)



Group		A,B,Fp	Group		A,B,Fp
y		0.338	y		0.252
L (sec)		37	L (sec)		40
C (sec)		96	C (sec)		96
y pract.		0.553	y pract.		0.525
R.C. (%)		64%	R.C. (%)		108%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 2		I/G= 8		I/G= 9	20	I/G=		I/G=	
I/G= 2		I/G= 8		I/G= 9	23	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J1 Boundry Street/Tung Chau Street/Nam Cheong Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Boundry St./Lai Chi Kok Rd./Wong Chuk St.

Design Year: 2037

Description: 2037 Design Flows

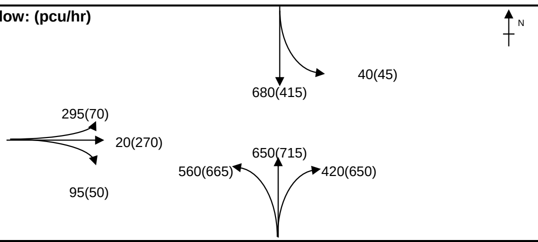
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road-SB		A	1	3.000	15					1740	1740	40	0.023		45	0.026	
		A	1	3.000						2055	2055	227	0.110		138	0.067	
		A	1	3.000						2055	2055	226	0.110		139	0.068	
		A	1	3.000						2055	2055	227	0.110		138	0.067	
Lai Chi Kok Road-NB		B	1,2	3.100	15			100%	100%	1750	1750	560	0.320		665	0.380	
		B	1,2	3.100						2065	2065	650	0.315		715	0.346	
		C	2	3.000		15		100%	100%	1870	1870	210	0.112	0.112	325	0.174	0.174
		C	2	3.000		15				1870	1870	210	0.112		325	0.174	
Boundary Street - EB		D	3	3.500	15			100%	37%	1785	1895	295	0.165	0.165	187	0.099	
		D	3	3.500		15		83%	25%	1945	2055	115	0.059		203	0.099	0.099
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			6	+	9	=	15			*			*
		Fp	1	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Hp	3	MIN GREEN + FLASH =			6	+	12	=	18						

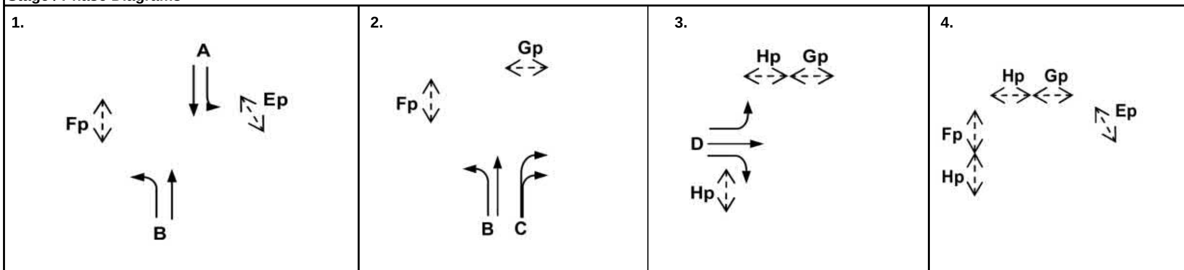
Notes:

Flow: (pcu/hr)



Group		C,D,Ep	Group		C,D,Ep
y		0.278	y		0.273
L (sec)		36	L (sec)		36
C (sec)		120	C (sec)		130
y pract.		0.630	y pract.		0.651
R.C. (%)		127%	R.C. (%)		139%

Stage / Phase Diagrams



I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	
I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	

Date: MAR, 2022

Junction: J2 Boundry St./Lai Chi Kok Rd./Wong Chuk St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

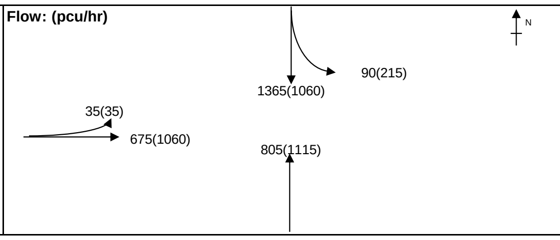
Junction: Boundry St./Nathan Rd./Cheung Sha Wan Rd Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cheung Sha Wan Road-SB		A	1	3.500	15			100%		1785	1785	90	0.050		215	0.120	
		A	1	3.300						2085	2085	455	0.218		353	0.169	0.169
		A	1	3.300						2085	2085	455	0.218	0.218	354	0.170	
		A	1	3.300						2085	2085	455	0.218		353	0.169	
Nathan Road-NB		B	1,3	3.500						1965	1965	256	0.130		355	0.181	
		B	1,3	3.500						2105	2105	275	0.131		380	0.181	
		B	1,3	3.500						2105	2105	274	0.130		380	0.181	
Boundary Street-EB		C	2	3.500	15			16%	10%	1935	1945	223	0.115		345	0.177	
		C	2	3.600						2115	2115	244	0.115	0.115	375	0.177	0.177
		C	2	3.600						2115	2115	243	0.115		375	0.177	
Pedestrian Crossing		Ep	1,3	MIN GREEN + FLASH =			13	+	13	=	26						
		Fp	2,3	MIN GREEN + FLASH =			14	+	13	=	27						
		Gp	2	MIN GREEN + FLASH =			31	+	10	=	41						
		Hp	3	MIN GREEN + FLASH =			19	+	13	=	32			*			*

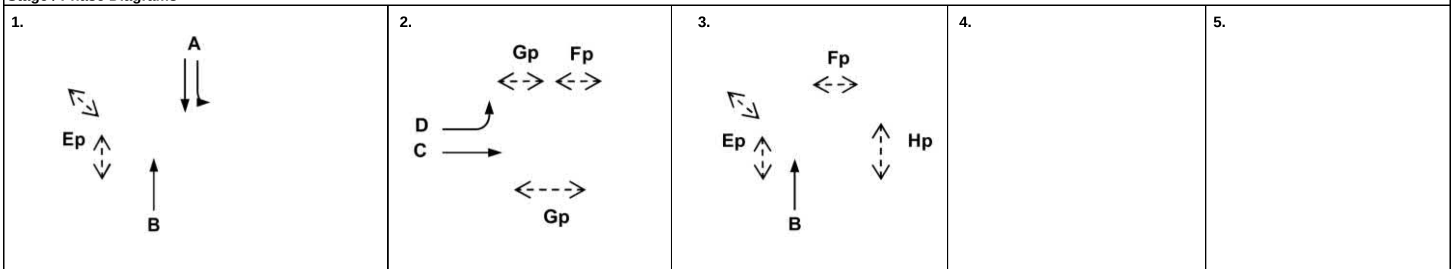
Notes:

Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.334	y		0.347
L (sec)		50	L (sec)		50
C (sec)		120	C (sec)		130
y pract.		0.525	y pract.		0.554
R.C. (%)		57%	R.C. (%)		60%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Boundry St./Nathan Rd./Cheung Sha Wan Rd J3

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

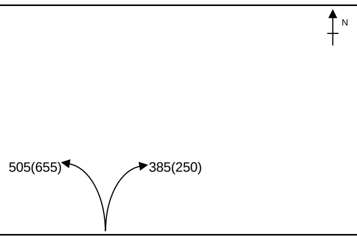
Junction: Boundry St./Embankment Rd. Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary Street-NB		A	1	5.500	15			100%	100%	1970	1970	505	0.256	0.256	655	0.332	0.332
		A	1	4.500		25		100%	100%	1950	1950	385	0.197		250	0.128	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			10	+	10	=	20			*			*

Notes:

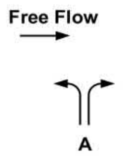
Flow: (pcu/hr)



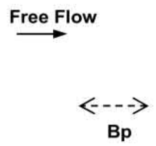
Group		A,Bp	Group		A,Bp
y		0.256	y		0.332
L (sec)		27	L (sec)		27
C (sec)		108	C (sec)		90
y pract.		0.675	y pract.		0.630
R.C. (%)		163%	R.C. (%)		89%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 3		I/G= 5	20	I/G=		I/G=		I/G=
I/G= 3		I/G= 5	20	I/G=		I/G=		I/G=

Date: MAR, 2022 **Junction:** J4 Boundry St./Embankment Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

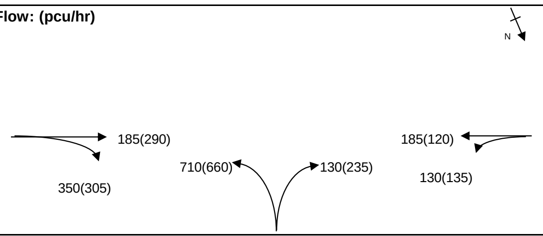
Junction: Sham Mong Rd./Chui Yu Rd. Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road-WB	↑	A	1,2	3.500						1965	1965	89	0.045		140	0.071	
	↑	A	1,2	3.500						2105	2105	96	0.046		150	0.071	
Sham Mong Road-WB	↱	C	2	3.300		25		100%	100%	1965	1965	350	0.178	0.178	305	0.155	0.155
Sham Mong Road-EB	↰	B	1	3.300	15			100%	100%	1770	1770	130	0.073	0.073	135	0.076	0.076
Sham Mong Road-EB	↑	B	1	3.500						2105	2105	93	0.044		60	0.029	
	↑	B	1	3.500						2105	2105	92	0.044		60	0.029	
Chui Yu Road - SB	↰	D	4	3.500	15					1785	1785	343	0.192		318	0.178	
	↰	D	4	3.500	15					1915	1915	367	0.192	0.192	342	0.179	0.179
Chui Yu Road - SB	↱	D	4	3.500		25				1985	1985	130	0.065		235	0.118	
Pedestrian Crossing		Ep	3	MIN GREEN + FLASH =			32	+	11	=	43			*			*
		Fp	3	MIN GREEN + FLASH =			20	+	13	=	33						
		Gp	3	MIN GREEN + FLASH =			23	+	11	=	34						

Notes:

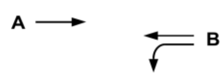
Flow: (pcu/hr)



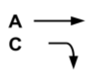
Group		B,C,Ep,D	Group		B,C,Ep,D
y		0.443	y		0.410
L (sec)		55	L (sec)		58
C (sec)		128	C (sec)		130
y pract.		0.513	y pract.		0.498
R.C. (%)		16%	R.C. (%)		22%

Stage / Phase Diagrams

1.



2.



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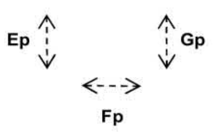
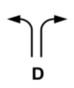


4.



5.

I/G= 5		I/G= 5		I/G= 5	40	I/G= 3		I/G=	
I/G= 5		I/G= 5		I/G= 5	43	I/G= 3		I/G=	

Date: MAR, 2022 **Junction:** J5 Sham Mong Rd./Chui Yu Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

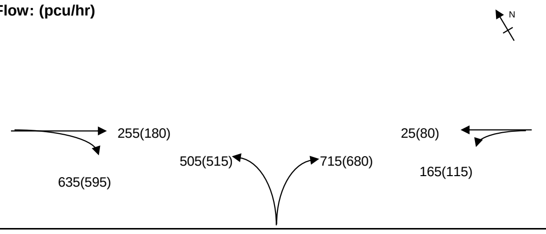
Junction: Sham Mong Rd./Hoi Fai Rd. Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road -EB		A	1	3.500		15		55%	61%	2040	2030	473	0.232	0.232	410	0.202	0.202
		A	1	3.300		10		100%	100%	1815	1815	417	0.230		365	0.201	
Hoi Fai Road-NB		B	1,2	4.000	20			100%	100%	1875	1875	505	0.269		515	0.275	
		C	2	3.700		15		100%	100%	1930	1930	358	0.185	0.185	340	0.176	0.176
		C	2	3.700		15		100%	100%	1930	1930	357	0.185		340	0.176	
Sham Mong Road-WB		D	2,3	3.700	15			100%	100%	1805	1805	165	0.091		115	0.064	
		E	3	3.600						2115	2115	13	0.006		40	0.019	
		E	3	3.600						2115	2115	12	0.006		40	0.019	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						
		Gp	1	MIN GREEN + FLASH =			44	+	7	=	51						
		Hp	3	MIN GREEN + FLASH =			22	+	10	=	32			*			*

Notes:

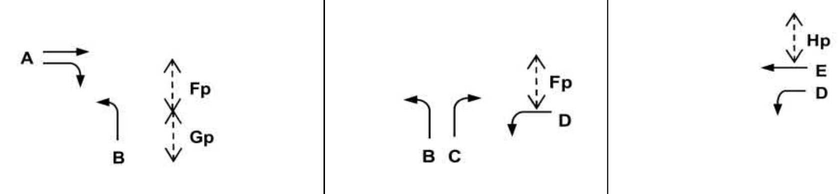
Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.417	y		0.378
L (sec)		49	L (sec)		53
C (sec)		128	C (sec)		130
y pract.		0.555	y pract.		0.533
R.C. (%)		33%	R.C. (%)		41%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 2		I/G= 9		I/G= 12	28	I/G=		I/G=	
I/G= 2		I/G= 9		I/G= 12	32	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J6 Sham Mong Rd./Hoi Fai Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

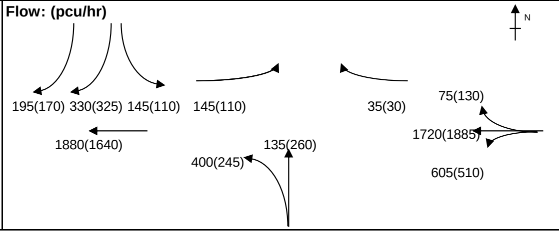
Junction: Prince Edward Rd. West/Sai Yee Street — Design Year: 2037

Description: 2037 Design Flows — Designed By: HAP — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West - EB		A	1	5.500	10					1885	1885	110	0.058		85	0.045	
Prince Edward Road West - WB		A	1	4.000	10					1750	1750	529	0.302		510	0.291	
		A	1	3.300	15			12%	0%	2060	2085	622	0.302	0.302	678	0.325	
		A	1	3.300						2085	2085	630	0.302		678	0.325	0.325
		A	1	3.300		10		12%	20%	2050	2025	619	0.302		659	0.325	
Prince Edward Road West -WB		B	1,2	3.500						2175	2175	640	0.294		559	0.257	
		B	1,2	3.500						2105	2105	620	0.295		540	0.257	
		B	1,2	3.500						2105	2105	620	0.295		541	0.257	
Sai Yee Street - NB		C	2	3.300	10			100%	100%	1690	1690	193	0.114	0.114	118	0.070	
		C	2	3.300	10			100%	100%	1815	1815	207	0.114		127	0.070	
Sai Yee Street - NB		C	2	3.300						2085	2085	135	0.065		260	0.125	0.125
Prince Edward Road West -WB		C	2	3.300		10		100%	100%	1690	1690	35	0.021		30	0.018	
Fa Yuen Street - SB		D	3	3.500		10		100%	100%	1710	1710	195	0.114		170	0.099	
		D	3	3.500		15		100%	100%	1915	1915	330	0.172	0.172	325	0.170	0.170
		D	3	3.500	10			100%	100%	1710	1710	145	0.085		110	0.064	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			9	+	11	=	20						
		Fp	3	MIN GREEN + FLASH =			24	+	11	=	35						
		Gp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Hp	3	MIN GREEN + FLASH =			18	+	11	=	29						
		Ip	1,3	MIN GREEN + FLASH =			6	+	9	=	15						

Notes:

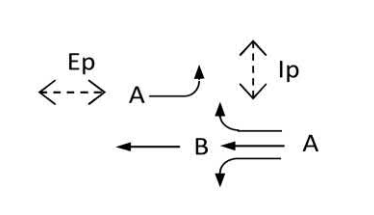
Flow: (pcu/hr)



Group		A,C,D	Group		A,C,D
y		0.588	y		0.620
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		32%	R.C. (%)		25%

Stage / Phase Diagrams

1.



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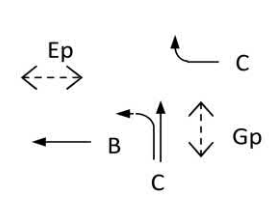

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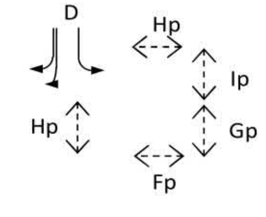


4.

5.

I/G= 5		I/G= 6		I/G= 10		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 10		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Prince Edward Rd. West/Sai Yee Street J7

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Prince Edward Rd. West/Embankment Rd. Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West-WB		A	1	3.300		15		100%	100%	1770	1770	418	0.236		423	0.239	
		A	1	3.300		15		100%	100%	1895	1895	447	0.236		452	0.239	
Prince Edward Road West-WB		B	1,2	4.000						2015	2015	854	0.424	0.424	886	0.440	0.440
		B	1,2	4.000						2155	2155	914	0.424		948	0.440	
		B	1,2	4.000						2155	2155	914	0.424		948	0.440	
		B	1,2	4.000						2155	2155	914	0.424		948	0.440	
Prince Edward Road West-EB		C	2,3	4.500	15			100%	100%	1875	1875	125	0.067		85	0.045	
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			73	+	6	=	79						
		Ep	2	MIN GREEN + FLASH =			5	+	9	=	14						
		Fp	3	MIN GREEN + FLASH =			21	+	14	=	35			*			*

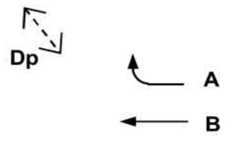
Notes:

Flow: (pcu/hr)

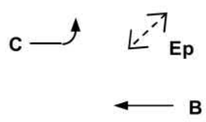
Group		B,Fp	Group		B,Fp
y		0.424	y		0.440
L (sec)		43	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.602	y pract.		0.616
R.C. (%)		42%	R.C. (%)		40%

Stage / Phase Diagrams

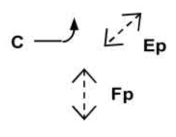
1.



2.



3.



4.

5.

I/G= 4		I/G=		I/G= 5	35	I/G=		I/G=	
I/G= 4		I/G=		I/G= 5	33	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J8 Prince Edward Rd. West/Embankment Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd. Design Year: 2037

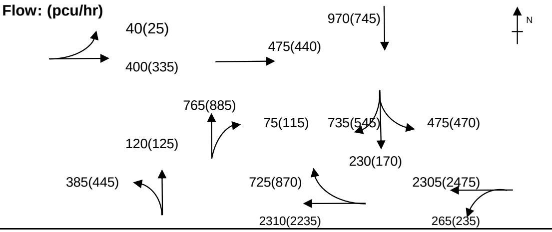
Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cherry St - WB		A	1	4.900	30			44%	32%	2140	2155	645	0.301		681	0.316	
		A	1	3.800						2135	2135	642	0.301		676	0.317	
		A	1	3.800						2135	2135	642	0.301		676	0.317	
		A	1	3.800						2135	2135	641	0.300		677	0.317	
Cherry St - WB		B	1,2	3.400						2095	2095	770	0.368	0.368	745	0.356	0.356
		B	1,2	3.400						2095	2095	770	0.368		745	0.356	
		B	1,2	3.400						2095	2095	770	0.368		745	0.356	
Cherry St - WB		B	1,2	3.400		40		100%	100%	2020	2020	363	0.180		435	0.215	
		B	1,2	3.400		40		100%	100%	2020	2020	362	0.179		435	0.215	
Hoi Wang Rd - NB		C	1,2	4.300						2185	2185	383	0.175		443	0.203	
		C	1,2	4.300						2185	2185	382	0.175		442	0.202	
Hoi Wang Rd - NB		C	1,2	4.400		20		100%	100%	2040	2040	75	0.037		115	0.056	
Tai Kok Tsui Rd - SB		D	1,2	3.300						1945	1945	309	0.159		237	0.122	
		D	1,2	3.300						2085	2085	330	0.158		254	0.122	
		D	1,2	3.300						2085	2085	331	0.159		254	0.122	
Tai Kok Tsui Rd - SB		I	2,3	3.500	15			100%	100%	1880	1880	475	0.253		470	0.250	
		E	2,3	3.500						2105	2105	230	0.109		170	0.081	
		E	2,3	5.200		20		100%	100%	2115	2115	368	0.174		273	0.129	
		E	2,3	5.200		20		100%	100%	2115	2115	367	0.174		272	0.129	
Cherry St - EB		F	3	6.000		30		100%	100%	2245	2245	238	0.106		220	0.098	
		F	3	6.000		30		100%	100%	2245	2245	237	0.106		220	0.098	
Cherry St - EB		G	3	3.800	45			100%	100%	2065	2065	20	0.010		13	0.006	
		G	3	3.800	45			100%	100%	2065	2065	20	0.010		12	0.006	
Cherry St - EB		G	3	3.800						2135	2135	200	0.094		168	0.079	
		G	3	3.800						2135	2135	200	0.094		167	0.078	
Hoi Wang Rd - NB		H	3	3.800	75					2250	2250	385	0.171	0.171	445	0.198	0.198
		H	3	4.000						2155	2155	60	0.028		63	0.029	
		H	3	4.000						2155	2155	60	0.028		62	0.029	

Approach	Phase	Stage		Min Green		Flash		Total
Pedestrian Crossing	Jp	1,2	MIN GREEN + FLASH =	7	+	15	=	22
	Kp	1	MIN GREEN + FLASH =	34	+	8	=	42
	Lp	3	MIN GREEN + FLASH =	11	+	11	=	22
	Mp	2,3	MIN GREEN + FLASH =	5	+	5	=	10
	Np	1	MIN GREEN + FLASH =	36	+	7	=	43
	Op	2,3	MIN GREEN + FLASH =	7	+	13	=	20

Notes:

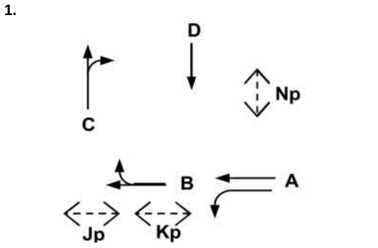
Flow: (pcu/hr)



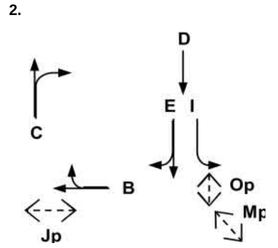
Group		B,H	Group		B,H
y		0.539	y		0.553
L (sec)		11	L (sec)		11
C (sec)		85	C (sec)		80
y pract.		0.784	y pract.		0.776
R.C. (%)		45%	R.C. (%)		40%

Stage / Phase Diagrams

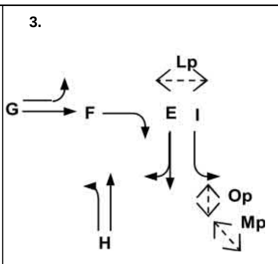
1.



2.



3.



4.

5.

I/G= 7		I/G=		I/G= 6		I/G=		I/G=	
I/G= 7		I/G=		I/G= 6		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd. J9

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

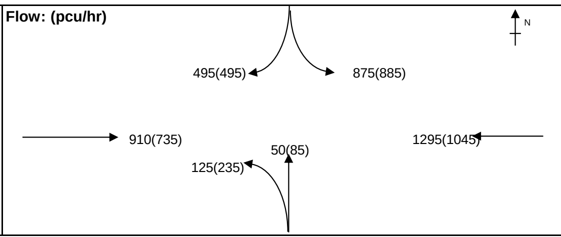
Junction: Argyle St/Sai Yee St. Design Year: 2037

Description: ~~2037 Design Flows~~ Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB	↑	A	1	3.500						1965	1965	439	0.223		355	0.181	
	↑	A	1	3.500						2105	2105	471	0.224		380	0.181	
Argyle Street-WB	↑	B	1	3.200						2095	2095	434	0.207	0.207	351	0.168	0.168
	↑	B	1	3.200						2075	2075	431	0.208		347	0.167	
	↑	B	1	3.200						2075	2075	430	0.207		347	0.167	
Argyle Street-SB	↰	C	2,3,4	3.500	10			100%	100%	1710	1710	423	0.247		428	0.250	
	↰	C	2,3,4	3.500	10			100%	100%	1830	1830	452	0.247		457	0.250	
Argyle Street-SB	↱	D	2	3.500		20		100%	100%	2110	2110	495	0.235	0.235	495	0.235	0.235
Sai Yee Street-NB	↰	E	3	3.700	15			100%	100%	1805	1805	125	0.069	0.069	235	0.130	0.130
	↑	E	3	3.700						2125	2125	50	0.024		85	0.040	
Pedestrian Crossing		Fp	1,2,4	MIN GREEN + FLASH =			8	+	8	=	16						
		Gp	4	MIN GREEN + FLASH =			19	+	12	=	31			*			*
		Hp	1	MIN GREEN + FLASH =			27	+	11	=	38						

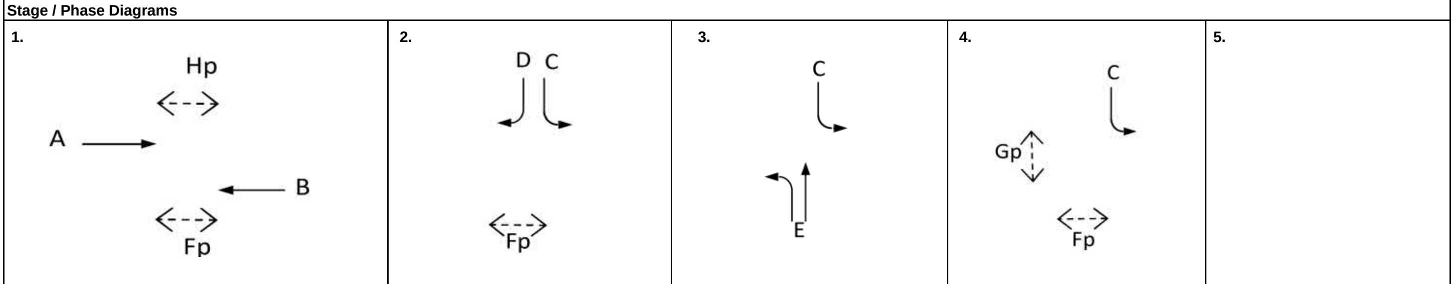
Notes:

Flow: (pcu/hr)



Group		B,D,E,Gp	Group		B,D,E,Gp
y		0.511	y		0.532
L (sec)		54	L (sec)		54
C (sec)		130	C (sec)		130
y pract.		0.526	y pract.		0.526
R.C. (%)		3%	R.C. (%)		-1%

Stage / Phase Diagrams



I/G= 2		I/G= 6		I/G= 9		I/G= 9	31	I/G=	
I/G= 2		I/G= 6		I/G= 9		I/G= 9	31	I/G=	

Date:	**Junction:** J10
MAR, 2022	Argyle St/Sai Yee St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

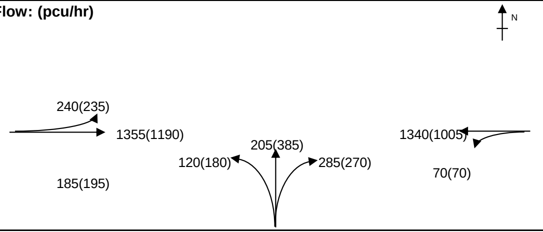
Junction: Argyle St/Yim Po Fong St/Luen Wan St Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB	↰	A	1,2	3.100	10			100%	100%	1675	1675	240	0.143		235	0.140	
	↑	B	1,2	3.000						2145	2145	692	0.323		608	0.283	
	↑	B	1,2	3.000						2055	2055	663	0.323	0.323	582	0.283	0.283
Argyle Street-EB	↱	D	2	3.000		15		100%	100%	1870	1870	185	0.099		195	0.104	
Argyle Street-WB	↰	E	4	3.800	10			100%	100%	1735	1735	70	0.040		70	0.040	
	↑	C	1	3.300						2085	2085	447	0.214		335	0.161	
	↑	C	1	3.300						2085	2085	446	0.214		335	0.161	
	↑	C	1	3.300						2085	2085	447	0.214		335	0.161	
Yim Po Fong St - NB	↰	F	4	3.000	10			100%	100%	1665	1665	120	0.072		180	0.108	
	↑↱	F	4	2.800		15		2%	0%	2030	2035	264	0.130		385	0.189	0.189
	↱	F	4	3.000		12		100%	100%	1700	1700	226	0.133	0.133	270	0.159	
Pedestrian Crossing		Gp	1	MIN GREEN + FLASH =			43	+	9	=	52						
		Hp	3	MIN GREEN + FLASH =			26	+	8	=	34			*			*
		Jp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

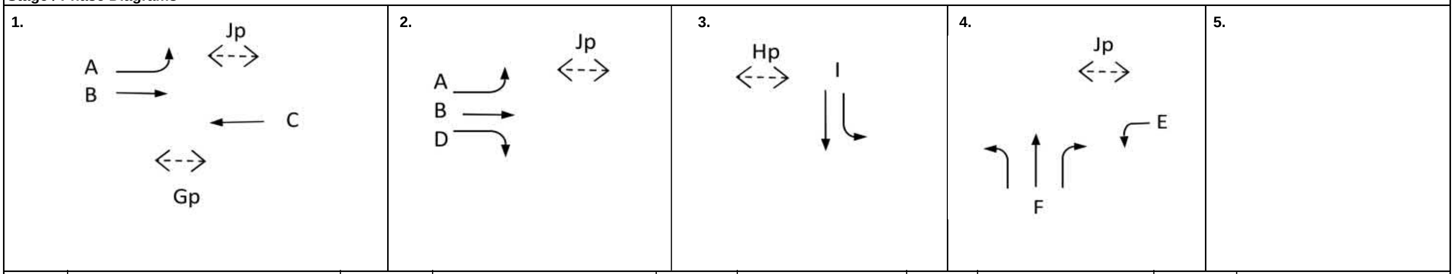
Notes:

Flow: (pcu/hr)



Group		B,Hp,F	Group		B,Hp,F
y		0.456	y		0.472
L (sec)		51	L (sec)		51
C (sec)		130	C (sec)		130
y pract.		0.547	y pract.		0.547
R.C. (%)		20%	R.C. (%)		16%

Stage / Phase Diagrams



I/G= 8		I/G=		I/G= 11	34	I/G=		I/G=	
I/G= 8		I/G=		I/G= 11	34	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J11 Argyle St/Yim Po Fong St/Luen Wan St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

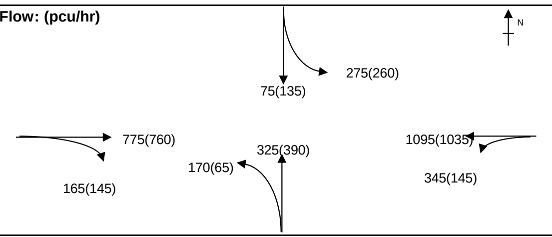
Junction: Waterloo Rd./Yim Po Fong St/Wylie Rd. Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Road-EB		A	1,2	3.000						1915	1915	388	0.203		380	0.198	
		A	1,2	3.000						1915	1915	387	0.202		380	0.198	
		I	1	3.000		15		100%	100%	1660	1660	165	0.099	0.099	145	0.087	0.087
Waterloo Road-WB		B	1	3.600	10			83%	41%	1755	1860	417	0.238	0.238	356	0.191	0.191
		B	1	4.000						2155	2155	512	0.238		412	0.191	
		B	1	4.000						2155	2155	511	0.237		412	0.191	
Yim Po Fong Street-SB		C	4	3.100	10					1675	1675	275	0.164	0.164	260	0.155	
		C	4	3.200						2075	2075	75	0.036		135	0.065	
Waterloo Road-NB		C	4	3.500	10					1710	1710	170	0.099		65	0.038	
		C	4	3.400						2095	2095	325	0.155		390	0.186	0.186
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			9	+	10	=	19						
		Fp	2	MIN GREEN + FLASH =			5	+	14	=	19						
		Gp	3	MIN GREEN + FLASH =			7	+	12	=	19			*			*
		Hp	3	MIN GREEN + FLASH =			5	+	14	=	19						

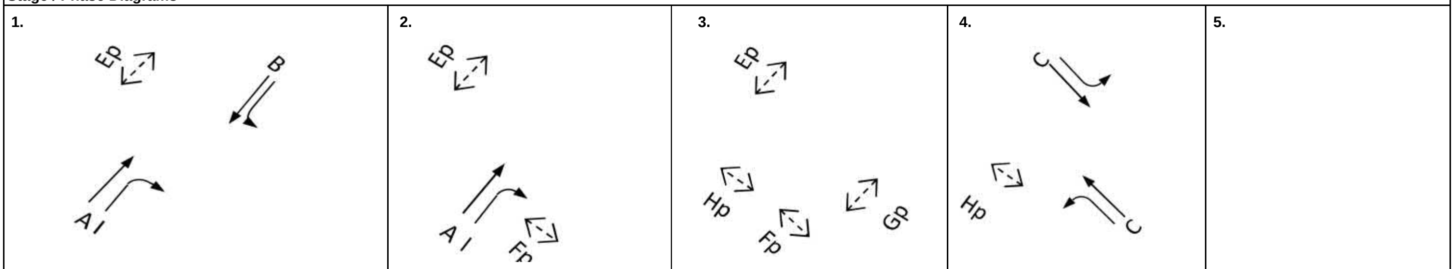
Notes:

Flow: (pcu/hr)



Group		B,I,Gp,C	Group		B,I,Gp,C
y		0.501	y		0.465
L (sec)		41	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.616	y pract.		0.616
R.C. (%)		23%	R.C. (%)		33%

Stage / Phase Diagrams



I/G= 12		I/G=		I/G= 9	19	I/G= 4		I/G=	
I/G= 12		I/G=		I/G= 9	19	I/G= 4		I/G=	

Date: MAR, 2022 **Junction:** J12 Waterloo Rd./Yim Po Fong St/Wylie Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Hoi Wang Rd/Lai Cheung Rd Design Year: 2037

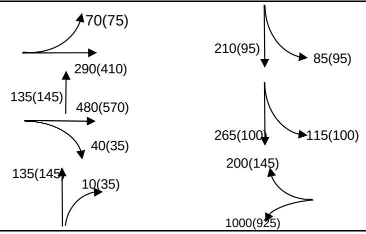
Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Cheung Rd - EB		A	1	3.500						2105	2105	290	0.138		410	0.195	
		A	1	3.500	15					1915	1915	70	0.037		75	0.039	
Lai Cheung Rd - EB		B	1	3.500		20		7%	7%	2295	2295	520	0.227	0.227	605	0.264	0.264
Hoi Wang Rd - SB		F	4	3.500						2105	2105	133	0.063		50	0.024	
		F	4	3.500						2105	2105	132	0.063		50	0.024	
Hoi Wang Rd - SB		F	4	3.500	15			100%	100%	1915	1915	115	0.060	0.060	100	0.052	0.052
Hoi Wang Rd - SB		F	4	3.500						1965	1965	67	0.034		30	0.015	
		F	4	3.500						2105	2105	71	0.034		33	0.016	
		F	4	3.500						2105	2105	72	0.034		32	0.015	
Hoi Wang Rd - NB		C	2	3.500						2105	2105	45	0.021		48	0.023	
		C	2	3.500						2105	2105	45	0.021		49	0.023	
		C	2	3.500						2105	2105	45	0.021		48	0.023	
Hoi Wang Rd - NB		C	2	3.500						1965	1965	70	0.036		89	0.045	
		C	2	3.500		15		17%	30%	2070	2045	75	0.036		91	0.044	
Hoi Wang Rd - SB		F	4	3.500	25			100%	100%	1855	1855	85	0.046		95	0.051	
Lai Cheung Rd - WB		E	3	3.500		20		100%	100%	1960	1960	200	0.102		145	0.074	
		D	2,3	3.000	20					1780	1780	482	0.271	0.271	446	0.251	0.251
		D	2,3	3.000	20					1910	1910	518	0.271		479	0.251	

Pedestrian Crossing	Phase	Stage		Min Green		Flash		Total
	Hp	1,2,3	MIN GREEN + FLASH =	5	+	5	=	10
	Ip	1,2,4	MIN GREEN + FLASH =	5	+	5	=	10
	Jp	1,4	MIN GREEN + FLASH =	5	+	11	=	16
	Kp	2,3,4	MIN GREEN + FLASH =	5	+	6	=	11
	Lp	2,3,4	MIN GREEN + FLASH =	5	+	4	=	9
	Mp	2,3,4	MIN GREEN + FLASH =	5	+	4	=	9
	Np	2,3,4	MIN GREEN + FLASH =	5	+	7	=	12
	Op	3	MIN GREEN + FLASH =	13	+	9	=	22

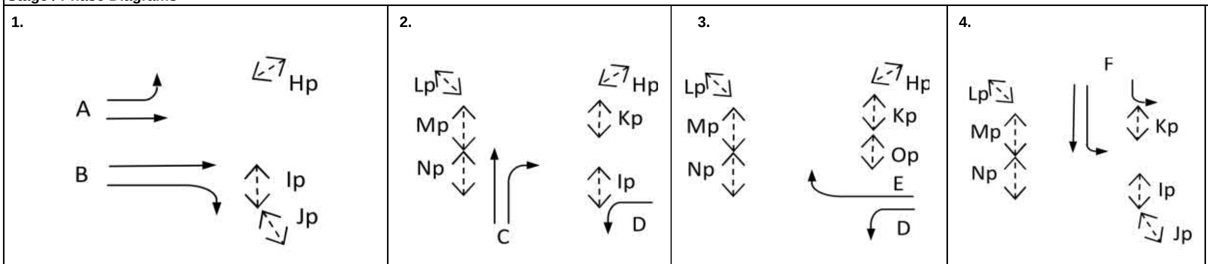
Notes:

Flow: (pcu/hr)



Group		B,D,F	Group		B,D,F
y		0.557	y		0.566
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		45%	R.C. (%)		43%

Stage / Phase Diagrams



I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=	
I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=	

Date: MAR, 2022 **Junction:** Hoi Wang Rd/Lai Cheung Rd J13

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

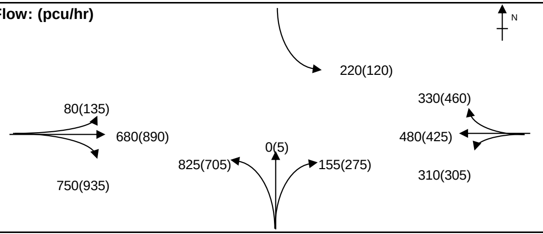
Junction: Lai Cheung Rd./Ferry St./Waterloo Rd. Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Rd-WB		A	1	3.100	15			85%	91%	1775	1765	365	0.206	0.206	336	0.190	0.190
		A	1	3.100						2065	2065	425	0.206		394	0.191	
		A	1	3.300		30				1985	1985	165	0.083		230	0.116	
		A	1	3.300		30				1985	1985	165	0.083		230	0.116	
Ferry St- SB		B	1	3.500	25					1855	1855	106	0.057		58	0.031	
		B	1	3.500	25					1985	1985	114	0.057		62	0.031	
Lai Cheung Rd-EB		C	3	3.300	5					1495	1495	80	0.054		135	0.090	
		C	3	3.300	10			0%	0%	2085	2085	340	0.163		445	0.213	
		C	3	3.300						2085	2085	340	0.163		445	0.213	0.213
Lai Cheung Rd-EB		D	3	3.700		35				2305	2305	398	0.173		496	0.215	
		D	3	3.700		35				2040	2040	352	0.173		439	0.215	
Ferry St-NB		E	2,3	3.400	35					2080	2080	825	0.397	0.397	705	0.339	
Ferry St-NB		F	2	4.700		35		100%	97%	2135	2135	81	0.038		146	0.068	
		F	2	3.000		30		100%	100%	1955	1955	74	0.038		134	0.069	
Waterloo Rd-WB		G	1	3.600						2115	2115	240	0.113		213	0.101	
		G	1	3.600						2115	2115	240	0.113		212	0.100	
Pedestrian Crossing		Hp	1	MIN GREEN + FLASH =			31	+	8	=	39						
		Ip	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Jp	2	MIN GREEN + FLASH =			15	+	19	=	34						*
		Kp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						

Notes:

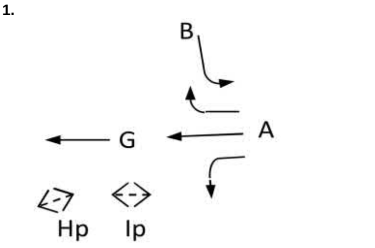
Flow: (pcu/hr)



Group		A,E	Group		A,Jp,C
y		0.602	y		0.404
L (sec)		10	L (sec)		48
C (sec)		130	C (sec)		130
y pract.		0.831	y pract.		0.568
R.C. (%)		38%	R.C. (%)		41%

Stage / Phase Diagrams

1.



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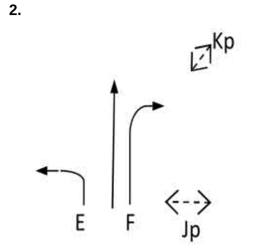

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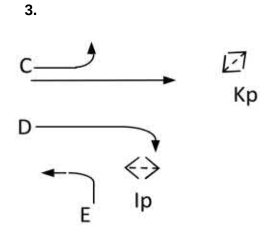


4.

5.

I/G= 5		I/G= 7		I/G=		I/G=		I/G=	
I/G= 5		I/G= 7	34	I/G= 4		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J14 Lai Cheung Rd./Ferry St./Waterloo Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

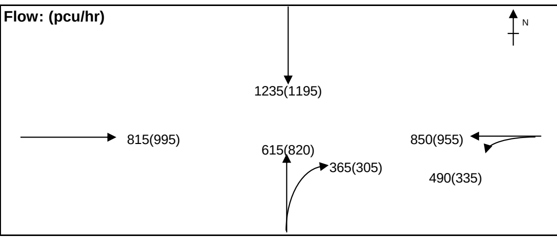
Junction: Waterloo Rd/Nathan Rd Design Year: 2037

Description: 2037 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road-SB	↑	A	1	3.400						1465	1465	320	0.218		310	0.212	
	↑	A	1	3.400						2095	2095	457	0.218		442	0.211	
	↑	A	1	3.400						2095	2095	458	0.219		443	0.211	
Nathan Road-NB	↑	B	2	3.300						1945	1945	327	0.168		396	0.204	
	↑↱	B	2	3.300		15		17%	0%	2050	2085	345	0.168		424	0.203	0.203
	↱	B	2	3.500		10		100%	100%	1830	1830	308	0.168	0.168	305	0.167	
Waterloo Road-EB	↑	C	3	3.400						1955	1955	259	0.132		317	0.162	
	↑	C	3	3.400						2095	2095	278	0.133		339	0.162	
	↑	C	3	3.400						2095	2095	278	0.133		339	0.162	
Waterloo Road-WB	↰	D	3	3.200	5					1490	1490	364	0.244		335	0.225	
	↰↑	D	3	3.200	5			27%	0%	1920	2075	469	0.244		477	0.230	0.230
	↑	D	3	3.200				100%	100%	2075	2075	507	0.244	0.244	478	0.230	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			10	+	9	=	19						
		Fp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Gp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						
		Hp	1	MIN GREEN + FLASH =			33	+	9	=	42			*			*

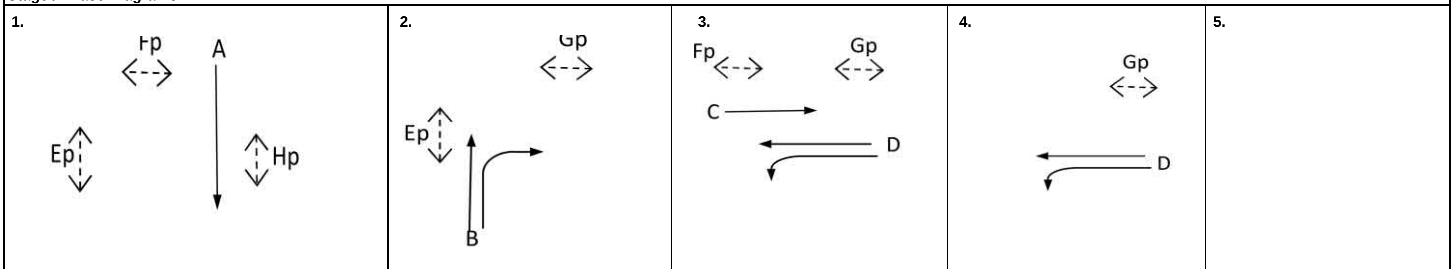
Notes:

Flow: (pcu/hr)



Group		B,D,Hp	Group		B,D,Hp
y		0.413	y		0.433
L (sec)		57	L (sec)		57
C (sec)		130	C (sec)		130
y pract.		0.505	y pract.		0.505
R.C. (%)		22%	R.C. (%)		17%

Stage / Phase Diagrams



I/G= 9	42	I/G= 2		I/G= 6		I/G=		I/G=
I/G= 9	42	I/G= 2		I/G= 6		I/G=		I/G=

Date: MAR, 2022 **Junction:** J15 Waterloo Rd/Nathan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

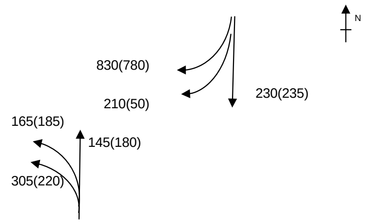
Junction: Hoi Wang Road/Ngo Cheung Rd. | Design Year: 2037

Description: 2037 Design Flows | Designed By: HAP | Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hoi Wang Road - SB		A	1	3.500		20				1960	1960	830	0.423	0.423	780	0.398	0.398
		A	1	3.500		25				1985	1985	210	0.106		50	0.025	
		A	1	3.500						1965	1965	230	0.117		235	0.120	
Hoi Wang Road - NB		B	2	3.500	25					1855	1855	305	0.164		220	0.119	
		B	2	3.500	28					2000	2000	165	0.083		185	0.093	
		B	2	3.500						2105	2105	145	0.069		180	0.086	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			84	+	7	=	91						
		Dp	1	MIN GREEN + FLASH =			86	+	5	=	91						
		Ep	2	MIN GREEN + FLASH =			23	+	10	=	33			*			*
		Fp	2	MIN GREEN + FLASH =			30	+	5	=	35						

Notes:

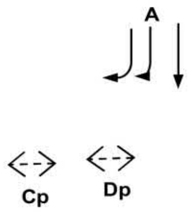
Flow: (pcu/hr)



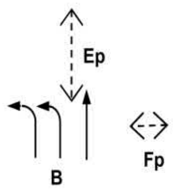
Group		A,Ep	Group		A,Ep
y		0.423	y		0.398
L (sec)		42	L (sec)		39
C (sec)		130	C (sec)		130
y pract.		0.609	y pract.		0.630
R.C. (%)		44%	R.C. (%)		58%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 2		I/G= 8	33	I/G=		I/G=		I/G=	
I/G= 7		I/G= 10	23	I/G=		I/G=		I/G=	

Date: MAR, 2022 | **Junction:** Hoi Wang Road/Ngo Cheung Rd. | J16

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

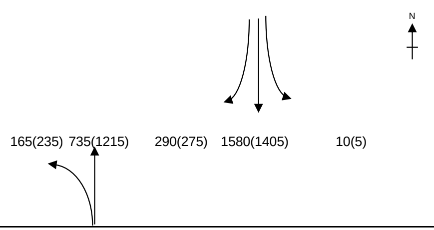
Junction: Nathan Rd / Public Square St Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - NB		A	1	3.400	10			61%	54%	1790	1810	269	0.150		437	0.241	
		A	1	3.400						2095	2095	316	0.151	0.151	507	0.242	0.242
		A	1	3.400						2095	2095	315	0.150		506	0.242	
Nathan Rd - SB		B	1,2	3.200	5			1%	1%	1925	1930	741	0.385		658	0.341	
		B	1,2	3.400						2205	2205	849	0.385		752	0.341	
		G	2	3.000		15				1870	1870	290	0.155	0.155	275	0.147	0.147
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Dp	3	MIN GREEN + FLASH =			29	+	14	=	43			*			*
		Ep	3	MIN GREEN + FLASH =			32	+	8	=	40						

Notes:

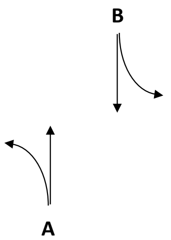
Flow: (pcu/hr)



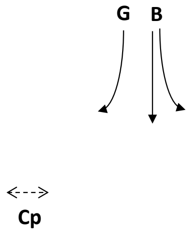
Group	A,G,Dp	B,Dp	Group	B,Dp	A,G,Dp
y	0.306	0.385	y	0.341	0.389
L (sec)	57	52	L (sec)	50	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.540	y pract.	0.554	0.519
R.C. (%)	65%	40%	R.C. (%)	62%	33%

Stage / Phase Diagrams

1.



2.



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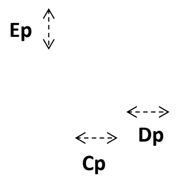


4.

5.

I/G= 3		I/G=		I/G= 7	43	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 7	41	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Public Square St J17

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

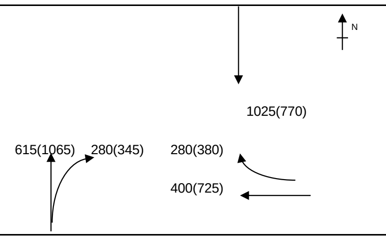
Junction: Nathan Rd / Gascoigne Rd / Kansu St Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road - SB		A	1	3.100						1925	1925	326	0.169		245	0.127	
		A	1	3.100						2065	2065	349	0.169	0.169	262	0.127	
		A	1	3.100						2065	2065	350	0.169		263	0.127	
Nathan Rd - NB		B	2	3.300						1945	1945	293	0.151		458	0.235	0.235
Nathan Rd - NB		B	2	3.300						2085	2085	314	0.151	0.151	492	0.236	
		B	2	3.400		15		97%	75%	1910	1950	288	0.151		460	0.236	
Gascoigne Rd - WB		C	3	3.500						1965	1965	193	0.098		350	0.178	0.178
		C	3	3.500						2105	2105	207	0.098		375	0.178	
Gascoigne Rd - WB		C	3	3.500		20				2190	2190	280	0.128		380	0.174	
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			20	+	12	=	32						*
		Ep	1,2	MIN GREEN + FLASH =			5	+	10	=	15						
		Fp	3	MIN GREEN + FLASH =			29	+	9	=	38			*			

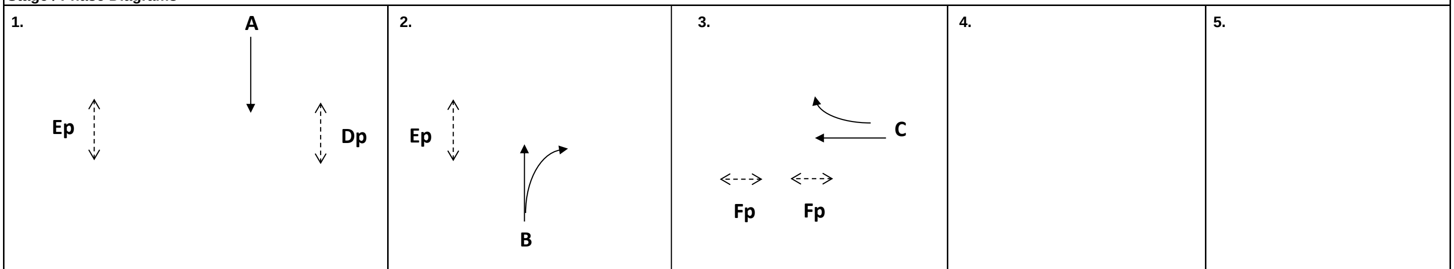
Notes:

Flow: (pcu/hr)



Group	Dp,B,C	A,B,Fp	Group	A,B,Fp	Dp,B,C
y	0.278	0.320	y	0.362	0.414
L (sec)	38	49	L (sec)	49	45
C (sec)	120	120	C (sec)	120	120
y pract.	0.615	0.533	y pract.	0.533	0.563
R.C. (%)	121%	67%	R.C. (%)	47%	36%

Stage / Phase Diagrams



I/G= 3		I/G= 5		I/G= 5	38	I/G=		I/G=	
I/G= 5	32	I/G= 3		I/G= 7		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Gascoigne Rd / Kansu St J18

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

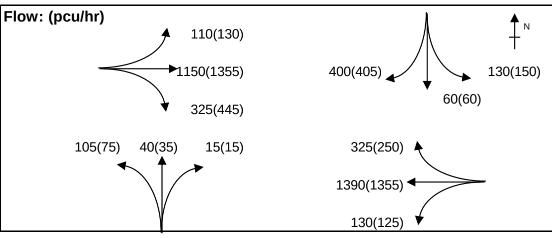
Junction: Jorden Rd / Wui Man Rd / Hoi Wang Rd Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hoi Wang Rd - NB		C	1,4	3.500	15					1785	1785	105	0.059		75	0.042	
		H	1	3.500						2105	2105	28	0.013		25	0.012	
		H	1	3.500		25		56%	60%	2035	2030	27	0.013		25	0.012	
Hoi Wang Rd - SB		G	2,3	3.500	15					1785	1785	130	0.073		150	0.084	
		B	3	3.500						2105	2105	60	0.029		60	0.029	
		B	3	3.500		25				1985	1985	133	0.067	0.067	135	0.068	0.068
		B	3	3.500		25				1985	1985	134	0.068		135	0.068	
		B	3	3.500		25				1985	1985	133	0.067		135	0.068	
Jordan Road - EB		A	4	3.500	15					1785	1785	90	0.050		95	0.053	
		A	4	3.500	15			4%	6%	2095	2090	468	0.223		571	0.273	
		A	4	3.500						2105	2105	470	0.223	0.223	574	0.273	0.273
		A	4	3.500		25		49%	56%	2045	2035	457	0.223		555	0.273	
		A	4	3.500		25				1985	1985	100	0.050		135	0.068	
Jorden Rd - WB		D	2	3.500	15			37%	37%	1895	1895	351	0.185	0.185	342	0.180	
		D	2	3.500						4210	4210	779	0.185		759	0.180	
		D	2	3.500		25		0%	0%	2105	2105	390	0.185		379	0.180	0.180
		D	2	3.500		25				1985	1985	325	0.164		250	0.126	
Pedestrian Crossing		Fp	1,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			13	+	14	=	27						

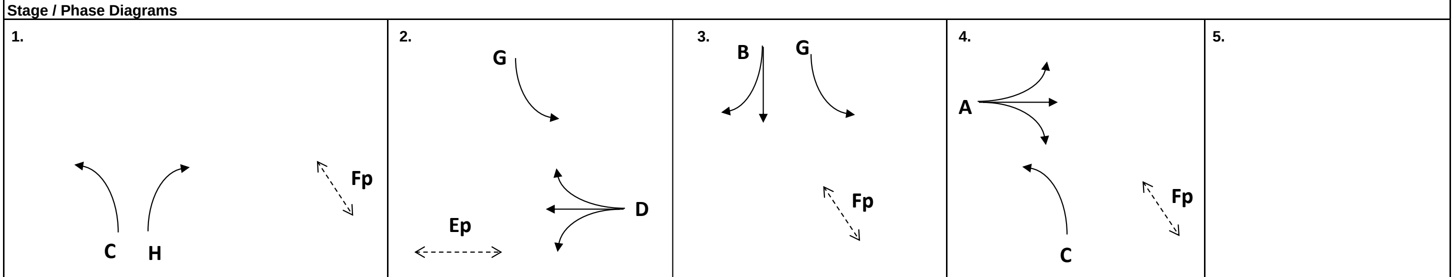
Notes:

Flow: (pcu/hr)



Group		H,D,B,A	Group		H,D,B,A
y		0.476	y		0.521
L (sec)		24	L (sec)		24
C (sec)		130	C (sec)		130
y pract.		0.734	y pract.		0.734
R.C. (%)		54%	R.C. (%)		41%

Stage / Phase Diagrams



I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	
I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	

Date: JUN, 2022 **Junction:** J19 Jorden Rd / Wui Man Rd / Hoi Wang Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

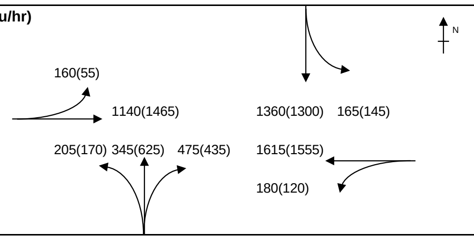
Junction: Jorden Rd/ Ferry St — Design Year: 2037

Description: 2037 Design Flows — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - WB		A	3	3.500	15			32%	23%	1905	1920	559	0.293		525	0.273	0.273
		A	3	3.500						2105	2105	618	0.294	0.294	575	0.273	
		A	3	3.500						2105	2105	618	0.294		575	0.273	
Jorden Rd - EB		B	3	3.300	15					1770	1770	160	0.090		55	0.031	
		B	3	3.500						2105	2105	380	0.181		488	0.232	
		B	3	3.500						2105	2105	380	0.181		489	0.232	
		B	3	3.500						2105	2105	380	0.181		488	0.232	
Canton Rd - NB		C	1,2	3.500	15			75%	42%	2110	2175	275	0.130		404	0.186	
		C	1,2	3.500						2105	2105	275	0.131		391	0.186	
Canton Rd - NB		D	2	3.500		20				1960	1960	238	0.121	0.121	218	0.111	0.111
		D	2	3.500		20				1960	1960	237	0.121		217	0.111	
Ferry St - SB		E	1	3.500	15					1785	1785	165	0.092		145	0.081	
		E	3	3.500						2105	2105	453	0.215	0.215	433	0.206	
		E	3	3.500						2105	2105	454	0.216		434	0.206	0.206
		E	3	3.500						2105	2105	453	0.215		433	0.206	
Pedestrian Crossing																	

Notes:

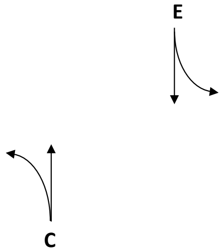
Flow: (pcu/hr)



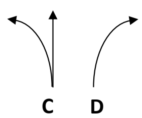
AM			PM		
Group		E,D,A	Group		E,D,A
y		0.630	y		0.591
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		29%	R.C. (%)		37%

Stage / Phase Diagrams

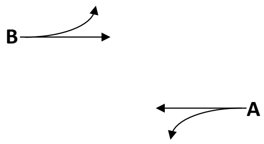
1.



2.



3.



4.

5.

I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	

Date: MAR, 2022 — **Junction:** J20 Jorden Rd/ Ferry St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

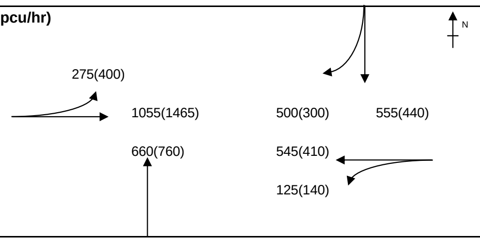
Junction: Jorden Rd / Nathan Rd Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.600	10					1715	1715	275	0.160		400	0.233	
		A	1	3.600						2115	2115	528	0.250	0.250	733	0.347	0.347
		A	1	3.600						2115	2115	527	0.249		732	0.346	
Jorden Rd - WB		A	1	3.600	5			65%	93%	1650	1545	192	0.116		150	0.097	
		A	1	3.000						2055	2055	239	0.116		200	0.097	
		A	1	3.000						2055	2055	239	0.116		200	0.097	
Nathan Rd - NB		B	2	3.300						1945	1945	319	0.164		367	0.189	0.189
		B	2	3.300						2085	2085	341	0.164	0.164	393	0.188	
Nathan Rd - SB		C	3	3.500						1965	1965	343	0.175		240	0.122	
		C	3	3.500		35		41%	22%	2070	2085	362	0.175		255	0.122	
		C	3	3.500		30				2005	2005	350	0.175		245	0.122	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			5	+	9	=	14						
		Ep	2	MIN GREEN + FLASH =			19	+	10	=	29						
		Fp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Gp	3	MIN GREEN + FLASH =			25	+	8	=	33			*			*
		Hp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						

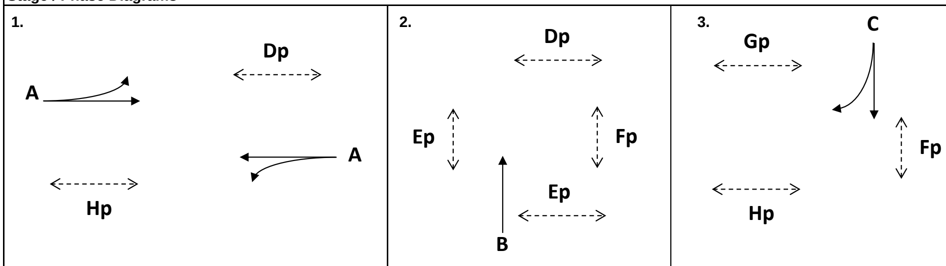
Notes:

Flow: (pcu/hr)



Group		A,B,Gp	Group		A,B,Gp
y		0.413	y		0.535
L (sec)		52	L (sec)		46
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.582
R.C. (%)		31%	R.C. (%)		9%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 12	33	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 12	27	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J21 Jorden Rd / Nathan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

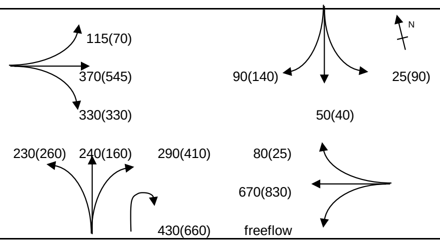
Junction: Jorden Rd / Gascoigne Rd Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Gascoigne Rd - EB		A	1	6.100	15					2025	2025	115	0.057		70	0.035	
		A	1	4.500						2205	2205	185	0.084		273	0.124	
		A	1	4.500						2205	2205	185	0.084		272	0.123	
		A	1	4.500						2205	2205	330	0.150		330	0.150	
Gascoigne Rd - WB		B1	1,2	3.100						1925	1925	323	0.168		400	0.208	
		B1	1,2	3.100						2065	2065	347	0.168		430	0.208	
		B2	2	3.000		10				1785	1785	80	0.045	0.045	25	0.014	
Jorden Rd - NB		C	3	3.300	20			49%	62%	1875	1860	470	0.251		420	0.226	
Jorden Rd - NB		C	3	3.300		20				1940	1940	290	0.149		410	0.211	
		C	3	3.400		15				1905	1905	430	0.226		660	0.346	
Queen Elizabeth Hospital Rd - SB		D	4	6.000	20	25		55% / 15%	52% / 33%	2110	2090	165	0.078	0.078	270	0.129	0.129
Pedestrian Crossing		Ep	2,3,4	MIN GREEN + FLASH =			6	+	12	=	18						
		Fp	3	MIN GREEN + FLASH =			51	+	7	=	58			*			*
		Gp	1,2,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1	MIN GREEN + FLASH =			21	+	11	=	32			*			*
		Ip	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

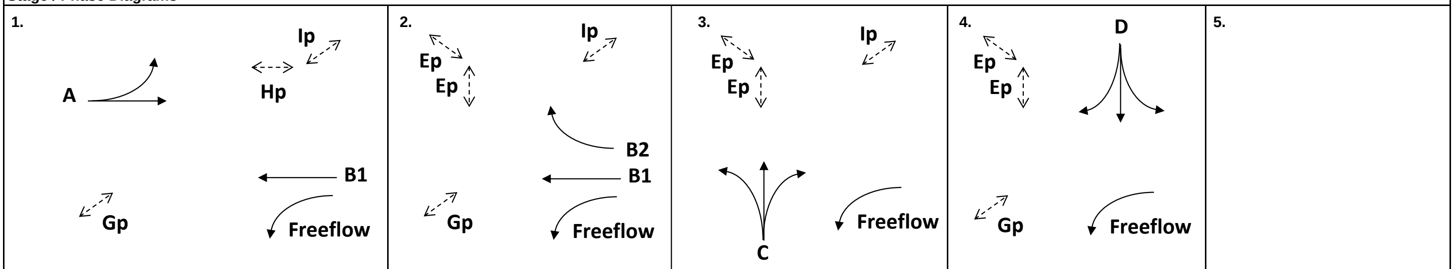
Notes:

Flow: (pcu/hr)



Group	Hp,B2,C,D	Hp,B2,Fp,D	Group	Hp,B2,Fp,D	Hp,B2,C,D
y	0.374	0.123	y	0.129	0.476
L (sec)	51	109	L (sec)	106	54
C (sec)	130	130	C (sec)	130	130
y pract.	0.547	0.145	y pract.	0.166	0.526
R.C. (%)	46%	18%	R.C. (%)	29%	11%

Stage / Phase Diagrams



I/G= 5	32	I/G= 2		I/G= 8	58	I/G= 6		I/G=	
I/G= 5	26	I/G= 2	5	I/G= 9		I/G= 9		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd / Gascoigne Rd J22

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Boundary St / Tai Hang Tung Rd

Design Year: 2037

Description: 2037 Design Flows

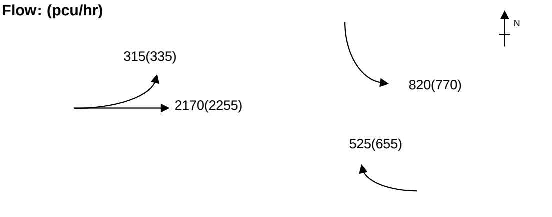
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary St - WB		A	1	3.300		20				1810	1810	253	0.140		316	0.175	0.175
		A	1	3.300		20				1940	1940	272	0.140	0.140	339	0.175	
Tai Hang Tung Rd - SB		B	1,2	3.300	15					1770	1770	261	0.147		245	0.138	
		B	1,2	3.300	15					1895	1895	280	0.148		263	0.139	
		B	1,2	3.300	15					1895	1895	279	0.147		262	0.138	
Boundary St - EB		D	3	3.800	10					1735	1735	315	0.182		335	0.193	
Boundary St - EB		C	3	3.300						2085	2085	543	0.260	0.260	564	0.270	0.270
		C	3	3.300						2085	2085	543	0.260		564	0.270	
		C	3	3.300						2085	2085	543	0.260		564	0.270	
		C	3	3.300						2085	2085	543	0.260		564	0.270	
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			17	+	10	=	27			*			*
		Fp	3	MIN GREEN + FLASH =			33	+	8	=	41						
		Gp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						

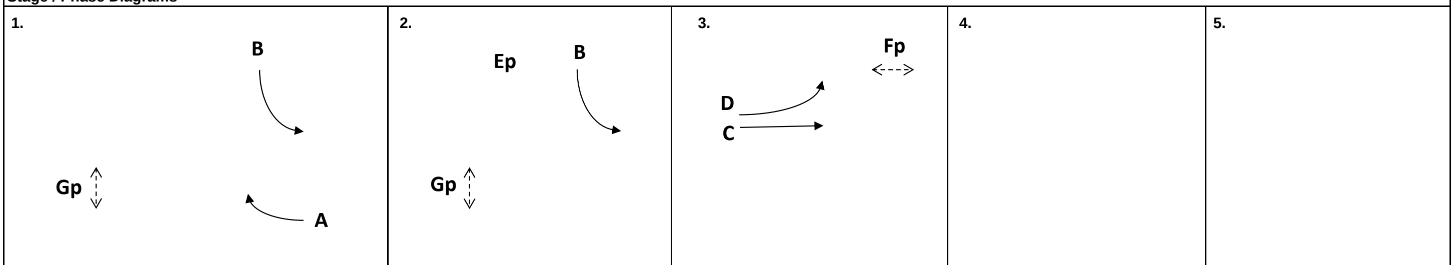
Notes:

Flow: (pcu/hr)



Group	A,Ep,Fp	A,Ep,C	Group	A,Ep,C	A,Ep,Fp
y	0.140	0.400	y	0.445	0.175
L (sec)	80	43	L (sec)	43	101
C (sec)	120	120	C (sec)	130	130
y pract.	0.300	0.578	y pract.	0.602	0.201
R.C. (%)	114%	44%	R.C. (%)	35%	15%

Stage / Phase Diagrams



I/G= 5		I/G= 11	27	I/G= 2		I/G=		I/G=	
I/G= 3		I/G= 11	30	I/G= 2	56	I/G=		I/G=	

Date: MAR, 2022

Junction: J23 Boundary St / Tai Hang Tung Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

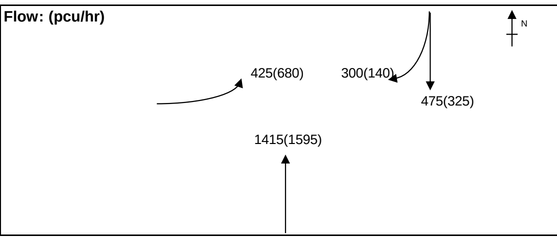
Junction: Lai Chi Kok Rd / Tong Mi Rd Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Rd - SB		A	1	3.000						1915	1915	248	0.130		157	0.082	
		A	1	3.000		70		15%	0%	2050	2055	266	0.130		168	0.082	
		A	1	3.000		65				2010	2010	261	0.130		140	0.070	
Tong Mi Rd - EB		A	1	3.500	15					1320	1320	133	0.101		213	0.161	
		A	1	3.500	15					1445	1445	146	0.101		234	0.162	
		A	1	3.500	15					1445	1445	146	0.101		233	0.161	
Lai Chi Kok Rd - NB		B	2	3.300						1430	1430	329	0.230		371	0.260	0.260
		B	2	3.300						1570	1570	362	0.230	0.230	408	0.260	
		B	2	3.300						1575	1575	363	0.230		409	0.260	
		B	2	3.250						1570	1570	362	0.230		408	0.260	
Pedestrian Crossing		Cp	1,3	MIN GREEN + FLASH =			6	+	11	=	17			*			*
		Dp	2,3	MIN GREEN + FLASH =			6	+	9	=	15						
		Ep	2,3	MIN GREEN + FLASH =			6	+	13	=	19						

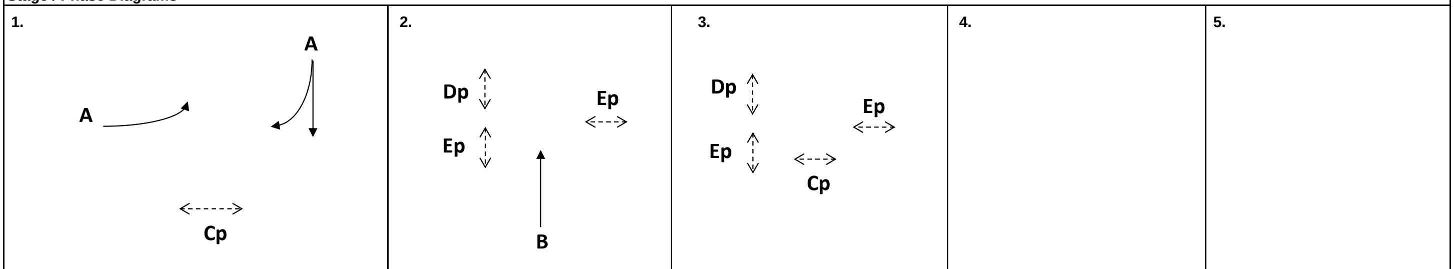
Notes:

Flow: (pcu/hr)



Group		Cp,B	Group		Cp,B
y		0.230	y		0.260
L (sec)		25	L (sec)		25
C (sec)		120	C (sec)		130
y pract.		0.713	y pract.		0.727
R.C. (%)		209%	R.C. (%)		180%

Stage / Phase Diagrams



I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	
I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Lai Chi Kok Rd / Tong Mi Rd J24

TRAFFIC SIGNALS CALCULATION **Job No.:** CHK50648010 **MVA HONG KONG LIMITED**

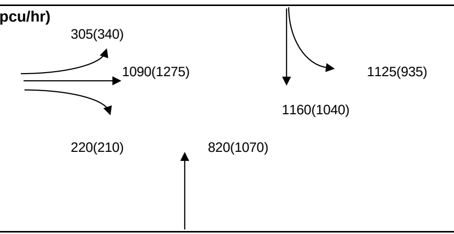
Junction: Nathan Rd / Mong Kok Rd Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.400	10			84%	83%	1735	1740	362	0.209		409	0.235	0.235
		A	1	3.300						2085	2085	434	0.208		490	0.235	
		A	1	3.300						2085	2085	435	0.209		490	0.235	
		A	1	3.300		15		57%	48%	1840	1855	384	0.209	0.209	436	0.235	
Nathan Rd - SB		B	2	3.200	5					1490	1490	604	0.405		521	0.350	0.350
		B	2	3.300	10			68%	62%	1890	1905	767	0.406	0.406	666	0.350	
		B	2	3.000						2255	2255	914	0.405		788	0.349	
Nathan Rd - NB		C	2	3.600						1975	1975	396	0.201		517	0.262	
		C	2	3.600						2115	2115	424	0.200		553	0.261	
Pedestrian Crossing																	

Notes:

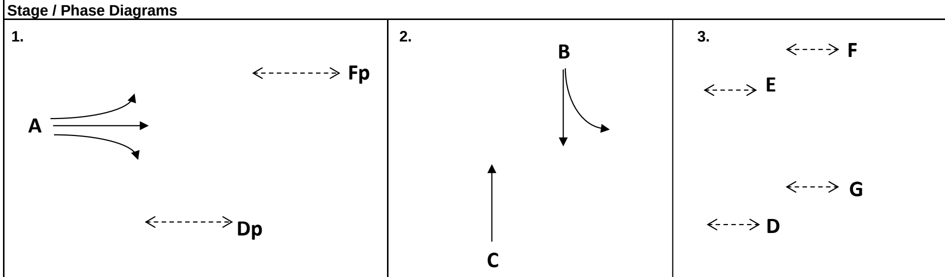
Flow: (pcu/hr)



Group		A,B	Group		A,B
y		0.615	y		0.585
L (sec)		12	L (sec)		15
C (sec)		130	C (sec)		130
y pract.		0.817	y pract.		0.796
R.C. (%)		33%	R.C. (%)		36%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 7		I/G= 7		I/G=		I/G=		I/G=	
I/G= 7		I/G= 7		I/G=		I/G=		I/G=	

Date: JUN, 2022 **Junction:** J25 Nathan Rd / Mong Kok Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

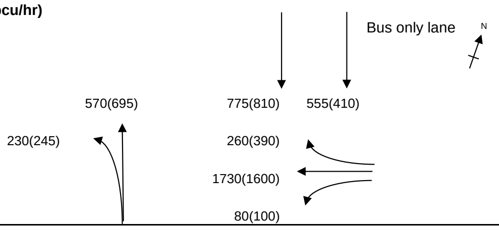
Junction: Nathan Rd / Argyle St Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle St - WB		E	2	3.400	5					1505	1505	80	0.053		100	0.066	
		D	1,2	3.300						2085	2085	865	0.415	0.415	800	0.384	0.384
		D	1,2	3.300		10		0%	0%	2085	2085	865	0.415		800	0.384	
		D	1,2	3.400		5				1505	1505	260	0.173		390	0.259	
Nathan Rd - SB		A	3,4	3.300						2085	2085	388	0.186		405	0.194	
		A	3,4	3.300						2085	2085	387	0.186		405	0.194	
Nathan Rd - SB (Bus only lane)		A	3,4	3.300						1945	1945	555	0.285		410	0.211	
Nathan Rd - NB		C	4	3.500	5					1510	1510	230	0.152	0.152	245	0.162	0.162
Nathan Rd - NB		B	3,4	3.200						2075	2075	285	0.137		348	0.168	
		B	3,4	3.200						2075	2075	285	0.137		347	0.167	
Pedestrian Crossing		Fp	3	MIN GREEN + FLASH =			11	+	15	=	26			*			*
		Gp	3,4	MIN GREEN + FLASH =			6	+	16	=	22						
		Hp	1	MIN GREEN + FLASH =			26	+	12	=	38						

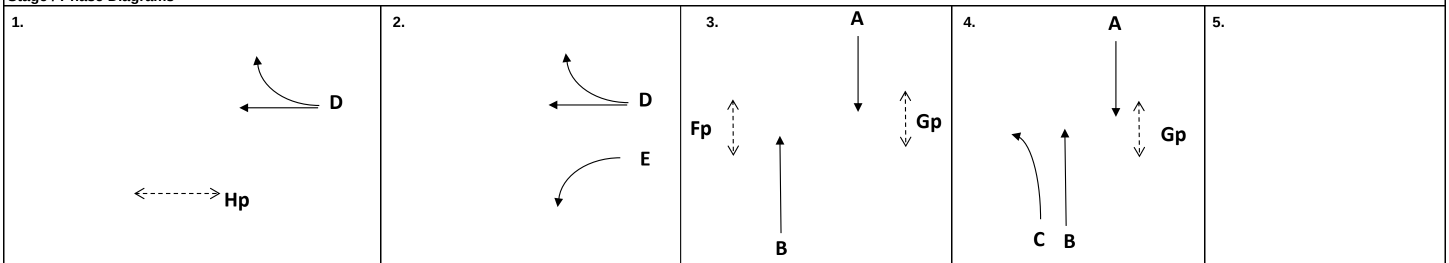
Notes:

Flow: (pcu/hr)



AM			PM		
Group		D,Fp,C	Group		D,Fp,C
y		0.567	y		0.546
L (sec)		42	L (sec)		42
C (sec)		130	C (sec)		130
y pract.		0.609	y pract.		0.609
R.C. (%)		7%	R.C. (%)		12%

Stage / Phase Diagrams



I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	
I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Argyle St J26

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

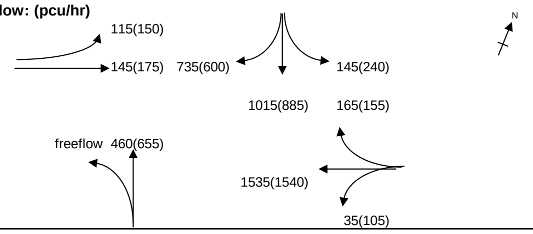
Junction: Argyle St / Tong Mi Rd Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	153	0.073	0.073	218	0.105	0.105
		A	1	3.300						2085	2085	154	0.074		219	0.105	
		A	1	3.300						2085	2085	153	0.073		218	0.105	
Tong Mi Rd - SB		B	1,2	3.300	10			26%	46%	1870	1820	549	0.294		524	0.288	
Tong Mi Rd - SB		B	1,2	3.300						2085	2085	611	0.293		601	0.288	
Tong Mi Rd - SB		E	2	3.600		15				1925	1925	735	0.382	0.382	600	0.312	0.312
Argyle St - EB		C	3	3.300	10					1690	1690	115	0.068		150	0.089	
Argyle St - EB		C	3	3.400						2095	2095	145	0.069		175	0.084	
Argyle St - WB		G	3,4	4.500	50			7%	19%	2175	2170	533	0.245	0.245	557	0.257	0.257
Argyle St - WB		D	3,4	3.600						2115	2115	519	0.245		544	0.257	
		D	3,4	3.600						2115	2115	518	0.245		544	0.257	
Argyle St - WB		F	4	3.300		10				1815	1815	165	0.091		155	0.085	
Pedestrian Crossing																	

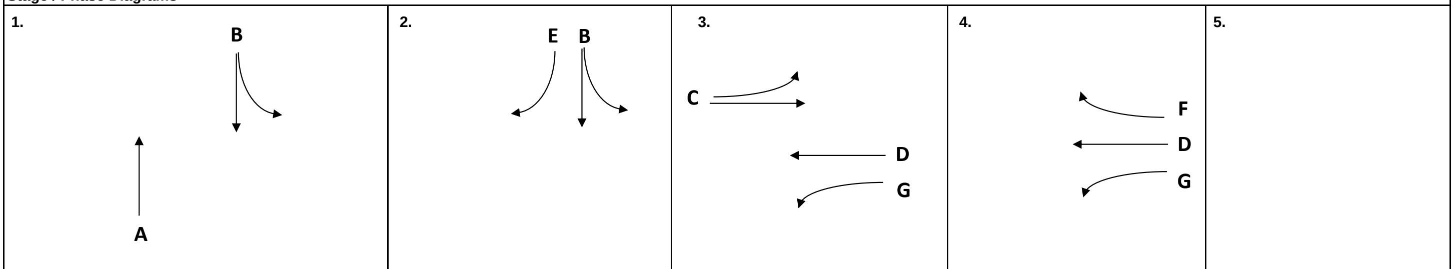
Notes:

Flow: (pcu/hr)



Group		A,E,G	Group		A,E,G
y		0.700	y		0.673
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		11%	R.C. (%)		15%

Stage / Phase Diagrams



I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	
I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Argyle St / Tong Mi Rd J27

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

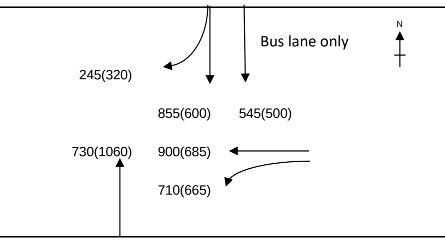
Junction: Nathan Rd / Prince Edward Rd West Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)	↑	A	1,2	3.200						1935	1935	545	0.282		500	0.258	
Nathan Rd - SB	↑	A	1,2	3.200						2075	2075	428	0.206		300	0.145	
	↑	A	1,2	3.200						2075	2075	427	0.206		300	0.145	
Nathan Rd - SB	↱	B	1	3.100		15				1875	1875	245	0.131	0.131	320	0.171	0.171
Nathan Rd - NB	↑	C	2	3.500						1965	1965	352	0.179		512	0.261	0.261
	↑	C	2	3.500						2105	2105	378	0.180	0.180	548	0.260	
Prince Edward Rd West - WB	↰	D	3	3.500	10					1710	1710	357	0.209		318	0.186	0.186
Prince Edward Rd West - WB	↰↑	D	3	3.000	15			90%	100%	1885	1870	394	0.209		347	0.186	
	↑	D	3	3.000						2055	2055	430	0.209	0.209	342	0.166	
	↑	D	3	3.000						2055	2055	429	0.209		343	0.167	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			13	+	14	=	27						
		Fp	2	MIN GREEN + FLASH =			17	+	10	=	27						
		Gp	3	MIN GREEN + FLASH =			42	+	13	=	55						

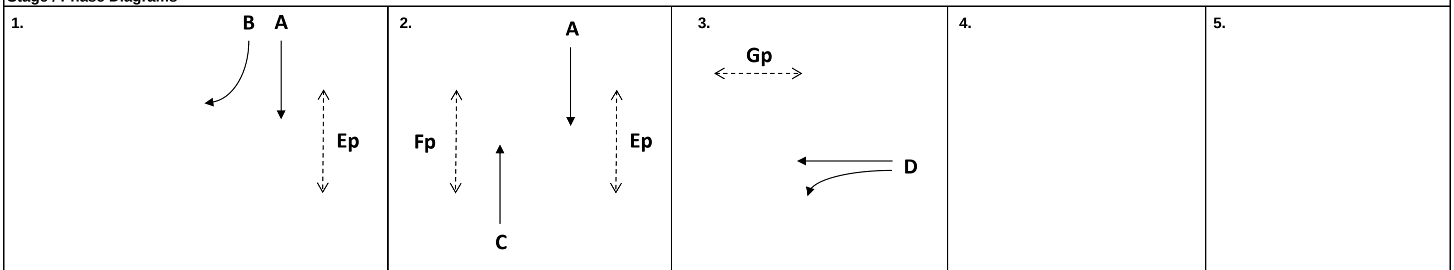
Notes:

Flow: (pcu/hr)



Group		B,C,D	Group		B,C,D
y		0.519	y		0.617
L (sec)		21	L (sec)		21
C (sec)		130	C (sec)		130
y pract.		0.755	y pract.		0.755
R.C. (%)		45%	R.C. (%)		22%

Stage / Phase Diagrams



I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	
I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J28 Nathan Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

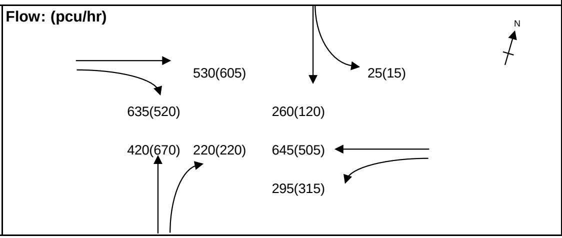
Junction: Tong Mi Rd / Prince Edward Rd West Design Year: 2037

Description: ~~2037 Design Flows~~ Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - SB		A	1	3.800	10			18%	23%	1940	1925	136	0.070		64	0.033	
Tong Mi Rd - SB		A	1	3.800						2135	2135	149	0.070	0.070	71	0.033	0.033
Tong Mi Rd - NB		B	2	3.100						1925	1925	156	0.081		215	0.112	
Tong Mi Rd - NB		B	2	3.100						2065	2065	167	0.081		231	0.112	
		B	2	3.300		20		41%	4%	2025	2080	164	0.081		233	0.112	
		B	2	3.250		15				1890	1890	153	0.081		211	0.112	
Prince Edward Rd West - WB		C	3	3.200	10					1685	1685	269	0.160		237	0.141	0.141
Prince Edward Rd West - WB		C	3	3.400	15			8%	27%	2080	2040	333	0.160	0.160	286	0.140	
		C	3	3.600						2115	2115	338	0.160		297	0.140	
Prince Edward Rd West - EB		D	4	3.400						2115	2115	266	0.126		304	0.144	
		D	4	3.400						2095	2095	264	0.126		301	0.144	
Prince Edward Rd West - EB		D	4	3.800		15				1940	1940	635	0.327	0.327	520	0.268	0.268
Pedestrian Crossing		Ep	1,2,4	MIN GREEN + FLASH =			9	+	9	=	18						
		Fp	2	MIN GREEN + FLASH =			17	+	8	=	25			*			*
		Gp	1,3,4	MIN GREEN + FLASH =			11	+	11	=	22						
		Hp	1	MIN GREEN + FLASH =			14	+	13	=	27						
		Ip	3,4	MIN GREEN + FLASH =			11	+	10	=	21						
		Jp	3	MIN GREEN + FLASH =			15	+	9	=	24						

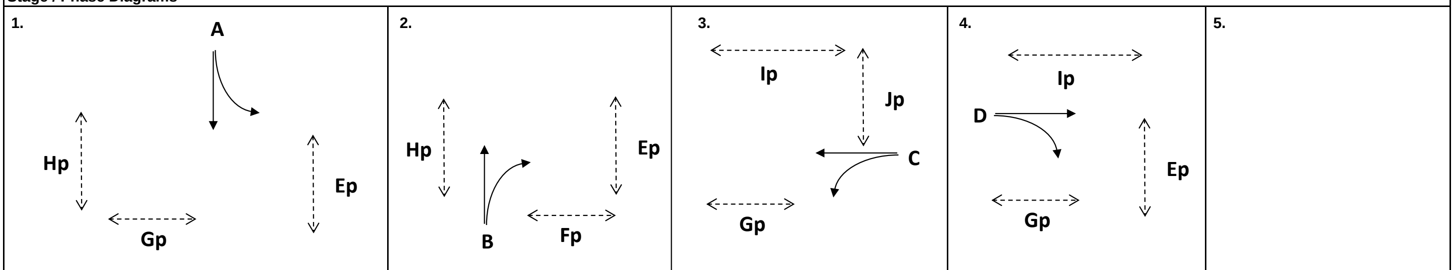
Notes:

Flow: (pcu/hr)



Group		A,Fp,C,D	Group		A,Fp,C,D
y		0.557	y		0.409
L (sec)		47	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.575	y pract.		0.519
R.C. (%)		3%	R.C. (%)		27%

Stage / Phase Diagrams



I/G= 7		I/G= 11	25	I/G= 2		I/G= 5		I/G=	
I/G= 7	5	I/G= 11	28	I/G= 2		I/G= 5		I/G=	

Date:	Junction: J29
MAR, 2022	Tong Mi Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

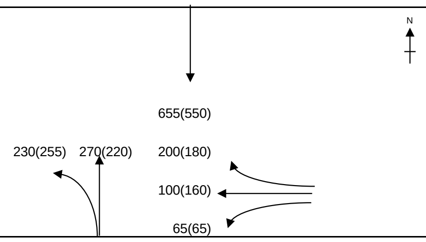
Junction: Tai Kok Tsui Rd / Ivy St — Design Year: 2037

Description: 2037 Design Flows — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tai Kok Tsui Rd - SB		A	1	4.500						2065	2065	655	0.317	0.317	550	0.266	0.266
Tai Kok Tsui Rd - NB		A	1	3.200	10			84%	100%	1720	1685	197	0.115		190	0.113	
Tai Kok Tsui Rd - NB		A	1	3.300						2085	2085	238	0.114		220	0.106	
Ivy St - WB		B	3	4.600	10	15		18% / 55%	16% / 44%	1920	1940	365	0.190	0.190	405	0.209	0.209
Ivy St - WB																	
Ivy St - WB																	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			22	+	20	=	42			*			*

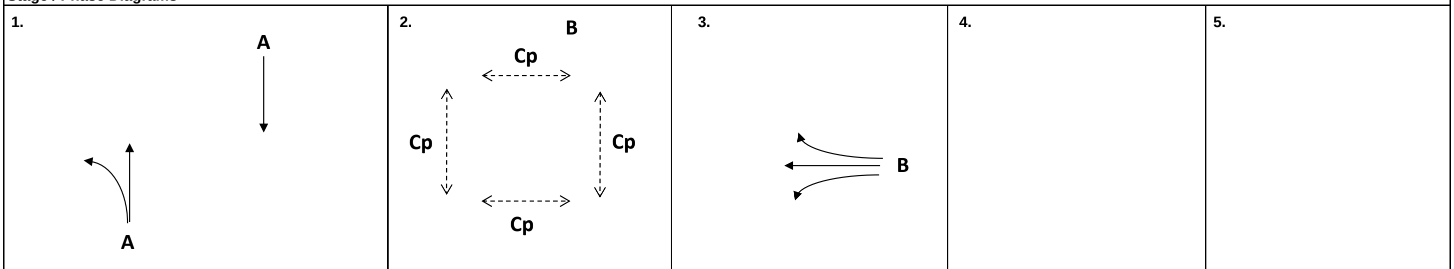
Notes:

Flow: (pcu/hr)



Group		A,Cp,B	Group		A,Cp,B
y		0.507	y		0.475
L (sec)		59	L (sec)		59
C (sec)		136	C (sec)		136
y pract.		0.510	y pract.		0.510
R.C. (%)		0%	R.C. (%)		7%

Stage / Phase Diagrams



I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	
I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Tai Kok Tsui Rd / Ivy St J30

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Sai Yee St / Mong Kok Rd Design Year: 2037

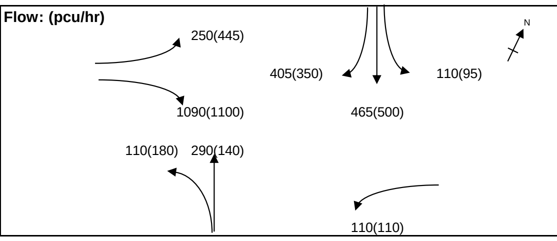
Description: ~~2037 Design Flows~~ Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.100	10	15		60% / 40%	94% / 6%	1705	1680	414	0.243		472	0.281	0.281
		A	1	3.400		15				1905	1905	463	0.243	0.243	537	0.282	
		A	1	3.400		15				1905	1905	463	0.243		536	0.281	
Sai Yee St - SB		B	2	3.650	10			22%	20%	1915	1920	494	0.258		474	0.247	0.247
Sai Yee St - SB		B	2	3.650		10		83%	74%	1885	1905	486	0.258	0.258	471	0.247	
Sai Yee St - SB																	
Mong Kok Rd - WB		H	3	3.500	10					1710	1710	53	0.031		53	0.031	
		H	3	3.500	10					1830	1830	57	0.031		57	0.031	
Sai Yee St - NB		C	4	3.400	10			59%	100%	1795	1700	185	0.103	0.103	180	0.106	0.106
Sai Yee St - NB		C	4	3.400						2095	2095	215	0.103		140	0.067	

Pedestrian Crossing	Phase	Stage						
	Dp	2,3,4	MIN GREEN + FLASH =	7	+	12	=	19
	Ep	1,3,4	MIN GREEN + FLASH =	5	+	6	=	11
	Fp	2,3	MIN GREEN + FLASH =	5	+	6	=	11
	Gp	1,3	MIN GREEN + FLASH =	5	+	5	=	10
	Ip	1,3,4	MIN GREEN + FLASH =	5	+	8	=	13
	Jp	1,2,4	MIN GREEN + FLASH =	5	+	10	=	15

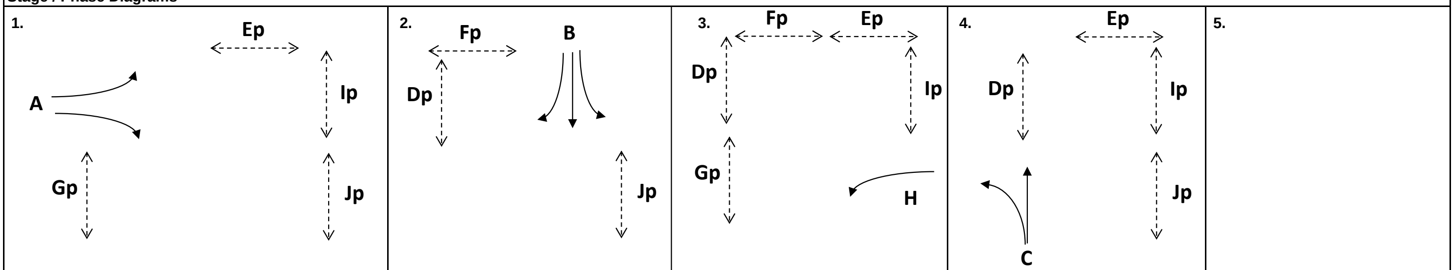
Notes:

Flow: (pcu/hr)



Group		A,B,H,C	Group		A,B,H,C
y		0.604	y		0.634
L (sec)		22	L (sec)		17
C (sec)		130	C (sec)		130
y pract.		0.748	y pract.		0.782
R.C. (%)		24%	R.C. (%)		23%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 5	5	I/G= 5	I/G=
I/G= 5		I/G= 5		I/G= 5		I/G= 5	I/G=

Date: MAR, 2022 **Junction:** Sai Yee St / Mong Kok Rd J31

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

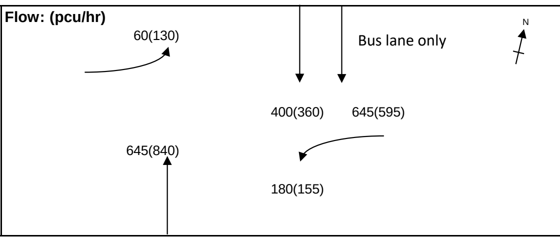
Junction: Nathan Rd / Dundas St Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)	↑	A	1,3	3.250						1940	1940	645	0.332	0.332	595	0.307	0.307
Nathan Rd - SB	↑	A	1,3	3.400						2095	2095	200	0.095		180	0.086	
	↑	A	1,3	3.400						2095	2095	200	0.095		180	0.086	
Nathan Rd - NB	↑	B	1	3.300						1945	1945	205	0.105		267	0.137	
	↑	B	1	3.300						2085	2085	220	0.106		287	0.138	
	↑	B	1	3.300						2085	2085	220	0.106		286	0.137	
Dundas St - WB	↰	C	2	4.600	10					1805	1805	180	0.100		155	0.086	
Dundas St - EB	↰	D	3	3.500	10					1710	1710	60	0.035	0.035	130	0.076	0.076
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			24	+	11	=	35			*			*
		Fp	1,3	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						

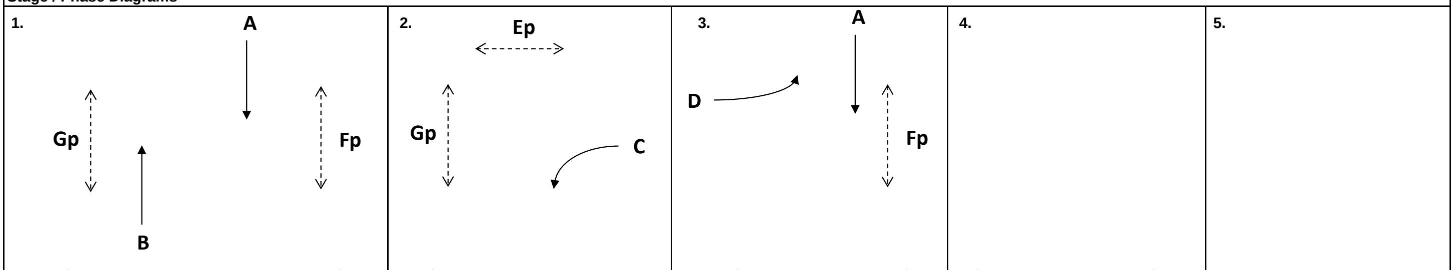
Notes:

Flow: (pcu/hr)



Group		A,Ep,D	Group		A,Ep,D
y		0.368	y		0.383
L (sec)		45	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.519
R.C. (%)		60%	R.C. (%)		36%

Stage / Phase Diagrams



I/G= 3		I/G= 5	35	I/G= 4		I/G=		I/G=	
I/G= 3		I/G= 5	45	I/G= 4		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Dundas St J32

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

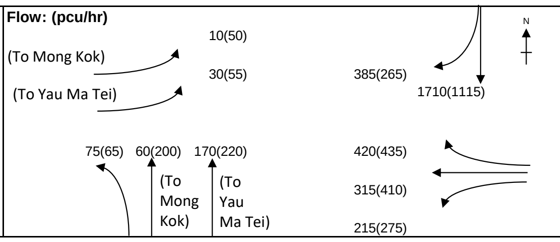
Junction: Yau Cheung Rd / Ferry St / Kansu St Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu St - WB		A	1	3.300	15			72%	78%	1815	1805	299	0.165	0.165	351	0.194	
Kansu St - WB		A	1	3.300		50		32%	17%	2065	2075	341	0.165		403	0.194	
Kansu St - WB		A	1	3.300		45				1880	1880	310	0.165		366	0.195	0.195
Ferry St - NB		B	2	3.500	30			100%	52%	1870	1915	75	0.040		126	0.066	
Ferry St - NB (To Mong Kok)		B	2	3.500						2105	2105	60	0.029		139	0.066	
Ferry St - NB (To Yau Ma Tei)		B	2	3.650						2120	2120	170	0.080		220	0.104	
Ferry St - SB		B	2	3.500						1965	1965	544	0.277		355	0.181	
		B	2	3.500						2105	2105	583	0.277	0.277	380	0.181	
		B	2	3.500						2105	2105	583	0.277		380	0.181	
Ferry St - SB		D	3	3.650		45				2050	2050	193	0.094	0.094	133	0.065	
		D	3	3.650		45				2050	2050	192	0.094		132	0.064	
Yan Cheung Rd - EB (To Mong Kok)		E	3	3.500	50					1910	1910	5	0.003		24	0.013	
		E	3	3.500	50					2045	2045	5	0.002		26	0.013	
Yan Cheung Rd - EB (To Yau Ma Tei)		D	3	4.000	60					2100	2100	30	0.014		55	0.026	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	10	=	15						
		Hp	2	MIN GREEN + FLASH =			38	+	14	=	52						*
		Ip	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Jp	3	MIN GREEN + FLASH =			9	+	12	=	21						*

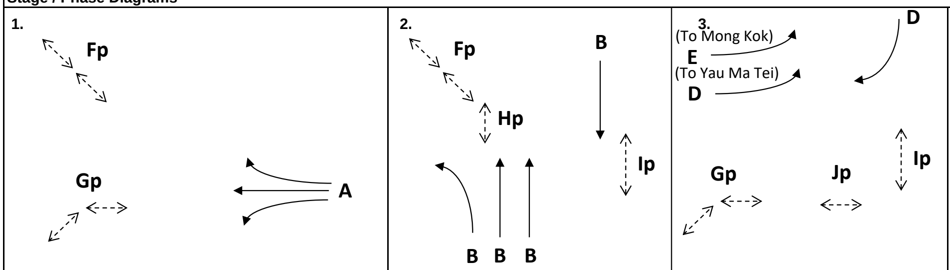
Notes:

Flow: (pcu/hr)



Group	A,Hp,Jp	A,B,D	Group	A,B,D	A,Hp,Jp
y	0.165	0.536	y	0.440	0.195
L (sec)	87	20	L (sec)	20	87
C (sec)	120	120	C (sec)	120	120
y pract.	0.248	0.750	y pract.	0.750	0.248
R.C. (%)	50%	40%	R.C. (%)	70%	27%

Stage / Phase Diagrams



I/G= 8		I/G= 7		I/G= 8		I/G=		I/G=	
I/G= 2		I/G= 10	52	I/G= 3	21	I/G=		I/G=	

Date: MAR, 2022 **Junction:** J33 Yau Cheung Rd / Ferry St / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

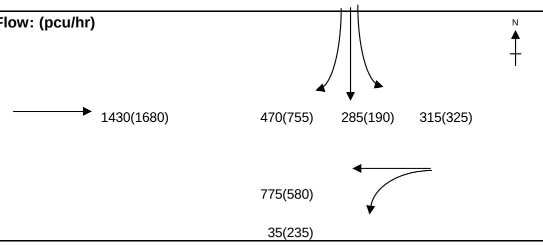
Junction: Jorden Rd / Shanghai St Design Year: 2037

Description: 2037 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.000						1915	1915	455	0.238		534	0.279	0.279
		A	1	3.000						2055	2055	487	0.237	0.237	573	0.279	
		A	1	3.000						2055	2055	488	0.237		573	0.279	
Jorden Rd - WB		A	1	3.300	10			14%	100%	1905	1690	254	0.133		236	0.140	
Jorden Rd - WB		A	1	3.250						2080	2080	278	0.134		290	0.139	
		A	1	3.250						2080	2080	278	0.134		289	0.139	
Shanghai St - SB		D	3	3.000	10					1000	1000	159	0.159		176	0.176	
		D	3	3.000	10			51%	44%	1910	1930	304	0.159		339	0.176	
		D	3	3.000		15		56%	100%	1945	1870	310	0.159	0.159	377	0.202	
		D	3	3.000		15				1870	1870	298	0.159		378	0.202	0.202
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			16	+	12	=	28			*			*
		Cp	1	MIN GREEN + FLASH =			10	+	12	=	22						

Notes:

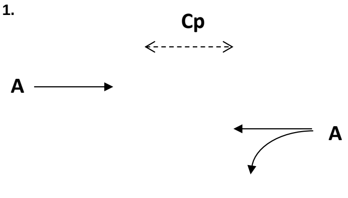
Flow: (pcu/hr)



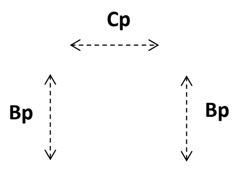
Group		A,Bp,D	Group		A,Bp,D
y		0.396	y		0.481
L (sec)		45	L (sec)		45
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.588
R.C. (%)		49%	R.C. (%)		22%

Stage / Phase Diagrams

1.



2.



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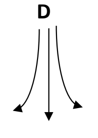


4.

5.

I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	
I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd / Shanghai St J34

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street   Design Year: 2037

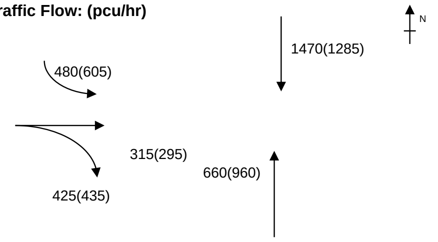
Description: 2037 Design   Designed By: ____________   Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Road - NB	↑	A	1	3.000						1915	1915	210	0.110		306	0.160	
	↑	A	1	3.000						2055	2055	226	0.110		329	0.160	
	↑	A	1	2.800						2035	2035	224	0.110		325	0.160	
Anchor Street	↱	D	3	3.300		20		16%	20%	1925	1915	373	0.194	0.194	367	0.192	
	↱	D	3	3.300		15				1895	1895	367	0.194		363	0.192	0.192
Fuk Tsun Street	↰	C	2	4.200	15					1850	1850	147	0.079	0.079	185	0.100	
	↰	C	2	4.600	20					2060	2060	164	0.080		207	0.100	
	↰	C	2	5.000	25					2125	2125	169	0.080		213	0.100	0.100
Tong Mi Road - SB	↑	B	1	3.500						1965	1965	472	0.240		412	0.210	
	↑	B	1	3.300						2085	2085	500	0.240		438	0.210	
	↑	B	1	3.200						2075	2075	498	0.240	0.240	435	0.210	0.210

Approach	Phase	Stage						
Pedestrian Crossing	Ep	1,3	MIN GREEN + FLASH =	13	+	13	=	26
	Fp	1,2	MIN GREEN + FLASH =	7	+	7	=	14
	Gp	2,3	MIN GREEN + FLASH =	8	+	8	=	16
	Hp	2	MIN GREEN + FLASH =	8	+	8	=	16
	Ip	1	MIN GREEN + FLASH =	11	+	11	=	22
	Jp	2,3	MIN GREEN + FLASH =	13	+	9	=	22

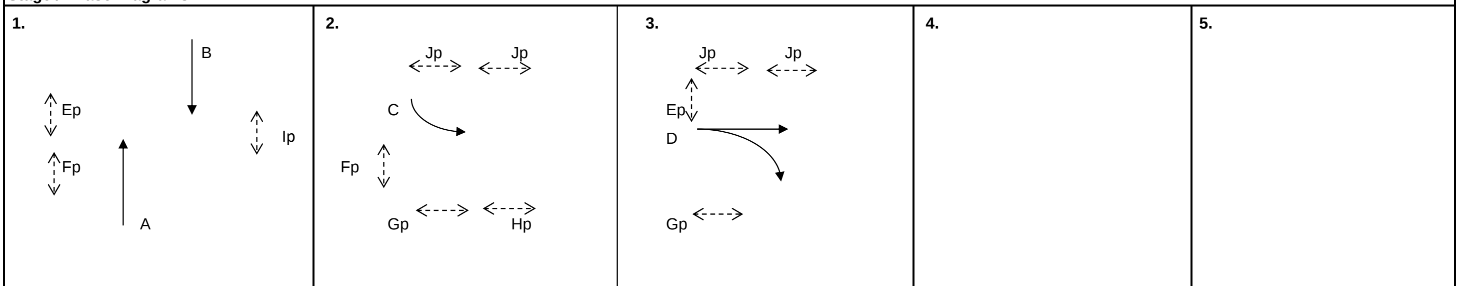
Notes:

Traffic Flow: (pcu/hr)



Group	A,C,D	B,C,D	Group	A,C,D	B,C,D
y	0.383	0.513	y	0.451	0.501
L (sec)	18	18	L (sec)	18	18
C (sec)	130	130	C (sec)	130	130
y pract.	0.775	0.775	y pract.	0.775	0.775
R.C. (%)	103%	51%	R.C. (%)	72%	55%

Stage / Phase Diagrams



I/G= 8		I/G= 7		I/G= 6		I/G=		I/G=	
I/G= 8		I/G= 7		I/G= 6		I/G=		I/G=	

Date: MAR, 2022   **Junction:** J35
J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

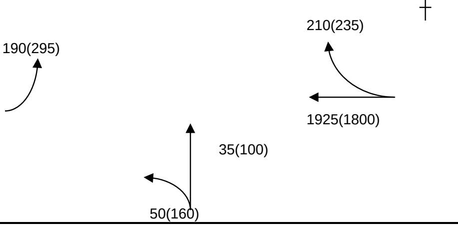
Junction: J36 - Argyule Street / Reclamation Street Design Year: 2037

Description: 2037 Design Designed By: Checked By:

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street - WB	↑	B	1	3.200						1935	1935	453	0.234	0.234	424	0.219	0.219
	↑	B	1	3.600						2115	2115	495	0.234		463	0.219	
	↑	B	1	3.200						2075	2075	486	0.234		454	0.219	
	↑	B	1	3.400						2095	2095	491	0.234		459	0.219	
Argyle Street - WB	↱	B	1	3.700		15				1930	1930	210	0.109		235	0.122	
clamation Street - NB	↰	A	3	3.700	15					1805	1805	26	0.014		80	0.044	0.044
	↰↑	A	3	3.600	20			83%	92%	1990	1980	29	0.015		87	0.044	
	↑	A	3	3.500						2105	2105	30	0.014		93	0.044	
Argyle Street - EB	↰	B	1	5.300	15					1950	1950	190	0.097		295	0.151	
'edestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			9	+	19	=	28						
		Dp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						
		Ep	2	MIN GREEN + FLASH =			23	+	15	=	38			*			*

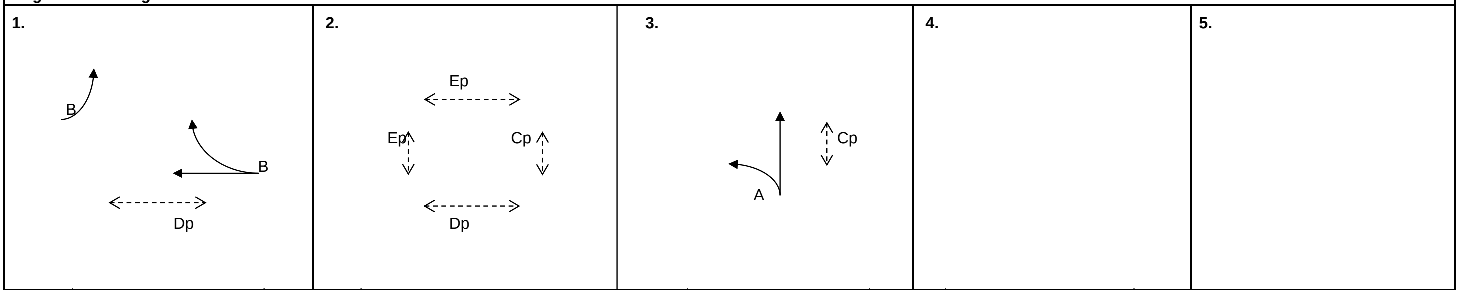
Notes:

Traffic Flow: (pcu/hr)



Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.234	0.234	y	0.219	0.263
L (sec)	34	61	L (sec)	34	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.665	0.478	y pract.	0.665	0.519
R.C. (%)	184%	104%	R.C. (%)	204%	97%

Stage / Phase Diagrams



I/G= 7		I/G= 9	38	I/G= 3	5	I/G=		I/G=	
I/G= 7		I/G= 9	38	I/G= 3		I/G=		I/G=	

Date:	Junction: J36
MAR, 2022	J36 - Argyule Street / Reclamation Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

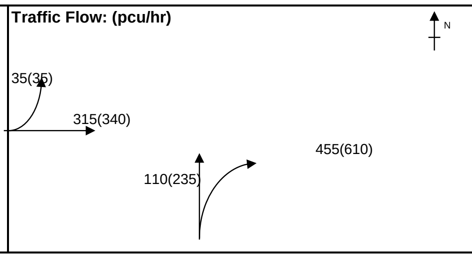
Junction: J37 - Reclamation Street / Dundas Street Design Year: 2037

Description: 2037 Design Designed By: Checked By:

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
clamation Street - NB		B	1	3.200						1935	1935	53	0.027		113	0.058	
		B	1	3.400						2095	2095	57	0.027		122	0.058	
clamation Street - NB		B	1	3.600		15				1925	1925	455	0.236	0.236	610	0.317	0.317
Dundas Street - EB		A	3	3.100	15			21%	20%	1885	1890	166	0.088	0.088	178	0.094	0.094
		A	3	3.300						2085	2085	184	0.088		197	0.094	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	1,2	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			11	+	9	=	20			*			*

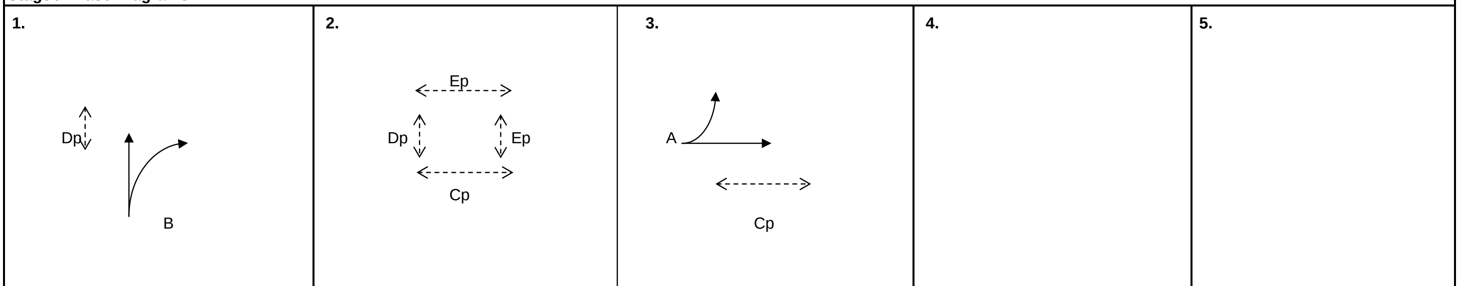
Notes:

Traffic Flow: (pcu/hr)



Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.236	0.324	y	0.317	0.411
L (sec)	25	32	L (sec)	25	32
C (sec)	90	90	C (sec)	108	108
y pract.	0.650	0.580	y pract.	0.692	0.633
R.C. (%)	175%	79%	R.C. (%)	118%	54%

Stage / Phase Diagrams



I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	
I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J37

J37 - Reclamation Street / Dundas Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — **MVA HONG KONG LIMITED**

Junction: Kansu Street / Canton Road — Design Year: 2037

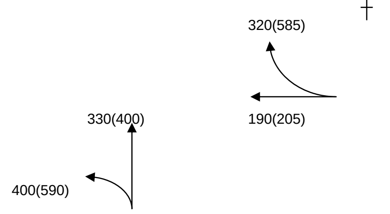
Description: 2037 Design — Designed By: ____ — Checked By: ____

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu Street - WB		A	1	3.400						1955	1955	190	0.097		205	0.105	
		A	1	3.400		15		100%	100%	1905	1905	320	0.168	0.168	585	0.307	0.307
Canton Road - NB		B	2	3.700	15			100%	100%	1805	1805	400	0.222	0.222	590	0.327	0.327
		B	2	3.700						2125	2125	164	0.077		199	0.094	
		B	2	3.900						2145	2145	166	0.077		201	0.094	

Pedestrian Crossing	Cp	1	MIN GREEN + FLASH =	8	+	10	=	18
	Dp	2	MIN GREEN + FLASH =	7	+	10	=	17

Notes:

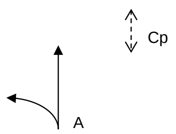
Traffic Flow: (pcu/hr)



Group	Cp,B	A,B	Group	Cp,B	A,B
y	0.222	0.390	y	0.327	0.634
L (sec)	25	8	L (sec)	25	8
C (sec)	120	120	C (sec)	120	120
y pract.	0.713	0.840	y pract.	0.713	0.840
R.C. (%)	222%	116%	R.C. (%)	118%	33%

Stage / Phase Diagrams

1.



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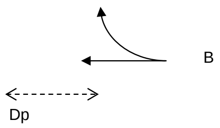


3.

4.

5.

I/G= 5	I/G= 5	I/G=	I/G=	I/G=
I/G= 5	I/G= 5	I/G=	I/G=	I/G=

Date: MAR, 2022 — **Junction:** Kansu Street / Canton Road — J38

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J39 - Prince Edward Road West / Lai Chi Kok Road

Design Year: 2037

Description: 2037 Design

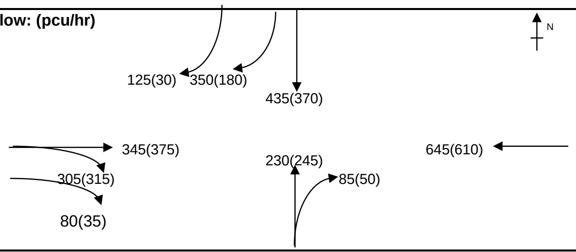
Designed By: ____________

Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward		C	1	3.200						1935	1935	205	0.106		194	0.100	
Road West		C	1	3.200						2075	2075	220	0.106	0.106	208	0.100	
WB		C	1	3.200						2075	2075	220	0.106		208	0.100	0.100
Lai Chi Kok		A	4	3.500						1965	1965	111	0.056		118	0.060	
Road - NB		A	4	3.500		15		0%	0%	2105	2105	119	0.057		127	0.060	
		A	4	3.500		15				1915	1915	85	0.044		50	0.026	
Prince Edward		D	3	3.600						1975	1975	325	0.165		345	0.175	
Road West		D	3	3.600		20		94%	91%	1975	1980	325	0.165	0.165	345	0.174	0.174
EB		D	3	3.600		15				1925	1925	80	0.042		35	0.018	
Lai Chi Kok		B	2	3.200						1935	1935	378	0.195	0.195	265	0.137	0.137
Road - SB		B	2	3.500		100		86%	63%	2080	2085	407	0.196		285	0.137	
		B	2	3.200		15				1885	1885	125	0.066		30	0.016	
Pedestrian Crossing		Lp	4	MIN GREEN + FLASH =			12	+	8	=	20			*			*

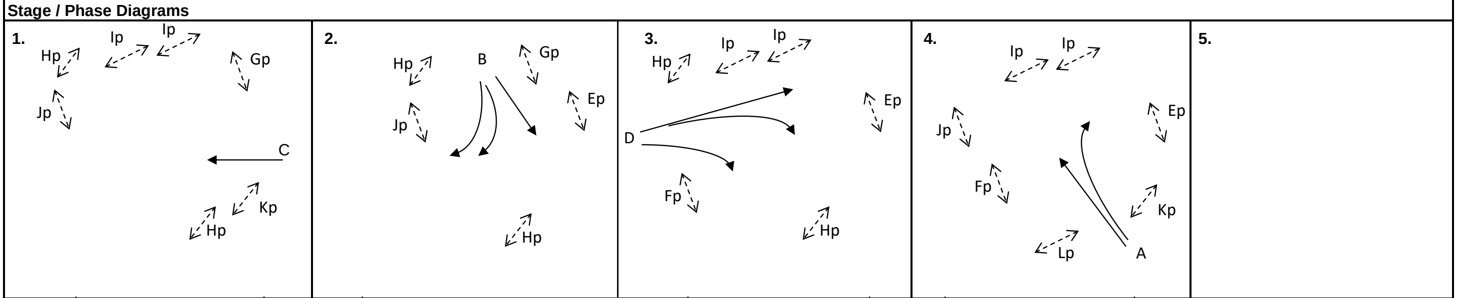
Notes:

Flow: (pcu/hr)



Group	C,B,D,A	C,B,D,Lp	Group	C,B,D,A	C,B,D,Lp
y	0.522	0.466	y	0.472	0.411
L (sec)	22	42	L (sec)	22	44
C (sec)	130	130	C (sec)	130	130
y pract.	0.748	0.609	y pract.	0.748	0.595
R.C. (%)	43%	31%	R.C. (%)	58%	45%

Stage / Phase Diagrams



I/G= 2		I/G= 8		I/G= 5		I/G= 12	18	I/G=	
I/G= 2		I/G= 8		I/G= 5		I/G= 12	20	I/G=	

Date: MAY, 2022

Junction: J39

J39 - Prince Edward Road West / Lai Chi Kok Road

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

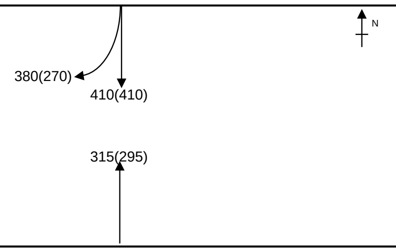
Junction: J40 - Lai Chi Kok Road / Shanghai Street Design Year: 2037

Description: 2037 Design Designed By: Checked By:

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road - SB		A	1	3.400						1955	1955	257	0.131	0.131	221	0.113	
		A	1	3.400		30		43%	19%	2050	2075	270	0.132		234	0.113	
		A	1	3.400		30				1995	1995	263	0.132		225	0.113	0.113
Lai Chi Kok Road - NB		B	2	3.300						1945	1945	103	0.053		96	0.049	
		B	2	3.300						2085	2085	109	0.052		103	0.049	
		B	2	3.300						1945	1945	103	0.053		96	0.049	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			56	+	9	=	65						
		Dp	2	MIN GREEN + FLASH =			39	+	9	=	48			*			*

Notes:

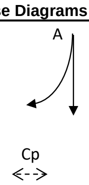
Flow: (pcu/hr)



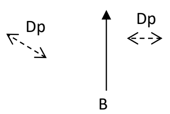
Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.184	0.131	y	0.162	0.113
L (sec)	12	66	L (sec)	12	66
C (sec)	130	130	C (sec)	130	130
y pract.	0.817	0.443	y pract.	0.817	0.443
R.C. (%)	345%	237%	R.C. (%)	404%	293%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	
I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	

Date: MAY, 2022

Junction: J40 - Lai Chi Kok Road / Shanghai Street J40

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J41 - Lai Chi Kok Road / Nathan Road Design Year: 2037

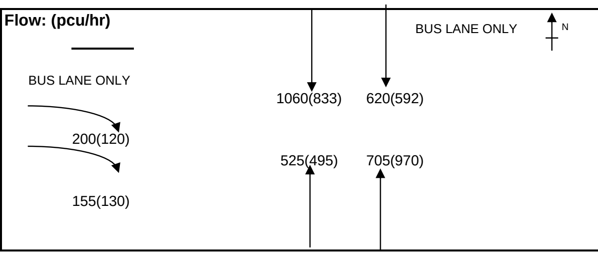
Description: 2037 Design Designed By: ____________ Checked By: ____________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road	↑	A	1	3.300						1945	1945	620	0.319	0.319	592	0.304	0.304
SB	↑	A	1	3.300						2085	2085	530	0.254		417	0.200	
	↑	A	1	3.300						2085	2085	530	0.254		416	0.200	
Nathan Road	↑	B	2	3.500						1570	1570	167	0.106		157	0.100	
NB	↑	B	2	3.500						1685	1685	179	0.106		169	0.100	
	↑	B	2	3.500						1685	1685	179	0.106		169	0.100	
	↑	A	1	3.400						195	195	31	0.159		43	0.221	
	↑	A	1	3.400						2095	2095	337	0.161		464	0.221	
	↑	A	1	3.400						2095	2095	337	0.161		463	0.221	
Lai Chi Kok Road	↱	B	2	3.300		25				1835	1835	200	0.109		120	0.065	
EB	↱	B	2	3.300		20				1940	1940	78	0.040		66	0.034	
	↱	B	2	3.300		15				1895	1895	77	0.041		64	0.034	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			65	+	10	=	75						
		Dp	2	MIN GREEN + FLASH =			47	+	10	=	57			*			*

AM Cp need -5 sec
PM Dp need -5 sec

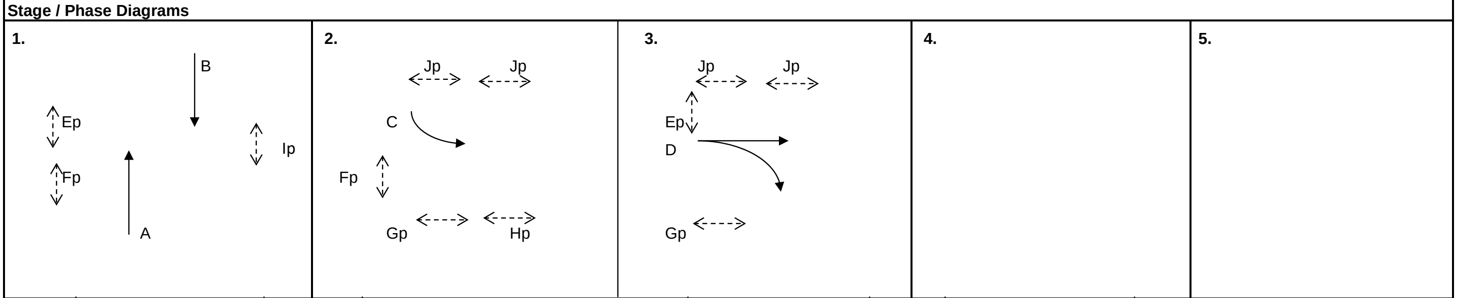
Notes:

Flow: (pcu/hr)



Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.428	0.319	y	0.405	0.304
L (sec)	20	71	L (sec)	20	71
C (sec)	130	130	C (sec)	130	130
y pract.	0.762	0.408	y pract.	0.762	0.408
R.C. (%)	78%	28%	R.C. (%)	88%	34%

Stage / Phase Diagrams



I/G= 5		I/G= 10	57	I/G=		I/G=		I/G=	
I/G= 5		I/G= 10	57	I/G=		I/G=		I/G=	

Date: JUN, 2022 **Junction:** J41 - Lai Chi Kok Road / Nathan Road J41

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

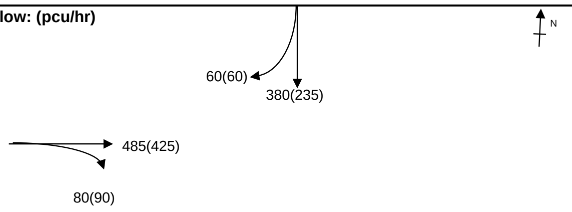
Junction: J42 - Bute Street / Shanghai Street — Design Year: 2037

Description: 2037 Design — Designed By: ________ — Checked By: ________

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Shanghai Street SB		A	1	3.300						1945	1945	120	0.062		75	0.039	
		A	1	3.300						2085	2085	130	0.062		80	0.038	
		A	1	3.300						2085	2085	130	0.062		80	0.038	
		A	1	3.300		5		100%	100%	800	800	60	0.075	0.075	60	0.075	0.075
Bute Street EB		B	2	3.200						1935	1935	234	0.121		205	0.106	
		B	2	3.200		10		0%	0%	2075	2075	251	0.121	0.121	220	0.106	0.106
		B	2	3.200		5				1275	1275	80	0.063		90	0.071	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	2,3	MIN GREEN + FLASH =			10	+	12	=	22						
		Ep	3	MIN GREEN + FLASH =			6	+	8	=	14						
		Fp	3	MIN GREEN + FLASH =			22	+	12	=	34			*			*

Notes:

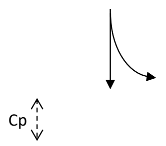
Flow: (pcu/hr)



AM			PM		
Group		A,B,Fp	Group		A,B,Fp
y		0.196	y		0.181
L (sec)		52	L (sec)		52
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.540
R.C. (%)		176%	R.C. (%)		198%

Stage / Phase Diagrams

1.



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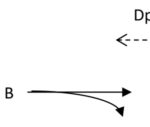

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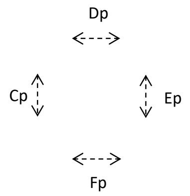


4.

5.

I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	

Date: MAY, 2022 — **Junction:** J42 — J42 - Bute Street / Shanghai Street

2047 DESIGN FLOWS

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

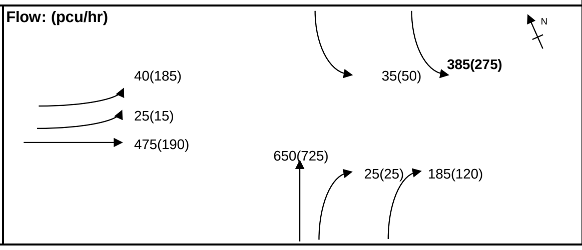
Junction: Boundry Street/Tung Chau Street/Nam Cheong Street   Design Year: 2047

Description: 2047 Design Flows   Designed By: HAP   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tung Chau Street - EB		A	1	3.200	10		0	100%		1685	1685	40	0.024		185	0.110	0.110
		A	1	3.200	15		0	100%		1885	1885	25	0.013		15	0.008	
		A	1	3.200			0			1935	1935	475	0.245	0.245	190	0.098	
Chui Yu Road- NB		B	2	3.500			0			1965	1965	314	0.160	0.160	350	0.178	
		B	2	3.500			0			2105	2105	336	0.160		375	0.178	0.178
Chui Yu Road- NB		B	2	4.000		15	0		100%	1960	1960	25	0.013		25	0.013	
Chui Yu Road- NB		B	2	4.000		10	0		100%	1750	1750	185	0.106		120	0.069	
Nam Cheong Street-SB		C	3	3.000	15		0	100%		1740	1740	186	0.107		133	0.076	
		C	3	3.000	15		0	100%		1870	1870	199	0.106		142	0.076	
Nam Cheong Street-SB		C	3	3.000	10		0			1665	1665	35	0.021		50	0.030	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			6	+	10	=	16						
		Ep	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Fp	3	MIN GREEN + FLASH =			14	+	9	=	23			*			*

Notes:

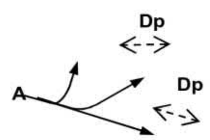
Flow: (pcu/hr)



Group		A,B,Fp	Group		A,B,Fp
y		0.405	y		0.288
L (sec)		37	L (sec)		40
C (sec)		96	C (sec)		96
y pract.		0.553	y pract.		0.525
R.C. (%)		36%	R.C. (%)		82%

Stage / Phase Diagrams

1.



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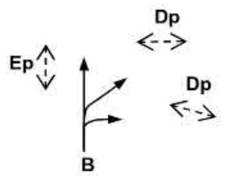

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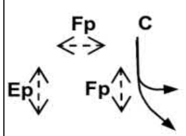


4.

5.

I/G= 2		I/G= 8		I/G= 9	20	I/G=		I/G=	
I/G= 2		I/G= 8		I/G= 9	23	I/G=		I/G=	

Date: MAR, 2022

Junction: J1 Boundry Street/Tung Chau Street/Nam Cheong Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Boundry St./Lai Chi Kok Rd./Wong Chuk St.

Design Year: 2047

Description: 2047 Design Flows

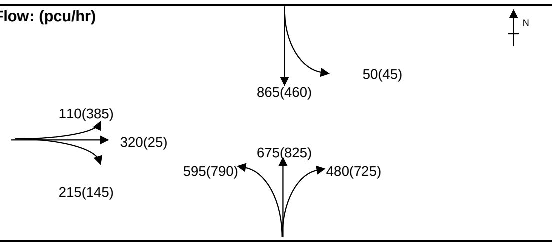
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road-SB		A	1	3.000	15					1740	1740	50	0.029		45	0.026	
		A	1	3.000						2055	2055	288	0.140		153	0.074	
		A	1	3.000						2055	2055	289	0.141		154	0.075	
		A	1	3.000						2055	2055	288	0.140		153	0.074	
Lai Chi Kok Road-NB		B	1,2	3.100	15			100%	100%	1750	1750	595	0.340		790	0.451	
		B	1,2	3.100						2065	2065	675	0.327		825	0.400	
		C	2	3.000		15		100%	100%	1870	1870	240	0.128	0.128	363	0.194	0.194
		C	2	3.000		15				1870	1870	240	0.128		362	0.194	
Boundary Street - EB		D	3	3.500	15			35%	100%	1900	1785	316	0.166		385	0.216	0.216
		D	3	3.500		15		65%	85%	1975	1940	329	0.167	0.167	170	0.088	
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			6	+	9	=	15			*			*
		Fp	1	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Hp	3	MIN GREEN + FLASH =			6	+	12	=	18						

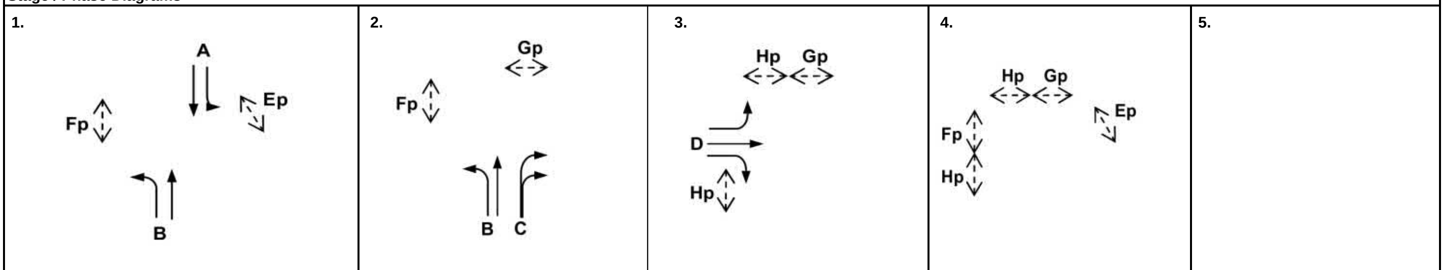
Notes:

Flow: (pcu/hr)



Group		C,D,Ep	Group		C,D,Ep
y		0.295	y		0.410
L (sec)		36	L (sec)		36
C (sec)		120	C (sec)		130
y pract.		0.630	y pract.		0.651
R.C. (%)		114%	R.C. (%)		59%

Stage / Phase Diagrams



I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	
I/G=	15	I/G= 2		I/G= 7		I/G= 14		I/G=	

Date: MAR, 2022

Junction: (J2) Boundry St./Lai Chi Kok Rd./Wong Chuk St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Boundry St./Nathan Rd./Cheung Sha Wan Rd

Design Year: 2047

Description: 2047 Design Flows

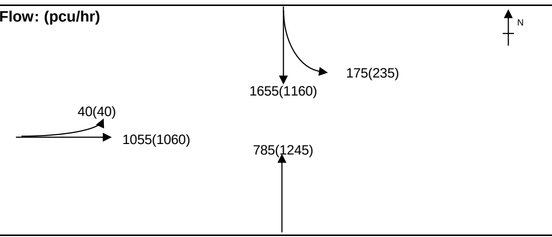
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cheung Sha Wan Road-SB		A	1	3.500	15			100%		1785	1785	175	0.098		235	0.132	
		A	1	3.300						2085	2085	552	0.265	0.265	387	0.186	0.186
		A	1	3.300						2085	2085	551	0.264		386	0.185	
		A	1	3.300						2085	2085	552	0.265		387	0.186	
Nathan Road-NB		B	1,3	3.500						1965	1965	250	0.127		396	0.202	
		B	1,3	3.500						2105	2105	267	0.127		425	0.202	
		B	1,3	3.500						2105	2105	268	0.127		424	0.201	
Boundary Street-EB		C	2	3.500	15			12%	12%	1940	1945	345	0.178	0.178	346	0.178	
		C	2	3.600						2115	2115	375	0.177		377	0.178	0.178
		C	2	3.600						2115	2115	375	0.177		377	0.178	
Pedestrian Crossing		Ep	1,3	MIN GREEN + FLASH =			13	+	13	=	26						
		Fp	2,3	MIN GREEN + FLASH =			14	+	13	=	27						
		Gp	2	MIN GREEN + FLASH =			31	+	10	=	41						
		Hp	3	MIN GREEN + FLASH =			19	+	13	=	32			*			*

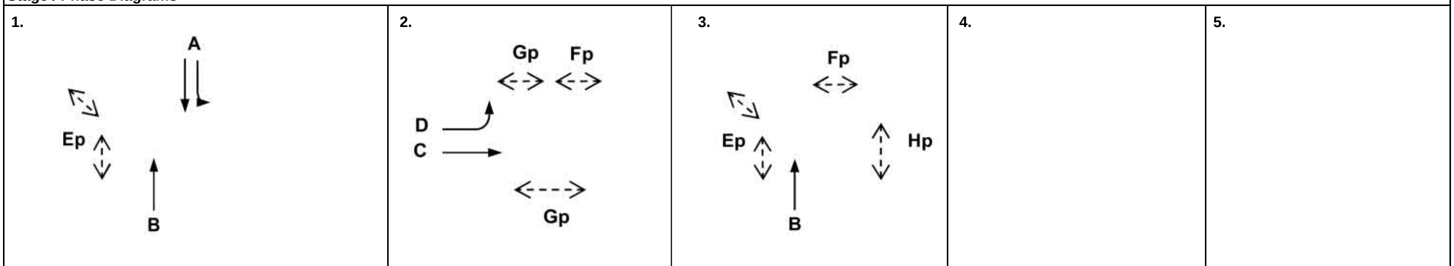
Notes:

Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.443	y		0.364
L (sec)		50	L (sec)		50
C (sec)		120	C (sec)		130
y pract.		0.525	y pract.		0.554
R.C. (%)		19%	R.C. (%)		52%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 11	32	I/G=		I/G=	

Date: MAR, 2022

Junction: J3 Boundry St./Nathan Rd./Cheung Sha Wan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

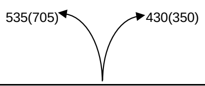
Junction: Boundry St./Embankment Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary Street-NB	↰	A	1	5.500	15			100%	100%	1970	1970	535	0.272	0.272	705	0.358	0.358
	↱	A	1	4.500		25		100%	100%	1950	1950	430	0.221		350	0.179	
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			10	+	10	=	20			*			*

Notes:

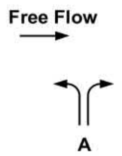
Flow: (pcu/hr)



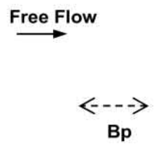
Group		A,Bp	Group		A,Bp
y		0.272	y		0.358
L (sec)		27	L (sec)		27
C (sec)		108	C (sec)		90
y pract.		0.675	y pract.		0.630
R.C. (%)		149%	R.C. (%)		76%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 3		I/G= 5	20	I/G=		I/G=		I/G=	
I/G= 3		I/G= 5	20	I/G=		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Boundry St./Embankment Rd. J4

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

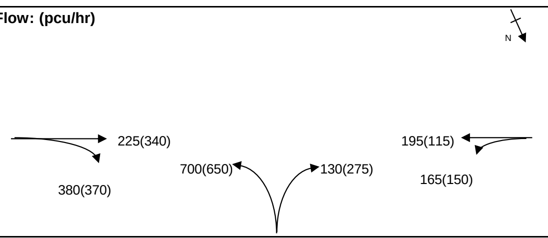
Junction: Sham Mong Rd./Chui Yu Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road-WB		A	1,2	3.500						1965	1965	109	0.055		164	0.083	
		A	1,2	3.500						2105	2105	116	0.055		176	0.084	
Sham Mong Road-WB		C	2	3.300		25		100%	100%	1965	1965	380	0.193	0.193	370	0.188	0.188
Sham Mong Road-EB		B	1	3.300	15			100%	100%	1770	1770	165	0.093	0.093	150	0.085	0.085
Sham Mong Road-EB		B	1	3.500						2105	2105	98	0.047		58	0.028	
		B	1	3.500						2105	2105	97	0.046		57	0.027	
Chui Yu Road - SB		D	4	3.500	15					1785	1785	338	0.189	0.189	314	0.176	0.176
		D	4	3.500	15					1915	1915	362	0.189		336	0.175	
Chui Yu Road - SB		D	4	3.500		25				1985	1985	130	0.065		275	0.139	
Pedestrian Crossing		Ep	3	MIN GREEN + FLASH =			32	+	11	=	43			*			*
		Fp	3	MIN GREEN + FLASH =			20	+	13	=	33						
		Gp	3	MIN GREEN + FLASH =			23	+	11	=	34						

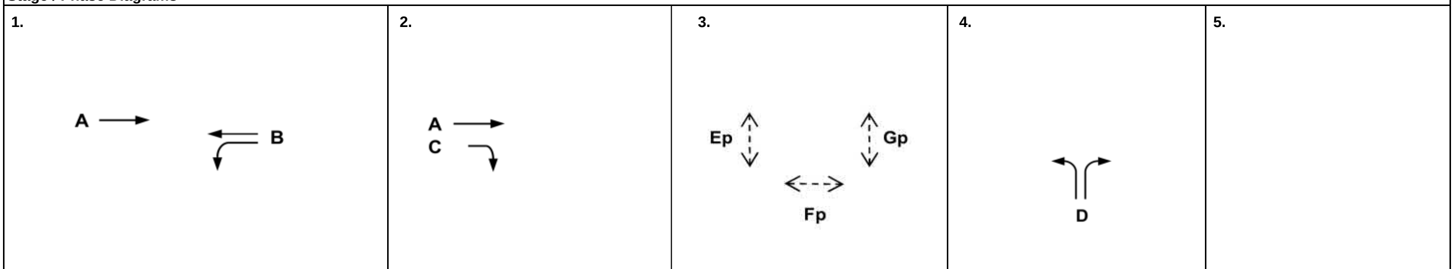
Notes:

Flow: (pcu/hr)



Group		B,C,Ep,D	Group		B,C,Ep,D
y		0.476	y		0.449
L (sec)		55	L (sec)		58
C (sec)		128	C (sec)		130
y pract.		0.513	y pract.		0.498
R.C. (%)		8%	R.C. (%)		11%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 5	40	I/G= 3		I/G=	
I/G= 5		I/G= 5		I/G= 5	43	I/G= 3		I/G=	

Date: MAR, 2022 **Junction:** Sham Mong Rd./Chui Yu Rd. J5

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

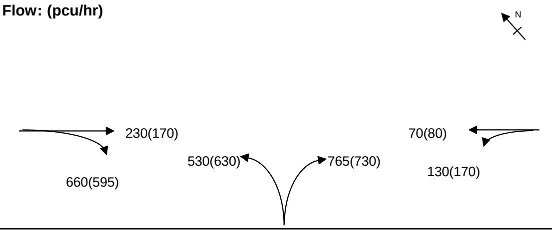
Junction: Sham Mong Rd./Hoi Fai Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road -EB		A	1	3.500		15		55%	61%	2040	2030	472	0.231	0.231	404	0.199	0.199
		A	1	3.300		10		100%	100%	1815	1815	418	0.230		361	0.199	
Hoi Fai Road-NB		B	1,2	4.000	20			100%	100%	1875	1875	530	0.283		630	0.336	
		C	2	3.700		15		100%	100%	1930	1930	383	0.198	0.198	365	0.189	0.189
		C	2	3.700		15		100%	100%	1930	1930	382	0.198		365	0.189	
Sham Mong Road-WB		D	2,3	3.700	15			100%	100%	1805	1805	130	0.072		170	0.094	
		E	3	3.600						2115	2115	35	0.017		40	0.019	
		E	3	3.600						2115	2115	35	0.017		40	0.019	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						
		Gp	1	MIN GREEN + FLASH =			44	+	7	=	51						
		Hp	3	MIN GREEN + FLASH =			22	+	10	=	32			*			*

Notes:

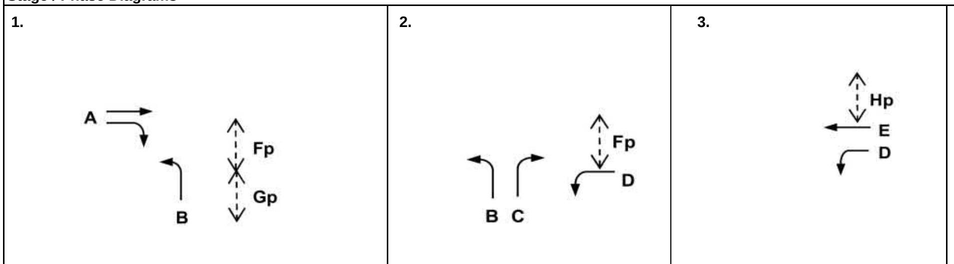
Flow: (pcu/hr)



Group		A,C,Hp	Group		A,C,Hp
y		0.430	y		0.388
L (sec)		49	L (sec)		53
C (sec)		128	C (sec)		130
y pract.		0.555	y pract.		0.533
R.C. (%)		29%	R.C. (%)		37%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 2		I/G= 9		I/G= 12	28	I/G=		I/G=	
I/G= 2		I/G= 9		I/G= 12	32	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Sham Mong Rd./Hoi Fai Rd. J6

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

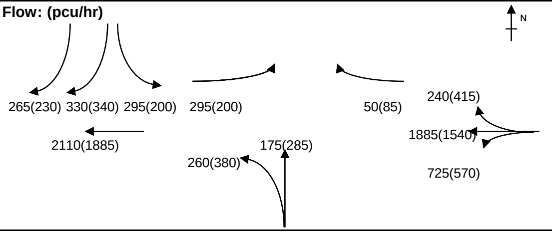
Junction: Prince Edward Rd. West/Sai Yee Street Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m)		Gradient (%)	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Prince Edward Road West - EB		A	1	5.500	10					1885	1885	270	0.143		180	0.095	
Prince Edward Road West - WB		A	1	4.000	10					1750	1750	633	0.362		566	0.323	0.323
		A	1	3.300	15			12%	1%	2060	2085	745	0.362		673	0.323	
		A	1	3.300						2085	2085	754	0.362		674	0.323	
		A	1	3.300		10		33%	68%	1985	1895	718	0.362	0.362	612	0.323	
Prince Edward Road West -WB		B	1,2	3.500						2175	2175	719	0.331		642	0.295	
		B	1,2	3.500						2105	2105	695	0.330		622	0.295	
		B	1,2	3.500						2105	2105	696	0.331		621	0.295	
Sai Yee Street - NB		C	2	3.300	10			100%	100%	1690	1690	125	0.074	0.074	183	0.108	
		C	2	3.300	10			100%	100%	1815	1815	135	0.074		197	0.109	
Sai Yee Street - NB		C	2	3.300						2085	2085	175	0.084		285	0.137	0.137
Prince Edward Road West -WB		C	2	3.300		10		100%	100%	1690	1690	50	0.030		85	0.050	
Fa Yuen Street - SB		D	3	3.500		10		100%	100%	1710	1710	265	0.155		230	0.135	
		D	3	3.500		15		100%	100%	1915	1915	330	0.172		340	0.178	0.178
		D	3	3.500	10			100%	100%	1710	1710	295	0.173	0.173	200	0.117	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			9	+	11	=	20						
		Fp	3	MIN GREEN + FLASH =			24	+	11	=	35						
		Gp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Hp	3	MIN GREEN + FLASH =			18	+	11	=	29						
		Ip	1,3	MIN GREEN + FLASH =			6	+	9	=	15						

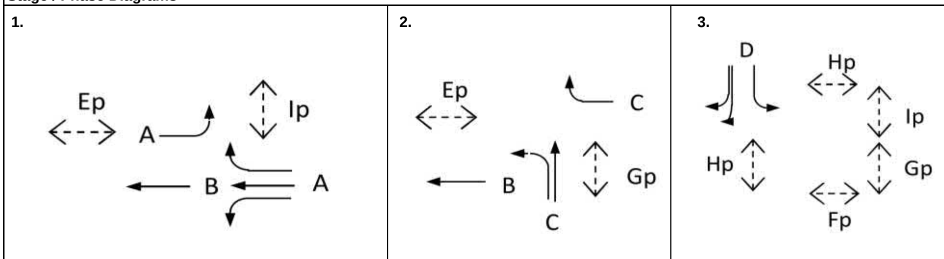
Notes:

Flow: (pcu/hr)



Group		A,C,D	Group		A,C,D
y		0.608	y		0.638
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		27%	R.C. (%)		22%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 10		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 10		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Prince Edward Rd. West/Sai Yee Street J7

TRAFFIC SIGNALS CALCULATION **Job No.:** CHK50648010 **MVA HONG KONG LIMITED**

Junction: Prince Edward Rd. West/Embankment Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

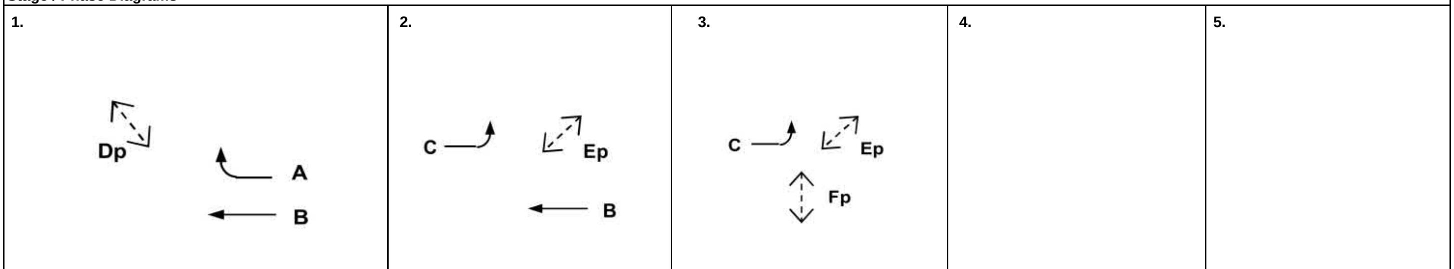
Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward Road West-WB		A	1	3.300		15		100%	100%	1770	1770	425	0.240		439	0.248	
		A	1	3.300		15		100%	100%	1895	1895	455	0.240		471	0.249	
Prince Edward Road West-WB		B	1,2	4.000						2015	2015	886	0.440	0.440	936	0.465	0.465
		B	1,2	4.000						2155	2155	948	0.440		1001	0.465	
		B	1,2	4.000						2155	2155	948	0.440		1001	0.465	
		B	1,2	4.000						2155	2155	948	0.440		1001	0.465	
Prince Edward Road West-EB		C	2,3	4.500	15			100%	100%	1875	1875	315	0.168		280	0.149	
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			73	+	6	=	79						
		Ep	2	MIN GREEN + FLASH =			5	+	9	=	14						
		Fp	3	MIN GREEN + FLASH =			21	+	14	=	35			*			*

Notes:

Flow: (pcu/hr)

Group		B,Fp	Group		B,Fp
y		0.440	y		0.465
L (sec)		43	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.602	y pract.		0.616
R.C. (%)		37%	R.C. (%)		33%

Stage / Phase Diagrams



I/G= 4		I/G=		I/G= 5	35	I/G=		I/G=	
I/G= 4		I/G=		I/G= 5	33	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Prince Edward Rd. West/Embankment Rd. J8

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

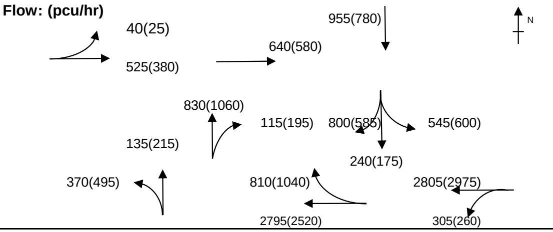
Junction: Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Cherry St - WB		A	1	4.900	30			44%	32%	2140	2155	781	0.365		814	0.378	
		A	1	3.800						2135	2135	776	0.363		807	0.378	
		A	1	3.800						2135	2135	776	0.363		807	0.378	
		A	1	3.800						2135	2135	777	0.364		807	0.378	
Cherry St - WB		B	1,2	3.400						2095	2095	932	0.445	0.445	840	0.401	0.401
		B	1,2	3.400						2095	2095	931	0.444		840	0.401	
		B	1,2	3.400						2095	2095	932	0.445		840	0.401	
Cherry St - WB		B	1,2	3.400		40		100%	100%	2020	2020	405	0.200		520	0.257	
		B	1,2	3.400		40		100%	100%	2020	2020	405	0.200		520	0.257	
Hoi Wang Rd - NB		C	1,2	4.300						2185	2185	415	0.190		530	0.243	
		C	1,2	4.300						2185	2185	415	0.190		530	0.243	
Hoi Wang Rd - NB		C	1,2	4.400		20		100%	100%	2040	2040	115	0.056		195	0.096	
Tai Kok Tsui Rd - SB		D	1,2	3.300						1945	1945	304	0.156		248	0.128	
		D	1,2	3.300						2085	2085	325	0.156		266	0.128	
		D	1,2	3.300						2085	2085	326	0.156		266	0.128	
Tai Kok Tsui Rd - SB		I	2,3	3.500	15			100%	100%	1880	1880	545	0.290		600	0.319	
		E	2,3	3.500						2105	2105	240	0.114		175	0.083	
		E	2,3	5.200		20		100%	100%	2115	2115	400	0.189		293	0.139	
		E	2,3	5.200		20		100%	100%	2115	2115	400	0.189		292	0.138	
Cherry St - EB		F	3	6.000		30		100%	100%	2245	2245	320	0.143		290	0.129	
		F	3	6.000		30		100%	100%	2245	2245	320	0.143		290	0.129	
Cherry St - EB		G	3	3.800	45			100%	100%	2065	2065	20	0.010		13	0.006	
		G	3	3.800	45			100%	100%	2065	2065	20	0.010		12	0.006	
Cherry St - EB		G	3	3.800						2135	2135	263	0.123		190	0.089	
		G	3	3.800						2135	2135	262	0.123		190	0.089	
Hoi Wang Rd - NB		H	3	3.800	75					2250	2250	370	0.164	0.164	495	0.220	0.220
		H	3	4.000						2155	2155	68	0.032		108	0.050	
		H	3	4.000						2155	2155	67	0.031		107	0.050	
Pedestrian Crossing		Jp	1,2	MIN GREEN + FLASH =			7	+	15	=	22						
		Kp	1	MIN GREEN + FLASH =			34	+	8	=	42						
		Lp	3	MIN GREEN + FLASH =			11	+	11	=	22						
		Mp	2,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Np	1	MIN GREEN + FLASH =			36	+	7	=	43						
		Op	2,3	MIN GREEN + FLASH =			7	+	13	=	20						

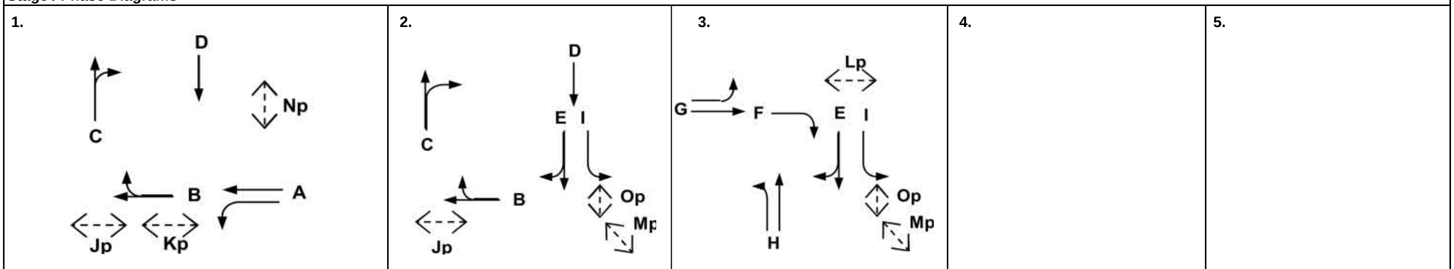
Notes:

Flow: (pcu/hr)



Group		B,H	Group		B,H
y		0.609	y		0.621
L (sec)		11	L (sec)		11
C (sec)		85	C (sec)		80
y pract.		0.784	y pract.		0.776
R.C. (%)		29%	R.C. (%)		25%

Stage / Phase Diagrams



I/G= 7		I/G=		I/G= 6		I/G=		I/G=	
I/G= 7		I/G=		I/G= 6		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Cherry St./Tai Kok Tsui Rd./Hoi Wang Rd. J9

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

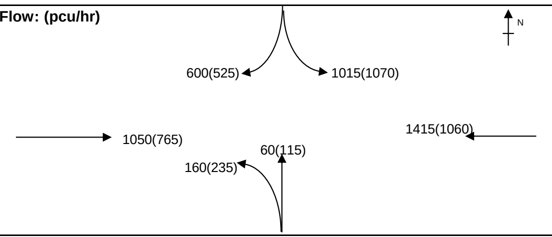
Junction: Argyle St/Sai Yee St. Design Year: 2047

Description: ~~2047 Design Flows~~ Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1	3.500						1965	1965	507	0.258		369	0.188	
		A	1	3.500						2105	2105	543	0.258		396	0.188	
Argyle Street-WB		B	1	3.200						2095	2095	475	0.227	0.227	356	0.170	0.170
		B	1	3.200						2075	2075	470	0.227		352	0.170	
		B	1	3.200						2075	2075	470	0.227		352	0.170	
Argyle Street-SB		C	2,3,4	3.500	10			100%	100%	1710	1710	490	0.287		517	0.302	
		C	2,3,4	3.500	10			100%	100%	1830	1830	525	0.287		553	0.302	
Argyle Street-SB		D	2	3.500		20		100%	100%	2110	2110	600	0.284	0.284	525	0.249	0.249
Sai Yee Street-NB		E	3	3.700	15			100%	100%	1805	1805	160	0.089	0.089	235	0.130	0.130
		E	3	3.700						2125	2125	60	0.028		115	0.054	
Pedestrian Crossing		Fp	1,2,4	MIN GREEN + FLASH =			8	+	8	=	16						
		Gp	4	MIN GREEN + FLASH =			19	+	12	=	31			*			*
		Hp	1	MIN GREEN + FLASH =			27	+	11	=	38						

Notes:

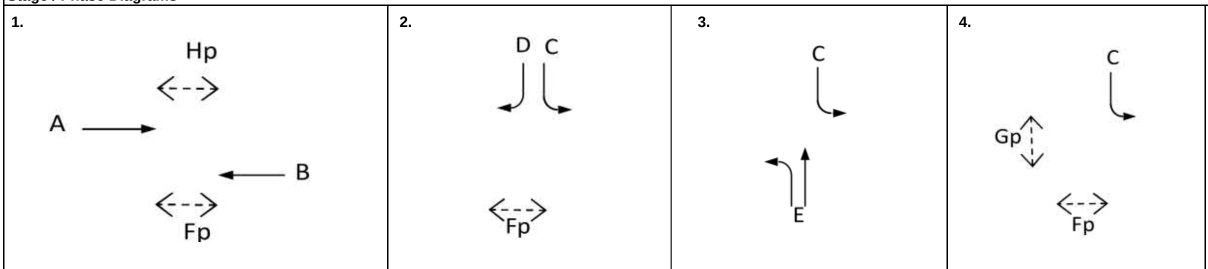
Flow: (pcu/hr)



Group		B,D,E,Gp	Group		B,D,E,Gp
y		0.600	y		0.549
L (sec)		54	L (sec)		54
C (sec)		130	C (sec)		130
y pract.		0.526	y pract.		0.526
R.C. (%)		-12%	R.C. (%)		-4%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 2		I/G= 6		I/G= 9		I/G= 9	31	I/G=	
I/G= 2		I/G= 6		I/G= 9		I/G= 9	31	I/G=	

Date: MAR, 2022 **Junction:** J10 Argyle St/Sai Yee St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

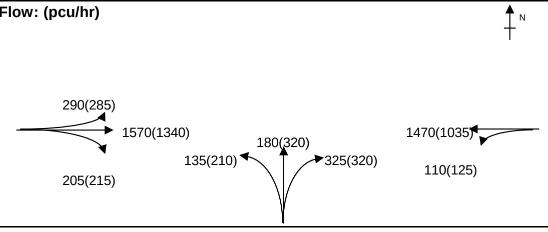
Junction: Argyle St/Yim Po Fong St/Luen Wan St Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1,2	3.100	10			100%	100%	1675	1675	290	0.173		285	0.170	
		B	1,2	3.000						2145	2145	802	0.374	0.374	684	0.319	
		B	1,2	3.000						2055	2055	768	0.374		656	0.319	0.319
Argyle Street-EB		D	2	3.000		15		100%	100%	1870	1870	205	0.110		215	0.115	
Argyle Street-WB		E	4	3.800	10			100%	100%	1735	1735	110	0.063		125	0.072	
		C	1	3.300						2085	2085	490	0.235		345	0.165	
		C	1	3.300						2085	2085	490	0.235		345	0.165	
		C	1	3.300						2085	2085	490	0.235		345	0.165	
Yim Po Fong St - NB		F	4	3.000	10			100%	100%	1665	1665	135	0.081		210	0.126	
		F	4	2.800		15		2%	8%	2030	2020	271	0.133		347	0.172	0.172
		F	4	3.000		12		100%	100%	1700	1700	234	0.138	0.138	293	0.172	
Pedestrian Crossing		Gp	1	MIN GREEN + FLASH =			43	+	9	=	52						
		Hp	3	MIN GREEN + FLASH =			26	+	8	=	34			*			*
		Jp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

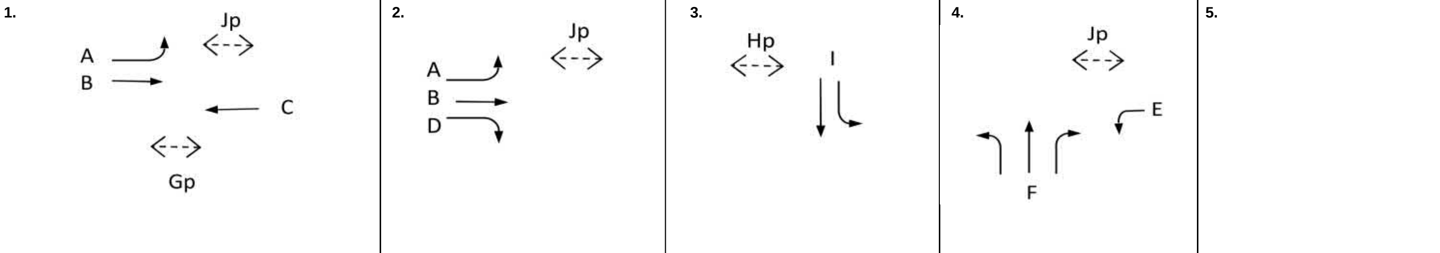
Notes:

Flow: (pcu/hr)



Group		B,Hp,F	Group		B,Hp,F
y		0.512	y		0.491
L (sec)		45	L (sec)		51
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.547
R.C. (%)		15%	R.C. (%)		11%

Stage / Phase Diagrams



I/G= 8		I/G=		I/G= 11	28	I/G=		I/G=	
I/G= 8		I/G=		I/G= 11	34	I/G=		I/G=	

Date: JUN, 2022 **Junction:** J11 Argyle St/Yim Po Fong St/Luen Wan St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

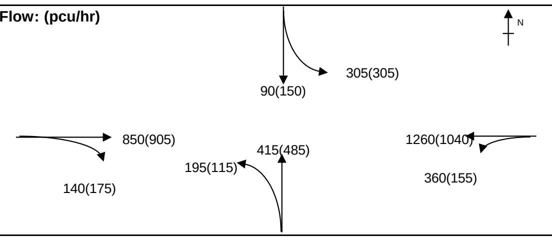
Junction: Waterloo Rd./Yim Po Fong St/Wylie Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Road-EB		A	1,2	3.000						1915	1915	410	0.214		437	0.228	
		A	1,2	3.000						2055	2055	440	0.214		468	0.228	
		I	2	3.000		15		100%	100%	1870	1870	140	0.075	0.075	175	0.094	0.094
Waterloo Road-WB		B	1	4.000	10			75%	42%	1810	1895	479	0.265		365	0.193	0.193
		B	1	4.000						2155	2155	571	0.265	0.265	415	0.193	
		B	1	4.000						2155	2155	570	0.265		415	0.193	
Yim Po Fong Street-SB		C	4	3.100	10					1675	1675	305	0.182		305	0.182	
		C	4	3.200						2075	2075	90	0.043		150	0.072	
Waterloo Road-NB		C	4	3.500	10					1710	1710	195	0.114		115	0.067	
		C	4	3.500						2105	2105	415	0.197	0.197	485	0.230	0.230
Pedestrian Crossing		Ep	1	MIN GREEN + FLASH =			9	+	10	=	19						
		Fp	2	MIN GREEN + FLASH =			5	+	14	=	19						
		Gp	3	MIN GREEN + FLASH =			7	+	12	=	19			*			*
		Hp	3	MIN GREEN + FLASH =			5	+	14	=	19						

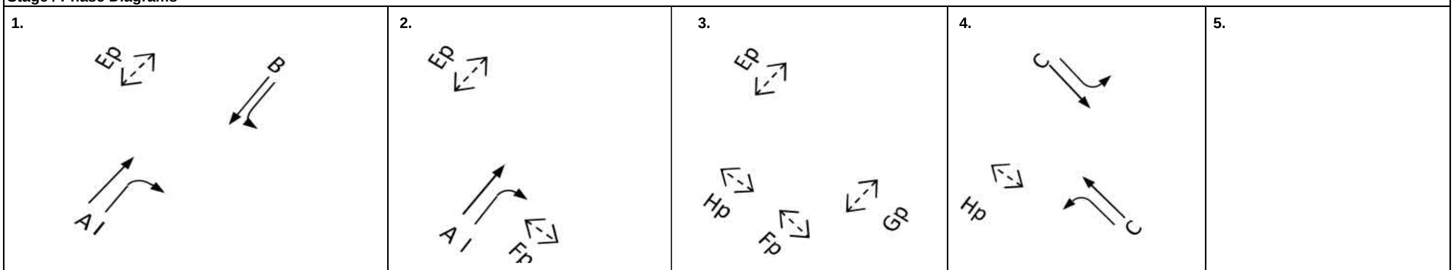
Notes:

Flow: (pcu/hr)



Group		B,I,Gp,C	Group		B,I,Gp,C
y		0.537	y		0.517
L (sec)		41	L (sec)		41
C (sec)		130	C (sec)		130
y pract.		0.616	y pract.		0.616
R.C. (%)		15%	R.C. (%)		19%

Stage / Phase Diagrams



I/G= 12		I/G=		I/G= 9	19	I/G= 4		I/G=
I/G= 12		I/G=		I/G= 9	19	I/G= 4		I/G=

Date: MAR, 2022 **Junction:** J12 Waterloo Rd./Yim Po Fong St/Wylie Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

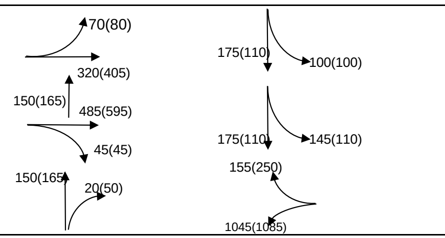
Junction: Hoi Wang Rd/Lai Cheung Rd Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Cheung Rd - EB		A	1	3.500						2105	2105	320	0.152		405	0.192	
		A	1	3.500	15					1915	1915	70	0.037		80	0.042	
Lai Cheung Rd - EB		B	1	3.500		20		7%	7%	2295	2295	530	0.231	0.231	640	0.279	0.279
Hoi Wang Rd - SB		F	4	3.500						2105	2105	88	0.042		55	0.026	
		F	4	3.500						2105	2105	87	0.041		55	0.026	
Hoi Wang Rd - SB		F	4	3.500	15			100%	100%	1915	1915	145	0.076	0.076	110	0.057	0.057
Hoi Wang Rd - SB		F	4	3.500						1965	1965	56	0.028		35	0.018	
		F	4	3.500						2105	2105	59	0.028		38	0.018	
		F	4	3.500						2105	2105	60	0.029		37	0.018	
Hoi Wang Rd - NB		C	2	3.500						2105	2105	50	0.024		55	0.026	
		C	2	3.500						2105	2105	50	0.024		55	0.026	
		C	2	3.500						2105	2105	50	0.024		55	0.026	
Hoi Wang Rd - NB		C	2	3.500						1965	1965	83	0.042		106	0.054	
		C	2	3.500		15		17%	30%	2070	2045	87	0.042		109	0.053	
Hoi Wang Rd - SB		F	4	3.500	25			100%	100%	1855	1855	100	0.054		100	0.054	
Lai Cheung Rd - WB		E	3	3.500		20		100%	100%	1960	1960	155	0.079		250	0.128	
		D	2,3	3.000	20					1780	1780	504	0.283		523	0.294	
		D	2,3	3.000	20					1910	1910	541	0.283	0.283	562	0.294	0.294
Pedestrian Crossing		Hp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Ip	1,2,4	MIN GREEN + FLASH =			5	+	5	=	10						
		Jp	1,4	MIN GREEN + FLASH =			5	+	11	=	16						
		Kp	2,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Lp	2,3,4	MIN GREEN + FLASH =			5	+	4	=	9						
		Mp	2,3,4	MIN GREEN + FLASH =			5	+	4	=	9						
		Np	2,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Op	3	MIN GREEN + FLASH =			13	+	9	=	22						

Notes:

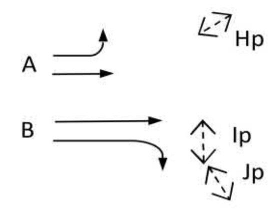
Flow: (pcu/hr)



Group		B,D,F	Group		B,D,F
y		0.590	y		0.631
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		37%	R.C. (%)		28%

Stage / Phase Diagrams

1.



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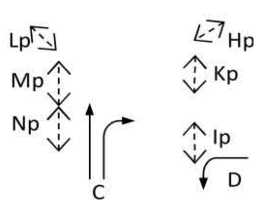

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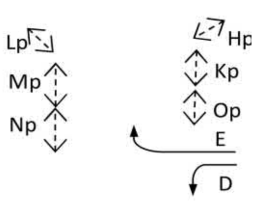

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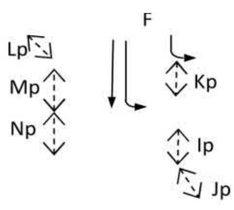


5.

I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=
I/G= 6		I/G= 5		I/G=		I/G= 5		I/G=

Date: MAR, 2022 **Junction:** Hoi Wang Rd/Lai Cheung Rd J13

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

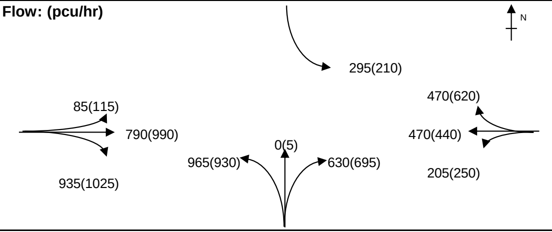
Junction: Lai Cheung Rd./Ferry St./Waterloo Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Waterloo Rd-WB		A	1	3.100	15			65%	78%	1805	1785	315	0.175	0.175	320	0.179	0.179
		A	1	3.100						2065	2065	360	0.174		370	0.179	
		A	1	3.300		30				1985	1985	235	0.118		310	0.156	
		A	1	3.300		30				1985	1985	235	0.118		310	0.156	
Ferry St- SB		B	1	3.500	25					1855	1855	143	0.077		101	0.054	
		B	1	3.500	25					1985	1985	152	0.077		109	0.055	
Lai Cheung Rd-EB		C	3	3.300	5					1495	1495	85	0.057		115	0.077	
		C	3	3.300	10			0%	0%	2085	2085	395	0.189		495	0.237	0.237
		C	3	3.300						2085	2085	395	0.189		495	0.237	
Lai Cheung Rd-EB		D	3	3.700		35				2305	2305	496	0.215		544	0.236	
		D	3	3.700		35				2040	2040	439	0.215		481	0.236	
Ferry St-NB		E	2,3	3.400	35					2080	2080	965	0.464	0.464	930	0.447	
Ferry St-NB		F	2	4.700		35		100%	99%	2135	2135	329	0.154		365	0.171	
		F	2	3.000		30		100%	100%	1955	1955	301	0.154		335	0.171	
Waterloo Rd-WB		G	1	3.600						2115	2115	235	0.111		220	0.104	
		G	1	3.600						2115	2115	235	0.111		220	0.104	
Pedestrian Crossing		Hp	1	MIN GREEN + FLASH =			31	+	8	=	39						
		Ip	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Jp	2	MIN GREEN + FLASH =			15	+	19	=	34						*
		Kp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						

Notes:

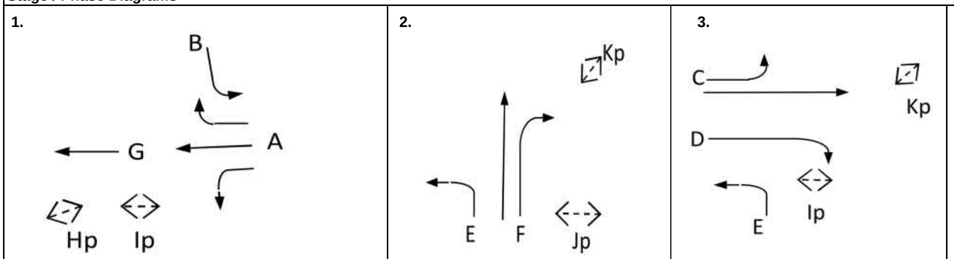
Flow: (pcu/hr)



Group		A,E	Group		A,Jp,C
y		0.638	y		0.417
L (sec)		10	L (sec)		48
C (sec)		130	C (sec)		130
y pract.		0.831	y pract.		0.568
R.C. (%)		30%	R.C. (%)		36%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 5		I/G= 7		I/G=		I/G=		I/G=	
I/G= 5		I/G= 7	34	I/G= 4		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J14 Lai Cheung Rd./Ferry St./Waterloo Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

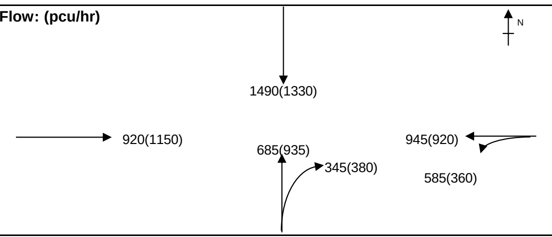
Junction: Waterloo Rd/Nathan Rd Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road-SB		A	1	3.400						1465	1465	386	0.263		345	0.235	
		A	1	3.400						2095	2095	552	0.263		492	0.235	
		A	1	3.400						2095	2095	552	0.263		493	0.235	
Nathan Road-NB		B	2	3.300						1945	1945	343	0.176	0.176	451	0.232	
		B	2	3.300		15		6%	0%	2070	2085	365	0.176		484	0.232	0.232
		B	2	3.500		10		100%	100%	1830	1830	322	0.176		380	0.208	
Waterloo Road-EB		C	3	3.400						1955	1955	293	0.150		366	0.187	
		C	3	3.400						2095	2095	313	0.149		392	0.187	
		C	3	3.400						2095	2095	314	0.150		392	0.187	
Waterloo Road-WB		D	3	3.200	5					1490	1490	417	0.280		340	0.228	0.228
		D	3	3.200	5			32%	4%	1895	2050	532	0.281	0.281	467	0.228	
		D	3	3.200				100%	100%	2075	2075	581	0.280		473	0.228	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			10	+	9	=	19						
		Fp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Gp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						
		Hp	1	MIN GREEN + FLASH =			33	+	9	=	42			*			*

Notes:

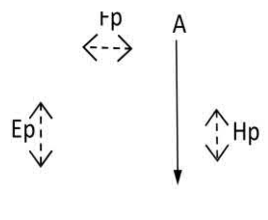
Flow: (pcu/hr)



Group		B,D,Hp	Group		B,D,Hp
y		0.457	y		0.460
L (sec)		57	L (sec)		57
C (sec)		130	C (sec)		130
y pract.		0.505	y pract.		0.505
R.C. (%)		11%	R.C. (%)		10%

Stage / Phase Diagrams

1.



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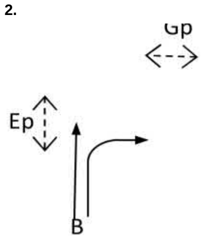

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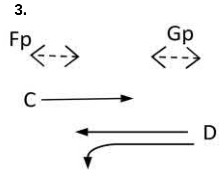

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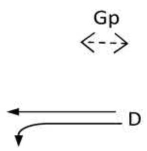


5.

I/G= 9	42	I/G= 2		I/G= 6		I/G=		I/G=	
I/G= 9	42	I/G= 2		I/G= 6		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Waterloo Rd/Nathan Rd J15

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

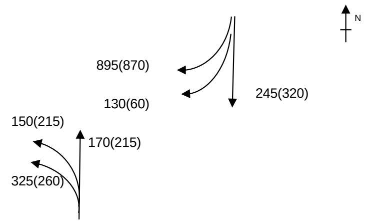
Junction: Hoi Wang Road/Ngo Cheung Rd. Design Year: 2047

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hoi Wang Road - SB	↱	A	1	3.500		20				1960	1960	895	0.457	0.457	870	0.444	0.444
	↱	A	1	3.500		25				1985	1985	130	0.065		60	0.030	
	↑	A	1	3.500						1965	1965	245	0.125		320	0.163	
Hoi Wang Road - NB	↰	B	2	3.500	25					1855	1855	325	0.175		260	0.140	
	↰	B	2	3.500	28					2000	2000	150	0.075		215	0.108	
	↑	B	2	3.500						2105	2105	170	0.081		215	0.102	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			84	+	7	=	91						
		Dp	1	MIN GREEN + FLASH =			86	+	5	=	91						
		Ep	2	MIN GREEN + FLASH =			23	+	10	=	33			*			*
		Fp	2	MIN GREEN + FLASH =			30	+	5	=	35						

Notes:

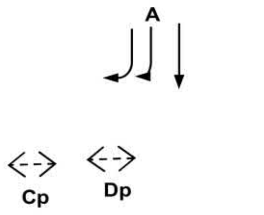
Flow: (pcu/hr)



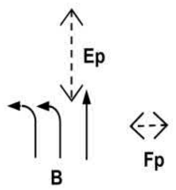
Group	A,Ep		Group	A,Ep
y	0.457		y	0.444
L (sec)	39		L (sec)	39
C (sec)	130		C (sec)	130
y pract.	0.630		y pract.	0.630
R.C. (%)	38%		R.C. (%)	42%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 7		I/G= 10	23	I/G=		I/G=		I/G=	
I/G= 7		I/G= 10	23	I/G=		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J16 Hoi Wang Road/Ngo Cheung Rd.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

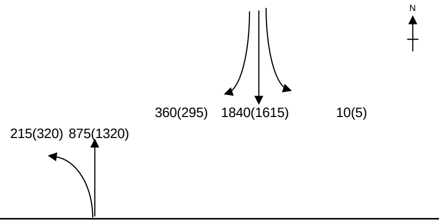
Junction: Nathan Rd / Public Square St Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - NB		A	1	3.400	10			66%	65%	1780	1780	325	0.183		489	0.275	
		A	1	3.400						2095	2095	383	0.183		576	0.275	0.275
		A	1	3.400						2095	2095	382	0.182		575	0.274	
Nathan Rd - SB		B	1,2	3.200	5			1%	1%	1930	1930	863	0.447		756	0.392	
		B	1,2	3.400						2205	2205	987	0.448	0.448	864	0.392	
		G	2	3.000		15				1870	1870	360	0.193		295	0.158	0.158
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Dp	3	MIN GREEN + FLASH =			29	+	14	=	43			*			*
		Ep	3	MIN GREEN + FLASH =			32	+	8	=	40						

Notes:

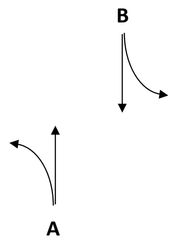
Flow: (pcu/hr)



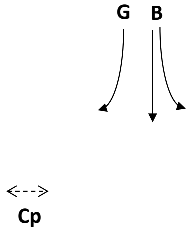
Group	A,G,Dp	B,Dp	Group	B,Dp	A,G,Dp
y	0.375	0.448	y	0.392	0.433
L (sec)	57	52	L (sec)	50	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.540	y pract.	0.554	0.519
R.C. (%)	35%	21%	R.C. (%)	41%	20%

Stage / Phase Diagrams

1.



2.



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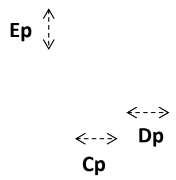


4.

5.

I/G= 3		I/G=		I/G= 7	43	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 7	41	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Public Square St J17

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

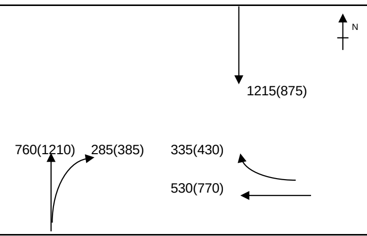
Junction: Nathan Rd / Gascoigne Rd / Kansu St Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road - SB		A	1	3.100						1925	1925	386	0.201		278	0.144	
		A	1	3.100						2065	2065	415	0.201	0.201	299	0.145	
		A	1	3.100						2065	2065	414	0.200		298	0.144	
Nathan Rd - NB		B	2	3.300						1945	1945	341	0.175	0.175	519	0.267	0.267
Nathan Rd - NB		B	2	3.300						2085	2085	365	0.175		556	0.267	
		B	2	3.400		15		84%	74%	1935	1950	339	0.175		520	0.267	
Gascoigne Rd - WB		C	3	3.500						1965	1965	256	0.130		372	0.189	
		C	3	3.500						2105	2105	274	0.130		398	0.189	
Gascoigne Rd - WB		C	3	3.500		20				2190	2190	335	0.153		430	0.196	0.196
Pedestrian Crossing		Dp	1	MIN GREEN + FLASH =			20	+	12	=	32						*
		Ep	1,2	MIN GREEN + FLASH =			5	+	10	=	15						
		Fp	3	MIN GREEN + FLASH =			29	+	9	=	38			*			

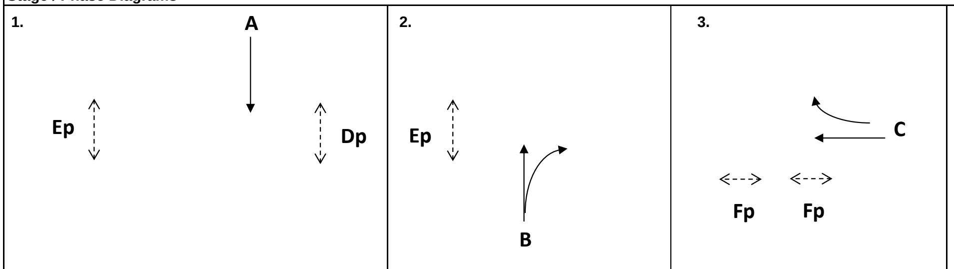
Notes:

Flow: (pcu/hr)



Group	Dp,B,C	A,B,Fp	Group	A,B,Fp	Dp,B,C
y	0.328	0.376	y	0.412	0.463
L (sec)	45	49	L (sec)	49	45
C (sec)	120	120	C (sec)	120	120
y pract.	0.563	0.533	y pract.	0.533	0.563
R.C. (%)	71%	42%	R.C. (%)	29%	21%

Stage / Phase Diagrams



I/G= 3		I/G= 5		I/G= 5	38	I/G=		I/G=	
I/G= 5	32	I/G= 3		I/G= 7		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Gascoigne Rd / Kansu St J18

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

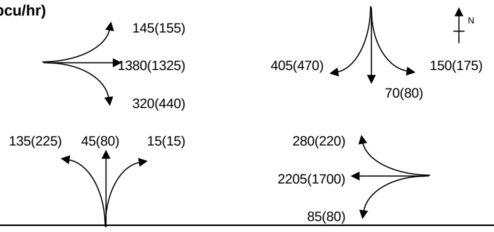
Junction: Jorden Rd / Wui Man Rd / Hoi Wang Rd Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hoi Wang Rd - NB		C	1,4	3.500	15					1785	1785	135	0.076		225	0.126	
		H	1	3.500						2105	2105	30	0.014		48	0.023	
		H	1	3.500		25		50%	32%	2045	2065	30	0.015		47	0.023	
Hoi Wang Rd - SB		G	2,3	3.500	15					1785	1785	150	0.084		175	0.098	
		B	3	3.500						2105	2105	70	0.033		80	0.038	
		B	3	3.500		25				1985	1985	135	0.068	0.068	157	0.079	0.079
		B	3	3.500		25				1985	1985	135	0.068		156	0.079	
		B	3	3.500		25				1985	1985	135	0.068		157	0.079	
Jordan Road - EB		A	4	3.500	15					1785	1785	101	0.057		135	0.076	
		A	4	3.500	15			8%	4%	2090	2095	553	0.265		557	0.266	0.266
		A	4	3.500						2105	2105	557	0.265		559	0.266	
		A	4	3.500		25		42%	58%	2055	2035	544	0.265	0.265	541	0.266	
		A	4	3.500		25				1985	1985	90	0.045		128	0.064	
Jorden Rd - WB		D	2	3.500	15			16%	19%	1935	1930	537	0.278		416	0.216	
		D	2	3.500						4210	4210	1169	0.278	0.278	909	0.216	0.216
		D	2	3.500		25		0%	0%	2105	2105	584	0.277		455	0.216	
		D	2	3.500		25				1985	1985	280	0.141		220	0.111	
Pedestrian Crossing		Fp	1,3,4	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			13	+	14	=	27						

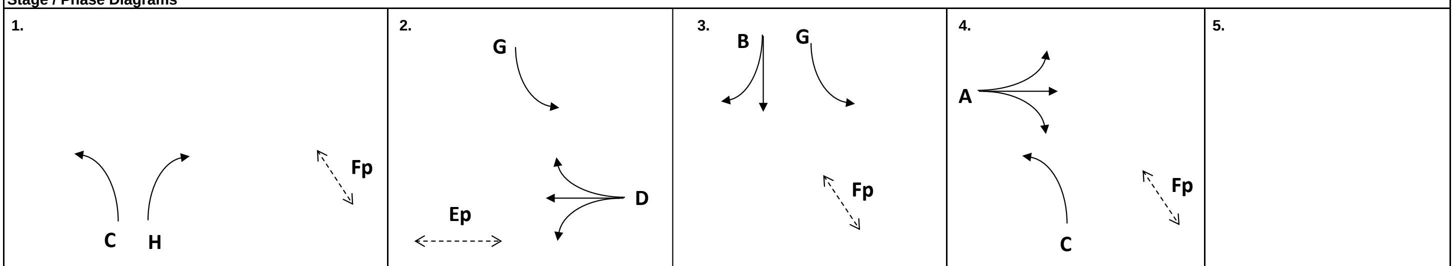
Notes:

Flow: (pcu/hr)



Group		H,D,B,A	Group		H,D,B,A
y		0.610	y		0.561
L (sec)		24	L (sec)		24
C (sec)		130	C (sec)		130
y pract.		0.734	y pract.		0.734
R.C. (%)		20%	R.C. (%)		31%

Stage / Phase Diagrams



I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	
I/G= 5	5	I/G= 6		I/G= 6		I/G= 5		I/G=	

Date: JUN, 2022 **Junction:** J19 Jorden Rd / Wui Man Rd / Hoi Wang Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

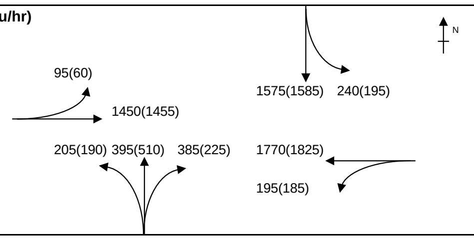
Junction: Jorden Rd/ Ferry St Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - WB		A	3	3.500	15			32%	30%	1905	1910	612	0.321		627	0.328	
		A	3	3.500						2105	2105	677	0.322	0.322	692	0.329	0.329
		A	3	3.500						2105	2105	676	0.321		691	0.328	
Jorden Rd - EB		B	3	3.300	15					1770	1770	95	0.054		60	0.034	
		B	3	3.500						2105	2105	483	0.229		485	0.230	
		B	3	3.500						2105	2105	484	0.230		485	0.230	
		B	3	3.500						2105	2105	483	0.229		485	0.230	
Canton Rd - NB		C	1,2	3.500	15			68%	54%	2120	2150	301	0.142		354	0.165	
		C	1,2	3.500						2105	2105	299	0.142		346	0.164	
Canton Rd - NB		D	2	3.500		20				1960	1960	193	0.098	0.098	113	0.058	0.058
		D	2	3.500		20				1960	1960	192	0.098		112	0.057	
Ferry St - SB		E	1	3.500	15					1785	1785	240	0.134		195	0.109	
		E	3	3.500						2105	2105	525	0.249	0.249	528	0.251	
		E	3	3.500						2105	2105	525	0.249		529	0.251	0.251
		E	3	3.500						2105	2105	525	0.249		528	0.251	
Pedestrian Crossing																	

Notes:

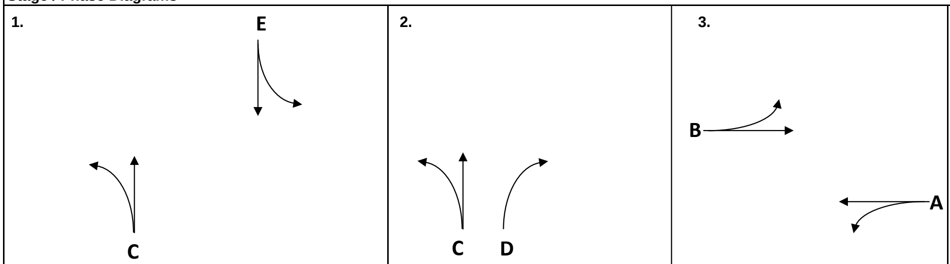
Flow: (pcu/hr)



Group		E,D,A	Group		E,D,A
y		0.669	y		0.638
L (sec)		13	L (sec)		13
C (sec)		130	C (sec)		130
y pract.		0.810	y pract.		0.810
R.C. (%)		21%	R.C. (%)		27%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 5		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd/ Ferry St J20

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

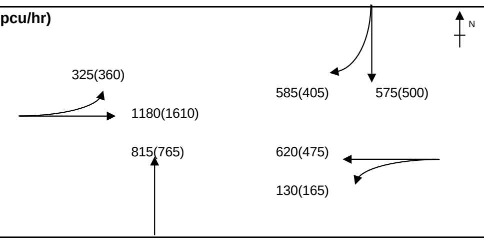
Junction: Jorden Rd / Nathan Rd Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.600	10					1715	1715	325	0.190		360	0.210	
		A	1	3.600						2115	2115	590	0.279	0.279	805	0.381	0.381
		A	1	3.600						2115	2115	590	0.279		805	0.381	
Jorden Rd - WB		A	1	3.600	5			60%	95%	1675	1540	217	0.130		174	0.113	
		A	1	3.000						2055	2055	267	0.130		233	0.113	
		A	1	3.000						2055	2055	266	0.129		233	0.113	
Nathan Rd - NB		B	2	3.300						1945	1945	393	0.202		369	0.190	
		B	2	3.300						2085	2085	422	0.202	0.202	396	0.190	0.190
Nathan Rd - SB		C	3	3.500						1965	1965	378	0.192		294	0.150	
		C	3	3.500		35		50%	34%	2060	2075	396	0.192		311	0.150	
		C	3	3.500		30				2005	2005	386	0.193		300	0.150	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			5	+	9	=	14						
		Ep	2	MIN GREEN + FLASH =			19	+	10	=	29						
		Fp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Gp	3	MIN GREEN + FLASH =			25	+	8	=	33			*			*
		Hp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						

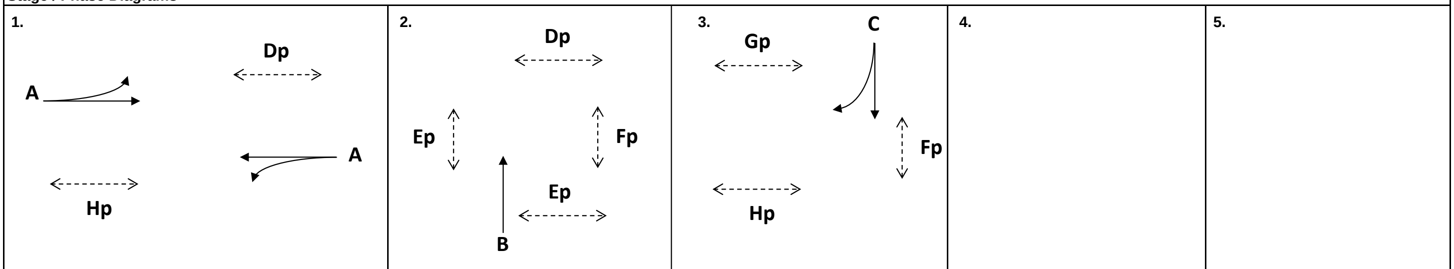
Notes:

Flow: (pcu/hr)



Group		A,B,Gp	Group		A,B,Gp
y		0.481	y		0.571
L (sec)		52	L (sec)		46
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.582
R.C. (%)		12%	R.C. (%)		2%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 12	33	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 12	27	I/G=		I/G=	

Date: MAR, 2022 **Junction:** Jorden Rd / Nathan Rd J21

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Jorden Rd / Gascoigne Rd

Design Year: 2047

Description: 2047 Design Flows

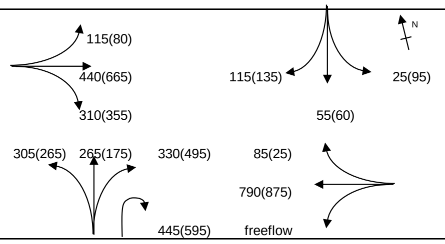
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Gascoigne Rd - EB		A	1	6.100	15					2025	2025	115	0.057		80	0.040	
		A	1	4.500						2205	2205	220	0.100		333	0.151	
		A	1	4.500						2205	2205	220	0.100		332	0.151	
		A	1	4.500						2205	2205	310	0.141		355	0.161	
Gascoigne Rd - WB		B1	1,2	3.100						1925	1925	381	0.198		422	0.219	
		B1	1,2	3.100						2065	2065	409	0.198		453	0.219	
		B2	2	3.000		10				1785	1785	85	0.048	0.048	25	0.014	
Jorden Rd - NB		C	3	3.300	20			54%	60%	1870	1860	570	0.305	0.305	440	0.237	
Jorden Rd - NB		C	3	3.300		20				1940	1940	330	0.170		495	0.255	
		C	3	3.400		15				1905	1905	445	0.234		595	0.312	
Queen Elizabeth Hospital Rd - SB		D	4	6.000	20	25		59% / 13%	47% / 33%	2105	2100	195	0.093	0.093	290	0.138	0.138
Pedestrian Crossing		Ep	2,3,4	MIN GREEN + FLASH =			6	+	12	=	18						
		Fp	3	MIN GREEN + FLASH =			51	+	7	=	58						*
		Gp	1,2,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1	MIN GREEN + FLASH =			21	+	11	=	32			*			*
		Ip	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

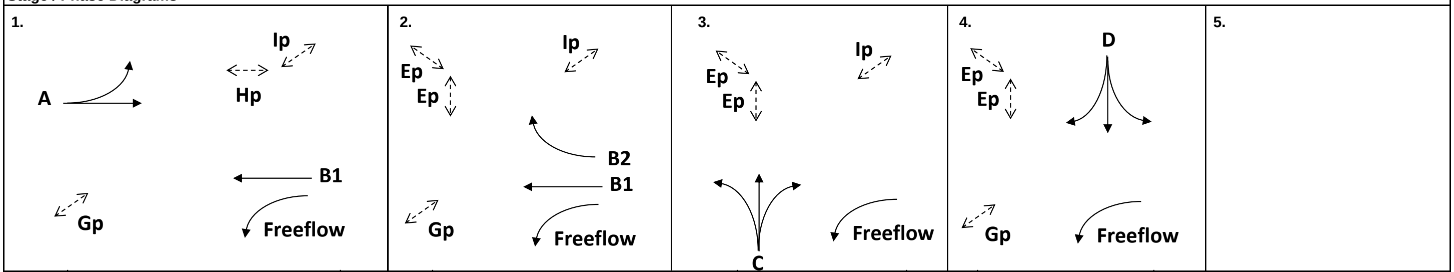
Notes:

Flow: (pcu/hr)



Group	Hp,B2,C,D	Hp,B2,Fp,D	Group	Hp,B2,C,D	Hp,B2,Fp,D
y	0.445	0.140	y	0.450	0.138
L (sec)	57	109	L (sec)	60	112
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.145	y pract.	0.485	0.125
R.C. (%)	14%	4%	R.C. (%)	8%	-10%

Stage / Phase Diagrams



I/G= 5	32	I/G= 2		I/G= 8	58	I/G= 6		I/G=	
I/G= 5	32	I/G= 2	5	I/G= 9	58	I/G= 2		I/G=	

Date: MAR, 2022

Junction: Jorden Rd / Gascoigne Rd J22

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Boundary St / Tai Hang Tung Rd

Design Year: 2047

Description: 2047 Design Flows

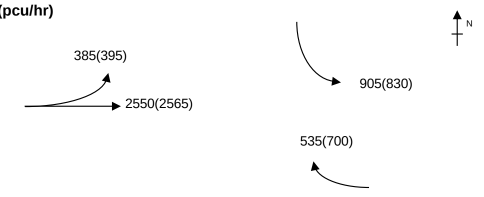
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Boundary St - WB		A	1	3.300		20				1810	1810	258	0.143		338	0.187	0.187
		A	1	3.300		20				1940	1940	277	0.143	0.143	362	0.187	
Tai Hang Tung Rd - SB		B	1,2	3.300	15					1770	1770	288	0.163		264	0.149	
		B	1,2	3.300	15					1895	1895	309	0.163		283	0.149	
		B	1,2	3.300	15					1895	1895	308	0.163		283	0.149	
Boundary St - EB		D	3	3.800	10					1735	1735	385	0.222		395	0.228	
Boundary St - EB		C	3	3.300						2085	2085	638	0.306	0.306	641	0.308	0.308
		C	3	3.300						2085	2085	638	0.306		641	0.308	
		C	3	3.300						2085	2085	638	0.306		641	0.308	
		C	3	3.300						2085	2085	638	0.306		641	0.308	
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			17	+	10	=	27			*			*
		Fp	3	MIN GREEN + FLASH =			33	+	8	=	41						
		Gp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						

Notes:

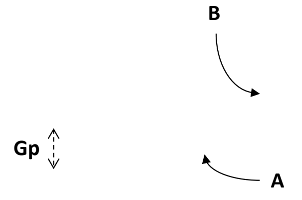
Flow: (pcu/hr)



Group	A,Ep,Fp	A,Ep,C	Group	A,Ep,C	A,Ep,Fp
y	0.143	0.449	y	0.494	0.187
L (sec)	80	43	L (sec)	46	101
C (sec)	120	120	C (sec)	130	130
y pract.	0.300	0.578	y pract.	0.582	0.201
R.C. (%)	110%	29%	R.C. (%)	18%	8%

Stage / Phase Diagrams

1.



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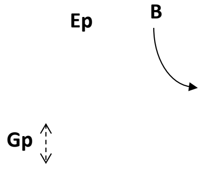

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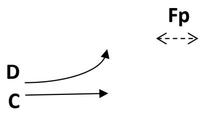


4.

5.

I/G= 5		I/G= 11	27	I/G= 2		I/G=		I/G=	
I/G= 3		I/G= 11	30	I/G= 2	56	I/G=		I/G=	

Date: JUN, 2022

Junction: J23

Boundary St / Tai Hang Tung Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

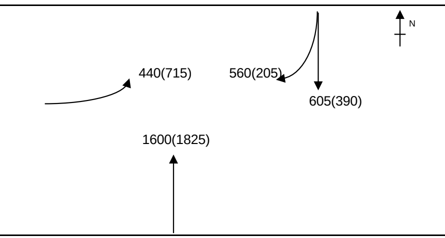
Junction: Lai Chi Kok Rd / Tong Mi Rd Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Rd - SB		A	1	3.000						1915	1915	374	0.195		191	0.100	
		A	1	3.000		70		42%	2%	2035	2055	398	0.196		204	0.099	
		A	1	3.000		65				2010	2010	393	0.196		200	0.100	
Tong Mi Rd - EB		A	1	3.500	15					1320	1320	138	0.105		224	0.170	
		A	1	3.500	15					1445	1445	151	0.104		246	0.170	
		A	1	3.500	15					1445	1445	151	0.104		245	0.170	
Lai Chi Kok Rd - NB		B	2	3.300						1430	1430	372	0.260	0.260	425	0.297	0.297
		B	2	3.300						1570	1570	409	0.260		466	0.297	
		B	2	3.300						1575	1575	410	0.260		468	0.297	
		B	2	3.250						1570	1570	409	0.260		466	0.297	
Pedestrian Crossing		Cp	1,3	MIN GREEN + FLASH =			6	+	11	=	17			*			*
		Dp	2,3	MIN GREEN + FLASH =			6	+	9	=	15						
		Ep	2,3	MIN GREEN + FLASH =			6	+	13	=	19						

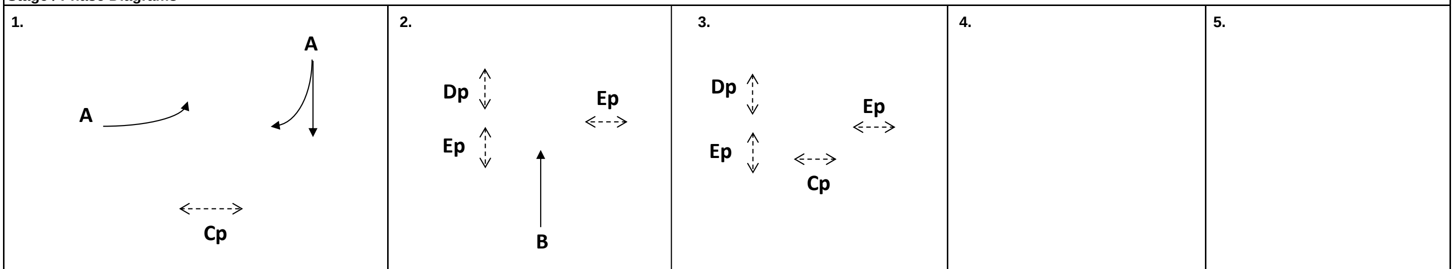
Notes:

Flow: (pcu/hr)



Group		Cp,B	Group		Cp,B
y		0.260	y		0.297
L (sec)		25	L (sec)		25
C (sec)		120	C (sec)		130
y pract.		0.713	y pract.		0.727
R.C. (%)		174%	R.C. (%)		145%

Stage / Phase Diagrams



I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	
I/G=	17	I/G= 4		I/G= 5		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Lai Chi Kok Rd / Tong Mi Rd J24

TRAFFIC SIGNALS CALCULATION **Job No.:** CHK50648010 **MVA HONG KONG LIMITED**

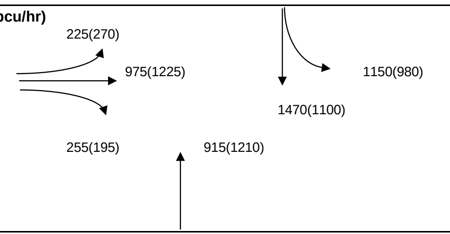
Junction: Nathan Rd / Mong Kok Rd Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.400	10			68%	70%	1775	1770	333	0.188		383	0.216	
		A	1	3.300						2085	2085	391	0.188	0.188	452	0.217	
		A	1	3.300						2085	2085	392	0.188		453	0.217	0.217
		A	1	3.300		15		75%	49%	1810	1855	339	0.187		402	0.217	
Nathan Rd - SB		B	2	3.200	5					1490	1490	687	0.461	0.461	548	0.368	
		B	2	3.300	10			52%	62%	1935	1910	893	0.461		702	0.368	0.368
		B	2	3.000						2255	2255	1040	0.461		830	0.368	
Nathan Rd - NB		C	2	3.600						1975	1975	442	0.224		584	0.296	
		C	2	3.600						2115	2115	473	0.224		626	0.296	
Pedestrian Crossing																	

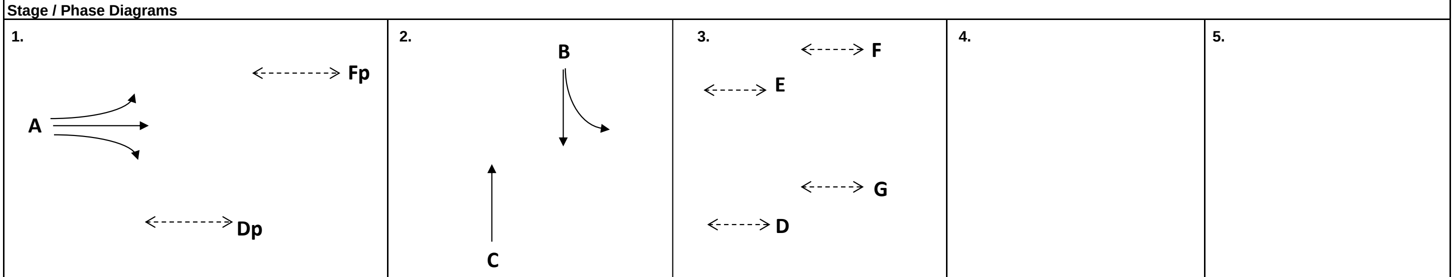
Notes:

Flow: (pcu/hr)



Group		A,B	Group		A,B
y		0.649	y		0.585
L (sec)		12	L (sec)		15
C (sec)		130	C (sec)		130
y pract.		0.817	y pract.		0.796
R.C. (%)		26%	R.C. (%)		36%

Stage / Phase Diagrams



I/G= 7		I/G= 7		I/G=		I/G=		I/G=	
I/G= 7		I/G= 7		I/G=		I/G=		I/G=	

Date: JUN, 2022 **Junction:** J25 Nathan Rd / Mong Kok Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

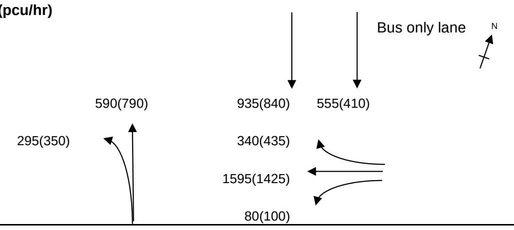
Junction: Nathan Rd / Argyle St Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle St - WB		E	2	3.000	5					1475	1475	80	0.054		100	0.068	
		D	1,2	3.200						2075	2075	794	0.383	0.383	709	0.342	
		D	1,2	3.400		10		0%	0%	2095	2095	801	0.382		716	0.342	0.342
		D	1,2	3.300		5				1495	1495	340	0.227		435	0.291	
Nathan Rd - SB		A	3,4	3.300						2085	2085	468	0.224		420	0.201	
		A	3,4	3.300						2085	2085	467	0.224		420	0.201	
Nathan Rd - SB (Bus only lane)		A	3,4	3.300						1945	1945	555	0.285		410	0.211	
Nathan Rd - NB		C	4	3.500	5					1510	1510	295	0.195	0.195	350	0.232	0.232
Nathan Rd - NB		B	3,4	3.200						2075	2075	295	0.142		395	0.190	
		B	3,4	3.200						2075	2075	295	0.142		395	0.190	
Pedestrian Crossing		Fp	3	MIN GREEN + FLASH =			11	+	15	=	26			*			*
		Gp	3,4	MIN GREEN + FLASH =			6	+	16	=	22						
		Hp	1	MIN GREEN + FLASH =			26	+	12	=	38						

Notes:

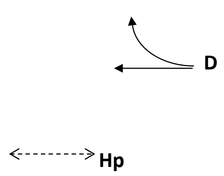
Flow: (pcu/hr)



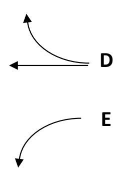
Group		D,Fp,C	Group		D,Fp,C
y		0.578	y		0.574
L (sec)		42	L (sec)		42
C (sec)		130	C (sec)		130
y pract.		0.609	y pract.		0.609
R.C. (%)		5%	R.C. (%)		6%

Stage / Phase Diagrams

1.



2.



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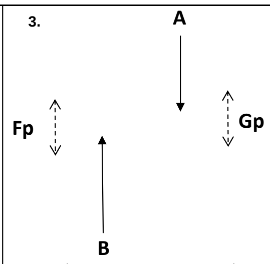
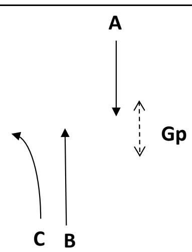


4.



5.

I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	
I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Argyle St J26

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

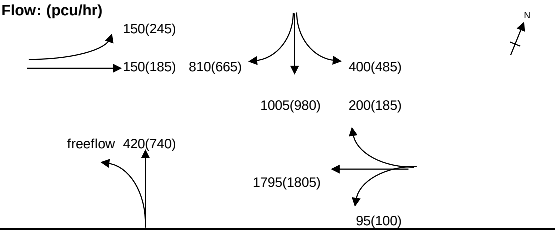
Junction: Argyle St / Tong Mi Rd   Design Year: 2047

Description: 2047 Design Flows   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	140	0.067	0.067	247	0.118	0.118
		A	1	3.300						2085	2085	140	0.067		246	0.118	
		A	1	3.300						2085	2085	140	0.067		247	0.118	
Tong Mi Rd - SB		B	1,2	3.300	10			62%	72%	1780	1755	647	0.363		669	0.381	
Tong Mi Rd - SB		B	1,2	3.300						2085	2085	758	0.364		796	0.382	
Tong Mi Rd - SB		E	2	3.600		15				1925	1925	810	0.421	0.421	665	0.345	0.345
Argyle St - EB		C	3	3.300	10					1690	1690	150	0.089		245	0.145	
Argyle St - EB		C	3	3.400						2095	2095	150	0.072		185	0.088	
Argyle St - WB		G	3,4	4.500	50			15%	15%	2170	2170	641	0.295	0.295	646	0.298	0.298
Argyle St - WB		D	3,4	3.600						2115	2115	625	0.296		630	0.298	
		D	3,4	3.600						2115	2115	624	0.295		629	0.297	
Argyle St - WB		F	4	3.300		10				1815	1815	200	0.110		185	0.102	
Pedestrian Crossing																	

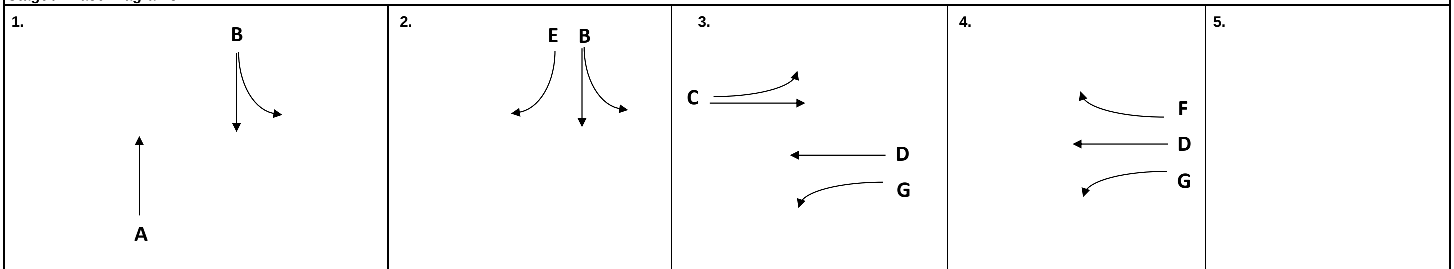
Notes:

Flow: (pcu/hr)



Group		A,E,G	Group		A,E,G
y		0.783	y		0.762
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		-1%	R.C. (%)		2%

Stage / Phase Diagrams



I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	
I/G= 7		I/G= 5		I/G= 9		I/G=		I/G=	

Date: MAR, 2022   **Junction:** Argyle St / Tong Mi Rd   J27

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

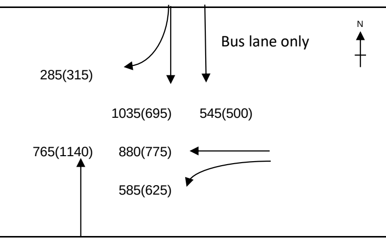
Junction: Nathan Rd / Prince Edward Rd West Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)		A	1,2	3.200						1935	1935	545	0.282		500	0.258	
Nathan Rd - SB		A	1,2	3.200						2075	2075	518	0.250		348	0.168	
		A	1,2	3.200						2075	2075	517	0.249		347	0.167	
Nathan Rd - SB		B	1	3.100		15				1875	1875	285	0.152	0.152	315	0.168	0.168
Nathan Rd - NB		C	2	3.350						1950	1950	369	0.189		550	0.282	
		C	2	3.350						2090	2090	396	0.189	0.189	590	0.282	0.282
Prince Edward Rd West - WB		D	3	3.000	10					1665	1665	317	0.190	0.190	305	0.183	0.183
Prince Edward Rd West - WB		D	3	3.000	15			73%	93%	1915	1880	365	0.191		344	0.183	
		D	3	3.000						2055	2055	391	0.190		375	0.182	
		D	3	3.000						2055	2055	392	0.191		376	0.183	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			13	+	14	=	27						
		Fp	2	MIN GREEN + FLASH =			17	+	10	=	27						
		Gp	3	MIN GREEN + FLASH =			42	+	13	=	55						

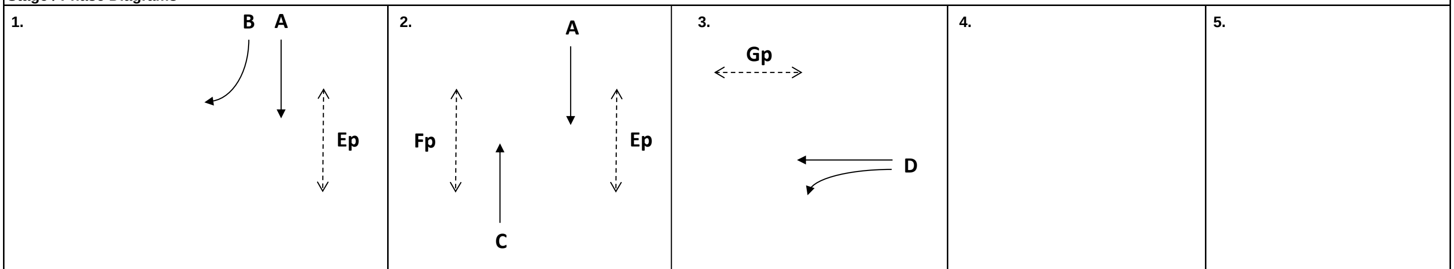
Notes:

Flow: (pcu/hr)



Group		B,C,D	Group		B,C,D
y		0.532	y		0.633
L (sec)		21	L (sec)		21
C (sec)		130	C (sec)		130
y pract.		0.755	y pract.		0.755
R.C. (%)		42%	R.C. (%)		19%

Stage / Phase Diagrams



I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	
I/G= 6		I/G= 7		I/G= 11		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J28 Nathan Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

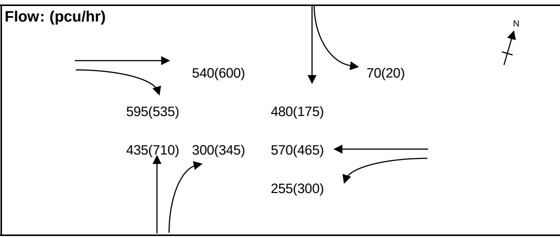
Junction: Tong Mi Rd / Prince Edward Rd West Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - SB		A	1	3.800	10			27%	22%	1920	1935	260	0.135		93	0.048	0.048
Tong Mi Rd - SB		A	1	3.800						2135	2135	290	0.136	0.136	102	0.048	
Tong Mi Rd - NB		B	2	3.100						1925	1925	180	0.094		257	0.134	
Tong Mi Rd - NB		B	2	3.100						2065	2065	193	0.093		275	0.133	
		B	2	3.300		20		66%	34%	1985	2035	185	0.093		271	0.133	
		B	2	3.250		15				1890	1890	177	0.094		252	0.133	
Prince Edward Rd West - WB		C	3	3.200	10					1685	1685	236	0.140		221	0.131	
Prince Edward Rd West - WB		C	3	3.400	15			7%	30%	2080	2035	292	0.140		267	0.131	0.131
		C	3	3.600						2115	2115	297	0.140	0.140	277	0.131	
Prince Edward Rd West - EB		D	4	3.400						2115	2115	271	0.128		301	0.142	
		D	4	3.400						2095	2095	269	0.128		299	0.143	
Prince Edward Rd West - EB		D	4	3.800		15				1940	1940	595	0.307	0.307	535	0.276	0.276
Pedestrian Crossing		Ep	1,2,4	MIN GREEN + FLASH =			9	+	9	=	18						
		Fp	2	MIN GREEN + FLASH =			17	+	8	=	25			*			*
		Gp	1,3,4	MIN GREEN + FLASH =			11	+	11	=	22						
		Hp	1	MIN GREEN + FLASH =			14	+	13	=	27						
		Ip	3,4	MIN GREEN + FLASH =			11	+	10	=	21						
		Jp	3	MIN GREEN + FLASH =			15	+	9	=	24						

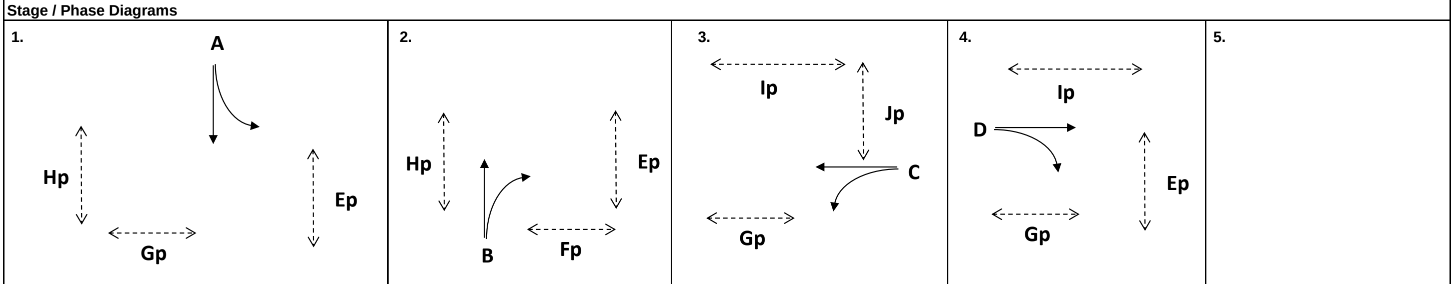
Notes:

Flow: (pcu/hr)



Group		A,Fp,C,D	Group		A,Fp,C,D
y		0.583	y		0.455
L (sec)		52	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.519
R.C. (%)		-7%	R.C. (%)		14%

Stage / Phase Diagrams



I/G= 7	5	I/G= 11	25	I/G= 2		I/G= 5		I/G=	
I/G= 7	5	I/G= 11	28	I/G= 2		I/G= 5		I/G=	

Date: MAR, 2022 **Junction:** J29 Tong Mi Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

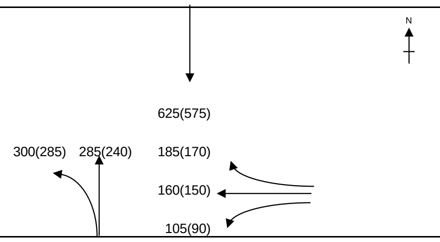
Junction: Tai Kok Tsui Rd / Ivy St — Design Year: 2047

Description: ~~2047 Design Flows~~ — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tai Kok Tsui Rd - SB		A	1	4.500						2065	2065	625	0.303	0.303	575	0.278	0.278
Tai Kok Tsui Rd - NB		A	1	3.200	10			90%	100%	1705	1685	216	0.127		195	0.116	
Tai Kok Tsui Rd - NB		A	1	3.300						2085	2085	264	0.127		240	0.115	
Ivy St - WB		B	3	4.600	10	15		23% / 41%	22% / 41%	1930	1930	450	0.233	0.233	410	0.212	0.212
Ivy St - WB																	
Ivy St - WB																	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			22	+	20	=	42			*			*

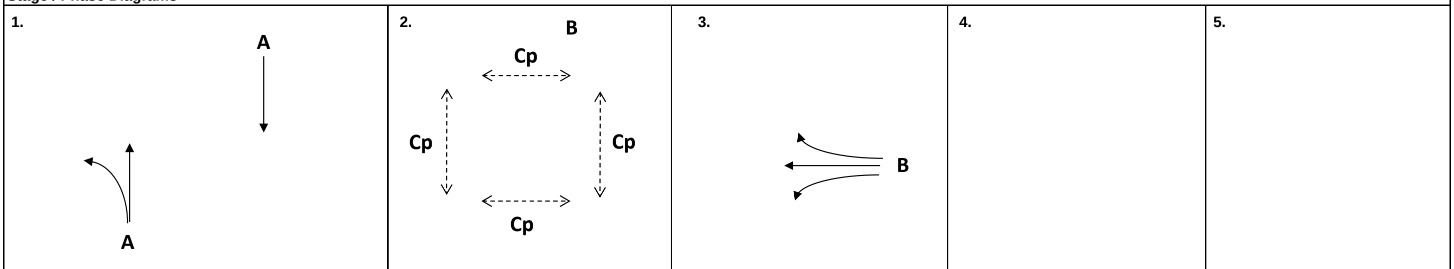
Notes:

Flow: (pcu/hr)



Group		A,Cp,B	Group		A,Cp,B
y		0.536	y		0.491
L (sec)		59	L (sec)		59
C (sec)		136	C (sec)		136
y pract.		0.510	y pract.		0.510
R.C. (%)		-5%	R.C. (%)		4%

Stage / Phase Diagrams



I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	
I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	

Date: MAR, 2022 — **Junction:** Tai Kok Tsui Rd / Ivy St — J30

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

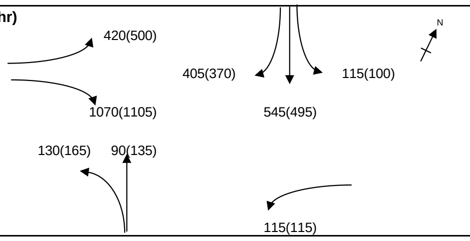
Junction: Sai Yee St / Mong Kok Rd Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Mong Kok Rd - EB		A	1	3.100	10	15		92% / 8%	100% / 0%	1680	1675	456	0.271	0.271	500	0.299	0.299
		A	1	3.400		15				1905	1905	517	0.271		553	0.290	
		A	1	3.400		15				1905	1905	517	0.271		552	0.290	
Sai Yee St - SB		B	2	3.650	10			21%	21%	1920	1920	535	0.279		485	0.253	
Sai Yee St - SB		B	2	3.650		10		76%	77%	1900	1900	530	0.279	0.279	480	0.253	0.253
Sai Yee St - SB																	
Mong Kok Rd - WB		H	3	3.500	10					1710	1710	56	0.033		56	0.033	
		H	3	3.500	10					1830	1830	59	0.032		59	0.032	
Sai Yee St - NB		C	4	3.400	10			100%	100%	1700	1700	130	0.076	0.076	165	0.097	0.097
Sai Yee St - NB		C	4	3.400						2095	2095	90	0.043		135	0.064	
Pedestrian Crossing		Dp	2,3,4	MIN GREEN + FLASH =			7	+	12	=	19						
		Ep	1,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Fp	2,3	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	5	=	10						
		Ip	1,3,4	MIN GREEN + FLASH =			5	+	8	=	13						
		Jp	1,2,4	MIN GREEN + FLASH =			5	+	10	=	15						

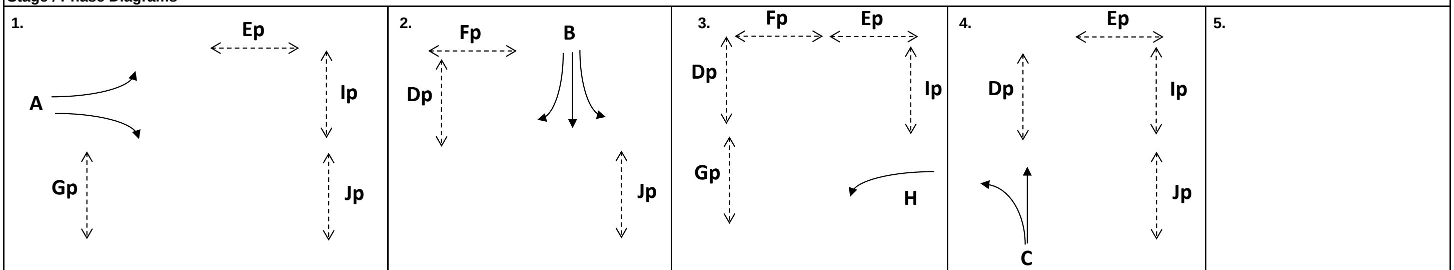
Notes:

Flow: (pcu/hr)



Group		A,B,H,C	Group		A,B,H,C
y		0.627	y		0.648
L (sec)		22	L (sec)		22
C (sec)		130	C (sec)		130
y pract.		0.748	y pract.		0.748
R.C. (%)		19%	R.C. (%)		15%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 5	5	I/G= 5		I/G=	
I/G= 5		I/G= 5		I/G= 5	5	I/G= 5		I/G=	

Date: MAR, 2022 **Junction:** Sai Yee St / Mong Kok Rd J31

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

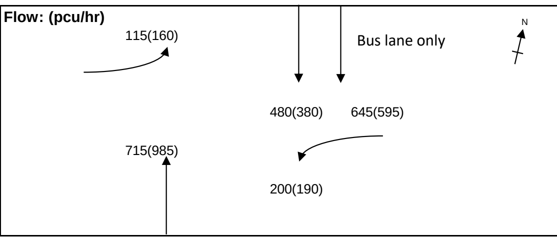
Junction: Nathan Rd / Dundas St Design Year: 2047

Description: 2047 Design Flows Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Rd - SB (Bus only lane)	↑	A	1,3	3.250						1940	1940	645	0.332	0.332	595	0.307	0.307
Nathan Rd - SB	↑	A	1,3	3.400						2095	2095	240	0.115		190	0.091	
	↑	A	1,3	3.400						2095	2095	240	0.115		190	0.091	
Nathan Rd - NB	↑	B	1	3.300						1945	1945	227	0.117		313	0.161	
	↑	B	1	3.300						2085	2085	244	0.117		336	0.161	
	↑	B	1	3.300						2085	2085	244	0.117		336	0.161	
Dundas St - WB	↰	C	2	4.600	10					1805	1805	200	0.111		190	0.105	
Dundas St - EB	↰	D	3	3.500	10					1710	1710	115	0.067	0.067	160	0.094	0.094
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			24	+	11	=	35			*			*
		Fp	1,3	MIN GREEN + FLASH =			6	+	7	=	13						
		Gp	1,2	MIN GREEN + FLASH =			7	+	7	=	14						

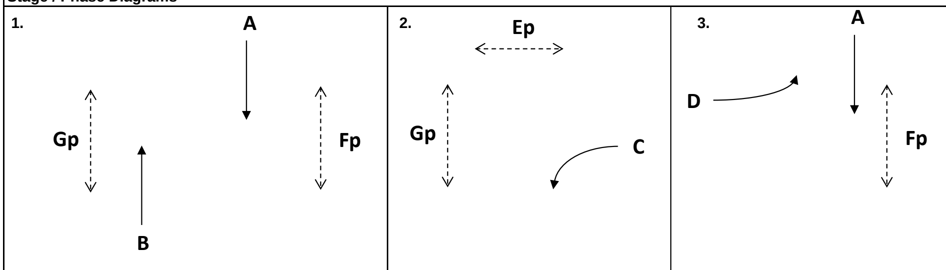
Notes:

Flow: (pcu/hr)



Group		A,Ep,D	Group		A,Ep,D
y		0.400	y		0.400
L (sec)		45	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.519
R.C. (%)		47%	R.C. (%)		30%

Stage / Phase Diagrams



I/G= 3		I/G= 5	35	I/G= 4		I/G=		I/G=	
I/G= 3		I/G= 5	45	I/G= 4		I/G=		I/G=	

Date: MAR, 2022 **Junction:** Nathan Rd / Dundas St J32

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

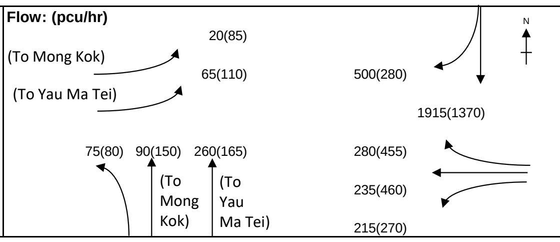
Junction: Yau Cheung Rd / Ferry St / Kansu St   Design Year: 2047

Description: ~~2047 Design Flows~~   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu St - WB		A	1	3.300	15			95%	72%	1775	1815	226	0.127		373	0.206	0.206
Kansu St - WB		A	1	3.300		50		15%	16%	2075	2075	265	0.128		426	0.205	
Kansu St - WB		A	1	3.300		45				1880	1880	239	0.127	0.127	386	0.205	
Ferry St - NB		B	2	3.500	30			96%	73%	1875	1895	78	0.042		109	0.058	
Ferry St - NB (To Mong Kok)		B	2	3.500						2105	2105	87	0.041		121	0.057	
Ferry St - NB (To Yau Ma Tei)		B	2	3.650						2120	2120	260	0.123		165	0.078	
Ferry St - SB		B	2	3.500						1965	1965	609	0.310	0.310	436	0.222	
		B	2	3.500						2105	2105	653	0.310		467	0.222	
		B	2	3.500						2105	2105	653	0.310		467	0.222	
Ferry St - SB		D	3	3.650		45				2050	2050	250	0.122	0.122	140	0.068	
		D	3	3.650		45				2050	2050	250	0.122		140	0.068	
Yan Cheung Rd - EB (To Mong Kok)		E	3	3.500	50					1910	1910	10	0.005		41	0.021	
		E	3	3.500	50					2045	2045	10	0.005		44	0.022	
Yan Cheung Rd - EB (To Yau Ma Tei)		D	3	4.000	60					2100	2100	65	0.031		110	0.052	
Pedestrian Crossing		Fp	1,2	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	1,3	MIN GREEN + FLASH =			5	+	10	=	15						
		Hp	2	MIN GREEN + FLASH =			38	+	14	=	52						*
		Ip	2,3	MIN GREEN + FLASH =			5	+	13	=	18						
		Jp	3	MIN GREEN + FLASH =			9	+	12	=	21						*

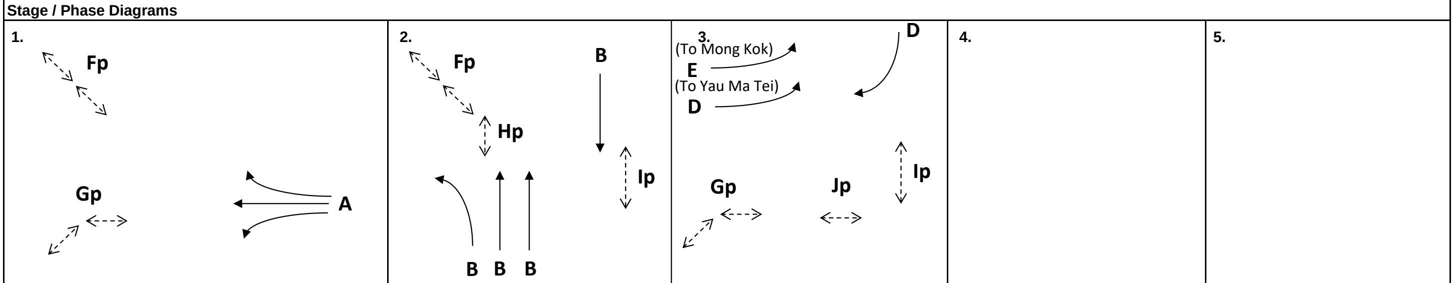
Notes:

Flow: (pcu/hr)



Group	A,Hp,Jp	A,B,D	Group	A,B,D	A,Hp,Jp
y	0.127	0.559	y	0.496	0.206
L (sec)	87	20	L (sec)	20	87
C (sec)	120	120	C (sec)	120	120
y pract.	0.248	0.750	y pract.	0.750	0.248
R.C. (%)	95%	34%	R.C. (%)	51%	20%

Stage / Phase Diagrams



I/G= 8		I/G= 7		I/G= 8		I/G=		I/G=	
I/G= 2		I/G= 10	52	I/G= 3	21	I/G=		I/G=	

Date: MAR, 2022   **Junction:** J33 Yau Cheung Rd / Ferry St / Kansu St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

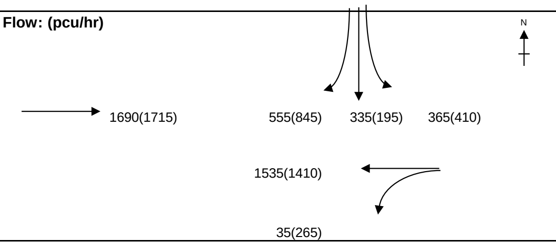
Junction: Jorden Rd / Shanghai St | Design Year: 2047

Description: 2047 Design Flows | Designed By: CHJ | Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.000						1915	1915	537	0.280		545	0.285	
		A	1	3.000						2055	2055	577	0.281	0.281	585	0.285	0.285
		A	1	3.000						2055	2055	576	0.280		585	0.285	
Jorden Rd - WB		A	1	3.300	10			7%	52%	1925	1805	497	0.258		507	0.281	
Jorden Rd - WB		A	1	3.250						2080	2080	537	0.258		584	0.281	
		A	1	3.250						2080	2080	536	0.258		584	0.281	
Shanghai St - SB		D	3	3.000	10					1000	1000	187	0.187		208	0.208	
		D	3	3.000	10			50%	51%	1910	1910	357	0.187	0.187	397	0.208	
		D	3	3.000		15		57%	100%	1945	1870	363	0.187		422	0.226	
		D	3	3.000		15				1870	1870	349	0.187		423	0.226	0.226
Pedestrian Crossing		Bp	2	MIN GREEN + FLASH =			16	+	12	=	28			*			*
		Cp	1	MIN GREEN + FLASH =			10	+	12	=	22						

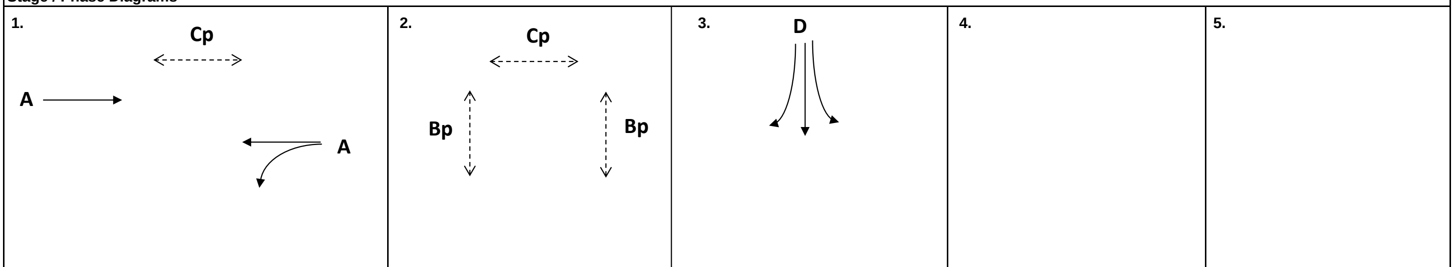
Notes:

Flow: (pcu/hr)



Group		A,Bp,D	Group		A,Bp,D
y		0.468	y		0.511
L (sec)		45	L (sec)		45
C (sec)		130	C (sec)		130
y pract.		0.588	y pract.		0.588
R.C. (%)		26%	R.C. (%)		15%

Stage / Phase Diagrams



I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	
I/G= 6		I/G= 10	28	I/G= 3		I/G=		I/G=	

Date: MAR, 2022 | **Junction:** Jorden Rd / Shanghai St (J34)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street   Design Year: 2047

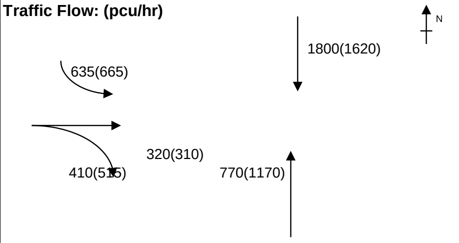
Description: 2047 Design   Designed By: HAP   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Road - NB		A	1	3.000						1915	1915	246	0.128		373	0.195	
		A	1	3.000						2055	2055	263	0.128		401	0.195	
		A	1	2.800						2035	2035	261	0.128		396	0.195	
Anchor Street		D	3	3.300		20		13%	25%	1925	1910	368	0.191	0.191	414	0.217	
		D	3	3.300		15				1895	1895	362	0.191		411	0.217	0.217
Fuk Tsun Street		C	2	4.200	15					1850	1850	195	0.105		204	0.110	0.110
		C	2	4.600	20					2060	2060	216	0.105		227	0.110	
		C	2	5.000	25					2125	2125	224	0.105	0.105	234	0.110	
Tong Mi Road - SB		B	1	3.500						1965	1965	577	0.294		520	0.265	0.265
		B	1	3.300						2085	2085	613	0.294	0.294	551	0.264	
		B	1	3.200						2075	2075	610	0.294		549	0.265	

Approach	Phase	Stage						
Pedestrian Crossing	Ep	1,3	MIN GREEN + FLASH =	13	+	13	=	26
	Fp	1,2	MIN GREEN + FLASH =	7	+	7	=	14
	Gp	2,3	MIN GREEN + FLASH =	8	+	8	=	16
	Hp	2	MIN GREEN + FLASH =	8	+	8	=	16
	Ip	1	MIN GREEN + FLASH =	11	+	11	=	22
	Jp	2,3	MIN GREEN + FLASH =	13	+	9	=	22

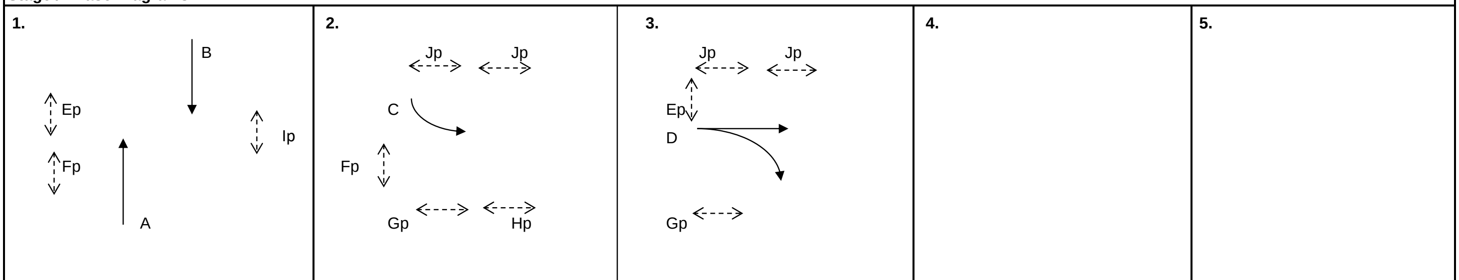
Notes:

Traffic Flow: (pcu/hr)



Group	A,C,D	B,C,D	Group	A,C,D	B,C,D
y	0.425	0.591	y	0.522	0.592
L (sec)	18	18	L (sec)	18	18
C (sec)	130	130	C (sec)	130	130
y pract.	0.775	0.775	y pract.	0.775	0.775
R.C. (%)	82%	31%	R.C. (%)	48%	31%

Stage / Phase Diagrams



I/G= 8	I/G= 7	I/G= 6	I/G=	I/G=
I/G= 8	I/G= 7	I/G= 6	I/G=	I/G=

Date: MAR, 2022   Junction: J35
J35 - Tong Mi Road / Anchor Street / Fuk Tsun Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

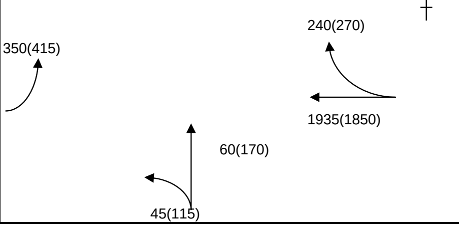
Junction: J36 - Argyule Street / Reclamation Street Design Year: 2047

Description: 2047 Design Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street - WB		B	1	3.200						1935	1935	456	0.235	0.235	435	0.225	0.225
		B	1	3.600						2115	2115	498	0.235		476	0.225	
		B	1	3.200						2075	2075	488	0.235		467	0.225	
		B	1	3.400						2095	2095	493	0.235		472	0.225	
Argyle Street - WB		B	1	3.700		15				1930	1930	240	0.124		270	0.140	
clamation Street - NB		A	3	3.700	15					1805	1805	32	0.018		86	0.048	
		A	3	3.600	20			36%	29%	2060	2070	36	0.017		99	0.048	0.048
		A	3	3.500						2105	2105	37	0.018		100	0.048	
Argyle Street - EB		B	1	5.300	15					1950	1950	350	0.179		415	0.213	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			9	+	19	=	28						
		Dp	1,2	MIN GREEN + FLASH =			5	+	12	=	17						
		Ep	2	MIN GREEN + FLASH =			23	+	15	=	38			*			*

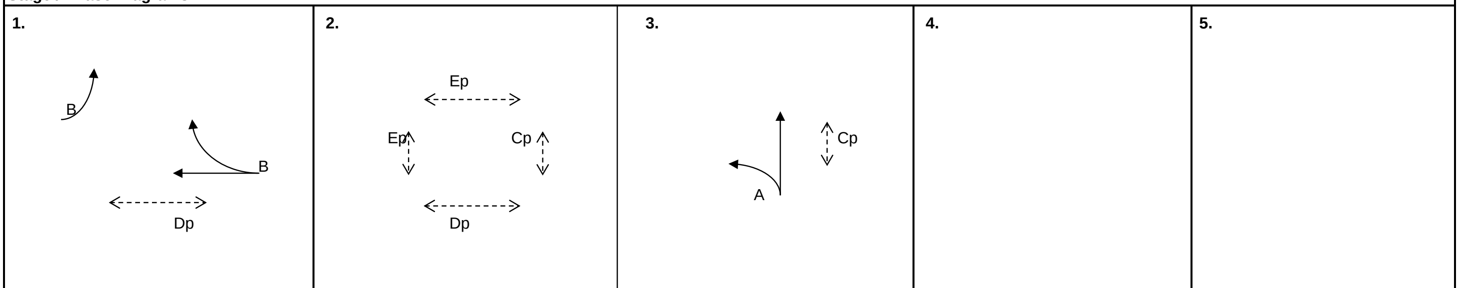
Notes:

Traffic Flow: (pcu/hr)



Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.235	0.235	y	0.225	0.273
L (sec)	34	61	L (sec)	34	55
C (sec)	130	130	C (sec)	130	130
y pract.	0.665	0.478	y pract.	0.665	0.519
R.C. (%)	182%	103%	R.C. (%)	195%	90%

Stage / Phase Diagrams



I/G= 7		I/G= 9	38	I/G= 3	5	I/G=		I/G=	
I/G= 7		I/G= 9	38	I/G= 3		I/G=		I/G=	

Date: MAR, 2022 **Junction:** J36
J36 - Argyule Street / Reclamation Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J37 - Reclamation Street / Dundas Street

Design Year: 2047

Description: 2047 Design

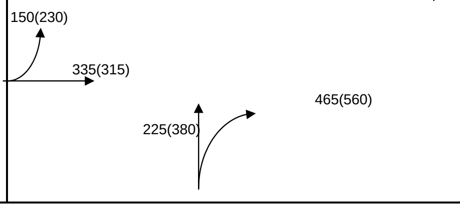
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
clamation Street - NB	↑	B	1	3.200						1935	1935	108	0.056		182	0.094	
	↑	B	1	3.400						2095	2095	117	0.056		198	0.095	
clamation Street - NB	↱	B	1	3.600		15				1925	1925	465	0.242	0.242	560	0.291	0.291
Dundas Street - EB	↰↑	A	3	3.100	15			67%	92%	1805	1765	225	0.125		250	0.142	0.142
	↑	A	3	3.300						2085	2085	260	0.125	0.125	295	0.141	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	1,2	MIN GREEN + FLASH =			5	+	7	=	12						
		Ep	2	MIN GREEN + FLASH =			11	+	9	=	20			*			*

Notes:

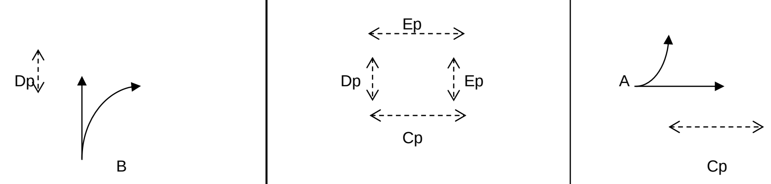
Traffic Flow: (pcu/hr)



Group	B,Cp	B,Ep,A	Group	B,Cp	B,Ep,A
y	0.242	0.366	y	0.291	0.433
L (sec)	25	32	L (sec)	25	32
C (sec)	90	90	C (sec)	108	108
y pract.	0.650	0.580	y pract.	0.692	0.633
R.C. (%)	169%	58%	R.C. (%)	138%	46%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	
I/G= 5		I/G= 7	20	I/G= 2		I/G=		I/G=	

Date: MAR, 2022

Junction: J37

J37 - Reclamation Street / Dundas Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Kansu Street / Canton Road

Design Year: 2047

Description: 2047 Design

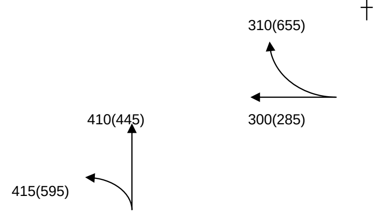
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Kansu Street - WB		A	1	3.400						1955	1955	300	0.153		285	0.146	
		A	1	3.400		15		100%	100%	1905	1905	310	0.163	0.163	655	0.344	0.344
Canton Road - NB		B	2	3.700	15			100%	100%	1805	1805	415	0.230	0.230	595	0.330	0.330
		B	2	3.700						2125	2125	204	0.096		221	0.104	
		B	2	3.900						2145	2145	206	0.096		224	0.104	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			8	+	10	=	18						
		Dp	2	MIN GREEN + FLASH =			7	+	10	=	17						

Notes:

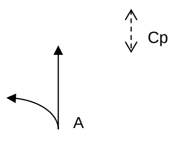
Traffic Flow: (pcu/hr)



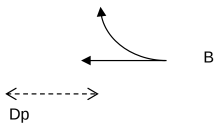
Group	Cp,B	A,B	Group	A,Dp	A,B
y	0.230	0.393	y	0.344	0.673
L (sec)	25	8	L (sec)	25	8
C (sec)	120	120	C (sec)	120	120
y pract.	0.713	0.840	y pract.	0.713	0.840
R.C. (%)	210%	114%	R.C. (%)	107%	25%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 5	I/G= 5	I/G=	I/G=	I/G=
I/G= 5	I/G= 5	I/G=	I/G=	I/G=

Date: MAR, 2022

Junction: Kansu Street / Canton Road J38

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: J39 - Prince Edward Road West / Lai Chi Kok Road

Design Year: 2047

Description: 2047 Design

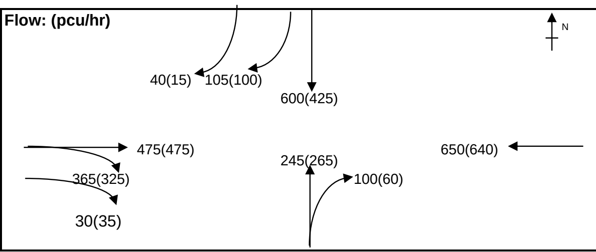
Designed By: HAP

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Prince Edward		C	1	3.200						1935	1935	207	0.107		204	0.105	0.105
Road West		C	1	3.200						2075	2075	221	0.107		218	0.105	
WB		C	1	3.200						2075	2075	222	0.107	0.107	218	0.105	
Lai Chi Kok		A	4	3.500						1965	1965	118	0.060		128	0.065	
Road - NB		A	4	3.500		15		0%	0%	2105	2105	127	0.060		137	0.065	
		A	4	3.500		15				1915	1915	100	0.052		60	0.031	
Prince Edward		D	3	3.600						1975	1975	419	0.212	0.212	398	0.202	0.202
Road West		D	3	3.600		20		87%	81%	1985	1995	421	0.212		402	0.202	
EB		D	3	3.600		15				1925	1925	30	0.016		35	0.018	
Lai Chi Kok		B	2	3.200						1935	1935	338	0.175	0.175	252	0.130	0.130
Road - SB		B	2	3.500		100		29%	37%	2095	2095	367	0.175		273	0.130	
		B	2	3.200		15				1885	1885	40	0.021		15	0.008	
Pedestrian Crossing		Lp	4	MIN GREEN + FLASH =			12	+	8	=	20			*			*

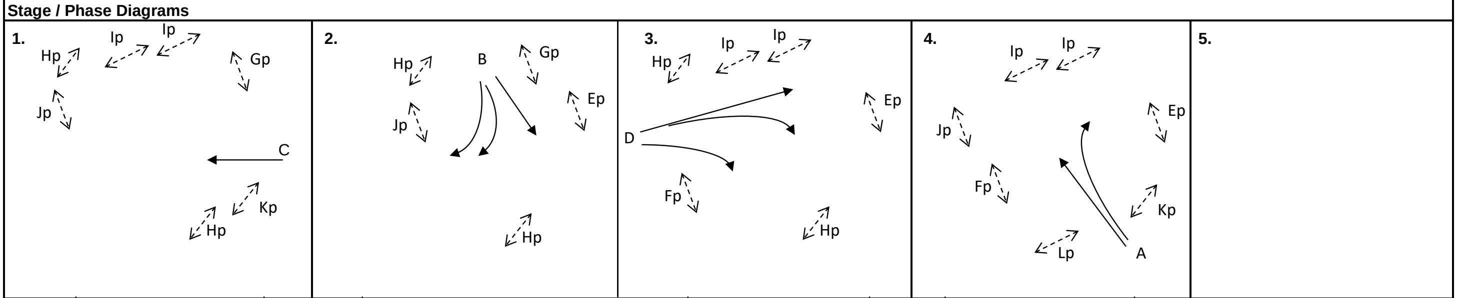
Notes:

Flow: (pcu/hr)



Group	C,B,D,A	C,B,D,Lp	Group	C,B,D,A	C,B,D,Lp
y	0.554	0.494	y	0.502	0.437
L (sec)	22	42	L (sec)	22	44
C (sec)	130	130	C (sec)	130	130
y pract.	0.748	0.609	y pract.	0.748	0.595
R.C. (%)	35%	23%	R.C. (%)	49%	36%

Stage / Phase Diagrams



I/G= 2		I/G= 8		I/G= 5		I/G= 12	18	I/G=	
I/G= 2		I/G= 8		I/G= 5		I/G= 12	20	I/G=	

Date: MAY, 2022 **Junction:** J39 - Prince Edward Road West / Lai Chi Kok Road J39

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — **MVA HONG KONG LIMITED**

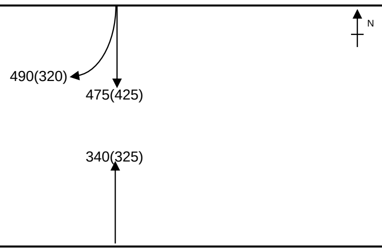
Junction: J40 - Lai Chi Kok Road / Shanghai Street — Design Year: 2047

Description: 2047 Design — Designed By: HAP — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Lai Chi Kok Road - SB		A	1	3.400						1955	1955	315	0.161	0.161	242	0.124	
		A	1	3.400		30		51%	29%	2045	2065	329	0.161		256	0.124	0.124
		A	1	3.400		30				1995	1995	321	0.161		247	0.124	
Lai Chi Kok Road - NB		B	2	3.300						1945	1945	111	0.057		106	0.054	
		B	2	3.300						2085	2085	118	0.057		113	0.054	
		B	2	3.300						1945	1945	111	0.057		106	0.054	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			56	+	9	=	65						
		Dp	2	MIN GREEN + FLASH =			39	+	9	=	48			*			*

Notes:

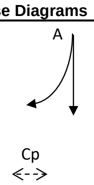
Flow: (pcu/hr)



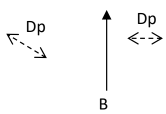
Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.218	0.161	y	0.178	0.124
L (sec)	12	66	L (sec)	12	66
C (sec)	130	130	C (sec)	130	130
y pract.	0.817	0.443	y pract.	0.817	0.443
R.C. (%)	274%	175%	R.C. (%)	358%	257%

Stage / Phase Diagrams

1.



2.



3. **4.** **5.**

I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	
I/G= 7		I/G= 12	48	I/G=		I/G=		I/G=	

Date: MAY, 2022 — **Junction:** J40 — J40 - Lai Chi Kok Road / Shanghai Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

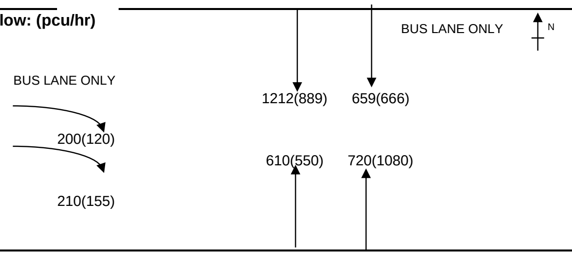
Junction: J41 - Lai Chi Kok Road / Nathan Road Design Year: 2047

Description: 2047 Design Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road	↑	A	1	3.300						1945	1945	658.75	0.339	0.339	666	0.342	0.342
SB	↑	A	1	3.300						2085	2085	606	0.291		445	0.213	
	↑	A	1	3.300						2085	2085	605	0.290		444	0.213	
Nathan Road	↑	B	2	3.500						1570	1570	194	0.124		175	0.111	
NB	↑	B	2	3.500						1685	1685	208	0.123		187	0.111	
	↑	B	2	3.500						1685	1685	208	0.123		188	0.112	
	↑	A	1	3.400						195	195	32	0.164		48	0.246	
	↑	A	1	3.400						2095	2095	344	0.164		516	0.246	
	↑	A	1	3.400						2095	2095	344	0.164		516	0.246	
Lai Chi Kok Road	↱	B	2	3.300		25				1835	1835	200	0.109		120	0.065	
EB	↱	B	2	3.300		20				1940	1940	106	0.055		78	0.040	
	↱	B	2	3.300		15				1895	1895	104	0.055		77	0.041	
Pedestrian Crossing		Cp	1	MIN GREEN + FLASH =			65	+	10	=	75						
		Dp	2	MIN GREEN + FLASH =			47	+	10	=	57			*			*

Notes:

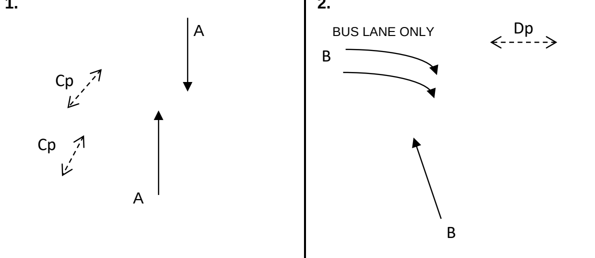
Flow: (pcu/hr)



Group	A,B	A,Dp	Group	A,B	A,Dp
y	0.462	0.339	y	0.454	0.342
L (sec)	20	71	L (sec)	20	66
C (sec)	130	130	C (sec)	130	130
y pract.	0.762	0.408	y pract.	0.762	0.443
R.C. (%)	65%	21%	R.C. (%)	68%	29%

Stage / Phase Diagrams

1. **2.** **3.** **4.** **5.**



I/G= 5		I/G= 10	57	I/G=		I/G=		I/G=	
I/G= 5		I/G= 10	52	I/G=		I/G=		I/G=	

Date: JUN, 2022 **Junction:** J41 - Lai Chi Kok Road / Nathan Road J41

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

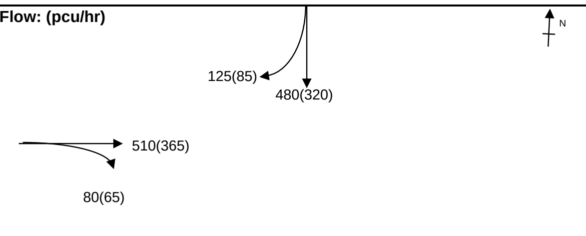
Junction: J42 - Bute Street / Shanghai Street | Design Year: 2047

Description: 2047 Design | Designed By: HAP | Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Shanghai Street SB		A	1	3.300						1945	1945	152	0.078		102	0.052	
		A	1	3.300						2085	2085	164	0.079		109	0.052	
		A	1	3.300						2085	2085	164	0.079		109	0.052	
		A	1	3.300		5		100%	100%	800	800	125	0.156	0.156	85	0.106	0.106
Bute Street EB		B	2	3.200						1935	1935	246	0.127		176	0.091	
		B	2	3.200		10		0%	0%	2075	2075	264	0.127	0.127	189	0.091	0.091
		B	2	3.200		5				1275	1275	80	0.063		65	0.051	
Pedestrian Crossing		Cp	2,3	MIN GREEN + FLASH =			6	+	10	=	16						
		Dp	2,3	MIN GREEN + FLASH =			10	+	12	=	22						
		Ep	3	MIN GREEN + FLASH =			6	+	8	=	14						
		Fp	3	MIN GREEN + FLASH =			22	+	12	=	34			*			*

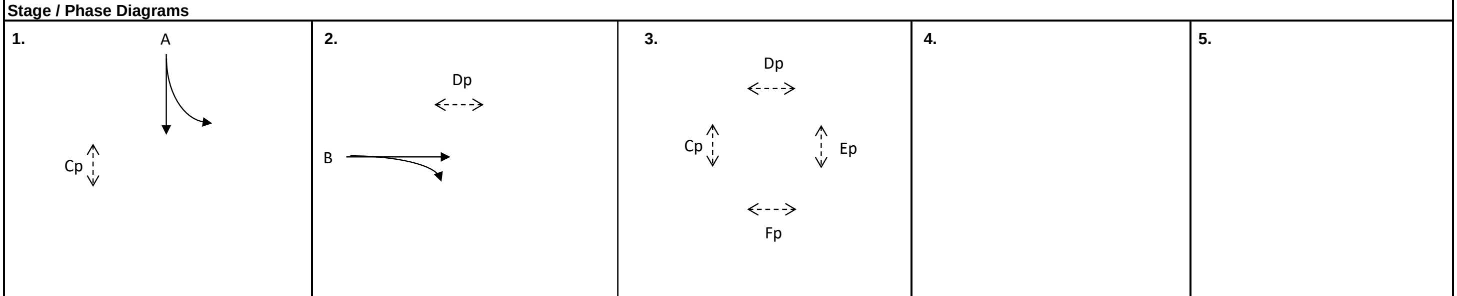
Notes:

Flow: (pcu/hr)



		AM		PM
Group		A,B,Fp	Group	A,B,Fp
y		0.283	y	0.197
L (sec)		52	L (sec)	52
C (sec)		130	C (sec)	130
y pract.		0.540	y pract.	0.540
R.C. (%)		90%	R.C. (%)	174%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	
I/G= 5		I/G= 6		I/G= 9	34	I/G=		I/G=	

Date: MAY, 2022 **Junction:** J42 - Bute Street / Shanghai Street J42

2037 IMPROVEMENT SCHEME

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

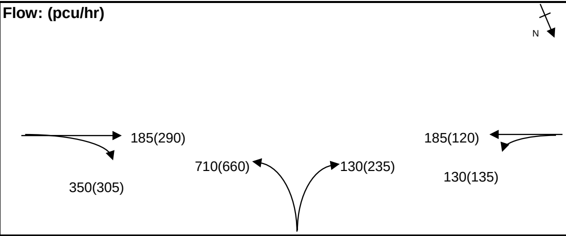
Junction: Sham Mong Rd./Chui Yu Rd. Design Year: 2037

Description: 2037 Design Flows (imp) Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road-WB		A	2	3.500						1965	1965	177	0.090		195	0.099	
		A	2	3.500		25		96%	53%	1990	2040	179	0.090		203	0.100	
Sham Mong Road-WB		C	2	3.500		25				1985	1985	179	0.090	0.090	197	0.099	0.099
Sham Mong Road-EB		B	1	3.300	15			100%	100%	1770	1770	130	0.073	0.073	135	0.076	0.076
Sham Mong Road-EB		B	1	3.500						2105	2105	93	0.044		60	0.029	
		B	1	3.500						2105	2105	92	0.044		60	0.029	
Chui Yu Road - SB		D	4	3.500	15					1785	1785	343	0.192		318	0.178	
		D	4	3.500	15					1915	1915	367	0.192	0.192	342	0.179	0.179
Chui Yu Road - SB		H	4	3.500		25				1985	1985	130	0.065		235	0.118	
Pedestrian Crossing		Ep	3	MIN GREEN + FLASH =			32	+	11	=	43			*			*
		Fp	3	MIN GREEN + FLASH =			20	+	13	=	33						
		Gp	3	MIN GREEN + FLASH =			23	+	11	=	34						

Notes:

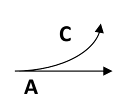
Flow: (pcu/hr)



Group	B,D,Ep	B,C,Ep,D	Group	B,C,H,Ep	B,C,Ep,D
y	0.265	0.355	y	0.294	0.354
L (sec)	51	55	L (sec)	58	58
C (sec)	128	128	C (sec)	130	130
y pract.	0.541	0.513	y pract.	0.498	0.498
R.C. (%)	104%	44%	R.C. (%)	70%	41%

Stage / Phase Diagrams

1.



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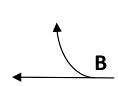

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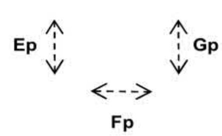

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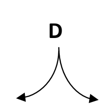


5.

I/G= 5		I/G= 5		I/G= 5	40	I/G= 3		I/G=
I/G= 5		I/G= 5		I/G= 5	43	I/G= 3		I/G=

Date: MAY, 2022 **Junction:** Sham Mong Rd./Chui Yu Rd. J5

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

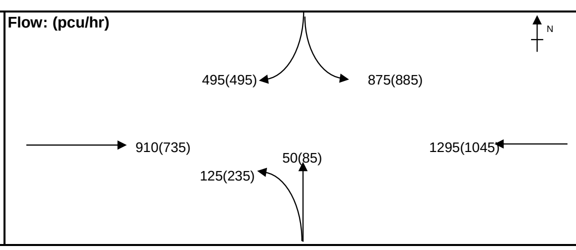
Junction: Argyle St/Sai Yee St. Design Year: 2037

Description: 2037 Design Flows (imp) Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB	↑	A	1	3.500						1965	1965	439	0.223		355	0.181	
	↑	A	1	3.500						2105	2105	471	0.224		380	0.181	
Argyle Street-WB	↑	B	1	3.200						2095	2095	434	0.207		351	0.168	
	↑	B	1	3.200						2075	2075	431	0.208		347	0.167	0.167
	↑	B	1	3.200						2075	2075	430	0.207	0.207	347	0.167	
Argyle Street-SB	↰	C	2,3,4	3.500	10			100%	100%	1710	1710	423	0.247		428	0.250	
	↰	C	2,3,4	3.500	10			100%	100%	1830	1830	452	0.247		457	0.250	
Argyle Street-SB	↱	D	2	3.500		20				1960	1960	248	0.127	0.127	248	0.127	0.127
	↱	D	2	3.500		20				1960	1960	247	0.126		247	0.126	
Sai Yee Street-NB	↰	E	3	3.700	15			100%	100%	1805	1805	125	0.069	0.069	235	0.130	0.130
	↑	E	3	3.700						2125	2125	50	0.024		85	0.040	
Pedestrian Crossing		Fp	1,2,4	MIN GREEN + FLASH =			8	+	8	=	16						
		Gp	4	MIN GREEN + FLASH =			19	+	12	=	31			*			*
		Hp	1	MIN GREEN + FLASH =			27	+	11	=	38						

Notes:

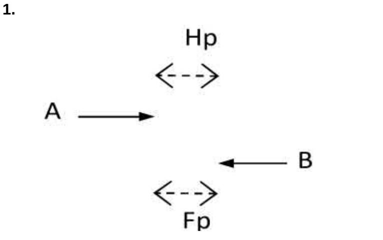
Flow: (pcu/hr)



Group		B,D,E,Gp	Group		B,D,E,Gp
y		0.403	y		0.424
L (sec)		54	L (sec)		54
C (sec)		130	C (sec)		130
y pract.		0.526	y pract.		0.526
R.C. (%)		31%	R.C. (%)		24%

Stage / Phase Diagrams

1.



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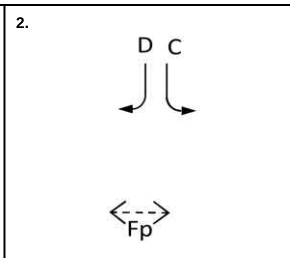
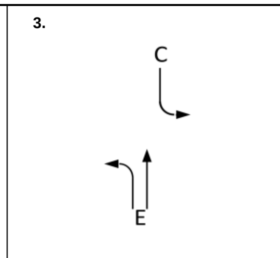
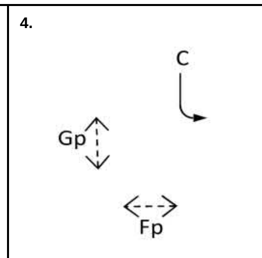


3.



4.



5.

I/G= 2		I/G= 6		I/G= 9		I/G= 9	31	I/G=	
I/G= 2		I/G= 6		I/G= 9		I/G= 9	31	I/G=	

Date: MAY, 2022 **Junction:** J10 Argyle St/Sai Yee St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

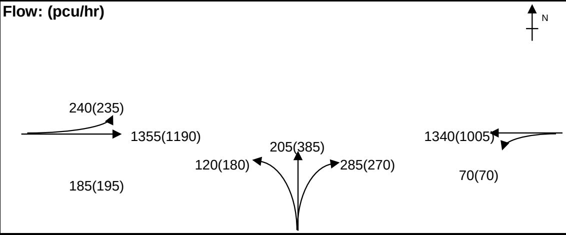
Junction: Argyle St/Yim Po Fong St/Luen Wan St Design Year: 2037

Description: 2037 Design Flows (imp) Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1,2	3.300	10					1690	1690	240	0.142		235	0.139	
		B	1,2	3.500						1965	1965	441	0.224	0.224	387	0.197	
		B	1,2	3.500						2105	2105	473	0.225		416	0.198	0.198
		B	1,2	3.500						1965	1965	441	0.224		387	0.197	
Argyle Street-EB		D	2	3.500		15				1915	1915	185	0.097		195	0.102	
Argyle Street-WB		E	4	3.800	10			100%	100%	1735	1735	70	0.040		70	0.040	
		C	1	3.300						2085	2085	447	0.214		335	0.161	
		C	1	3.300						2085	2085	446	0.214		335	0.161	
		C	1	3.300						2085	2085	447	0.214		335	0.161	
Yim Po Fong St - NB		F	4	3.000	30			78%	67%	1845	1855	154	0.083		268	0.144	
		F	4	3.000						2055	2055	171	0.083		297	0.145	0.145
		F	4	3.500		15				1915	1915	285	0.149	0.149	270	0.141	
Pedestrian Crossing		Gp	1	MIN GREEN + FLASH =			43	+	9	=	52						
		Hp	3	MIN GREEN + FLASH =			26	+	8	=	34			*			*

Notes:

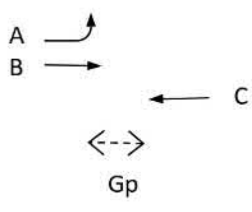
Flow: (pcu/hr)



Group		B,Hp,F	Group		B,Hp,F
y		0.373	y		0.342
L (sec)		51	L (sec)		51
C (sec)		130	C (sec)		130
y pract.		0.547	y pract.		0.547
R.C. (%)		47%	R.C. (%)		60%

Stage / Phase Diagrams

1.



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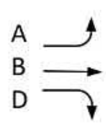

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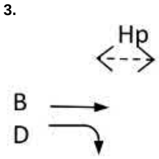

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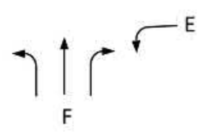


5.

I/G= 8		I/G=		I/G= 11	34	I/G=		I/G=	
I/G= 8		I/G=		I/G= 11	34	I/G=		I/G=	

Date: MAY, 2022 **Junction:** J11 Argyle St/Yim Po Fong St/Luen Wan St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Waterloo Rd/Nathan Rd Design Year: 2022

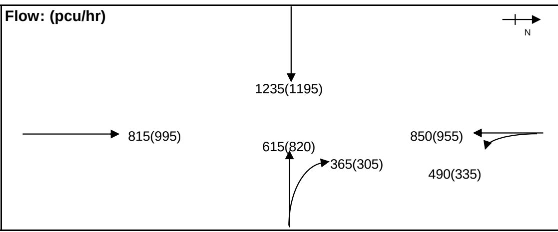
Description: ~~2037 Design Flows~~ Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road-SB		A	1	3.400						1465	1465	320	0.218		310	0.212	
		A	1	3.400						2095	2095	457	0.218	0.218	442	0.211	
		A	1	3.400						2095	2095	458	0.219		443	0.211	
Nathan Road-NB		B	1,2	3.000						1865	1865	615	0.330		820	0.440	0.440
		J	2	3.000		15				1495	1495	199	0.133	0.133	166	0.111	
		J	2	3.000		10				1250	1250	166	0.133		139	0.111	
Waterkoo Road-EB		C	3	3.400						1955	1955	259	0.132		317	0.162	
		C	3	3.400						2095	2095	278	0.133		339	0.162	
		C	3	3.400						2095	2095	278	0.133		339	0.162	
Waterkoo Road-WB		D	3	3.200	5					1490	1490	364	0.244		335	0.225	0.225
		D	3	3.200	5			27%	0%	1920	2075	469	0.244	0.244	477	0.230	
		D	3	3.200				100%	100%	2075	2075	507	0.244		478	0.230	

Approach	Phase	Stage							
Pedestrian Crossing	Ep	1,2	MIN GREEN + FLASH =	10	+	9	=	19
	Fp	3	MIN GREEN + FLASH =	5	+	7	=	12
	Gp	2,3	MIN GREEN + FLASH =	5	+	9	=	14
	Hp	1	MIN GREEN + FLASH =	33	+	9	=	42

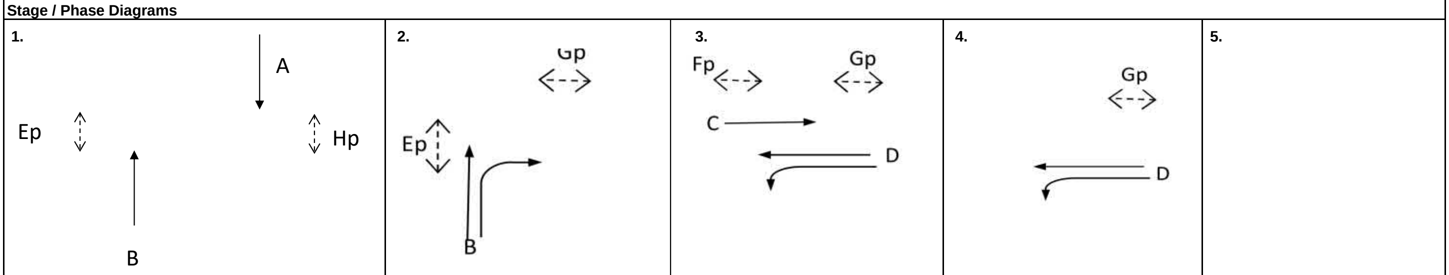
Notes:

Flow: (pcu/hr)



Group	A,J,D	Hp,J,D	Group	A,J,D	B,D
y	0.596	0.377	y	0.548	0.665
L (sec)	14	57	L (sec)	14	10
C (sec)	130	130	C (sec)	130	130
y pract.	0.803	0.505	y pract.	0.803	0.831
R.C. (%)	35%	34%	R.C. (%)	47%	25%

Stage / Phase Diagrams



I/G= 9	42	I/G= 2		I/G= 6		I/G=		I/G=	
I/G= 6		I/G=		I/G= 6		I/G=		I/G=	

Date: JUN, 2022 **Junction:** Waterloo Rd/Nathan Rd J15

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — **MVA HONG KONG LIMITED**

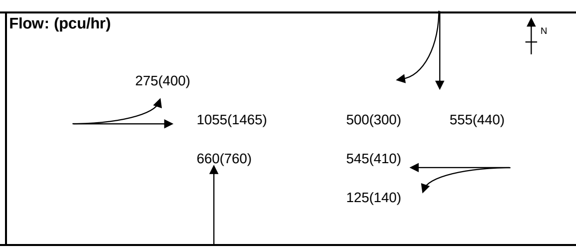
Junction: Jorden Rd / Nathan Rd — Design Year: 2037

Description: 2037 Design Flows (imp) — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.600	10					1715	1715	275	0.160		400	0.233	
		A	1	3.600						2115	2115	528	0.250	0.250	733	0.347	0.347
		A	1	3.600						2115	2115	527	0.249		732	0.346	
Jorden Rd - WB		A	1	3.600	5			65%	93%	1650	1545	192	0.116		150	0.097	
		A	1	3.000						2055	2055	239	0.116		200	0.097	
		A	1	3.000						2055	2055	239	0.116		200	0.097	
Nathan Rd - NB		B	2	3.300						1945	1945	319	0.164		367	0.189	0.189
		B	2	3.300						2085	2085	341	0.164	0.164	393	0.188	
Nathan Rd - SB		C	3	3.500						1965	1965	343	0.175		240	0.122	
		C	3	3.500		35		41%	22%	2070	2085	362	0.175		255	0.122	
		C	3	3.500		30				2005	2005	350	0.175		245	0.122	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			5	+	9	=	14						
		Ep	2	MIN GREEN + FLASH =			19	+	10	=	29						
		Fp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Gp	3	MIN GREEN + FLASH =			12	+	8	=	20			*			*
		Hp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						

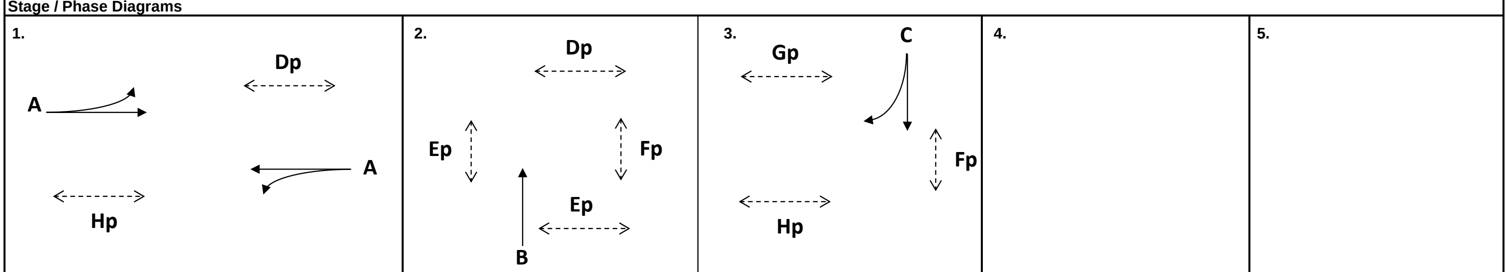
Notes:

Flow: (pcu/hr)



Group		A,B,Gp	Group		A,B,Gp
y		0.413	y		0.535
L (sec)		41	L (sec)		36
C (sec)		130	C (sec)		130
y pract.		0.616	y pract.		0.651
R.C. (%)		49%	R.C. (%)		22%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 12	22	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 12	17	I/G=		I/G=	

Date: MAY, 2022 — Junction: J21 Jorden Rd / Nathan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Jorden Rd / Gascoigne Rd

Design Year: 2037

Description: 2037 Design Flows (imp)

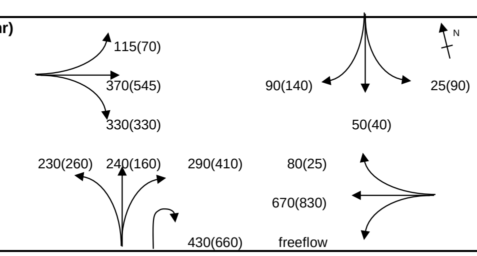
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Gascoigne Rd - EB		A	1	6.100	15					2025	2025	115	0.057		70	0.035	
		A	1	4.500						2205	2205	185	0.084		273	0.124	
		A	1	4.500						2205	2205	185	0.084		272	0.123	
		A	1	4.500						2205	2205	330	0.150	0.150	330	0.150	0.150
Gascoigne Rd - WB		B1	1,2	3.100						1925	1925	323	0.168		400	0.208	
		B1	1,2	3.100						2065	2065	347	0.168		430	0.208	
		B2	2	3.000		10				1785	1785	80	0.045	0.045	25	0.014	
Jorden Rd - NB		C	3	3.300	20			49%	62%	1875	1860	470	0.251		420	0.226	
Jorden Rd - NB		C	3	3.300		20				1940	1940	290	0.149		410	0.211	
		C	3	3.400		15				1905	1905	430	0.226		660	0.346	
Queen Elizabeth Hospital Rd - SB		D	4	4.000	20					1125	1125	90	0.080	0.080	140	0.124	0.124
		D	4	4.000		25		33%	69%	1270	1240	75	0.059		130	0.105	
Pedestrian Crossing		Ep	2,3,4	MIN GREEN + FLASH =			6	+	12	=	18						
		Fp	3	MIN GREEN + FLASH =			46	+	7	=	53			*			*
		Gp	1,2,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp1	4,1	MIN GREEN + FLASH =			10	+	10	=	20						
		Hp2	1,2,3	MIN GREEN + FLASH =			10	+	10	=	20						
		Ip	1,2,3	MIN GREEN + FLASH =				+	5	=	10						

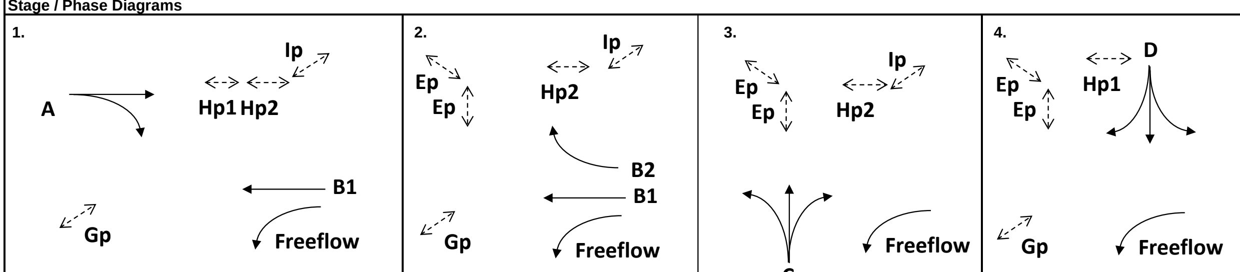
Notes:

Flow: (pcu/hr)



Group	B1,Fp,D	A,B2,Fp,D	Group	B1,Fp,D	A,B2,Fp,D
y	0.248	0.274	y	0.332	0.274
L (sec)	69	74	L (sec)	69	80
C (sec)	130	130	C (sec)	130	130
y pract.	0.422	0.388	y pract.	0.422	0.346
R.C. (%)	70%	41%	R.C. (%)	27%	26%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 8	53	I/G= 6		I/G=
I/G= 5		I/G= 5	5	I/G= 8	53	I/G= 6		I/G=

Date: MAY, 2022

Junction: J22 Jorden Rd / Gascoigne Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

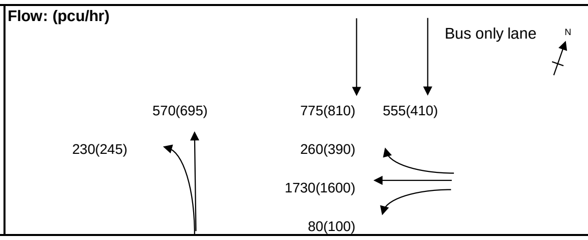
Junction: Nathan Rd / Argyle St — Design Year: 2037

Description: ~~2037 Design Flows (imp)~~ — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle St - WB	↰	E	2	3.400	5					1505	1505	80	0.053		100	0.066	
	↑	D	1,2	3.300						2085	2085	688	0.330		701	0.336	0.336
	↑	D	1,2	3.300						2085	2085	688	0.330	0.330	701	0.336	
	↱	D	1,2	3.400		5		42%	66%	1860	1745	614	0.330		588	0.337	
Nathan Rd - SB	↑	A	3,4	3.300						2085	2085	388	0.186		405	0.194	
	↑	A	3,4	3.300						2085	2085	387	0.186		405	0.194	
Nathan Rd - SB (Bus only lane)	↑	A	3,4	3.300						1945	1945	555	0.285		410	0.211	
Nathan Rd - NB	↰	C	4	3.500	5					1510	1510	230	0.152	0.152	245	0.162	0.162
Nathan Rd - NB	↑	B	3,4	3.200						2075	2075	285	0.137		348	0.168	
	↑	B	3,4	3.200						2075	2075	285	0.137		347	0.167	
Pedestrian Crossing		Fp	3	MIN GREEN + FLASH =			11	+	15	=	26			*			*
		Gp	3,4	MIN GREEN + FLASH =			6	+	16	=	22						
		Hp	1	MIN GREEN + FLASH =			26	+	12	=	38						

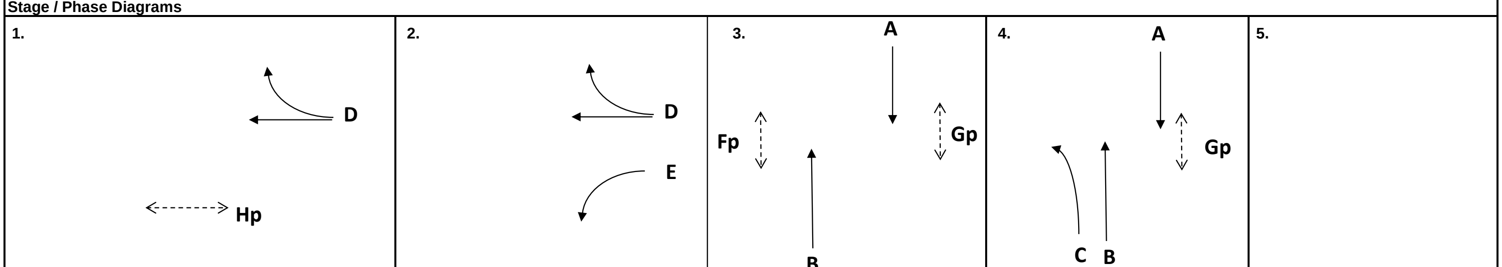
Notes:

Flow: (pcu/hr)



Group		D,Fp,C	Group		D,Fp,C
y		0.482	y		0.498
L (sec)		42	L (sec)		42
C (sec)		130	C (sec)		130
y pract.		0.609	y pract.		0.609
R.C. (%)		26%	R.C. (%)		22%

Stage / Phase Diagrams



I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=
I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=

Date: MAY, 2022 **Junction:** J26 Nathan Rd / Argyle St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

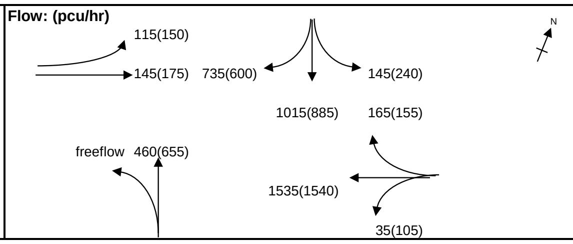
Junction: Argyle St / Tong Mi Rd   Design Year: 2037

Description: 2037 Design Flows (Imp -Phase 1)   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	153	0.073		218	0.105	
		A	1	3.300						2085	2085	154	0.074	0.074	219	0.105	0.105
		A	1	3.300						2085	2085	153	0.073		218	0.105	
Tong Mi Rd - SB		E	2	3.300	10			24%	44%	1880	1825	607	0.323		540	0.296	
Tong Mi Rd - SB		E	2	3.300		20		17%	5%	2060	2075	666	0.323	0.323	615	0.296	0.296
Tong Mi Rd - SB		E	2	3.600		15				1925	1925	622	0.323		570	0.296	
Argyle St - EB		C	3	3.300	10					1690	1690	115	0.068		150	0.089	
Argyle St - EB		C	3	3.400						2095	2095	145	0.069		175	0.084	
Argyle St - WB		G	3,4	4.500	50			6%	19%	2215	2210	540	0.244	0.244	564	0.255	0.255
Argyle St - WB		D	3,4	3.600						2115	2115	515	0.243		541	0.256	
		D	3,4	3.600						2115	2115	515	0.243		540	0.255	
Argyle St - WB		F	4	3.300		10				1815	1815	165	0.091		155	0.085	
Pedestrian Crossing																	

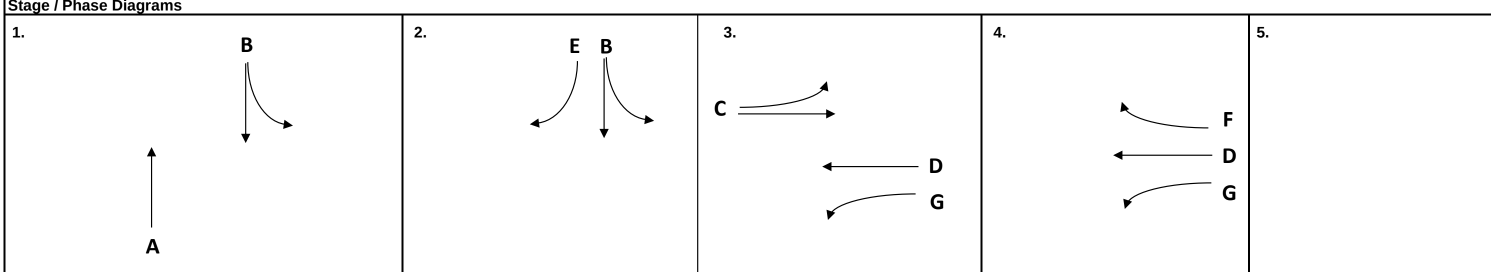
Notes:

Flow: (pcu/hr)



	AM		PM	
Group		A,E,G	Group	A,E,G
y		0.641	y	0.657
L (sec)		18	L (sec)	18
C (sec)		130	C (sec)	130
y pract.		0.775	y pract.	0.775
R.C. (%)		21%	R.C. (%)	18%

Stage / Phase Diagrams



I/G= 7	I/G= 5	I/G= 9	I/G=	I/G=
I/G= 7	I/G= 5	I/G= 9	I/G=	I/G=

Date: MAY, 2022   **Junction:** J27 Argyle St / Tong Mi Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

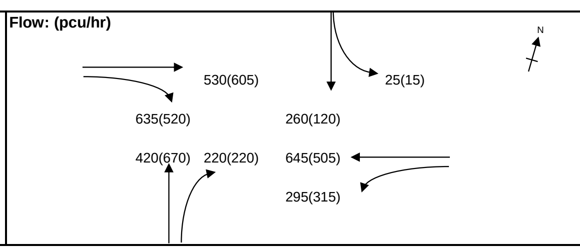
Junction: Tong Mi Rd / Prince Edward Rd West   Design Year: 2037

Description: 2037 Design Flows (imp)   Designed By: CHJ   Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - SB		A	1	3.800	10			18%	23%	1940	1925	136	0.070		64	0.033	
Tong Mi Rd - SB		A	1	3.800						2135	2135	149	0.070	0.070	71	0.033	0.033
Tong Mi Rd - NB		B	2	3.100						1925	1925	156	0.081		215	0.112	
Tong Mi Rd - NB		B	2	3.100						2065	2065	167	0.081		231	0.112	
		B	2	3.300		20		41%	4%	2025	2080	164	0.081		233	0.112	
		B	2	3.250		15				1890	1890	153	0.081		211	0.112	
Prince Edward Rd West - WB		C	3	3.200	10					1685	1685	269	0.160		237	0.141	
Prince Edward Rd West - WB		C	3	3.400	15			8%	27%	2080	2040	333	0.160	0.160	286	0.140	0.140
		C	3	3.600						2115	2115	338	0.160		297	0.140	
Prince Edward Rd West - EB		D	4	3.400						2115	2115	407	0.192		391	0.185	0.185
		D	4	3.400		20		68%	43%	1995	2030	384	0.192	0.192	375	0.185	
		D	4	3.800		15				1940	1940	374	0.193		359	0.185	
Pedestrian Crossing		Ep	1,2,4	MIN GREEN + FLASH =			9	+	9	=	18						
		Fp	2	MIN GREEN + FLASH =			17	+	8	=	25			*			*
		Gp	1,3,4	MIN GREEN + FLASH =			11	+	11	=	22						
		Hp	1	MIN GREEN + FLASH =			14	+	13	=	27						
		Ip	3,4	MIN GREEN + FLASH =			11	+	10	=	21						
		Jp	3	MIN GREEN + FLASH =				+	9	=	24						

Notes:

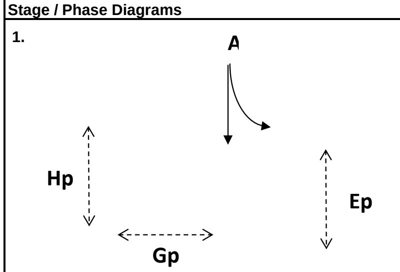
Flow: (pcu/hr)



Group		A,Fp,C,D	Group		A,Fp,C,D
y		0.422	y		0.358
L (sec)		47	L (sec)		50
C (sec)		130	C (sec)		130
y pract.		0.575	y pract.		0.554
R.C. (%)		36%	R.C. (%)		55%

Stage / Phase Diagrams

1.



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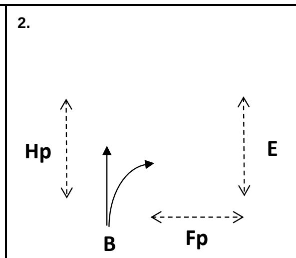

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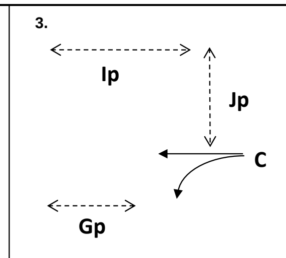

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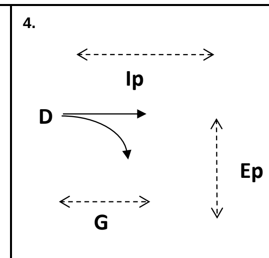


5.

I/G= 7		I/G= 11	25	I/G= 2		I/G= 5		I/G=	
I/G= 7		I/G= 11	28	I/G= 2		I/G= 5		I/G=	

Date: MAY, 2022   **Junction:** J29 Tong Mi Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Tai Kok Tsui Rd / Ivy St

Design Year: 2037

Description: ~~2037 Design Flows (imp)~~

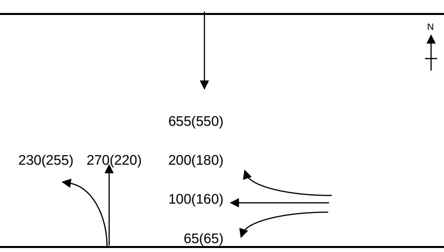
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tai Kok Tsui Rd - SB		A	1	4.500						2065	2065	655	0.317	0.317	550	0.266	0.266
Tai Kok Tsui Rd - NB		A	1	3.200	10			84%	100%	1720	1685	197	0.115		190	0.113	
Tai Kok Tsui Rd - NB		A	1	3.300						2085	2085	238	0.114		220	0.106	
Ivy St - WB		B	3	4.000	15			39%	29%	1940	1960	165	0.085		225	0.115	0.115
Ivy St - WB		D	3	4.000		15				1960	1960	200	0.102	0.102	180	0.092	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			22	+	20	=	42			*			*

Notes:

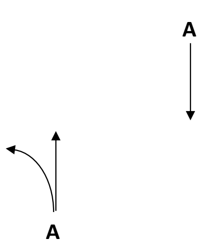
Flow: (pcu/hr)



Group	A,Cp,B	A,Cp,D	Group	A,Cp,D	A,Cp,B
y	0.402	0.419	y	0.358	0.381
L (sec)	59	59	L (sec)	59	59
C (sec)	136	136	C (sec)	136	136
y pract.	0.510	0.510	y pract.	0.510	0.510
R.C. (%)	27%	22%	R.C. (%)	42%	34%

Stage / Phase Diagrams

1.



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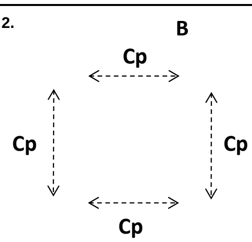

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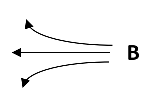


4.

5.

I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	
I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	

Date: MAY, 2022

Junction: J30
Tai Kok Tsui Rd / Ivy St

2047 IMPROVEMENT SCHEME

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

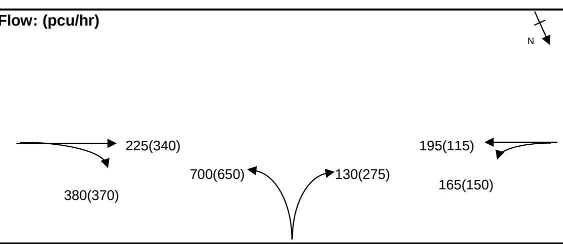
Junction: Sham Mong Rd./Chui Yu Rd. Design Year: 2047

Description: 2047 Design Flows (imp) Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sham Mong Road-WB		A	2	3.500						1965	1965	200	0.102		233	0.119	
		A	2	3.500		25		88%	56%	2000	2035	203	0.102		242	0.119	
		C	2	3.500		25				1985	1985	202	0.102	0.102	235	0.118	0.118
Sham Mong Road-EB		B	1	3.300	15			100%	100%	1770	1770	165	0.093	0.093	150	0.085	0.085
Sham Mong Road-EB		B	1	3.500						2105	2105	98	0.047		58	0.028	
		B	1	3.500						2105	2105	97	0.046		57	0.027	
Chui Yu Road - SB		D	4	3.500	15					1785	1785	338	0.189	0.189	314	0.176	0.176
		D	4	3.500	15					1915	1915	362	0.189		336	0.175	
Chui Yu Road - SB		H	4	3.500		25				1985	1985	130	0.065		275	0.139	
Pedestrian Crossing		Ep	3	MIN GREEN + FLASH =			32	+	11	=	43			*			*
		Fp	3	MIN GREEN + FLASH =			20	+	13	=	33						
		Gp	3	MIN GREEN + FLASH =			23	+	11	=	34						

Notes:

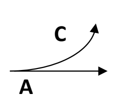
Flow: (pcu/hr)



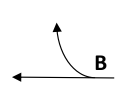
Group	B,D,Ep	B,C,Ep,D	Group	B,C,H,Ep	B,C,Ep,D
y	0.283	0.384	y	0.342	0.379
L (sec)	51	55	L (sec)	58	58
C (sec)	128	128	C (sec)	130	130
y pract.	0.541	0.513	y pract.	0.498	0.498
R.C. (%)	92%	34%	R.C. (%)	46%	32%

Stage / Phase Diagrams

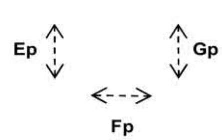
1.



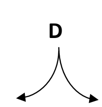
2.



3.



4.



5.

I/G= 5		I/G= 5		I/G= 5	40	I/G= 3		I/G=	
I/G= 5		I/G= 5		I/G= 5	43	I/G= 3		I/G=	

Date: MAY, 2022 **Junction:** Sham Mong Rd./Chui Yu Rd. J5

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

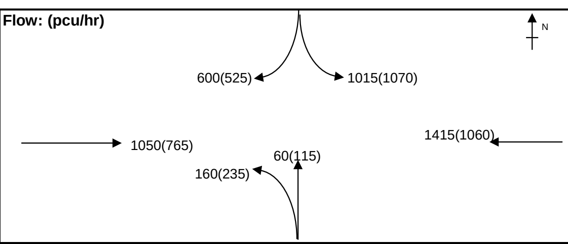
Junction: Argyle St/Sai Yee St. Design Year: 2047

Description: 2047 Design Flows (imp) Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB	↑	A	1	3.500						1965	1965	507	0.258		369	0.188	
	↑	A	1	3.500						2105	2105	543	0.258		396	0.188	
Argyle Street-WB	↑	B	1	3.200						2095	2095	475	0.227	0.227	356	0.170	0.170
	↑	B	1	3.200						2075	2075	470	0.227		352	0.170	
	↑	B	1	3.200						2075	2075	470	0.227		352	0.170	
Argyle Street-SB	↰	C	2,3,4	3.500	10			100%	100%	1710	1710	490	0.287		517	0.302	
	↰	C	2,3,4	3.500	10			100%	100%	1830	1830	525	0.287		553	0.302	
Argyle Street-SB	↱	D	2	3.500		20				1960	1960	300	0.153	0.153	263	0.134	0.134
	↱	D	2	3.500		20				1960	1960	300	0.153		262	0.134	
Sai Yee Street-NB	↰	E	3	3.700	15			100%	100%	1805	1805	160	0.089	0.089	235	0.130	0.130
	↑	E	3	3.700						2125	2125	60	0.028		115	0.054	
Pedestrian Crossing		Fp	1,2,4	MIN GREEN + FLASH =			8	+	8	=	16						
		Gp	4	MIN GREEN + FLASH =			17	+	12	=	29			*			*
		Hp	1	MIN GREEN + FLASH =			27	+	11	=	38						

Notes:

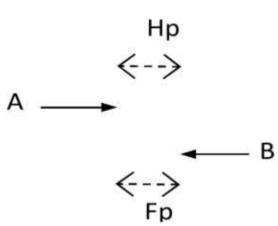
Flow: (pcu/hr)



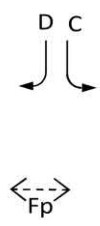
Group		B,D,E,Gp	Group		B,D,E,Gp
y		0.468	y		0.434
L (sec)		52	L (sec)		52
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.540
R.C. (%)		15%	R.C. (%)		24%

Stage / Phase Diagrams

1.



2.



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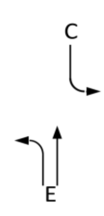

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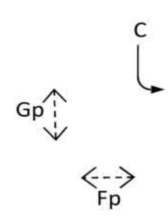


5.

I/G= 2		I/G= 6		I/G= 9		I/G= 9	29	I/G=	
I/G= 2		I/G= 6		I/G= 9		I/G= 9	29	I/G=	

Date: MAY, 2022 Junction: J10 Argyle St/Sai Yee St.

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

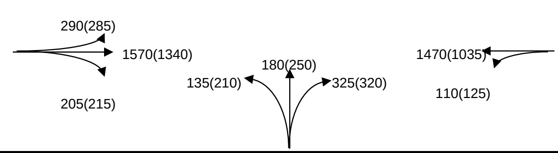
Junction: Argyle St/Yim Po Fong St/Luen Wan St Design Year: 2047

Description: 2047 Design Flows (imp) Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Argyle Street-EB		A	1,2	3.300	10					1690	1690	290	0.172		285	0.169	
Argyle Street-EB		B	1,2	3.500						1965	1965	511	0.260		436	0.222	
		B	1,2	3.500						2105	2105	548	0.260	0.260	468	0.222	0.222
		B	1,2	3.500						1965	1965	511	0.260		436	0.222	
Argyle Street-EB		D	2	3.500		15				1915	1915	205	0.107		215	0.112	
Argyle Street-WB		E	4	3.800	10			100%	100%	1735	1735	110	0.063		125	0.072	
		C	1	3.300						2085	2085	490	0.235		345	0.165	
		C	1	3.300						2085	2085	490	0.235		345	0.165	
		C	1	3.300						2085	2085	490	0.235		345	0.165	
Yim Po Fong St - NB		F	4	3.000	30			91%	97%	1830	1825	148	0.081		216	0.118	
		F	4	3.000						2055	2055	167	0.081		244	0.119	
Yim Po Fong St - NB		F	4	3.500		15				1915	1915	325	0.170	0.170	320	0.167	0.167
Pedestrian Crossing		Gp	1	MIN GREEN + FLASH =			43	+	9	=	52						
		Hp	3	MIN GREEN + FLASH =			26	+	8	=	34			*			*
		Jp	1,2,3	MIN GREEN + FLASH =			5	+	5	=	10						

Notes:

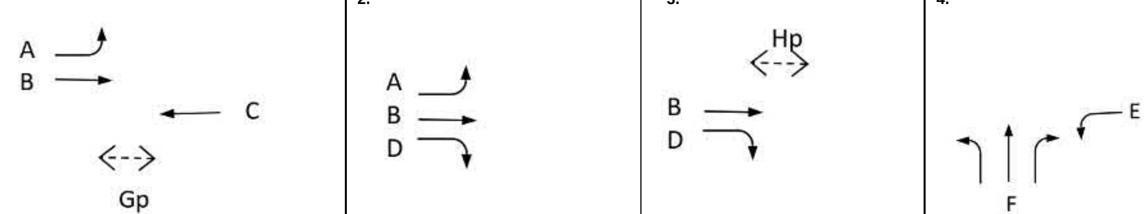
Flow: (pcu/hr)



Group		B,Hp,F	Group		B,Hp,F
y		0.430	y		0.389
L (sec)		51	L (sec)		51
C (sec)		130	C (sec)		130
y pract.		0.547	y pract.		0.547
R.C. (%)		27%	R.C. (%)		40%

Stage / Phase Diagrams

1. 2. 3. 4. 5.



I/G= 8		I/G=		I/G= 11	34	I/G=		I/G=	
I/G= 8		I/G=		I/G= 11	34	I/G=		I/G=	

Date: MAY, 2022 **Junction:** J11 Argyle St/Yim Po Fong St/Luen Wan St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

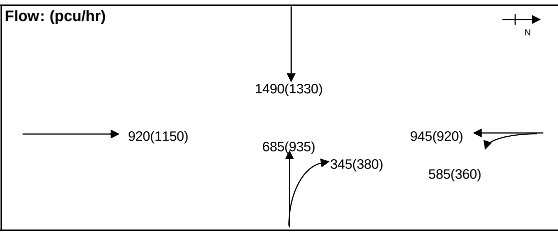
Junction: Waterloo Rd/Nathan Rd Design Year: 2022

Description: 2047 Design Flows Designed By: HAP Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Nathan Road-SB		A	1	3.400						1465	1465	386	0.263		345	0.235	
		A	1	3.400						2095	2095	552	0.263	0.263	492	0.235	
		A	1	3.400						2095	2095	552	0.263		493	0.235	
Nathan Road-NB		B	1,2	3.000						1865	1865	685	0.367		935	0.501	0.501
		J	2	3.000		15				1495	1495	188	0.126	0.126	207	0.138	
		J	2	3.000		10				1250	1250	157	0.126		173	0.138	
Waterkoo Road-EB		C	3	3.400						1955	1955	293	0.150		366	0.187	
		C	3	3.400						2095	2095	313	0.149		392	0.187	
		C	3	3.400						2095	2095	314	0.150		392	0.187	
Waterkoo Road-WB		D	3	3.200	5					1490	1490	417	0.280		340	0.228	0.228
		D	3	3.200	5			32%	4%	1895	2050	532	0.281	0.281	467	0.228	
		D	3	3.200				100%	100%	2075	2075	581	0.280		473	0.228	
Pedestrian Crossing		Ep	1,2	MIN GREEN + FLASH =			10	+	9	=	19						
		Fp	3	MIN GREEN + FLASH =			5	+	7	=	12						
		Gp	2,3	MIN GREEN + FLASH =			5	+	9	=	14						
		Hp	1	MIN GREEN + FLASH =			33	+	9	=	42						

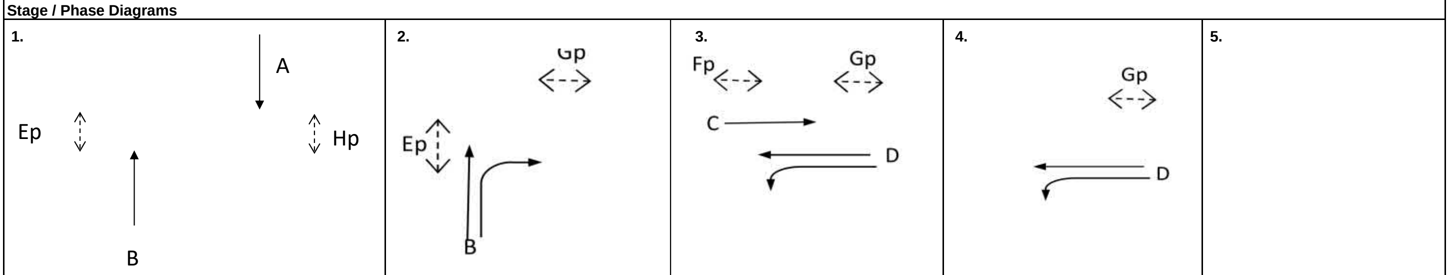
Notes:

Flow: (pcu/hr)



Group	Hp,J,D	A,J,D	Group	A,J,D	B,D
y	0.406	0.670	y	0.602	0.730
L (sec)	57	14	L (sec)	14	10
C (sec)	130	130	C (sec)	130	130
y pract.	0.505	0.803	y pract.	0.803	0.831
R.C. (%)	24%	20%	R.C. (%)	33%	14%

Stage / Phase Diagrams



I/G= 5		I/G= 6		I/G= 6		I/G=		I/G=	
I/G= 6		I/G=		I/G= 6		I/G=		I/G=	

Date: JUN, 2022 **Junction:** Waterloo Rd/Nathan Rd J15

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

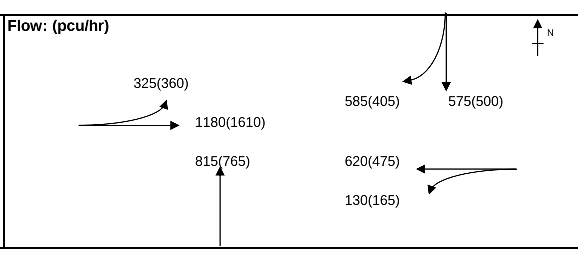
Junction: Jorden Rd / Nathan Rd Design Year: 2047

Description: 2047 Design Flows (imp) Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Jorden Rd - EB		A	1	3.600	10					1715	1715	325	0.190		360	0.210	
		A	1	3.600						2115	2115	590	0.279	0.279	805	0.381	0.381
		A	1	3.600						2115	2115	590	0.279		805	0.381	
Jorden Rd - WB		A	1	3.600	5			60%	95%	1675	1540	217	0.130		174	0.113	
		A	1	3.000						2055	2055	267	0.130		233	0.113	
		A	1	3.000						2055	2055	266	0.129		233	0.113	
Nathan Rd - NB		B	2	3.300						1945	1945	393	0.202		369	0.190	
		B	2	3.300						2085	2085	422	0.202	0.202	396	0.190	0.190
Nathan Rd - SB		C	3	3.500						1965	1965	378	0.192		294	0.150	
		C	3	3.500		35		50%	34%	2060	2075	396	0.192		311	0.150	
		C	3	3.500		30				2005	2005	386	0.193		300	0.150	
Pedestrian Crossing		Dp	1,2	MIN GREEN + FLASH =			5	+	9	=	14						
		Ep	2	MIN GREEN + FLASH =			19	+	10	=	29						
		Fp	2	MIN GREEN + FLASH =			6	+	10	=	16						
		Gp	3	MIN GREEN + FLASH =			12	+	8	=	20			*			*
		Hp	1,3	MIN GREEN + FLASH =			5	+	7	=	12						

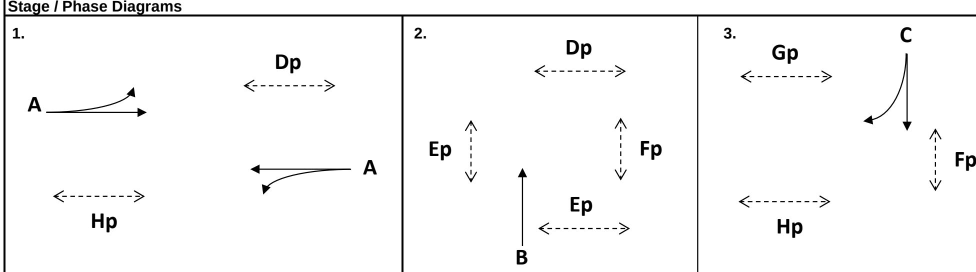
Notes:

Flow: (pcu/hr)



Group		A,B,Gp	Group		A,B,Gp
y		0.481	y		0.571
L (sec)		41	L (sec)		35
C (sec)		130	C (sec)		130
y pract.		0.616	y pract.		0.658
R.C. (%)		28%	R.C. (%)		15%

Stage / Phase Diagrams



I/G= 3		I/G= 6		I/G= 12	22	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 12	16	I/G=		I/G=	

Date: MAY, 2022 **Junction:** J21 Jorden Rd / Nathan Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010

MVA HONG KONG LIMITED

Junction: Jorden Rd / Gascoigne Rd

Design Year: 2047

Description: 2047 Design Flows (imp)

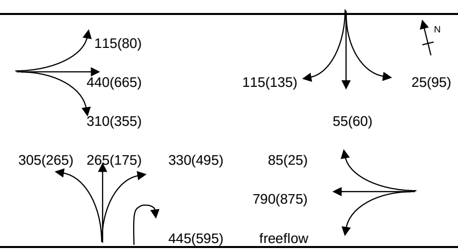
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Gascoigne Rd - EB		A	1	6.100	15					2025	2025	115	0.057		80	0.040	
		A	1	4.500						2205	2205	220	0.100		333	0.151	
		A	1	4.500						2205	2205	220	0.100		332	0.151	
		A	1	4.500						2205	2205	310	0.141	0.141	355	0.161	0.161
Gascoigne Rd - WB		B1	1,2	3.100						1925	1925	381	0.198		422	0.219	
		B1	1,2	3.100						2065	2065	409	0.198		453	0.219	
		B2	2	3.000		10				1785	1785	85	0.048	0.048	25	0.014	
Jorden Rd - NB		C	3	3.300	20			54%	60%	1870	1860	570	0.305		440	0.237	
Jorden Rd - NB		C	3	3.300		20				1940	1940	330	0.170		495	0.255	
		C	3	3.400		15				1905	1905	445	0.234		595	0.312	
Queen Elizabeth Hospital Rd - SB		D	4	4.000	20					1125	1125	115	0.102	0.102	135	0.120	
		D	4	4.000		25		31%	61%	1270	1245	80	0.063		155	0.124	0.124
Pedestrian Crossing		Ep	2,3,4	MIN GREEN + FLASH =			6	+	12	=	18						
		Fp	3	MIN GREEN + FLASH =			46	+	7	=	53			*			*
		Gp	1,2,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp1	4,1	MIN GREEN + FLASH =			10	+	10	=	20						
		Hp2	1,2,3	MIN GREEN + FLASH =			10	+	10	=	20						
		Ip	1,2,3	MIN GREEN + FLASH =				+	5	=	10						

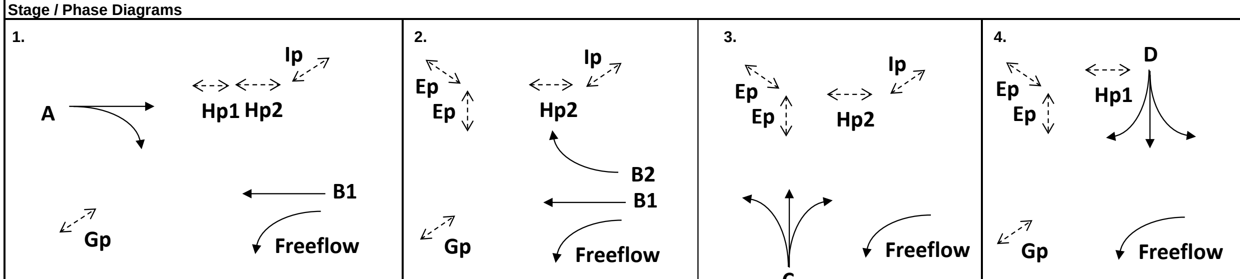
Notes:

Flow: (pcu/hr)



Group	B1,Fp,D	A,B2,Fp,D	Group	B1,Fp,D	A,B2,Fp,D
y	0.300	0.290	y	0.344	0.285
L (sec)	69	74	L (sec)	69	80
C (sec)	130	130	C (sec)	130	130
y pract.	0.422	0.388	y pract.	0.422	0.346
R.C. (%)	41%	33%	R.C. (%)	23%	21%

Stage / Phase Diagrams



I/G= 5		I/G= 5		I/G= 8	53	I/G= 6		I/G=	
I/G= 5		I/G= 5	5	I/G= 8	53	I/G= 6		I/G=	

Date: MAY, 2022

Junction: J22 Jorden Rd / Gascoigne Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

Junction: Nathan Rd / Argyle St

Design Year: 2047

Description: 2047 Design Flows (imp)

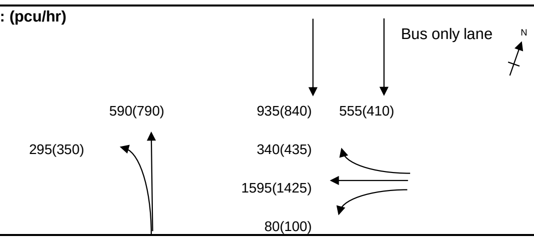
Designed By: CHJ

Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m)		Gradient (%)	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Argyle St - WB		E	2	3.000	5					1475	1475	80	0.054		100	0.068	
		D	1,2	3.200						2075	2075	676	0.326	0.326	660	0.318	
		D	1,2	3.400						2095	2095	682	0.326		667	0.318	0.318
		D	1,2	3.300		5		59%	82%	1770	1675	577	0.326		533	0.318	
Nathan Rd - SB		A	3,4	3.300						2085	2085	468	0.224		420	0.201	
		A	3,4	3.300						2085	2085	467	0.224		420	0.201	
Nathan Rd - SB (Bus only lane)		A	3,4	3.300						1945	1945	555	0.285		410	0.211	
Nathan Rd - NB		C	4	3.500	5					1510	1510	295	0.195	0.195	350	0.232	0.232
Nathan Rd - NB		B	3,4	3.200						2075	2075	295	0.142		395	0.190	
		B	3,4	3.200						2075	2075	295	0.142		395	0.190	
Pedestrian Crossing		Fp	3	MIN GREEN + FLASH =			11	+	15	=	26			*			*
		Gp	3,4	MIN GREEN + FLASH =			6	+	16	=	22						
		Hp	1	MIN GREEN + FLASH =			26	+	12	=	38						

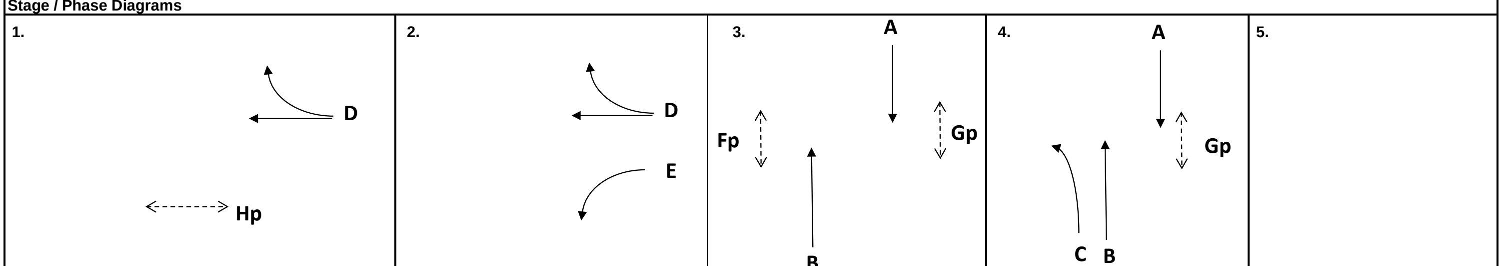
Notes:

Flow: (pcu/hr)



Group		D,Fp,C	Group		D,Fp,C
y		0.521	y		0.550
L (sec)		42	L (sec)		42
C (sec)		130	C (sec)		130
y pract.		0.609	y pract.		0.609
R.C. (%)		17%	R.C. (%)		11%

Stage / Phase Diagrams



I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	
I/G= 6		I/G=		I/G= 9	26	I/G= 3		I/G=	

Date: MAY, 2022

Junction: J26

Nathan Rd / Argyle St

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 — **MVA HONG KONG LIMITED**

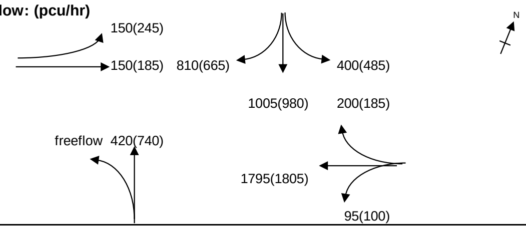
Junction: Argyle St / Tong Mi Rd — Design Year: 2047

Description: 2047 Design Flows (imp -Phase 1) — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	140	0.067	0.067	247	0.118	0.118
		A	1	3.300						2085	2085	140	0.067		246	0.118	
		A	1	3.300						2085	2085	140	0.067		247	0.118	
Tong Mi Rd - SB		E	2	3.300	10			58%	72%	1790	1755	685	0.383		669	0.381	
Tong Mi Rd - SB		E	2	3.300		20		9%	0%	2070	2085	793	0.383	0.383	796	0.382	0.382
Tong Mi Rd - SB		E	2	3.600		15				1925	1925	737	0.383		665	0.345	
Argyle St - EB		C	3	3.300	10					1690	1690	150	0.089		245	0.145	
Argyle St - EB		C	3	3.400						2095	2095	150	0.072		185	0.088	
Argyle St - WB		G	3,4	4.500	50			15%	15%	2210	2210	649	0.294	0.294	654	0.296	0.296
Argyle St - WB		D	3,4	3.600						2115	2115	621	0.294		626	0.296	
		D	3,4	3.600						2115	2115	620	0.293		625	0.296	
Argyle St - WB		F	4	3.300		15				1895	1895	200	0.106		185	0.098	
Pedestrian Crossing																	

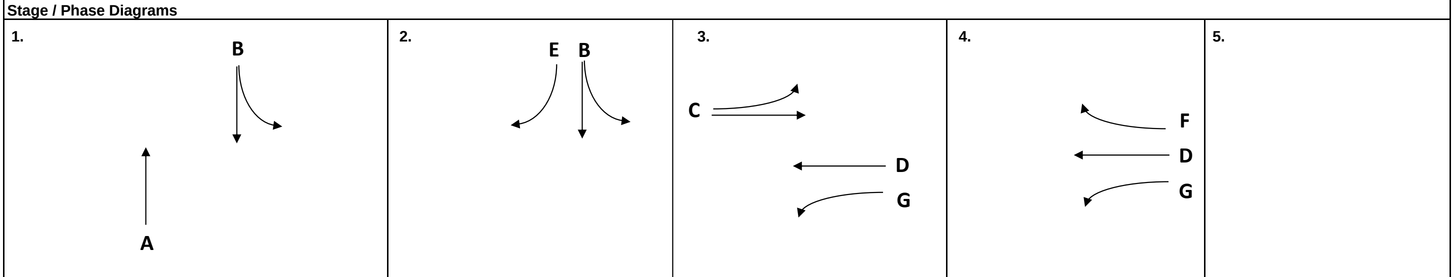
Notes:

Flow: (pcu/hr)



AM Group		A,E,G	PM Group		A,E,G
y		0.744	y		0.796
L (sec)		18	L (sec)		18
C (sec)		130	C (sec)		130
y pract.		0.775	y pract.		0.775
R.C. (%)		4%	R.C. (%)		-3%

Stage / Phase Diagrams



I/G= 7	I/G= 5	I/G= 9	I/G=	I/G=
I/G= 7	I/G= 5	I/G= 9	I/G=	I/G=

Date: JUN, 2022 — **Junction:** Argyle St / Tong Mi Rd — J27

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

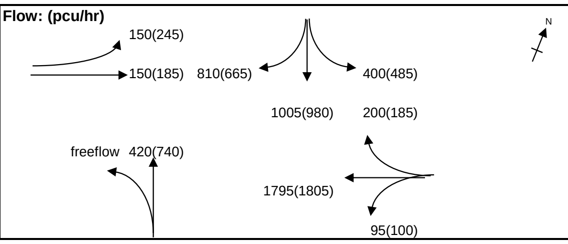
Junction: Argyle St / Tong Mi Rd Design Year: 2047

Description: 2047 Design Flows (imp -Phase 2) Designed By: CHJ Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - NB		A	1	3.300						2085	2085	140	0.067		247	0.118	
		A	1	3.300						2085	2085	140	0.067		246	0.118	
		A	1	3.300						2085	2085	140	0.067		247	0.118	
Tong Mi Rd - SB		B	1,2	3.500	10			61%	72%	1800	1775	651	0.362	0.362	673	0.379	
Tong Mi Rd - SB		B	1,2	3.300						2085	2085	754	0.362		792	0.380	0.380
Tong Mi Rd - SB		E	2	3.300		15				1895	1895	402	0.212		330	0.174	
		E	2	3.600		15				1925	1925	408	0.212		335	0.174	
Argyle St - EB		C	3	3.300	10					1690	1690	150	0.089		245	0.145	
Argyle St - EB		C	3	3.400						2095	2095	150	0.072		185	0.088	
Argyle St - WB		G	3,4	3.300	50					1890	1890	95	0.050		100	0.053	
Argyle St - WB		G	3,4	3.600						2115	2115	598	0.283		602	0.285	0.285
		G	3,4	3.600						2115	2115	599	0.283	0.283	601	0.284	
		G	3,4	3.600						2115	2115	598	0.283		602	0.285	
Argyle St - WB		F	4	3.000		10				1785	1785	200	0.112		185	0.104	
Pedestrian Crossing																	

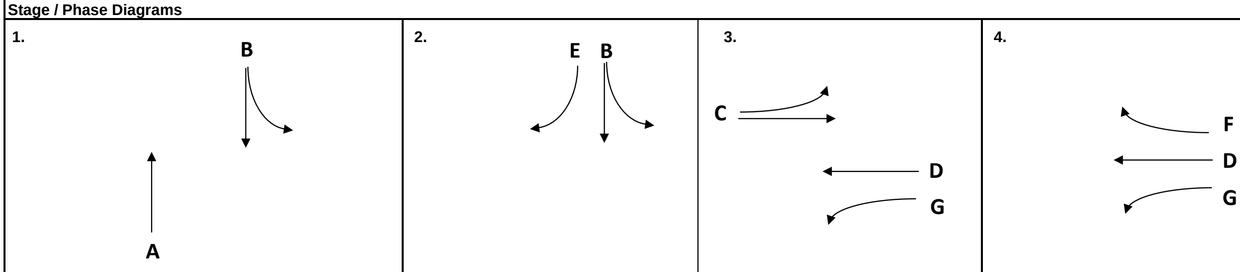
Notes:

Flow: (pcu/hr)



Group	A,E,G	B,G	Group	A,E,G	B,G
y	0.562	0.645	y	0.577	0.664
L (sec)	18	10	L (sec)	18	10
C (sec)	130	130	C (sec)	130	130
y pract.	0.775	0.831	y pract.	0.775	0.831
R.C. (%)	38%	29%	R.C. (%)	34%	25%

Stage / Phase Diagrams



I/G= 5		I/G=		I/G= 7		I/G=		I/G=	
I/G= 5		I/G=		I/G= 7		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J27 Argyle St / Tong Mi Rd

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

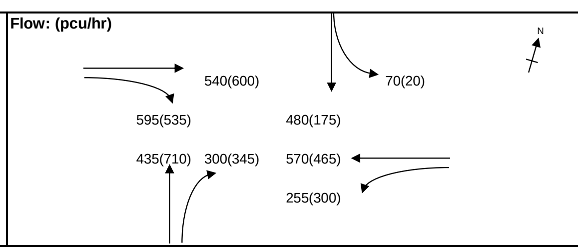
Junction: Tong Mi Rd / Prince Edward Rd West | Design Year: 2047

Description: 2047 Design Flows (imp) | Designed By: CHJ | Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tong Mi Rd - SB		A	1	3.800	10			27%	22%	1920	1935	260	0.135		93	0.048	0.048
Tong Mi Rd - SB		A	1	3.800						2135	2135	290	0.136	0.136	102	0.048	
Tong Mi Rd - NB		B	2	3.100						1925	1925	180	0.094		257	0.134	
Tong Mi Rd - NB		B	2	3.100						2065	2065	193	0.093		275	0.133	
		B	2	3.300		20		66%	34%	1985	2035	185	0.093		271	0.133	
		B	2	3.250		15				1890	1890	177	0.094		252	0.133	
Prince Edward Rd West - WB		C	3	3.200	10					1685	1685	236	0.140		221	0.131	
Prince Edward Rd West - WB		C	3	3.400	15			7%	30%	2080	2035	292	0.140		267	0.131	0.131
		C	3	3.600						2115	2115	297	0.140	0.140	277	0.131	
Prince Edward Rd West - EB		D	4	3.400						2115	2115	396	0.187		395	0.187	0.187
		D	4	3.400		20		62%	46%	2000	2025	375	0.188		378	0.187	
		D	4	3.800		15				1940	1940	364	0.188	0.188	362	0.187	
Pedestrian Crossing		Ep	1,2,4	MIN GREEN + FLASH =			9	+	9	=	18						
		Fp	2	MIN GREEN + FLASH =			17	+	8	=	25			*			*
		Gp	1,3,4	MIN GREEN + FLASH =			11	+	11	=	22						
		Hp	1	MIN GREEN + FLASH =			14	+	13	=	27						
		Ip	3,4	MIN GREEN + FLASH =			11	+	10	=	21						
		Jp	3	MIN GREEN + FLASH =				+	9	=	24						

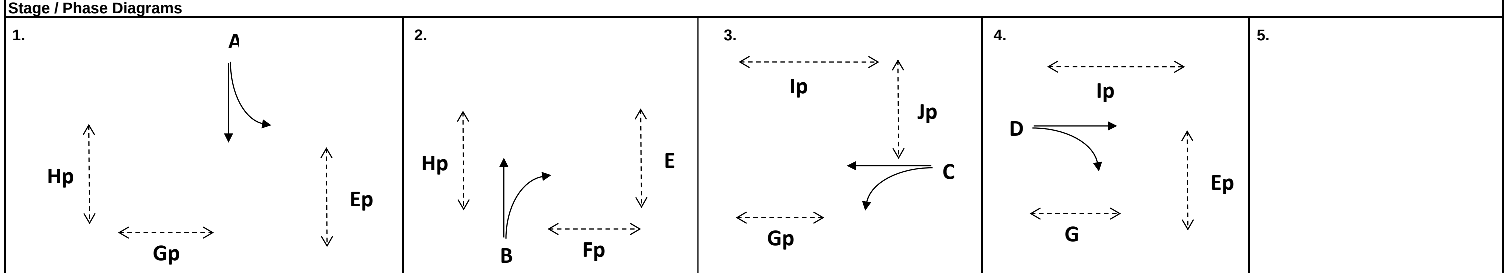
Notes:

Flow: (pcu/hr)



Group		A,Fp,C,D	Group		A,Fp,C,D
y		0.464	y		0.366
L (sec)		52	L (sec)		55
C (sec)		130	C (sec)		130
y pract.		0.540	y pract.		0.519
R.C. (%)		16%	R.C. (%)		42%

Stage / Phase Diagrams



I/G= 7	5	I/G= 11	25	I/G= 2		I/G= 5		I/G=	
I/G= 7	5	I/G= 11	28	I/G= 2		I/G= 5		I/G=	

Date: MAY, 2022 **Junction:** J29 Tong Mi Rd / Prince Edward Rd West

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50648010 **MVA HONG KONG LIMITED**

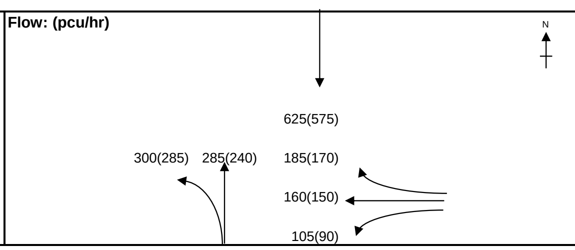
Junction: Tai Kok Tsui Rd / Ivy St — Design Year: 2047

Description: 2047 Design Flows (imp) — Designed By: CHJ — Checked By: MSH

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tai Kok Tsui Rd - SB		A	1	4.500						2065	2065	625	0.303	0.303	575	0.278	0.278
Tai Kok Tsui Rd - NB		A	1	3.200	10			90%	100%	1705	1685	216	0.127		195	0.116	
Tai Kok Tsui Rd - NB		A	1	3.300						2085	2085	264	0.127		240	0.115	
Ivy St - WB		B	3	4.000	15			40%	38%	1940	1940	265	0.137	0.137	240	0.124	0.124
Ivy St - WB		D	3	4.000		15				1960	1960	185	0.094		170	0.087	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			22	+	20	=	42			*			*

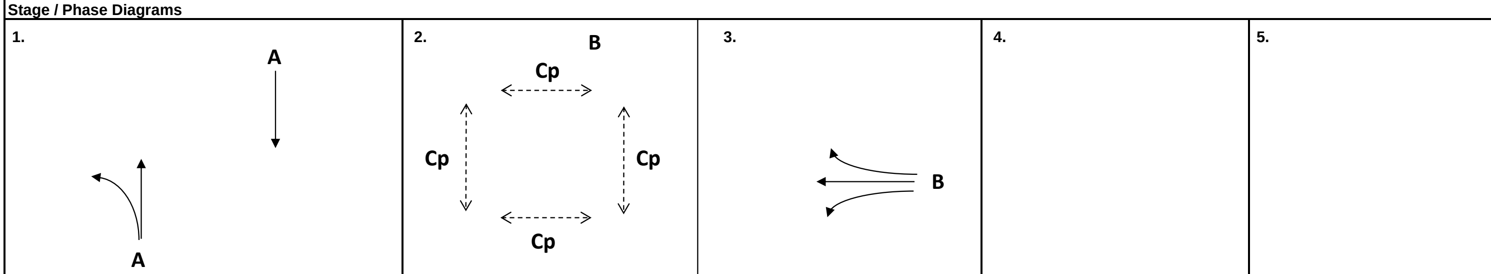
Notes:

Flow: (pcu/hr)



Group	A,Cp,D	A,Cp,B	Group	A,Cp,D	A,Cp,B
y	0.397	0.439	y	0.365	0.402
L (sec)	59	59	L (sec)	59	59
C (sec)	136	136	C (sec)	136	136
y pract.	0.510	0.510	y pract.	0.510	0.510
R.C. (%)	28%	16%	R.C. (%)	40%	27%

Stage / Phase Diagrams



I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	
I/G= 7		I/G= 7	42	I/G= 5		I/G=		I/G=	

Date: MAY, 2022 **Junction:** J30 Tai Kok Tsui Rd / Ivy St

APPENDIX B LOCAL AREA TRAFFIC MODEL VALIDATION

Appendix B - Local Area Traffic Model Validation

		AM				PM			
		OBS	MOD	MOD/OBS	GEH	OBS	MOD	MOD/OBS	GEH
***J1 - Boundary Street/Tung Chau Street/Nam Cheong Street**									
* Tung Chau Street	SEB	320	240	0.8	4	320	340	1.1	1
* Nam Cheong Street	SWB	360	350	1.0	0	250	260	1.0	0
* Chui Yu Road	EB	680	830	1.2	5	670	710	1.1	2
ENTRY ARM - TOTAL		**1350**	**1420**	**1.1**	**2**	**1240**	**1310**	**1.1**	**2**
* Nam Cheong Street	NEB	610	650	1.1	2	700	760	1.1	2
* Boundary Street	EB	100	140	1.4	3	50	60	1.2	1
* Tung Chau Street	SEB	640	640	1.0	0	490	490	1.0	0
EXIT ARM - TOTAL		**1350**	**1420**	**1.1**	**2**	**1240**	**1310**	**1.1**	**2**
*** J2 - Boundary Street/Lai Chi Kok Road**									
* Lai Chi Kok Road	SEB	460	410	0.9	3	600	520	0.9	4
* Lai Chi Kok Road	NWB	1760	1850	1.0	2	2340	2400	1.0	1
* Yee Kuk Street	EB	420	390	0.9	1	360	350	1.0	0
ENTRY ARM - TOTAL		**2640**	**2650**	**1.0**	**0**	**3300**	**3270**	**1.0**	**1**
* Lai Chi Kok Road	NWB	770	780	1.0	0	1050	1050	1.0	0
* Wong Chuk Street	NEB	500	520	1.1	1	700	710	1.0	0
* Boundary Street	EB	480	350	0.7	7	510	470	0.9	2
* Lai Chi Kok Road	SEB	330	370	1.1	2	390	400	1.0	0
* Boundary Street	WB	570	640	1.1	3	640	650	1.0	0
EXIT ARM - TOTAL		**2640**	**2650**	**1.0**	**0**	**3300**	**3270**	**1.0**	**1**
*** J3 - Boundary Street/Nathan Road/ Cheung Sha Wan Road**									
* Cheung Sha Wan Road	SEB	1420	1600	1.1	5	1360	1380	1.0	1
* Nathan Road	NB	890	910	1.0	1	1260	1240	1.0	1
* Boundary Street	EB	1090	940	0.9	5	1290	1250	1.0	1
ENTRY ARM - TOTAL		**3400**	**3440**	**1.0**	**1**	**2620**	**2630**	**1.0**	**0**
* Cheung Sha Wan Road	NWB	930	950	1.0	1	1320	1300	1.0	1
* Boundary Street	EB	1250	1080	0.9	5	1460	1410	1.0	1
* Nathan Road	SB	1210	1410	1.2	5	1130	1170	1.0	1
EXIT ARM - TOTAL		**3400**	**3440**	**1.0**	**1**	**3910**	**3880**	**1.0**	**1**
*** J4 - Boundary Street/Embankment Road**									
* Boundary Street	EB	3160	3200	1.0	1	3530	3550	1.0	0
* Embankment Road	NEB	1000	1010	1.0	0	860	930	1.1	2
ENTRY ARM - TOTAL		**4150**	**4210**	**1.0**	**1**	**4390**	**4480**	**1.0**	**1**
* Boundary Street	EB	3580	3650	1.0	1	3780	3840	1.0	1
* Boundary Street	WB	580	560	1.0	1	610	640	1.1	1
EXIT ARM - TOTAL		**4150**	**4210**	**1.0**	**1**	**4390**	**4480**	**1.0**	**1**
*** J5 - Sham Mong Road/Chui Yu Road**									
* Sham Mong Road	SEB	240	300	1.2	4	160	160	1.0	0
* Chui Yu Road	WB	1180	1230	1.0	1	930	960	1.0	1
* Sham Mong Road	NWB	520	550	1.1	1	550	540	1.0	0
ENTRY ARM - TOTAL		**1950**	**2080**	**1.1**	**3**	**1640**	**1660**	**1.0**	**0**
* Sham Mong Road	NWB	340	350	1.0	1	470	520	1.1	3
* Chui Yu Road	EB	390	490	1.2	4	340	350	1.0	0
* Sham Mong Road	SEB	1220	1250	1.0	1	830	790	0.9	2
EXIT ARM - TOTAL		**1950**	**2080**	**1.1**	**3**	**1640**	**1660**	**1.0**	**0**
*** J6 - Sham Mong Road/Hoi Fai Road**									
* Sham Mong Road	SEB	1220	1250	1.0	1	830	790	0.9	2
* Sham Mong Road	NWB	390	380	1.0	0	320	280	0.9	2
* Hoi Fai Road	NEB	1140	1220	1.1	2	1130	1130	1.0	0
ENTRY ARM - TOTAL		**2740**	**2850**	**1.0**	**2**	**2280**	**2200**	**1.0**	**2**
* Sham Mong Road	NWB	520	550	1.1	1	550	540	1.0	0
* Sham Mong Road	SEB	1000	1040	1.0	1	900	900	1.0	0
* Hoi Fai Road	SWB	1220	1260	1.0	1	840	760	0.9	3
EXIT ARM - TOTAL		**2740**	**2850**	**1.0**	**2**	**2280**	**2200**	**1.0**	**2**
*** J7 - Prince Edward Road West/Sai Yee Street**									
* Prince Edward Road West	WB	2220	2270	1.0	1	2420	2400	1.0	0
* Sai Yee Street	NB	360	410	1.2	3	550	570	1.0	1
* Prince Edward Road West	EB	130	140	1.1	1	130	120	0.9	2
ENTRY ARM - TOTAL		**2700**	**2820**	**1.0**	**2**	**3100**	**3090**	**1.0**	**0**
* Sai Yee Street	NB	410	460	1.1	3	630	640	1.0	0
* Sai Yee Street	SB	510	580	1.1	3	590	590	1.0	0
* Prince Edward Road West	WB	1790	1780	1.0	0	1880	1870	1.0	0
EXIT ARM - TOTAL		**2700**	**2820**	**1.0**	**2**	**3100**	**3090**	**1.0**	**0**
*** J8 - Prince Edward Road West/Embankment Road**									
* Prince Edward Road West	WB	4770	4700	1.0	1	4730	4920	1.0	3
* Prince Edward Road West	EB	170	160	1.0	0	110	110	1.0	0
ENTRY ARM - TOTAL		**4940**	**4870**	**1.0**	**1**	**4840**	**5030**	**1.0**	**3**
* Embankment Road	NEB	1130	1140	1.0	0	950	1010	1.1	2
* Prince Edward Road West	WB	3800	3730	1.0	1	3890	4020	1.0	2
EXIT ARM - TOTAL		**4940**	**4870**	**1.0**	**1**	**4840**	**5030**	**1.0**	**3**
*** J9 - Cherry Street/Tai Kok Tsui Road/Hoi Wang Road**									
* Tai Kok Tsui Road	SB	780	800	1.0	1	720	730	1.0	0
* Cherry Street	WB	2470	2430	1.0	1	2890	2820	1.0	1
* Hoi Wang Road	NB	630	620	1.0	1	630	730	1.2	4
* Cherry Street	EB	200	200	1.0	0	150	180	1.1	2

		AM				PM			
				MOD/O				MOD/O	
		OBS	MOD	BS	GEH	OBS	MOD	BS	GEH
ENTRY ARM - TOTAL		**4080**	**4060**	**1.0**	**0**	**4390**	**4460**	**1.0**	**1**
* West Kowloon Corridor West	NB	900	930	1.0	1	1140	1110	1.0	1
* Cherry Street	EB	330	370	1.1	3	350	390	1.1	2
* Hoi Wang Road	SB	590	560	0.9	1	590	520	0.9	3
* Cherry Street	WB	2260	2200	1.0	1	2320	2440	1.1	2
EXIT ARM - TOTAL		**4080**	**4060**	**1.0**	**0**	**4390**	**4460**	**1.0**	**1**
*** J10 - Argyle Street/Sai Yee Street**									
* Sai Yee Street	SB	1450	1380	1.0	2	1670	1690	1.0	0
* Argyle Street	WB	1640	1550	0.9	2	1390	1240	0.9	4
* Sai Yee Street	NB	240	270	1.1	2	390	370	0.9	1
* Argyle Street	EB	850	830	1.0	1	660	670	1.0	0
ENTRY ARM - TOTAL		**4170**	**4020**	**1.0**	**2**	**4120**	**3960**	**1.0**	**2**
* Sai Yee Street	NB	90	120	1.3	3	160	160	1.0	0
* Argyle Street	EB	1900	1830	1.0	2	1830	1870	1.0	1
* Argyle Street	WB	2180	2080	1.0	2	2130	1930	0.9	4
EXIT ARM - TOTAL		**4170**	**4020**	**1.0**	**2**	**4120**	**3960**	**1.0**	**2**
*** J11 - Argyle Street/Yim Po Fong Street/Luen Wan Street**									
* Argyle Street	WB	1730	1760	1.0	1	1330	1430	1.1	3
* Yim Po Fong Street	NB	660	730	1.1	3	820	850	1.0	1
* Argyle Street	EB	1900	1830	1.0	2	1830	1870	1.0	1
ENTRY ARM - TOTAL		**4290**	**4310**	**1.0**	**0**	**3980**	**4140**	**1.0**	**3**
* Luen Wan Street	NB	440	480	1.1	2	510	500	1.0	0
* Argyle Street	EB	1650	1690	1.0	1	1640	1750	1.1	3
* Yim Po Fong Street	SB	430	390	0.9	2	440	410	0.9	2
* Argyle Street	WB	1760	1750	1.0	0	1390	1480	1.1	2
EXIT ARM - TOTAL		**4290**	**4310**	**1.0**	**0**	**3980**	**4140**	**1.0**	**3**
*** J12 - Waterloo Road/Yim Po Fong Street/Wylie Road**									
* Yim Po Fong Street	SB	530	450	0.8	4	510	510	1.0	0
* Waterloo Road	SWB	1420	1470	1.0	1	1280	1360	1.1	2
* Wylie Road	NB	540	640	1.2	4	480	580	1.2	4
* Waterloo Road	NEB	1270	1360	1.1	2	1120	1150	1.0	1
ENTRY ARM - TOTAL		**3770**	**3920**	**1.0**	**2**	**3390**	**3590**	**1.1**	**3**
* Yim Po Fong Street	NB	420	440	1.0	1	370	470	1.3	5
* Waterloo Road	NEB	1460	1530	1.0	2	1260	1290	1.0	1
* Wylie Road	SB	660	640	1.0	1	630	570	0.9	3
* Waterloo Road	SWB	1230	1310	1.1	2	1120	1270	1.1	4
EXIT ARM - TOTAL		**3770**	**3920**	**1.0**	**2**	**3390**	**3590**	**1.1**	**3**
*** J13 - Waterloo Road/Dundas Street**									
* Waterloo Road	NEB	1690	1780	1.1	2	1690	1680	1.0	0
ENTRY ARM - TOTAL		**1690**	**1780**	**1.1**	**2**	**1690**	**1680**	**1.0**	**0**
* Dundas Street	WB	420	410	1.0	0	570	530	0.9	1
* Waterloo Road	NEB	1270	1360	1.1	2	1120	1150	1.0	1
EXIT ARM - TOTAL		**1690**	**1780**	**1.1**	**2**	**1690**	**1680**	**1.0**	**0**
*** J14 - Lai Cheung Road/Hoi Wang Road**									
* Hoi Wang Road	SB	460	450	1.0	1	350	360	1.0	0
* Hoi Wang Road	NB	310	320	1.0	0	370	380	1.0	0
* Lai Cheung Road	EB	1480	1630	1.1	4	1370	1470	1.1	2
ENTRY ARM - TOTAL		**2250**	**2390**	**1.1**	**3**	**2100**	**2200**	**1.1**	**2**
* Hoi Wang Road	NB	490	480	1.0	0	540	560	1.0	1
* Lai Cheung Road (Northern)	EB	780	850	1.1	2	640	650	1.0	1
* Lai Cheung Road (Southern)	EB	860	940	1.1	3	830	910	1.1	3
* Hoi Wang Road	SB	130	120	1.0	0	90	90	1.0	0
EXIT ARM - TOTAL		**2250**	**2390**	**1.1**	**3**	**2100**	**2200**	**1.1**	**2**
*** J15 - Lai Cheung Road/Fery Street/Waterloo Road**									
* Ferry Street	SB	250	190	0.8	4	170	160	0.9	1
* Waterloo Road	WB	900	1070	1.2	6	1150	1250	1.1	3
* Ferry Street	NB	870	870	1.0	0	880	870	1.0	0
* Lai Cheung Road (Southern)	EB	990	1090	1.1	3	950	1040	1.1	3
* Lai Cheung Road (Northern)	EB	1140	1320	1.2	5	1240	1260	1.0	1
ENTRY ARM - TOTAL		**4150**	**4550**	**1.1**	**6**	**4390**	**4580**	**1.0**	**3**
* Ferry Street	NB	470	500	1.1	2	750	740	1.0	1
* Waterloo Road	EB	1480	1570	1.1	2	1490	1500	1.0	0
* Ferry Street	SB	1060	1320	1.2	8	1110	1250	1.1	4
* Ngo Cheung Road	SWB	1140	1160	1.0	1	1050	1080	1.0	1
EXIT ARM - TOTAL		**4150**	**4550**	**1.1**	**6**	**4390**	**4580**	**1.0**	**3**

		AM				PM			
		OBS	MOD	MOD/OBS	GEH	OBS	MOD	MOD/OBS	GEH
*** J16 - Waterloo Road/Nathan Road**									
* Nathan Road	SB	1280	1340	1.1	2	1340	1360	1.0	1
* Waterloo Road	WB	1350	1410	1.0	1	1370	1420	1.0	1
* Nathan Road	NB	1020	1070	1.0	1	1290	1280	1.0	0
* Waterloo Road	EB	1160	1140	1.0	1	1210	1220	1.0	0
ENTRY ARM - TOTAL		**4810**	**4960**	**1.0**	**2**	**5210**	**5280**	**1.0**	**1**
* Nathan Road	NB	660	650	1.0	0	890	890	1.0	0
* Waterloo Road	EB	1520	1560	1.0	1	1610	1610	1.0	0
* Nathan Road	SB	1730	1870	1.1	3	1730	1790	1.0	1
* Waterloo Road	WB	900	880	1.0	1	980	990	1.0	0
EXIT ARM - TOTAL		**4810**	**4960**	**1.0**	**2**	**5210**	**5280**	**1.0**	**1**
*** J17 - Lin Cheung Road/Hoi Wang Road/Ngo Cheung Road**									
* Hoi Wang Road	SB	130	120	1.0	0	90	90	1.0	0
* Ngo Cheung Road	SWB	1160	1100	1.0	2	1060	1090	1.0	1
* Hoi Wang Road	NB	720	670	0.9	2	770	780	1.0	0
ENTRY ARM - TOTAL		**2000**	**1890**	**0.9**	**2**	**1910**	**1950**	**1.0**	**1**
* Hoi Wang Road	NB	310	320	1.0	0	370	380	1.0	0
* Hoi Wang Road	SB	160	150	1.0	0	140	140	1.0	0
* Slip Road to West Kowloon Highway (Toll Road)	WB	430	430	1.0	0	330	340	1.0	1
* Slip Road to Lin Cheung Road NB	WB	1100	990	0.9	3	1080	1100	1.0	1
EXIT ARM - TOTAL		**2000**	**1890**	**0.9**	**2**	**1910**	**1950**	**1.0**	**1**
*** J18 - Nathan Road/Public Square Street/Gascoigne Road**									
* Nathan Road	SB	1910	2030	1.1	3	1960	2010	1.0	1
* Nathan Road	NB	980	980	1.0	0	1390	1390	1.0	0
ENTRY ARM - TOTAL		**2890**	**3010**	**1.0**	**2**	**3350**	**3400**	**1.0**	**1**
* Nathan Road	NB	870	870	1.0	0	1210	1190	1.0	0
* Nathan Road	SB	970	980	1.0	0	950	920	1.0	1
* Gascoigne Road	SB	720	750	1.0	1	760	780	1.0	1
* Public Square Street	WB	330	420	1.3	4	430	500	1.2	3
EXIT ARM - TOTAL		**2890**	**3010**	**1.0**	**2**	**3350**	**3400**	**1.0**	**1**
*** J19 - Nathan Road/Gascoigne Road/Kansu Street**									
* Nathan Road	SB	970	980	1.0	0	950	920	1.0	1
* Gascoigne Road	WB	780	760	1.0	1	1080	1090	1.0	0
* Nathan Road	NB	930	930	1.0	0	1280	1310	1.0	1
ENTRY ARM - TOTAL		**2680**	**2660**	**1.0**	**0**	**3310**	**3320**	**1.0**	**0**
* Nathan Road	NB	980	980	1.0	0	1390	1390	1.0	0
* Gascoigne Road	EB	310	320	1.1	1	350	370	1.1	1
* Nathan Road	SB	970	980	1.0	0	950	920	1.0	1
* Kansu Street	WB	420	390	0.9	2	620	640	1.0	1
EXIT ARM - TOTAL		**2680**	**2660**	**1.0**	**0**	**3310**	**3320**	**1.0**	**0**
*** J20 - Jordan Road/Hoi Wang Road/Wui Man Road**									
* Hoi Wang Road	SB	300	420	1.4	6	310	410	1.3	5
* Jordan Road	WB	1210	1130	0.9	2	1220	1210	1.0	0
* Wui Man Road	NB	190	200	1.1	1	200	230	1.1	2
* Jordan Road	EB	1290	1430	1.1	4	1530	1450	0.9	2
ENTRY ARM - TOTAL		**3000**	**3180**	**1.1**	**3**	**3270**	**3300**	**1.0**	**1**
* Hoi Wang Road	NB	350	360	1.0	1	230	280	1.2	3
* Jordan Road	EB	1290	1390	1.1	3	1420	1360	1.0	2
* Wui Man Road	SB	280	260	0.9	1	410	340	0.8	4
* Jordan Road	WB	1080	1180	1.1	3	1200	1320	1.1	3
EXIT ARM - TOTAL		**3000**	**3180**	**1.1**	**3**	**3270**	**3300**	**1.0**	**1**
*** J21- Jordan Road/Ferry Street/Canton Road**									
* Ferry Street	SB	1020	990	1.0	1	960	960	1.0	0
* Jordan Road	WB	1150	1090	0.9	2	1220	1130	0.9	3
* Canton Road	NB	1020	1020	1.0	0	990	1170	1.2	5
* Jordan Road	EB	1290	1390	1.1	3	1420	1360	1.0	2
ENTRY ARM - TOTAL		**4480**	**4490**	**1.0**	**0**	**4590**	**4600**	**1.0**	**0**
* Ferry Street	NB	620	560	0.9	2	750	770	1.0	1
* Jordan Road	EB	1600	1830	1.1	5	1610	1720	1.1	3
* Canton Road	SB	1050	970	0.9	3	1010	900	0.9	3
* Jordan Road	WB	1210	1130	0.9	2	1220	1210	1.0	0
EXIT ARM - TOTAL		**4480**	**4490**	**1.0**	**0**	**4590**	**4600**	**1.0**	**0**
*** J22- Jordan Road/Nathan Road**									
* Nathan Road	SB	1020	990	1.0	1	930	860	0.9	2
* Jordan Road	WB	840	850	1.0	0	860	880	1.0	0
* Nathan Road	NB	670	670	1.0	0	830	840	1.0	0
* Jordan Road	EB	1490	1570	1.1	2	1760	1820	1.0	2

		AM				PM			
		OBS	MOD	MOD/O BS	GEH	OBS	MOD	MOD/O BS	GEH
ENTRY ARM - TOTAL		**4020**	**4080**	**1.0**	**1**	**4390**	**4400**	**1.0**	**0**
* Nathan Road	NB	900	920	1.0	1	1190	1210	1.0	1
* Jordan Road	EB	1250	1320	1.1	2	1400	1450	1.0	1
* Nathan Road	SB	760	720	0.9	1	750	690	0.9	2
* Jordan Road	WB	1110	1120	1.0	0	1050	1050	1.0	0
EXIT ARM - TOTAL		**4020**	**4080**	**1.0**	**1**	**4390**	**4400**	**1.0**	**0**
*** J23- Jordan Road/Gascoigne Road**									
* Queen Elizabeth Hospital Road	SB	180	130	0.7	4	290	290	1.0	0
* Gascoigne Road	NWB	1420	1510	1.1	2	1720	1730	1.0	0
* Jordan Road	NEB	1520	1500	1.0	0	1400	1440	1.0	1
* Gascoigne Road	SEB	1030	1040	1.0	0	1110	1120	1.0	0
ENTRY ARM - TOTAL		**4150**	**4180**	**1.0**	**0**	**4510**	**4580**	**1.0**	**1**
* Queen Elizabeth Hospital Road	NB	460	450	1.0	0	290	290	1.0	0
* Gascoigne Road	SEB	920	900	1.0	1	1140	1240	1.1	3
* Flyover to West Kowloon Corridor	SEB	1030	1060	1.0	1	1050	1000	0.9	2
* Jordan Road	SWB	710	760	1.1	2	860	840	1.0	0
* Gascoigne Road	NWB	1040	1020	1.0	1	1180	1210	1.0	1
EXIT ARM - TOTAL		**4150**	**4180**	**1.0**	**0**	**4510**	**4580**	**1.0**	**1**
*** J24- Boundary Street/Tai Hang Tung Road**									
* Tai Hang Tung Road	SB	800	780	1.0	1	860	860	1.0	0
* Boundary Street	WB	580	560	1.0	1	610	640	1.1	1
* Boundary Street	EB	2750	2880	1.0	2	3040	3100	1.0	1
ENTRY ARM - TOTAL		**4130**	**4210**	**1.0**	**1**	**4500**	**4600**	**1.0**	**1**
* Tai Hang Tung Road	NB	970	1010	1.0	1	970	1050	1.1	2
* Boundary Street	WB	3160	3200	1.0	1	3530	3550	1.0	0
EXIT ARM - TOTAL		**4130**	**4210**	**1.0**	**1**	**4500**	**4600**	**1.0**	**1**
*** J25- Lai Chi Kok Road/Tong Mi Road**									
* Lai Chi Kok Road	SEB	330	370	1.1	2	390	400	1.0	0
* Lai Chi Kok Road	NWB	1840	1810	1.0	1	1810	2010	1.1	5
* Tong Mi Road	NB	360	450	1.2	4	600	710	1.2	4
ENTRY ARM - TOTAL		**2520**	**2620**	**1.0**	**2**	**2800**	**3120**	**1.1**	**6**
* Lai Chi Kok Road	NWB	2200	2260	1.0	1	2410	2720	1.1	6
* Lai Chi Kok Road	SEB	260	290	1.1	2	270	310	1.1	2
* Tong Mi Road	SB	70	70	1.1	0	120	90	0.8	2
EXIT ARM - TOTAL		**2520**	**2620**	**1.0**	**2**	**2800**	**3120**	**1.1**	**6**
*** J26- Nathan Road/Mong Kok Road**									
* Nathan Road	SB	2180	2230	1.0	1	1920	1940	1.0	0
* Nathan Road	NB	960	930	1.0	1	1210	1220	1.0	0
* Mong Kok Road	EB	1440	1420	1.0	1	1660	1740	1.0	2
ENTRY ARM - TOTAL		**4580**	**4580**	**1.0**	**0**	**4790**	**4890**	**1.0**	**1**
* Nathan Road	NB	1220	1150	0.9	2	1470	1460	1.0	0
* Mong Kok Road	EB	2010	2070	1.0	1	1920	2100	1.1	4
* Nathan Road	SB	1360	1350	1.0	0	1390	1330	1.0	2
EXIT ARM - TOTAL		**4580**	**4580**	**1.0**	**0**	**4790**	**4890**	**1.0**	**1**
*** J27- Nathan Road/Argyle Street**									
* Nathan Road	SB	1240	1280	1.0	1	1280	1280	1.0	0
* Argyle Street	WB	1640	1750	1.1	3	1780	1890	1.1	3
* Nathan Road	NB	970	930	1.0	1	1040	1050	1.0	0
ENTRY ARM - TOTAL		**3850**	**3960**	**1.0**	**2**	**4100**	**4220**	**1.0**	**2**
* Nathan Road	NB	980	940	1.0	1	1230	1230	1.0	0
* Nathan Road	SB	1330	1370	1.0	1	1410	1430	1.0	1
* Argyle Street	WB	1540	1640	1.1	2	1450	1560	1.1	3
EXIT ARM - TOTAL		**3850**	**3960**	**1.0**	**2**	**4100**	**4220**	**1.0**	**2**
*** J28- Argyle Street/Tong Mi Road/Cherry Street**									
* Tong Mi Road	SB	1690	1850	1.1	4	1720	1740	1.0	1
* Argyle Street	WB	1930	1920	1.0	0	2040	1860	0.9	4
* Tong Mi Road	NB	880	870	1.0	0	1560	1630	1.0	2
* Cherry Street	EB	310	300	1.0	1	330	330	1.0	0
ENTRY ARM - TOTAL		**4800**	**4930**	**1.0**	**2**	**5650**	**5560**	**1.0**	**1**
* Tong Mi Road	NB	980	1060	1.1	2	1290	1300	1.0	0
* Argyle Street	EB	230	300	1.3	4	300	360	1.2	4
* Tong Mi Road	SB	1120	1140	1.0	1	1180	1070	0.9	3
* Cherry Street	WB	2470	2430	1.0	1	2880	2820	1.0	1
EXIT ARM - TOTAL		**4800**	**4930**	**1.0**	**2**	**5650**	**5560**	**1.0**	**1**

Attachment VIb of
MPC Paper No. 5/23

TECHNICAL SUPPORTS FOR OZP AMENDMENTS OF DETAILED URBAN RENEWAL DISTRICT STUDY IN YAU MA TEI AND MONG KOK DISTRICTS

Visual Impact Assessment

May 2022

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1 INTRODUCTION

1.1 Project Background

1.1.1 The Yau Mai Tei – Mong Kok districts are densely populated districts with a high proportion of aged buildings. Over half the existing buildings within the districts are aged 50 years or older. There is an urgent need to revitalize the districts through urban renewal.

1.1.2 In 2017, the Urban Renewal Authority (URA, herein referred to as “the Authority”) carried out the Detailed Urban Renewal District Study in Yau Ma Tei and Mong Kok (hereafter “YM Study”) with the aim of a comprehensive urban renewal plan of the two districts. Based on the findings of drawing up in the Study, the Authority proposed three master urban renewal concept plans (MRCP) with varying development densities, of which the MRCP+ scenario with the highest development intensity was used for technical assessments, including the Visual Impact Assessment (VIA), to account for the worst-case scenario.

1.1.3 Following the completion of the YM Study, the government aims to kick start the first batch of Outline Zoning Plan (OZP) amendments in 2022. In carrying out the OZP amendments, the development parameters adopted in MRCP+ of the YM Study have to be re-visited taking into account the latest proposals agreed by the Government, and change in the maximum domestic plot ratio (PR) for “Residential (Group A)” (“R(A)”) and “Residential (Group E)” (“R(E)”) zones, relaxation of PR of “Commercial” (“C”) zone, rezone of some “R(A)” sites to “Other Specified Uses (Mixed Uses)” (“OU(MU)”) at character streets. These changes require the review of various technical assessments, including the VIA.

1.2 Objectives of the Report

1.2.1 The purpose of this report is to present the findings of the visual impact of the proposed OZP amendments (hereafter “OZP Amendment Scheme”) as compared to the baseline condition representing the existing OZP scheme.

1.2.2 The visual impact assessment of this broad VIA is prepared in accordance with the requirements of TPB PG-No. 41 – Town Planning Board Guidelines on Submission of Visual Impart Assessment for Planning Application to the Planning Board.

1.2.3 The objective of the VIA is to undertake a baseline survey and analysis to identify the critical issue and predict the visual impact of the OZP Amendment Scheme. It identifies, describes and quantifies the visual impacts and evaluates the significance of such impacts on the sensitive receivers.

1.3 Study Area

1.3.1 **FIGURE 1.1** shows the location of the Study Area and its environs. The Study Area covers the majority of Mong Kok District and Yau Ma Tei District with the boundary stopping just short of Hoi Wang Road in Yau Ma Tei. The Study Area is bounded by West Kowloon Cultural District to the southwest and Tsim

Sha Tsui to the south. The Study Area is densely populated with high-rise buildings throughout the two districts.

1.3.2 The Study Area falls within three OZPs, S/K2/23, S/K3/34 and S/K20/30 as shown in **FIGURE 1.1**. The northern half of the Study Area falls under the Approved Mong Kok OZP No. S/K3/34, while the southern half of the Study Area passed Dundas Street is under the Draft Yau Ma Tei Outline Zoning Plan No. S/K2/23. Finally, the area around The Coronation near Yan Cheung Road is under the Approved South West Kowloon OZP S/K20/30.

1.4 OZP Compliant Scheme

1.4.1 This represents the baseline condition in which the OZP Amendment Scheme will be compared to its impact on the potential visual environment within the Study Area. The current OZP conditions of the Study Area are taken to be the Baseline Scheme. Maximum building heights of the zoning are assumed for the buildings within their respective planned uses under the three current OZPs mentioned in Section 1.3.2. Maximum building heights and building storeys allowed for the structures within the Study Area are indicated in **FIGURE 1.2** and these restrictions act as the baseline condition for this assessment.

1.5 OZP Amendment and Major Assumptions

1.5.1 **FIGURE 1.3** marks the proposed OZP amendments which are to be compared to the OZP Compliant Scheme on its impact on the potential visual environment.

1.5.2 The OZP Amendment Scheme comprises the following amendment items:

- For the “R(A)” and “R(E)” zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100mPD to 115mPD;
- For the “C” zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of 15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and
- Rezone some “R(A)” sites at the Character Streets to “OU(MU)” with a maximum domestic PR of 7.5 and maximum total PR of 9. The building height restriction is proposed to be increased from 100mPD to 115mPD. Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

1.6 Structure of the Report

1.6.1 The Report is divided into five sections as follows:

(i) Section 1 outlines the background, the scope and structure of this Report;

(ii) Section 2 describes the assessment methodology;

(iii) Section 3 presents the findings of the visual impact assessment for the OZP amendments;

(iv) Section 4 provides a summary and conclusion of this Report; and

(v) Appendix 1 presents the findings of the visual impact assessment for other assumed planned developments under YM Study.

2 ASSESSMENT METHODOLOGY

2.1 Introduction

2.1.1 The report presents the assessment of the potential visual impacts associated with the implementation of the OZP Amendment Scheme in the Study Area. Viewpoints (VPs) representing Visual Sensitive Receivers (VSRs) that are likely to be affected due to the implementation of the OZP Amendment Scheme are identified. Those VSRs that will not be potentially affected are not included in the assessment. The key potential visual impacts are then assessed and evaluated.

2.2 Visual Impact Assessment Methodology

2.2.1 The Assessment Area for the visual impact assessment is defined by the visual envelope of the Study Area. The visual impact assessment boundary is shown in **FIGURE 2.1**.

2.2.2 The procedures for assessment of visual impacts are as follow:

2.2.3 ***Identification of the Visual Envelopes of the Study Areas.*** Site visits and desktop study of topographic maps and photographs were conducted. Distance and other factors had been considered, to determine the zone of visual influence and the visibility of the Study Area from various locations. The Zone of Visual Influence /Visual Envelope is that area from which any part of the Study Area can be seen; usually defined by natural ridgeline, man-made features, road infrastructures, etc.

The Assessment Area for the VIA is defined by the visual envelope of the Study Area. The VIA will include:

(1) Identification of viewpoints within the visual envelope; and

(2) Assessment of the visual sensitivity of the public viewer from the VPs.

2.2.4 These various elements of the VIA are detailed below:

2.2.5 ***Identification of the VPs within the Visual Envelopes***. VPs are where members of the public or tourists can assess or view the site easily.

2.2.6 Assessment of the degree of sensitivity to change of the VPs. Factors considered include:

- Visual impact on sensitive public viewers from the most affected viewing points include key pedestrian nodes, popular areas used by the public or tourists for outdoor activities, recreation, rest, sitting-out, leisure, walking, sight-seeing, and prominent travel routes where travellers' visual attention may be caught by the proposed development;
- People engaged in working activities are regarded as less sensitive to visual changes;
- Viewing points are at human eye level for a realistic presentation of the views;

- Key public viewing points may refer to Chapter 11 on Urban Design Guidelines (UDG) in the Hong Kong Planning Standards and Guidelines (HKPSG), the Explanatory Statement of the relevant statutory plans, adopted outline development plans and layout plans, and completed planning studies available for public reference; and
- Local VPs are determined concerning the setting of the project and views of local significance.

2.2.7 The sensitivity of VPs is classified as follows:

High:	The VP is highly sensitive to any change in their viewing experience.
Medium:	The VP is moderately sensitive to any change in their viewing experience.
Low:	The VP is only slightly sensitive to any change in their viewing experience.

2.2.8 Visual elements:

- This includes major physical structures, visual resources or attractors, and/ or visual eyesores or detractors that currently exist or the area known to be planned within the assessment area. Different visual elements may enhance, degrade or neutralize the overall visual impact of the development is assessed;

2.2.9 Appraisal of visual changes may be positive or negative and they are not necessarily mutually exclusive:

- **Visual Composition:** the total visual effects of all the visual elements due to their variation in location, massing, height, disposition, scale, form, proportion and character vis-a-viz the overall visual backdrop. It may result in visual balance, compatibility, harmony, unity or contrast. This appraisal will have due regard to the overall visual context and character within the wider and local contexts;

- **Visual Obstruction:** the appraisal shall assess the degree of visual obstruction and loss of views or visual openness due to the OZP Amendment Scheme and the assumed planned developments from all key public viewing points within the assessment area. Blockage or partial blockage of views that substantially reduce visual permeability, existing panorama, vistas, visual resources or visual amenities will be avoided or minimized, in particular concerning the impact on prominent ridgelines, the harbour, natural coastlines, open sea horizon, skyline, scenic areas, valued landscape, special landmark, heritage features to be preserved, etc.;

- **Effect on public viewers:** the VIA will assess and demonstrate the effects of visual changes from key public viewing points with direct sightlines to the proposed development; and

- **Effect on Visual Resources:** the VIA will appraise if the condition, quality and character of the assessment area would change positively or negatively as a result of the proposed development, as well as any on-site, off-site visual impact related to the development.

2.2.10 The resultant overall impact will be categorized as follow:

Enhanced:	If the OZP Amendment Scheme will improve the visual quality and complement the visual character of its setting from most of the identified key public viewing points.
Partly Enhanced/ Partly Adverse:	If the OZP Amendment Scheme will exhibit enhanced visual effects to some of the identified key public viewing points and at the same time, exhibit adverse visual effects from some other key public viewing points.
Negligible:	If the OZP Amendment Scheme will have insignificant visual effects from most of the identified key public viewing points, or the visual effects will be screened or filtered by other distracting visual elements in the assessment area.
Slightly Adverse:	If the OZP Amendment Scheme will have some negative visual effects from most of the identified key public viewing points.
Moderately Adverse:	If the OZP Amendment Scheme will have negative visual effects on most of the key identified key public viewing points.
Significantly Adverse:	If the OZP Amendment Scheme will cause serious and detrimental visual effects from most of the identified key public viewing points

3 VISUAL IMPACT ASSESSMENT FOR OZP AMENDMENTS

3.1 Visual Envelope (VE)

3.1.1 The VE of the Study Area has been identified by desktop study, photographs and site visits to determine the visibility of the Study Area from various locations. The VE is bounded by the ridgeline of Lion Rock to the north, Waterloo Road to the east, the ridgeline of the Peak to the south and the ridgeline of Sai Shan to the west. The extent of the VE is indicated in **FIGURE 2.1**.

3.2 Existing Visual Condition and Key Visual Elements

3.2.1 The key visual elements within the VE are dominated by the built-up area in the Kowloon Peninsula and the northwestern part of Hong Kong Island. The key visual resources are the rhythmic city skyline in Kowloon, the Victoria Harbour, extensive ridgeline and open sky view. The vast water body of Victoria Harbour traverses through the VE from East to West. The ridgeline and lush green hillside at Sai Shan, the Peak and the Lion Rock are significant visual backdrops of the views.

3.3 Selection of Viewing Points

3.3.1 Within the VE, the following public VPs are identified with reference to the criteria in TPB PG No. 41, capturing key strategic and local vantage points which are easily accessible and popular to the public or tourists from different directions[1]. When selecting the VPs, priority is given to major public open spaces, public focal points, existing/ future pedestrian nodes and key pedestrian / vehicular corridors which are considered major sensitive public viewers. The massing, disposition and character of the proposed development, together with the views of the visual resources such as the harbour, ridgeline and existing building skyline are also considered.

3.3.2 In addition, the selected VPs in Town Planning Board Paper No. 10422 on the proposed amendments to Draft Mong Kok Outline Zoning Plan No. S/K3/30 and Town Planning Board Paper No. 10773 on the proposed amendments to Draft Yau Ma Tei Outline Zoning Plan No. S/K2/22[2] had been referenced. Five strategic VPs are selected for visual impact appraisal at the macro level. Moreover, ten local VPs are selected for the appraisal of visual impact at the micro-level and from a local perspective with different directions, seven of which represent views of recreational users and three represent travellers on elevated walkways.

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[1] The same set of VPs are adopted in the Yau Mong Study.

[2] VPE namely (Hong Kong Rugby Union (HKRU) King's Park Sports Ground) included in the Visual Appraisal in support of the proposed amendments to Draft Yau Ma Tei OZP Plan No. S/K2/22 in Sep 2021 (YMT VA) have not been included in the current VIA. It is because VPE is owned by the HKRU, which may not be easily accessible by the public viewers. Hence, a more appropriate VP was chosen at the Yau Ma Tei Service Reservoir Rest Garden which is publicly accessible and with views toward the central Yau Ma Tei area (VP13 under the current VIA).

3.3.3 Within the VE, the following VPs are selected (also see **FIGURE 2.1**) and their detailed description is presented in the following sections. Based on the VP categories, **Table 3.1** provides an overall summary of the proposed sensitivity ratings supported by associated rationale of each VP.

Table 3.1 – Visual Sensitivity and its Rating Rationale for Selected VPs

Selected VPs	Visual sensitivity to public viewers	Rating Rationale of visual sensitivity rating
Macro-level VPs		
VP1 – The Peak	High	Strategic vantage point
VP2 – Sun Yat Sen Memorial Park	High	
VP3 – Central Pier No. 7	High	
VP4 – Sai Shan	Low	Longer viewing distance with small number of viewers
VP5 – Lung Cheung Road Lookout	Low	
Micro-level VPs (Recreational Use)		
VP6 – Tung Chau Street Park	High	Small to medium number of viewers with medium viewing time
VP7 – Maple Street Playground	High	
VP8 – Tai Hang Tung Recreation Ground	High	Sizable open space with medium to high number of viewers and medium viewing time
VP11 – Cherry Street Park (North)	High	Small to medium number of viewers with medium viewing time
VP12 – Cherry Street Park (South)	High	
VP13 – Yau Ma Tei Service Reservoir	High	
VP15 – King George V Memorial Park	High	
Micro-level VPs (Elevated Walkway)		
VP9 – MK East Station Elevated Walkway	Medium	Small to medium number of viewers with short to medium viewing time
VP10 – Elevated Walkway above Ferry Street	Medium	
VP14 – Jordan Road Elevated Walkway	Medium to High	• Medium to high number of viewers with short to medium viewing time • Comparatively more heavily utilised because of its proximate location linking Jordon with Austin & Kowloon Stations and West Kowloon Terminus

3.3.4 Macro Viewpoints

1. VP1 – The Peak

   This VP is located at the Peak which is one of the strategic vantage points recommended in the UDG under the HKPSG, (shown in **FIGURE 3.1**). It is located about 4.6km from the Study Area at a level of +500mPD on Hong Kong Island with a bird's eye view looking towards the south of the Study Area. The location is a major tourist spot with a large number of viewers. Key public viewers of the VP would include visitors, hikers in Lugard Road, open space users in Victoria Peak Garden and Mount Austin Playground and residents on the Peak. They can enjoy the view of the dense high-rise cityscape of the Central District and the Kowloon Peninsula in the foreground and far viewing distance respectively, featured with the existing and planned development in the West Kowloon Cultural District and extensive ridgeline and open sky as the backdrop. The visual sensitivity of the public viewers from this VP is graded as high.

2. VP2 - Sun Yat Sen Memorial Park

   This VP is from the Sun Yat Sen Memorial Park which is one of the strategic vantage points in the UDG under the HKPSG (shown in **FIGURE 3.2)**. It is located about 3km from the Study Area across the Victoria Harbour with a panoramic view of the Kowloon skyline, looking towards the Study Area from the south. This VP, as a sizable regional open space destination, attracts a high number of viewers, including open space users along the Western District Promenade, residents in Sai Wan and travellers along Connaught Road. It possesses a panoramic view overlooking the entire waterfront of the western side of Kowloon Peninsula, featured with existing iconic development in the West Kowloon such as International Commerce Centre (ICC) Tower and the various developments in West Kowloon Cultural District (WKCD) with the ridgeline as the background of the view. The visual sensitivity of the public viewers from this VP is graded as high.

3. VP3 – Central Pier No. 7

   This VP is located at the Central Ferry Pier which is one of the strategic vantage points in the UDG (shown in **FIGURE 3.3)**. It is located about 3km from the Study Area across the Victoria Harbour with a panoramic view of the Kowloon skyline, looking towards the Study Area from the south. As an extension of the New Central Waterfront, this VP is a popular tourist spot attracting a large number of viewers. The VP represents the typical view of visitors and recreational users along the Central District Promenade, as well as residential and commercial VSRs in the Central District and travellers along the Central Pier and Lung Wo Road. It possesses a panoramic view overlooking the entire waterfront of the eastern side of the Kowloon Peninsula, featured with existing iconic development in the West Kowloon such as ICC Tower and the built environment in Austin. Open Sky and ridgeline form the backdrop of the view. The visual sensitivity of the public viewers from this VP is graded as high.

4. VP4 – Sai Shan

   This VP is located at Sai Shan, Tsing Yi as shown in **FIGURE 3.4**. It is located about 7km from the Study Area at a level of +250mPD, looking towards the northwestern side of the Study Area. The VP is the typical view of recreational users along Sai Shan, residents in Rambler Crest and travellers along Stonecutter Bridge. The typical view is generally the built environment in Tsing Yi in the foreground, viewing the Study Area in a relatively far distance featuring the Victoria Harbour and ridgeline of Hong Kong Island in the background. With a small number of viewers, the visual sensitivity of the public viewers from this VP is graded as low.

5. VP5 – Lung Cheung Road Lookout

   This VP is from the Lung Cheung Road Lookout as shown in **FIGURE 3.5**. It is located about 1.8km from the Study Area, viewing the northern part of the Study Area. The VP represents the typical views of recreational users along with Eagles Nest Nature Trial and Beacon Hill viewing point, residents along Lung Cheung Road such as One Beacon Hill and travellers along Lung Cheung Road. It possesses a panoramic view overlooking the entire northern part of the built environment of the Kowloon Peninsula, featured with hillside lush vegetation in the foreground and the ridgeline of Hong Kong Island in the background. With a small number of public viewers, the visual sensitivity of the public viewers from this VP is graded as low.

3.3.5 <u>Micro Viewpoints</u>

6. VP6 – Tung Chau Street Park

   The VP is located about 300m from the northwestern side of the Study Area as shown in **FIGURE 3.6.** It possesses an open view of the built developments of Tai Kok Tsui in a medium viewing range. The VP represents the typical views of recreational and park users with the view of the open sky and greenery in the foreground as significant visual elements. With a small to medium number of public viewers, the visual sensitivity of the public viewers from the VP is graded as high.

7. VP7 – Maple Street Playground

   The VP is located about 200m from the northern side of the Study Area as shown in **FIGURE 3.7.** The VP represents the typical recreational users of the playground, overlooking the facade of existing building clusters in Tong Mi with a close viewing range. Apart from the built context, the typical view is generally the vegetation along the edge of the playground in the foreground, the building skyline feature with an open blue sky. With a small to medium number of public viewers, the visual sensitivity of the public viewers from the VP is graded as high.

8. VP8 – Tai Hang Tung Recreation Ground

   This VP is from Tai Hong Tung Recreational Ground as shown in **FIGURE 3.8**. It is located about 200m from the Study Area, viewing the northern part of the Study Area. This is a typical view of recreational users of the recreation ground. It possesses a panoramic view overlooking the building cluster of the northern side of the Study Area and includes the existing low to medium-rise residential development along Boundary Street featuring the open sky as the backdrop. As a larger and major park space with a medium number of public viewers, the visual sensitivity of the public viewers from this VP is considered high.

9. VP9 – Mong Kok East Station Elevated Walkway

   The VP is located on the northeast side of the Study Area as shown in **FIGURE 3.9**. This is a typical view of travellers at the bus terminal adjacent to the Mong Kok East Station. It possesses a view overlooking the built developments of the Study Area and the planned Sai Yee Street Redevelopment site in a close to medium viewing range. The VP overlooks the medium-rise residential developments along Sai Yee Street, featuring Langham Place as the iconic building with a backdrop of the open sky. Considering the VP has a small to medium number of viewers in short to medium viewing duration, the visual sensitivity of the public viewers from the VP is considered as medium.

10. VP10 – Elevated Walkway Above Ferry Street

    The VP is located at the elevated walkway above Ferry Street (as shown in **FIGURE 3.10**) at a level of about +10.3mPD, overlooking the southwestern side of the Study Area from a medium viewing distance. The surrounding residents and travellers are the key public viewers of this VP. The view comprises the vegetation in the foreground, building structures of primary school and medium-rise residential buildings at the mid-ground, and high-rise private residential buildings at the far viewing distance. Considering a small to medium number of users and viewers on the footbridge with short to medium viewing duration, the visual sensitivity of the public viewers from the VP is considered as medium.

11. VP11 – Cherry Street Park (North)

    The VP is located at the amphitheatre of Cherry Street Park (as shown in **FIGURE 3.11)**, at a level of about +4mPD, overlooking the northwestern side of the Study Area. The VP features the lush vegetation of the park in the foreground, buildings along Ferry Street at the mid-ground and the open sky as the backdrop. It is the typical view of the recreational users of Cherry Street Park who can enjoy the view from a close viewing distance. Considering a small to medium number of viewers with medium viewing duration, the sensitivity of the public viewers to the VP is high.

12. VP12 – Cherry Street Park (South)

    The VP is located at the amphitheatre of Cherry Street Park, overlooking the southwestern side of the Study Area as shown in **FIGURE 3.12**. The VP is featured with the landscaped area of Cherry Street Park in the foreground, building facades along Ferry Street at the mid-ground and the sky as a visual backdrop. It is the typical view of recreational users of Cherry Street Park who can enjoy the view from close to far distance. Considering a small to medium number of viewers with medium viewing duration, the sensitivity of the public viewers to the VP is high.

13. VP13 – Yau Ma Tei Service Reservoir

    This VP is located at the hillside and around 300m from the Study Area at a level of +65mPD, as shown in **FIGURE 3.13**. It represents the public viewers of recreational users of the Yau Ma Tei Service Reservoir Rest Garden and residents nearby such as King's Park Hill Tower. The view comprises the hillside vegetation in the foreground, medium-rise buildings of Yau Ma Tei in the middle ground, and featured with an open sky in the background. Considering a small to medium number of viewers at a medium viewing distance with medium viewing duration, the visual sensitivity of the public viewers from this VP is graded as high.

14. VP14 – Jordan Road Elevated Walkway

    This VP is located at the elevated walkway above Jordon Road and around 80m from the Study Area at a level of around +12mPD, as shown in **FIGURE 3.14.** Public viewers at this VP consist of travellers and surrounding residential VSRs (i.e. residents in The Austin and Sorrento, etc.). The VP is predominated by the building façade along Jordan Road. The VP comprises the view of the elevated walkway in the foreground, medium-rise commercial mix residential buildings of Jordan (i.e. Man King Building, Man Wah Building and Lee Kiu Building, etc.) in the middle, with the open sky in the background. With its convenient location connecting to the Austin MTR Station and the West Kowloon Terminus, Jordan Road Elevated Walkway is more heavily utilized. Considering a medium to high number of viewers at a medium viewing distance with short to medium viewing duration, the visual sensitivity of the public viewers from the VP is graded as medium to high.

15. VP15 – King George V Memorial Park

    The VP is located at the ball court of the King George V Memorial Park at around 90m from the Study Area as shown in **FIGURE 3.15**. It represents the typical view of recreational users, overlooking the southern side of the Study Area. The VP comprises the ball court and greenery of the park in the foreground, building structures (i.e. The Jade Plaza and Kent Building, etc.) in the Jordan District in the middle, and an open blue sky in the background. The quality of view is fair, considering a medium number of viewers with medium viewing duration in close viewing distance. The visual sensitivity of the public viewers from this VP is graded as high.

3.4 Appraisal of Visual Changes

The following sections shall provide a detailed analysis and evaluation of the visual impact for each VP. Given that the Study Area is an existing built-up urban district with areas not yet up to the permissible development level under the existing OZPs, the micro-level VPs (VP6 – VP15) will be compared to both the existing view and OZP permissible scenario to better illustrate the visual impact. The focus of the appraisal would be on the comparison between the OZP Amendment Scheme and the OZP permissible scenario. With reference to the Town Planning Board Papers No. 10422 and 10773 and Considering the rather insignificant difference between the existing condition and the OZP permissible scenario due to the long viewing distance of the macro-level VPs, a comparison with OZP permissible scenario will not be carried out for VP1 – VP5.

3.4.1 Special attention should be drawn to the VP2 and VP3. It is noted that according to the UDG under the HKPSG, a 20% building free zone should be maintained to protect the integrity of the ridgeline. In the VIA, a 10% building free zone is proposed to strike a balance between development needs and visual impacts on the mountain backdrop. This proposal has been adopted in the Yau Mong Study.

VP1 – The Peak (Refer to VP 1 – **FIGURE 3.1**)

3.4.2 Visual Composition:

The proposed developments with the increased building height are generally similar to the existing buildings in terms of visual character, maintaining a visual harmony with the surrounding built context. The general building bulk is compatible with the surrounding context, illustrating a “high density” urban character.

3.4.3 Visual Obstruction:

Proposed developments are located behind the existing West Kowloon development and with slightly taller building heights as compared with the surrounding context from this viewpoint. No visual obstruction to the open sky view and ridgeline is noted, and the sense of openness is still maintained.

3.4.4 Effect on Public Viewers:

Given the already high rise high density developments at Nathan Road, a mere increase of 30m is seen from afar as hardly noticeable, and the proposed developments will have no impact on the openness of the sky. The general increase in building density will be hardly noticeable by the viewers at a far viewing distance. Thus, the magnitude of visual change is considered slight.

3.4.5 Effect on Visual Resources:

The proposed developments in Yau Ma Tei close to the WKCD will be the major visual elements. It is compatible with the surrounding built environment and does not affect the mountain backdrop view. It is totally embedded within the existing building profile.

As stated above, the proposed developments in the Study Area will only have slight obstruction to this view. The visual impact anticipated from the proposed development of VP1 is considered negligible and summarised in **Table 3.2**.

Table 3.2 – Summary of Overall Visual Assessment of VP1 (The Peak)

VP1 – The Peak	Overall Assessment
Visual Composition	• Compatibility with the surrounding context is maintained • "High density" urban character
Visual Obstruction	Openness to sky view is maintained
Effect on Public Viewers (Visual sensitivity: High)	Slight
Effect on Visual Resources	Slight
Overall Visual Impact	Negligible

VP2 – Sun Yat Sen Memorial Park (Refer to Viewpoint 2 – **FIGURE 3.2**)

3.4.6 Visual Composition:

The planned development of the WKCD will occupy the foreground of the VP and change the visual contexts of the waterfront area[3]. The proposed developments are located in the background.

In general, the proposed developments are compatible and can blend in with the existing built surrounding. The increase of 30m height restriction of the commercial sites has no significant impact on the visual composition and likewise, the full redevelopment of the proposed developments would mainly alter the visual composition of the skyline of the western side of the Kowloon Peninsula.

[3] The massing of WKCD development has referred to Town Planning Board Paper No. 10422 "Proposed Amendments to Draft Mong Kok OZP No. S/K3/30".

3.4.7 Visual Obstruction:

Visual obstruction to the building free zone is observed mainly due to the proposed commercial developments along Nathan Road. The view of the open sky remains unchanged; the sense of openness is strongly maintained.

3.4.8 Effect on Public Viewers:

The proposed developments with increased building height are partially visible to the public viewers at a far viewing distance and will partially reduce the visual access to the building free zone. Nonetheless, the proposed developments are generally compatible with the surrounding developments in terms of visual character.

There will be some visual change to the viewers with some impact on the building free zone. However, the integrity of the ridgeline is still generally maintained. Nonetheless, due to the similar development nature, the public viewers may consider these developments as an extension of the existing visual character.

3.4.9 Effect on Visual Resources:

The proposed developments are located behind the existing development from this VP. Some impacts on the building free zone are observed.

3.4.10 The proposed developments will pose some degree of obstruction to the view of the building free zone in the background. The proposed developments with slightly taller building heights as viewed from afar may be perceived as an extension of the surrounding high-rise developments. The visual change is summarised in Table 3.3 below.

Table 3.3 – Summary of Overall Visual Assessment of VP2 (Sun Yat Sen Memorial Park)

VP2 – Sun Yat Sen Memorial Park	Overall Assessment
Visual Composition	• Maintaining high density urban development character
Visual Obstruction	• Some obstruction to the building free zone • A sense of openness is strongly maintained as the view of the open sky is only marginally affected
Effect on Public Viewers (Visual sensitivity: High)	• Some adverse effects with the intrusion of the building free zone and the ridgeline. But the ridgeline remains largely intact
Effect on Visual Resources	• Some obstruction to the building free zone and the mountain backdrop
Overall Visual Impact	• Slightly adverse (if 10% building free zone is taken into account)

	• Moderately adverse (if 20% building free zone is taken into account)

VP3 – Central Pier No. 7 (Refer to Viewpoint 3 – **FIGURE 3.3**)

3.4.11 Visual Composition:

The foreground is dominated by the planned development of the WKCD, which forms a major visual element along the waterfront area. The proposed OZP amendments are located behind the existing buildings from this VP Overall, the proposed developments will induce some changes to the overall visual composition, yet are generally compatible with the surrounding developments in terms of visual character.

3.4.12 Visual Obstruction:

The proposed developments are situated behind and blocked by the planned WKCD, therefore only partially visible.

In general, the proposed development will cause some visual obstruction to the building free zone, especially in the trough area between Beacon Hill and Lion Rock. This stretch of the building free zone will be concealed behind the developments. No visual obstruction to the open sky view and ridgeline is noted, and the sense of openness is still maintained.

3.4.13 Effect on Public Viewers:

While the planned WKCD and XRL Topside Development will conceal parts of the proposed developments, the proposed developments with increased building height will induce some visual change on the building free zone.

3.4.14 Effect on Visual Resources:

The planned development in the WKCD will dominate the visual element in the foreground of this VP. The proposed developments will cause some impact on the existing visual resources, including the building free zone in the eastern part. But the ridgeline still remains intact.

3.4.15 The proposed developments with increased building height will pose some degree of obstruction to the view of the building free zone. The proposed developments would be generally compatible with the surrounding developments in terms of visual character. The visual change is summarised in Table 3.4 below.

Table 3.4 – Summary of Overall Visual Assessment of VP3 (Central Pier No. 7)

VP3 – Central Pier No. 7	Overall Assessment
Visual Composition	Maintaining high density urban development character

Visual Obstruction	Some encroachment to the building free zone, however openness to sky view is maintained
Effect on Public Viewers (Visual sensitivity: High)	Some effect with the intrusion of the building free zone, but ridgeline still remain intact
Effect on Visual Resources	Some obstruction to the building free zone
Overall Visual Impact	• Slightly adverse (if 10% building free zone is taken into account) • Moderately adverse (if 20% building free zone is taken into account)

VP4 – Sai Shan (Refer to Viewpoint 4 – **FIGURE 3.4**)

3.4.16 Visual Composition:

Only a small portion of the proposed development is visible from a far viewing distance.

In general, the bulk of the Study Area shares a similar building height which helps blend into the surrounding built environment. The Sai Yee Street Redevelopment is visible from an afar viewing distance, forming new punctuation points to the visual context.

3.4.17 Visual Obstruction:

There is a slight reduction of visual permeability and the open sky view is marginally blocked by the proposed developments while the overall sense of openness is still strongly maintained. In general, the visual blockage is limited by the far viewing distance. The sense of openness of the existing panorama view remains strong. Therefore, the visual obstruction is considered negligible to slight.

3.4.18 Effect on Public Viewers:

From this far viewing distance, the effect on public view is negligible to slight. The proposed development scale will not affect the visual openness of the panoramic view in general. In general, there is a slight reduction of visual permeability and marginal visual obstruction to the open sky view and the openness of this VP is maintained. The visual change is limited and not readily noticeable to the viewers from a far viewing distance. Therefore, the visual change is considered negligible to slight.

3.4.19 Effect on Visual Resources:

Considering the small scale of the proposed development from this distance, the existing visual character of the Kowloon Peninsula urban context is maintained.

3.4.20 As mentioned above, the proposed developments will have limited visual obstruction to the sky view. The developments are considered compatible with the surroundings and the visual changes are barely noticeable from a far viewing distance. The proposed development will not degrade the visual amenity that is currently enjoyed. Therefore, the anticipated visual impact from the VP4 is negligible to slightly adverse and summarised in **Table 3.5** below.

Table 3.5 – Summary of Overall Visual Assessment of VP4 (Sai Shan)

VP4 – Sai Shan	Overall Assessment
Visual Composition	Only a small portion of the proposed developments is visible. Sai Yee Street Redevelopment is visible from a far distance as new punctuation point.
Visual Obstruction	Slight reduction of visual permeability
Effect on Public Viewers (Visual sensitivity: Low)	Negligible to slight given the limited visual change
Effect on Visual Resources	Limited obstruction and existing urban character generally maintained from a far viewing distance
Overall Visual Impact	Negligible to slightly adverse

VP5 – Lung Cheung Road Lookout (Refer to Viewpoint 5 – **FIGURE 3.5**)

3.4.21 Visual Composition:

As shown in the photomontage, the foreground of this VP is dominated by the hillside vegetation in the Kowloon Tong area.

Considering that the building mass and building height of most of the proposed developments are only slightly taller than the existing buildings, visual harmony with the surrounding built context will be maintained. Only parts of the proposed development are visible from afar viewing distance. In general, the proposed developments are visually compatible with the existing built context.

3.4.22 Visual Obstruction:

In general, there is no major visual obstruction caused by the proposed developments to the ridgeline and the open sky view, apart from the slight obstruction to the mountain backdrop in the background. While a slight reduction of visual permeability is observed, the sense of openness and the overall visual quality is maintained. The degree of visual obstruction is considered slight.

3.4.23 Effect on Public Viewers:

The proposed developments are barely noticeable by the public viewers and the extensive panoramic view is maintained at this VP. The effect of visual changes on the viewers from the VP is negligible to slightly adverse.

3.4.24 Effect on Visual Resources:

There is a slight obstruction to the mountain backdrop from this VP. The effect on visual resources is slight.

As mentioned above, the proposed developments will be no major visual obstruction to the sky view and the ridgeline despite the slight reduction of the mountain backdrop view and visual permeability. The proposed development will not significantly degrade the visual amenity that is currently enjoyed. Therefore, the anticipated visual impact from the VP5 is negligible to slightly adverse and summarised in **Table 3.6** below.

Table 3.6 – Summary of Overall Visual Assessment of VP5 (Lung Cheung Road Lookout)

VP5 – Lung Cheung Road Lookout	Overall Assessment
Visual Composition	Proposed developments are partially visible
Visual Obstruction	Slight without major obstruction
Effect on Public Viewers (Visual sensitivity: Low)	Negligible to slightly adverse
Effect on Visual Resources	Slight. Visual openness is generally maintained from a far viewing distance.
Overall Visual Impact	Negligible to slightly adverse

VP6 – Tung Chau Street Park (Refer to Viewpoint 6 – **FIGURE 3.6**)

3.4.25 Visual Composition:

The full redevelopment of the “R(A)” sites will change the visual composition. The proposed developments are considered generally visually compatible with the surroundings in terms of mass and use.

Compared to Existing View:

- The visual composition is changed significantly but the building mass of the proposed developments is still visually compatible with the surroundings.

Compared to OZP Permissible Scenario

- It should be noted that currently, the location is dominated by low-rise buildings not yet built to the OZP permissible building height restriction.
- Taking into consideration the OZP permissible building height under the OZP Amendment Scheme (see demarcations on photomontages), the visual composition of the OZP Amendment Scheme proposals demonstrates a higher building height and density than the current OZP which constitutes slight changes when compared with OZP permissible scenario.

3.4.26 Visual Obstruction:

A portion of the open sky is blocked by the proposed developments. Visual obstruction is visible to the public viewers and will reduce the visual permeability.

<u>Compared with Existing View</u>

- A portion of the open sky view is partially blocked by the proposed developments and partially maintained.
- The visual obstruction as compared with the existing view is significant.

<u>Compared with OZP Permissible Scenario</u>

- The visual obstruction is slight, which is mainly due to the additional building height of 15m, as compared to OZP, proposed under the OZP Amendment Scheme for the redevelopment of the "R(A)" sites.
- Some degree of visual obstruction to open sky view, but the sense of openness to sky view is generally maintained.

3.4.27 Effect on Public Viewers:

Since the open sky view is partially blocked by the proposed developments at the mid-ground, the visual permeability is reduced.

<u>Compared with Existing View</u>

- Visual blockage to the open sky view will reduce the sense of openness.
- While the existing view of greenery in the foreground will not be affected, the magnitude of the effect on public viewers is considered significant.

<u>Compared with OZP Permissible Scenario</u>

- Similar to the above, visual blockage to the open sky view will reduce the sense of openness but to a lesser extent. The greenery in the foreground is maintained and the background of new developments with additional building height are in a similar composition to the surroundings. Slight effect on public viewers is observed.

3.4.28 Effect on Visual Resources:

The proposed developments will change the visual resource of this VP and further obstruct the open sky view.

<u>Compared with Existing View</u>

- As explained above, the open sky view will inevitably be blocked. Under the proposed OZP Amendment Scheme, the sense of permeability will be reduced.
- The effect on visual resources is considered significant.

<u>Compared with OZP Permissible Scenario</u>

- Noting that the existing building height has not yet reached the OZP permissible level, the open sky view will be partially blocked when developments are built up to the OZP permissible level.

- The effect on visual resources is considered slight.

3.4.29 As stated above, the proposed developments will cause visual impact and blockage to the open sky view. The visual impact is considered significantly adverse as compared to the existing condition and slightly adverse as compared to the OZP permissible scenario, which is summarised in **Table 3.7** below.

Table 3.7 – Summary of Overall Visual Assessment of VP6 (Tung Chau Street Park)

VP6 – Tung Chau Street Park	Overall Assessment, when compared with	
Visual Composition	Existing View:	Significant change but the proposed developments are still generally compatible with the surroundings in terms of mass and use
	OZP Scenario:	Slight change noting the existing buildings have not yet reached the OZP permissible building height restriction
Visual Obstruction	Existing View:	Significant obstruction, with partially blocked open sky view.
	OZP Scenario:	Slight obstruction, with additional obstruction to open sky view
Effect on Public Viewers (Visual sensitivity: High)	Existing View:	Significant effect. Greenery in the foreground is maintained.
	OZP Scenario:	Slight. Greenery in the foreground is maintained and the background of new developments with additional building height are in a similar composition to the surroundings.
Effect on Visual Resources	Existing View:	Significant. The open sky view will inevitably be blocked with a reduced sense of permeability.
	OZP Scenario:	Slight. The open sky view will be partially blocked.
Overall Visual Impact	Existing View:	Significantly adverse
	OZP Scenario:	Slightly adverse

VP7 – Maple Street Playground (Refer to Viewpoint 7 – **FIGURE 3.7**)

3.4.30 Visual Composition:

The full redevelopment of the “R(A)” sites will change the visual composition of this VP.

Compared with Existing View

- Since this VP is only 150m from the proposed “R(A)” development under the OZP amendment, it shows the view of the proposed development from a close distance. Hence the visual impact is bound to be significant.
- Taking into account the existing urban context, the proposed high-rise developments would form a strong backdrop and create a visual contrast to exiting low-rise buildings in mid-ground.

Compared with OZP Permissible Scenario

- It should be noted that currently, the location is dominated by low-rise buildings not yet built to the OZP permissible building height restriction. The existing buildings in the foreground, which are outside of the Study Area, are also not yet redeveloped. Hence, the view would be affected by the future redevelopment of the buildings in the front row right next to Maple Street Playground up to the permissible level under the Cheung Sha Wan OZP anyway.
- Taking into consideration the OZP permissible building height (see demarcations on photomontages), the visual composition of the OZP Amendment Scheme proposals demonstrates a higher building height and density than the current OZP which constitutes slight to moderate changes when compared with OZP permissible scenario.

3.4.31 Visual Obstruction:

The existing open sky view is blocked by the proposed developments which will reduce existing visual permeability.

Comparing with Existing View

- The open sky view will be blocked by the proposed developments.
- In general, the degree of visual obstruction is significant.

Compared with OZP Permissible Scenario

- The open sky view will be further blocked if the building heights are to be increased. However, given the increase in height is only 15m, and the open sky view will be blocked by buildings developed up to the OZP permissible level and also the redevelopment of existing buildings outside Study Area, the degree of visual obstruction is considered slight to moderate.

3.4.32 Effect on Public Viewers:

As compared with OZP permissible scenario, since this VP is located very close to the proposed developments, the effect on public viewers is moderate. The existing park space would provide greenery and a sense of openness in the foreground. The magnitude of visual change is considered moderate.

Compared with Existing View

- In general, the proposed developments will impose noticeable visual change at this VP, especially on the sky view obstruction.
- However, the view of the open space and greenery in the foreground is not affected.
- The effect on the public viewer is regarded as significant when compared with the existing view.

Compared with OZP Permissible Scenario

- The existing buildings (within and outside the Study Area) have not yet been built to the OZP permissible level. The obstruction to the existing open sky view by the proposed developments is noticeable but to a lesser degree when compared with the OZP permissible scenario.
- With the open space and greenery in the foreground remaining unaffected, the effect on public viewers is considered slight to moderate.

3.4.33 Effect on Visual Resources:

As mentioned above, a portion of the sky view will inevitably be blocked by the proposed developments. View to greenery and open space is not affected. The current visual quality is moderately changed as compared with OZP permissible scenario.

Compared with Existing View

- As discussed above, a portion of the sky view will inevitably be blocked by the proposed development at mid-ground but the greenery and open space in the foreground is not affected. The effect on the visual resources is significant.

Compared with OZP Permissible Scenario

- Similarly, a portion (but with less extent compared with the existing view) of the sky view will be blocked by the proposed development but the greenery and open space in the foreground are not affected.
- The effect on public resources is considered slight to moderate when compared with OZP permissible scenario.

3.4.34 In general, the proposed developments have noticeable obstructions to the open sky view. The visual permeability will be degraded. However, some of the existing visual resources such as the view of greenery in the foreground are not affected. The visual impact anticipated from the proposed developments is considered significantly adverse as compared to the existing view and slightly to moderately adverse as compared to the OZP permissible scenario. Visual changes are summarised in **Table 3.8** below.

Table 3.8 – Summary of Overall Visual Assessment of VP7 (Maple Street Playground)

VP7 – Maple Street Playground	Overall Assessment, when compared with	
Visual Composition	Existing View:	Significant change due to the increase in development height, which creates a visual contrast to the existing low-rise buildings in mid-ground.
	OZP Scenario:	• Slight to moderate change due to the increase in development height by the redevelopment of the "R(A)" sites • However, as the existing buildings (both within and outside of the Study Area) have not yet been built to the OZP permissible level, there is a visual contrast to the low-rise mid-ground. But the impact is comparatively less significant.
Visual Obstruction	Existing View:	Significant as open sky view will be blocked by the proposed developments
	OZP Scenario:	Slight to moderate as open sky view will be slightly more blocked by the proposed development.
Effect on Public Viewers (Visual sensitivity: High)	Existing View:	Significant obstruction to the sky view is observed but the open space is maintained as the foreground.
	OZP Scenario:	Slight to moderate. Some degree of obstruction to the sky view is observed but the open space is maintained as the foreground.
Effect on Visual Resources	Existing View:	Significant obstruction to the sky view is observed but the open space is maintained as the foreground.
	OZP Scenario:	Slight to moderate. Some degree of obstruction to the sky view is observed but the open space is maintained as the foreground.
Overall Visual Impact	Existing View:	Significantly adverse
	OZP Scenario:	Slightly to moderately adverse

VP8 – Tai Hang Tung Recreation Ground (Refer to Viewpoint 8 – **FIGURE 3.8**)

3.4.35 Visual Composition:

The proposed redevelopment of the “R(A)” sites will dominate the mid-ground of this VP, a 15m additional building height is proposed based on the existing OZP permissible building height (for existing “R(A)” type developments visible from this VP), while the proposed PR is maintained at the OZP permissible level. The change in visual composition is slight to moderate as compared to OZP permissible scenario.

<u>Compared with Existing View</u>

- In general, the change in the visual composition of this VP is significant as compared to the existing view.
- The skyline will be changed, assuming most “R(A)”. “OU(MU)” and “C” sites will be redeveloped.

<u>Compared with OZP Permissible Scenario</u>

- Under the OZP Amendment Scheme, a 15m increase in building height is proposed for the general “R(A)” and “OU(MU)” sites while the existing OZP permissible PR is maintained, while a 30m increase in building height is proposed for “C” sites along Nathan Road.
- The change of visual composition, when compared with the OZP permissible scenario, is considered slight on the western side of this VP and moderate on the eastern side of this VP as the proposed developments are generally compatible with the visual character intended under the current OZP.

3.4.36 Visual Obstruction:

The view of the open sky view is partially blocked. The sense of openness is generally maintained but the visual permeability is moderately affected when compared with the OZP permissible scenario.

<u>Compared with Existing View</u>

- In general, the visual obstruction is significant when compared with the existing views due to the visual blockage to the open sky view.

<u>Compared with OZP Permissible Scenario</u>

- There will be mild additional blockage of the sky view by the developments.
- The visual obstruction is therefore slight on the western side of this VP and moderate on the eastern side of this VP when compared with OZP permissible scenario.

3.4.37 Effect on Public Viewers:

The mid-ground is dominated by the proposed developments which will be noticeable to the viewers. The visual permeability is weakened when compared with the OZP permissible scenario.

Compared with Existing View

- In general, the proposed development will create an impact on the openness of the sky view at the mid-to background.
- Effect on the public viewer can be graded as significant when compared with the existing view.

Compared with OZP Permissible Scenario

- As discussed above, there will be mild additional blockage of sky view by the “R(A)”, “OU(MU)” and “C” sites typed development.
- The effect on the public viewer is therefore considered slight on the western side of this VP and moderate on the eastern side of this VP.

3.4.38 Effect on Visual Resources:

The proposed developments at the mid-ground will become more dominant from this VP which will affect the view of the rhythmic skyline. However, the park and open space in the foreground will be maintained.

Compared with Existing View

- Greenery and open space in the foreground are maintained, although the proposed development will generally create a dominant visual blockage to the open sky view.
- The effect on visual resources compared with the existing view is therefore considered moderate.

Compared with OZP Permissible Scenario

- Again, the existing buildings have not yet been built to the OZP permissible building height. The proposed development at the mid-to background will create a mild additional blockage to the open sky view with greenery and open space in the foreground being maintained.
- The effect on visual resources compared with OZP permissible scenario is therefore considered slight on the western side of this VP and moderate on the eastern side of this VP.

3.4.39 As stated above, proposed developments will inevitably obstruct the open sky view and reduce the visual permeability. The rhythmic skyline is visually blocked by the proposed redevelopments. The visual quality will be degraded. Therefore, the visual impact anticipated from the proposed development of VP8 is moderate to significantly adverse when compared with the existing view. Upon full development of “R(A)”, “OU(MU)” and “C” sites of which proposed building height with 15m/ 30m increase would result in additional blockage of sky view, visual impact when comparing with OZP permissible scenario is anticipated to be slight on the western side of this VP and moderately adverse on the eastern side of this VP. Visual changes are summarised in **Table 3.9 below.**

Table 3.9 – Summary of Overall Visual Assessment of VP8 (Tai Hang Tung Recreation Ground)

VP8 – Tai Hang Tung Recreation Ground	Overall Assessment, when compared with	
Visual Composition	Existing View:	Significant change
	OZP Scenario:	• Slight on the western side and moderate on the eastern side.
Visual Obstruction	Existing View:	Significant. The open sky view is blocked by the proposed development.
	OZP Scenario:	• Slight on the western side and moderate on the eastern side • Only mild additional blockage to the open sky view is created.
Effect on Public Viewers (Visual sensitivity: High)	Existing View:	Significant effect on the visual openness to sky view.
	OZP Scenario:	Slight on the western side and moderate on the eastern side, with mild additional blockage to open sky view at the mid-to background
Effect on Visual Resources	Existing View:	Moderate. Greenery and open space in the foreground are maintained, although the proposed development will generally create a dominant visual blockage to the open sky view.
	OZP Scenario:	• Slight on the western side and moderate on the eastern side • Similar to the above but with less degree in terms of visual blockage to the open sky view.
Overall Visual Impact	Existing View:	Significantly adverse, due to the dominant visual blockage to open sky view.
	OZP Scenario:	Slightly adverse on the western side and moderately adverse on the eastern side, given the additional blockage to the open sky view.

VP9 – Mong Kok East Station Elevated Walkway (Refer to Viewpoint 9 – **FIGURE 3.9**)

3.4.40 Visual Composition:

The foreground of this VP is dominated by the “R(A)” residential redevelopments with similar building mass and building height that will result in visual monotony assuming full redevelopment. The “OU(MU)” zoning at the Character Streets will add greater flexibility in terms of land use mix, thus breaking up the visual monotony to a certain extent. The planned and committed Sai Yee Street Redevelopment will be the key visual element of this VP.

<u>Compared with Existing View</u>

- This VP demonstrates a view of the proposed development from a close distance; hence the visual impact is bound to be significant.
- In general, the change in the visual composition of this VP is significant when compared to the existing view.
- The context of this VP is dominated by the residential redevelopments with similar building mass and building height in the foreground which may create visual monotony assuming full redevelopments.
- The “OU(MU)” zoning for the Character Streets would help to bring interest to the area.

<u>Compared with OZP Permissible Scenario</u>

- In general, the change of visual composition of this VP is slight to moderate when compared to the OZP permissible scenario.
- The only major exceedance of building height against the OZP permissible level will be the 15m increase in building height for the general “R(A)” and “OU(MU)” zones.

3.4.41 Visual Obstruction:

A portion of the sky view is blocked by the redevelopment of the residential buildings in the foreground. The visual openness and permeability are reduced.

<u>Compared with Existing View</u>

- The visual openness to the sky view and permeability is significantly reduced compared with the existing view.

<u>Compared with OZP Permissible Scenario</u>

- When compared with OZP permissible scenario, the visual obstruction is slight to moderate.

3.4.42 Effect on Public Viewers:

A portion of the open sky view is blocked by the “R(A)” and “OU(MU)” developments. The view is dominated by the facade of residential redevelopment along Sai Yee Street. The changes might draw public concern to the wall effect and visual permeability, but the effect of visual changes as compared to the OZP Permissible Scenario is not significant and is graded as slight to moderate assuming full redevelopment of the “R(A)” and “OU(MU)” sites.

<u>Compared with Existing View</u>

- Noting that the visual character may change, the effect on public viewers, when compared with the existing view, is therefore considered moderate to significant upon full development.

Compared with OZP Permissible Scenario

- Noting that the visual character would not be significantly changed, the effect on public viewers, when compared with OZP permissible scenario, is therefore considered slight to moderate.
- It should be noted that existing buildings have not yet been built to the OZP permissible building height restriction level. The magnitude of change in terms of the effect on public viewers is considered slight to moderate when compared with OZP permissible scenarios.

3.4.43 Effect on Visual Resources:

There will be some visual intrusion to the open sky view which will degrade the visual amenity. While the wall-like residential redevelopment will weaken the visual interest of this VP, it is not a far cry from the OZP permissible scenario.

Compared with Existing View

- Visual intrusion to the open sky view is observed. A significant effect on visual resources is anticipated.

Compared with OZP Permissible Scenario

- Mild additional blockage to open sky view is observed due to the 15m increase in building height for the general “R(A)” and “OU(MU)” zones respectively.
- The effect on visual resources is therefore slight to moderate when compared with OZP permissible scenario.

3.4.44 In general, the proposed developments have a noticeable visual impact on the open sky view. The sense of openness and visual amenity are affected assuming full redevelopment under both the OZP and OZP Amendment Scheme scenarios. Thus, the visual impact anticipated from the proposed development of VP9 is significantly adverse as compared to the existing view. Noting that the existing building heights have not yet reached the OZP permissible level, the visual impact is anticipated to be slightly to moderately adverse as compared to OZP because of the slightly more blockage to open sky, the medium sensitivity of public viewers with less frequent visits, and new visual interest such as the Sai Yee Street Redevelopment. While visual monotony is anticipated, the introduction of the “OU(MU)” zoning will bring flexibility in terms of land use mix and building design, thus helping to reduce the monotonous effect. The visual change is summarised in **Table 3.10** below.

Table 3.10 – Summary of Overall Visual Assessment of VP9 (Mong Kok East Station Elevated Walkway)

VP9 – Mong Kok East Station Elevated Walkway	Overall Assessment, when compared with	
Visual Composition	Existing View:	Significant change due to the full redevelopment of “R(A)” and “OU(MU)” sites

	OZP Scenario:	Slight to moderate change due to the increase in the building height for the “R(A)” and “OU(MU) sites
Visual Obstruction	Existing View:	Significant
	OZP Scenario:	Slight to moderate, mild additional blockage to open sky view by the “R(A)” and “OU(MU)” sites.
Effect on Public Viewers (Visual sensitivity: Medium)	Existing View:	Moderate to significant
	OZP Scenario:	Slight to moderate with visual interest created by the Sai Yee Street Redevelopment.
Effect on Visual Resources	Existing View:	Significant
	OZP Scenario:	Slight to moderate with the Sai Yee Street Redevelopment Site as new prominent comprehensive development and visual landmark
Overall Visual Impact	Existing View:	Significantly adverse
	OZP Scenario:	Slightly to moderately adverse • Mild / slightly additional blockage to open sky view by full development of “R(A)” and “OU(MU)” sites with an increase in building height. • Sai Yee Street Redevelopment as a new visual interest.

VP10 – Elevated Walkway above Ferry Street (Refer to Viewpoint 10– **FIGURE 3.10**)

3.4.45 Visual Composition:

The visual composition of this VP will be changed yet generally visually compatible with the visual character intended under the current OZP as shown in the photomontage. The VP is dominated by the redevelopment of the “R(A)” sites at the mid-ground.

<u>Compared with Existing View</u>

- Similar to VP8 and VP9, significant change to the visual composition is caused by the assumption of the full redevelopment of “R(A)” sites.

<u>Compared with OZP Permissible Scenario</u>

- The building height of the “R(A)” redevelopment sites in the mid-ground is generally compatible with the OZP permissible level.
- Change to visual composition is considered slight to moderate when compared with OZP permissible scenario with partial blockage of open sky view.

3.4.46 Visual Obstruction:

The view of the open sky is partially blocked by the residential redevelopments in mid-ground which will reduce visual permeability.

Compared with Existing View

- The view of the open sky view is partially blocked by the development and the sense of openness is moderately reduced.

Compared with OZP Permissible Scenario

Similar to the discussion in terms of visual composition, the visual obstruction is slight to moderate or comparable with the OZP scenario with partial blockage of open sky view.

3.4.47 Effect on Public Viewers:

The current view of the open sky view and buildings in Tai Kok Tsui from a far viewing distance is blocked by the residential redevelopments in the mid-ground. The developments will create a wall effect for the public viewers assuming full redevelopments of the “R(A)” sites. The visual openness and permeability are reduced. The effect on the public viewer is graded as slight to moderate as compared to the OZP permissible scenario.

Compared with Existing View

- In general, the view is significantly affected due to the visual blockage of the open sky view.
- The effect of the building bulk/mass created by the developments may significantly change the visual quality of the view currently enjoyed.
- The effect of the visual change is graded as significant as compared to the existing view.

Compared with OZP Permissible Scenario

- Nonetheless, when compared to the redevelopment under the OZP permissible scenario, the effect of the proposed development would be slight to moderate.

3.4.48 Effect on Visual Resources

The open sky view is partially blocked. The wall effect created by OZP amendments will reduce the visual amenity. The effect on visual resources is slight to moderate as compared to the OZP permissible scenario.

Compared with Existing View

- In general, the proposed developments under OZP amendments have a noticeable visual impact on the open sky view which affects the visual amenity currently enjoyed.
- Thus, the effect on visual resources is graded as significant when compared with the existing view.

Comparing with OZP Permissible Scenario

- Similar to the above discussion, the effect on visual resources is slight to moderate when compared with the OZP permissible scenario.

3.4.49 The seemingly significant impact of this VP is caused by the full redevelopment of the “R(A)” sites, under both the OZP and OZP Amendment Scheme scenarios. Noting that the existing building heights have not reached the OZP permissible level, while the OZP Amendment Scheme proposes a 15m building height increase for the “R(A)” sites as compared to the existing OZP permissible building height, such an increase would not amount to a significant change in visual character, and the visual impact is anticipated to be slightly to moderately adverse. The visual change is summarised in **Table 3.11** below.

Table 3.11 – Summary of Overall Visual Assessment of VP10 (Elevated Walkway Above Ferry Street)

VP10 – Elevated Walkway Above Ferry Street	Overall Assessment, when compared with	
Visual Composition	Existing View:	Significant change due to assuming full redevelopment of the “R(A)” sites
	OZP Scenario:	Slight to moderate
Visual Obstruction	Existing View:	Openness moderately reduced
	OZP Scenario:	Slight to moderate
Effect on Public Viewers (Visual sensitivity: Medium)	Existing View:	Significant
	OZP Scenario:	Slight to moderate
Effect on Visual Resources	Existing View:	Significant
	OZP Scenario:	Slight to moderate
Overall Visual Impact	Existing View:	Significantly adverse
	OZP Scenario:	Slightly to moderately adverse

VP11 – Cherry Street Park North (Refer to Viewpoint 11 – **FIGURE 3.11**)

3.4.50 Visual Composition:

This VP is dominated by the “R(A)” residential redevelopments at the mid-ground.

Compared with Existing View
Similar to VP8, VP9 and VP10, significant change to the visual composition is caused by the assumption of the full redevelopment of the “R(A)” sites.

Compared with OZP Permissible Scenario

- The building height of the “R(A)” redevelopment in the mid-ground, with a mere 15m increase, is generally compatible with the OZP permissible level.
- While the change in composition is considered moderate, nonetheless, the vegetation and park ambience in the foreground are maintained.

3.4.51 Visual Obstruction:

The view of the open sky is partially blocked by the proposed developments which reduce the sense of visual openness.

Compared with Existing View
In general, the visual obstruction is significant compared with the existing view as the view of the open sky is partially blocked and the sense of visual permeability is reduced.

Compared with OZP Permissible Scenario
Slight additional visual blockage to the open sky is observed when compared with the OZP permissible building mass. The visual obstruction is considered moderate.

3.4.52 Effect on Public Viewers:

The view of the open sky is partially blocked by the proposed developments and the visual openness and permeability are reduced. The effect on public viewers is moderate as compared to OZP permissible scenario.

Compared with Existing View
- In general, the proposed developments will create a significant impact on the openness of the sky view and cause a reduction in visual permeability.
- As the park is maintained as the foreground, the visual change is considered significant when compared with the existing view.

Compared with OZP Permissible Scenario
With just a 15m increase in building height, the effect on public viewers is considered moderate. Taking into account that greenery and park are maintained in the foreground, and existing buildings have not yet been built to the OZP permissible height level, an additional portion of open sky view will be blocked as a result of the proposed developments.

3.4.53 Effect on Visual Resources

As mentioned, a portion of the sky view is blocked by the proposed developments. The visual permeability and sense of openness are degraded.

Compared with Existing View
Similar to the visual changes in terms of visual obstruction, the openness of the sky view is reduced significantly and causes a reduction in the visual permeability.

Compared with OZP Permissible Scenario
The effect on visual resources is moderate when compared with OZP permissible scenario because the “R(A)” development sites impose moderate visual blockage to the open sky view.

3.4.54 As stated above, the proposed developments will partially block the view of the open sky and will reduce the visual amenity. The visual impact anticipated from the proposed development of VP11 is significantly adverse as compared to the existing view and moderately adverse as compared to the OZP scenario. The visual change is summarised in **Table 3.12** below.

Table 3.12 – Summary of Overall Visual Assessment of VP11 (Cherry Street Park (North))

VP11 – Cherry Street Park (North)	Overall Assessment, when compared with	
Visual Composition	Existing View:	Significant change due to assuming full redevelopment of "R(A)" sites
	OZP Scenario:	Moderate change
Visual Obstruction	Existing View:	Significant with openness to sky view reduced by the "R(A)" site developments
	OZP Scenario:	Moderate, with additional blockage of open sky view by the "R(A)" site developments when comparing with building mass following OZP permissible level.
Effect on Public Viewers (Visual sensitivity: High)	Existing View:	Significant, greenery and park are maintained as foreground
	OZP Scenario:	Moderate, greenery and park maintained as foreground.
Effect on Visual Resources	Existing View:	Significant with partial blockage to open sky view
	OZP Scenario:	Moderate, with comparatively mild blockage to open sky view.
Overall Visual Impact	Existing View:	Significantly adverse
	OZP Scenario:	Moderately adverse

VP12 – Cherry Street Park South (Refer to Viewpoint 12 – **FIGURE 3.12**)

3.4.55 Visual Composition:

The existing view of Cherry Street Park remains in the foreground. The mid-ground of this VP is dominated by the "R(A)" redevelopments along Ferry Street. The mid to background is featured with other "R(A)" redevelopments.

Compared with Existing View

- In general, the change in the visual composition of the VP is caused by the assumption of the full redevelopment of the blank "R(A)" sites.

Compared with OZP Permissible Scenario

- The existing buildings have not yet been fully built to the OZP permissible building height restriction. The building height of the proposed "R(A)" sites is 15m higher than that permitted under the current OZP, however, the building mass is still visually compatible with the surrounding areas.
- The vegetation and ambience of Cherry Street Park in the foreground are maintained.

- In general, the change of visual composition of this VP is slight to moderate when compared to the OZP permissible scenario.

3.4.56 Visual Obstruction:

The view of the open sky view is slightly blocked, but both the visual openness and the permeability are strongly maintained. Thus, the degree of visual obstruction is slight to moderate.

<u>Compared with Existing View</u>
The degree of visual obstruction is slight to moderate when compared with the existing views.

<u>Compared with OZP Permissible Scenario</u>
The visual obstruction is slight to moderate when compared with OZP permissible scenario.

3.4.57 Effect on Public Viewers:

Since the proposed development can blend in with the surroundings smoothly, the visual change of this VP is not significant to the public viewers. The effect on the public viewer is graded as slight to moderate.

<u>Compared with Existing View</u>
- The view of the open sky view is partially blocked by the proposed “R(A)” development.
- The Cherry Street Park in the immediate foreground will be maintained.
- The effect on public viewers is therefore considered slight to moderate.

<u>Compared with OZP Permissible Scenario</u>
- The visual impacts brought by the proposed R(A)” development are similar to the OZP permissible building mass, but slightly less.
- The Cherry Street Park in the immediate foreground will be maintained.
- The effect on public viewers is therefore considered slight to moderate.

3.4.58 Effect on Visual Resources

Considering that the visual blockage to the open sky view is slight with no impact on the existing greenery, the effect on visual resources is graded slight to moderate.

<u>Compared with Existing View</u>
In general, the effect on visual resources is slight to moderate when compared with the existing view.

<u>Compared with OZP Permissible Scenario</u>
The effect on visual resources is slight to moderate when compared with OZP permissible scenario.
The seemingly adverse impact in this VP is caused by the assumption of the full redevelopment of the “R(A)” sites, under both the OZP and OZP

Amendment Scheme scenarios. Noting that the existing building heights have not reached the OZP permissible level, while the OZP Amendment Scheme proposes a 15m building height increase for the “R(A)” redevelopment sites as compared to the existing OZP permissible building height, such an increase would not amount to a significant change in visual character, and the visual impact is anticipated to be slightly to moderately adverse. The visual change is summarised in **Table 5.11** below.

3.4.59 The visual change is summarised in **Table 3.13** below.

Table 3.13 – Summary of Overall Visual Assessment of VP12 (Cherry Street Park (South))

VP12 – Cherry Street Park (South)	Overall Assessment, when compared with	
Visual Composition	Existing View:	Slight to moderate change due to assuming full redevelopment of the R(A)” sites.
	OZP Scenario:	Slight to moderate
Visual Obstruction	Existing View:	Slight
	OZP Scenario:	Slight to moderate. Building heights of proposed “R(A)” sites at mid-ground are generally comparable with the OZP permissible level
Effect on Public Viewers (Visual sensitivity: High)	Existing View:	Slight to moderate
	OZP Scenario:	Slight to moderate
Effect on Visual Resources	Existing View:	Slight to moderate. Some degree of obstruction to the sky view is observed, but the open space at Cherry Street Park is maintained in the foreground.
	OZP Scenario:	Slight (similar to the comparison with the existing view).
Overall Visual Impact	Existing View:	Slightly to moderately adverse
	OZP Scenario:	

VP13 – Yau Ma Tei Reservoir (Refer to Viewpoint 13 – **FIGURE 3.13**)

3.4.60 Visual Composition:

The mid-ground of this VP is dominated by the commercial buildings along Nathan Road. Under the OZP Amendment Scheme, the building height along Nathan Road is 30m taller than the current permissible building height stipulated in the OZP considering the proposed increase in PR up to the B(P)R level (the difference is demarcated in the photomontages). The proposed increase in PR and building height will have some impact on the visual composition resulting in higher contrast to the greenery in the foreground.

Compared with Existing View

- In general, the change in the visual composition is significant when compared with the existing view.
- High-rise commercial buildings along Nathan Road with an increase in PR and building height at the mid-ground will create higher contrast to the greenery.
- Assuming full redevelopment of the "R(A)" and "C" sites, the commercial developments along Nathan Road will dominate the view from this VP, transforming the current visual composition into a more commercial/metropolitan ambience.

Compared with OZP Permissible Scenario

- In general, the change in visual composition is moderate with an increase in plot ratio and building height for developments along Nathan Road.

3.4.61 Visual Obstruction:

A relatively large portion of the open sky view is blocked by the redeveloped commercial buildings in the mid-ground which will reduce the sense of visual openness The obstruction induced by the OZP Amendment Scheme is considered moderate as compared to the OZP permissible scenario.

Compared with Existing View
High-rise commercial buildings along Nathan Road with an increase in PR and building height will significantly reduce the sense of visual openness to the open sky view.

Compared with OZP Permissible Scenario
In general, the change of visual obstruction is moderate taking into account that existing buildings have not yet been built to the OZP permissible height level. An additional portion of the open sky view will be blocked as a result of the proposed increase in building height and plot ratio.

3.4.62 Effect on Public Viewers:

The current view of the open sky view and skyline is changed moderately. The redevelopment of commercial buildings in the mid-ground will reduce the visual openness and degrade the visual amenity.

Compared with Existing View
With the greenery in the immediate foreground intact, the major effect of public viewers is caused by the increase in development height and intensity at the mid-ground, causing significant blockage to the existing open sky view.

Compared with OZP Permissible Scenario
Taking into account that existing buildings have not yet been built to the OZP permissible building height restriction, the visual blockage to the open sky view by the redevelopment of commercial buildings in the mid-ground will moderately reduce the sense of openness and degrade the quality of view when compared to the OZP permissible scenario. The effect on public viewers

is moderate.

3.4.63 Effect on Visual Resources

The proposed development will moderately block the view of the open sky and will change the character in the mid-ground to reinforce the Nathan Road Commercial Spine character. The view of the current building skyline is noticeably changed and the visual permeability is degraded.

<u>Compared with Existing View</u>
As discussed above, the view of the open sky will inevitably be blocked, which will moderately to significantly reduce the sense of openness and permeability of the view. Nonetheless, the greenery in the foreground would not be affected. The effect on visual resources compared with the existing view is moderate to significant.

<u>Compared with OZP Permissible Scenario</u>
As major changes to the OZP scenarios are caused by the increase in building height of commercial developments at the mid-ground, and the greenery in the foreground would not be affected, the effect on visual resources is graded as moderate.

3.4.64 Again, it should be noted that visual impact as compared to the existing view is considered significantly adverse, but the degree of impact would be reduced to moderately adverse if compared to the current OZP permissible building mass and building height. The visual change is summarised in **Table 3.14** below.

Table 3.14 – Summary of Overall Visual Assessment of VP13 (Yau Ma Tei Service Reservoir)

VP13 – Yau Ma Tei Service Reservoir	<u>Overall Assessment, when compared with</u>	
Visual Composition	Existing View:	Significant change with higher visual contrast between the high-rise commercial buildings along Nathan Road in mid-ground and the greenery in the foreground
	OZP Scenario:	Moderate change due to the increase in PR and building height of high-rise commercial buildings along Nathan Road.
Visual Obstruction	Existing View:	Significant blockage to existing sky view.
	OZP Scenario:	Moderate, with some degree of blockage to open sky view created by an increase in building height of commercial buildings along Nathan Road.

Effect on Public Viewers (Visual sensitivity: High)	Existing View:	Significant
	OZP Scenario:	Moderate
Effect on Visual Resources	Existing View:	Moderate to significant
	OZP Scenario:	Moderate
Overall Visual Impact	Existing View:	Significantly adverse
	OZP Scenario:	Moderately adverse

VP14 – Jordan Road Elevated Walkway (Refer to Viewpoint 14 – **FIGURE 3.14**)

3.4.65 Visual Composition:

The visual composition is substantially changed due to the assumption of the full redevelopment of the "R(A)" sites at the Man's Mansion, and along Jordan Road in this VP. The planned Girl Guide Association Headquarters and Hostel along Jordan Road is also assumed to be developed.

Compared with Existing View

- In general, the change in the visual composition of this VP is significant as compared to the existing view.
- The skyline will be changed, assuming most of the "R(A)" sites will be redeveloped.

Compared with OZP Permissible Scenario

- A 15m increase in building height is proposed for the general "R(A)" zone while the existing OZP permissible PR is maintained. The proposed developments are generally compatible with the visual character of the area.
- Therefore, the change of visual composition when compared with the OZP permissible scenario is considered moderate.

3.4.66 Visual Obstruction:

A large portion of the open sky view is blocked by the redevelopment of the "R(A)" sites in the foreground. The visual openness and permeability are moderately reduced.

Compared with Existing View

The visual openness is weakened due to visual blockage by redevelopments. Visual obstruction is considered significant.

Compared with OZP Permissible Scenario

Moderately additional visual blockage to open sky is observed when compared with OZP permissible building mass. The visual obstruction is considered moderate.

3.4.67 Effect on Public Viewers:

The view to open sky view is moderately blocked by the full redevelopment of the proposed "R(A)" sites. The visual openness and permeability are reduced.

The effect on public viewers is moderate.

Compared with Existing View
The visual blockage to the open sky view will reduce the sense of openness. The impact caused by the change in visual composition is considered significant.

Compared with OZP Permissible Scenario
Similar to the comparison with the existing view, yet the additional blockage is relatively less as compared to OZP permissible mass and the effect on public viewers is considered moderate.

3.4.68 Effect on Visual Resources

The view to the current open sky view is moderately affected due to the visual blockage caused by the proposed “R(A)” development. The visual permeability is reduced. The effect on visual resources is graded as moderate.

Compared with Existing View
Visual intrusion to the open sky view is observed. A significant effect on visual resources is anticipated.

Compared with OZP Permissible Scenario
The effect on visual resources is considered moderate when compared with OZP permissible scenario.

3.4.69 To sum up, as compared to the OZP permissible scenario, the visual composition of this VP is moderately changed. The current view of the open sky view and visual permeability is weakened due to the visual blockage brought by the developments. The visual impact anticipated from the proposed development of VP14 is moderately adverse. The visual change is summarised in **Table 3.15** below.

Table 3.15 – Summary of Overall Visual Assessment of VP14 (Jordan Road Elevated Walkway)

VP14 – Jordan Road Elevated Walkway	Overall Assessment, when compared with	
Visual Composition	Existing View:	Significant due to the full redevelopment of the “R(A)” sites.
	OZP Scenario:	Moderate
Visual Obstruction	Existing View:	Significant, with visual openness to sky view weakened due to visual blockage by the redevelopment of the “R(A)” sites.
	OZP Scenario:	Moderate, additional visual blockage to the open sky is observed.

Effect on Public Viewers (Visual sensitivity: Medium to high)	Existing View:	• Significant • Visual blockage to the open sky view is observed with a sense of openness reduced and the quality of view degraded.
	OZP Scenario:	Moderate
Effect on Visual Resources	Existing View:	Significant, visual intrusion to the open sky view is observed.
	OZP Scenario:	Moderate
Overall Visual Impact	Existing View:	• Significantly adverse • Proposed developments along Jordan Road create a visual obstruction to open sky view
	OZP Scenario:	Moderately adverse (similar to the comparison with the existing view but with less visual impacts)

VP15 – King George V Memorial Park (Refer to Viewpoint 15 – **FIGURE 3.15**)

3.4.70 Visual Composition:

The mid-ground of the VP is dominated by the redevelopments along Jordan Road.

<u>Compared with Existing View</u>
When assuming full redevelopments along Jordan Road, a denser urban setting would result which constitutes a significant change when compared with the existing view.

<u>Compared with OZP Permissible Scenario</u>
With an increase of 15m in building height for the “R(A)” sites along Jordan Road, the change in visual composition is considered moderate when compared with OZP permissible scenario.

3.4.71 Visual Obstruction:

The view of the open sky is partially blocked by the proposed redevelopments in mid-ground which will reduce the sense of visual openness.

<u>Compared with Existing View</u>
The degree of visual obstruction is significantly increased. The visual permeability is substantially decreased due to the blockage by the proposed “R(A)” redevelopment.

<u>Compared with OZP Permissible Scenario</u>
Considering that existing buildings have not yet been built to the current OZP permissible building height level as shown in the photomontage, the change to visual obstruction is moderate when compared with OZP permissible scenario.

3.4.72 Effect on Public Viewers:

Despite this VP being located very close to the proposed developments, as compared to the OZP permissible scenario, the effect on public viewers is moderate.

<u>Compared with Existing View</u>
The visual blockage of the open sky view will reduce the sense of openness and degrade the quality of the view. However, the existing park space in the foreground would provide greenery and a sense of openness in the foreground. The current view to open sky view and skyline is affected significantly.

<u>Compared with OZP Permissible Scenario</u>
- The visual impacts brought by the proposed R(A)" redevelopment are similar to the OZP permissible building mass.
- The existing park space in the immediate foreground will be maintained.
- The effect on public viewers is therefore considered moderate.

3.4.73 Effect on Visual Resources

The open sky view is blocked by the residential redevelopments. The visual permeability is reduced due to the densely built residential redevelopments.

<u>Compared with Existing View</u>
The visual blockage of the open sky view by the densely built residential redevelopment will reduce the sense of openness and degrade the quality of the view.

<u>Compared with OZP Permissible Scenario</u>
Noting that existing buildings have not yet been built to the OZP permissible building height restriction level, the visual blockage to open sky view in the background and reduction of visual openness is relatively moderate when compared with OZP permissible scenario.

3.4.74 As stated above, the visual composition is noticeably affected due to assuming full redevelopment, the open sky view will be obstructed. The visual impact anticipated from the proposed development is significantly adverse compared with the existing view and moderately adverse compared with OZP permissible scenario. The visual change is summarised in **Table 3.16** below.

Table 3.16 – Summary of Overall Visual Assessment of VP15 (King George V Memorial Park)

VP15 – King George V Memorial Park	Overall Assessment, when compared with	
Visual Composition	Existing View:	• Significant change, which is mainly due to the assumed full redevelopment of "R(A)" sites.
	OZP Scenario:	• Moderate change with notable upzoning for residential developments along Jordan Road, the increase of which is relatively mild compared with the OZP permissible level.
Visual Obstruction	Existing View:	Significant with a substantial reduction in visual openness to sky view.
	OZP Scenario:	Moderate with some degree of visual blockage to open sky view.
Effect on Public Viewers (Visual sensitivity: High)	Existing View:	Significant with a substantial reduction in visual openness to sky view.
	OZP Scenario:	Moderate with some degree of blockage to open sky view.
Effect on Visual Resources	Existing View:	Significant with a sense of openness to sky view reduced due to dense residential redevelopment.
	OZP Scenario:	Moderate with some degree of blockage to open sky view and thus a reduction in visual permeability.
Overall Visual Impact	Existing View:	Significantly adverse due to the visual blockage by redevelopments along Jordan Road.
	OZP Scenario:	Moderately adverse

3.5 Visual Impact Assessment with OZP Amendments and Other Assumed Planned Developments Under YM Study

3.5.1 While this submission is on the visual impact of the OZP amendments, opportunity is taken to include an assessment of other assumed planned developments which are likely to be completed by 2047 as agreed with concerned departments. The same methodology has been adopted for other technical assessments, including TIA, infrastructural and other environmental assessments. The result of the assessment is attached in **Appendix 1** for reference.

3.5.2 The same set of VPs has been used to assess the visual impact. Same as the OZP amendments, the principal impacts would come from a close distance which is understandable. However, the visual impacts of these developments are relatively less than those caused by the redevelopment of the “R(A)” sites. In fact, these are bold proposals to encourage new architectural landmark/ high-rise developments at strategic locations, and at some viewpoints, the ridgeline would be breached and the sky view would be blocked. However, these iconic buildings would add punctuations and interests, resulting in a new and revamped city skyline with an undulating/ rhythmic profile.

4 CONCLUSION AND SUMMARY

4.1 Visual Impact Assessment

4.1.1 An assessment of 15 viewpoints was conducted, based on the OZP Amendment Scheme. Out of which, VP1-VP5 are macro-level viewpoints and VP6-VP15 are micro-level vantage points.

4.1.2 When evaluating the visual impact of the OZP Amendment Scheme, one should also bear in mind that existing buildings are yet to build up to the current OZP permissible level. Also, the focus of the visual impact assessment in support of proposed OZP amendments would be on the comparison between the OZP amendment scenario with the OZP permissible scenario. Hence, while the photomontages may show a significant blockage of the existing sky view or degradation in permeability as compared to the existing view, this is often a cumulative result or effect based on both the existing OZP control and OZP Amendment Scheme proposals, especially for the full redevelopment of the "R(A)"/ "R(E)" and "OU(MU)" sites where only slight modifications are proposed in the proposed OZP amendment scenario (e.g. 15m increase in building height). Moreover, at some VP, notably VP7, the development may be concealed by the redevelopment of the buildings outside the Study Area.

4.1.3 Based on the analysis, it could be seen that the visual impact appraisal on macro-level viewpoints (except for VP2 and VP3) generally ranges from "**negligible to slightly adverse" to "slightly adverse".** As illustrated in the photomontages, from a far viewing distance (VP1, VP4 and VP5), the visual impact is rather minor. For VP2 and VP3 viewing from the Sun Yat Sen Memorial Park and Central Pier No. 7 (strategic viewpoints), the proposed developments are partially screened by the planned WKCD development dominating the city view against the harbourfront, and the proposed developments are generally compatible with the surrounding developments in terms of visual character. The proposed building mass in the Study Area will form a taller urban backdrop complementing the WKCD identity. However, the proposed increase in building height in Mong Kok and Yau Ma Tei will add another layer to the height profile, encroaching into the building free zone in the background.

4.1.4 For the micro-level vantage points, with angles selected close to the building mass, the visual impact will naturally be more apparent, with results ranging from "**slightly adverse" to "moderately adverse"** when comparing the OZP amendments scenario with the OZP permissible scenario. As illustrated in the photomontages, under the micro-level, although the proposed OZP amendments may reduce visual openness, permeability and access to sky view to a certain extent, they would generally be compatible with the Mong Kok and Yau Ma Tei townscape and their surroundings mainly characterised by compact and mixed high-rise developments. The 15m increase in building height for "R(A)", "R(E)" and "OU(MU)" sites would unlikely induce significant changes to the intended visual character under the current OZPs, and the increase in plot ratio and 30m increase in building height for "C" sites along Nathan Road would likely strengthen Nathan Road as the key commercial spine of Kowloon Peninsula, making it a landmark of the district. Variations in lot size and development scale as well as differences in design styles and consideration would contribute to varieties in building height and outlook over the area.

The visual impact from the selected VPs is presented in **Table 4.1** below for ease of reference.

Table 4.1 – Overall Visual Impact for Selected VPs

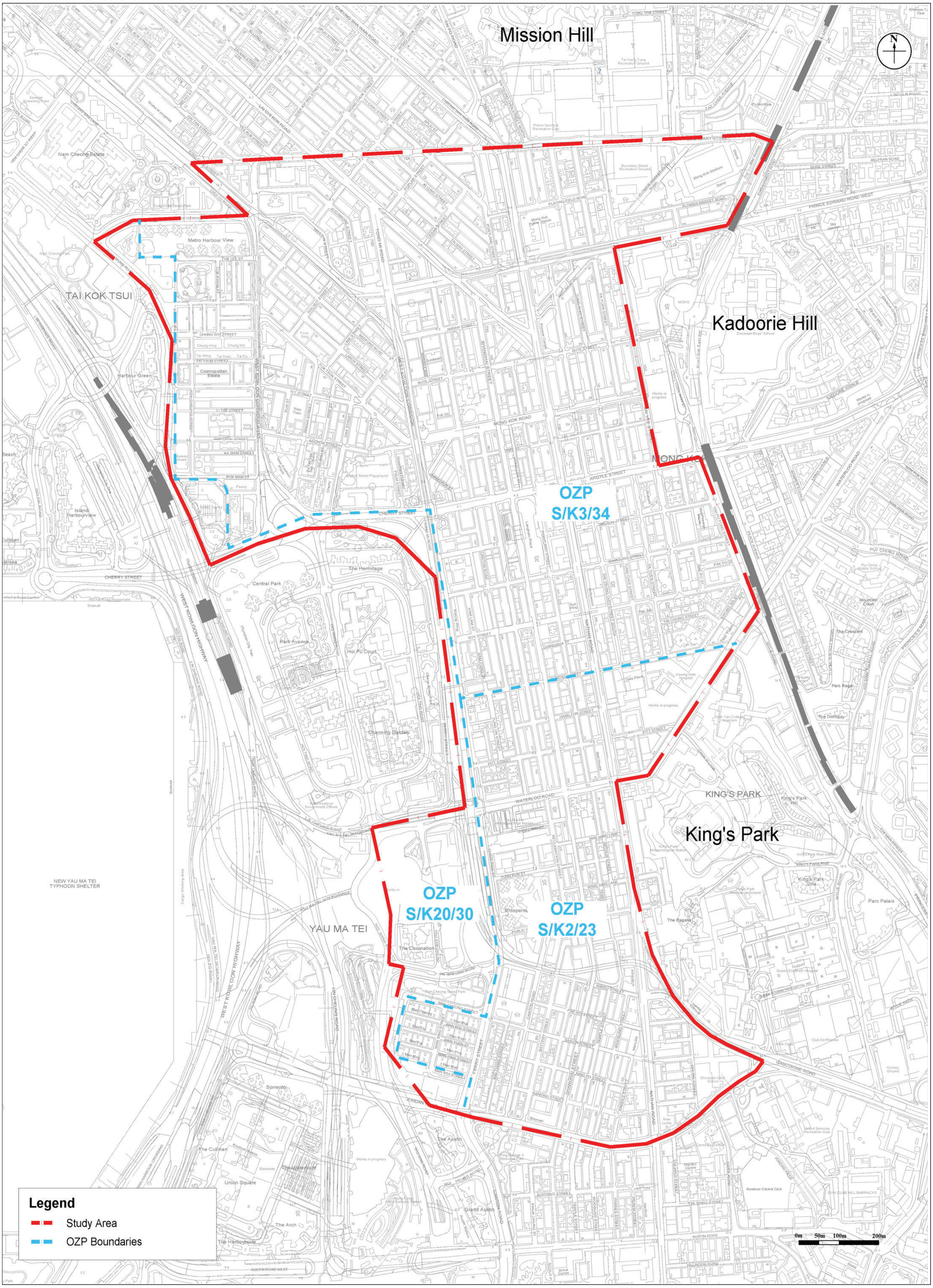
Selected VPs	Overall Visual Impact Rating	
	Existing View	OZP Scenario
Macro-level VPs		
VP1 – The Peak	Negligible	
VP2 – Sun Yat Sen Memorial Park	• Slightly adverse (if 10% building free zone is taken into account) • Moderately adverse (if 20% building free zone is taken into account)	
VP3 – Central Pier No. 7		
VP4 – Sai Shan	Negligible to slightly adverse	
VP5 – Lung Cheung Road Lookout	Negligible to slightly adverse	
Micro-level VPs (Recreational Use)		
VP6 – Tung Chau Street Park	Significantly adverse	Slightly adverse
VP7 – Maple Street Playground	Significantly adverse	Slightly to moderately adverse
VP8 – Tai Hang Tung Recreation Ground	Significantly adverse	Slightly adverse (western side) and Moderately adverse (eastern side)
VP11 – Cherry Street Park (North)	Significantly adverse	Moderately adverse
VP12 – Cherry Street Park (South)	Slight to moderately adverse	Slightly to moderately adverse
VP13 – Yau Ma Tei Service Reservoir	Significantly adverse	Moderately adverse
VP15 – King George V Memorial Park	Significantly adverse	Moderately adverse
Micro-level VPs (Elevated Walkway)		
VP9 – MK East Station Elevated Walkway	Significantly adverse	Slightly to moderately adverse
VP10 – Elevated Walkway above Ferry Street	Significantly adverse	Slightly to moderately adverse
VP14 – Jordan Road Elevated Walkway	Significantly adverse	Moderately adverse

4.1.5 All in all, it is concluded that the proposed OZP amendments would cause a significant adverse impact, though impacts at a close angle are inevitable. Compared with the OZP Compliant Scheme, these impacts are quite similar and would not add to the adverse visual effects. The addition of the assumed planned developments, if realized in future, would add punctuation to the skyline making it more dynamic and metropolitan like. Balancing the positive effects, the proposed OZP amendments would bring to Yau Mong district as a whole, it is concluded that the visual impacts are acceptable.

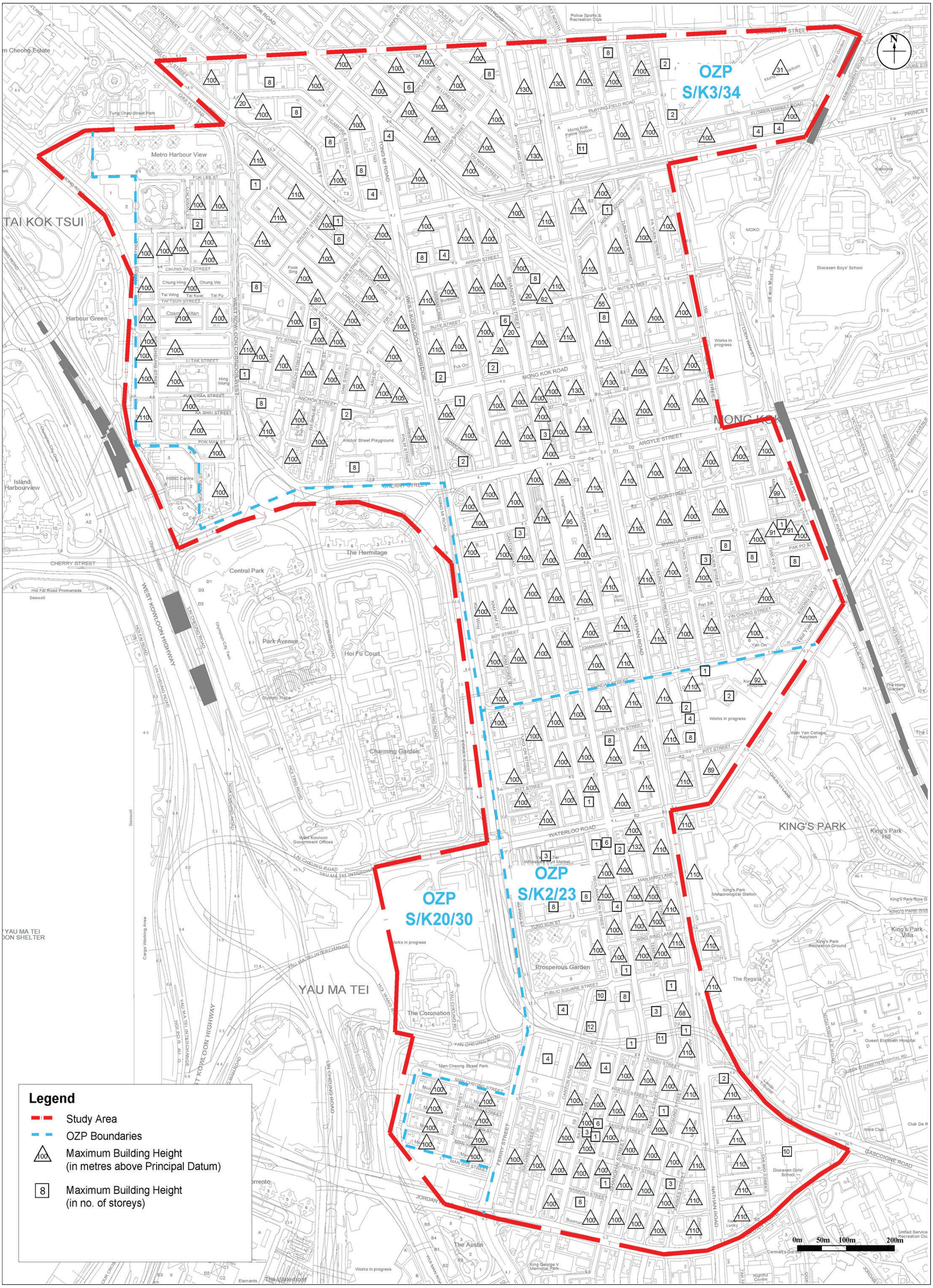
Figures

APPENDIX 1

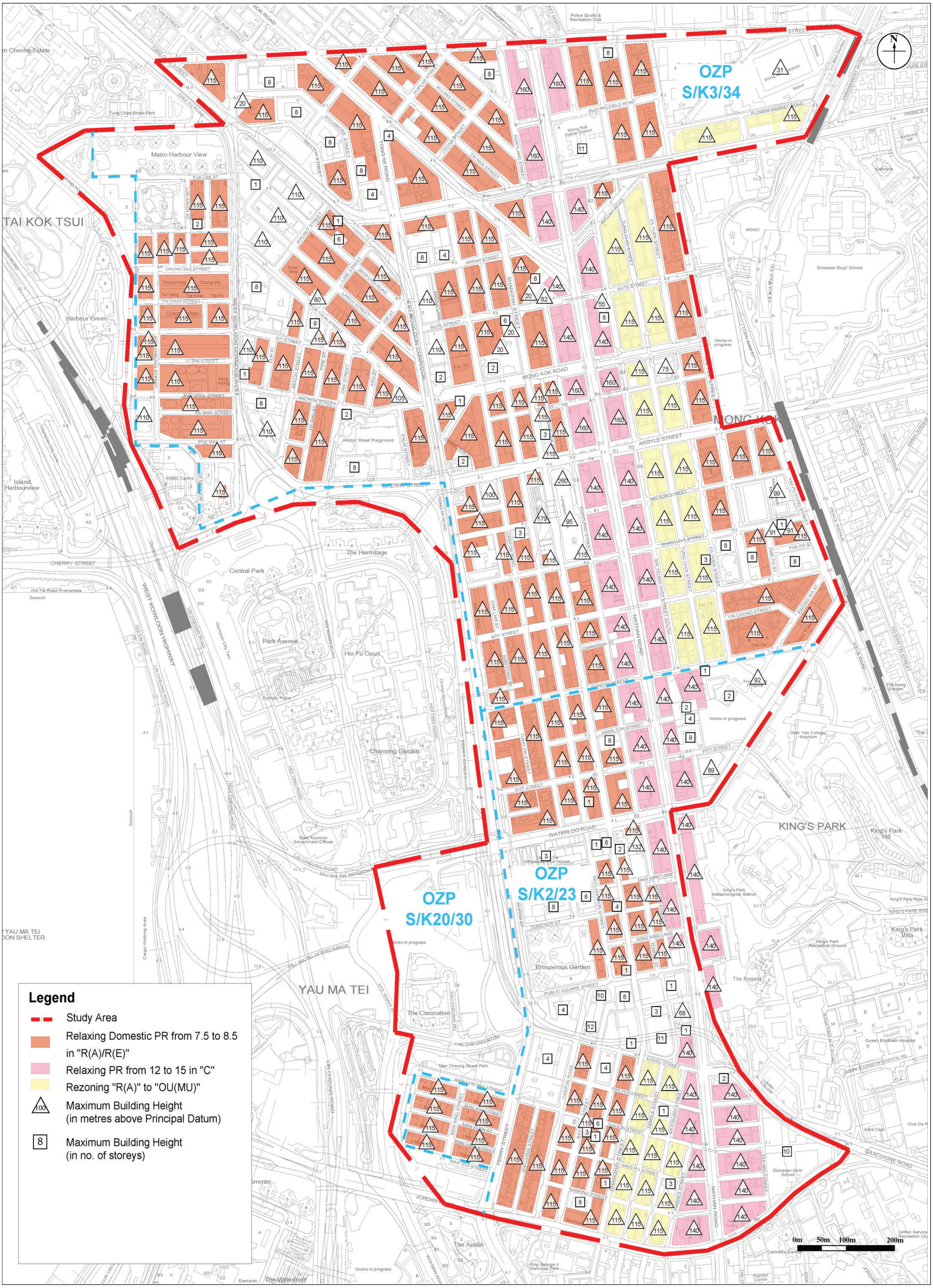
Visual Impact Assessment with OZP Amendments and Assumed Planned developments under YM Study



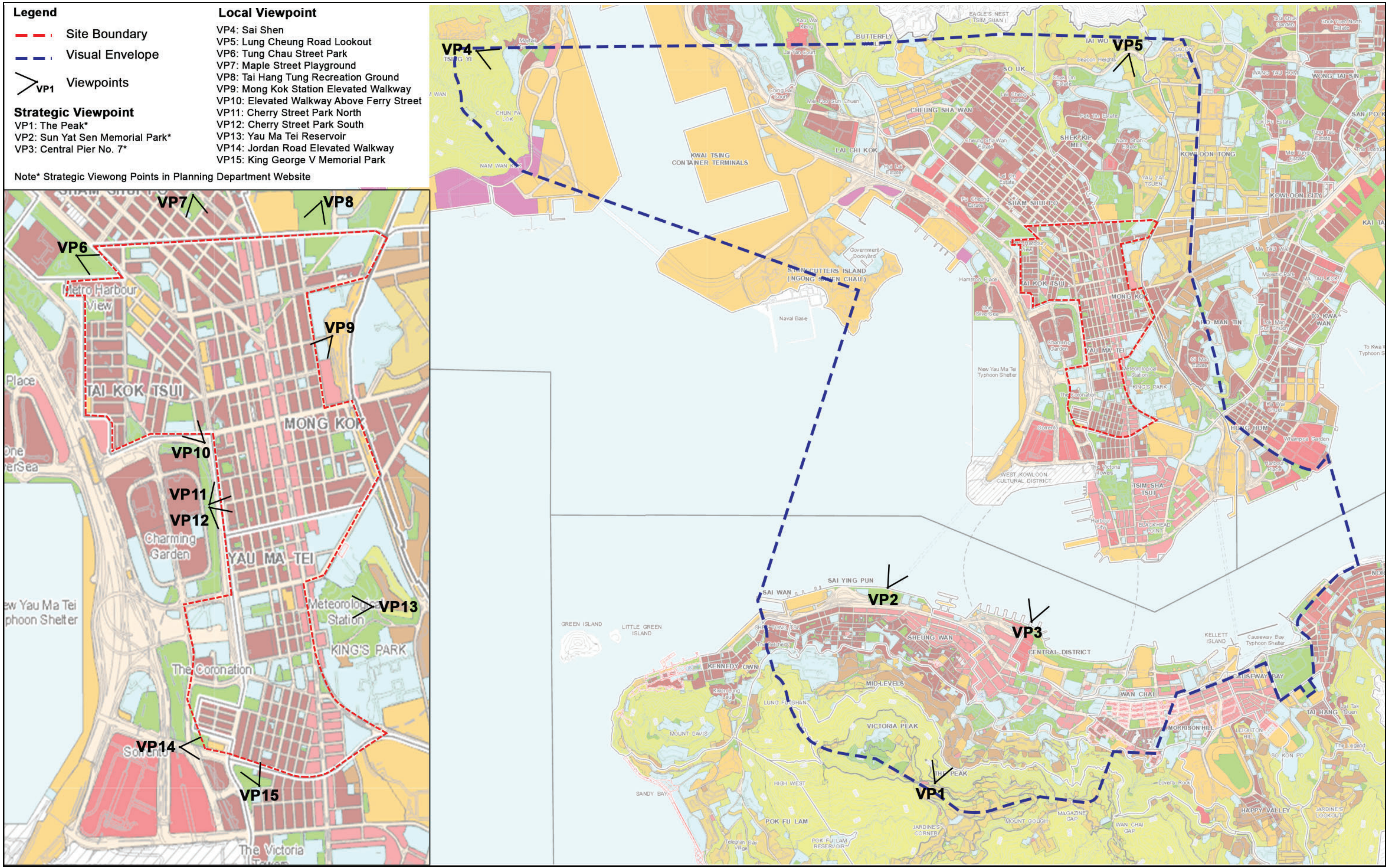
Project: Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	Title: **The Study Area**	Figure: 1.1 Date: May 2022 Scale: As Shown



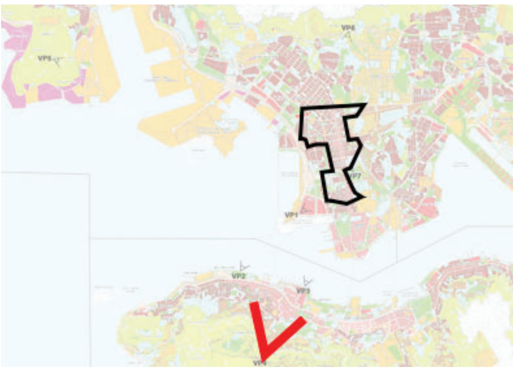
Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Building Height and Building Storeys Restrictions under the Current OZP**	N	Figure: 1.2 Date: May 2022 Scale: As Shown



Project:	Title:	Figure: 1.3
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Building Height and Building Storeys Restrictions under the OZP-Amendment Scheme**	Date: May 2022 Scale: As Shown



Project: Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	Title: **Location of Selected Viewpoints**	N	Figure: 2.1 Date: May 2022 Scale:



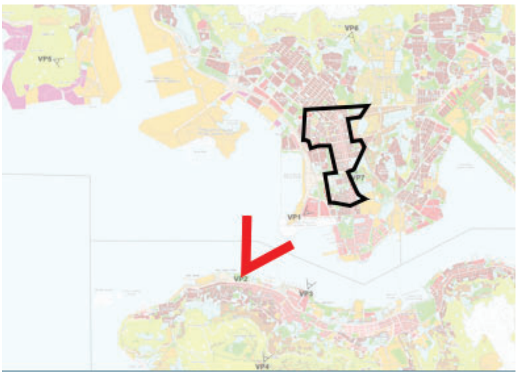
Viewpoint

Legend

- Existing Building/ Committed Development
- Proposed Redevelopment (OZP Amendment Scheme)

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Macro Viewpoint 1** **The Peak**	N	Figure: 3.1 Date: May 2022 Scale:

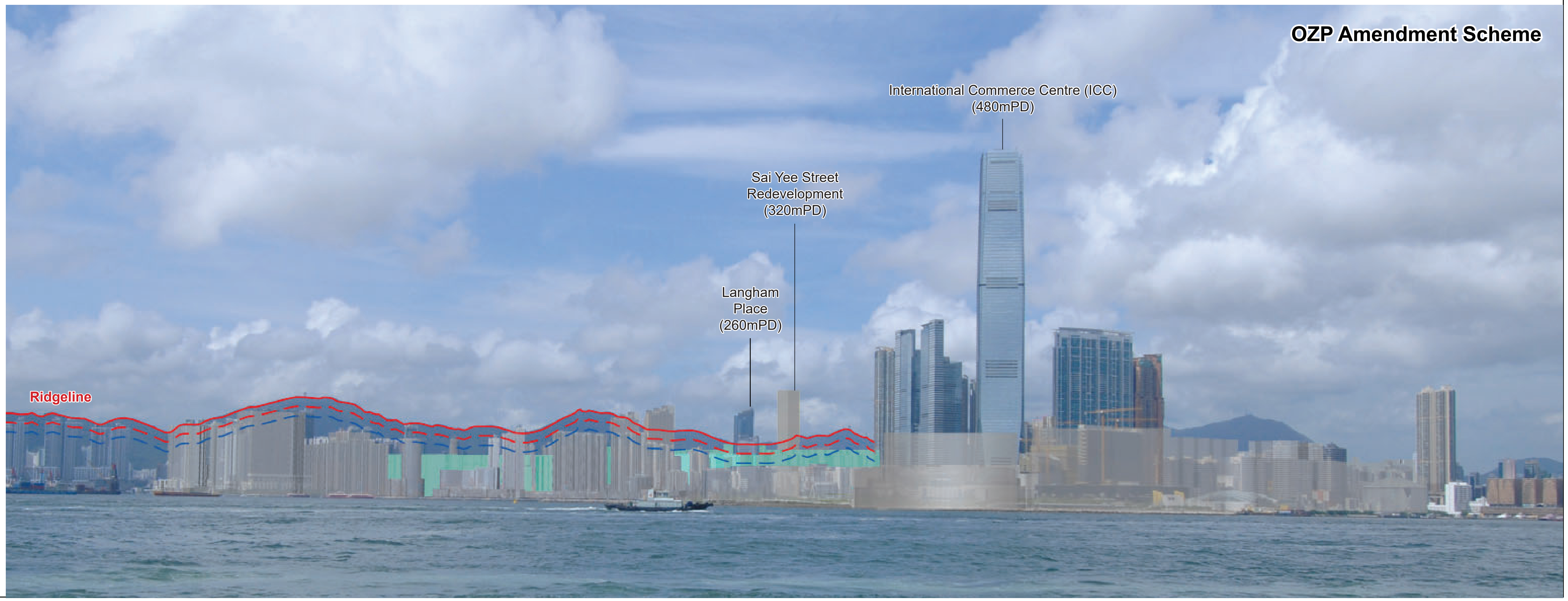


Viewpoint

Legend

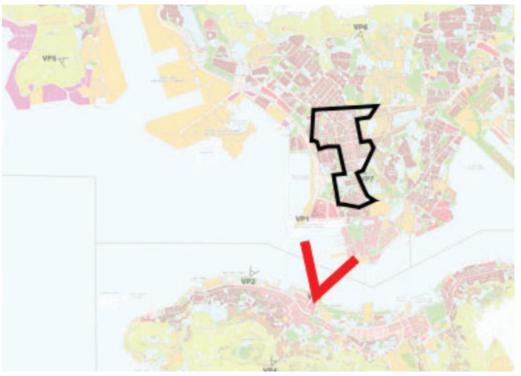
- Existing Building/ Committed Development
- Proposed Redevelopment (OZP Amendment Scheme)
- Ridgeline
- 10% Building Free Zone
- 20% Building Free Zone

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*



Project:	Title:	Figure: 3.2
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Macro Viewpoint 2** **Sun Yat Sen Memorial Park**	Date: May 2022 Scale:

N

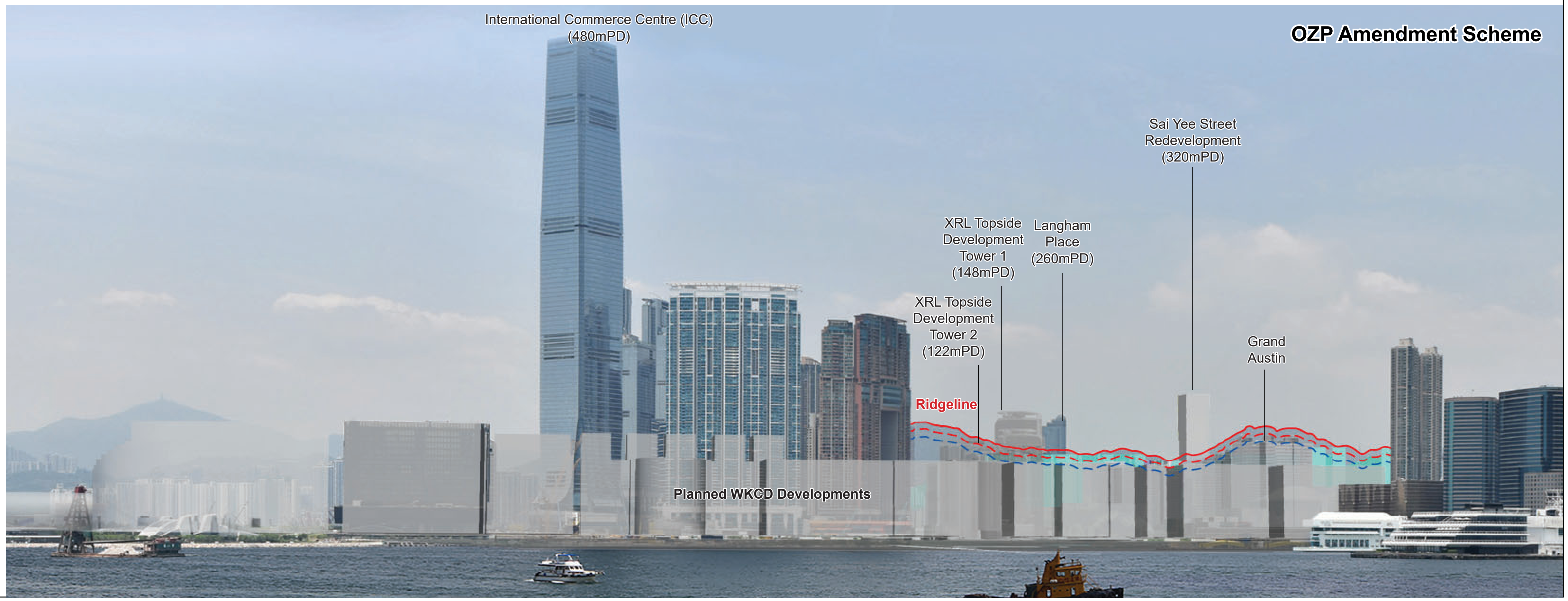


Viewpoint

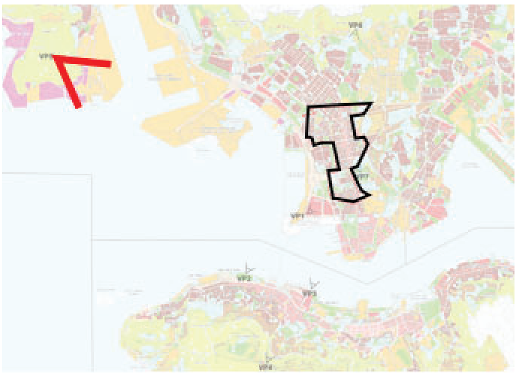
Legend

- Existing Building/ Committed Development
- Proposed Redevelopment (OZP Amendment Scheme)
- Ridgeline
- 10% Building Free Zone
- 20% Building Free Zone

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*



Project: Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	Title: **Macro Viewpoint 3 Central Pier No.7**	N	Figure: 3.3 Date: May 2022 Scale:



Viewpoint

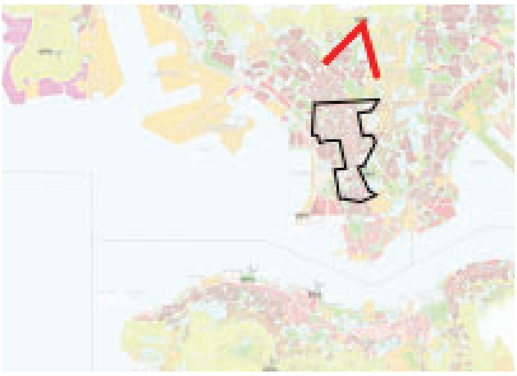
Legend

Existing Building/ Committed Development

Proposed Redevelopment (OZP Amendment Scheme)

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project: Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	Title: **Macro Viewpoint 4 Sai Shan**	N	Figure: 3.4 Date: May 2022 Scale:



Viewpoint

Legend

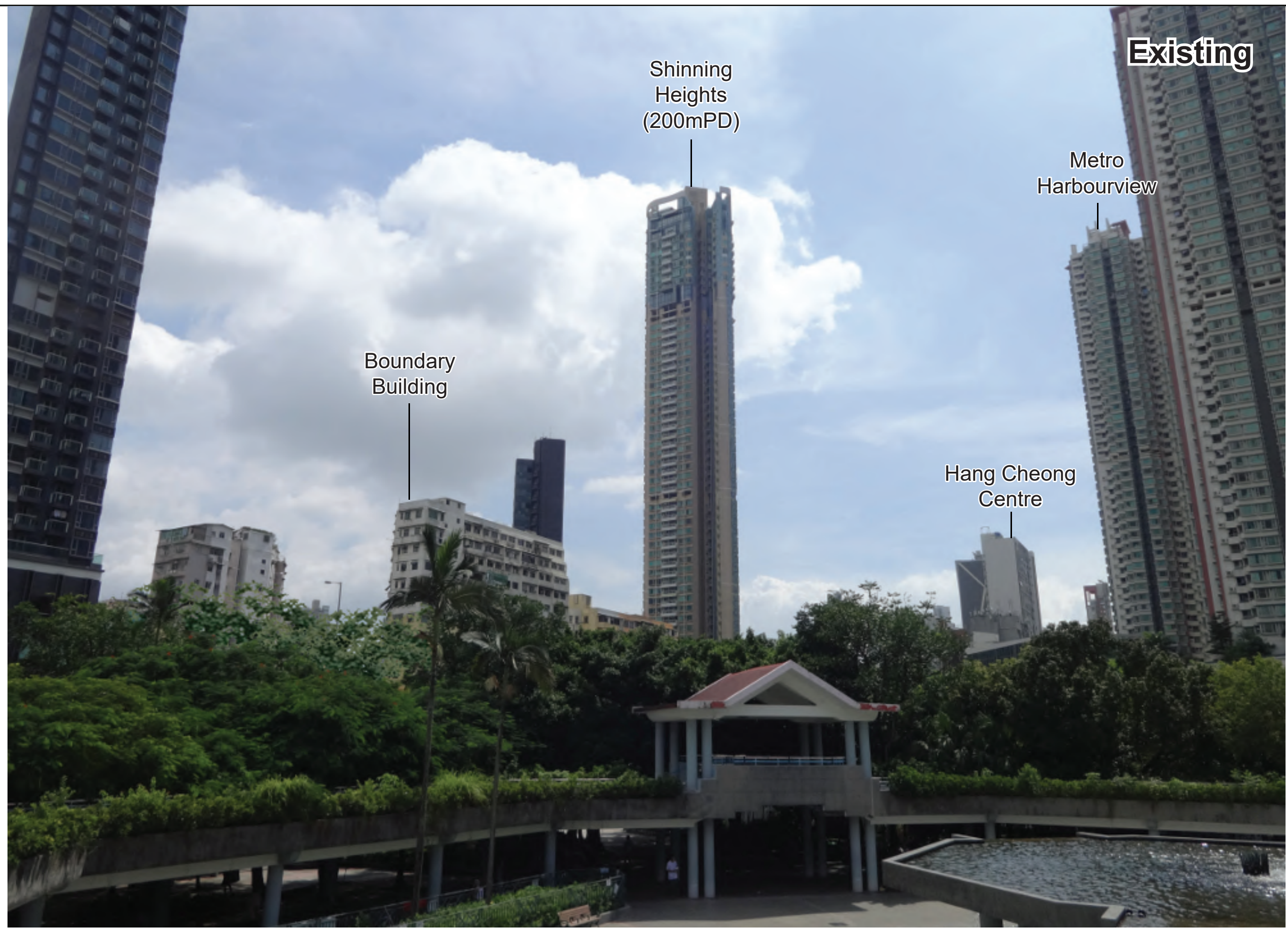
Existing Building/
Committed Development

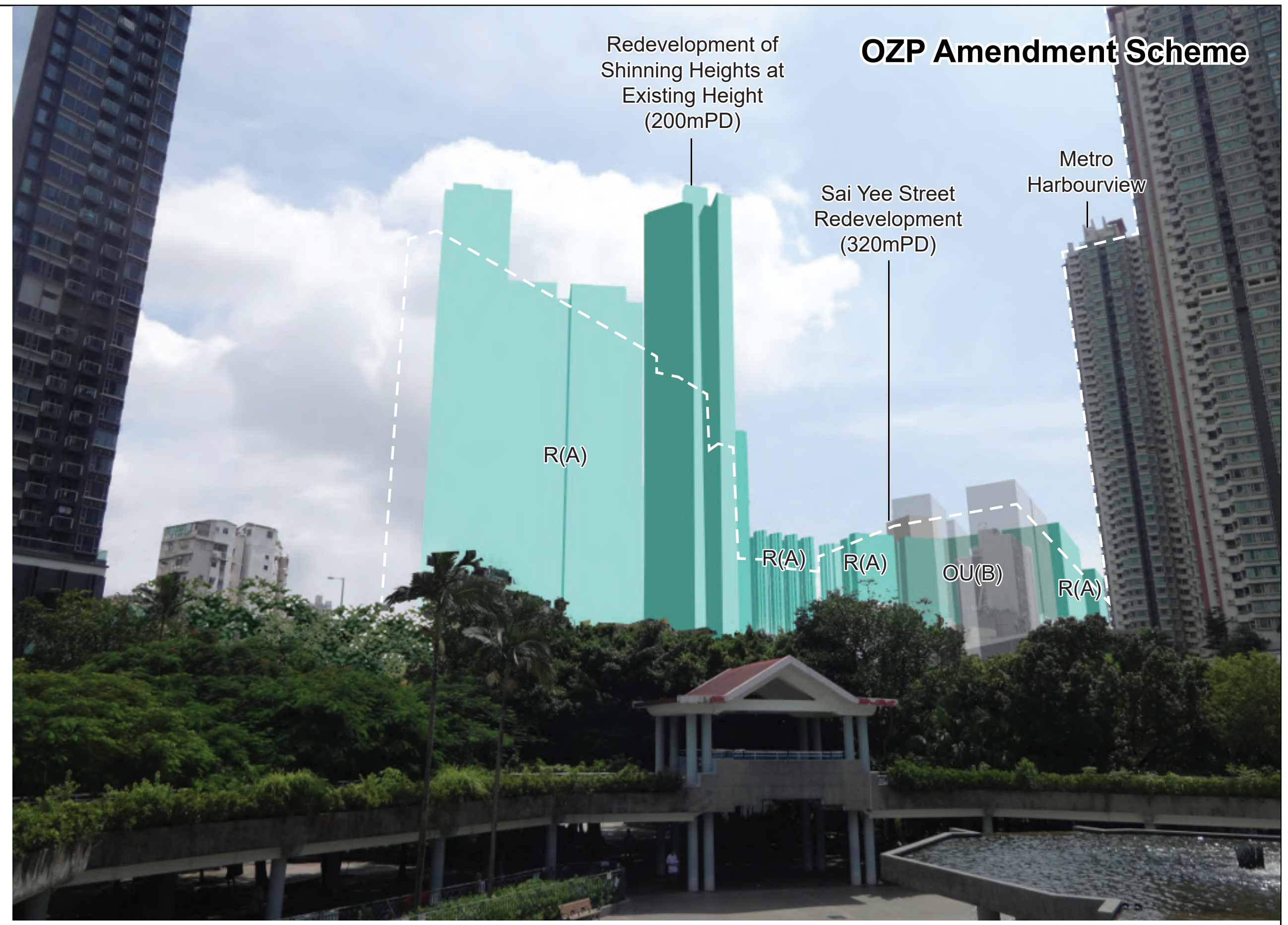
Proposed Redevelopment
(OZP Amendment Scheme)

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project: Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	Title: **Macro Viewpoint 5 Lung Cheung Road Lookout**	N	Figure: 3.5 Date: May 2022 Scale:

Viewpoint





Legend

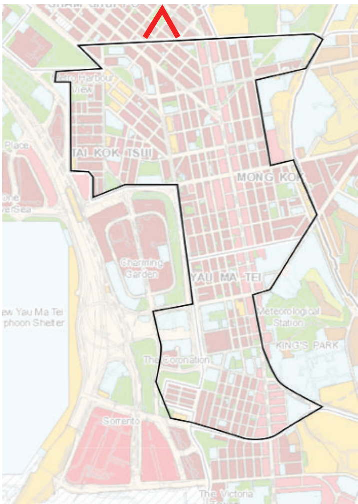
Redevelopment of Existing Building as per OZP BHR

Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 6** **Tung Chau Street Park**	N	Figure: 3.6 Date: May 2022 Scale:



Viewpoint

Legend

Indicative Massing of Buildings Outside The Study Area

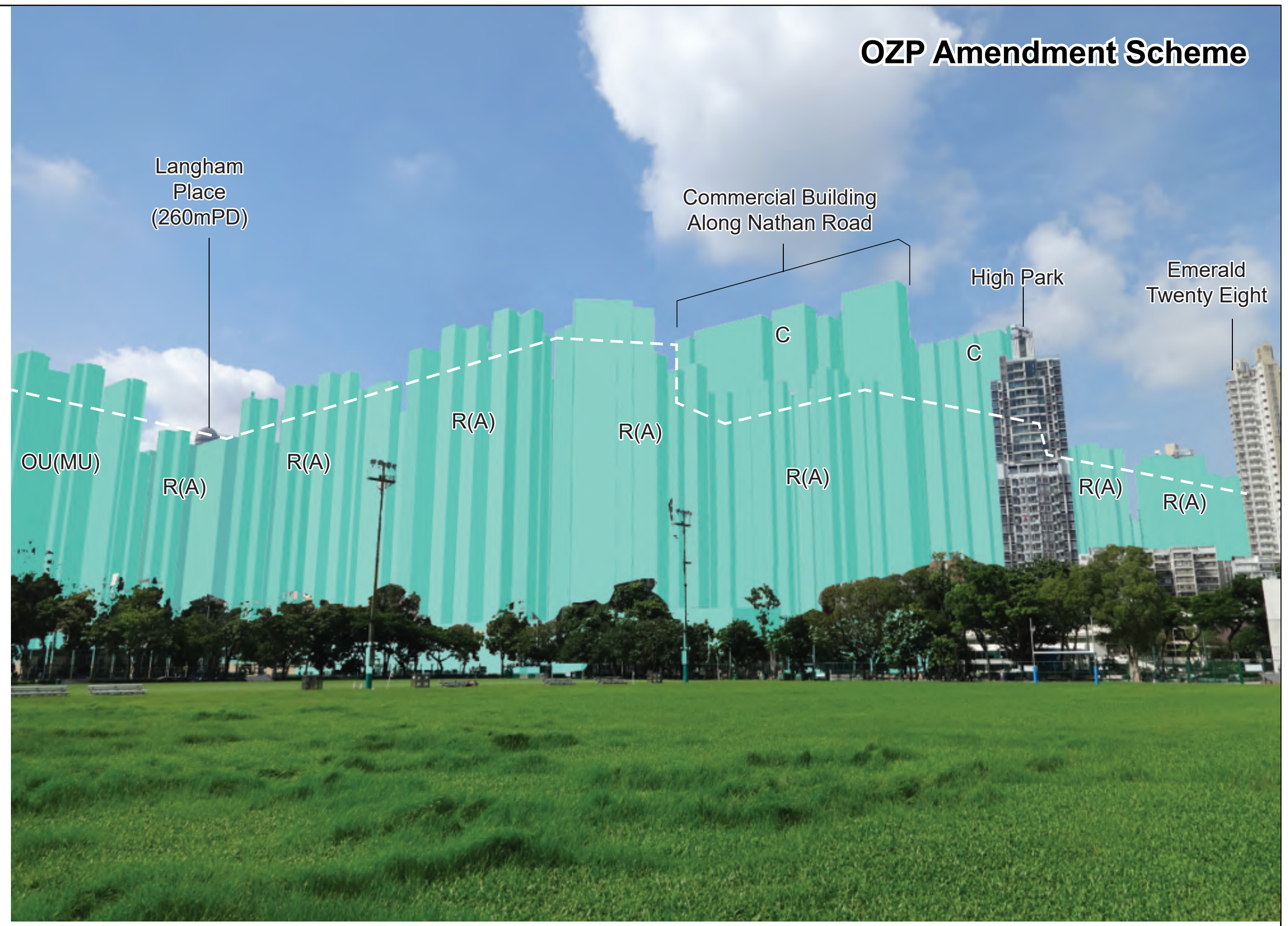
Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 7** **Maple Street Playground**	N	Figure: 3.7 Date: May 2022 Scale:

Viewpoint



Legend

Existing Building/ Committed Development

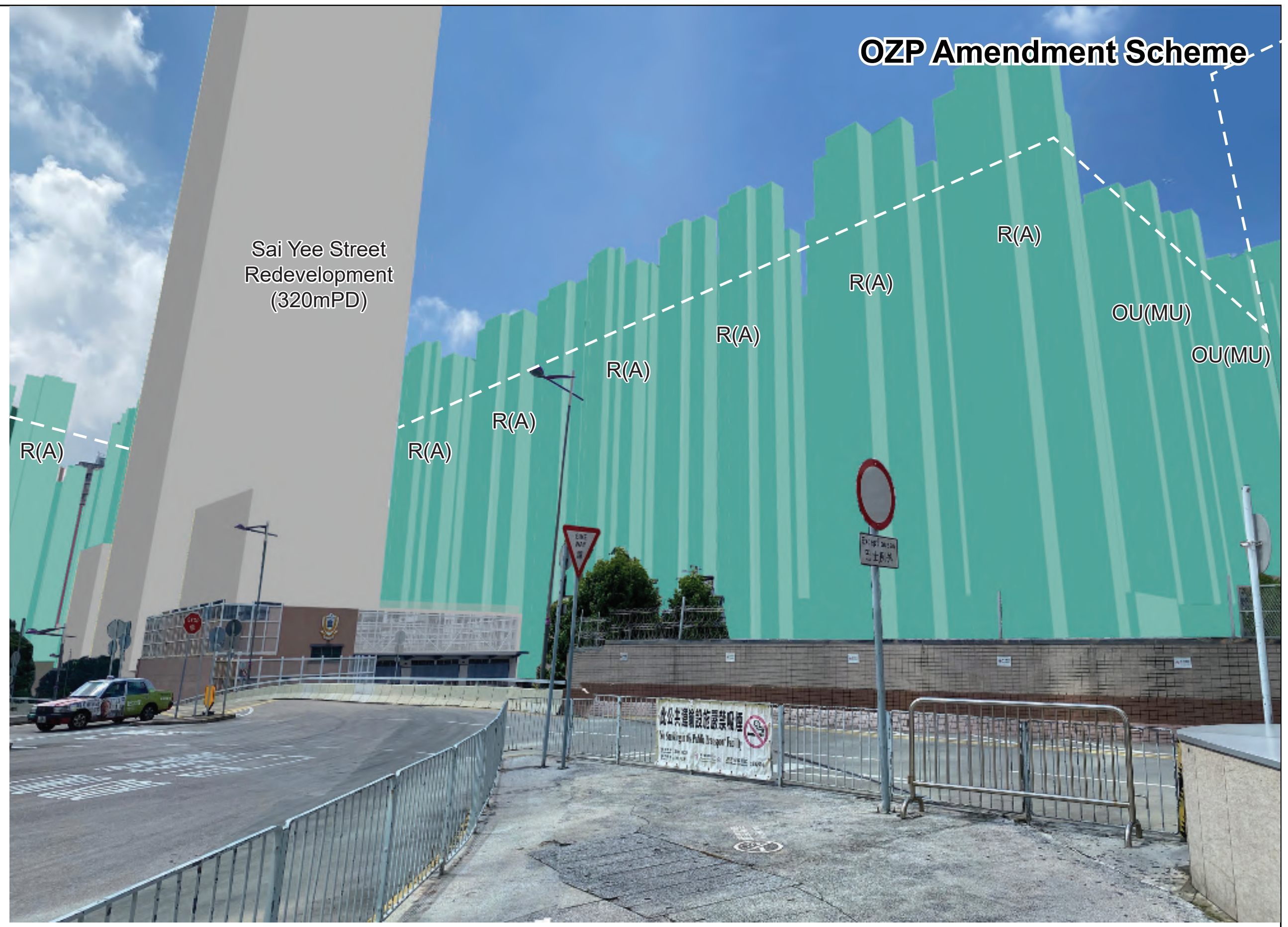
Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 8** **Tai Hang Tung Recreation Ground**		Figure: 3.8 Date: May 2022 Scale:

Viewpoint



Legend

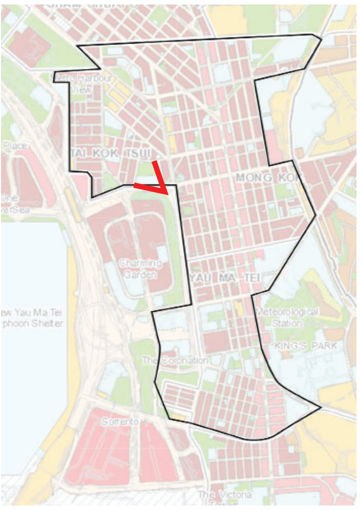
Existing Building/
Committed Development

Proposed Redevelopment
(OZP Amendment Scheme)

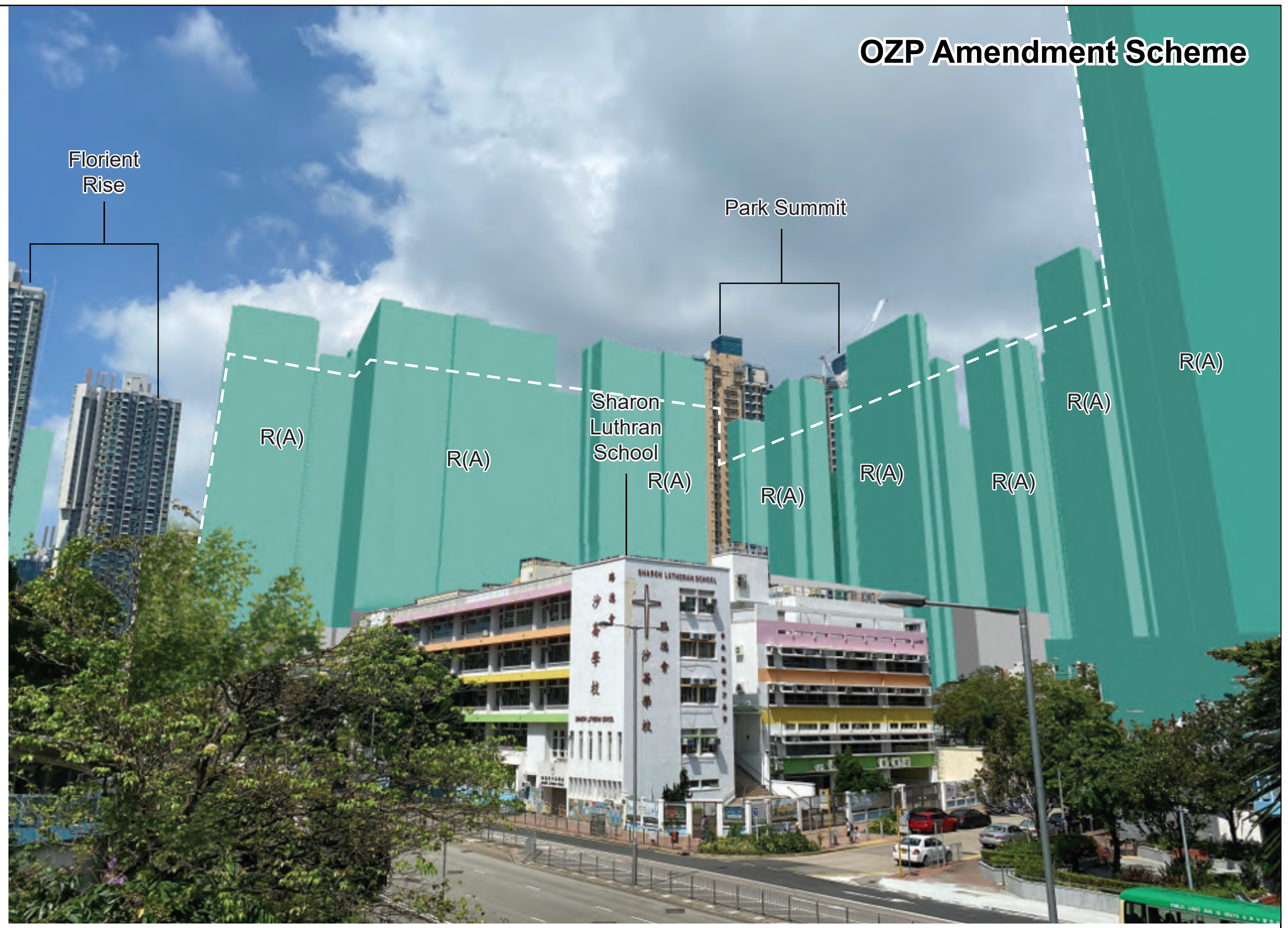
OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 9** **Mong Kok East Station Elevated Walkway**		Figure: 3.9 Date: May 2022 Scale:



Viewpoint



Legend

Existing Building/ Committed Development

Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 10** **Elevated Walkway Above Ferry Street**	N	Figure: 3.10 Date: May 2022 Scale:

Viewpoint

Legend

Existing Building/
Committed Development

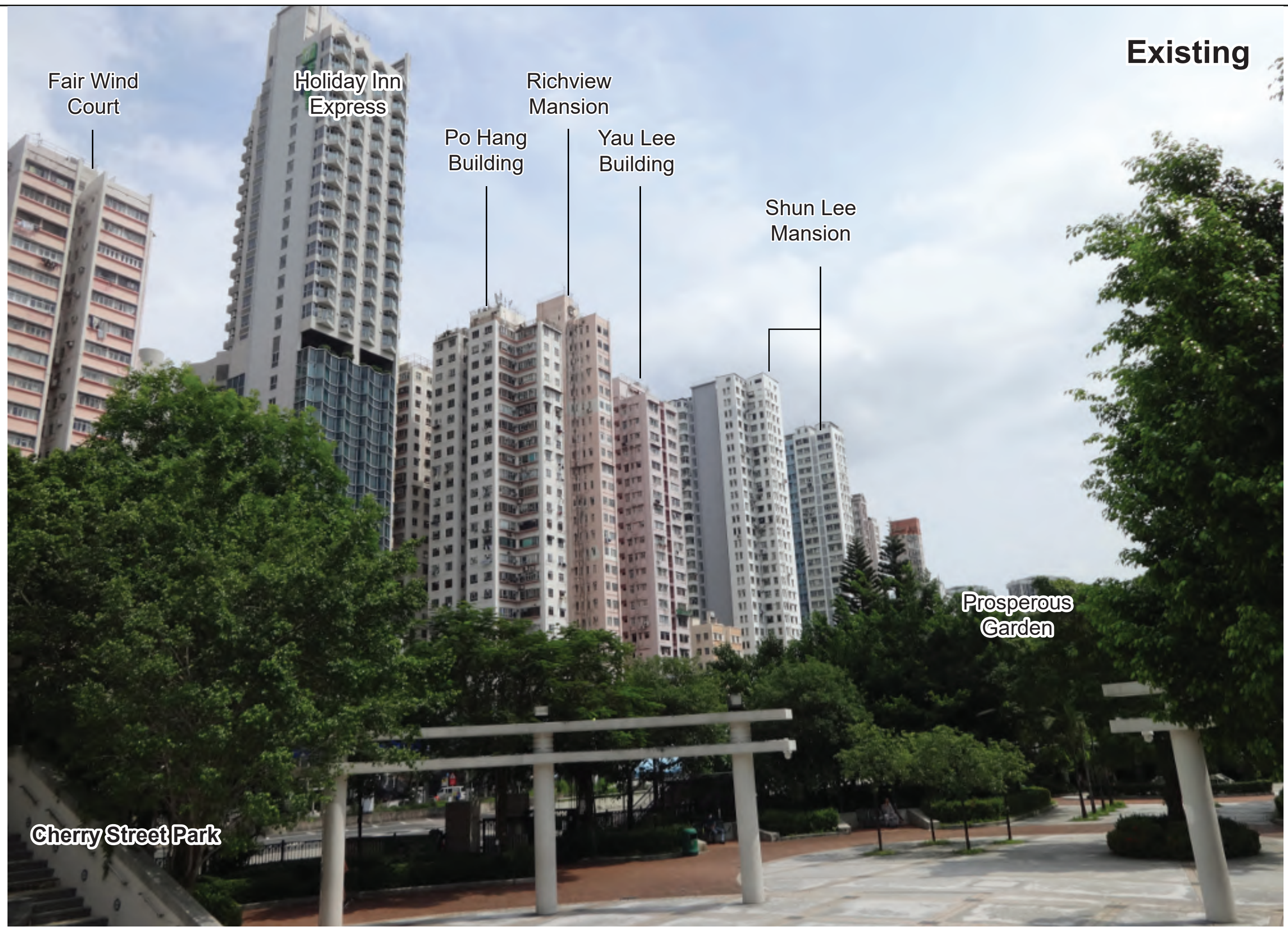
Proposed Redevelopment
(OZP Amendment Scheme)

OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project: Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	Title: **Micro Viewpoint 11 Cherry Street Park (North)**	N	Figure: 3.11 Date: May 2022 Scale:

Viewpoint



Legend

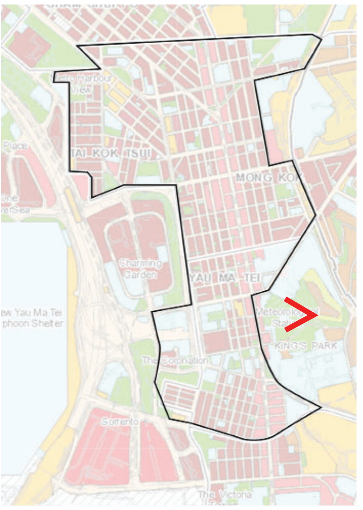
Existing Building/ Committed Development

Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 12** **Cherry Street Park (South)**		Figure: 3.12 Date: May 2022 Scale:



Viewpoint

Legend

Existing Building/ Committed Development

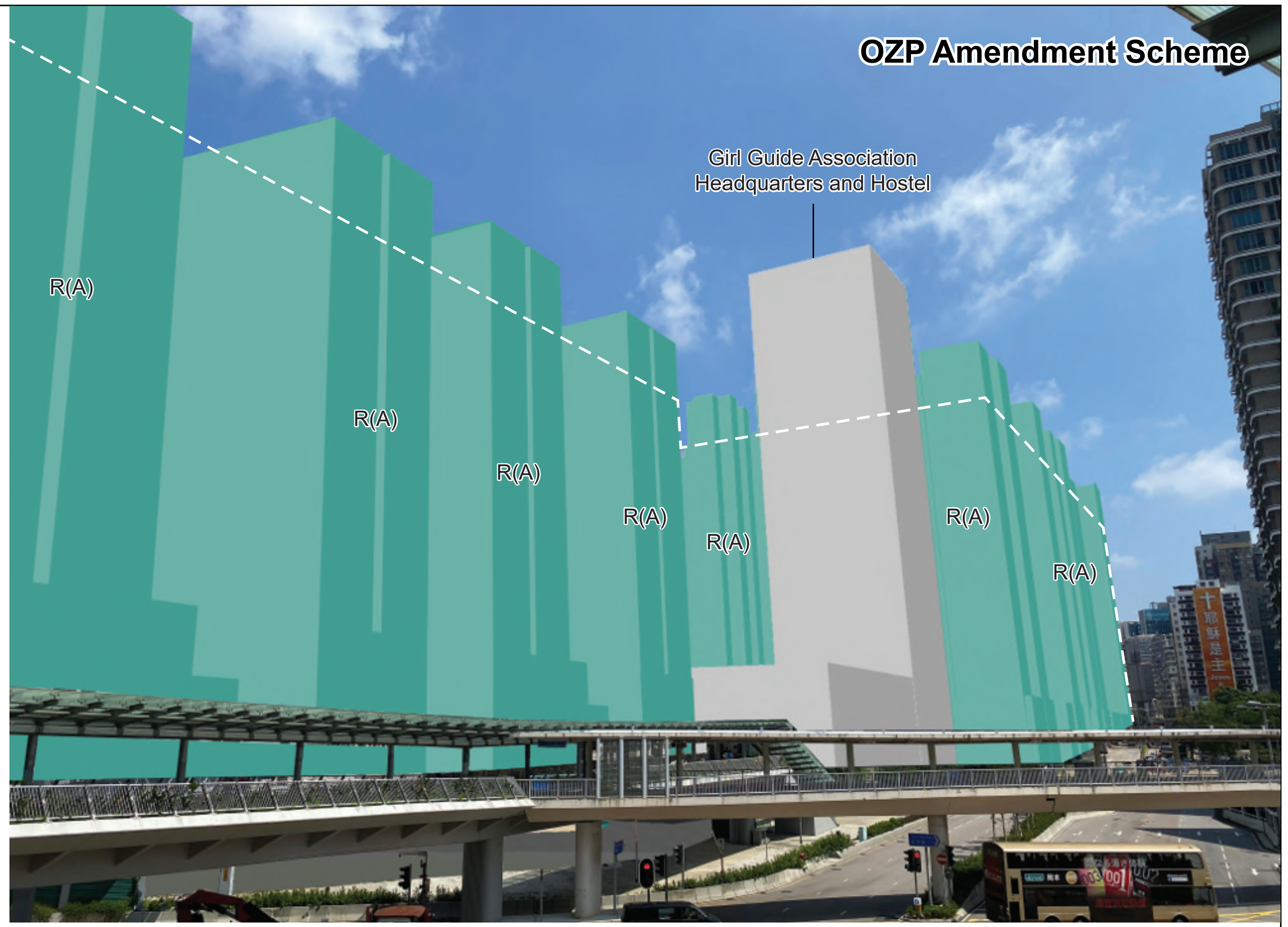
Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 13** **Yau Ma Tei Service Reservoir**		Figure: 3.13 Date: May 2022 Scale:

Viewpoint



Legend

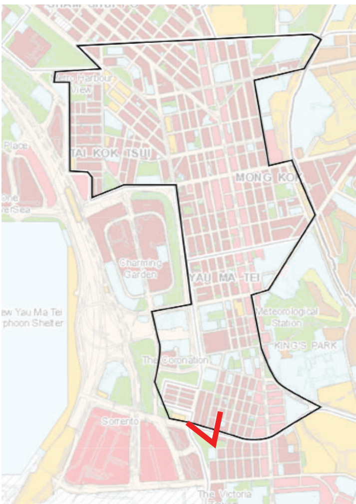
Existing Building/
Committed Development

Proposed Redevelopment
(OZP Amendment Scheme)

OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 14** **Jordan Road Elevated Walkway**		Figure: 3.14 Date: May 2022 Scale:



Viewpoint

Legend

Existing Building/
Committed Development

Proposed Redevelopment
(OZP Amendment Scheme)

OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 15** **King George V Memorial Park**	N	Figure: 3.15 Date: May 2022 Scale:

APPENDIX 1 - VISUAL IMPACT ASSESSMENT WITH OZP AMENDMENTS AND OTHER ASSUMED PLANNED DEVELOPMENTS UNDER YM STUDY

1. Visual Impact Assessment with OZP Amendments and Assumed Planned Developments under YM Study

1.1. The OZP Amendment Scheme comprises the following amendment items:

- For the “R(A)” and “R(E)” zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100mPD to 115mPD;
- For the “C” zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of 15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and
- Rezone some “R(A)” sites at the Character Streets to “OU(MU)” with a maximum domestic PR of 7.5 and maximum total PR of 9. The building height restriction is proposed to be increased from 100mPD to 115mPD. Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

1.2. Based on the study outcome of the YM Study and as agreed with concerned department at the interdepartmental meeting on 17 Nov 2021, the following planned developments as shown in **FIGURE 1.1a** are assumed to be completed by 2047 in addition to the OZP Amendment Scheme:

- Nullah Road Urban Waterway
    - GIC facilities are proposed to be built at Boundary Street Recreation Ground with a height similar to the adjoining “R(A)” zone
    - The area on either side of Nathan Road is proposed for commercial developments with a maximum building height restriction of +230 mPD and +280 mPD
    - The area to the east of Sai Yeung Choi Street South is proposed for mixed-use developments with a maximum building height restriction of +150 mPD
- Mong Kok Market Revitalization
    - The area north of Argyle Street is proposed for mixed-use development with a building height restriction of +200 mPD and +220 mPD
    - The area south of Argyle Street is proposed for mixed-use development with a building height restriction of +280 mPD

- Hamilton Street
  - The Site is proposed for residential development with a maximum building height of +160 mPD
- Saigon Street
  - The area is proposed for residential development with a maximum building height of +160 mPD
- Tai Nan Street SCA
  - The area is proposed for residential development with a maximum building height of +150 mPD
- Arran Street SCA
  - The area is proposed for residential development with a maximum building height of +135 mPD

2. Appraisal of Visual Changes with OZP Amendments and Other Assumed Planned Developments

2.2 The following sections provide an analysis of the visual impact for each VP with the proposed developments listed in **Section 1.1** and **Section 1.2** above (hereafter "Proposed Developments").

VP1 – The Peak (with Assumed Planned Developments) (Refer to VP 1 – **FIGURE 2.1a**)

2.3 Visual Composition:

The proposed developments with the increased building density are noticeable at the long viewing distance. The proposed building bulk which will renew the skyline with layers of stepped height in the Yau Ma Tei and Tai Kok area is still compatible with the existing district character. The proposed Nullah Road Urban Waterway Development and the proposed Mong Kok Market Revitalization Development are the tallest buildings with a building height of 280mPD in the mid-ground would add punctuation alongside the existing ICC building and the planned Sai Yee Street Redevelopment site in the background.

The proposed Nullah Road Urban Waterway Development and the Mong Kok Market Revitalization Development will both breach the 20% building free zone, though a 10% building free zone can still be maintained. The proposed Nullah Road Urban Waterway Development and the Mong Kok Market Revitalization Development are intended to be high-rise architectural landmarks, and some degree of visual impact is anticipated. As such, a 10% building free zone is proposed to strike a balance between the development needs and visual impacts on the mountain backdrop. The building mass of the rest of the planned developments is similar to the existing buildings, maintaining a visual harmony with the surrounding built context.

In summary, the general building bulk is compatible with the surrounding context, illustrating a “high density” urban character with selected high-rise buildings adding punctuations to a more enriched skyline.

2.4 Visual Obstruction:

The proposed developments are located behind the existing West Kowloon development and share similar building heights with the surrounding context from this viewpoint. No visual obstruction to the open sky view and ridgeline is noted, and the sense of openness is still maintained.

2.5 Effect on Public Viewers:

The proposed Nullah Road Urban Waterway Development and the Mong Kok Market Revitalization Development will be significantly visible at this far viewing distance. These proposed developments with the iconic buildings will uplift the overall district identity and will have no impact on the openness of the sky view. The increase in development density will also be mildly noticeable by the viewer at a far viewing distance. Thus, the magnitude of visual change is considered slight to moderate.

2.6 Effect on Visual Resources:

The planned low-rise development in the WKCD will form another visual resource for this VP which will not be affected by the proposed developments. The proposed Nullah Road Urban Waterway Development and the Mong Kok Market Revitalization Development will result in intrusion to the ridgeline, however, the open sky view is largely maintained.

VP2 – Sun Yat Sen Memorial Park (with Assumed Planned Developments)
(Refer to Viewpoint 2 – **FIGURE 2.2a**)

2.7 Visual Composition:

The planned development of the WKCD will occupy the foreground of the VP and change the visual contexts of the waterfront area. The proposed Mong Kok Market Revitalization Development located at the background of this VP would create a visual contrast to the surrounding in an appropriate setting. The height variation among the proposed developments is compatible with the surroundings as an extension of adjacent commercial and residential development in the WKCD and the Kowloon Station Development, creating a rhythmic skyline. The height variation between the proposed Nullah Road Urban Waterway Development and the proposed Mong Kok Market Revitalization Development may also enhance the visual composition of the skyline of the western side of the Kowloon Peninsula.

2.8 Visual Obstruction:

Visual obstruction to the ridgeline is observed, mainly due to the proposed Nullah Road Urban Waterway Development and the proposed Mong Kok Market Revitalization Development resulting in an undulating profile. However, the visual openness to the sky view is still strongly maintained.

2.9 Effect on Public Viewers:

The proposed Nullah Road Urban Waterway Development and proposed Mong Kok Market Revitalization Development are extensive in scale and with increased building height, they are particularly visible to the public viewers at a far viewing distance and will partially reduce the permeability of the existing ridgeline. There will be noticeable changes to the view currently enjoyed. Considering the proposed developments are compatible with the built environment and will add interest to the district skyline, there is no degradation in the visual condition.

2.10 Effect on Visual Resources:

The proposed developments are located behind the existing development from this VP. The view to the ridgeline will be affected by the proposed Nullah Road Urban Waterway Development and the proposed Mong Kok Market Revitalization Development, which will form an undulating high-rise profile to the west of the ICC / Kowloon Station development cluster.

2.11 **VP3 – Central Pier No. 7 (with Assumed Planned Developments)** (Refer to Viewpoint 3 – **FIGURE 2.3a**)

2.12 Visual Composition:

The foreground is dominated by the planned development of the WKCD, which may change the visual context of the waterfront area. The proposed Nullah Road Urban Waterway Development is concealed behind the XRL Topside Development, while the proposed Saigon Street Development is located behind Grand Austin with compatible building mass. Overall, the proposed developments constitute only minor changes to the overall visual composition.

2.13 Visual Obstruction:

The proposed Saigon Street Development will partially breach the ridgeline at the dipping point near the Victoria Towers in Tsim Sha Tsui. However, the sense of openness is still strongly maintained.

2.14 Effect on Public Viewers:

While the planned WKCD and XRL Topside Development will generally conceal the proposed development, the proposed Saigon Street Development will induce some visual change to the ridgeline. The visual intrusion by the proposed developments is minor and the sense of openness is still maintained. Thus, the effect of the visual change is considered negligible to slight.

2.15 Effect on Visual Resources:

The planned development in the WKCD will dominate the visual element in the foreground of this VP. The proposed Saigon Street Development will also form new visual elements which are compatible with the surrounding context. The view of the ridgeline is affected and the visual permeability is reduced.

VP4 – Sai Shan (with Assumed Planned Developments) (Refer to Viewpoint 4 – **FIGURE 2.4a**)

2.16 Visual Composition:

The bulk of the Study Area shares similar building height which helps blend into the surrounding built environment. Only the proposed Nullah Road Urban Waterway Development alongside the planned Sai Yee Street Redevelopment and the proposed Mong Kok Market Revitalization Development are visible from the far viewing distance, forming new punctuation points to the visual context.

2.17 Visual Obstruction:

A small portion of the open sky view is blocked by the proposed Nullah Road Urban Waterway Development and the proposed Mong Kok Market Revitalization Development while the overall sense of openness is still strongly maintained. In general, the visual blockage is limited by the far viewing distance. The sense of openness of the existing panorama view remains strong. Therefore, the visual obstruction is considered negligible.

2.18 Effect on Public Viewers:

From this far viewing distance, the effect on public view is negligible. The proposed development scale will not affect the visual openness of the panoramic view in general. In general, there is a slight visual obstruction to the open sky view and the openness of this VP is maintained. The visual change is limited and unnoticeable to the viewers from a far viewing distance. Therefore, the visual change is considered negligible.

2.19 Effect on Visual Resources:

Considering the small scale of the proposed developments from this distance, the existing visual character of the Kowloon Peninsula urban context is maintained.

VP5 – Lung Cheung Road Lookout (with Assumed Planned Developments) (Refer to Viewpoint 5 – **FIGURE 2.5a**)

2.20 Visual Composition:

The foreground of this VP is dominated by the hillside vegetation in the Kowloon Tong area. The Nullah Road Urban Waterway Development is noticeable from afar viewing distance. Considering that the building mass and building height of most of the proposed developments are similar to the existing buildings, visual harmony with the surrounding built context will be maintained.

2.21 Visual Obstruction:

Only a very small portion of the sky view and the ridgeline will be blocked by the proposed Nullah Road Urban Waterway Development. Together with the Sai Yee Street Development and the ICC Tower, these three developments will breach the ridgeline from this angle. Otherwise, there is no major visual obstruction caused by the proposed developments to the ridgeline and the open sky view. The sense of openness and the overall visual quality is maintained. The degree of visual obstruction is considered negligible to slight.

2.22 Effect on Public Viewers:

The proposed developments are barely noticeable by the public viewers and the extensive panoramic view is maintained at this VP. The effect of visual changes on the viewers from the VP is negligible.

2.23 Effect on Visual Resources:

The only change to the visual resource is the Nullah Road Urban Waterway Development from this VP. Considering the limited visual blockage and the visual openness is still strongly maintained, the effect on visual resources is negligible.

VP6 – Tung Chau Street Park (with Assumed Planned Developments) (Refer to Viewpoint 6 – **FIGURE 2.6a**)

2.24 Visual Composition:

From this angle, the proposed Nullah Road Urban Waterway Development and the proposed Arran Street SCA are concealed behind the redevelopment of the "R(A)" sites and are hardly noticeable. The visual composition will be slightly changed, however, the proposed developments are considered visually compatible with the surroundings.

2.25 Visual Obstruction:

A portion of the open sky is blocked by the proposed developments. Visual obstruction is visible to the public viewers and will reduce the visual permeability.

2.26 Effect on Public Viewers:

Since the open sky view is partially blocked by the proposed developments at the mid-ground, the visual permeability is reduced.

2.27 Effect on Visual Resources:

The proposed developments will change the visual resource of this VP and further obstruct the open sky view. The effect on visual resources is considered slight to moderate.

VP7 – Maple Street (with Assumed Planned Developments) (Refer to Viewpoint 7 – **FIGURE 2.7a**)

2.28 Visual Composition:

The visual backdrop is dominated by the redevelopment of "R(A)" sites outside the Study Area. Only the upper portion of some domestic towers of the proposed Tai Nan SCA is visible in this VP.

2.29 Visual Obstruction:

The existing open sky view is blocked by the proposed developments which will reduce existing visual permeability.

2.30 Effect on Public Viewers:

Since this VP is located very close to the proposed developments, the effect on public viewers is significant. The existing park space would provide greenery and a sense of openness in the foreground. The magnitude of visual change is considered moderate.

2.31 Effect on Visual Resources:

A portion of the sky view will inevitably be blocked by the proposed developments. View to greenery and open space is not affected. The current visual quality is moderately changed.

VP8 – Tai Hang Tung Recreation Ground (with Assumed Planned Developments) (Refer to Viewpoint 8 – **FIGURE 2.8a**)

2.32 Visual Composition:

2.33 The redevelopment of “R(A)” sites will dominate the mid-ground of this VP. The proposed Nullah Road Urban Waterway Development and the proposed Tai Nan Street SCA are also featured in the mid to background of this VP. The proposed Nullah Road Urban Waterway Development will serve as a prominent comprehensive development as well as an architectural landmark with variations in façade treatment and building design, which could add visual interest. Revamp of the skyline and visual enhancement are anticipated.

2.34 Visual Obstruction:

The view of the open sky view is partially blocked. The sense of openness is maintained but the visual permeability is significantly affected when compared with the existing view.

2.35 Effect on Public Viewers:

The mid-ground is dominated by the redevelopment of “R(A)” sites will be noticeable to the viewers. The proposed Nullah Road Urban Waterway and the proposed Tai Nan Street SCA are also noticeable. The visual permeability is weakened when compared with the existing view.

2.36 Effect on Visual Resources:

The redevelopment of “R(A)” sites at the mid-ground will become more dominant from this VP which will affect the view of the rhythmic skyline. However, the park and open space in the foreground will be maintained.

2.37 **VP9 – Mong Kok East Station Elevated Walkway (with Assumed Planned Developments)** (Refer to Viewpoint 9 – **FIGURE 2.9a**)

2.38 Visual Composition:

The foreground of this VP is dominated by the redevelopment of "R(A)" sites with similar building mass and building height which will result in visual monotony.

2.39 Visual Obstruction:

A portion of the sky view is blocked by the redevelopment of "R(A)" sites in the foreground. The visual openness and permeability are significantly reduced compared with the existing view.

2.40 Effect on Public Viewers:

A portion of the open sky view is blocked by the proposed developments. The view is dominated by the residential redevelopment along Sai Yee Street. The changes might draw public concern to the wall effect and visual permeability, but the effect of visual changes as compared to the OZP Permissible Scenario is not significant and is graded as slight to moderate assuming full redevelopment of "R(A)" sites.

2.41 Effect on Visual Resources:

There will be some visual intrusion to the open sky view which will degrade the visual amenity. While the wall-like residential redevelopment will weaken the visual interest of this VP, it is not a far cry from the OZP permissible scenario.

VP10 – Elevated Walkway above Ferry Street (with Assumed Planned Developments) (Refer to Viewpoint 10– **FIGURE 2.10a**)

2.42 Visual Composition:

The visual composition of this VP will be changed yet generally visually compatible with the visual character intended under the current OZP. The VP is dominated by the redevelopment of "R(A)" sites at the mid-ground.

2.43 Visual Obstruction:

The view of the open sky is partially blocked by the redevelopment of "R(A)" sites in mid-ground which will reduce visual permeability.

2.44 Effect on Public Viewers:

The current view of the open sky view and buildings in Tai Kok Tsui from a far viewing distance is blocked by the redevelopment of "R(A)" sites in the mid-ground. Assuming full redevelopment of "R(A)" sites, the developments will create a wall effect for the public viewers. The visual openness and permeability are reduced. Compared to the OZP permissible scenario, however, the effect on the public viewer is quite similar and the impact will not be significantly different.

2.45 Effect on Visual Resources

Likewise, the open sky view is partially blocked, the wall effect created by the redevelopment of “R(A)” sites will reduce the visual amenity. The effect on visual resources is slight as compared to the OZP permissible scenario.

VP11 – Cherry Street Park North (with Assumed Planned Developments)
(Refer to Viewpoint 11 – **FIGURE 2.11a**)

2.46 Visual Composition:

This VP is dominated by the redevelopment of “R(A)” sites at the mid-ground with the proposed Mong Kok Market Revitalization Development at the background of this VP.

2.47 Visual Obstruction:

The view of the open sky is partially blocked by the redevelopment of “R(A)” sites and the proposed Mong Kok Market Revitalization Development which reduces the sense of visual openness.

2.48 Effect on Public Viewers:

The view of the open sky is moderately blocked by the redevelopment of “R(A)” sites and the proposed Mong Kok Market Revitalization Development and the visual openness and permeability are reduced. The effect on public viewers is significant.

2.49 Effect on Visual Resources

As mentioned, a portion of the sky view is blocked by the redevelopment of “R(A)” sites and the proposed Mong Kok Market Revitalization Development. The visual permeability and sense of openness are degraded.

VP12 – Cherry Street Park South (with Assumed Planned Developments)
(Refer to Viewpoint 12 – **FIGURE 2.12a**)

2.50 Visual Composition:

The existing view of Cherry Street Park remains in the foreground. The proposed Hamilton Street SCA is located behind the redevelopment of “R(A)” sites along Ferry Street. The proposed Saigon Street SCA is in the background of this VP behind Prosperous Garden.

2.51 Visual Obstruction:

The view of the open sky view is slightly blocked by the redevelopment of “R(A)” sites, but both the visual openness and the permeability are strongly maintained when compared with the existing view. Thus, the degree of visual obstruction is slight.

2.52 Effect on Public Viewers:

Since the redevelopment of “R(A)” sites can blend in with the surroundings smoothly, the visual change of this VP is not significant to the public viewers. The effect on the public viewer is graded as slight.

2.53 Effect on Visual Resources

Considering that the visual blockage to the open sky view is slight with no impact on the existing greenery, the effect on visual resources is graded as slight.

2.54 **VP13 – Yau Ma Tei Reservoir (with Assumed Planned Developments)** (Refer to Viewpoint 13 – **FIGURE 2.13a**)

2.55 Visual Composition:

The mid-ground of this VP is dominated by the redevelopment of “C” sites along Nathan Road. The proposed increase in PR and building height will have some impact on the visual composition resulting in higher contrast to the greenery in the foreground.

2.56 Visual Obstruction:

A relatively large portion of the open sky view is blocked by the redevelopment of “C” sites in the mid-ground which will reduce the sense of visual openness. The obstruction induced is considered moderate as compared to OZP permissible scenario.

2.57 Effect on Public Viewers:

The current view of the open sky view and skyline is changed moderately. The redevelopment of “C” sites in the mid-ground will reduce the visual openness and degrade the visual amenity.

2.58 Effect on Visual Resources

The proposed development will moderately block the view of the open sky and will change the character in the mid-ground to reinforce the Nathan Road Commercial Spine character. The view of the current building skyline is noticeably changed and the visual permeability is degraded.

2.59 **VP14 – Jordan Road Elevated Walkway (with Assumed Planned Developments)** (Refer to Viewpoint 14 – **FIGURE 2.14a**)

2.60 Visual Composition:

The visual composition is substantially changed due to the assumption of the redevelopment of “R(A)” sites at the Man’s Mansion, and along Jordan Road in this VP. The planned Girl Guide Association Headquarters and Hostel along Jordan Road is also assumed to be developed and will pose a significant impact in the foreground.

2.61 Visual Obstruction:

A large portion of the open sky view is blocked by the redevelopment of “R(A)” sites in the foreground. The visual openness and permeability are moderately reduced.

2.62 Effect on Public Viewers:

The view to open sky view is moderately blocked by the redevelopment of proposed “R(A)” sites. The visual openness and permeability are reduced. The effect on public viewers is moderate.

2.63 Effect on Visual Resources

The view to the current open sky view is moderately affected due to the visual blockage caused by the redevelopment of “R(A)” sites. The visual permeability is reduced. The effect on visual resources is graded as moderate.

2.64 **VP15 – King George V Memorial Park (with Assumed Planned Developments)** (Refer to Viewpoint 15 – **FIGURE 2.15a**)

2.65 Visual Composition:

The mid-ground of the VP is dominated by the redevelopment of “R(A)” sites along Jordan Road, while the proposed Saigon Street SCA is featured in the mid to background of this VP.

2.66 Visual Obstruction:

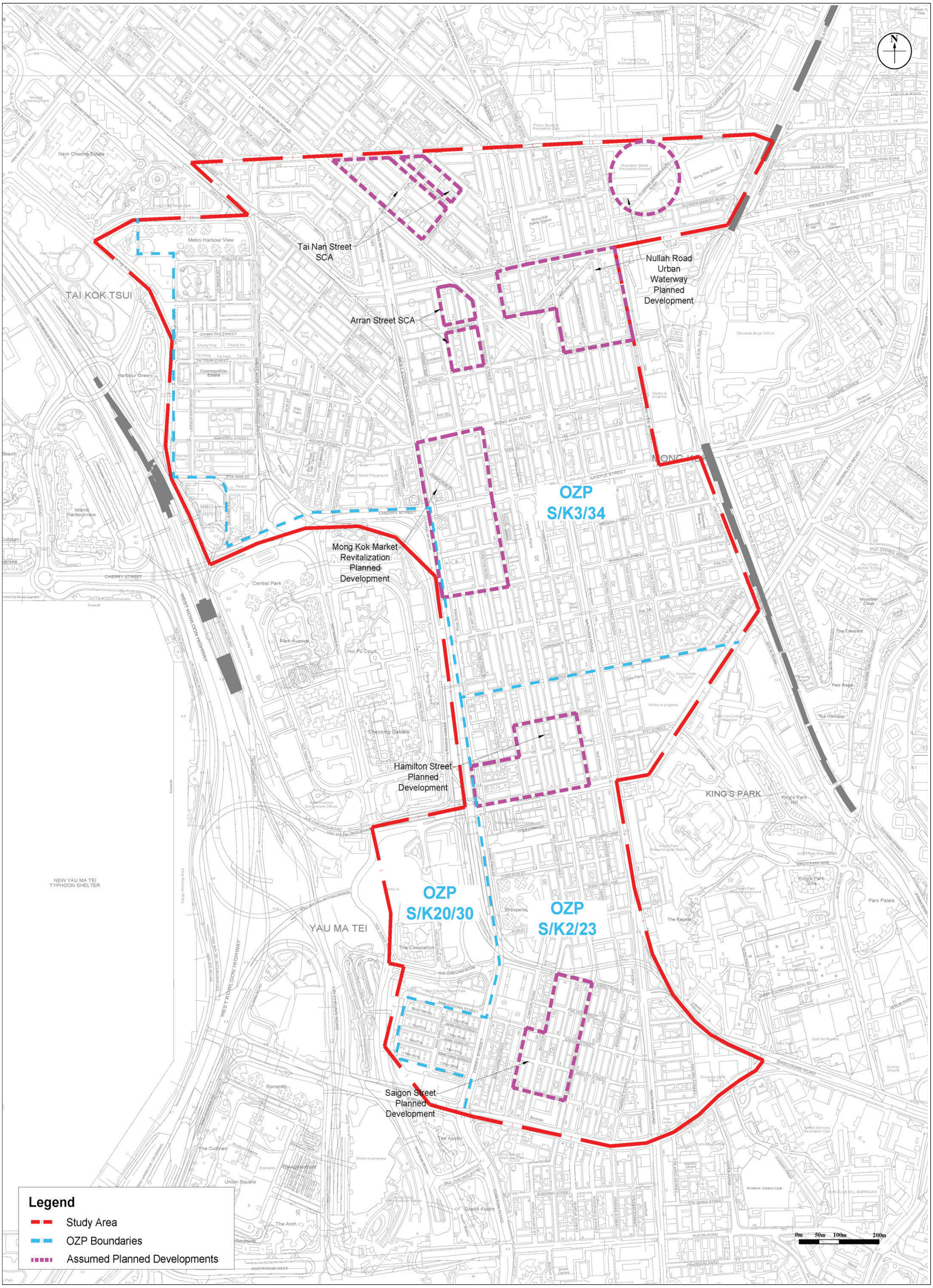
The view of the open sky is partially blocked by the redevelopment of “R(A)” sites in mid-ground and Saigon Street SCA in the mid to background which will reduce the sense of visual openness.

2.67 Effect on Public Viewers:

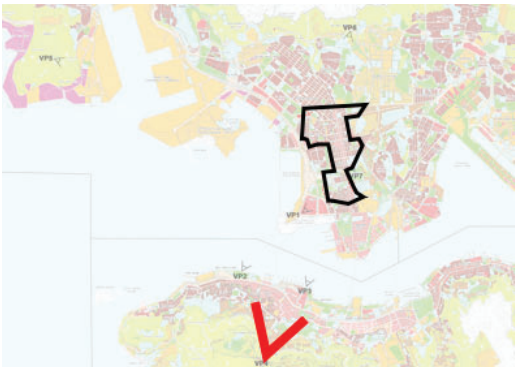
Despite this VP being located very close to the proposed developments, as compared to the OZP permissible scenario, the effect on public viewers is moderate.

2.68 Effect on Visual Resources

The open sky view is substantially blocked by the redevelopment of “R(A)” sites and Saigon Street SCA. The visual permeability is reduced due to the densely built residential redevelopments.



Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Location of the Assumed Planned Developments**	N	Figure: 1.1a Date: May 2022 Scale: As Shown



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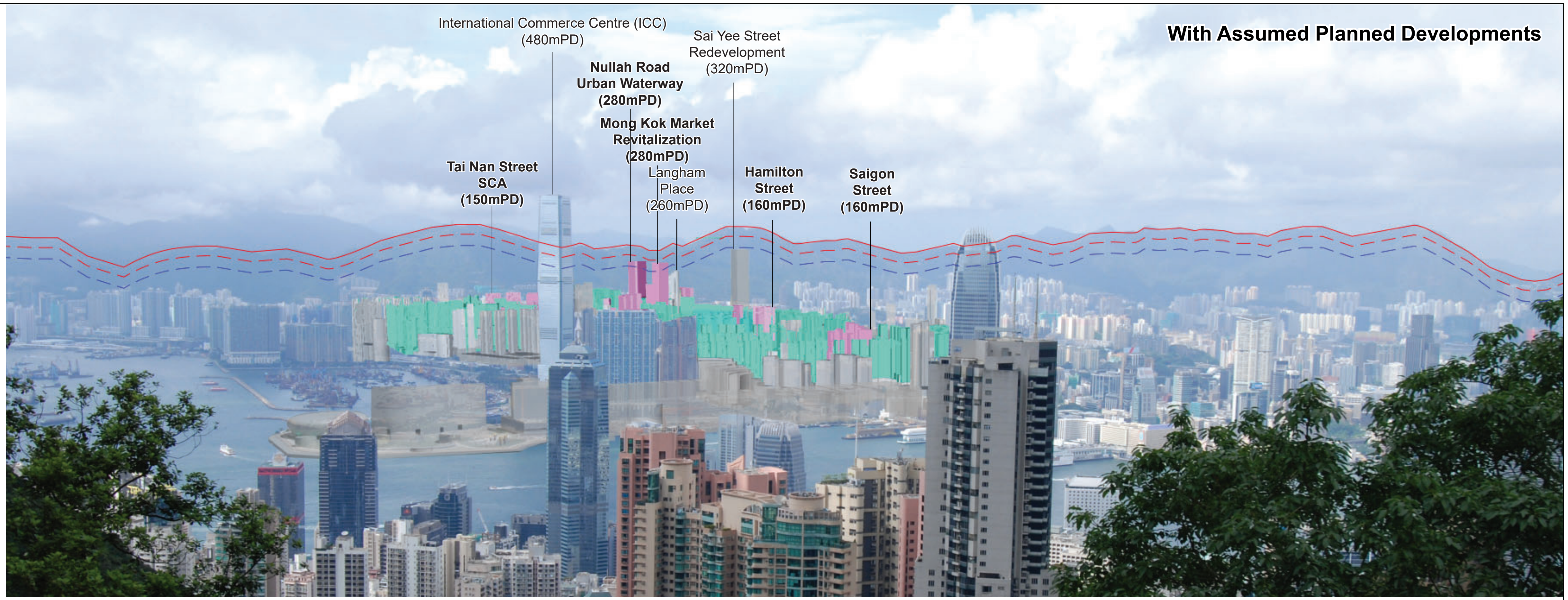
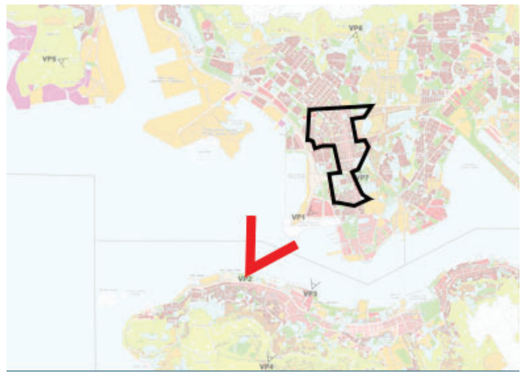


Legend

- Existing Building/ Committed Development
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)
- Ridgeline
- 10% Building Free Zone
- 20% Building Free Zone

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Macro Viewpoint 1** **The Peak (with Assumed Planned Developments)**		Figure: 2.1a Date: May 2022 Scale:



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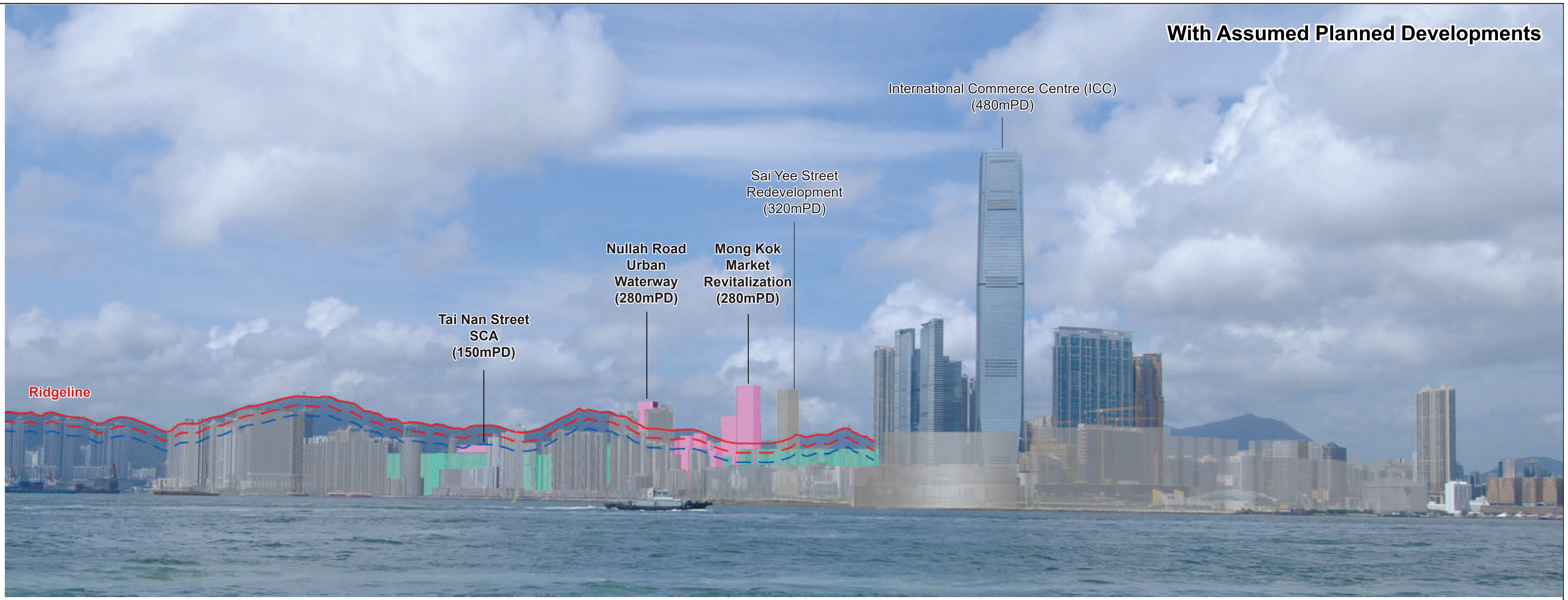
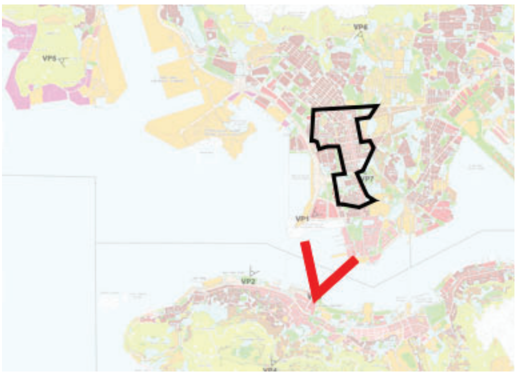


Legend

- Existing Building/ Committed Development
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)
- Ridgeline
- 10% Building Free Zone
- 20% Building Free Zone

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Macro Viewpoint 2** **Sun Yat Sen Memorial Park (with Assumed Planned Developments)**	N	Figure: 2.2a Date: May 2022 Scale:



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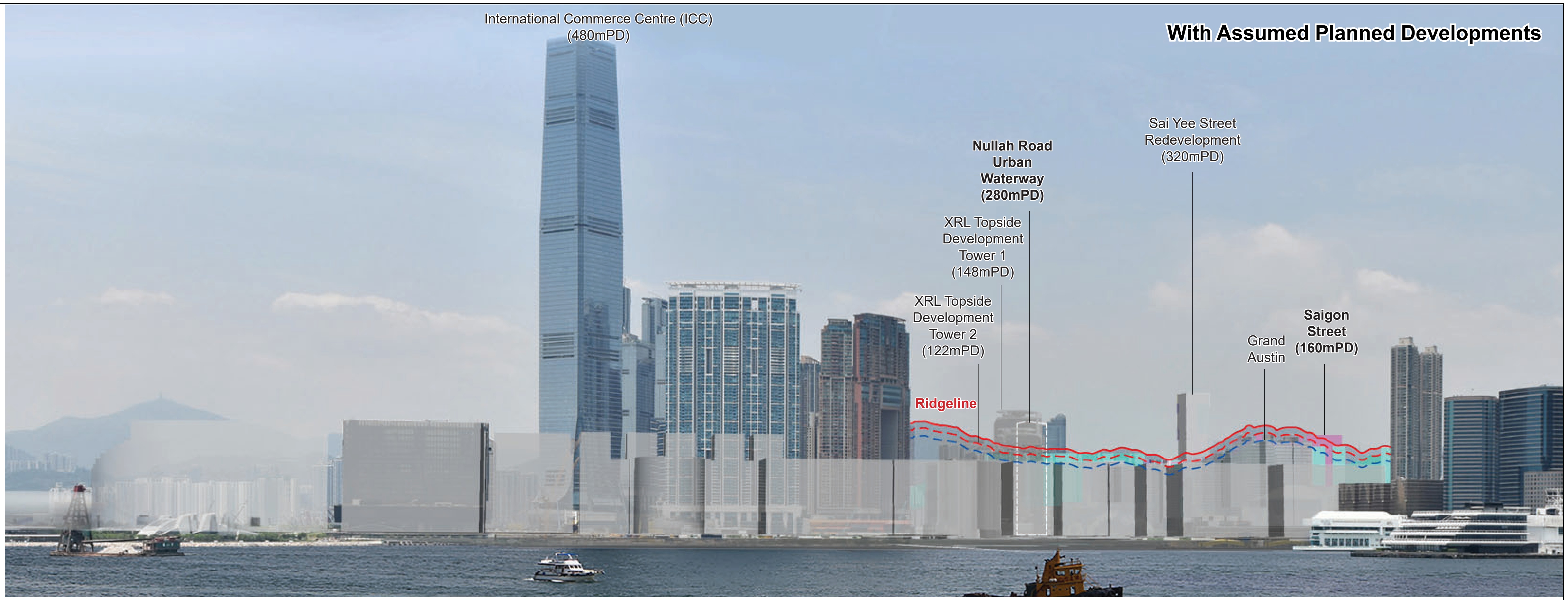
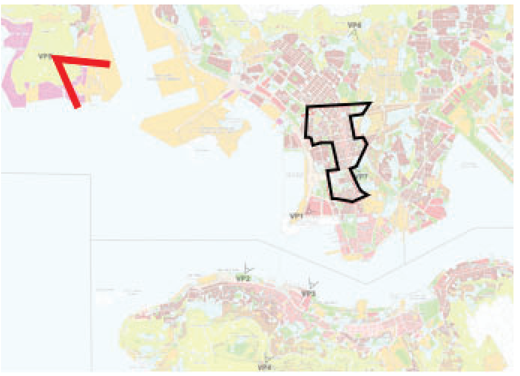


Legend

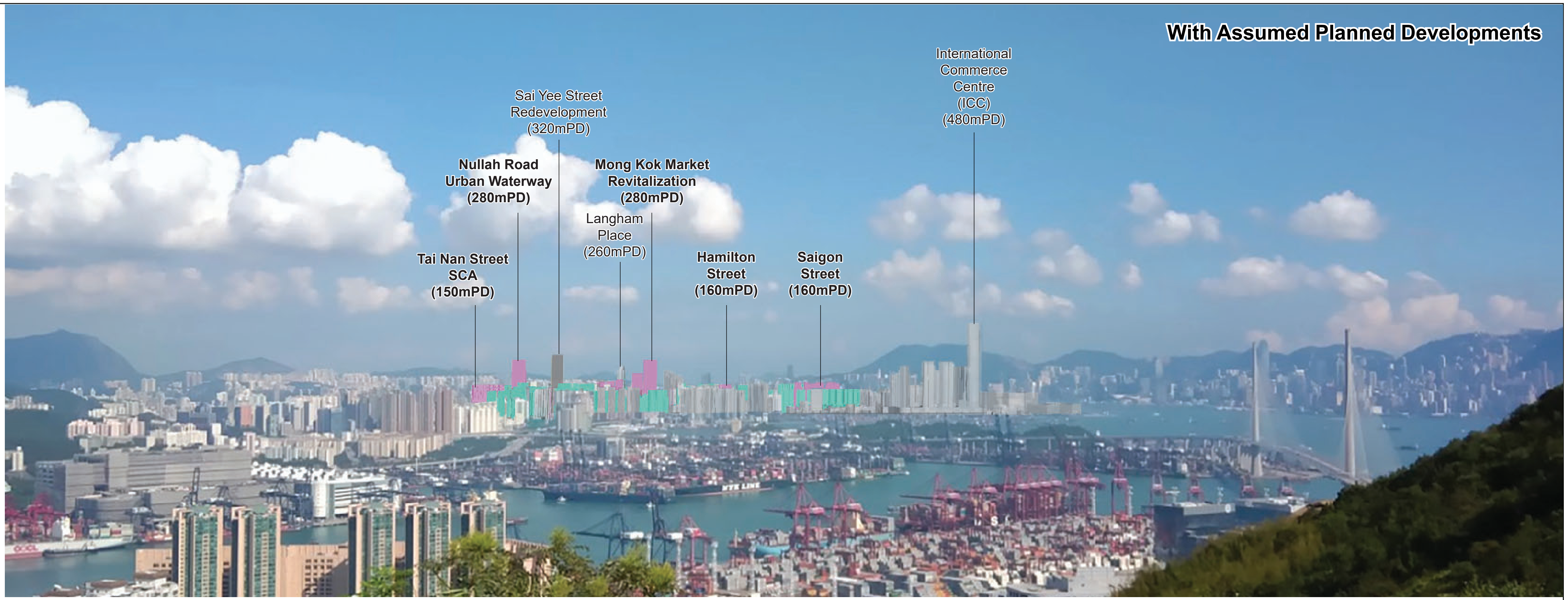
- Existing Building/ Committed Development
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)
- Ridgeline
- 10% Building Free Zone
- 20% Building Free Zone

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Macro Viewpoint 3** **Central Pier No.7 (with Assumed Planned Developments)**		Figure: 2.3a Date: May 2022 Scale:



Viewpoint



Legend

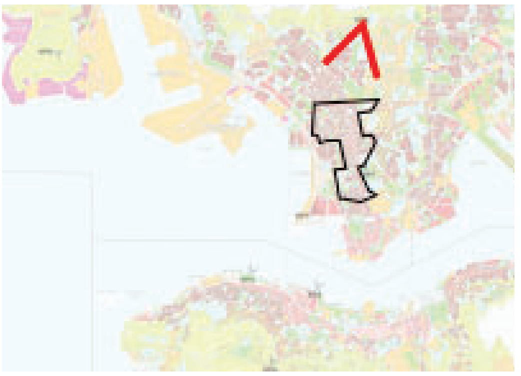
Existing Building/ Committed Development

Proposed Redevelopment (Assumed Planned Developments)

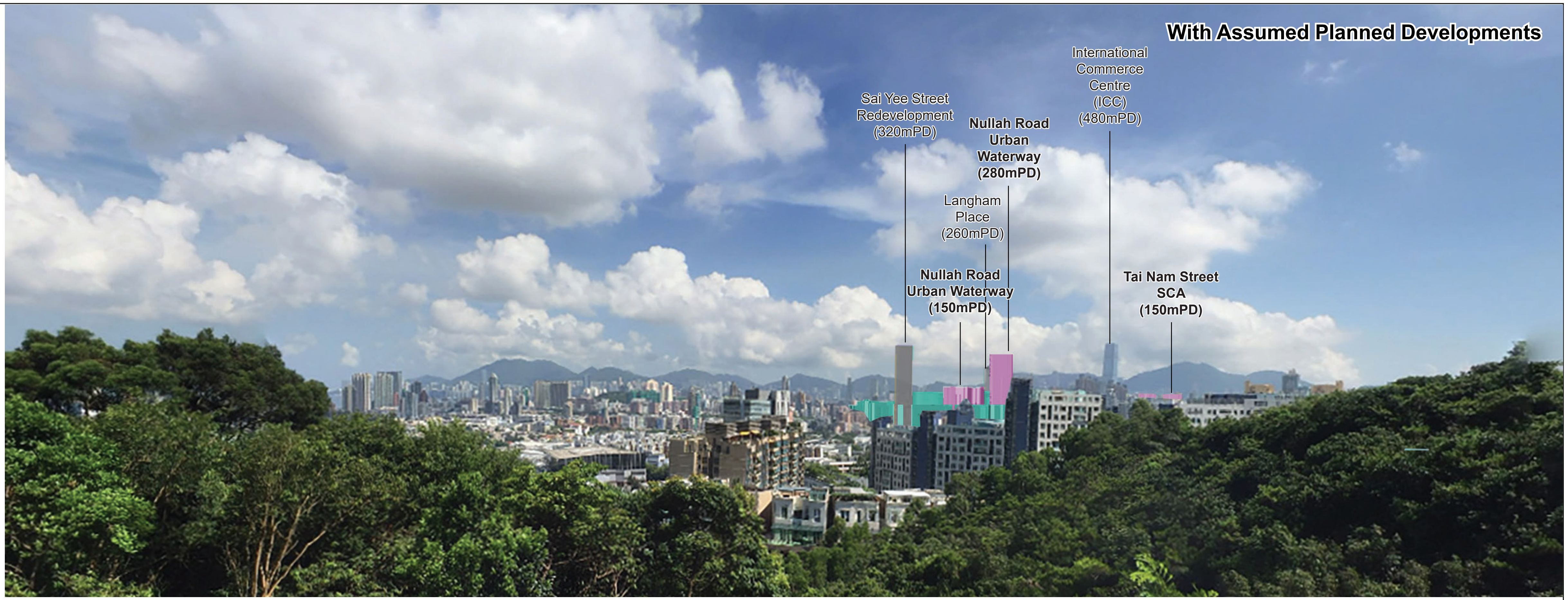
Proposed Redevelopment (OZP Amendment Scheme)

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project: Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	Title: **Macro Viewpoint 4** **Sai Shan (with Assumed Planned Developments)**	N	Figure: 2.4a Date: May 2022 Scale:



Viewpoint

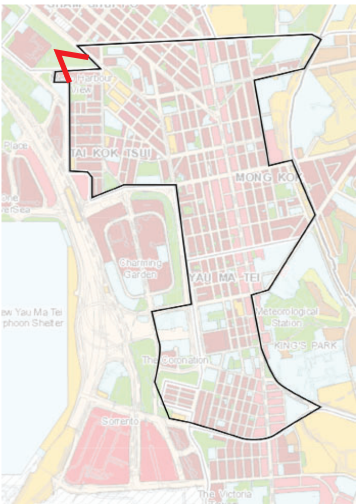


Legend

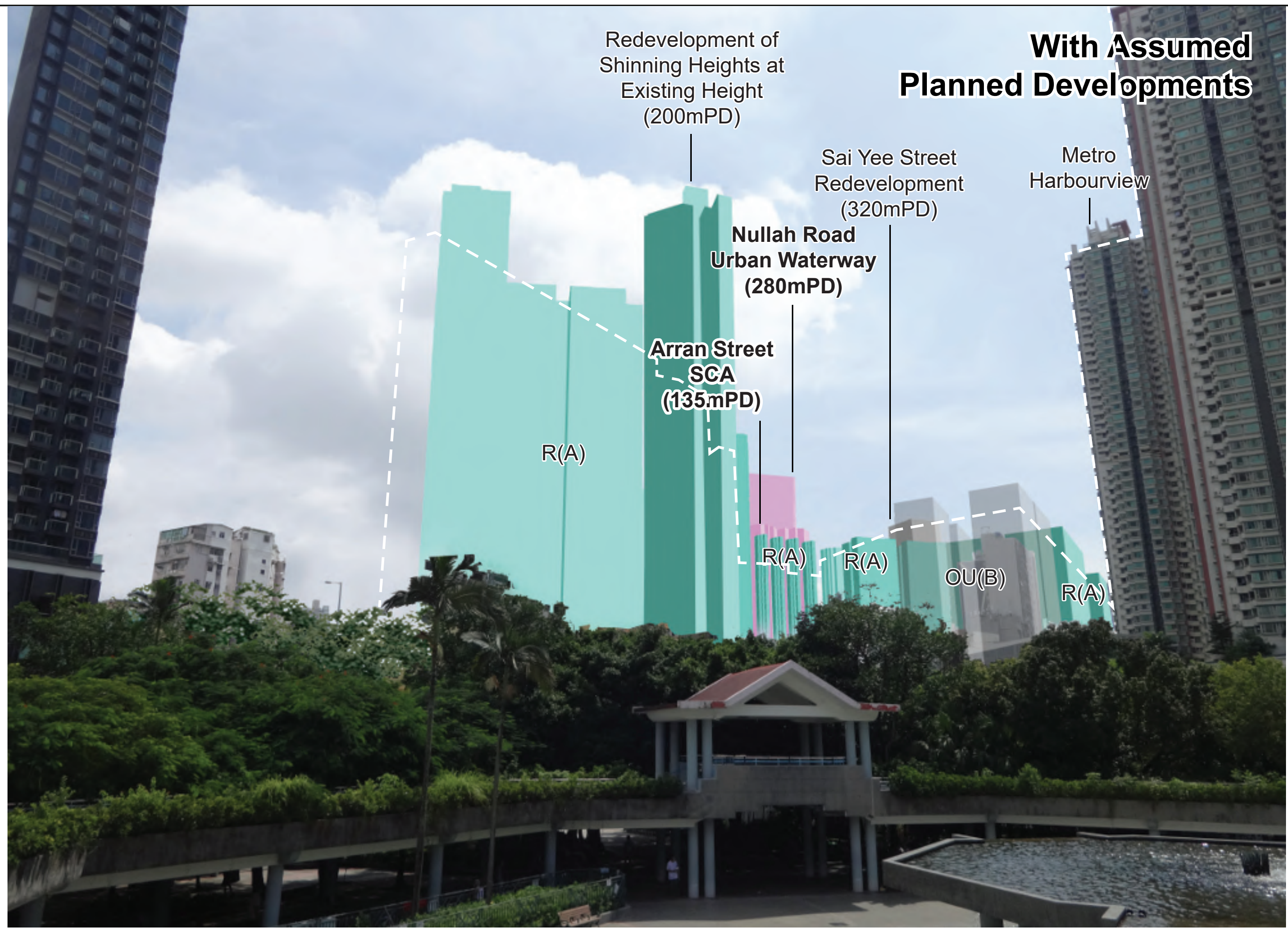
- Existing Building/ Committed Development
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Macro Viewpoint 5** **Lung Cheung Road Lookout (with Assumed Planned Developments)**		Figure: 2.5a Date: May 2022 Scale:



Viewpoint



Legend

Redevelopment of Existing Building as per OZP BHR

Proposed Redevelopment (Assumed Planned Developments)

Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 6** **Tung Chau Street Park (with Assumed Planned Developments)**		Figure: 2.6a Date: May 2022 Scale:

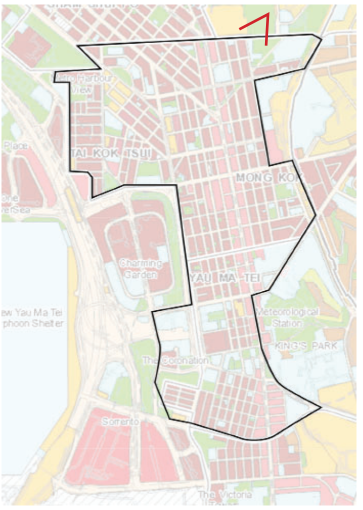
Viewpoint

Legend

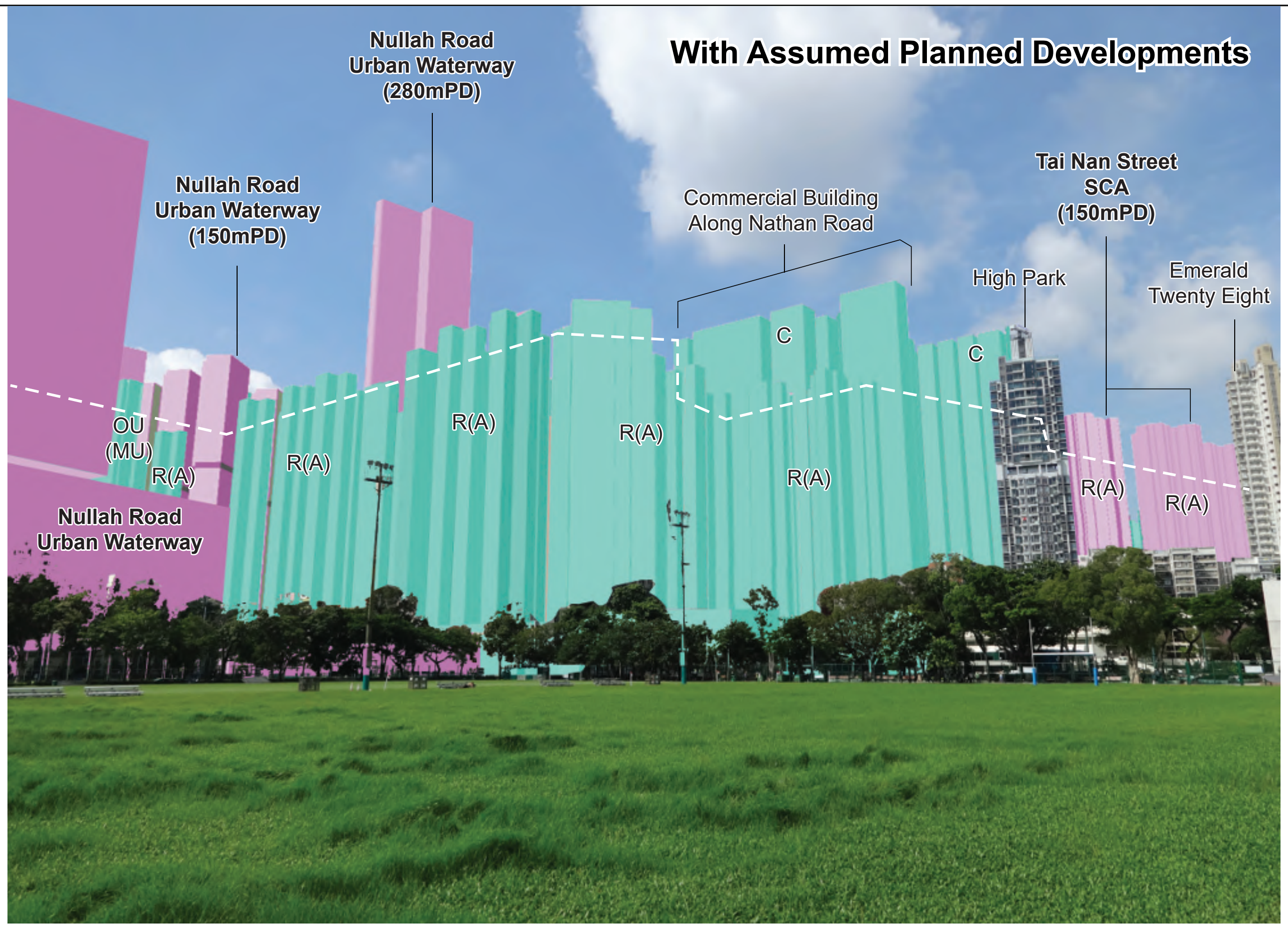
- Indicative Massing of Buildings Outside The Study Area
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)
- OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 7** **Maple Street Playground (with Assumed Planned Developments)**		Figure: 2.7a Date: May 2022 Scale:



Viewpoint



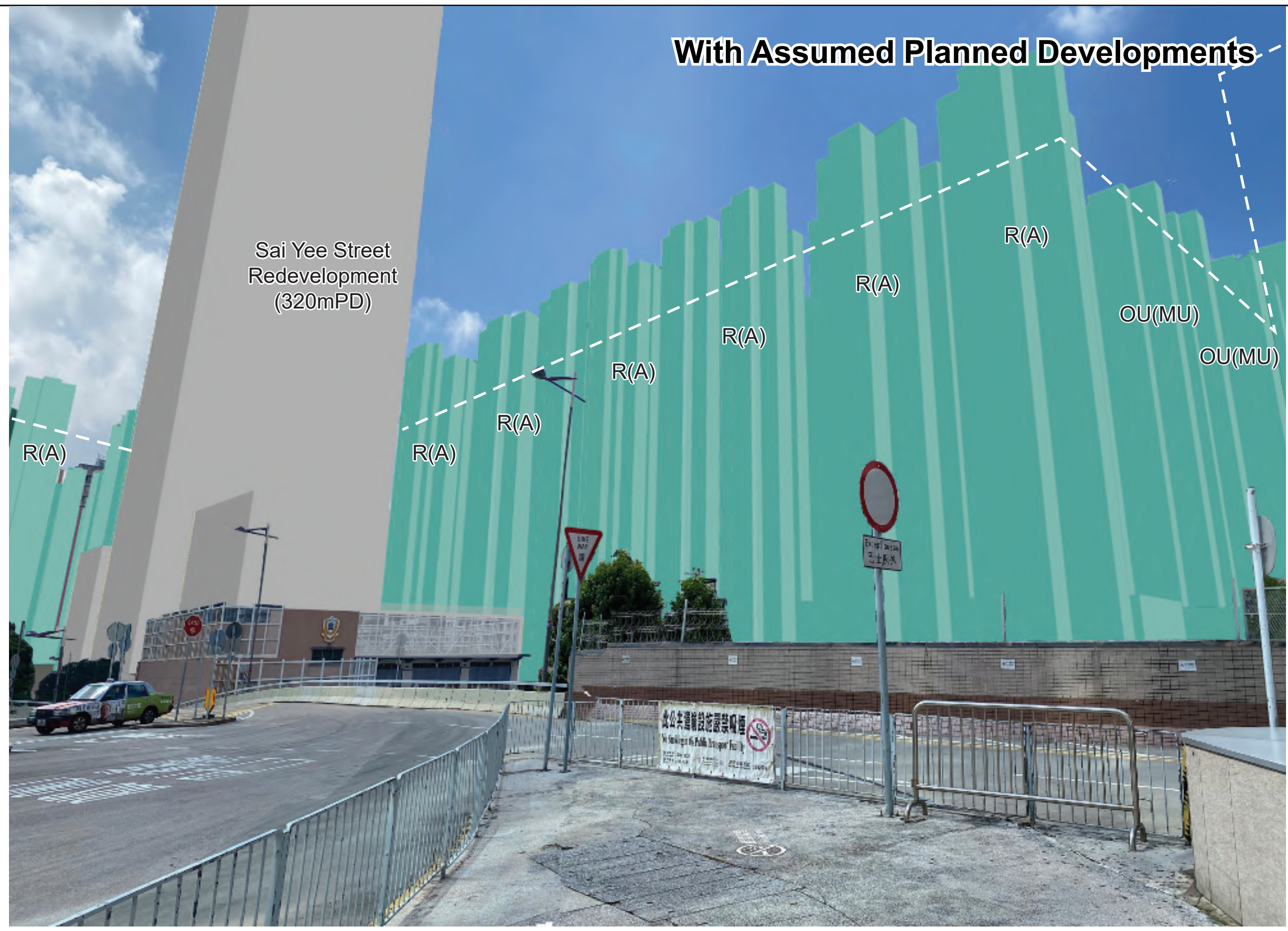
Legend

- Existing Building/ Committed Development
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)
- OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 8** **Tai Hang Tung Recreation Ground (with Assumed Planned Developments)**	N	Figure: 2.8a Date: May 2022 Scale:

Viewpoint



Legend

Existing Building/
Committed Development

Proposed Redevelopment
(OZP Amendment Scheme)

OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 9** **Mong Kok East Station Elevated Walkway (with Assumed Planned Developments)**	N	Figure: 2.9a Date: May 2022 Scale:

Viewpoint

Legend

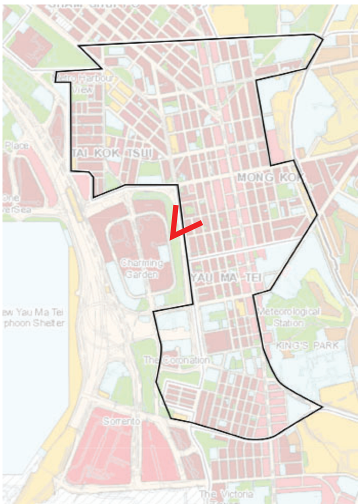
Existing Building/
Committed Development

Proposed Redevelopment
(OZP Amendment Scheme)

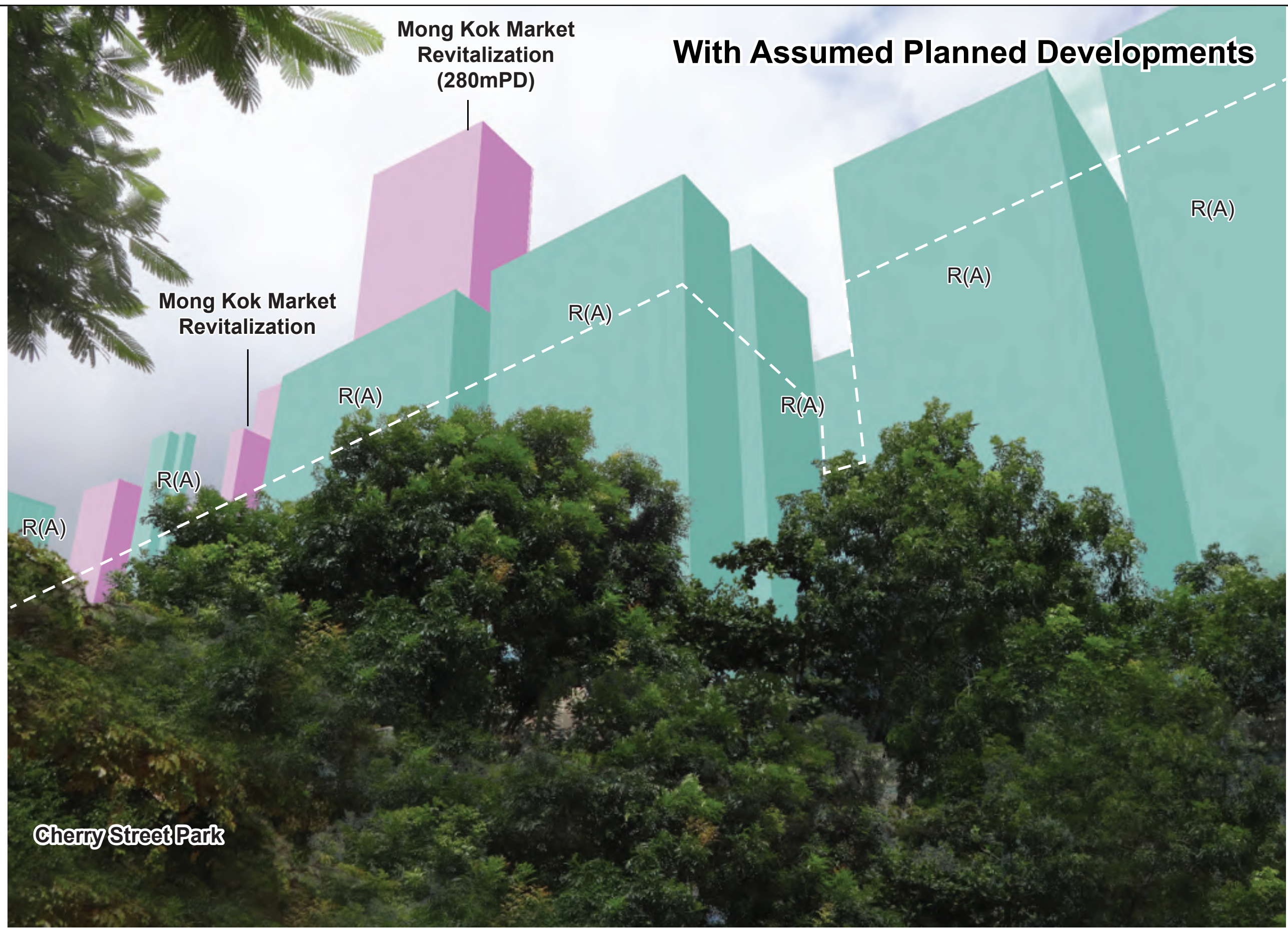
OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 10** **Elevated Walkway Above Ferry Street (with Assumed Planned Developments)**	N	Figure: 2.10a Date: May 2022 Scale:



Viewpoint



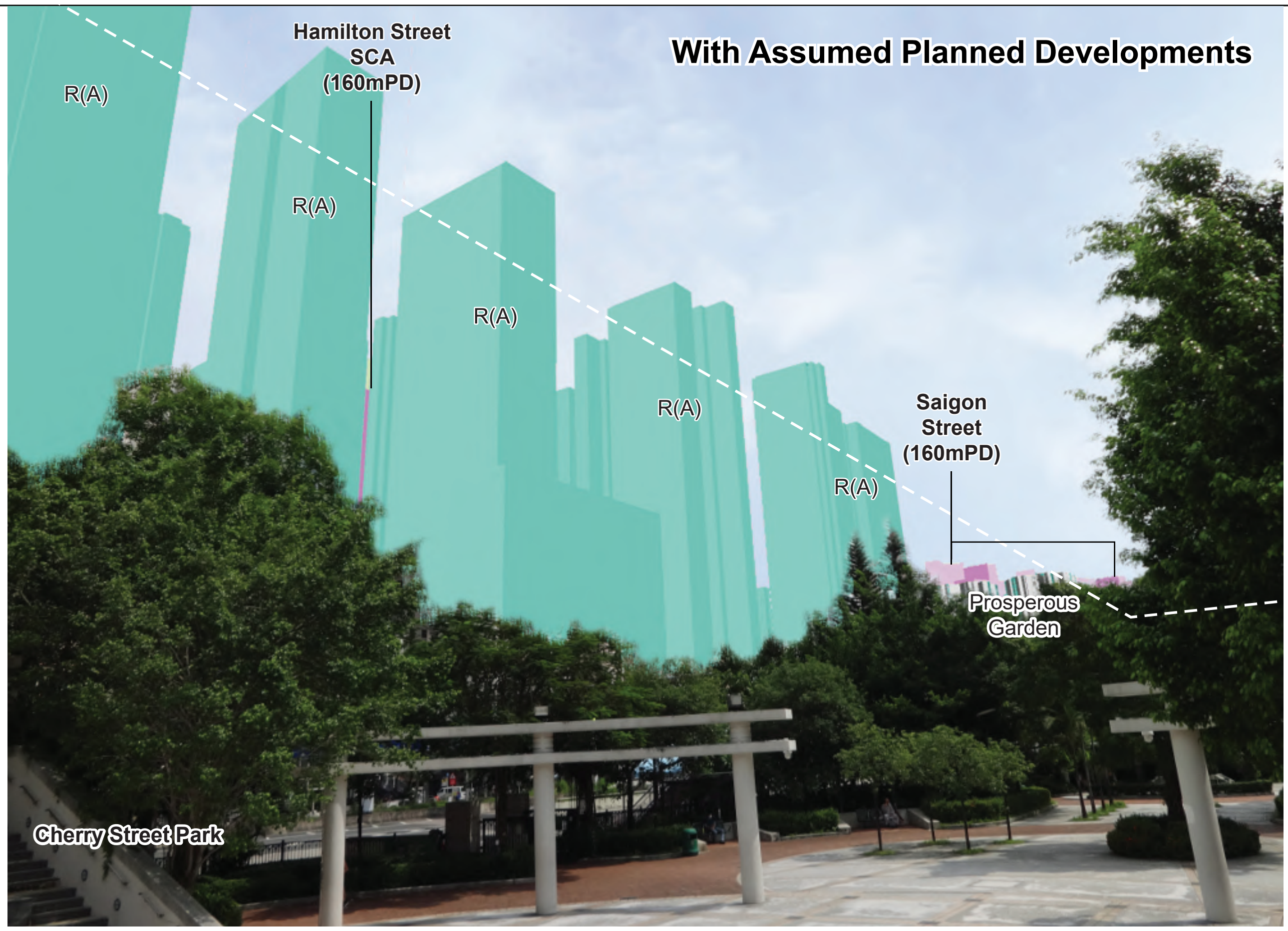
Legend

- Existing Building/ Committed Development
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)
- OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:	N	
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 11** **Cherry Street Park (North) (with Assumed Planned Developments)**		Figure: 2.11a Date: May 2022 Scale:

Viewpoint



Legend

Existing Building/
Committed Development

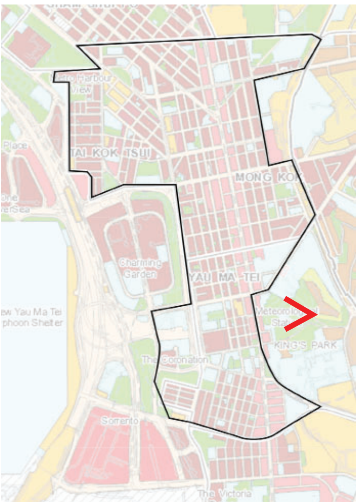
Proposed Redevelopment
(Assumed Planned
Developments)

Proposed Redevelopment
(OZP Amendment Scheme)

OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 12** **Cherry Street Park (South) (with Assumed Planned Developments)**	N	Figure: 2.12a Date: May 2022 Scale:



Viewpoint

Legend

Existing Building/ Committed Development

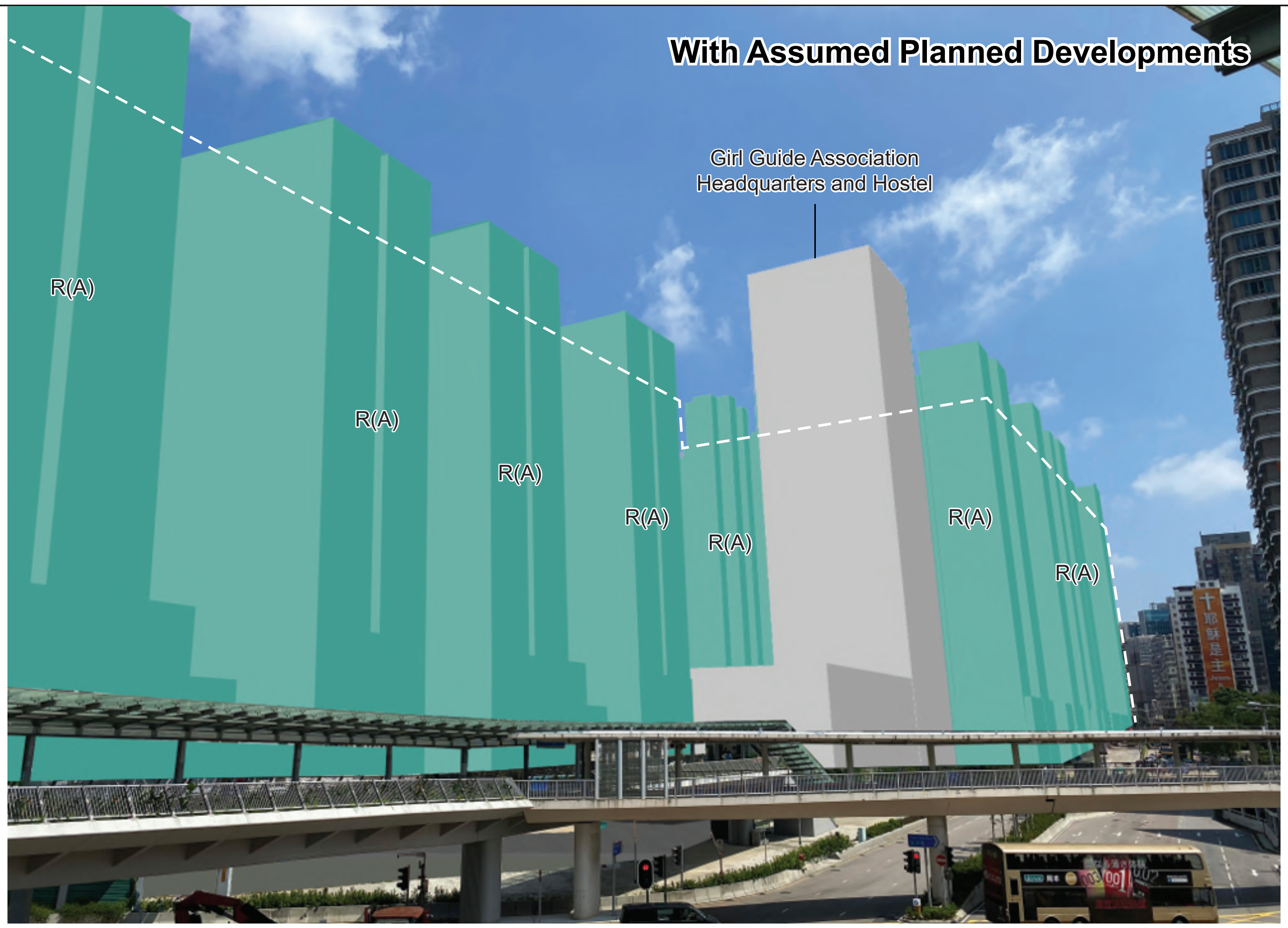
Proposed Redevelopment (OZP Amendment Scheme)

OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 13** **Yau Ma Tei Service Reservoir (with Assumed Planned Developments)**	N	Figure: 2.13a Date: May 2022 Scale:

Viewpoint



Legend

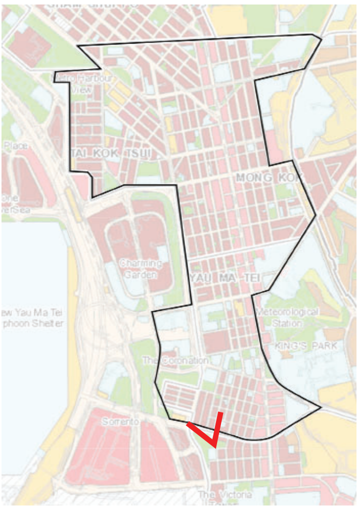
Existing Building/
Committed Development

Proposed Redevelopment
(OZP Amendment Scheme)

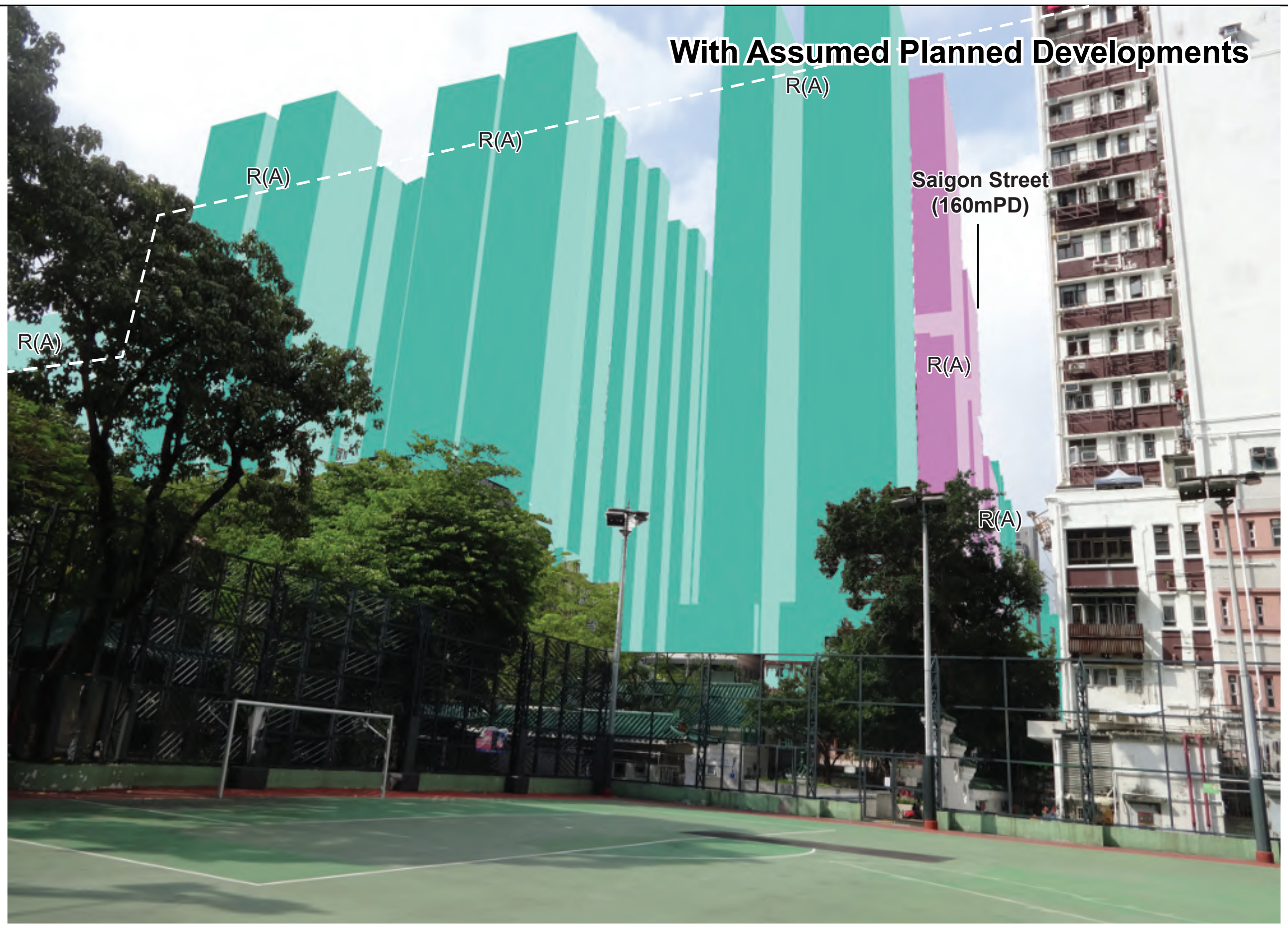
OZP Permissible
Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 14** **Jordan Road Elevated Walkway (with Assumed Planned Developments)**	N	Figure: 2.14a Date: May 2022 Scale:



Viewpoint



Legend

- Existing Building/ Committed Development
- Proposed Redevelopment (Assumed Planned Developments)
- Proposed Redevelopment (OZP Amendment Scheme)
- OZP Permissible Building Height *

** based on OZP restricted building height of S/K20/30 & S/K2/23 & S/K3/34 as of 2022, which is indicative in nature*

Project:	Title:		
Technical Supports for OZP Amendments of Detailed Urban Renewal District Study in Yau Ma Tei and Mongkok Districts	**Micro Viewpoint 15** **King George V Memorial Park (with Assumed Planned Developments)**	N	Figure: 2.15a Date: May 2022 Scale:

Prepared for

Urban Renewal Authority

Prepared by

Ramboll Hong Kong Limited

OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

AIR VENTILATION ASSESSMENT – EXPERT EVALUATION

Date	**20 June 2022**
Prepared by	**Ringo Sit** **Graduate Consultant**
Signed	
Approved by	**Katie Yu** **Senior Manager**
Signed	
Project Reference	**URAYMTMKEI00**
Document No.	**R8443_v4.3.docx**

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CHAPTERS

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APPENDIX

1. INTRODUCTION

1.1 Project Background

1.1.1 The Yau Mai Tei – Mong Kok districts are densely populated districts with a high proportion of aged buildings. Over half the existing buildings within the districts are aged 50 years or older. There is an urgent need to revitalize the districts through urban renewal.

1.1.2 In 2017, the Urban Renewal Authority (URA) carried out the District Study for Yau Ma Tei and Mong Kok (hereafter "YM Study") with the aim of drawing up a comprehensive urban renewal plan of the two districts. Based on the findings in the Study, URA proposed three master renewal concept plans (MRCP) with varying development density, of which the MRCP+ scenario with the highest development intensity was used for technical assessments, including the Air Ventilation Assessment (AVA), to account for the worst-case scenario.

1.1.3 Following the completion of the YM Study, the Government aims to kick start the first batch of Outline Zoning Plan (OZP) amendments in 2022. In carrying out the OZP amendments, the development parameters adopted in MRCP+ of the YM Study have to be re-visited taking into account latest proposals agreed by the Government which include change in the maximum domestic plot ratio for "R(A)" and "R(E)" zones, relaxation of plot ratio of C zone, rezoning of R(A) sites at character streets to "Other Specified Uses (Mixed Use)" "OU(MU)". These changes require the review of various technical assessments, including the AVA.

1.1.4 Ramboll Hong Kong Limited has been appointed to conduct this AVA Expert Evaluation for the proposed OZP amendments.

1.2 Objectives of the Report

1.2.1 This AVA-EE report has been prepared to evaluate the air ventilation impact of the proposed amendments to the current OZP. This is done qualitatively by comparing the air ventilation impacts to the surrounding wind environment between the baseline condition (OZP-Compliant Scheme) and the proposed OZP amendments (OZP-Amendment Scheme). For information, as a planning horizon of 2047 is anticipated, this submission also includes a preliminary air ventilation appraisal for major proposals under the MRCP in **Appendix 1**.

1.3 Study Area

1.3.1 **Figure 1.1** shows the location of the Study Area and its environs. The Study Area covers the majority of Mong Kok District and Yau Ma Tei District with the boundary stopping just short of Hoi Wang Road and Jordan Road in Yau Ma Tei. The Study Area is bounded by West Kowloon Cultural District to the southwest and Tsim Sha Tsui to the south. The Study Area is densely populated with high-rise buildings throughout the two districts.

1.3.2 The Study Area falls within three OZPs, S/K2/23, S/K3/34 and S/K20/30 as shown in **Figure 1.1**. The northern half of the Study Area falls under the Approved Mong Kok OZP no. S/K3/34 while the southern half of the Study Area passed Dundas Street is under the Approved Yau Ma Tei Outline Zoning Plan no. S/K2/23. Finally, the area around The Coronation near Yan Cheung Road is under the Approved South West Kowloon OZP no. S/K20/30.

1.3.3 The current zoning amendments are proposed for OZP no. S/K3/34 and S/K2/23 only.

1.4 OZP-Compliant Scheme

1.4.1 This represents the baseline condition in which the OZP-Amendment Scheme will be compared to its impact on the wind environment of area covered by OZP no. S/K3/34 and S/K2/23 within the Study Area. The current OZP conditions of the Study Area are taken to be the Baseline Scheme. Maximum building heights of the zoning are assumed for the buildings within their respective planned uses under the three current OZPs mentioned in **Section 1.3**. Maximum building heights and building storeys allowed for the structures within the Study Area is indicated in **Figure 1.2a** and **Figure 1.2b** and these restrictions act as the baseline condition for this assessment.

1.4.2 The mitigation measures to enhance air ventilation mentioned in the Explanatory Statement (ES) of the respective OZPs, non-building areas (NBA), building gaps (BG) and building setback (BS) within the Study Area are kept in both the OZP-Compliant Scheme and the OZP-Amendment Scheme as they are effective measures suggested by previous AVA-EE done for the area which will be discussed in later sections.

1.5 OZP-Amendment Scheme

1.5.1 **Figure 1.3a and Figure 1.3b** marks the proposed OZP amendments which is to be compared to the OZP-Compliant Scheme on its air ventilation performance under the prevailing wind directions.

1.5.2 The OZP-Amendment Scheme consists of the following changes to the current OZPs:

- For the "R(A)" and "R(E)" zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100mPD to 115mPD;
- For the "C" zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of 15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and
- Rezone some "R(A)" sites at the Character Streets to "OU(MU)" with a maximum domestic PR of 7.5 and maximum total PR of 9[1]. The building height restriction is proposed to be increased from 100mPD to 115mPD.

1.5.3 **Figure 1.4a** and **Figure 1.4b** shows the building height restrictions (BHR) of the Study Area in the OZP Amendment Scheme.

1.5.4 This report is to assess the air ventilation performance of the BHR and plot ratio changes proposed in the OZP-Amendment Scheme and compare it with the OZP-Compliant Scheme with the non-building areas (NBA), building gaps (BG) and building setback (BS) as established in the current OZPs.

[1] Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

2. SITE WIND AVAILABILITY

2.1 Site Wind Availability Data

<u>HKO Measured Wind Data</u>

2.1.1 The Hong Kong Observatory (HKO) has weather stations located throughout Hong Kong which measures meteorological data of the environment in its surroundings. A depiction of the wind environment at the Study Area can be done using the wind data near ground level of representative weather stations.

2.1.2 The HKO weather station at Waglan Island (WGL) is usually referenced as the baseline station in other air ventilation studies. WGL can represent the pattern of the incoming wind to Hong Kong. With its long wind data record starting from 1998 and the station placement at the outer edges of Hong Kong, it is able to provide stable wind data unaffected by the complicated terrain of Hong Kong which can be used as a basis for AVA studies to estimate the wind availability at their project sites. However, the weather data of WGL is not able to take into account wind flow caused by temperature difference (e.g., sea breezes) which is expected to take place at the Study Area as it is next to the sea.

2.1.3 For this AVA study, apart from the annual wind environment, understanding the wind environment of Hong Kong during summer conditions is also essential in providing pedestrian areas air ventilation and wind comfort during the hot summer time. From the wind roses of Waglan Island as shown in **Figure 2.1** and **Figure 2.2**, dominant incoming annual wind to Hong Kong is from the east and the northeast and a portion of the incoming annual wind also comes from the southwest. In summer, the prevailing wind comes from the southwest. Consequently, it is essential that design of our city is able to capture the annual wind (E, NE wind) while also allowing for dominant summer wind (SW wind) to flow into the urban environment.

2.1.4 To further comprehend the wind environment of the Study Area, the wind data of the nearest weather station to the Site, King's Park (KP) weather station (with a ground elevation of +65 mPD), is also considered. The weather data from this station is affected by the surrounding built environment of the Yau Ma Tei and Mong Kok District as well as the topography at Ho Man Tin District with terrain reaching an elevation level of +100 mPD. Presented in **Figure 2.3** are the wind roses created using the weather data collected at the King's Park Weather Station from 1993 to 2009. From these wind roses, prevailing annual and summer wind directions are determined to be both from E, ESE and W direction.

<u>RAMS Data</u>

2.1.5 For another source of wind data at the Study Area, wind data from the meso-scale Regional Atmospheric Modelling System (RAMS) provided by PlanD can be used. RAMS was used to produce a simulated 10-year wind climate at the horizontal resolution of 0.5 km x 0.5 km covering the whole territory of Hong Kong. The simulated wind data represents the annual, winter and summer wind condition at various levels, i.e., 200 m, 300 m, and 500 m above terrain.

2.1.6 Based on the wind roses with different heights (200, 300 or 500m) available, the 200 m site wind availability data represents wind data that takes into account the topographical effect around the Study Area while data at higher altitudes more represents free wind flow.

2.1.7 As the Study Area covers multiple RAMS grid, the annual and summer wind rose diagrams of Grids (077,043), (078, 043), (079,043), (078,042), (079,042), (079, 041), (080,041), (079,040), (080,040) and (079,039) at different altitudes have been extracted from the Site Wind Availability Data of Planning Department's website to represent the prevailing wind environment at the Study Area in **Figure 2.4** to **Figure 2.13.**

2.1.8 Data from the 10 grids show similar wind availability and according to wind data of these grids, the annual prevailing wind directions of the Study Area are NE, ENE and E while the summer prevailing wind directions are E, ESE, SW. direction.

MM5 Data

2.1.9 Citing the previous AVA study done for YMT and MK areas in October 2018[2] and September 2020[3]. Wind availability data of the Study area can also be obtained from MM5 simulation done by HKUST. From the wind availability data, annual prevailing winds are predicted to be easterlies and northeasterlies while summer wind consist of mostly southerly and south-westerlies. The wind roses based on the simulation are displayed in **Figure 2.14** to **Figure 2.15.**

PlanD Wind Tunnel Data

2.1.10 With reference to the wind tunnel experiments carried out by the Planning Department, wind data is extracted from "Experimental Site Wind Availability Study for Mong Kok, Hong Kong"4 to represent the wind data at the Study Area as the study area of this wind tunnel experiment is the nearest to the Study Area of this report out of all the other experiments. Annual and summer wind roses from this study are displayed in **Figure 2.16** and **Figure 2.17.** The major annual wind directions are from E, ENE, NE direction while the summer prevailing winds are from E, S, SW direction.

Summary of Prevailing Wind Direction

2.1.11 Based on the various sources of wind data provided, **Table 2.1** summarizes the prevailing wind directions at the Study Area, which are illustrated in **Figure 2.18** and **Figure 2.19** for MK Area and YMT Area, respectively. In the MK Area, the key annual prevailing winds mainly come from NE, ENE, E and W directions while key summer prevailing winds mainly come from E, S, SW, WSW and W. In the YMT Area, the key annual prevailing winds mainly come from NE, ENE, E and W while key summer prevailing winds mainly come from E, SE, S, SW, WSW and W. W wind is considered as an important wind direction because out of all the wind data sources, the height at which wind data is collected at the KP weather station (+65 mPD) is the closest to the pedestrian level of the Study Area. Another reason W wind is determined to be one of the prevailing wind directions is that it is the direction local sea breeze are coming from at the Study Area, which is significant under weak wind conditions. This result agrees with the prevailing wind directions identified in the previous AVA study of the YMT and MK area in 2020 and 2018 respectively.

Table 2.1 Summary of Site Wind Availability Data

Source of Data	Location	Height (m)	Annual Wind Prevailing Direction	Summer Wind Prevailing Direction
HKO Station	King's Park (KP)	65	E, ESE, W	E, W, WSW
RAMS (from PlanD)	X:077, Y:043	200	E, ENE, NE	SW, E, SSW
		300	E, ENE, NE	SW, E, S
		500	E, ENE, ESE	SW, SSW, ESE
	X:078, Y:043	200	E, ENE, NE	SW, E, S
		300	E, ENE, NE	SW, E, S
		500	E, ENE, ESE	SW, SSW, ESE

[2] YMT AVA Study 2020 (Annex F of TPB Paper No. 10773, https://www.info.gov.hk/tpb/en/papers/papers.html#2021)

[3] MK AVA Study 2018 (https://www.pland.gov.hk/pland_en/info_serv/ava_register/ProjInfo/AVRG124_FinalReport.pdf)

[4] https://www.pland.gov.hk/pland_en/info_serv/site_wind/wwtf007_2007_final.pdf

Source of Data	Location	Height (m)	Annual Wind Prevailing Direction	Summer Wind Prevailing Direction
	X:079, Y:043	200	E, ENE, NE	SW, E, S
		300	E, ENE, NE	SW, E, S
		500	E, ENE, ESE	SW, SSW, S
	X:078, Y:042	200	E, ENE, NE	SW, E, S
		300	E, ENE, NE	SW, E, S
		500	E, ENE, ESE	SW, SSW, S
	X079, Y:042	200	E, ENE, NE	SW, E, S
		300	E, ENE, NE	SW, E, S
		500	E, ENE, ESE	SW, SSW, S
	X:078, Y:041	200	E, ENE, NE	SW, E, S
		300	E, ENE, NE	SW, E, S
		500	E, ENE, ESE	SW, SSW, ESE
	X:080, Y:041	200	E, ENE, NE	SW, E, SSW
		300	E, ENE, ESE	SW, E, SSW
		500	E, ENE, ESE	SW, SSW, ESE
	X:079, Y:040	200	E, ENE, NE	SW, E, S
		300	E, ENE, NE	SW, E, S
		500	E, ENE, ESE	SW, SSW, S
	X:080, Y:040	200	E, ENE, ESE	SW, E, SSW
		300	E, ENE, ESE	SW, E, SSW
		500	E, ENE, ESE	SW, SSW, S
	X:079, Y:039	200	E, ENE, NE	E, SW, SSW
		300	E, ENE, ESE	E, SW, SSW
		500	E, ENE, ESE	SW, SSW, S
MM5 Simulation (MK AVA EE 2018)		120	E, NE, ENE	ESE, E, SW
		450	ENE, E, NE	E, SW, SE
MM5 Simulation (YMT AVA EE 2020)		120	E, ENE, NNE	ESE, E, SW
		450	ENE, E, NE	E, SE, SW
Wind tunnel experiment (from PlanD)		50	NE, E, N	SW, E, S
		100	E, NE, N	SW, E, S
		200	E, N, NE	SW, E, S
		500	E, N, ENE	SW, E, S

Note: Prevailing wind directions are arranged in descending order of prevalence starting from the most dominant wind direction

2.2 Topography and Building Morphology

2.2.1 To better analyse the air ventilation impact of the proposed changes in the OZP Amendment Scheme, the topography and subsequent wind analysis would be split into two areas, the Mong Kok Area at the north and the Yau Ma Tei Area at the south. The two areas are split by the boundary of the two approved OZP plans (no. S/K3/34 and no. S/K2/23) as well as the topography of the surrounding areas are indicated in **Figure 2.20**. For the part of the Study Area bounded by the OZP plan no. S/K20/30, as there are no proposed OZP changes in the area under the OZP Amendment Scheme, it will be discussed as part of the Yau Mai Tei Area.

<u>Topography of Mong Kok Area (MK Area)</u>

2.2.2 The northern portion of the Study Area, MK Area, is located on the flat land of Mong Kok District with a ground elevation level of around +4 to +6 mPD. Outside of the MK

Area, the terrain is largely similar to the Study Area except for some elevated terrain nearby that could affect incoming wind flow to the area which include Kadoorie Hill (+36 mPD), Bishop Hill (+79 mPD) to the north of MK Area near Boundary Street. These higher-level areas are expected to pose some blockage to the incoming wind.

2.2.3 For example, at Kadoorie Hill, the elevated terrain itself is predicted to divert some incoming easterlies to the MK Area towards its either side (the buildings of Diocesan Boys' Secondary and Primary School) but as Kadoorie Hill is surrounded by high-rise buildings on all sides, compared to the built structures, the effect of Kadoorie Hill on the wind environment is negligible.

2.2.4 For Bishop Hill, as the hill is to the north of the Study Area, incoming prevailing wind to the MK Area is largely unaffected as the dominant wind directions identified do not come from the north. At most, some northeastern wind would be altered by the hill and affect the northern edges of the MK Area. Hence air ventilation impact by the three high grounds is not significant.

2.2.5 Further north beyond the MK Area passed Shek Kip Mei is the terrain of Beacon Hill (~+150 mPD), Eagle's Nest (~+150 mPD) and Lion Rock (>+300 mPD). There is also the elevated terrain of Ho Man Tin to the southwest (~+100 mPD) of the MK Area. While the elevation level of these terrains is far higher than the ground level of the MK Area, they are also 1-2 km away from the MK Area and thus the wind flow pattern in the MK Area is not expected to be influenced by these terrains.

2.2.6 Besides the high grounds, the sea is to the west of the MK Area passed West Kowloon Highway. Some localized sea breeze may affect the regions close to the western/southwestern boundary of the Study Area during summer season due to the difference in air pressure and temperature between the land and the sea.

2.2.7 On the whole, due to the mostly flat terrain in the immediate surrounding area, the influence of topography to the wind flow pattern around the MK Area is expected to be minor.

Topography of Yau Ma Tei Area (YMT Area)

2.2.8 The southern portion of the Study Area, YMT Area, is generally at a level of +7 mPD, slightly higher than the area to the north. Due to the flat nature of the terrain, influence of the topography to the wind flow pattern around the Study Area is expected to be minor.

2.2.9 However, King's Park (+66 mPD) would have some influence on the incoming wind to the YMT Area. At King's Park, some sheltering effect is expected for the incoming eastern and southeastern winds due to the higher ground elevation of King's Park. Nevertheless, the gentle gradient of the elevated terrain without sharp ridges (unlike built structures) would break up less wind and allow more wind to reach the YMT Area and its effect is smaller compared to the built environment.

2.2.10 Similar to MK Area, the sea/Yau Ma Tei Typhoon Shelter is to the west of the YMT Area. Some localized sea breeze may affect the regions close to the western/southwestern boundary of the area during summer season due to the difference in air pressure and temperature between the land and the sea and this wind may be able to infiltrate the streets of the YMT Area.

Existing Building Morphology

2.2.11 On the other hand, existing developments are the major source of obstructions disrupting the local wind environment at the Study Area. As mentioned before, there is a large number of existing medium to high-rise buildings at and around the Study Area in most directions except near the Yau Ma Tei Typhoon Shelter. The wind flow pattern at the Study Area would be influenced greatly by this surrounding-built environment even without the OZP-Amendment Scheme at the Study Area.

2.2.12 The dense urban environment of MK Area severely limits incoming wind from penetrating through the Study Area under all wind directions barring the roads and streets of the area. For annual wind conditions, while the prevailing incoming wind (northeasterlies and easterlies) would be obstructed by the existing medium and high-rise buildings, E-W wind is still able to access the MK Area through major pedestrian streets and roads such as Prince Edward Road West and Argyle Street. Northeasterlies would be able to take advantage of the streets in the MK Area in Nam Cheong Street and Poplar Street to access MK Area and allow for some wind penetration but its flow is limited due to the orientation of streets past Tai Kok Tsui Road not being aligned to northeast direction.

2.2.13 For summer conditions, SW winds would be able to enter MK Area from Cherry Street and the open space near Ngo Cheung Road before flowing to Argyle Street and Waterloo Road respectively to reach downstream areas of MK Area. ESE wind flow would be reduced owing to the unfavourable orientation of the building clusters and carriageways in MK Area.

2.2.14 Likewise, within MK Area, wind flow at YMT Area is also limited to the roads and streets due to the large number of existing medium to high-rise developments within the area. E-W wind is able to access the YMT Area through Waterloo Road and other streets (e.g., Public Square Street, Hi Lung Lane) that are E-W aligned and are able to receive some of the E wind incoming from King's Park.

2.2.15 Then for summer wind, southerlies and south-westerlies would be able to enter YMT Area through the various roads aligned to this direction. This includes Canton Road, Nathan Road and Temple Street, with Nathan Road allowing for the most amount of wind flow due to it being a major road that stretches across Tsim Sha Tsui, Yau Ma Tei and Mong Kok.

2.2.16 Overall, wind availability at the Study Area is hampered by the surrounding built-environment and the streets serve as the key wind corridors for air movement within and through the Study Area.

Building Morphology – OZP-Compliant Scheme

2.2.17 For the OZP-Compliant Scheme, when compared to the existing condition, the only changes relate to the increase in building intensity and building height as well as the different design requirements stated in the ES of their respective OZPs, there is no large difference overall between the street patterns of the two conditions. Thus, the wind flow pattern previously discussed still remains relevant. Only the effects of the building blockage are somewhat amplified by the increased building height in the OZP-Compliant Scheme compared to the existing development but its effect is not significant because pedestrian level wind blockage caused by the building height increase becomes less significant as the ratio between the height of the building and the width of the street (H/W ratio) increase beyond a certain threshold. Mitigation measures such as NBAs, BGs and BSs requirements within the overall district would also be able to improve pedestrian level air ventilation.

Building Morphology – OZP-Amendment Scheme

2.2.18 Then for the OZP-Amendment Scheme, building height of different zones are increased further as exemplified in **Figures 2.21a** and **2.21b**. The street pattern and wind flow pattern still remain valid. However, even though the building height restriction is increased by 15-30m in the OZP-Amendment Scheme compared to the OZP-Compliant Scheme, the increase in wind blockage due to this change is in reality not as significant. The ratio between the height of the building and the width of the street (H/W ratio) increase beyond a threshold, pedestrian level wind blockage caused by the building height becomes less significant. Mitigation measures such as NBAs, BGs and BSs requirements within the overall district would be able to improve pedestrian level air ventilation.

2.2.19 Furthermore, taking into account the likely scenario that residential sites will generally be built up to the maximum DPR allowed under the OZP, the non-domestic plot ratio (NDPR) in the "R(A)" and "R(E)" zones would potentially decrease due to the proposed increase in maximum DPR while the total plot ratio remains unchanged. This would potentially result in less bulky podium of future developments and less site coverage overall which would improve low zone ventilation. Also, the increase in building height offers additional flexibility in the implementation of building design improvements. More design features beneficial to air ventilation (e.g., building voids and more building setback from podium level etc.) can be incorporated into future developments. The proposed change in PR allowed for developments in "C" zones will result in an increase in building height (with the proposed relaxation of maximum BHR) while the building bulk at the low level will remain unchanged. Hence, significant changes to the building bulk in the low zone area is not expected. However, for the rezoned "OU(MU)" sites, while the relaxation of building height could also be beneficial for implementation of air ventilation features, there is an increase in NDPR (considering the assumed NDPR and DPR split for "OU(MU)" sites) and potentially result in enlarged building bulk in low-level zones at these sites which would affect the streets adjoining these zones. Future developments at these sites should ensure that the wind environment of these developments would at least be no worse than the existing condition. Hence, as long as proper design measures are considered and included in future developments, the overall air ventilation of the OZP-Amendment Scheme is able to have similar performance compared to the OZP-Compliant Scheme.

3. EXPERT EVALUATION OF AIR VENTILATION PERFORMANCE OF THE PROPOSED DEVELOPMENT

3.1 OZP-Compliant Scheme

3.1.1 The OZP-Compliant Scheme refers to the developments in compliance with the zoning of the current OZP, S/K3/34 for MK Area and S/K2/23, and other design requirements such as BHR, NBA, BG and BS requirements thereon. However, while S/K20/30 is part of the Study Area, since there are no changes proposed for the land use zonings in this OZP, it will be discussed in conjunction with YMT Area.

<u>Building Height Restrictions – MK Area</u>

3.1.2 The existing BHRs of MK Area is presented in **Figure 1.2a.**

3.1.3 Development restrictions for all "R(A)", "R(E)", "OU(MU)", "C", "Comprehensive Development Area (1)" ("CDA(1)") and "G/IC" zones on the OZP have been reviewed and their BHR/building storey restriction are shown in **Figure 1.2a** where available. After consideration of the needs of the Mong Kok district, revised BHRs and zonings are only proposed for the "R(A)", "R(E)" and "C" zones in MK Area while other zones are recommended to stay unchanged. Particularly, "O" zones and "G/IC" zones provide areas of building height variation (low-rise and at-grade areas) within the dense urban fabric of MK Area which provides air ventilation and visual benefits within the district. These plots of "O" and "G/IC" zones should be kept as they are and the OZP amendments proposed in this report would not include any changes to the sites designated for these two land use zones.

3.1.4 In the OZP-Compliant Scheme, "R(A)" and "R(E)" zones within MK Area have a BHR of +100 mPD. "C" zones within the area have a two tier BHR of +110 mPD and +130 mPD along Nathan Road. The +130 mPD BHR requirement are set for the street blocks bounded by Argyle Street and Mong Kok Road as well as the developments north of Prince Edward Road West on both sides of Nathan Road.

<u>NBA, BG, BS Requirements – MK Area</u>

3.1.5 NBAs, BGs and BS requirements of MK Area as stated in the ES of S/K3/34 are indicated in **Figure 3.1**.

3.1.6 A NBA is imposed in the "R(E)" zone of Kok Cheung Street with the area aligning with Li Tak Street to take advantage of the open area provided in the form of access roads south of Harbour Green and the interchange of Ho Fai Road further west of Kok Cheung Street. This 13m wide NBA helps E-W wind to penetrate through the building cluster on both sides of Kok Cheung Street into Tai Kok Tsui Road and beyond.

3.1.7 BGs are required in several areas, including an existing BG above +20 mPD to be kept at Shining Heights of Sycamore Street and a 30m wide BG above +23 mPD to the east of Sai Yee Street aligned to Mong Kok Road, which while not within the Study Area, is important in introducing easterlies to the Study Area from Kadoorie Hill. Another strip of NE-SW aligned BG above +20 mPD is designated near the junction of Prince Edward Road West and Sai Yee Street and the junction of Shanghai Street and Bute Street which is aligned to Nullah Road and Flower Market Path. This NE-SW strip helps NE wind to penetrate through the building cluster to the inner part of the MK Area.

3.1.8 BSs above 15m are imposed on the developments along both sides of Portland Street, Sai Yeung Choi Street South and along a section of Maple Street to the southwest of Sycamore Playground.

3.1.9 These NBA, BG and BS requirements are assumed for the MK Area of the OZP-Compliant Scheme along with the various BHRs as shown in **Figure 1.2a**.

Major Ventilation Pathways – MK Area

3.1.10 MK Area has one of the densest urban fabrics in Hong Kong with many ageing buildings and narrow streets within. It mostly consists of residential buildings except for the commercial buildings on either side of Nathan Road. Open space is scattered within the MK Area with a large portion of it concentrated at the Boundary Street Recreation Ground and its vicinity at the northeastern portion of MK Area. Other plots of open space are scattered within the area (e.g., Anchor Street Playground, Sai Yee Street Garden and Mong Kok Road Playground) to provide some wind relief to pedestrians from the congested urban environment.

3.1.11 From an air ventilation standpoint, breezeways and air paths providing wind flow for pedestrians can pass through at-grade open areas as well as low-rise buildings. Within the OZP, this is reflected in zones designated as "Open Space" ("O") and "Government, Institution or Community" ("G/IC"). Prevailing annual wind directions are mainly from NE, ENE, E and W while summer prevailing winds are from E, S, SW, WSW and W. Sea breeze coming from the west is also considered for the air ventilation of the MK Area. The building profile of the MK Area mostly have E-W and N-S aligned street blocks except for the NW-SE diagonal street blocks near Tai Nan Street and Larch Street. The major air ventilation pathways identified in the MK Area are shown in **Figure 3.2.**

MK Area – W and WSW wind

3.1.12 As shown in **Figure 3.3**, incoming W and WSW wind from the sea has the entry area of Cherry Street and Tung Chau Street Park. These two areas provide a large amount of open space for the incoming sea breeze to infiltrate into the MK Area. At Cherry Street, incoming wind from the W and WSW is able to penetrate into the middle of the MK Area using the E-W aligned streets of the area. WSW wind would have to have slight deflection off the buildings north of Cherry Street in order to access the E-W aligned streets. Major ventilation pathways for W and WSW wind are at Boundary Street and Argyle Street/Cherry Street which traverse through the entire MK Area and there are open areas upstream of the MK Area (the entry areas) ready to receive the incoming sea breeze. For the AVA measures set in the Mong Kok OZP, the NBA near the intersection of Kok Cheung Street and Li Tak Street creates a E-W wind path that extends to Tai Kok Tsui Road and helps W wind to penetrate to the inner MK Area. The BG above +20 mPD at Shining Heights of Sycamore Street is able to provide podium level W and WSW wind flow from Tung Chau Street Park which enhances wind penetration of these directions into MK Area. For other streets, however, some of the wind would be obstructed by the street blocks to the east of Tai Kok Tsui Road which are not aligned at a E-W direction. Once passed the diagonal street blocks, the remaining wind is able to flow through the MK Area using streets such as Prince Edward Road West and Mong Kok Road.

MK Area – E and ENE wind

3.1.13 Under E and ENE wind, the prevailing wind have several paths they can take to penetrate into the inner areas of Mong Kok (**Figure 3.4**). For ENE and E wind, majority of the same paths for W wind are applicable here. ENE and E wind can flow through the whole MK Area using Boundary Street and Argyle Street taking advantage of these major roads that extend through the district. Other roads that can act as air corridors for these two wind directions include Bute Street, Mong Kok Road, Soy Street, Dundas Street and Pitt Street. Bute Street and Mong Kok Road can make use of the downwind coming from Kadoorie Hill. Mong Kok Road is further aided by the BG above +20mPD requirement near the intersection of Sai Yee Street and Mong Kok Road which facilitates downwind flow from Kadoorie Hill. Yet, further penetration of wind along these roads would be blocked by the diagonal street blocks to the east of Tai Kok Tsui Road. Then at Dundas Street, this street can receive some of the incoming wind from Waterloo Road and the wind from the northern portion of King's Park which has a relatively large amount of open space compared to its surroundings. However, because of the amount of mid-to high-rise developments upstream of Nelson and Shantung Street, even though these two streets themselves are aligned to E wind, less wind flow is expected to be carried over to the inner area of Mong Kok. Also, the orientation of these street blocks at the western portion of the area (i.e. west of Tong Mi Road) is not aligned with the streets mentioned, resulting in a disconnection of air pathway within the area which may hinder air movement.

MK Area – NE and SW wind

3.1.14 For NE and SW wind, notable entry points of incoming wind to the MK Area can be found at the Boundary Street Recreation Ground (NE) and Cherry Street (SW) as shown in **Figure 3.5**. These places offer an extension upstream of the MK Area with relatively less blockage. The Boundary Street Recreation Ground is effective as an entry area for NE wind because it is coupled with the Tai Hang Tung Recreation Ground and offers ample open space for free wind flow. The connectivity of at-grade land within the district creates a path from the Boundary Street Recreation Ground to Nullah Road and Nathan Road for NE wind. The BG requirement above +20 mPD near the junction of Shanghai Street and Bute Street aids the continuous air flow between Nullah Road, Cheung Mong Road and Cherry Street along the NE-SW direction through the MK Area. NE wind is also able to flow into MK Area at the outer boundaries like Maple Street due to the NE-SW alignment of streets in Shum Shui Po north of the MK Area. The BS above +20 mPD requirement at Maple Street southwest of Sycamore Playground would also help allowing for more SW/NE wind to flow to and from the street. This would increase the wind movement near the diagonal street blocks at MK Area near Tai Nam Street. Meanwhile, upstream of Cherry Street under SW wind is the sea and podiums of Central Park at Hoi Ting Road with a large interchange at-grade to facilitate incoming SW wind.

MK Area – S wind

3.1.15 S wind also accounts for a portion of the incoming wind at the MK Area. As shown in **Figure 3.6**, under S wind condition, the incoming wind is limited to flow along the N-S aligned streets from the YMT Area. Fortunately, many of the streets in the MK Area are generally aligned to S wind and are somewhat connected to the YMT Area. Major roads such as Nathan Road, Ferry Street/Tong Mi Road and Tai Kok Tsui Road are all comparatively wider carriageways and are able to act as major air corridors to transfer more wind to the downstream areas while other streets can act as smaller air paths. The 3m BS requirement along Portland Street and Sai Yuen Choi Street South would improve permeability of the already narrow streets and enhance S wind penetration through the MK Area.

<u>Building Height Restrictions – YMT Area</u>

3.1.16 Existing BHRs of YMT Area is presented in **Figure 1.2b.**

3.1.17 Likewise with MK Area, the development restrictions of different zones within the Yau Ma Tei OZP have been reviewed and the BHR/building storey restriction are shown in the figure where available. Only "R(A)" and "C" zones would be amended in this round of OZP amendments and other zones remain unchanged.

3.1.18 In the OZP-Compliant Scheme, "R(A)" zones within YMT Area have a BHR of +100 mPD. All "C" zones within the area have a BHR of +110 mPD and along Nathan Road.

<u>NBA, BG, BS Requirements – YMT Area</u>

3.1.19 NBAs and BS requirements of YMT Area as stated in the ES of S/K3/34 are shown in **Figure 3.7**.

3.1.20 A NBA is imposed upon the public open area of Portland Street Sitting-Out Area south of the residential development of Waterloo 8 as well as Yunnan Lane next to the public area. No structures above ground level are allowed in this area.

3.1.21 BS requirements in the OZP notes of YMT Area include a 6m BS at the "C" development site northwest of the intersection between Gascoigne Road and Nathan Road. This BS is to be implemented from the lot boundary and 15m high from the mean street level. Other 3m BS above 15m from the street level are required along Arthur Street, Portland Street and the portion of Woosung Street north of Saigon Street and Parkes Street.

3.1.22 No BG requirements are set in the current Yau Ma Tei OZP.

3.1.23 The NBA and BS requirements are assumed for the YMT Area of the OZP-Compliant Scheme along with the various BHRs as shown in **Figure 1.2b**.

<u>Major Ventilation Pathways – YMT Area</u>

3.1.24 YMT Area, like MK Area, is also very dense and compact with old buildings and narrow corridors in between the street blocks. The YMT Area predominantly consists of residential buildings with commercial use on the lower floors except for the commercial buildings on either side of Nathan Road. In terms of open space, there are large plots of open space near the sea in the area to the north of The Coronation and Man Cheong Street Park as well as Saigon Street Park. Other open spaces such as Yau Ma Tei Community Centre Square Garden and Shanghai Street Rest Garden would provide spatial relief within the built environment and promote wind movement in the inner area of YMT.

3.1.25 **Figure 3.8** indicates the major air ventilation pathways within YMT Area as well as the designated "O" and "G/IC" zones. The "O" and "G/IC" zones are concentrated along the area bounded by Public Square Street and Kansu Street which provides a low-rise area which separates the cluster of residential buildings to the north and south of these zones. One other large low-rise area is located to the north of Prosperous Garden.

3.1.26 **Figure 3.9** illustrates the division of Northern and Southern Sub-Area in the YMT Area for further discussion.

YMT Area – W, WSW and SW wind

3.1.27 In W, WSW and SW wind condition, the wind is able to flow into YMT Area from the sea using several pathways. At the Northern Sub-Area, the main entry area would be at Waterloo Road and Yan Cheung Road as shown in **Figure 3.10**. Incoming sea breeze can access the Northern Sub-Area through these two corridors with relative ease because upstream of these wind paths are largely open space/low-rise building of West Kowloon Station. WSW and SW wind is able to make use of the open space north of the Coronation and Yan Cheung Road to infiltrate into YMT Area using Waterloo Road. On the other hand, WSW and SW wind would be able to flow to Public Square Street from Yan Cheung Road since the low-rise and open space south of Public Square Street would pose less blockage to the incoming wind and more SW and WSW wind would be able to settle along Public Square Street compared to other streets of similar width. For W wind in the northern sub-area, in addition to the two corridors mentioned for WSW and SW wind, W wind could also use other E-W aligned streets such as Pitt Street, Public Square Street and Kansu Street to reach downstream areas.

3.1.28 For the Southern Sub-Area, Yan Cheung Road and Jordan Road would be the main entrances for W, WSW and SW wind, as shown in **Figure 3.11**. The Man Cheong Street Park acts as open space for wind flowing along Yan Cheung Road while King George V Memorial Park does the same for wind along Jordan Street. These are two important access areas to help wind penetration into the Southern Sub-Area. However, wind flow through the centre of the Southern Sub-Area is reduced due to the narrower E-W aligned streets (Man Wai Street, Man Yuen Street and Man Ying Street) and blockage present in building clusters on either side of Wai Ching Street and the ability of the area to receive incoming wind from the west is affected.

YMT Area – NE, ENE, E and SE wind

3.1.29 Major entry corridors for these wind directions would be from Waterloo Road and Gascoigne Road with some easterly and north-easterly downwind flow from King's Park. Northeasterlies and easterlies could enter the Northern Sub-Area through Waterloo Road with larger road width and through downwind air flow from King's Park at Public Square Street as the area around it are mostly low rise G/IC and open spaces which are more favourable to receive downwind from King's Park (see **Figure 3.12**). Then the many E-W aligned streets are able to receive the leftover NE, ENE and E wind blocked by the building clusters. SE wind is able to access the Northern Sub-Area using the NW-SE aligned portion of Gascoigne Road to reach the intersection between the Gascoigne Road and Nathan Road. SE wind there could then potentially deflect off the surrounding buildings and flow into Kansu Street or Nathan Road.

3.1.30 For the Southern Sub-Area, main access paths into the Southern Sub-Area are shown in **Figure 3.13**. The paths would be through Gascoigne Road, Jordan Road and Kansu Street. Kansu Street can receive the incoming wind from the slopes of King's Park though it would be blocked somewhat by the structures situated at the downhill near Nathan Road. On the other hand, SE and E wind is able to flow from the portion of Gascoigne Road east of the Southern Sub-Area to the intersection of Gascoigne Road and Jordan Road. At this intersection, the buildings to the west of the intersection define the two air paths where it is split to flow further downstream (Jordan Road for E wind and Gascoigne Road for SE wind). At the portion of Jordan Road west of Nathan Road, it is aligned slightly to SE wind and it is possible that it could receive SE wind from upstream Tsim Sha Tsui. Potentially, SE and E wind could also skim over Diocesan Girls' School into the various E-W street next to it to access Nathan Road, yet the wind flow through these roads is reduced due to their narrow width. Other roads such as Pitt Street, Public Square Street and other smaller streets are also aligned to E wind but have less wind flow because of the blockage upstream and the narrow width of the streets themselves (<15m for most streets).

YMT Area – S wind

3.1.31 As illustrated in **Figures 3.14** and **3.15**, there are several N-S aligned streets available and connect to the road network upstream. Nathan Road and Ferry Street would be the main carriageways for S wind flow. With their wide carriageways, these roads spanning across Tsim Sha Tsui, Yau Ma Tei and Mong Kok enable penetration of the incoming S wind and provide wind flow to the entire area. Other roads in the southern portion of YMT Area like Shanghai Street are also able to connect with the road network upstream and S wind would be able to flow along these roads to access the centre of the YMT Area.

3.1.32 The Yau Ma Tei OZP has imposed a 3m SB requirements for developments along either side of Portland Street, Arthur Street, Parkes Street and a section of Woosung Street which provide more room for S wind flow down these streets. The NBA of Portland Street Sitting Out Area and Yunnan Lane also enlarges the open space of the central area of the Northern Sub-Area and connects Temple Street with Portland Street, further increasing the wind flow penetration through to Waterloo Road and beyond.

<u>Summary of Site Wind Availability in the Study Area</u>

3.1.33 Owing to the surrounding built environment of the Study Area, especially in the inner parts of the Study Area, blockage of wind by the development cluster within the Study Area is expected and most of the wind would flow along the carriageways at pedestrian level. The extensive road network within the Study Area provides air corridors for wind of different directions to pass through the area. Various NBAs, BG and BS set in Mong

Kok OZP and Yau Ma Tei OZP also enhance the annual and summer prevailing wind penetration through the districts.

3.2 OZP-Amendment Scheme

3.2.1 In the OZP-Amendment Scheme, the changes proposed can be summarised as changes in BHRs/PR & land use for different land use zonings ("R(A)", "R(E)" and "C" zones). In the following section, the air ventilation impact due to the proposed changes as well as the potential for implementation of building design features favourable to air ventilation set in the Sustainable Building Design Guidelines (SBDG) are discussed.

Proposed OZP Changes in the Study Area

3.2.2 To recap, "R(A)" and "R(E)" zones are proposed to have their domestic PR (DPR) increase from a maximum of 7.5 in the existing Mong Kok OZP and Yau Ma Tei OZP to a maximum of 8.5 while the total PR remains unchanged at 9, and BHR is to increase from +100 mPD to +115 mPD.

3.2.3 Maximum PR of 12 at "C" zones is proposed to be removed (ie. to follow the PR restriction in Building (Planning) Regulations with maximum PR of 15 for non-domestic buildings) and BHR of "C" zones are proposed to be relaxed from the currently allowed BHR of +110 mPD/+130 mPD to +140 mPD/+160 mPD.

3.2.4 "R(A)" zones bounded by Nullah Road, Fa Yuen Street, Dundas Street and Sai Yeung Choi Street South and the two street blocks south of Boundary Street Recreation Ground are proposed to have the land use zoning to be changed to "OU(MU)" and the BHR to be increased from +100 mPD to +115 mPD.

3.2.5 **Figure 1.3a** and **Figure 1.3b** indicates the various street blocks within the Study Area that are subject to the changes mentioned above and show the new BHRs increases proposed which is to be compared with the OZP-Compliant Scheme.

3.2.6 The OZP-Amendment Scheme is to keep all NBAs, BGs and BS requirements as stated in **Section 3.1** for the Study Area.

Review of Air Ventilation Impact of OZP-Amendment Scheme

3.2.7 As the OZP Amendment Scheme for the Study Area will not alter the street pattern in the area and the NBA, BG and BS requirements in the OZP Compliant Scheme remain unchanged, the major breezeways and air paths described in **Section 3.1** remains valid for the OZP-Amendment Scheme. This section will focus on the discussion on the air ventilation impact due to the proposed OZP changes described in **Sections 3.2.2** to **3.2.4**.

Increase in Maximum Domestic PR with Capped Total Plot Ratio and Relaxation in BHR from +100 mPD to +115 mPD at "R(A)" and "R(E)" Zones

3.2.8 With a BHR increased by 15m in the OZP-Amendment Scheme compared to the OZP-Compliant Scheme, more blockage of higher-level winds from the increase in building height is expected. Yet, the increase in wind blockage due to this change is not significant at the street level. As the ratio between the height of the building and the width of the street (H/W ratio) is far greater than the preferred ratio of 2:1 for pedestrian wind flow and the building height has already exceeded the threshold whereby further increase would not affect the wind flow at pedestrian level, increasing most of the buildings within the MK Area and YMT Area from +100 mPD in the OZP-Compliant Scheme to +115 mPD in the OZP-Amendment Scheme would have less of an impact on the pedestrian wind flow. On the other hand, relaxing the BHR while maintaining the total plot ratio would offer flexibility in the building design to incorporate permeable design features beneficial to air ventilation near ground level and hence could improve the wind flow at pedestrian level as compared to the OZP-Compliant Scheme.

3.2.9 Moreover, since "R(A)" and "R(E)" zones are proposed to increase in maximum DPR while keeping the same total PR, NDPR of these two zones would potentially be reduced resulting in reduced podium bulk and site coverage of future developments. Low level wind flow can be improved and more setback from streets in MK and YMT Areas can be expected. This would increase overall ground level permeability of the MK and YMT Areas and improve the effectiveness of the narrow streets as wind paths. Such improvement in pedestrian wind environment is likely to benefit wind flow in the area at the western part of the Mong Kok OZP and Yau Ma Tei OZP where most street blocks located to the west of Portland Street and Shanghai Street are "R(A)" or "R(E)" zones as shown in **Figures 1.3a** and **1.3b**. This improvement in pedestrian wind environment would overall benefit most of the MK and YMT Area as the majority of land use zones in these two districts are "R(A)" and R(E)" zones.

Change in Maximum PR and BHR of "C" Zones

3.2.10 The change in maximum PR and BHR of "C" zones along Nathan Road could have repercussions on the pedestrian wind environment of the Study Area if future developments are not designed properly following relevant guidelines and measures which is stated in the following recommendations. As Nathan Road is a major transportation carriageway for YMT and MK District, it is wider than most roads in the Study Area and buildings in "C" zones are also allowed to have taller developments. "C" zones are proposed to change the maximum PR and BHR allowed for future developments. Despite the increase in BHR proposed in this OZP-Amendment Scheme, pedestrian level wind blockage caused by the building height increase becomes less significant as the building height has already exceeded the threshold whereby further increase would not affect the wind flow at pedestrian level.

3.2.11 On the other hand, the proposed change in PR allowed for developments in "C" zones is likely to be accommodated by an increase in building height. As the podium bulk is governed by the Building Planning Regulation and the SBDG, the podium bulk for OZP-Compliant Scheme and OZP-Amendment Scheme will remain similar. Hence, the proposed change in PR at "C" zone is unlikely to have notably impact to wind flow at pedestrian level. From design point of view, the BHRs of +160 mPD for some "C" zones in the two inner parts of Mong Kok would allow greater flexibility to encourage permeable design.

3.2.12 As the proposed range of BHR relaxation in "C" zone is larger than that in the "R(A)" and "R(E)" zones, the stepped building height profile of the OZP-Amendment Scheme and current OZP building setback requirements could alleviate the potential air ventilation impact. Since there is a more prominent stepped building height profile between the "C" buildings and the "R(A)" buildings in the Study Area under the OZP-Amendment Scheme compared to the OZP-Compliant Scheme, "C" buildings could capture more high-level easterly and westerly wind and redirect it downwards as downwash wind. However, because the buildings are tall, the downwash effect is not as effective and this redirected wind would mostly benefit the mid-level zone of the Study Area.

3.2.13 To improve the downwash effect, the current building setback requirements imposed along Portland Street and Sai Yeung Choi Street South in the Mong Kok OZP will be retained. In the Mong Kok OZP, there are building setback requirements of 3m from the lot boundary at 15m measured from the mean street level of Portland Street and Sai Yeung Choi Street South which facilitates downwash wind in the street canyons of these streets.

3.2.14 Similarly, the current building setback requirements in Yau Ma Tei OZP will be retained. The same setback requirements are imposed in the Yau Ma Tei OZP at the buildings on either side of Arthur Street, Woosung Street and Parkes Street next to the "C" zones. These setbacks provide the necessary width to increase the H/W ratio at podium level and further facilitate the downwash wind from the height difference of the "C" zone buildings and the nearby "R(A)" buildings.

3.2.15 Overall, the pedestrian wind environment around the "C" sites after the proposed amendments is likely to be comparable to that of the Baseline Scheme. Nevertheless, to further improve air ventilation in the districts, it is recommended to amend the Explanatory Statement of the Mong Kok OZP and Yau Ma Tei OZP to incorporate permeable design requirement for development in "C" zones to guide future developments.

Rezoning of Some "R(A)" Zones to "OU(MU)" Zones with BHR Increase

3.2.16 Similar to the proposed BHR increase in "R(A)" and "R(E)" zones, the impact of the proposed BHR change in the rezoned "OU(MU)" zones is minor as building height increase beyond the aforementioned threshold would not affect the pedestrian wind flow significantly. Building height increase of this magnitude would have minor impact on the pedestrian level wind flow and would instead provide more room for incorporation of air ventilation mitigation features within the future developments of the "OU(MU)" zones.

3.2.17 While the total PR and DPR of the proposed "OU(MU)" zones are the same as the original "R(A)" zones, a higher NDPR is allowed for these zones to increase building use flexibility of future developments at these sites. Hence, there is a potential increase of NDPR due to the proposed changes and future developments in the "OU(MU)" zone may have increased podium bulk affecting nearby streets. Even though the podium bulk of future developments in the "OU(MU)" zones would be controlled by the requirements in SBDG, impact of a possible increase of site coverage on pedestrian wind flow still needs to be assessed. In the MK Area, this proposed change would potentially affect the N-S streets such as Tung Choi Street, Fa Yuen Street, Sai Yeung Choi Street South. The same E-W aligned streets in the discussion for MK Area for "C" zones would be affected by the proposed "OU(MU)" areas except for Playing Field Road. At the N-S aligned streets in MK Area, the building setback requirements of Sai Yeung Choi Street South would help incoming easterly wind to flush out some of the street canyon using downwash wind captured from the height difference of "C" zone and the "OU(MU)" buildings. Even so, more permeable design features at low zone should be incorporated to complement the setback requirement, as well as to alleviate the potential adverse impact as a result of increase in building bulk in "OU(MU)" zones, especially those nearby "C" zone buildings. This requirement is also important to Tung Choi Street sandwiched between the "OU(MU)" street blocks. It is recommended to amend the Explanatory Statement of the Mong Kok OZP to incorporate permeable design requirement for development in "OU(MU)" zones to guide future developments and alleviate their negative impact to the surrounding wind environment.

3.2.18 The same concept of potential increase in podium bulk also applies to the YMT Area but the streets affected are different. E-W aligned Pak Hoi Street, Saigon Street, Ning Po Street, Nanking Street and Jordan Road and N-S aligned Temple Street, Woosung Street and Parkes Street would have potential wind flow decrease due to the possible increase in podium bulk at the "OU(MU)" zones. However, the building setback requirements of Woosung Street and Parkes Street in YMT Southern Sub-Area would help incoming westerly wind to flush out some of the street canyon using downwash wind captured from the height difference of "C" zone and the "OU(MU)" buildings. Even so, it is recommended to amend the Explanatory Statement of the Yau Ma Tei OZP to incorporate permeable design requirement for development at "OU(MU)" zones to guide future developments and alleviate their negative impact to the surrounding wind environment.

3.2.19 Overall, proposed changes in "OU(MU)" zones are not likely to cause significant adverse impacts if permeable design features are incorporated in the development.

3.3 Summary of Relative Air Ventilation Performance

3.3.1 The air ventilation performance of the OZP-Compliant Scheme and the OZP-Amendment Scheme has been appraised. Wind flow at the Study Area was discussed and the OZP-Amendment Scheme is not predicted to affect existing wind corridors and wind flow would be largely maintained at the Study Area.

3.3.2 In MK Area, entry areas of prevailing winds include Boundary Street Recreation Ground, Tung Chau Street Park as well as the roundabout at Cherry Street. Potential air ventilation improvement is expected at the western portion of the MK Area where the proposed changes in "R(A)" and "R(E)" zones could bring about potential reduction in podium bulk which enhances pedestrian wind flow. Potential concerned areas would be at the streets near the "OU(MU)" zones, especially for the narrow street canyons with "OU(MU)" zones on one side and "C" zones on the other (e.g., Sai Yeung Choi Street South). While there are possible downwash winds from the height difference of "C" buildings and "OU(MU)" buildings as well as building setback requirements set in the OZP for these streets, it is more likely to benefit mid-level wind flow than the pedestrian wind flow due to the sheer height of the developments relative to the street width. Hence, it is recommended that low-level permeability designs are set as a requirement for development in "C" and "OU(MU)" zones in the ES of the Mong Kok OZP to alleviate the potential negative impact to the surrounding wind environment.

3.3.3 For YMT Area, the area north and south of The Coronation at Lai Cheong Road and Yan Cheung Road acts as the major wind entry areas for incoming wind into the YMT Area. The air ventilation performance of YMT Area shares similarities with MK Area. The proposed changes to "R(A)" zones bringing about potential air ventilation improvement are at the western part of YMT Area and wind performance at the western part of YMT Area may be enhanced. On the other hand, there may be localized impact to the pedestrian wind flow along carriageways near "OU(MU)" zones with developments having a potential increase in podium bulk. Special attention should be paid to the nearby N-S aligned street canyons. While there is downwash wind available due to the height difference of "OU(MU)" and "C" buildings as well as building setback requirements along the street next to the "C" zones (e.g., Arthur Street), more stringent building design requirements beneficial to pedestrian wind flow is needed to alleviate the potential impact as a result of larger podium bulk. This would mean incorporating more permeable designs at low level should be included as a requirement for developments in "OU(MU)" and "C" zones within the Yau Ma Tei OZP.

3.3.4 Overall, amendments to the maximum building height in the "R(A)", "R(E)" and "C" zones and the newly proposed "OU(MU)" zones would not significantly alter the wind flow at pedestrian level currently in the OZP-Compliant Scheme. The BHR increase in "R(A)", "R(E)" and "OU(MU)" zones can instead provide opportunities for the implementation of design features that improves the permeability of future developments. Furthermore, the more prominent stepped building height profile between the "C" buildings and the "R(A)" buildings in the Study Area under the OZP-Amendment Scheme could enhance the capturing of high-level wind and redirect it downwards as downwash wind to benefit the mid-level zone.

3.3.5 For "C" and "OU(MU)" zones, it is recommended to amend the Explanatory Statement to impose permeable design requirements on developments within that zone. Overall, with mitigation measures incorporated, the OZP-Amendment Scheme is not expected to cause significant adverse air ventilation impact in the Study Area.

3.4 Recommendation of Design Features for Developments

3.4.1 Under the OZP-Amendment Scheme, good design features beneficial to air ventilation should be incorporated as far as possible into the design of any development while taking into account various site constraints (available space, other environmental requirements such as air and noise quality). Illustration of some good design features is provided in **Figure 3.16**. Mitigation measures (including measures recommended in SBDG and Chapter 11 Urban Design Guidelines of the HKPSG) summarized below should be considered during the design stages of developments proposed at the Study Area in future.

- Avoid congestion of tall buildings forming a "wind wall" perpendicular to prevailing wind directions to prevent large area directly downstream of the wall from being blocked to the incoming wind. Orientation of buildings should align with prevailing wind directions whenever possible (e.g., E direction)
- In the same vein, providing building separation as recommended in SBDG breaks up the continuous façade and allow wind flow to funnel to the separations and reach downstream areas.
- Provide building setbacks or increase existing setbacks from pedestrian streets as recommended in SBDG to increase the amount of wind flowing at ground level and improve at-grade air ventilation.
- Include local open space for more free wind flow and increase permeability of the development as well as improve the connectivity of open areas within the districts.
- Reduce podium coverage to allow for more pedestrian-level wind flow to downstream areas, in particular in the "C" and "OU(MU)" zones.

3.4.2 Of the mitigation measures mentioned above, reducing the site coverage through building separation, building setback and reduced podium coverage as well as creating a stepped building height profile are the most effective ways in improving air ventilation within a high-density area. Implementation of low level permeability designs should be encouraged and are recommended to be included as requirements in the ES of the respective OZP, in particular for "C" and "OU(MU)" zones. These are feasible and practical measures and would offer good returns on improvements in air ventilation performance of the development. Orientation of buildings to prevailing wind directions should be done when possible with an emphasis on E direction as it is the most dominant wind at the Study Area.

<u>Air corridors</u>

3.4.3 The existing air corridors (formed through the linkage of open spaces and carriageways) throughout the two districts should be kept as they are or enhanced in any future developments to preserve the pedestrian-level wind flow in the Study Area. Future developments should adhere to the guidelines above and in the long term, with more developments in the district following the mitigation measures mentioned, air ventilation of the two districts would improve and would result in a raise in quality of life of its users.

3.5 Planned Development Proposed from YM Study

3.5.1 While this submission is on the air ventilation impact of the proposed OZP amendments, opportunity is taken to include an appraisal of other assumed planned developments which are likely to be completed by 2047 as agreed with concerned departments. The same methodology has been adopted for other technical assessments, including traffic impact assessment, infrastructural and other environmental assessments. The findings of the preliminary appraisal on air ventilation performance are attached in **Appendix 1** for reference.

3.5.2 Based on the study outcome of the YM Study and as agreed with concerned department at the interdepartmental meeting on 17 Nov 2021, the following planned developments are assumed to be completed by 2047 in addition to the OZP Amendment Scheme:

- Nullah Road Urban Waterway

  - GIC facilities are proposed to be built at Boundary Street Recreation Ground with a building height similar to the adjoining "R(A)" zone
  - Area of this planned development on either side of Nathan Road is proposed to build commercial developments with a maximum building height restriction of +230 mPD and +280 mPD
  - Area to the east of Sai Yeung Choi Street South is proposed for mixed uses with a maximum building height restriction of +150 mPD
- Mong Kok Market Revitalization
  - Area north of Argyle Street is reserved for mixed-use buildings with a building height restriction of +200 mPD and +220 mPD
  - Area south of Argyle Street is reserved for residential buildings with a building height restriction of +280 mPD
- Hamilton Street
  - The Site is proposed for residential development with a maximum building height of +160 mPD
- Saigon Street
  - The Site is proposed for residential development with a maximum building height of +160 mPD
- Tai Nan Street Street Consolidation Area (SCA)
  - Residential development proposed with a maximum building height of +150 mPD
- Arran Street Street Consolidation Area (SCA)
  - Residential development with a maximum building height of +135 mPD

3.5.3 The locations of the above planned developments are shown in **Figure 3.17**.

3.5.4 The planned developments provide opportunities to incorporate landuse arrangement layout as well as focus areas for design features favourable to the air ventilation, e.g., further building setback from streets and introduction of additional open areas compared to the existing development within the same area. This will be done with careful review of the surrounding wind environment and streets so as to improve the air ventilation performance of the general area. As a reference, the proposed open space framework within the Study Area recommended in the YM Study is shown in **Figure 3.18**.

3.5.5 In the MK Area, additional open space is planned at the Boundary Street Recreation Ground and integrated public open space provision will be reserved in the Nullah Road Urban Waterway Development and the Mong Kok Market Revitalisation Development as shown in **Figure 3.18**. A direct path for pedestrian wind flow is created at the urban waterway from the Boundary Street Recreation Ground to Nullah Road. Such an arrangement would enhance NE, ENE and SW wind penetration to the inner area of Mong Kok. There is also a strip of planned open space forming a green link along Bute Street provided by the Nullah Road Urban Waterway development and would significantly improve the prevailing E wind flow. Furthermore, a green link at Reclamation Street connecting the Arran Street SCA to the proposed Central Urban Park would offer increased southern wind penetration within the dense MK Area.

3.5.6 In the YMT Area, generous provisions of open space are proposed as shown in **Figure 3.18**. The proposal of a green link along Saigon Street in the planned Saigon Street Development with additional open space provision along the street would widen the width of open area along Saigon Street and create better at-grade linkage to the Saigon Street Playground and Man Cheong Street Playground, thus enhancing wind flow along the E-W direction.

3.5.7 The planned development takes the opportunity to introduce more open space and building setback as a result as compared to both OZP-Compliant and OZP-Amendment schemes. Hence, there would likely be an overall improvement in the pedestrian wind environment through the provision of more building setback and open space at pedestrian level. Overall, the planned development is not expected to cause adverse air ventilation impact to the Study Area.

3.5.8 A more detailed discussion on the preliminary appraisal of air ventilation impact of the various assumed planned developments under the MRCP can be found in **Appendix 1**.

4. CONCLUSION

4.1.1 An expert evaluation of the wind performance of the proposed OZP amendments and assumed planned developments in the Mong Kok and Yau Ma Tei Districts has been conducted.

4.1.2 According to the findings of this AVA-EE, annual prevailing wind for MK Area and YMT Area comes from E, ENE, NE and W direction while prevailing summer wind directions for MK Area and YMT Area are E, S, SW, WSW and W with some SE wind for YMT Area. Taking into consideration of the existing topography, the location of the existing built areas and the wind corridors maintained within the districts, it is considered that the OZP-Amendment Scheme would not affect the existing pedestrian wind flow across the district. The relaxation of BHR to "R(A)", "R(E)" and "C" zones and the newly proposed "OU(MU)" zones under the OZP-Amendment Scheme would not affect the current wind flow at pedestrian level. On the other hand, such change would offer design flexibility and create more opportunities to incorporate low level permeable design that would improve air flow at the pedestrian level of the Study Area. The change in the ratio of DPR and NDPR of "R(A)" and R(E)" buildings also offer potential reduction in podium coverage. As the majority of buildings within the Study Area would be under these two zonings (i.e. accounting for the largest area of land use within the area), this change would likely reduce the building bulk at pedestrian and low zone level within most parts of the two districts and improve overall pedestrian wind flow. The rezoning of "R(A)" zones to "OU(MU)" zones with increase in NDPR may result in an increase in podium bulk which would require the incorporation of permeable design measures to minimise the potential air ventilation impact to the nearby streets. On the other hand, the proposed change in PR allowed for developments in "C" zones will result in an increase in building height with no change to the building bulk at the low level. The pedestrian wind environment around the "C" sites after the proposed amendments is likely to be comparable to that of the Baseline Scheme. From design point of view, the BHRs of +160 mPD for some "C" zones in the two inner parts of Mong Kok would allow greater flexibility to encourage permeable design.

4.1.3 Mitigation measures such as provision of building setback and building gaps, minimisation of podium bulk, provision of local open area etc should be considered in the design of the development within the Study Area to improve air ventilation. It is recommended to amend the Explanatory Statement of the Mong Kok OZP and Yau Ma Tei OZP to incorporate the permeable design requirement to the "C" and "OU(MU)" zones to guide future developments.

4.1.4 With these design measures incorporated into future developments, the OZP-Amendment Scheme would overall have no significant adverse impact to the air ventilation of the Study Area compared to the OZP-Compliant Scheme.

Figures

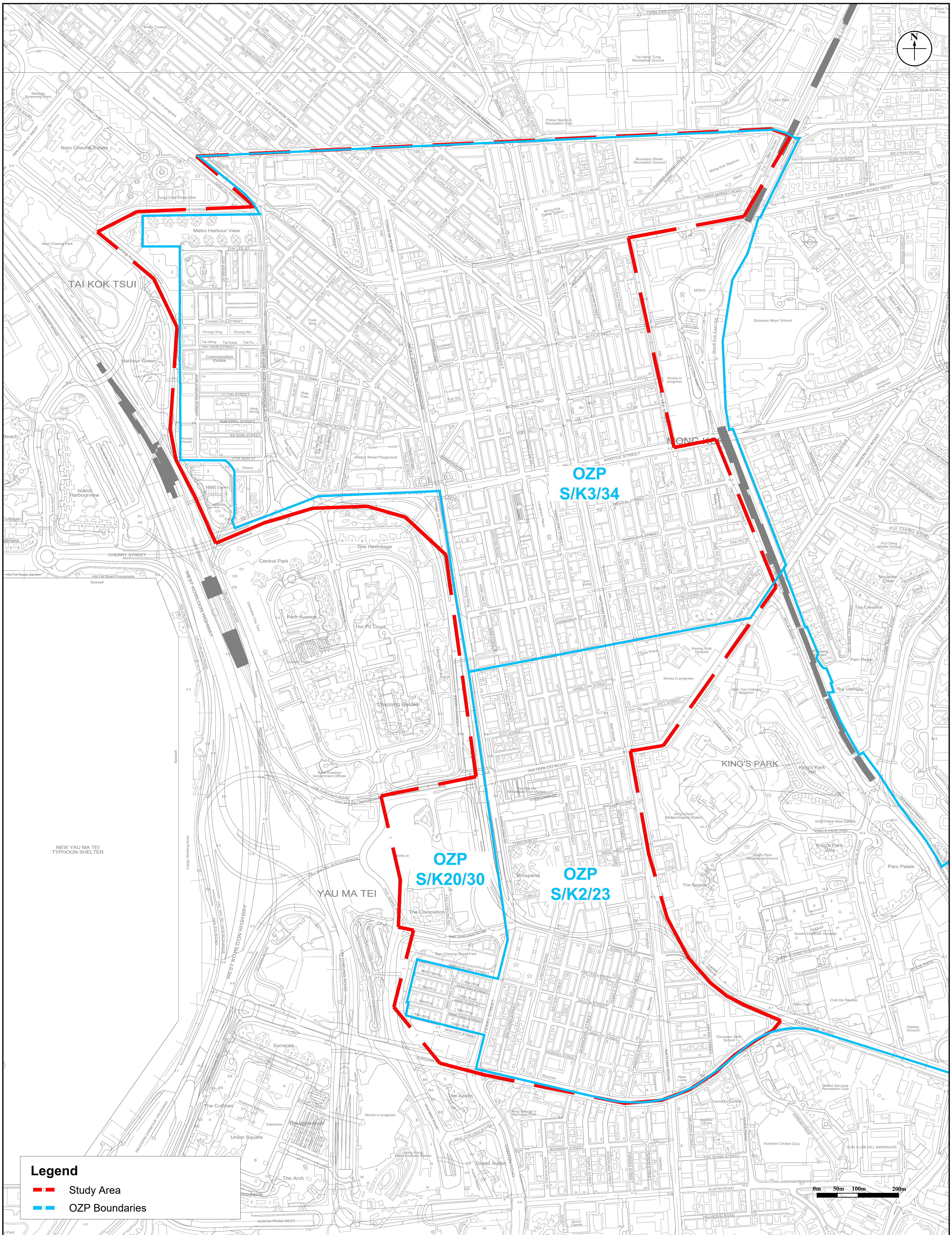


Figure: 1.1

Title: Location of Study Area and its Environ

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	RS
Checked by:	KY
Rev.:	2.0
Date:	May 2022

Q:\PROJECTS\JRAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\OZP ZONING\FIG 1.1_ENVIRON.DWG

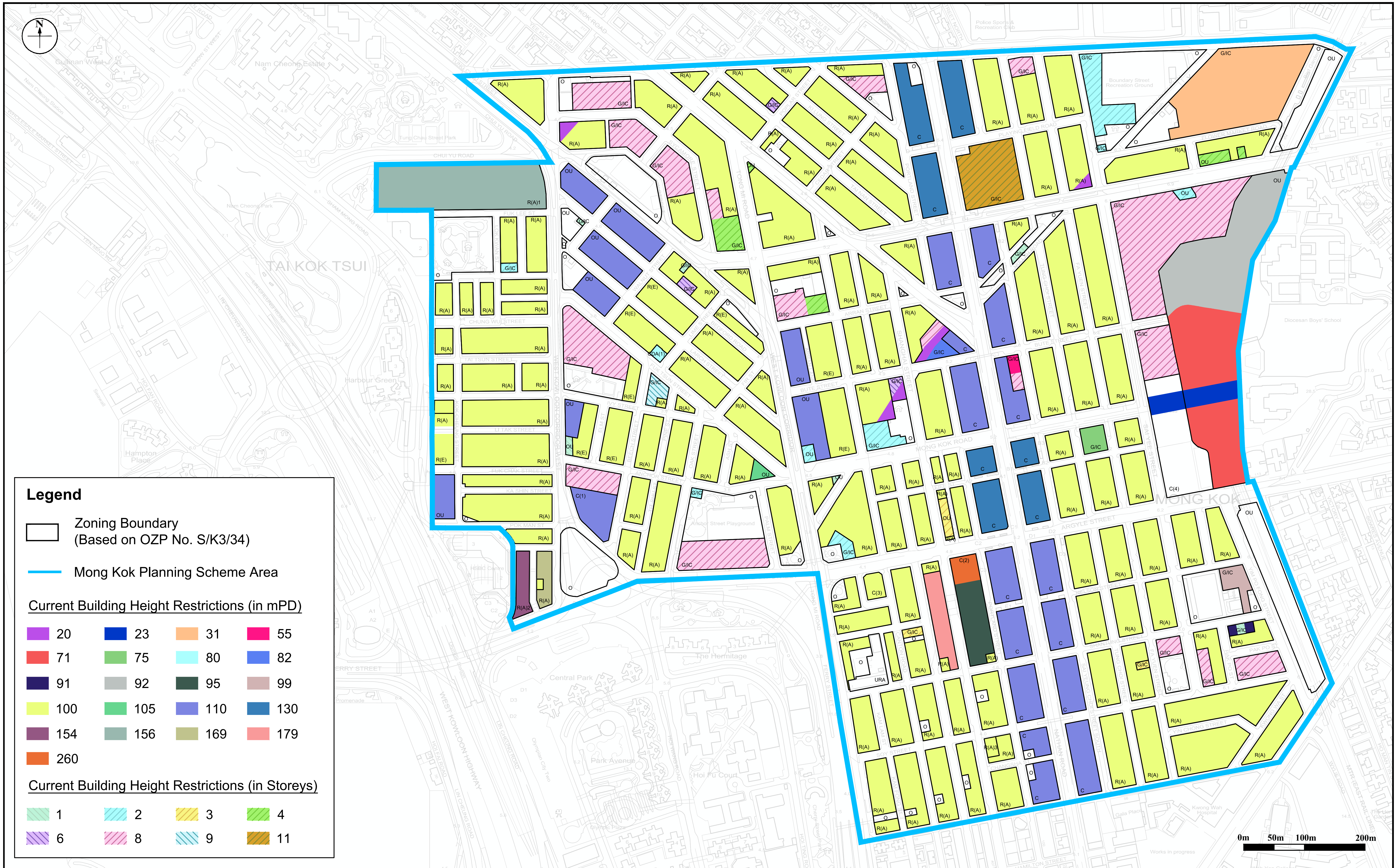


Figure: 1.2a	RAMBOLL
Title: Building Height Restriction of the OZP-Compliant Scheme in Mong Kok Area	Drawn by: YM
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Ventilation Assessment	Rev.: 2.0
	Date: May 2022

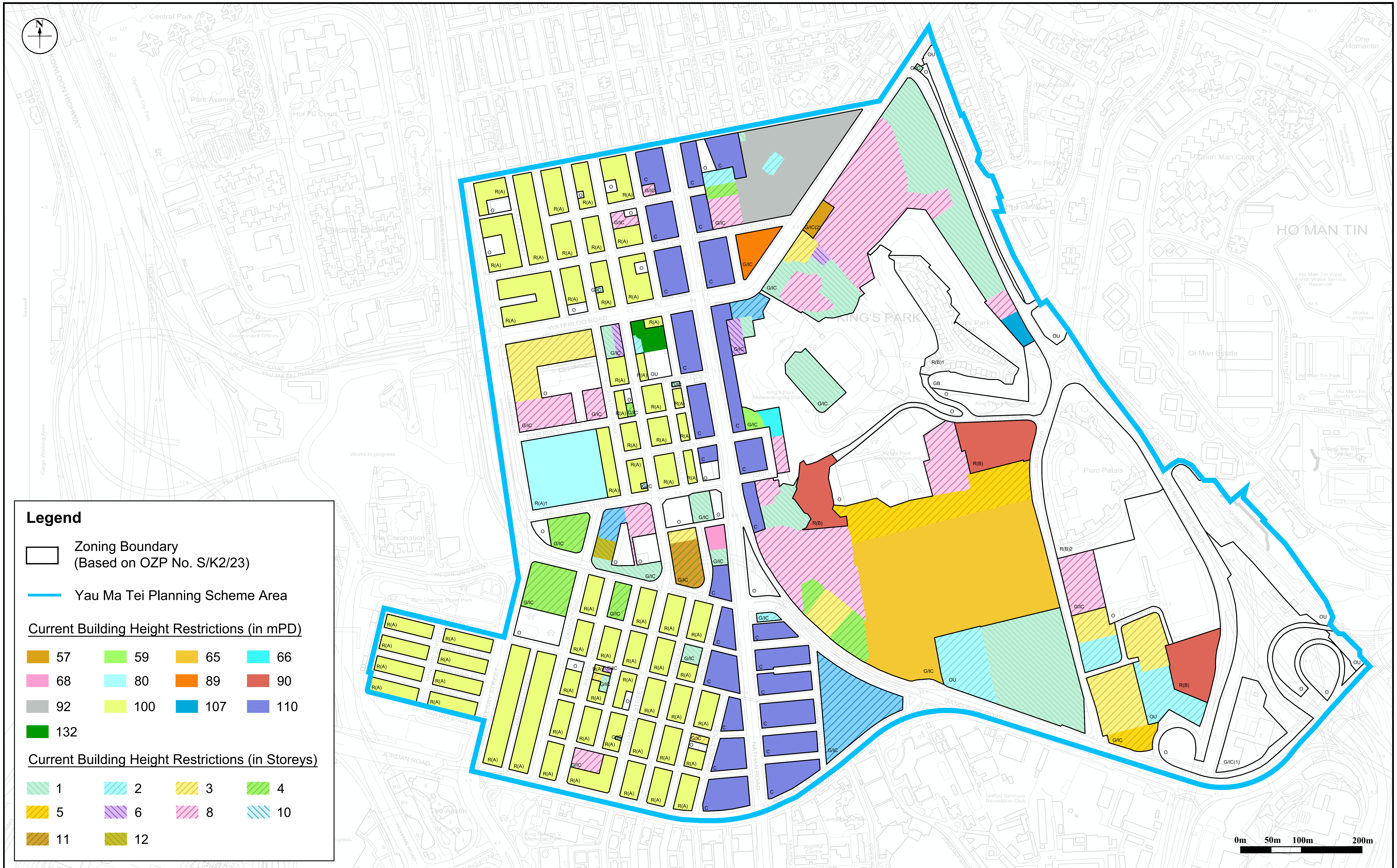
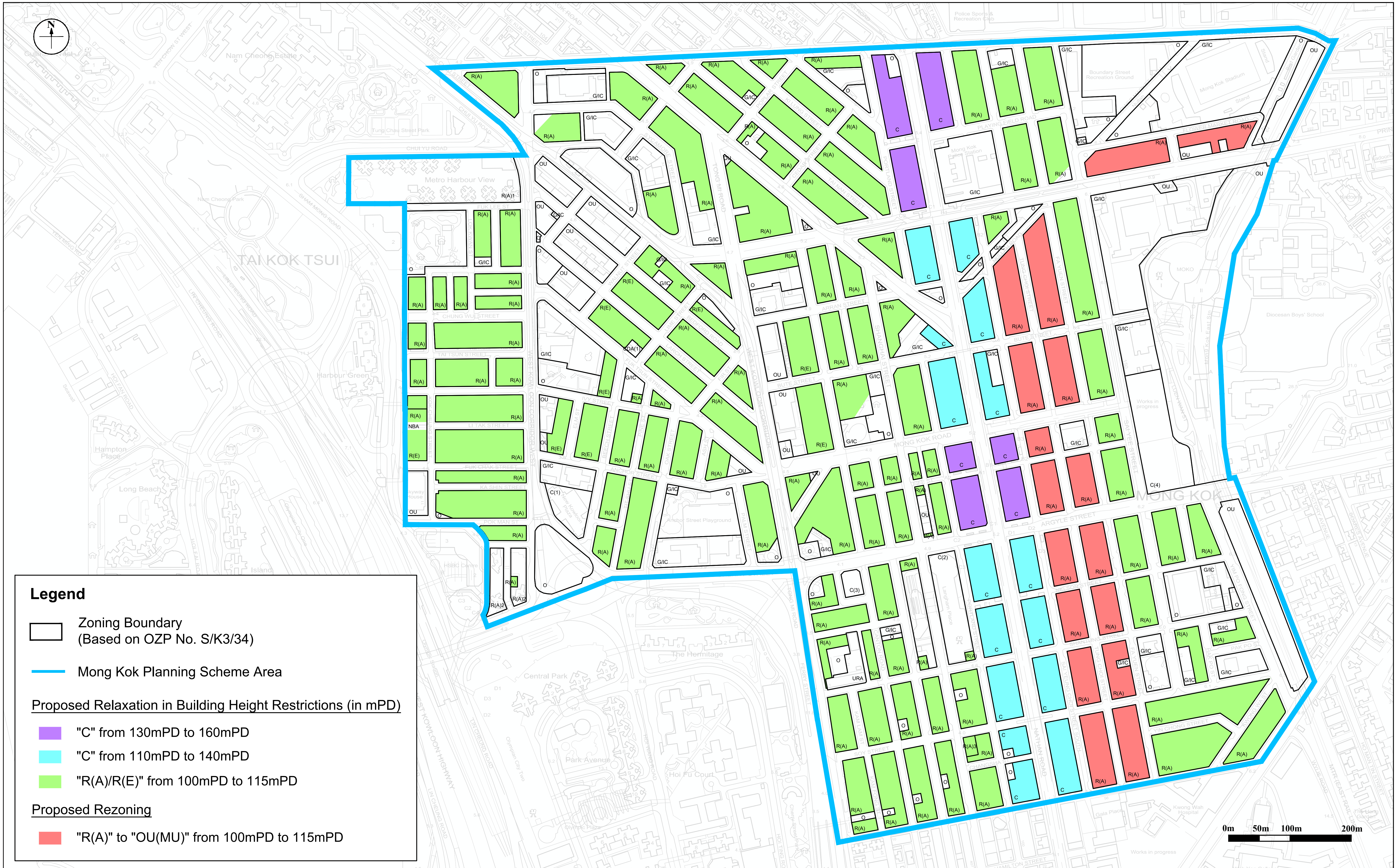


Figure:	1.2b		RAMBOLL
Title:	Building Height Restriction of the OZP-Compliant Scheme in Yau Ma Tei Area	Drawn by:	YM
		Checked by:	KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Ventilation Assessment	Rev.:	2.0
		Date:	May 2022



Legend

Zoning Boundary (Based on OZP No. S/K3/34)

Mong Kok Planning Scheme Area

Proposed Relaxation in Building Height Restrictions (in mPD)

"C" from 130mPD to 160mPD

"C" from 110mPD to 140mPD

"R(A)/R(E)" from 100mPD to 115mPD

Proposed Rezoning

"R(A)" to "OU(MU)" from 100mPD to 115mPD

Figure:	1.3a	
Title:	Proposed Amendments to the Outline Zoning Plan in Mong Kok Area	Drawn by: YM Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Ventilation Assessment	Rev.: 3.0 Date: May 2022

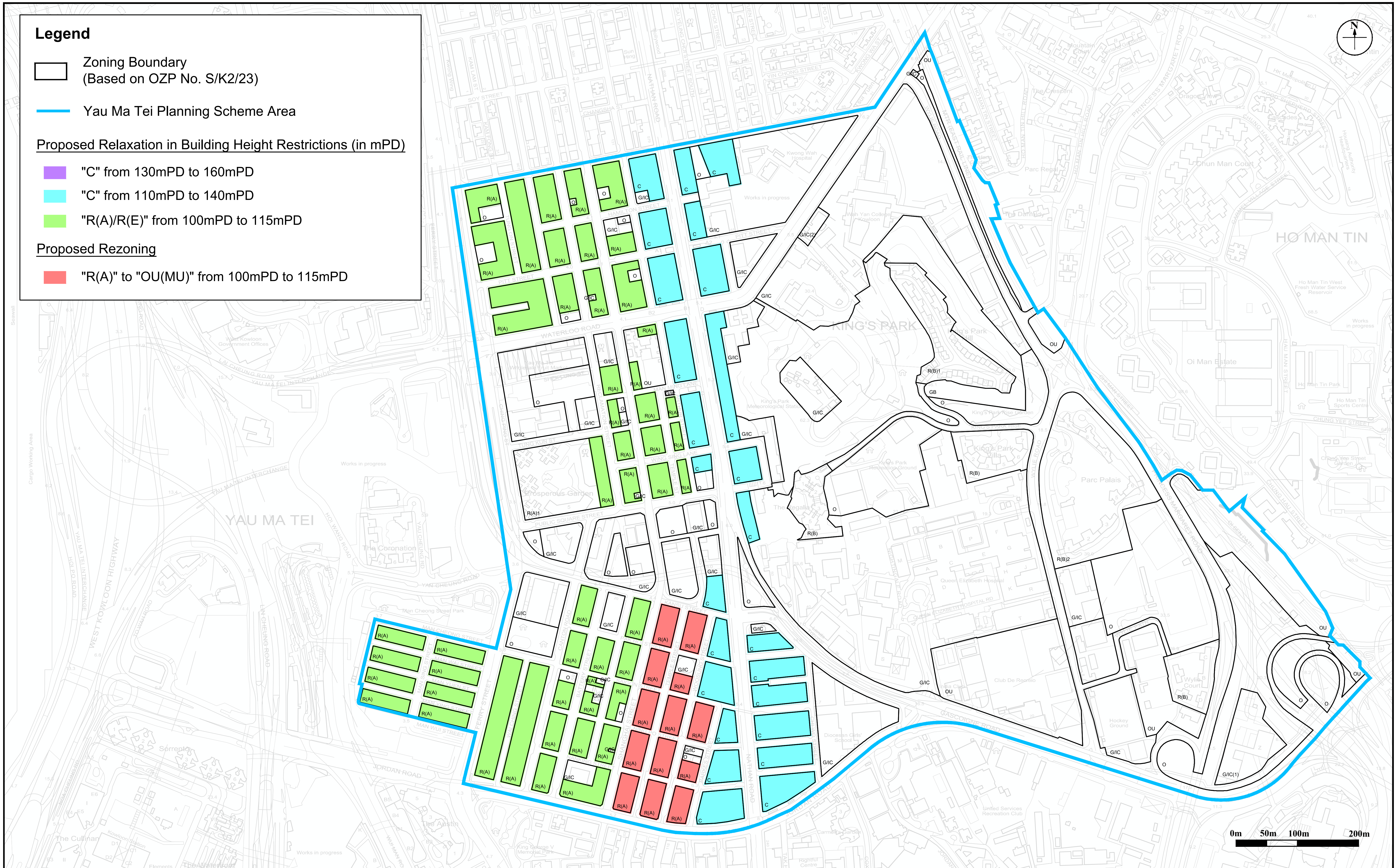


Figure: 1.3b

Title: Proposed Amendments to the Outline Zoning Plan in Yau Ma Tei Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Ventilation Assessment

RAMBOLL

Drawn by: YM
Checked by: KY
Rev.: 2.0
Date: May 2022

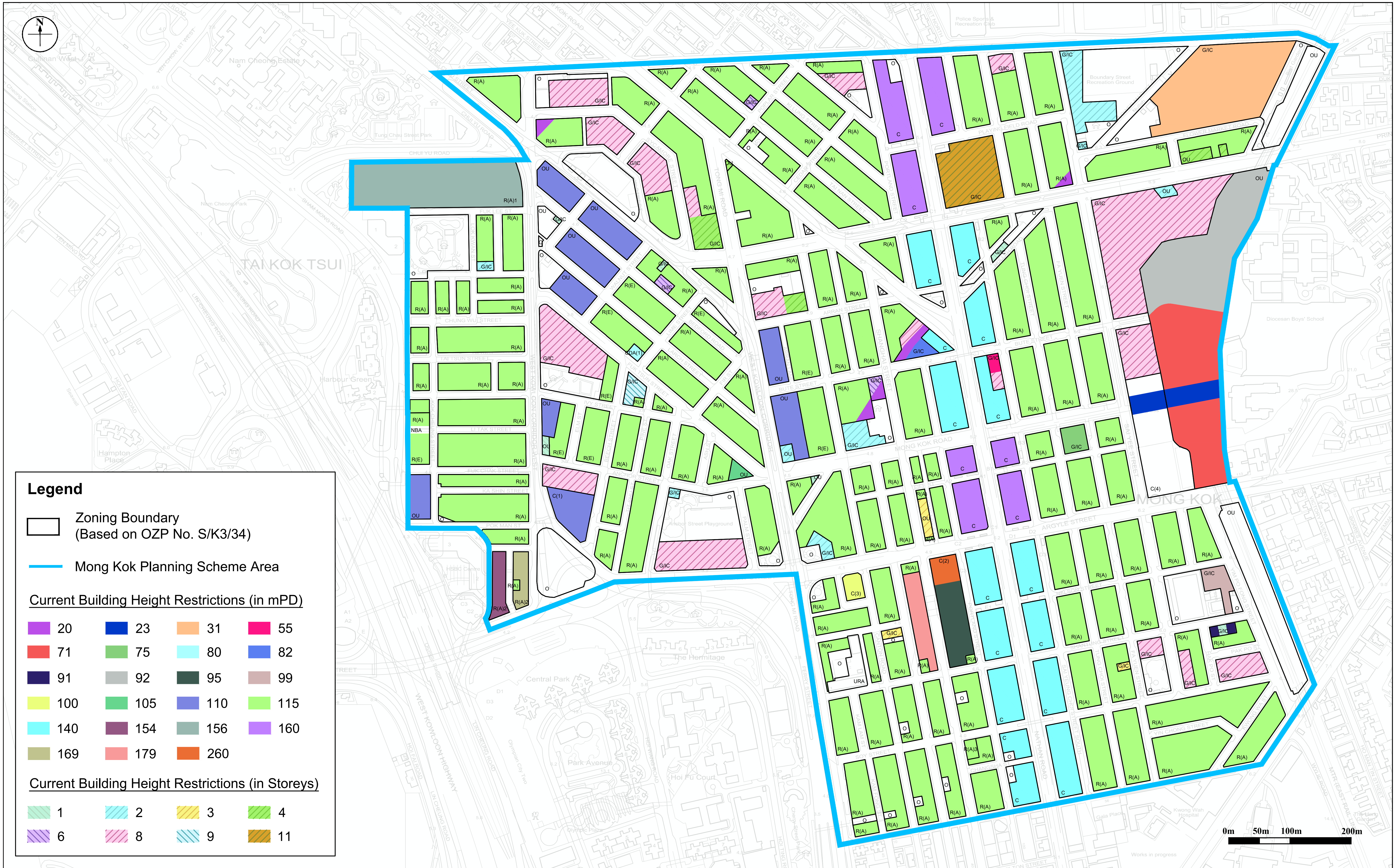


Figure:	1.4a	
Title:	Consolidated Building Height Restriction of the OZP-Amendment Scheme in Mong Kok Area	Drawn by: YM
		Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Ventilation Assessment	Rev.: 3.0
		Date: May 2022

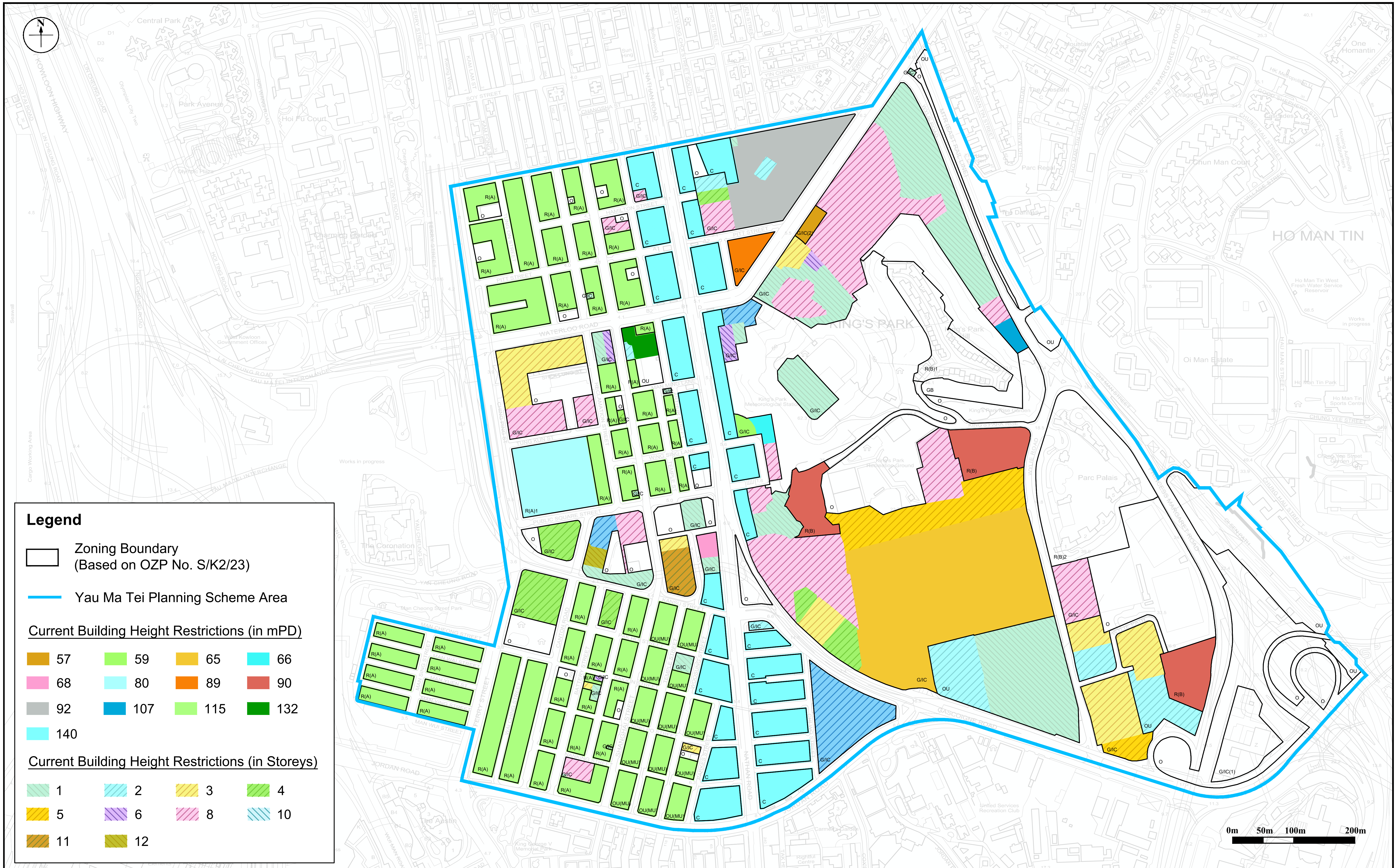


Figure: 1.4b

Title: Consolidated Building Height Restriction of the OZP-Amendment Scheme in Yau Ma Tei Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Ventilation Assessment

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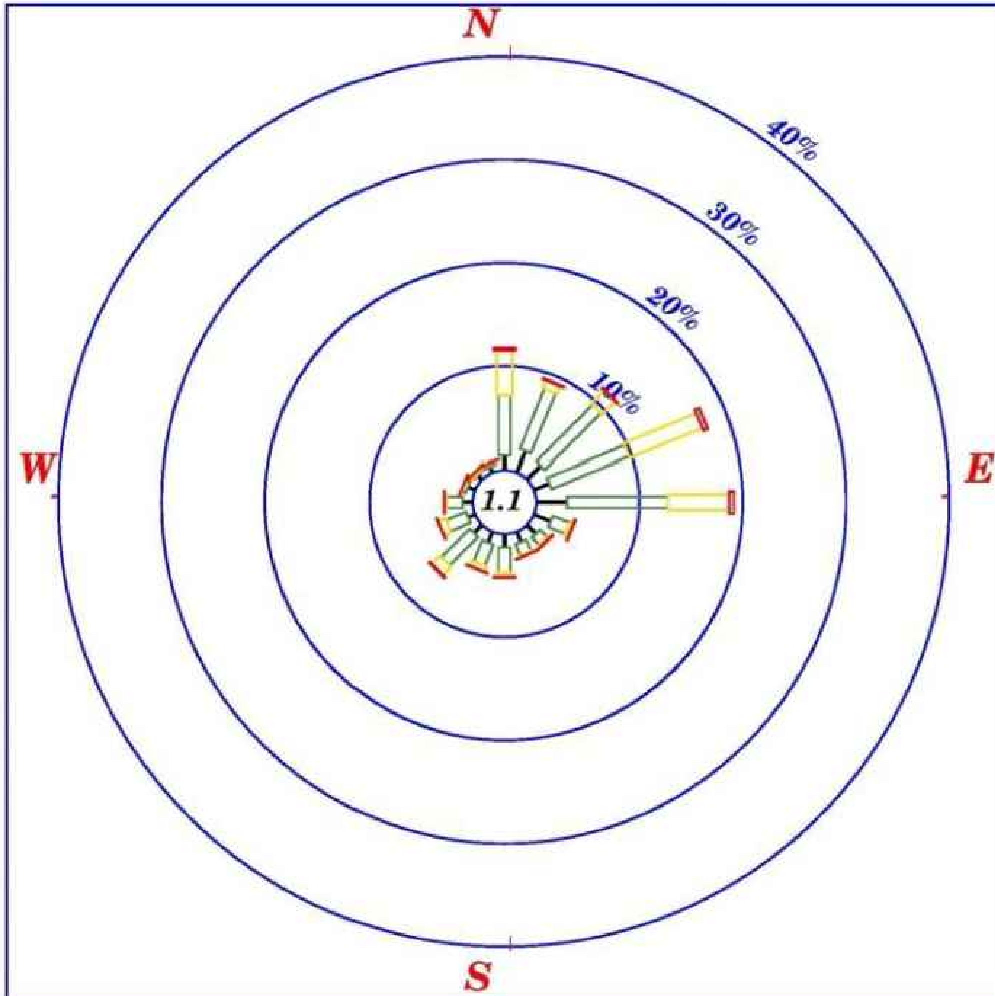
Date: May 2022

Wind Rose of WGL, Waglan Island
(Running 60-minute wind)



1 JAN 1998 - 31 DEC 2007
ANNUAL

NO. OF OBSERVATIONS = 83469
NO. OF VARIABLE WINDS= 12 (0.014 %)
NO. OF CALM WINDS = 918 (1.100 %)

0 10 20 30 40

PERCENTAGE FREQUENCY

The number in the inner circle is the percentage frequency of occurrence of calm and variable winds

(F1)	(F2)	(F3)	(F4)	
0.1-3.2	3.3-8.2	8.3-14.2	>14.2	m/s
1-2	3-4	5-6	>6	Beaufort force

WIND SPEED

	011-033	034-055	056-078	079-100	101-123	124-145
F1	2.019	1.713	1.407	2.797	1.557	1.045
F2	6.254	7.616	8.159	9.763	1.789	1.012
F3	0.799	1.796	7.587	5.952	0.345	0.195
F4	0.068	0.119	0.446	0.442	0.055	0.020
	9.140	11.244	17.599	18.954	3.746	2.272
	146-168	169-190	191-213	214-235	236-258	259-280
F1	0.894	1.100	0.948	0.950	0.536	0.756
F2	1.173	2.416	2.186	3.851	2.086	1.566
F3	0.173	0.429	0.568	1.155	0.751	0.234
F4	0.025	0.050	0.035	0.052	0.031	0.019
	2.265	3.995	3.737	6.008	3.404	2.575
	281-303	304-325	326-348	349-010	Total	
F1	0.558	0.382	0.403	1.216	18.281	
F2	0.421	0.167	0.218	5.737	54.414	
F3	0.052	0.047	0.102	4.348	24.533	
F4	0.005	0.006	0.018	0.266	1.657	
	1.036	0.602	0.741	11.567	98.885	

FREQUENCY TABLE

Figure: 2.1

Title: Waglan Wind Rose from 1998 to 2007 (Annual)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by: RS

Checked by: KY

Rev.: 2.0

Date: May 2022

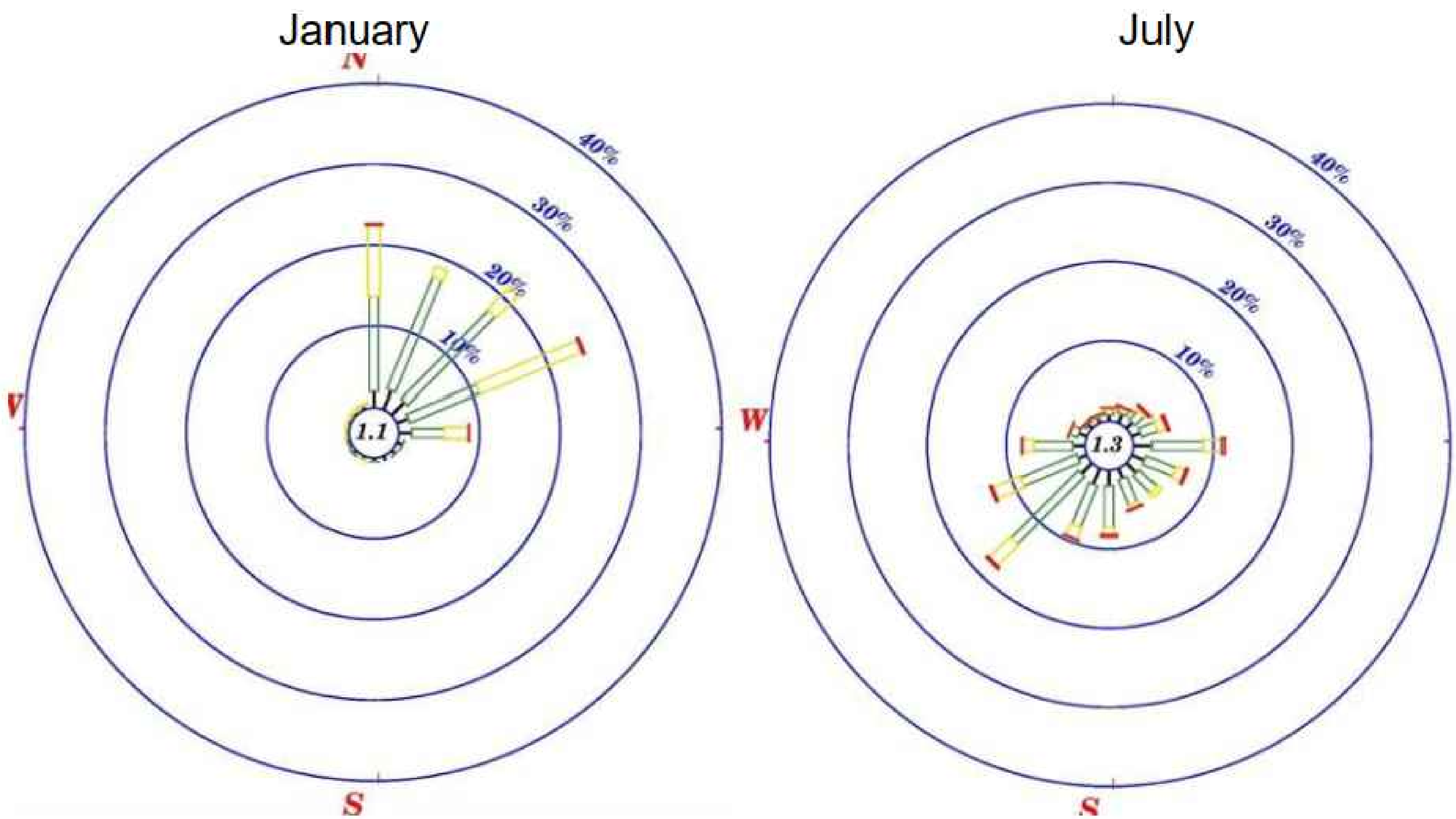


Figure: 2.2

Title: Waglan Wind Roses from 1998 to 2007 - Jan and July

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

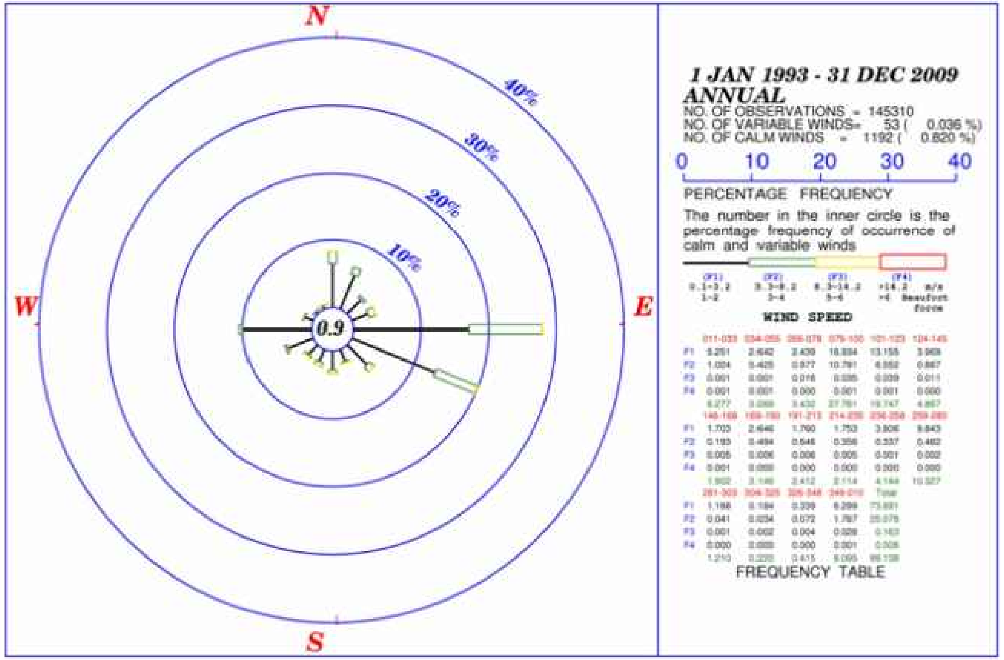
Drawn by: RS

Checked by: KY

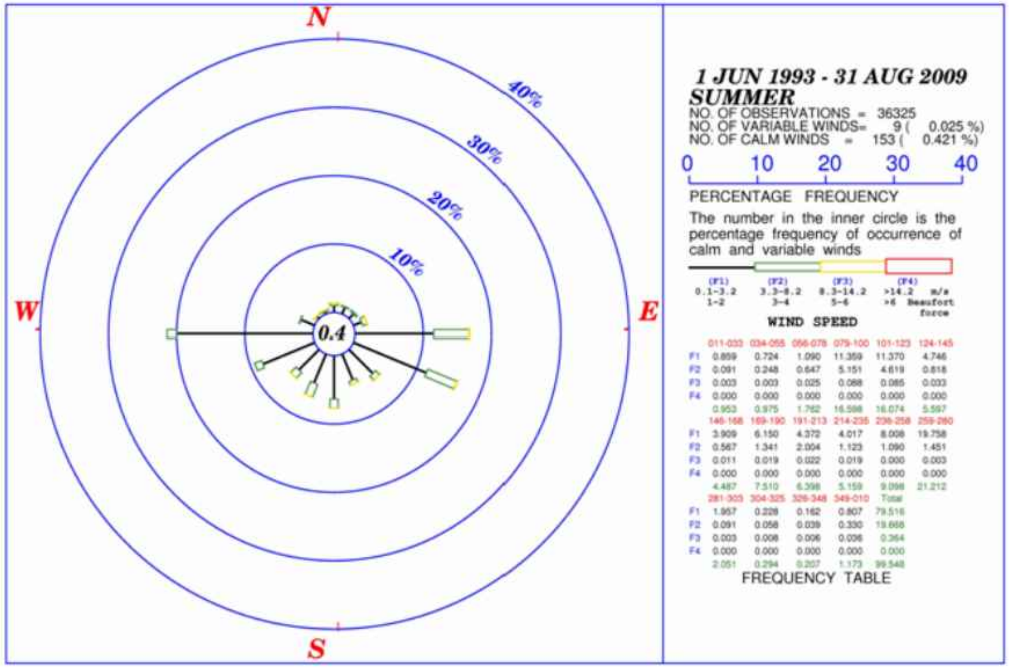
Rev.: 2.0

Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\FIG 2.2_WAGLAN WIND ROSE 1998 TO 2007 JAN TO JULY (SUMMER).DWG



Annual



Summer

Figure: 2.3		RAMBOLL
Title: King's Park Wind Rose from 1993 to 2009 (Annual & Summer)		Drawn by: RS
		Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment		Rev.: 2.0
		Date: May 2022

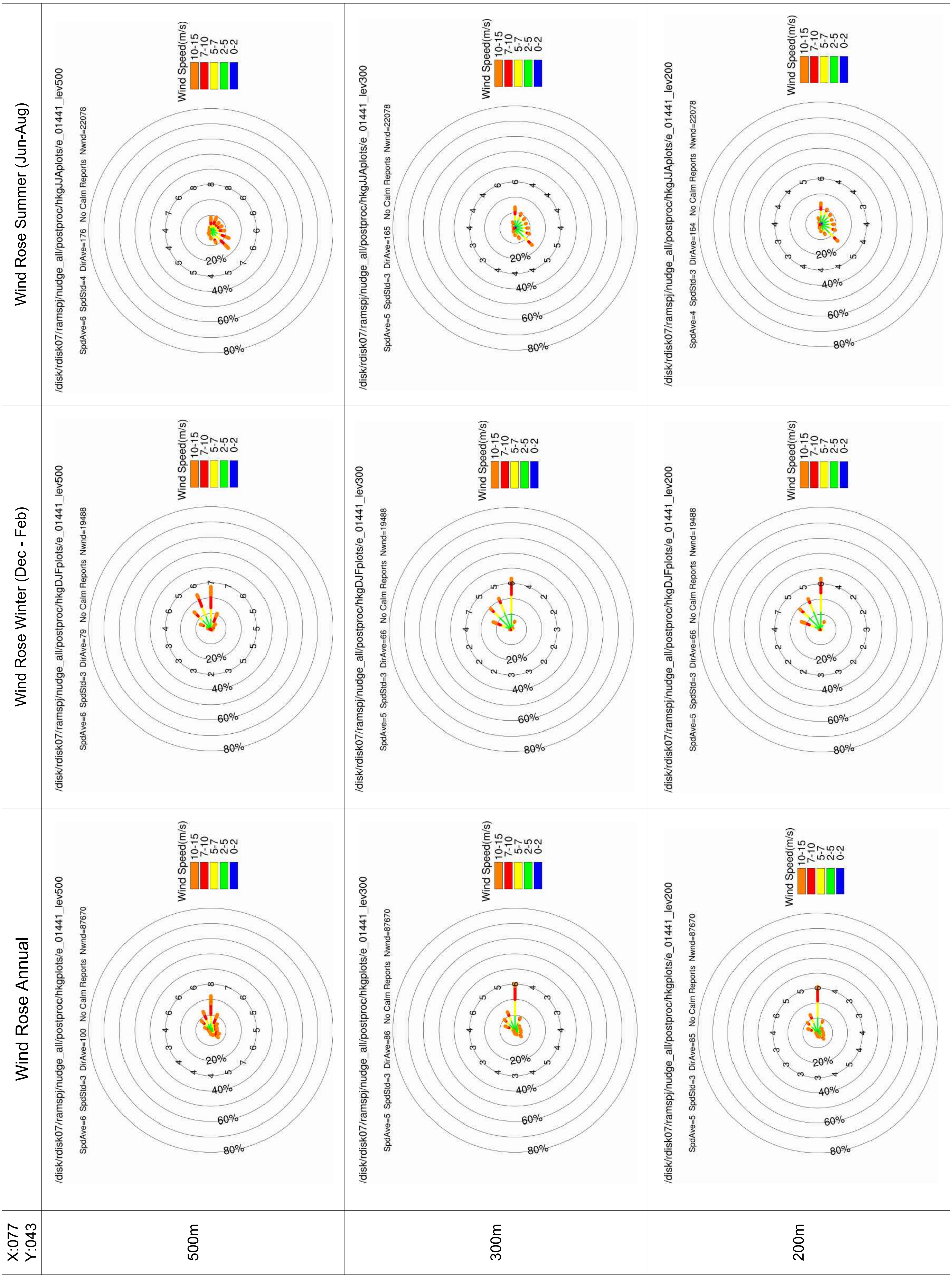


Figure: 2.4

Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:077 Y:043)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	RS
Checked by:	KY
Rev.:	2.0
Date:	May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\MK\FIG 2.4_RAMS WIND ROSE (7743).DWG

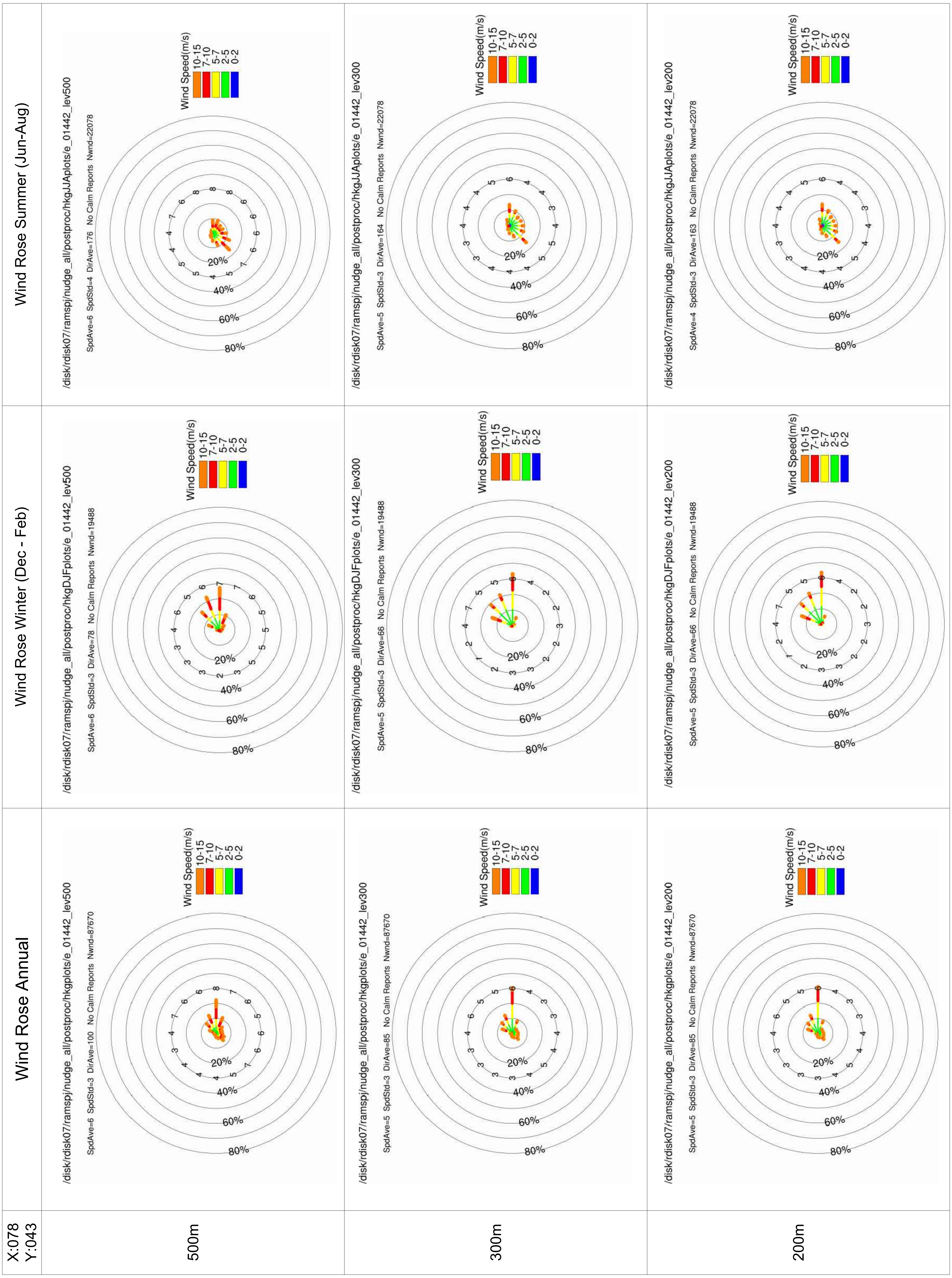


Figure: 2.5	RAMBOLL
Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:078 Y:043)	Drawn by: RS
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 2.0
	Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\MK\FIG 2.5_RAMS WIND ROSE (7843).DWG

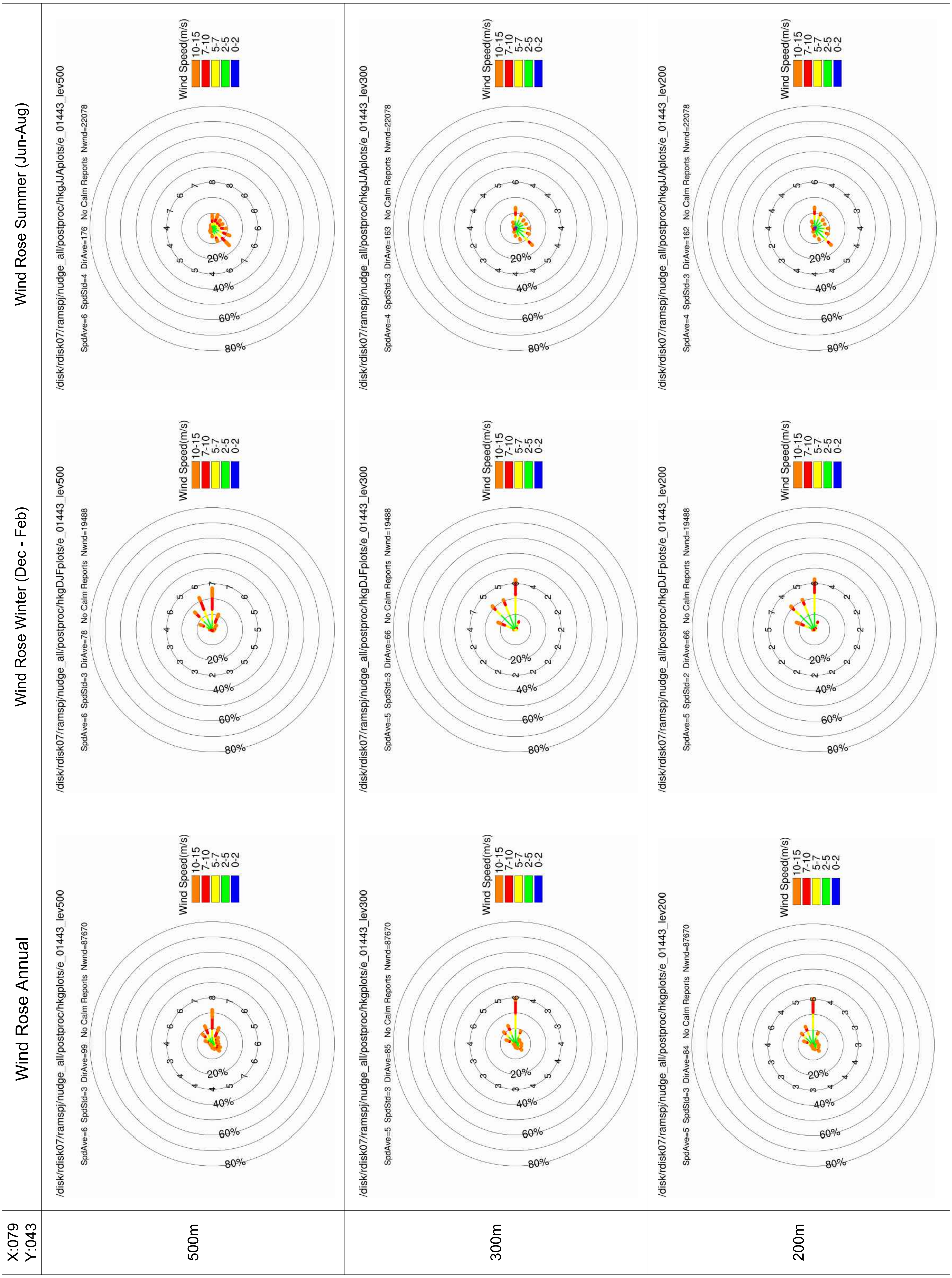


Figure: 2.6

Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:079 Y:043)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	RS
Checked by:	KY
Rev.:	2.0
Date:	May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\MK\FIG 2.6_RAMS WIND ROSE (7943).DWG

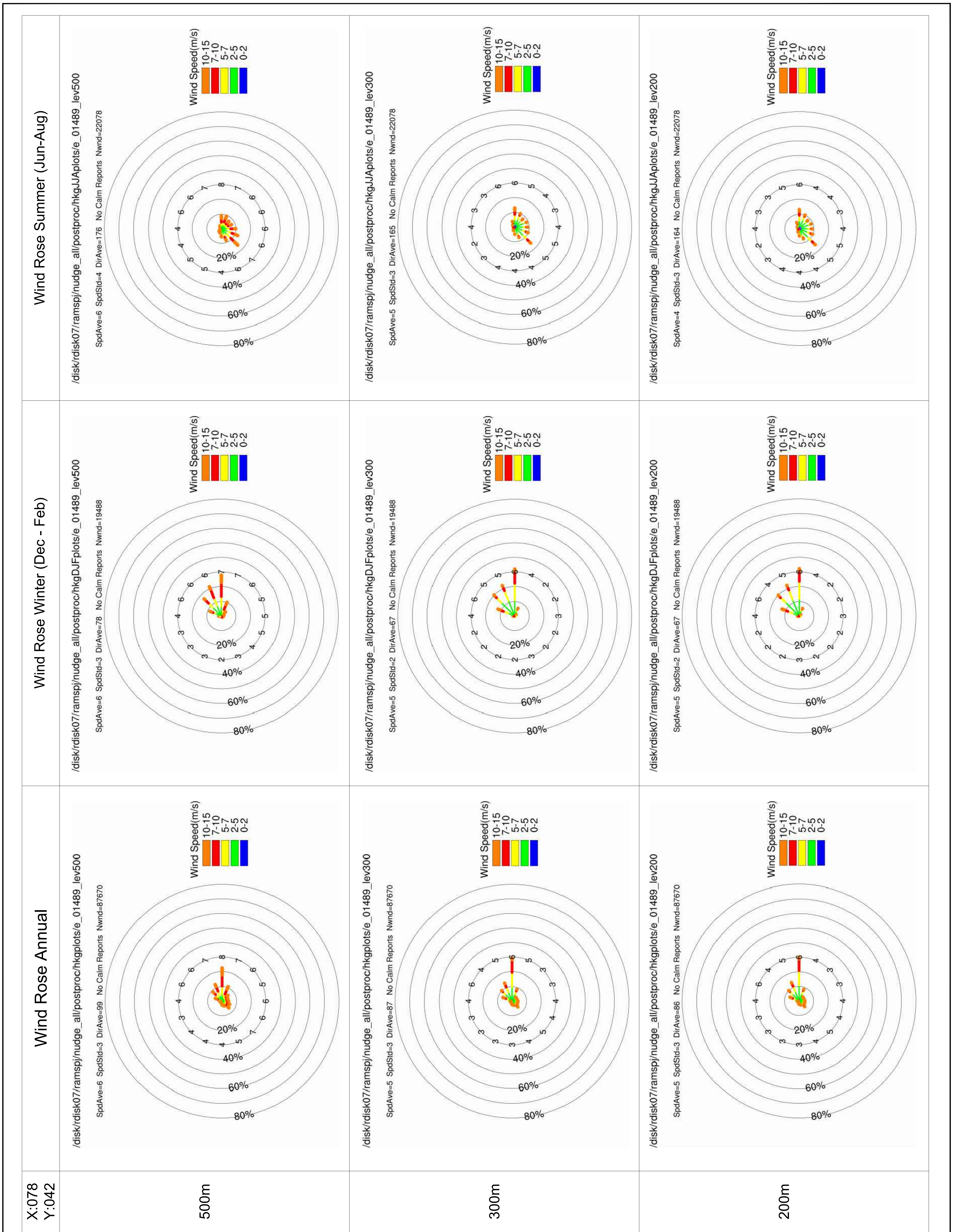


Figure: 2.7

Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:078 Y:042)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL	
Drawn by:	RS
Checked by:	KY
Rev.:	2.0
Date:	May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\MK\FIG 2.7_RAMS WIND ROSE (7842).DWG

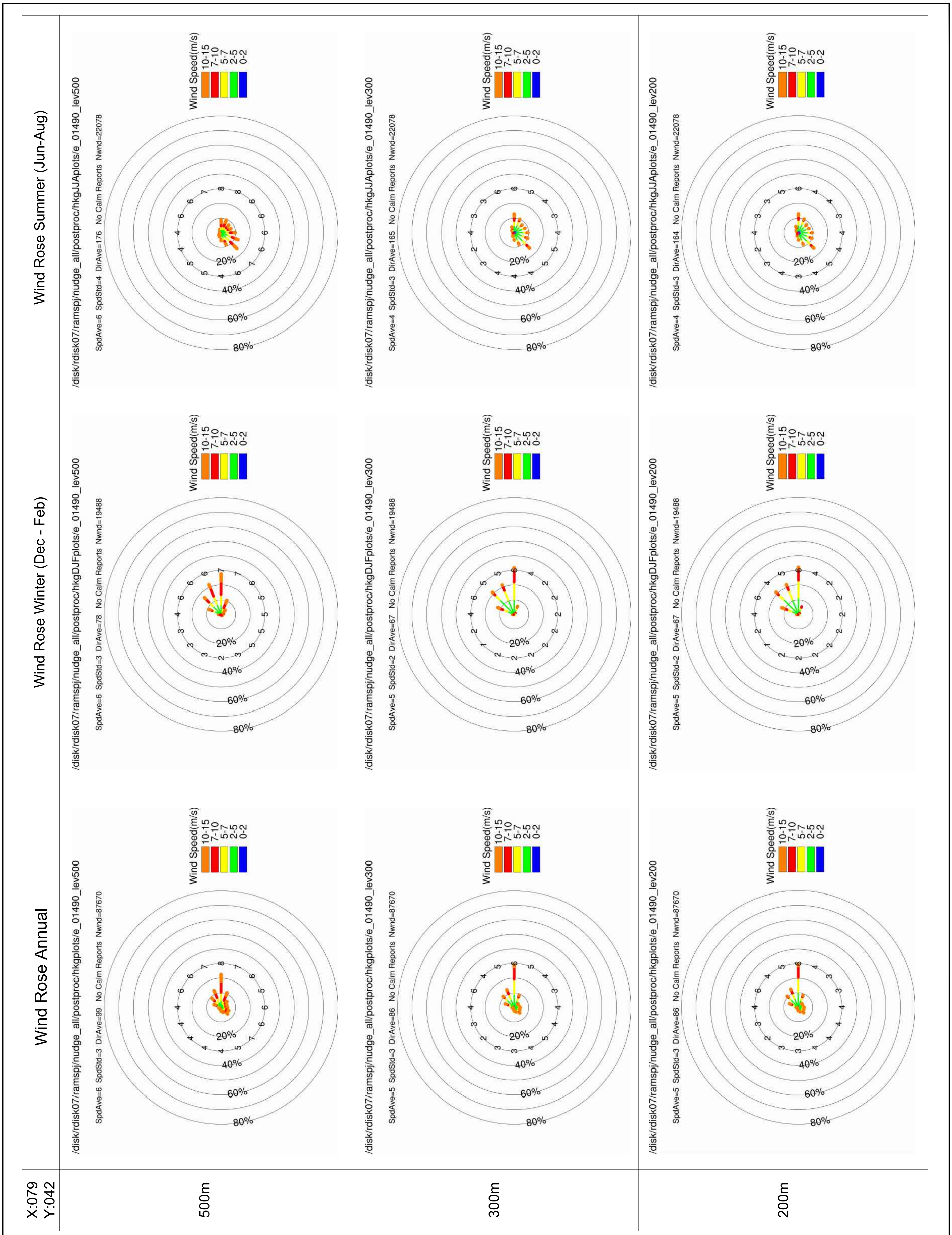


Figure: 2.8

Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:079 Y:042)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	RS
Checked by:	KY
Rev.:	2.0
Date:	May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\MK\FIG 2.8_RAMS WIND ROSE (7942).DWG

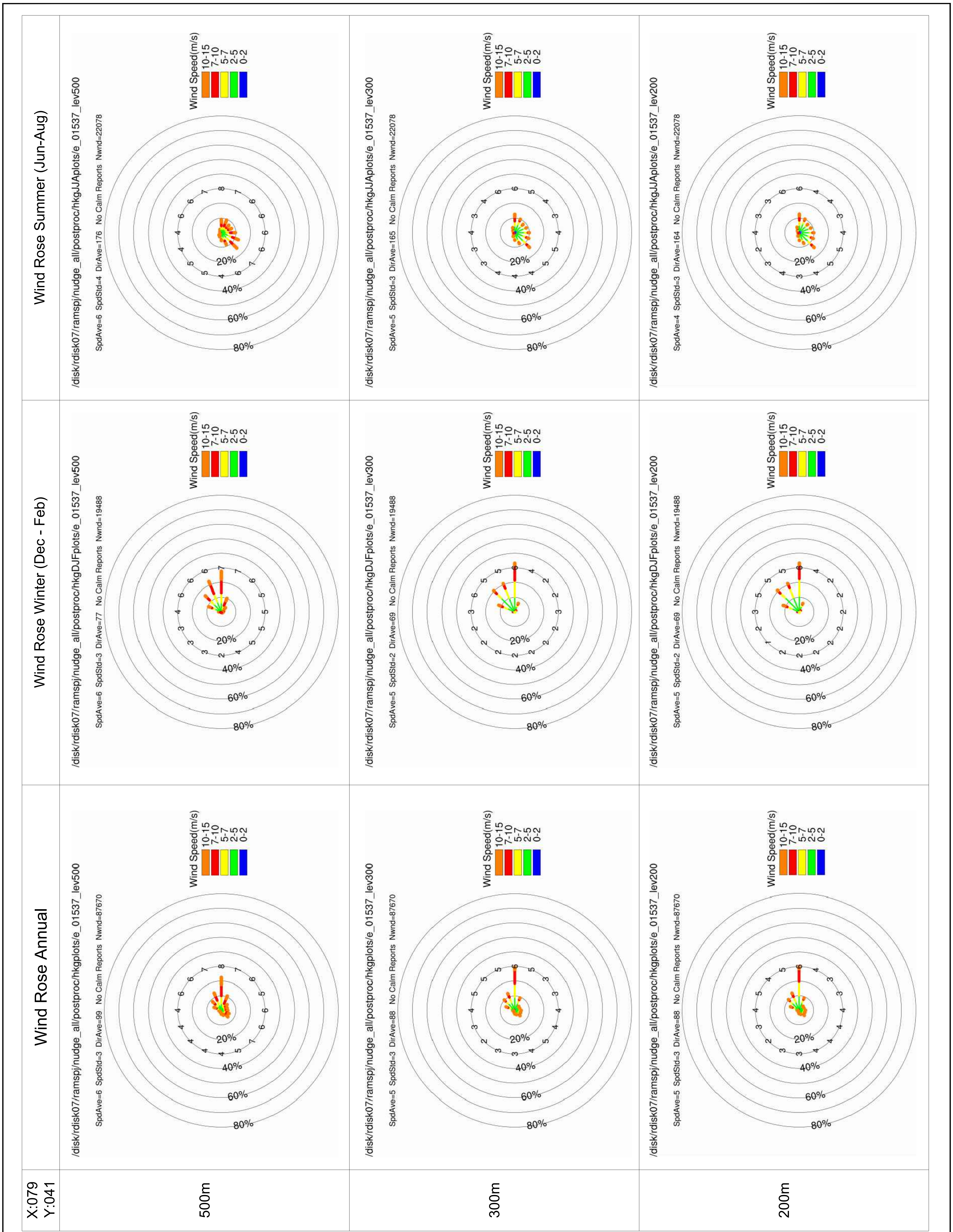


Figure:	2.9	RAMBOLL
Title:	RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:079 Y:041)	Drawn by: RS Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 2.0 Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\YMT\FIG 2.9_RAMS WIND ROSE (7941).DWG

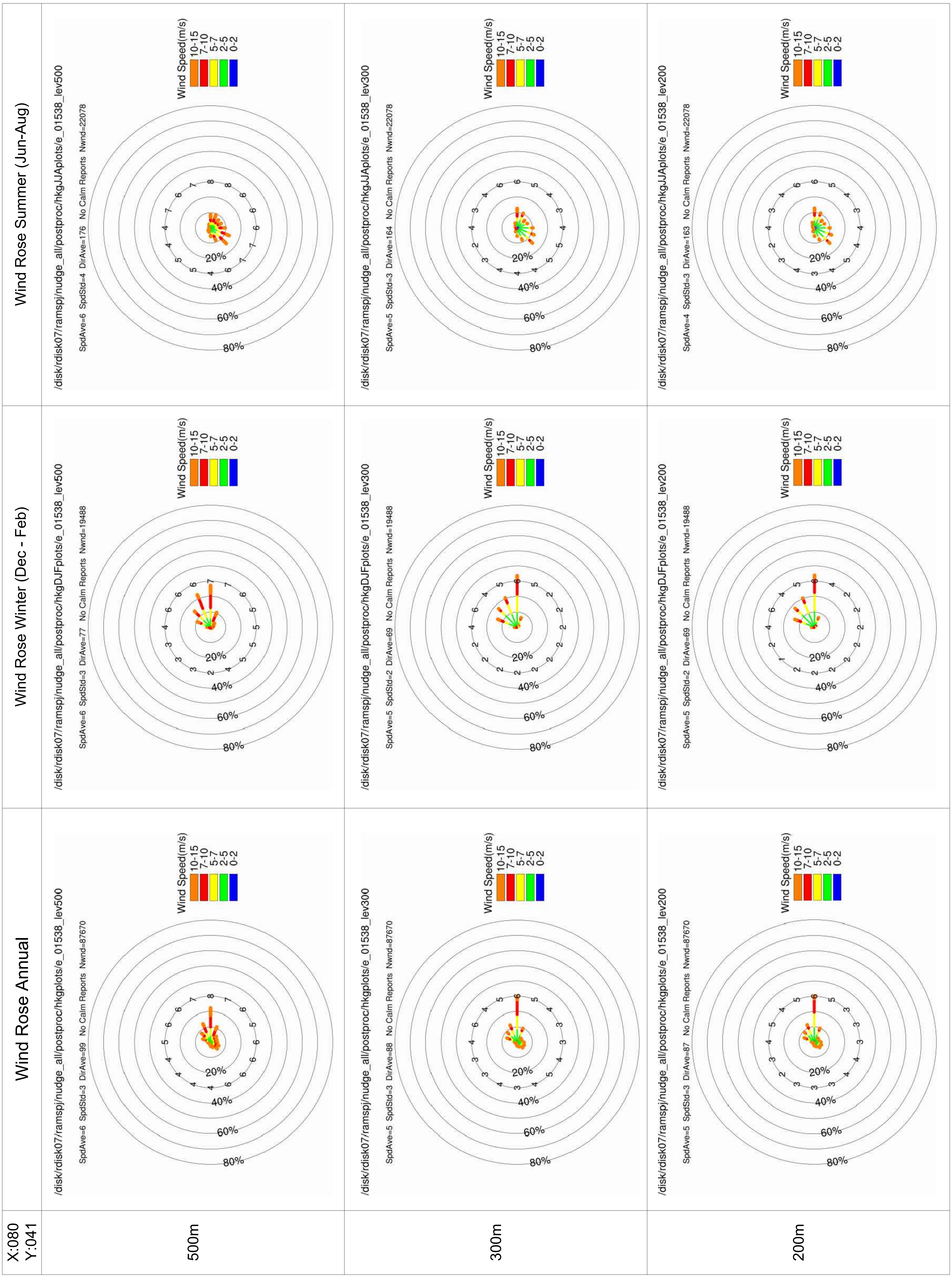


Figure: 2.10

Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:080 Y:041)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

Drawn by:	RS
Checked by:	KY
Rev.:	2.0
Date:	May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\YMT\FIG 2.10_RAMS WIND ROSE (8041).DWG

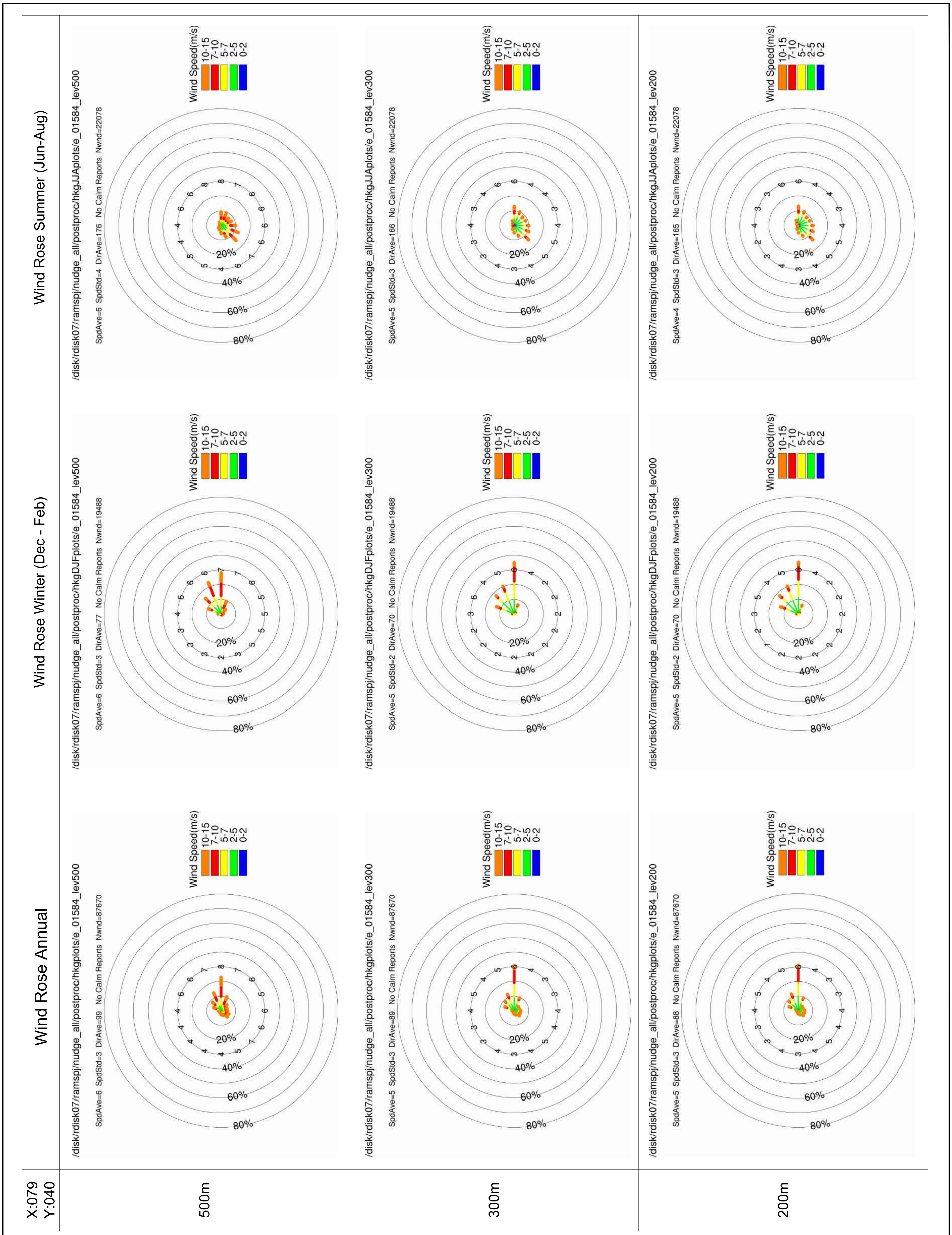


Figure:	2.11	RAMBOLL
Title:	RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:079 Y:040)	Drawn by: RS Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 2.0 Date: May 2022

Q:\PROJECTS\JRAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\YMT\FIG 2.11_RAMS WIND ROSE (7940).DWG

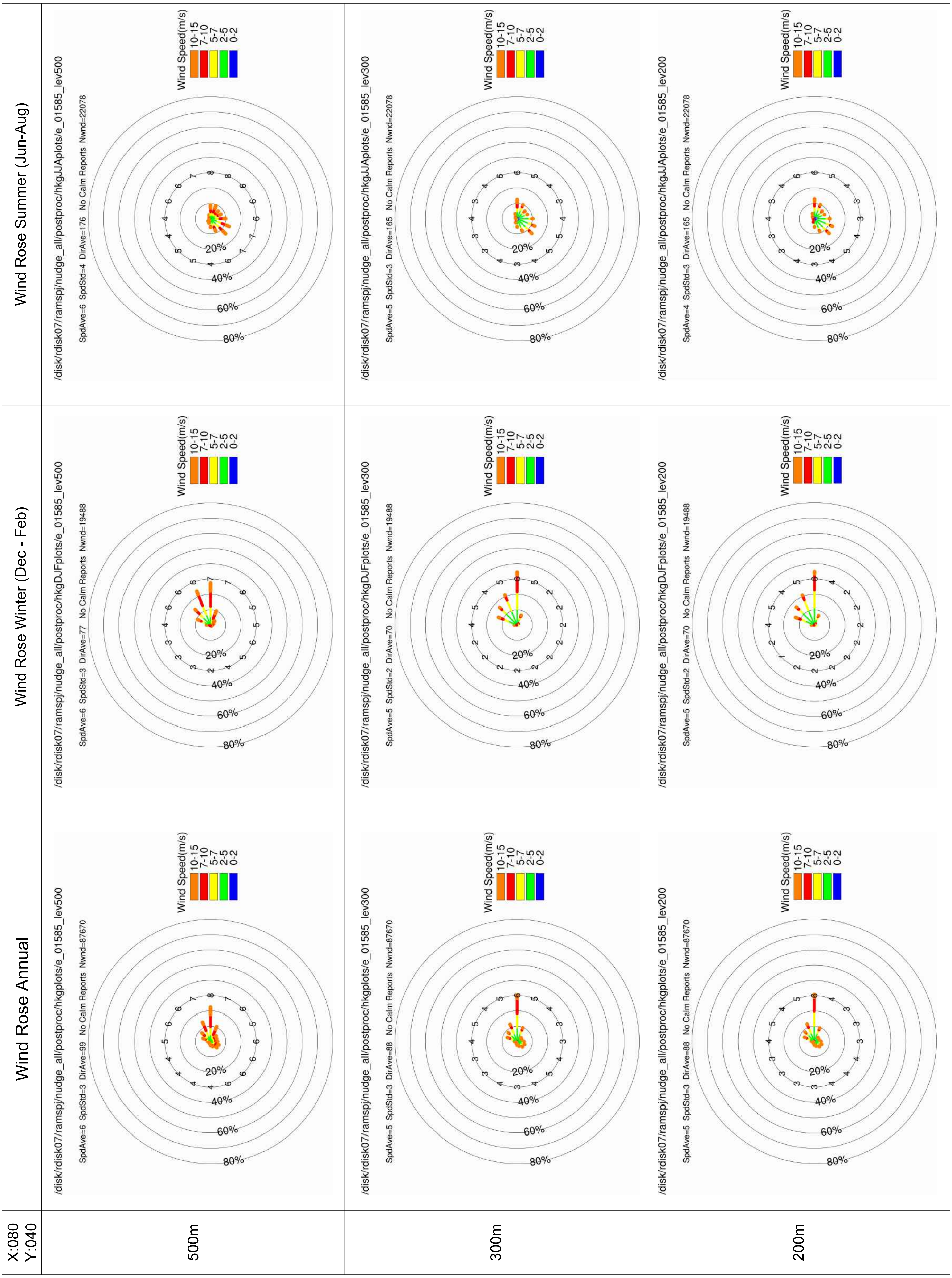


Figure: 2.12

Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:080 Y:040)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by: RS

Checked by: KY

Rev.: 2.0

Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\YMT\FIG 2.12_RAMS WIND ROSE (8040).DWG

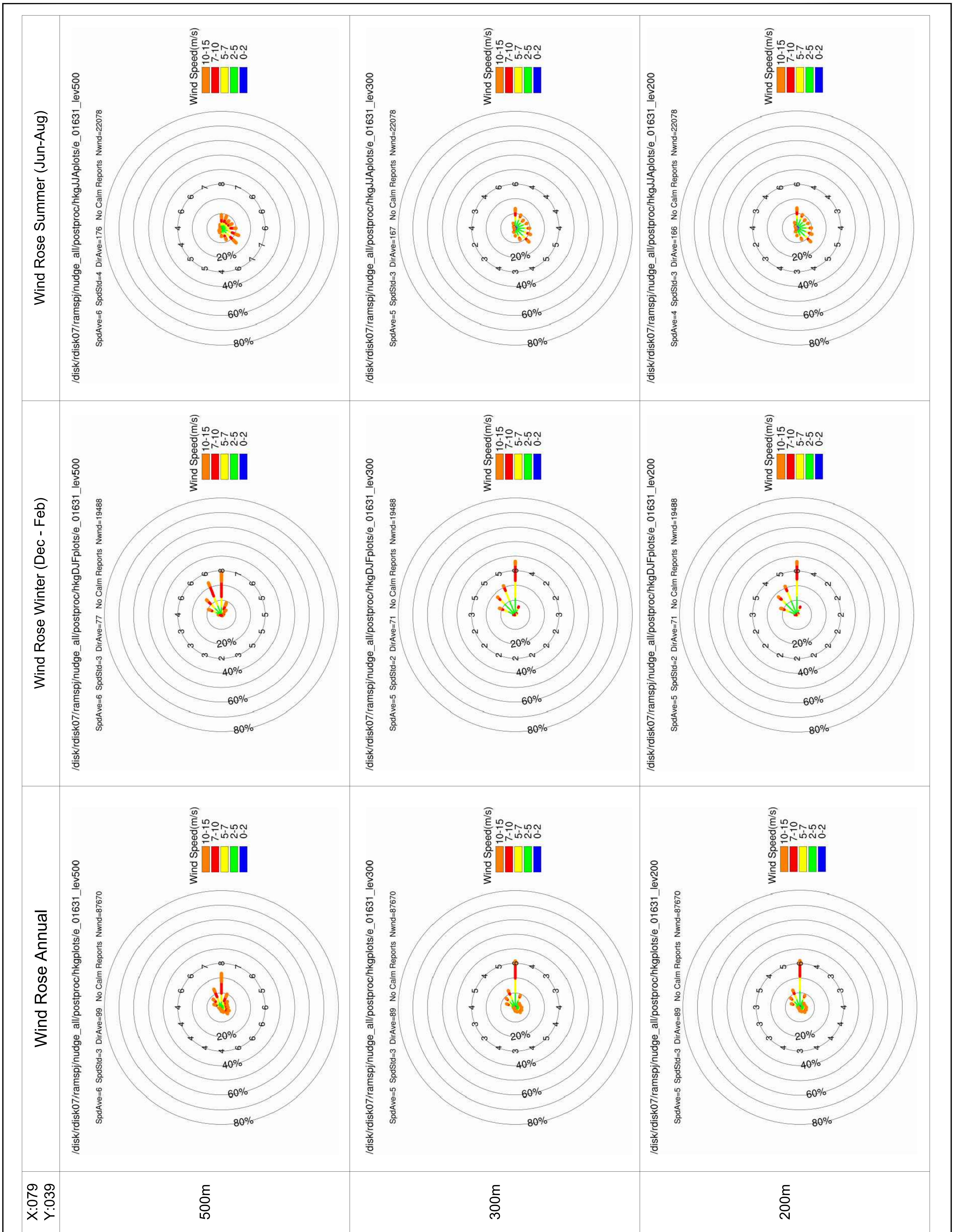
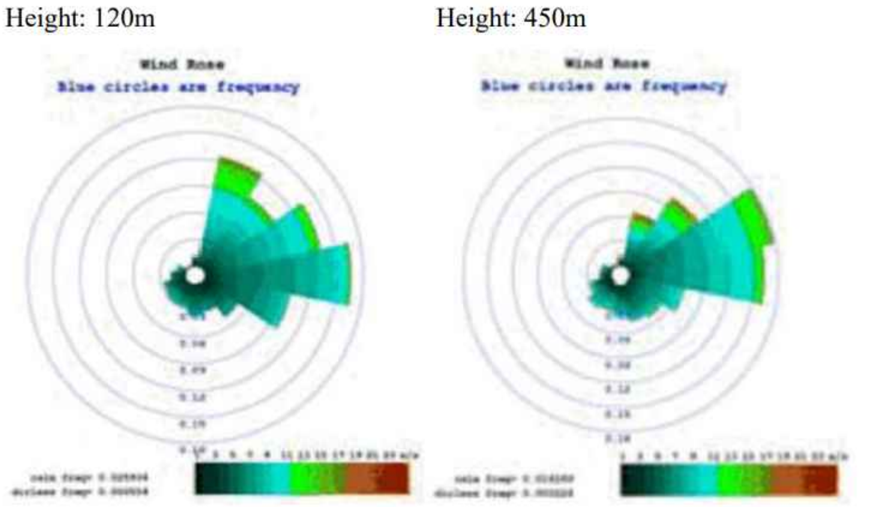
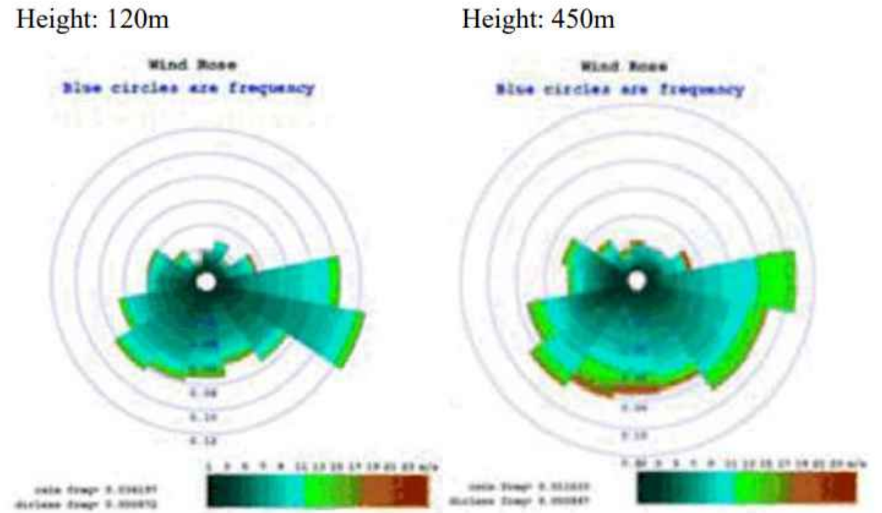


Figure: 2.13	RAMBOLL
Title: RAMS Annual, Winter, and Summer Wind Roses Representing V∞ of the Area under Concern at 500m, 300m, 200m Above Ground (X:079 Y:039)	Drawn by: RS Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 2.0 Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\YMT\FIG 2.13_RAMS WIND ROSE (7939).DWG



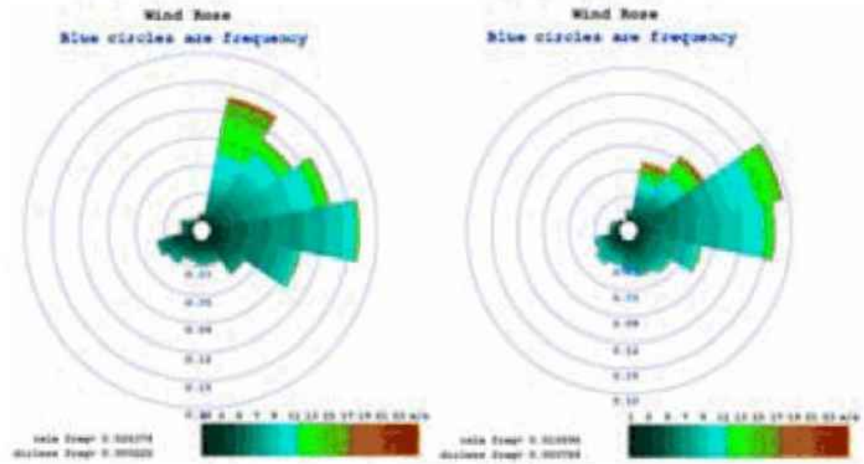
Annual



Summer

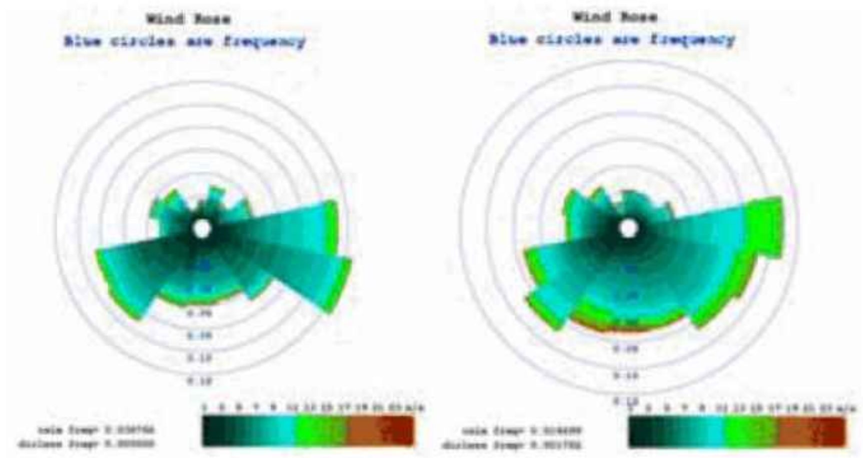
Figure:	2.14	RAMBOLL
Title:	Yau Ma Tei Wind Rose Result for the Study Area based on MM5 Simulation (Annual and Summer)	Drawn by: RS Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 2.0 Date: May 2022

Height: 120m Height: 450m



Annual

Height: 120m Height: 450m



Summer

Figure: 2.15

Title: Mong Kok Wind Rose Result for the Study Area based on MM5 Simulation (Annual and Summer)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by: RS
Checked by: KY
Rev.: 2.0
Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\FIG 2.15_MONG KOK MM5 ANNUAL & SUMMER WIND ROSE.DWG

Height: 50m

Height: 100m

Height: 200m

Height: 500m

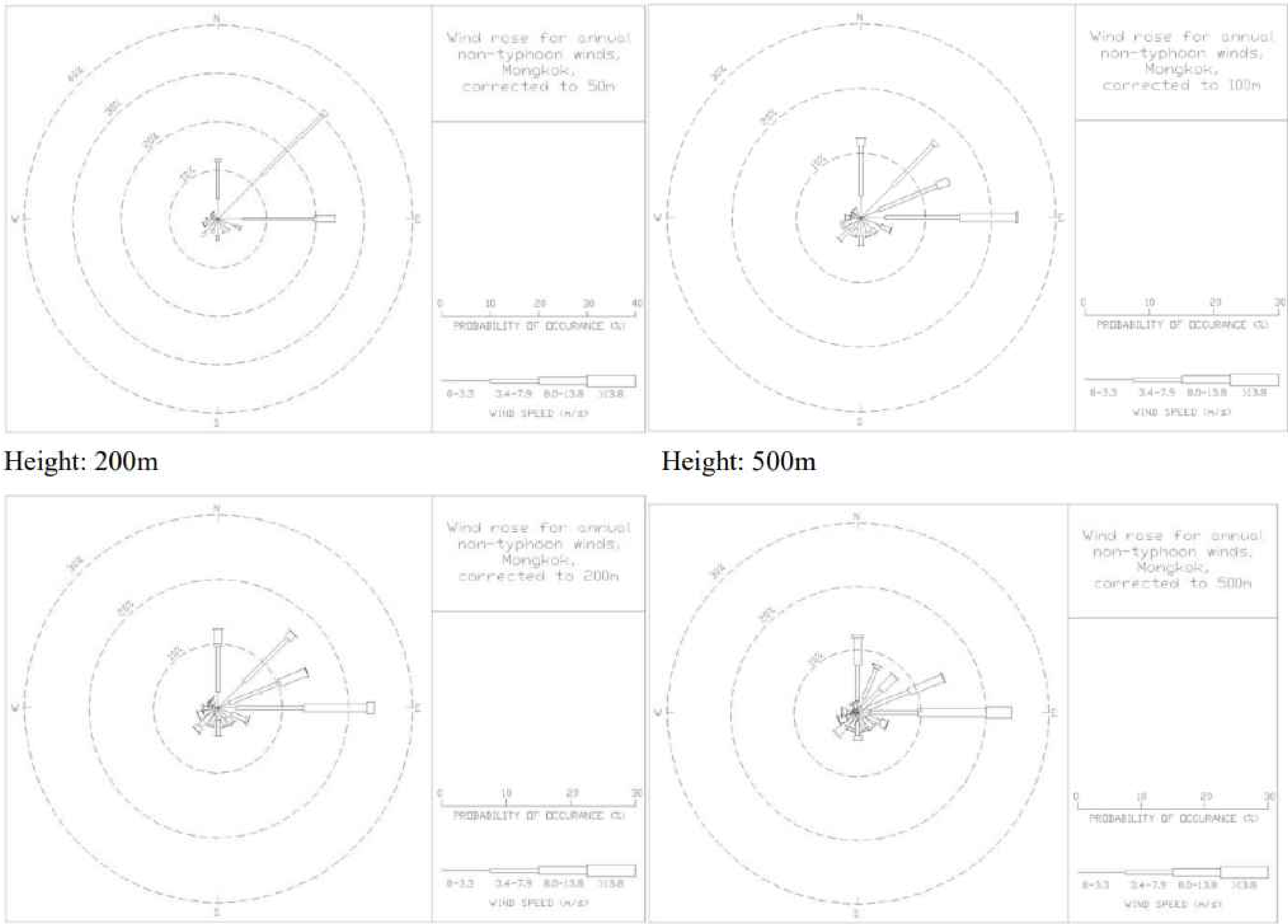
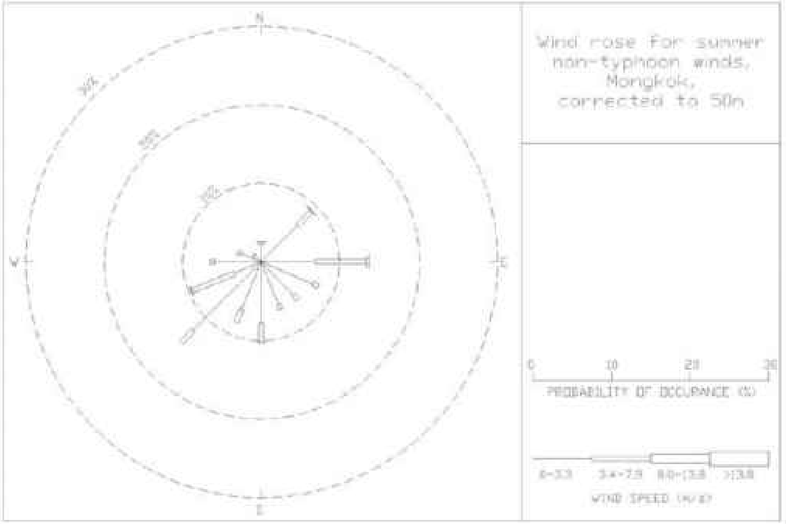


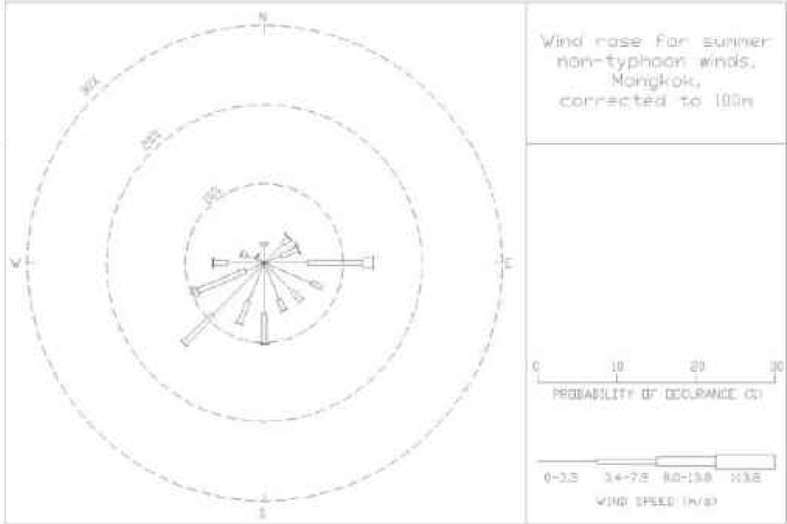
Figure:	2.16	RAMBOLL
Title:	Annual Wind Roses Extracted from Experimental Site Wind Availability Study for Mong Kok, Hong Kong	Drawn by: RS Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 2.0 Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\FIG 2.16_ANNUAL WIND ROSE TUNNELLINGMETHOD.DWG

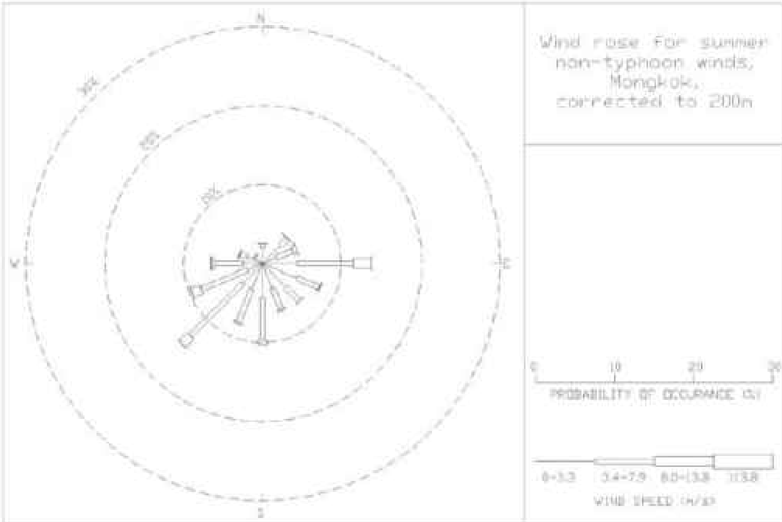
Height: 50m



Height: 100m



Height: 200m



Height: 500m

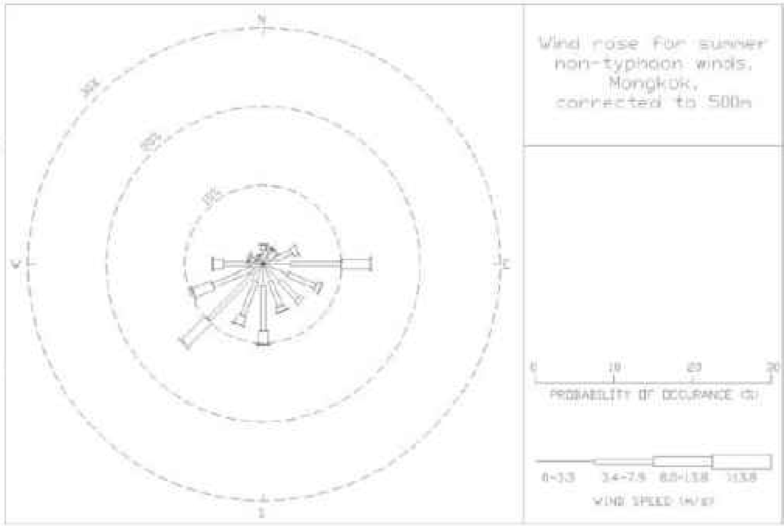


Figure:	2.17	RAMBOLL
Title:	Summer Wind Roses Corrected to 200m Extracted from Experimental Site Wind Availability Study for Mong Kok, Hong Kong	Drawn by: RS Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 2.0 Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V2.0\SOURCE\NEW FIGURES\FIG 2.17_SUMMER WIND ROSE TUNNELLING METHOD.DWG

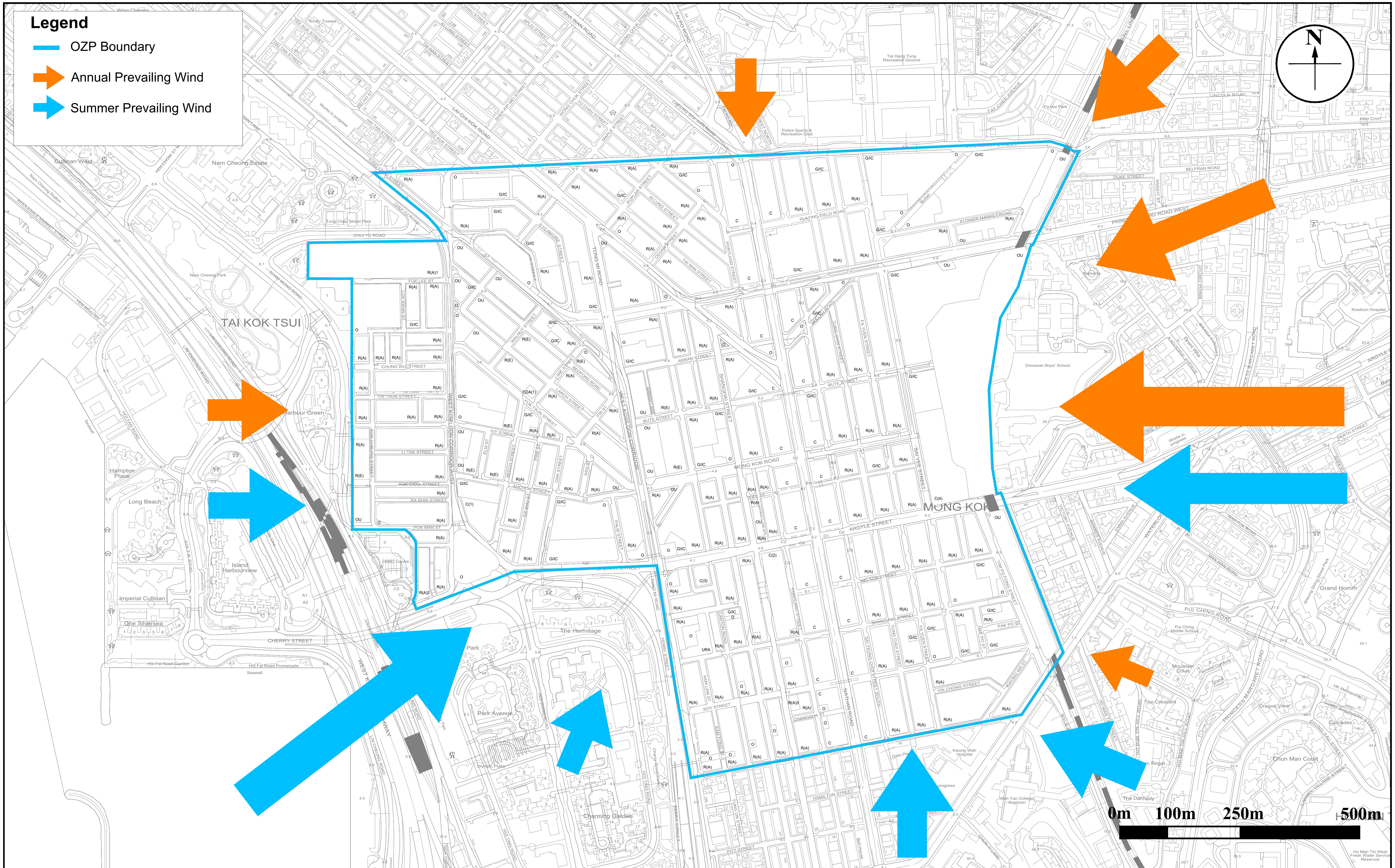


Figure: 2.18	
Title: Summary of Prevailing Winds in Mong Kok Area (Arrow Size Indicates Probabilities of Corresponding Wind Directions)	Drawn by: II
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 3.0
	Date: May 2022

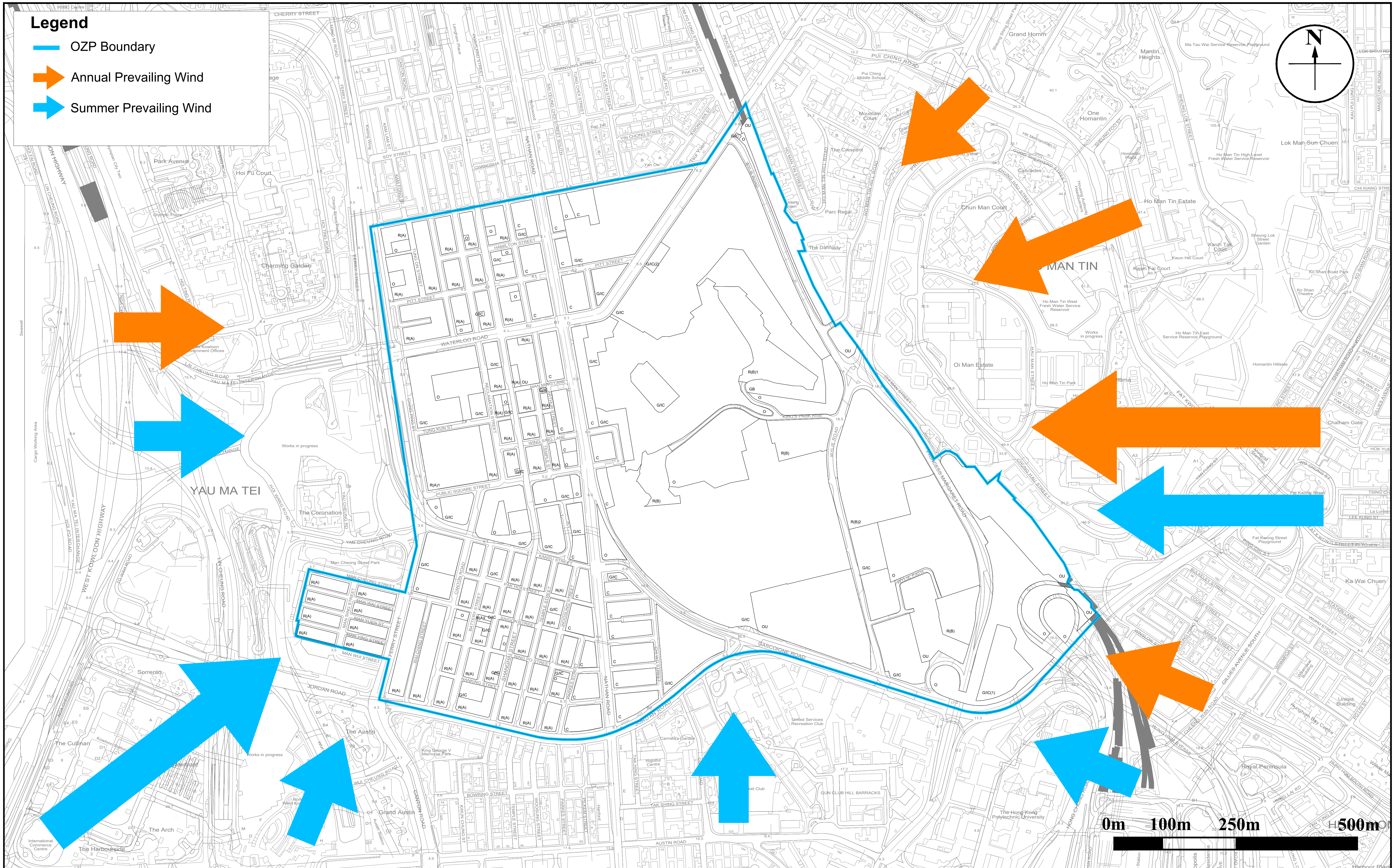


Figure: 2.19

Title: Summary of Prevailing Winds in Yau Ma Tei Area (Arrow Size Indicates Probabilities of Corresponding Wind Directions)

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

Drawn by:	II
Checked by:	KY
Rev.:	3.0
Date:	May 2022

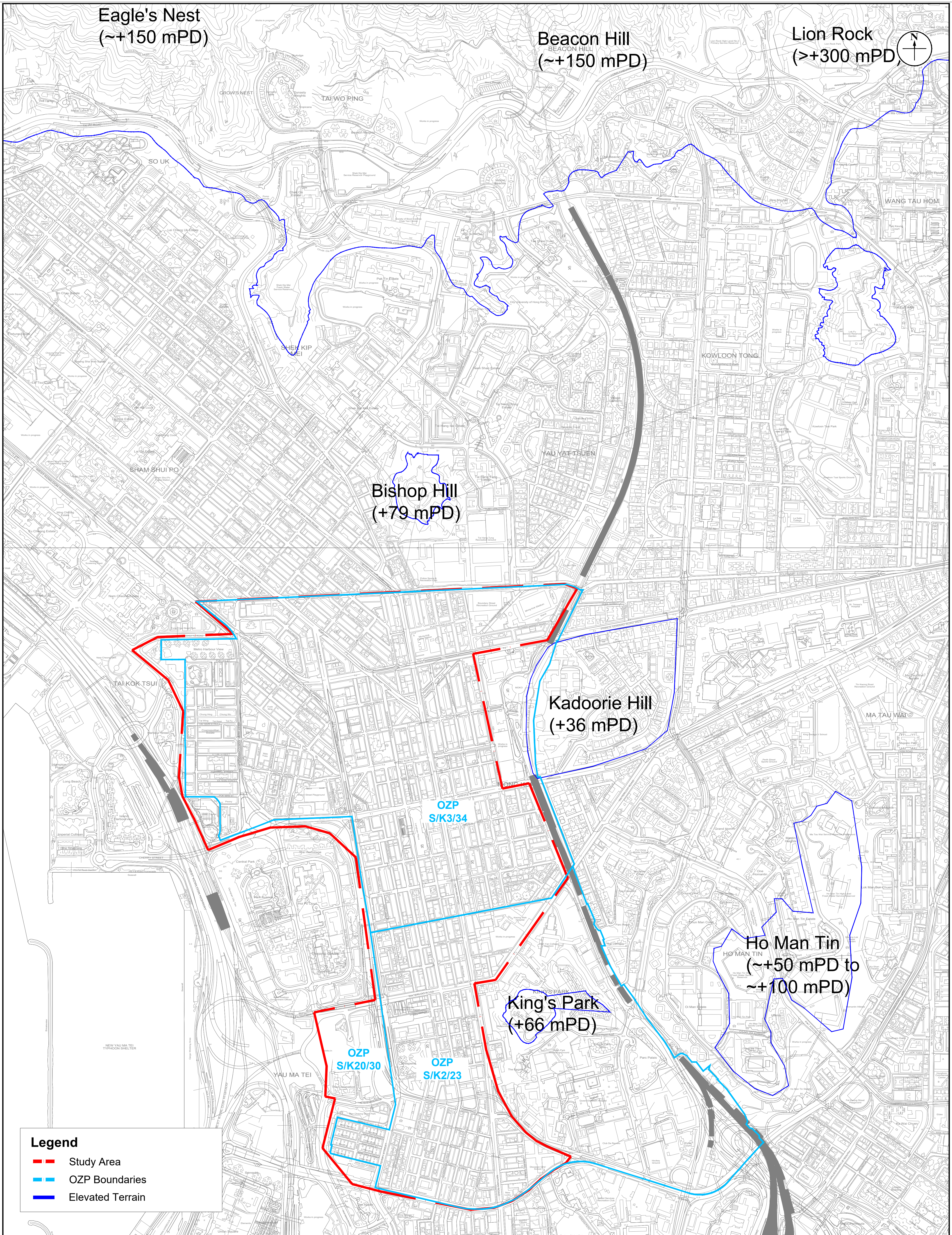


Figure:	2.20	RAMBOLL
Title:	Topography of the Study Area	Drawn by: RS
		Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 3.0
		Date: May 2022

Q:\PROJECTS\URAYMTMKEI00\04 DELIVERABLES\06 AVA REPORT\01 FIGURES\V3.0\SOURCE\NEW FIGURES\OZP ZONING\FIG 2.20_TOPOGRAPHIC MAP.DWG

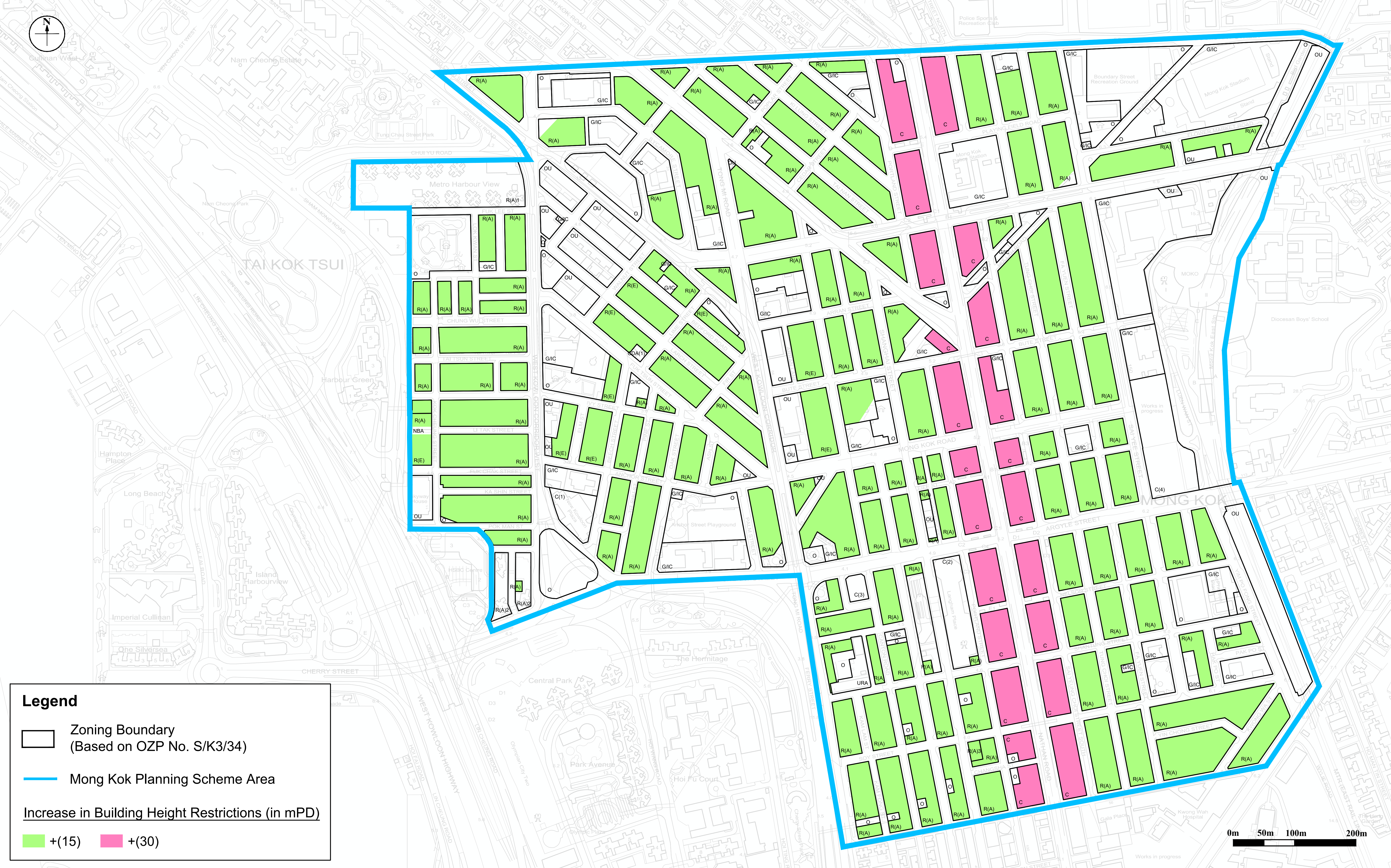


Figure: 2.21a

Title: Increase in Building Height Restrictions in Mong Kok Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Ventilation Assessment

RAMBOLL

Drawn by:	YM
Checked by:	KY
Rev.:	3.0
Date:	May 2022

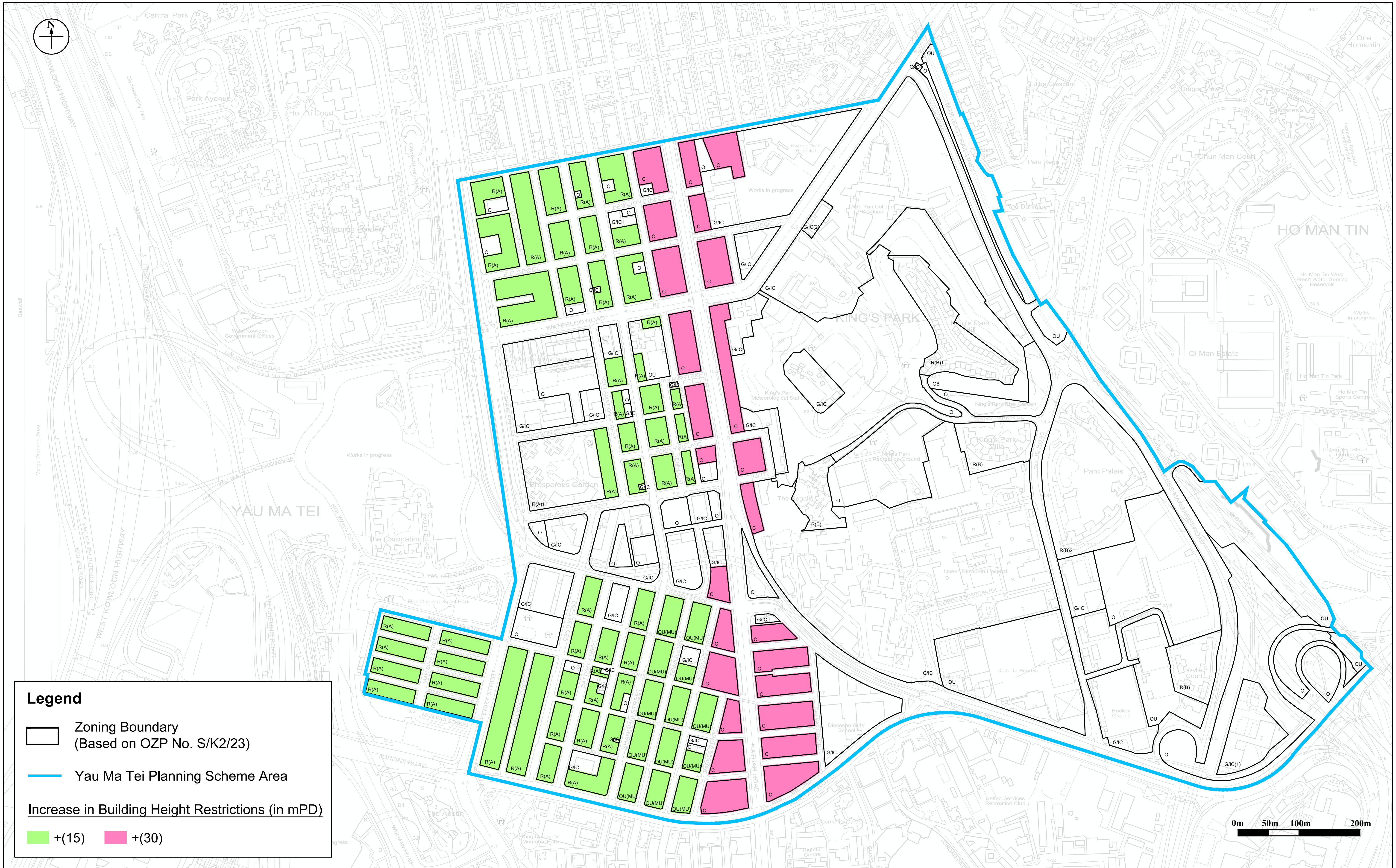


Figure: 2.21b	RAMBOLL
Title: Increase in Building Height Restrictions in Yau Ma Tei Area	Drawn by: YM
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Ventilation Assessment	Rev.: 3.0
	Date: May 2022

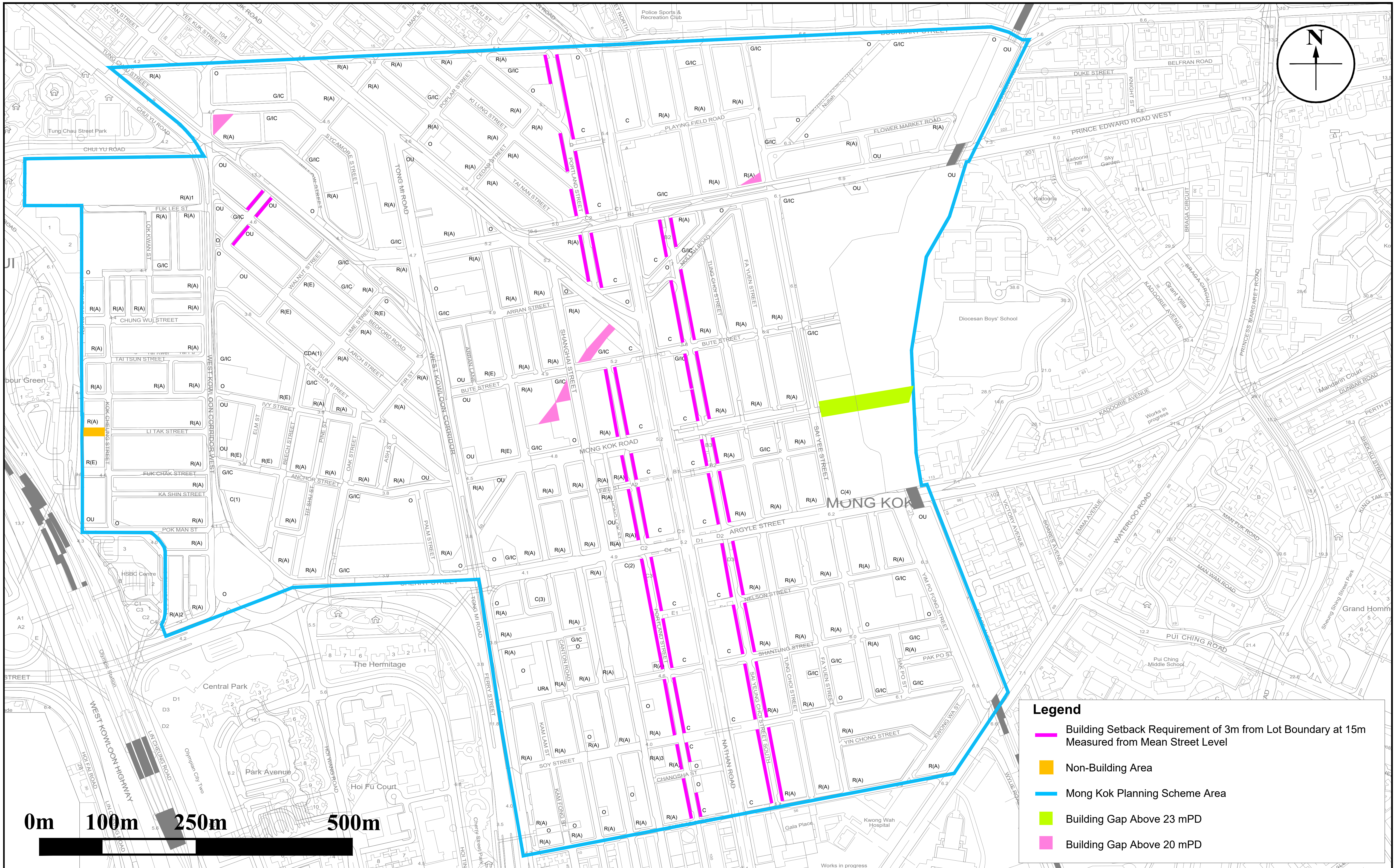


Figure: 3.1

Title: NBAs, BGs, BSs requirement of Mong Kok Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	II
Checked by:	KY
Rev.:	3.0
Date:	May 2022

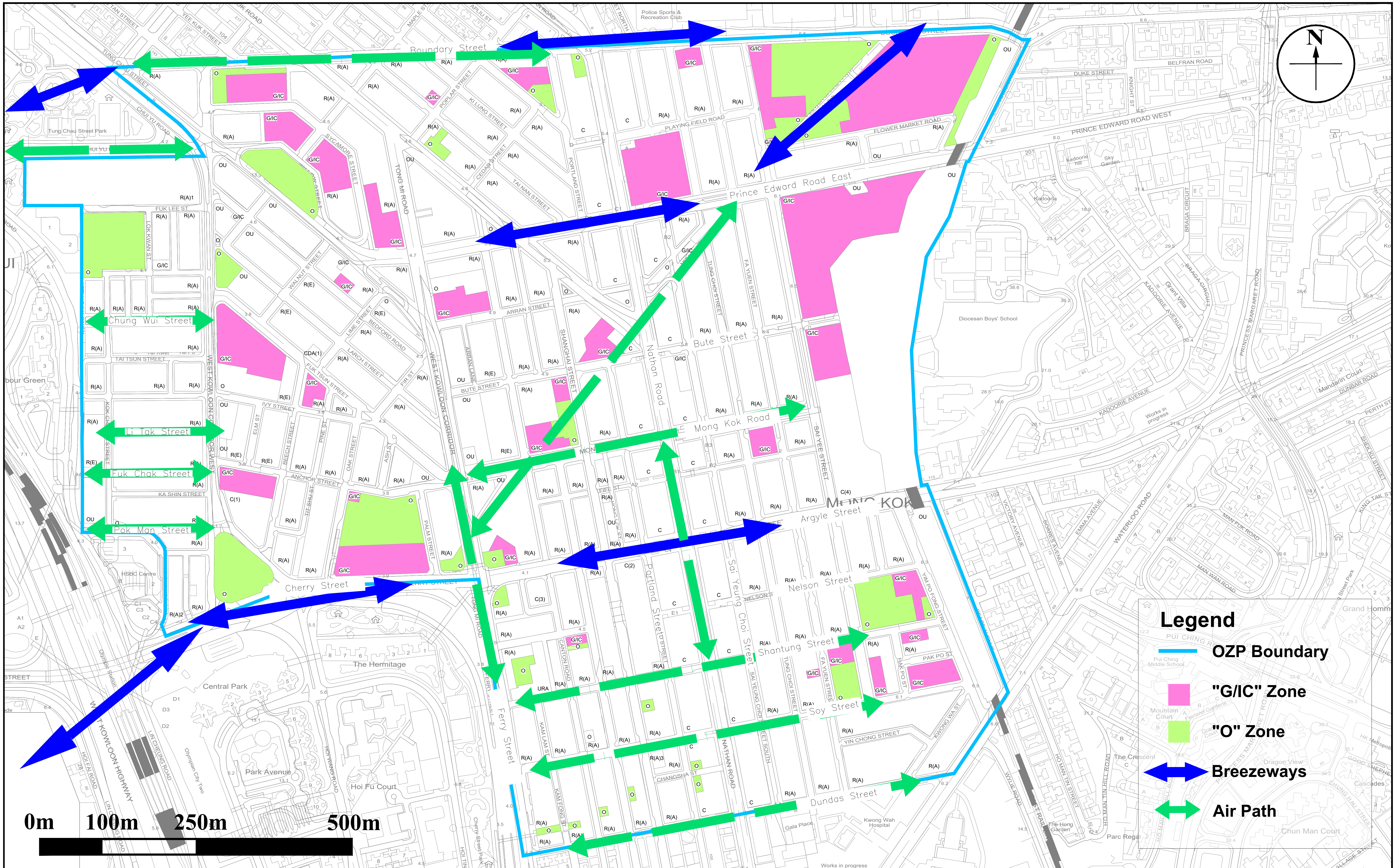


Figure: 3.2	
Title: Major Ventilation Corridors in Mong Kok	Drawn by: RS
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 4.0
	Date: Jun 2022

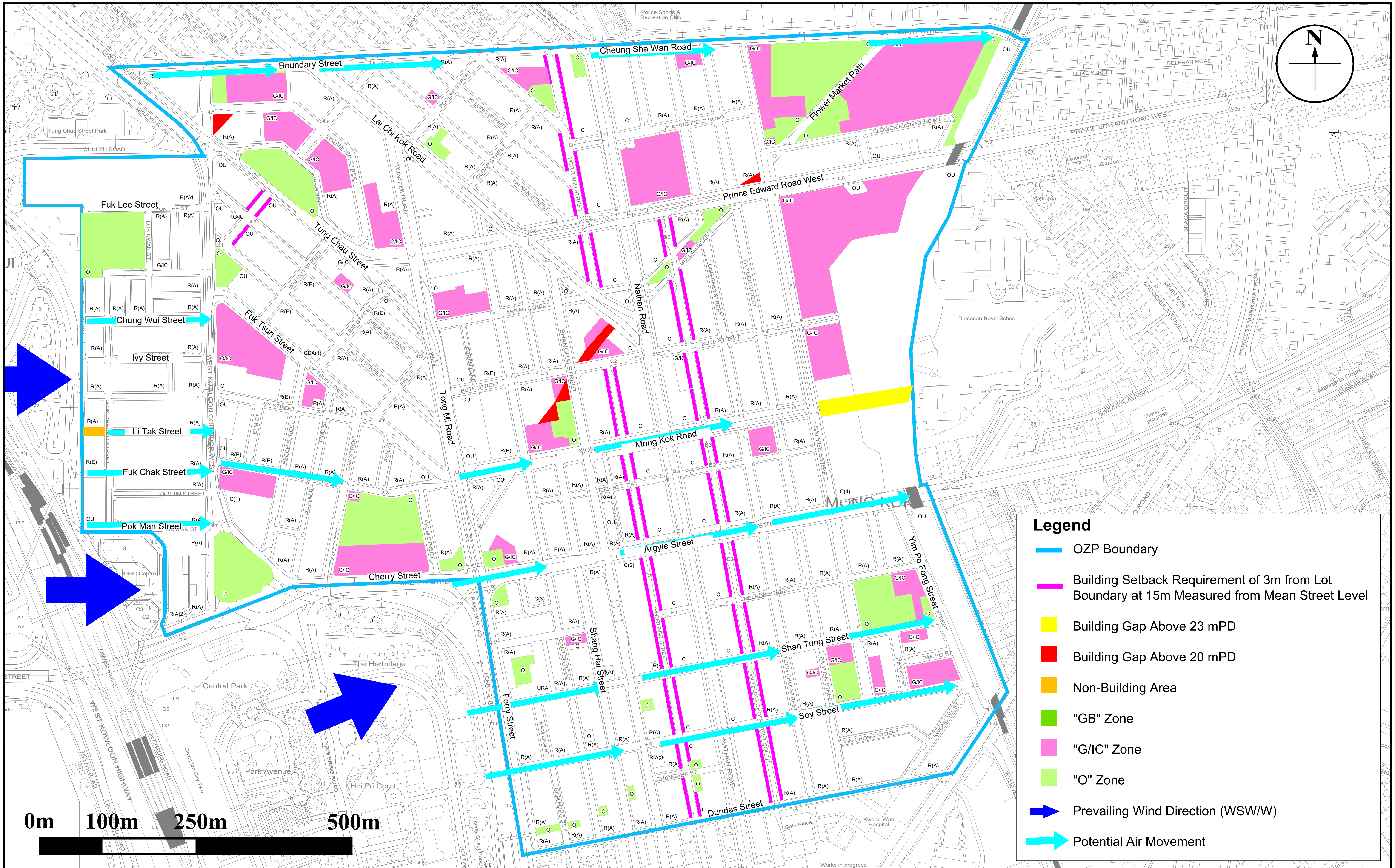


Figure: 3.3

Title: Potential air movement in Mong Kok Area when wind comes from the WSW and W

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	II
Checked by:	KY
Rev.:	4.0
Date:	Jun 2020

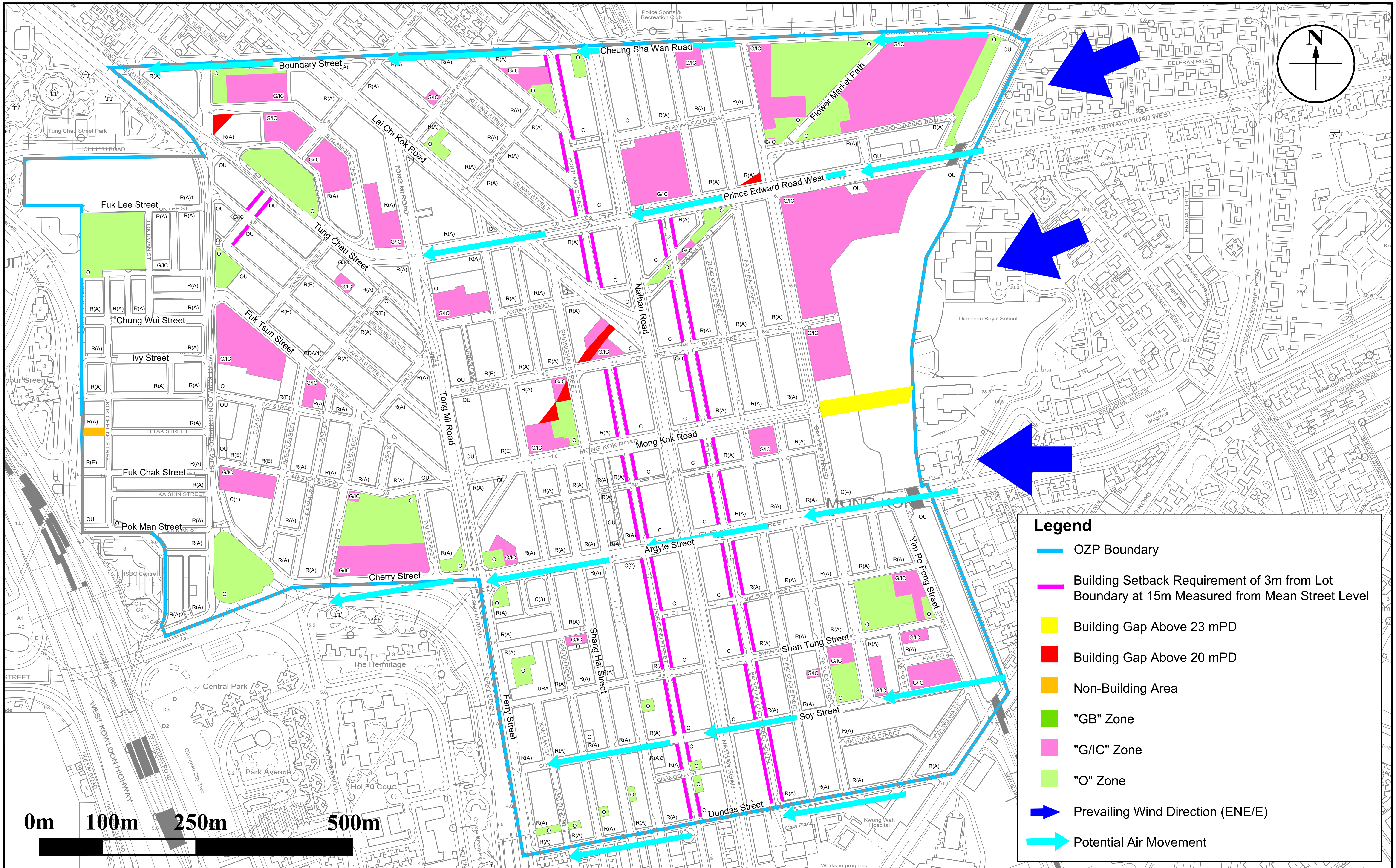


Figure: 3.4	RAMBOLL
Title: Potential air movement in Mong Kok Area when wind comes from the ENE/E	Drawn by: II
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 4.0
	Date: Jun 2022

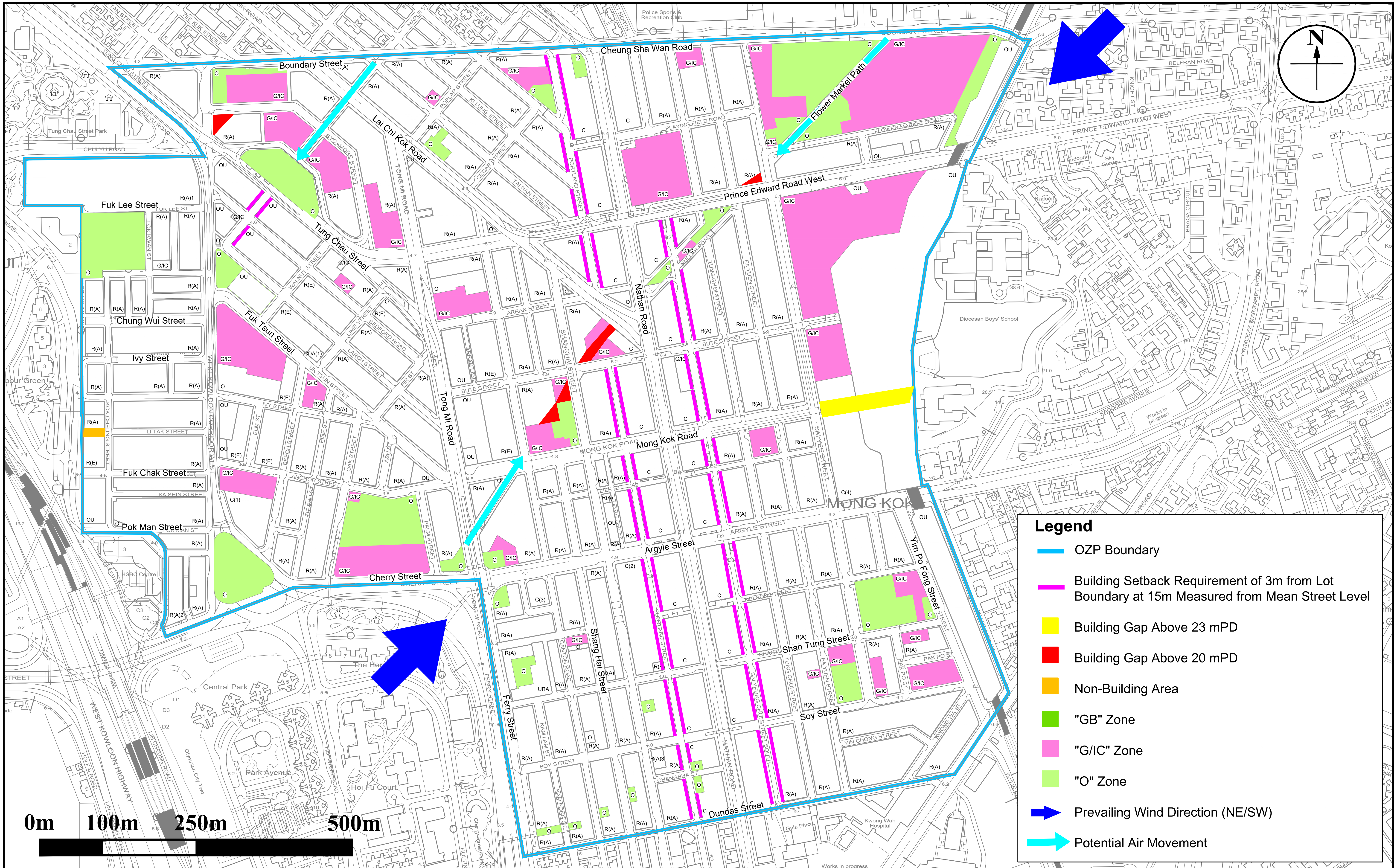


Figure: 3.5

Title: Potential air movement in Mong Kok Area when wind comes from the NE/SW

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	II
Checked by:	KY
Rev.:	4.0
Date:	Jun 2022

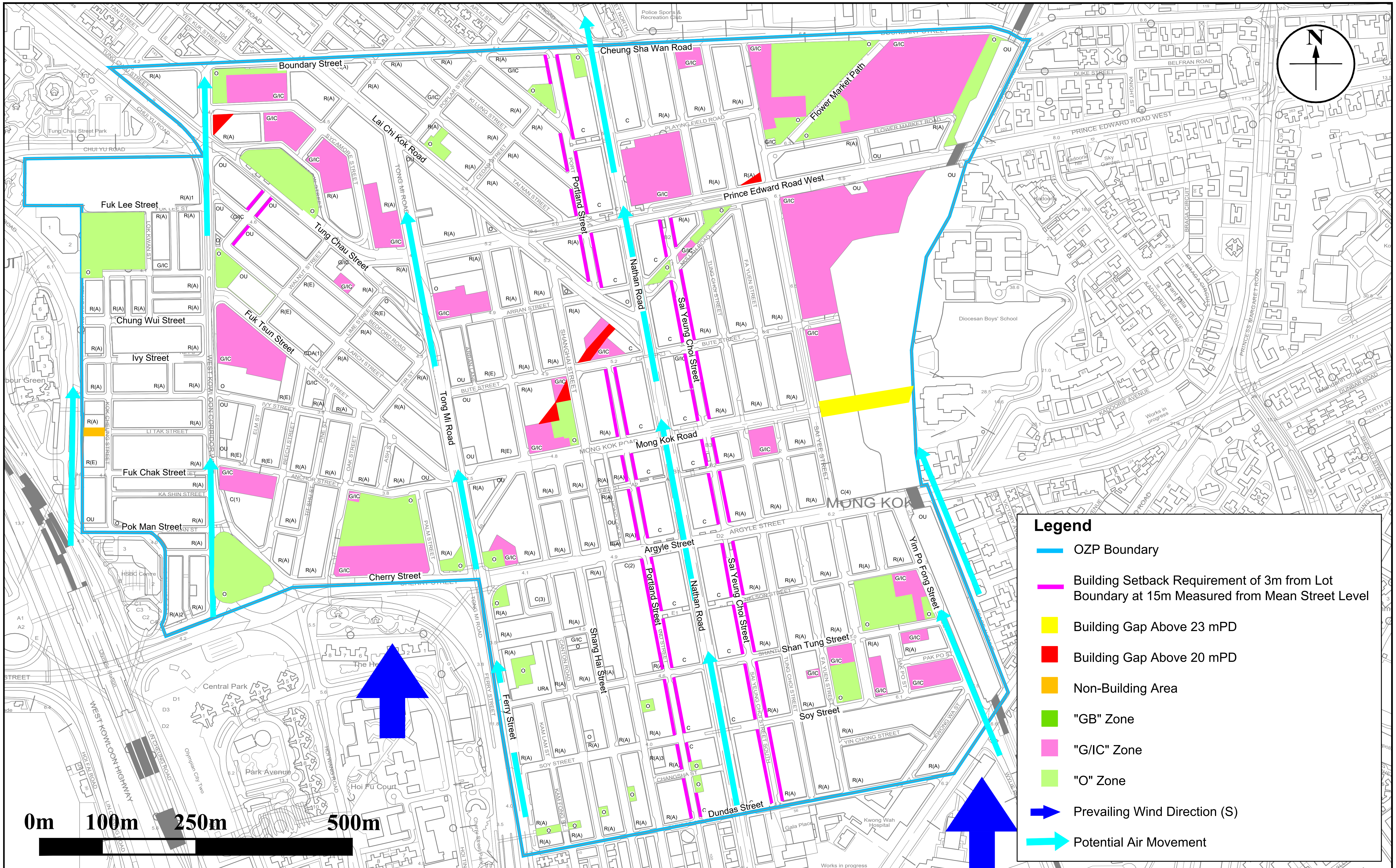


Figure: 3.6

Title: Potential air movement in Mong Kok Area when wind comes from the S

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by:	II
Checked by:	KY
Rev.:	4.0
Date:	Jun 2022

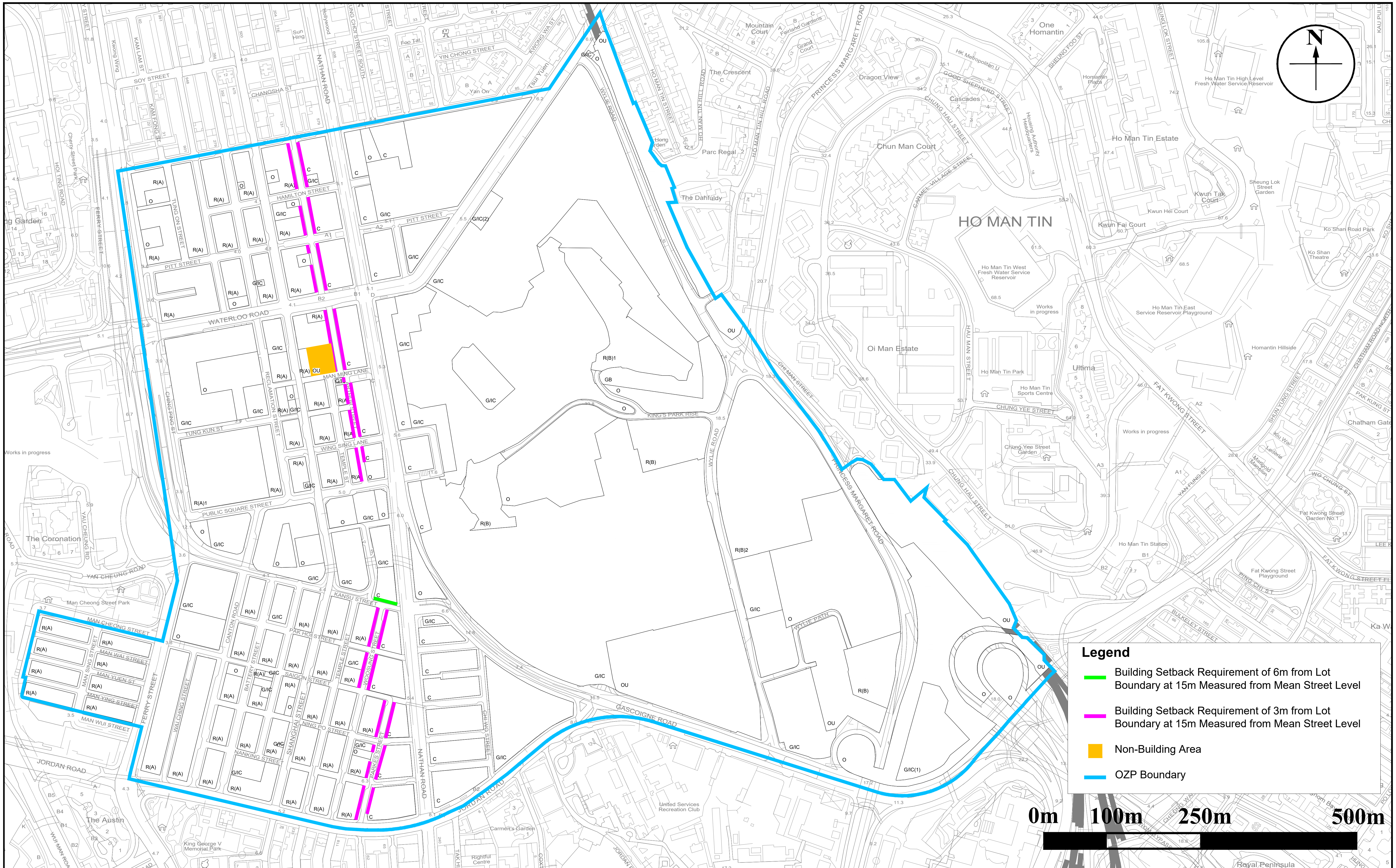


Figure:	3.7	RAMBOLL	
Title:	NBAs, BGs, BSs requirement of Yau Ma Tei Area	Drawn by:	II
		Checked by:	KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.:	3.0
		Date:	May 2022

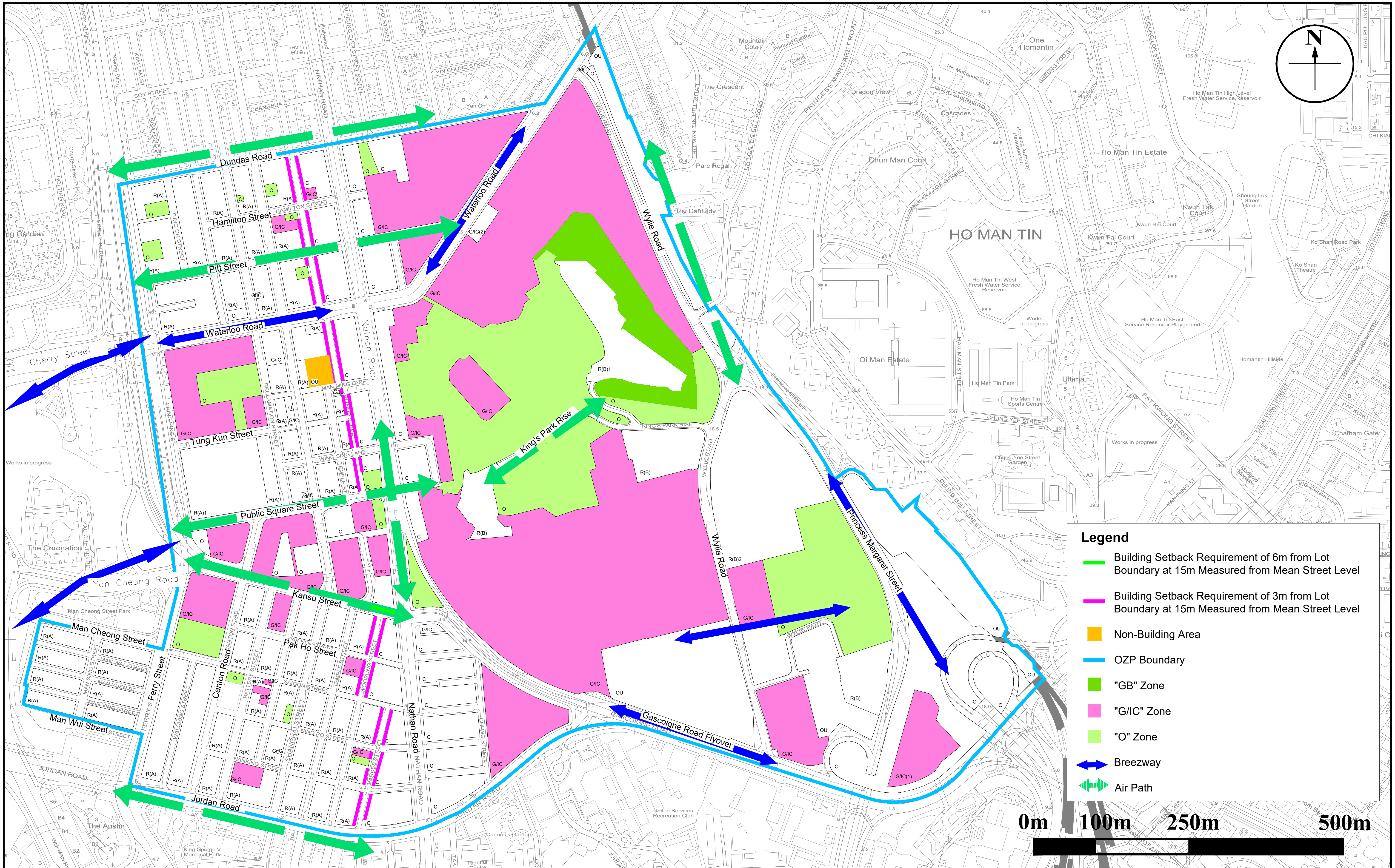


Figure: 3.8

Title: Major Ventilation Pathways Identified in Yau Ma Tei

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by: II

Checked by: KY

Rev.: 4.0

Date: Jun 2022

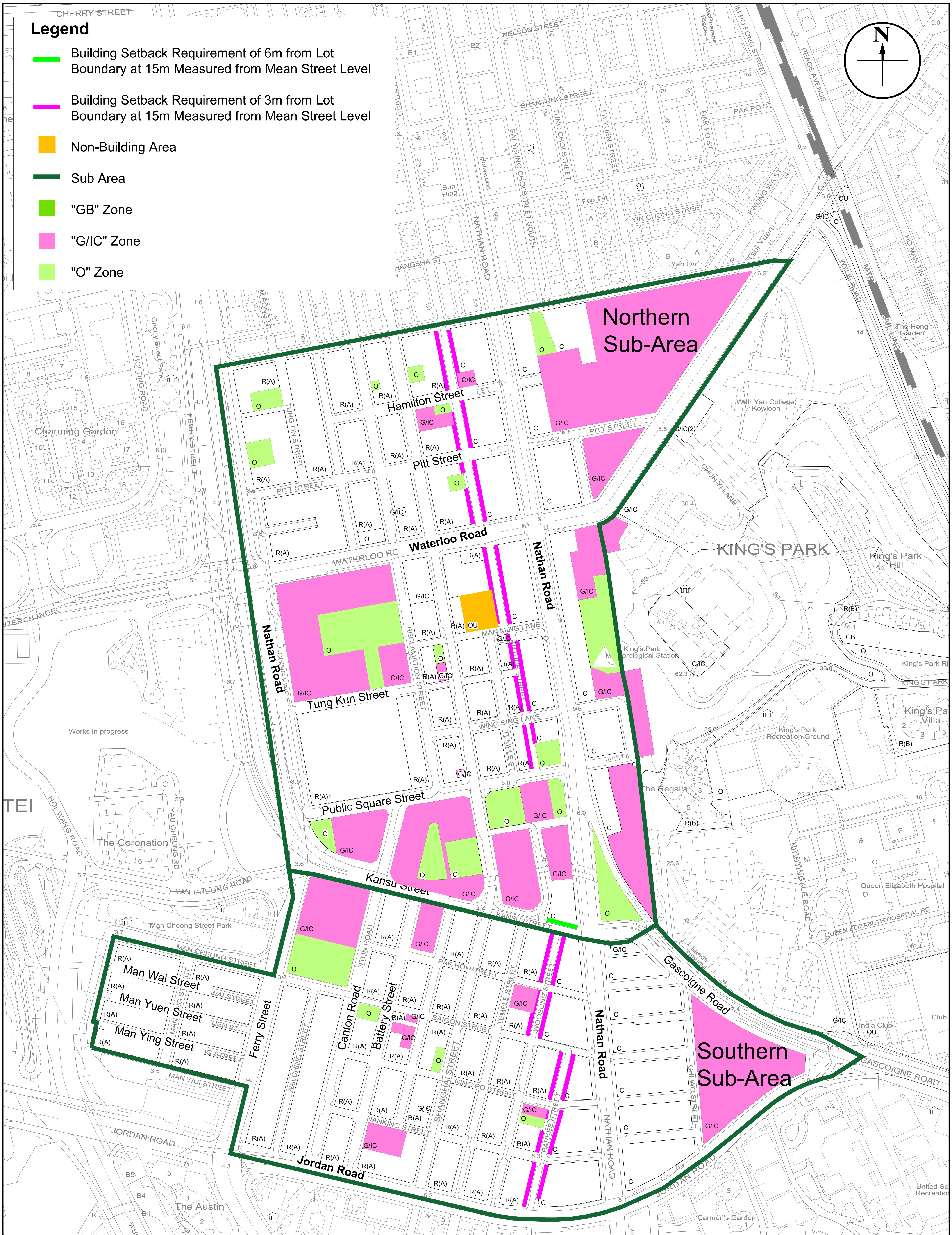


Figure:	3.9	RAMBOLL
Title:	Sub Areas in Yau Ma Tei Area for the Review of NBAs and SB requirements	Drawn by: II
		Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 3.0
		Date: May 2022

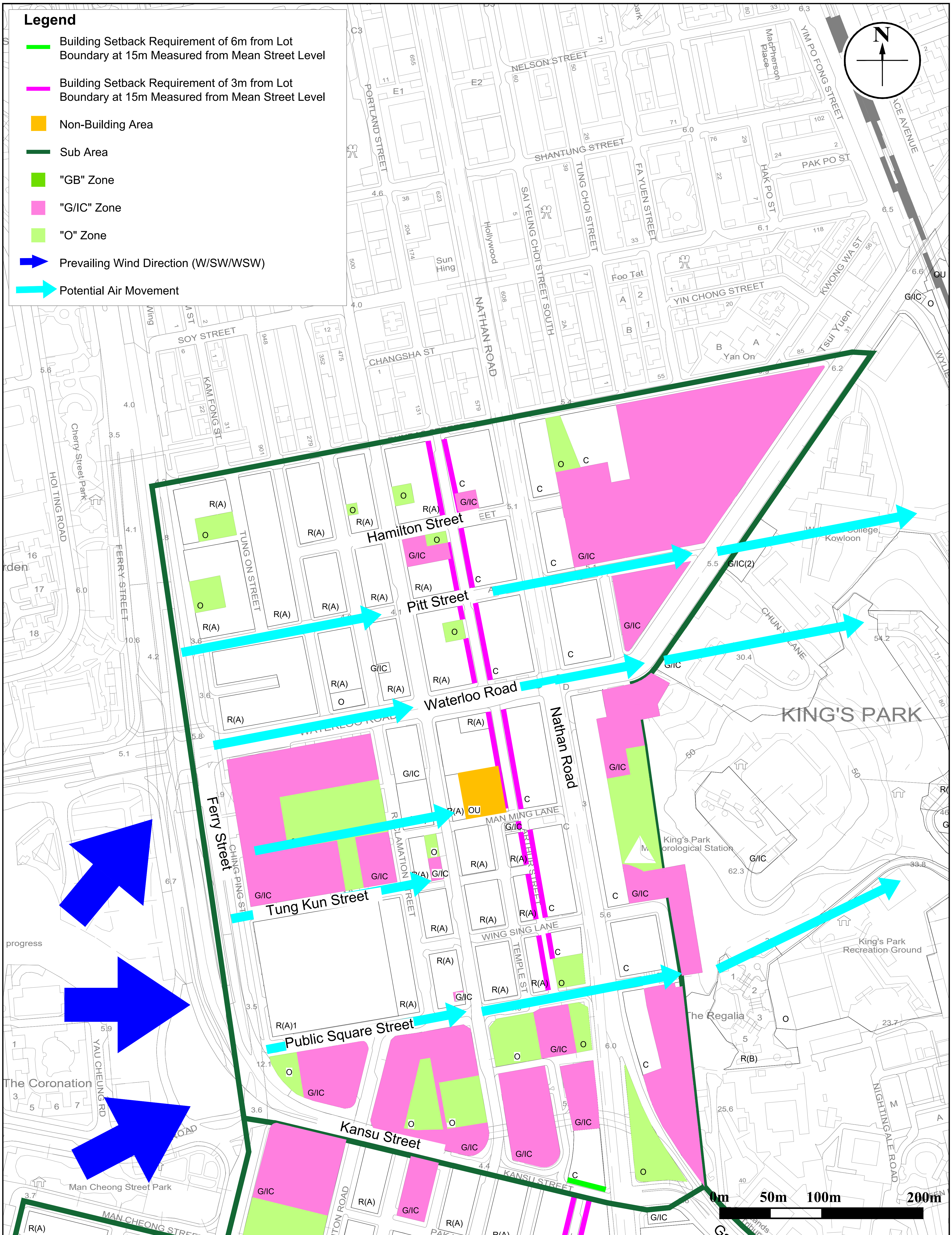
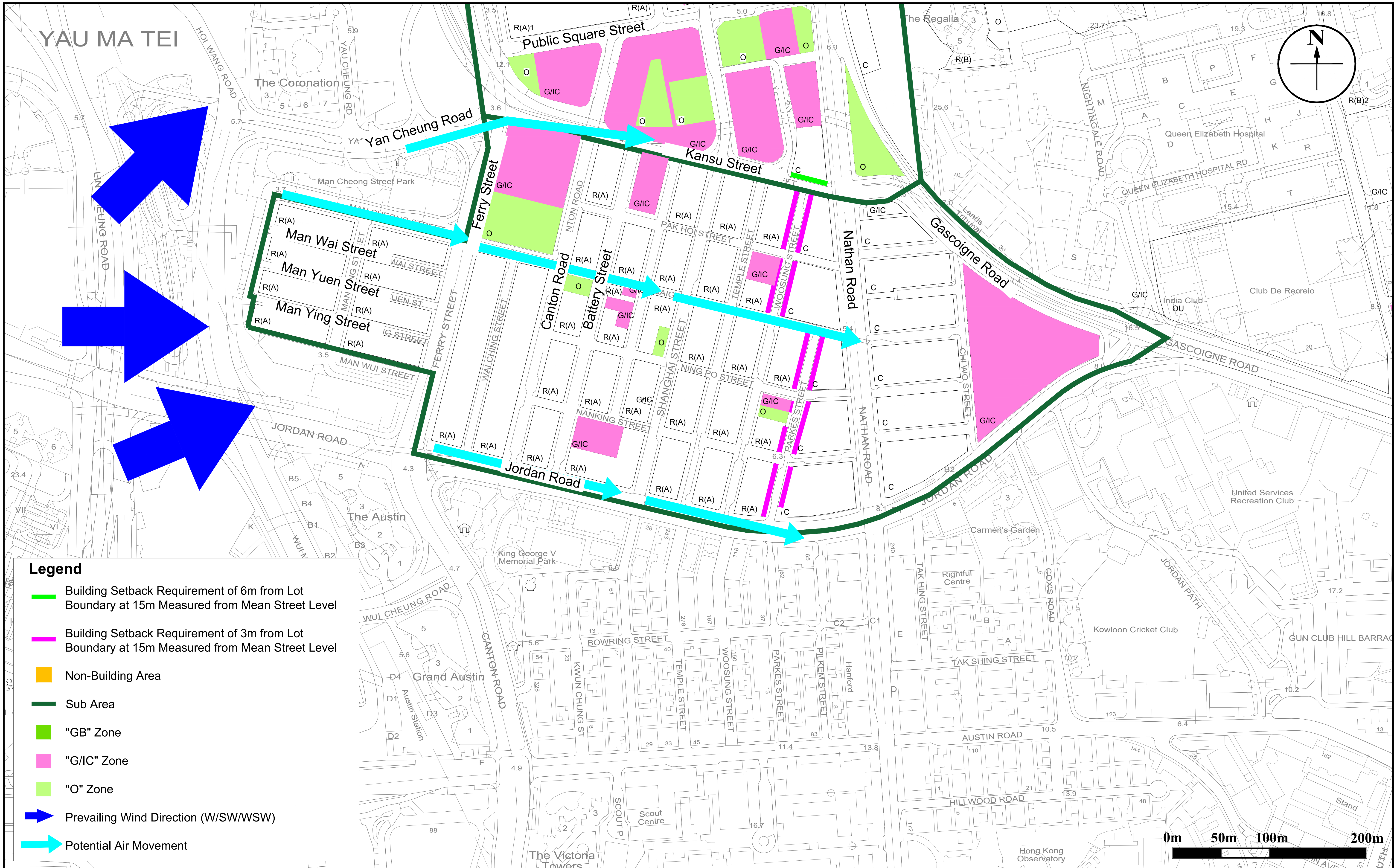


Figure: 3.10	RAMBOLL
Title: Potential air movement in the northern sub-area of Yau Ma Tei Area when wind comes from the W, SW, and WSW	Drawn by: II
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 4.0
	Date: Jun 2022



Legend

- Building Setback Requirement of 6m from Lot Boundary at 15m Measured from Mean Street Level
- Building Setback Requirement of 3m from Lot Boundary at 15m Measured from Mean Street Level
- Non-Building Area
- Sub Area
- "GB" Zone
- "G/IC" Zone
- "O" Zone
- Prevailing Wind Direction (W/SW/WSW)
- Potential Air Movement

Figure:	3.11	RAMBOLL
Title:	Potential air movement in the southern sub-area of Yau Ma Tei Area when wind comes from the W, SW, and WSW	Drawn by: II
		Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 4.0
		Date: Jun 2022

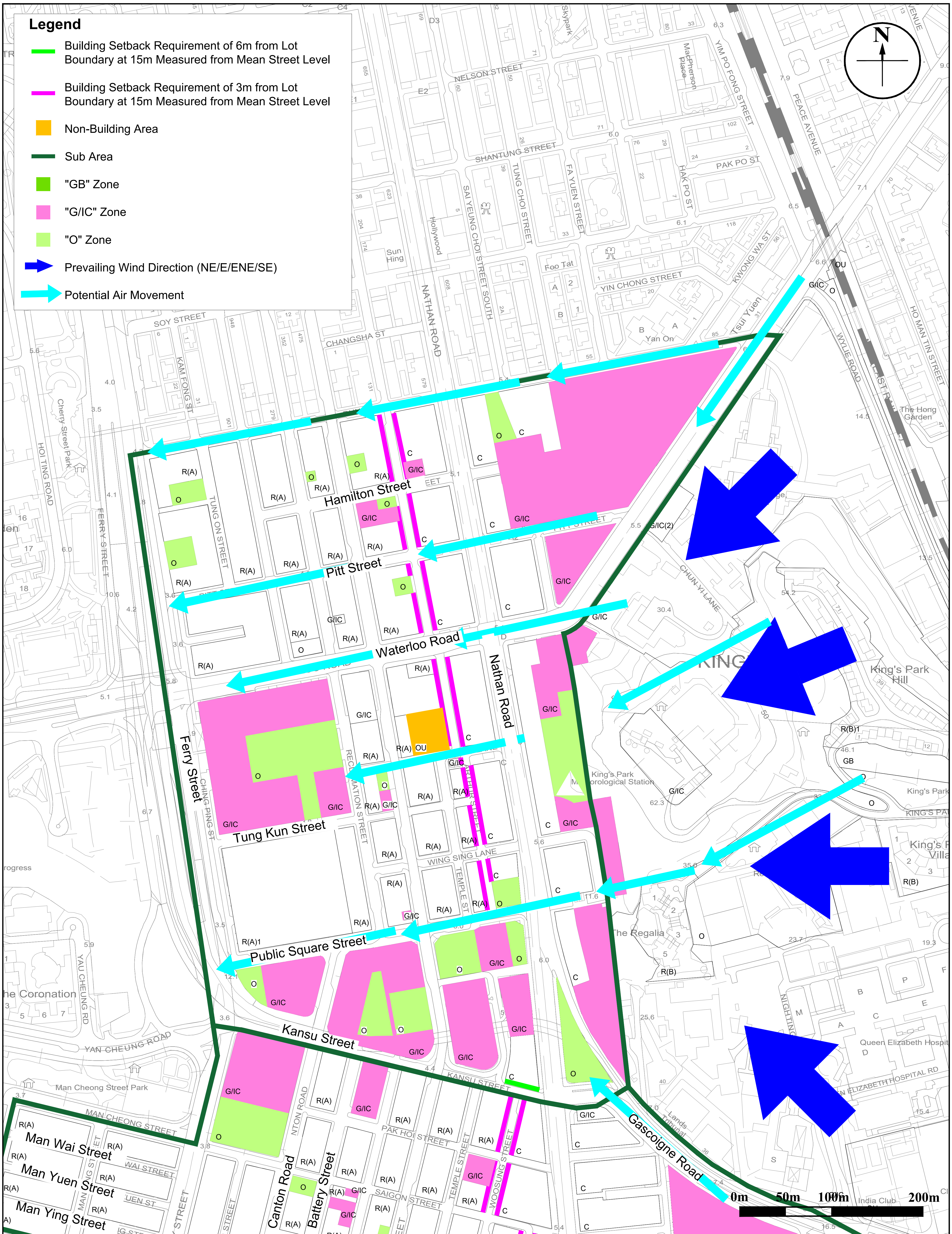


Figure: 3.12	RAMBOLL
Title: Potential air movement in the northern sub-area of Yau Ma Tei Area when wind comes from the NE, ENE, E, and SE	Drawn by: II
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 4.0
	Date: Jun 2022

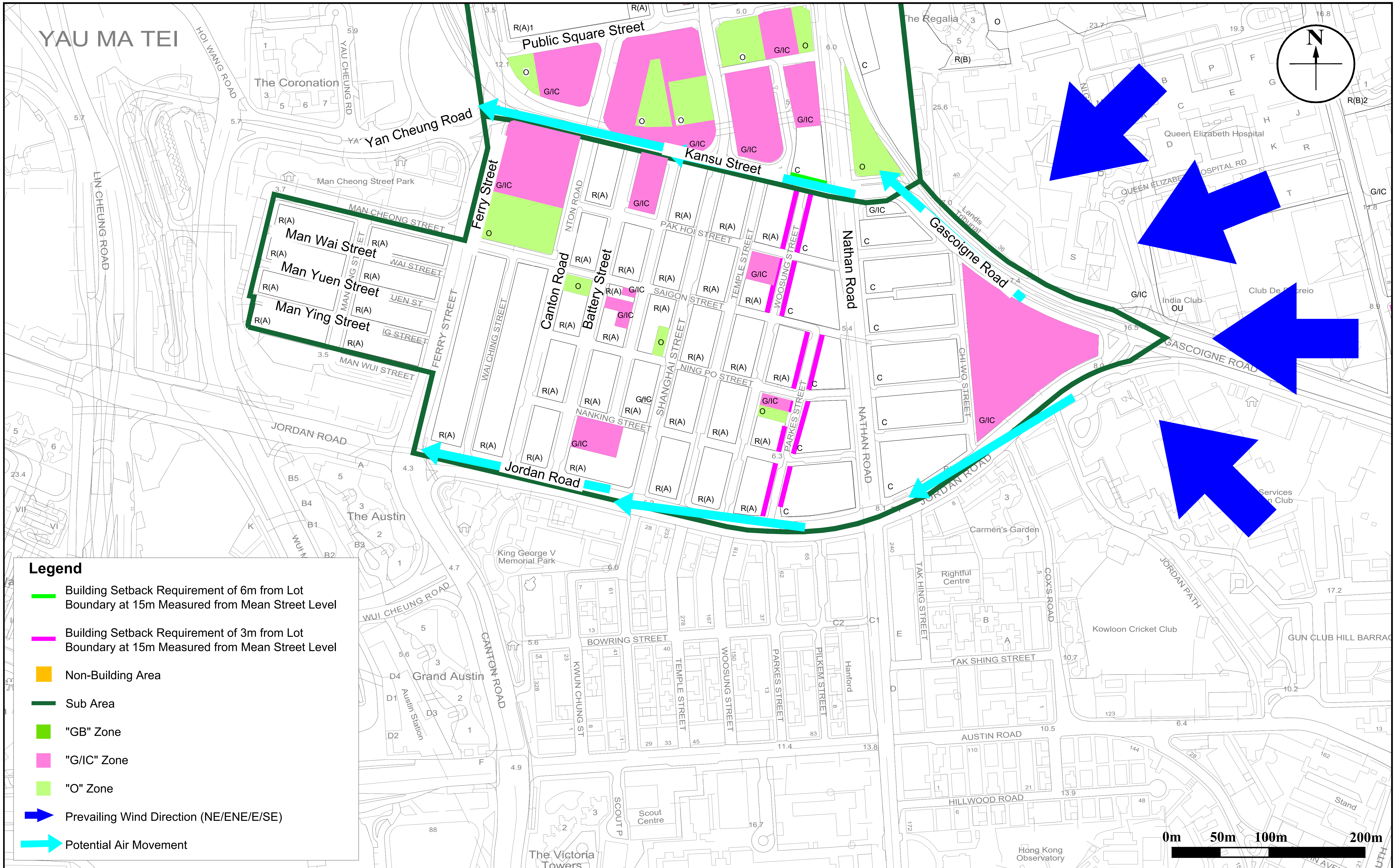


Figure: 3.13

Title: Potential air movement in the southern sub-area of Yau Ma Tei Area when wind comes from the NE, ENE, E, and SE

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by: II

Checked by: KY

Rev.: 4.0

Date: Jun 2022

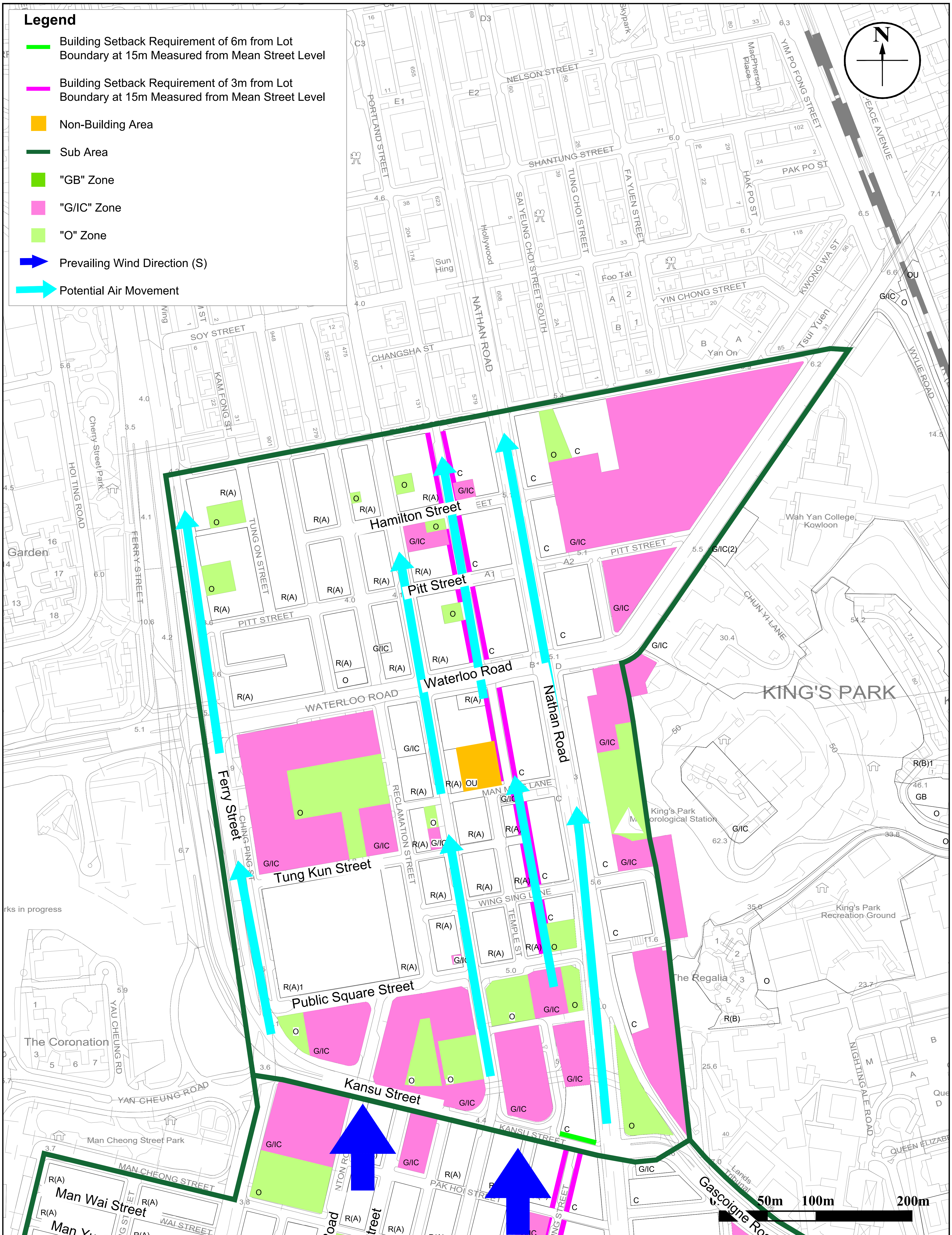


Figure: 3.14	RAMBOLL
Title: Potential air movement in the northern sub-area of Yau Ma Tei Area when wind comes from the S	Drawn by: II
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 4.0
	Date: Jun 2022

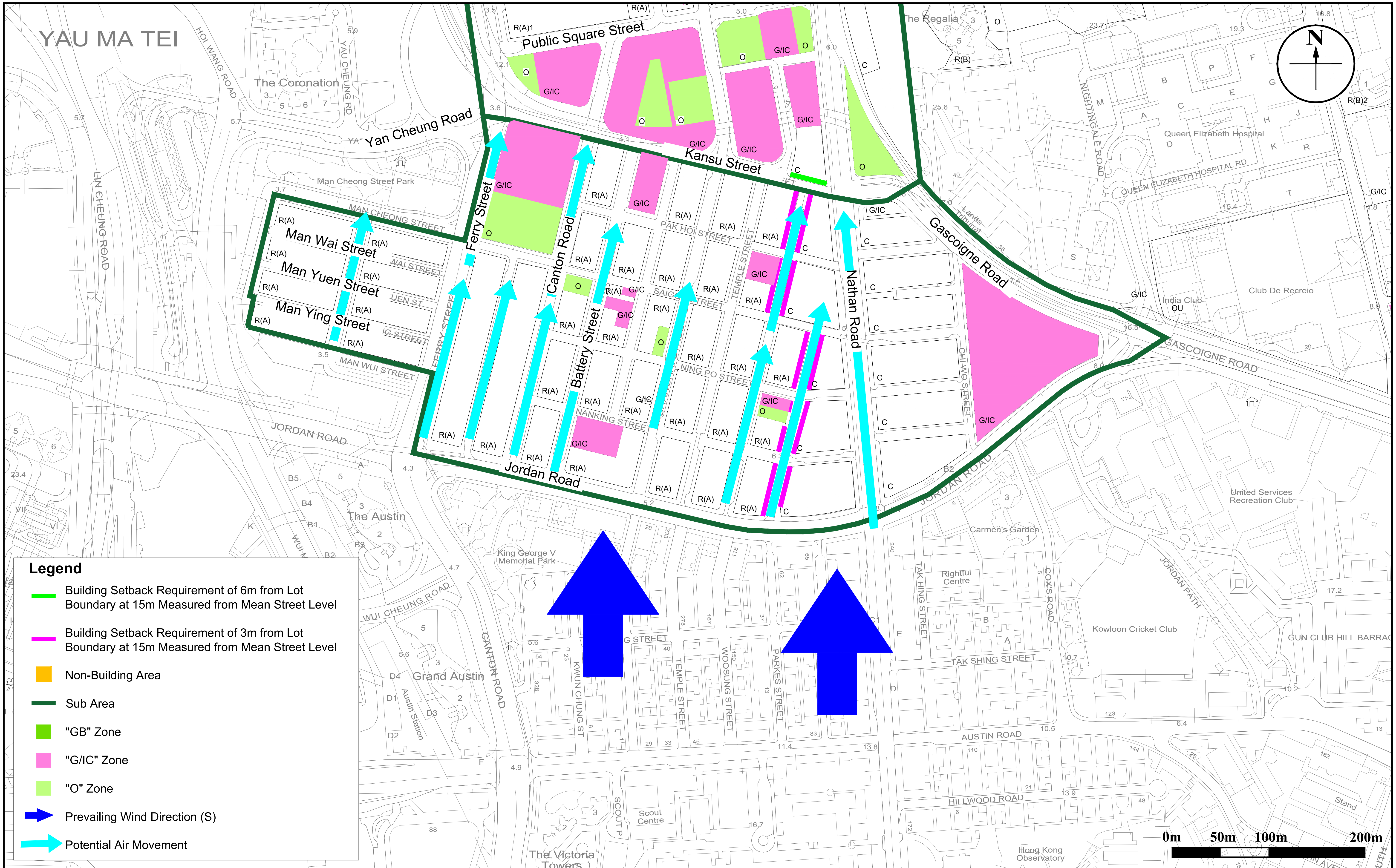


Figure: 3.15

Title: Potential air movement in the southern sub-area of Yau Ma Tei Area when wind comes from the S

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

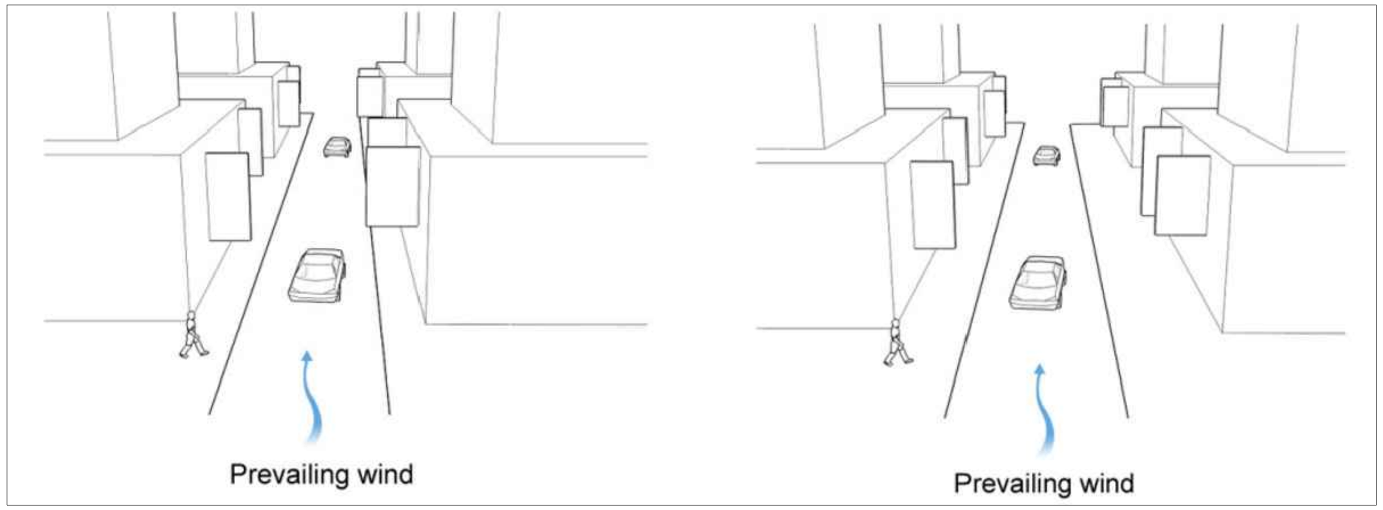
RAMBOLL

Drawn by: II

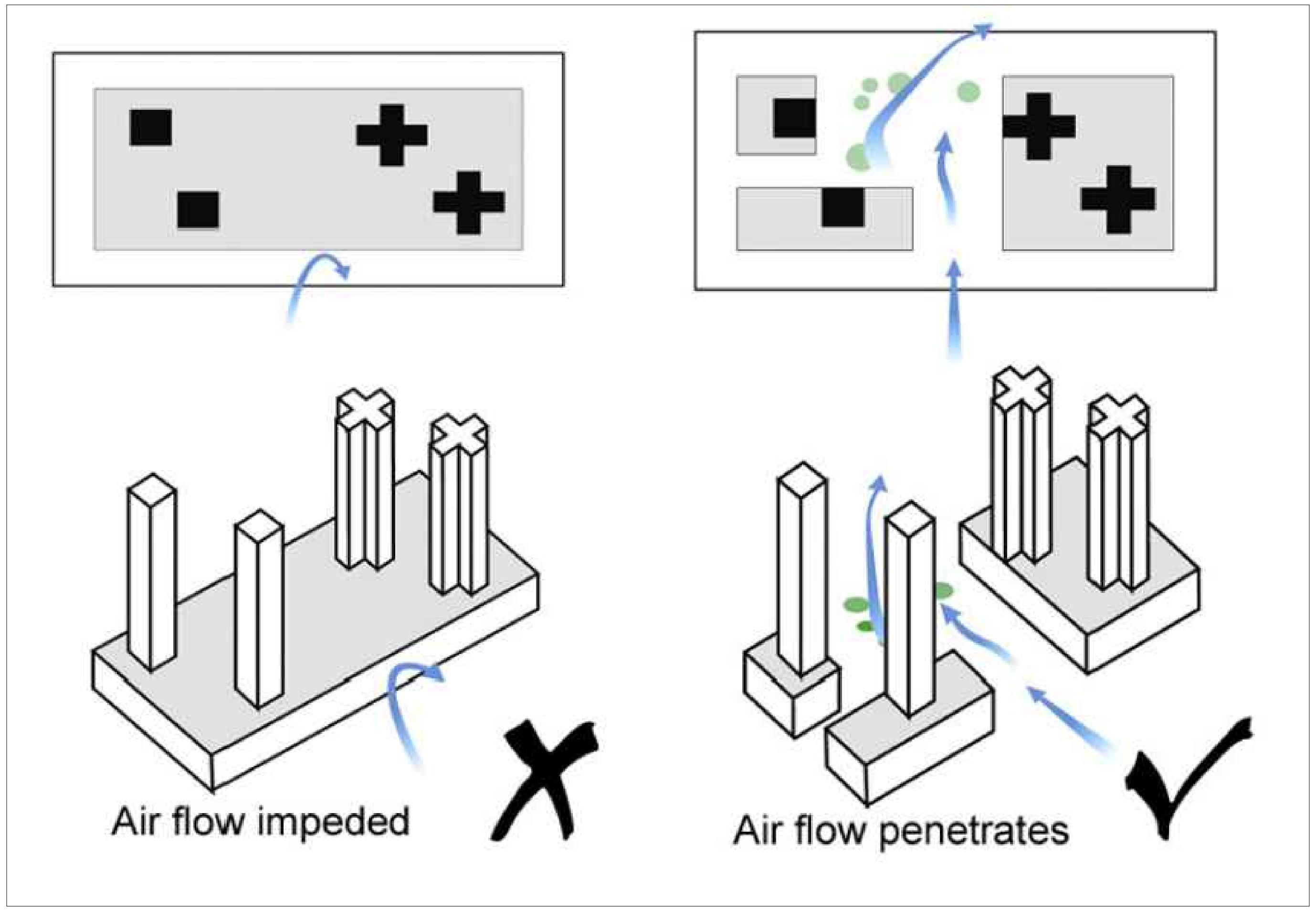
Checked by: KY

Rev.: 4.0

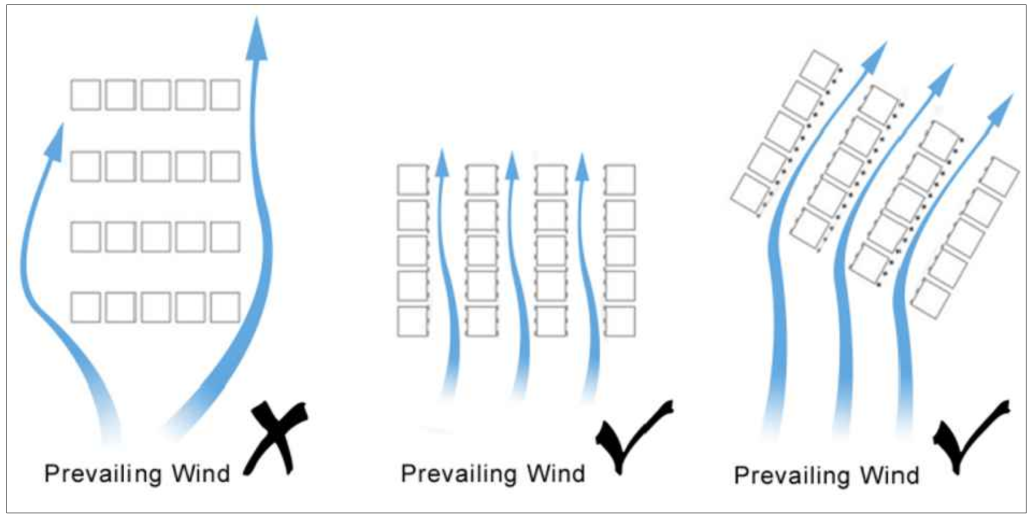
Date: Jun 2022



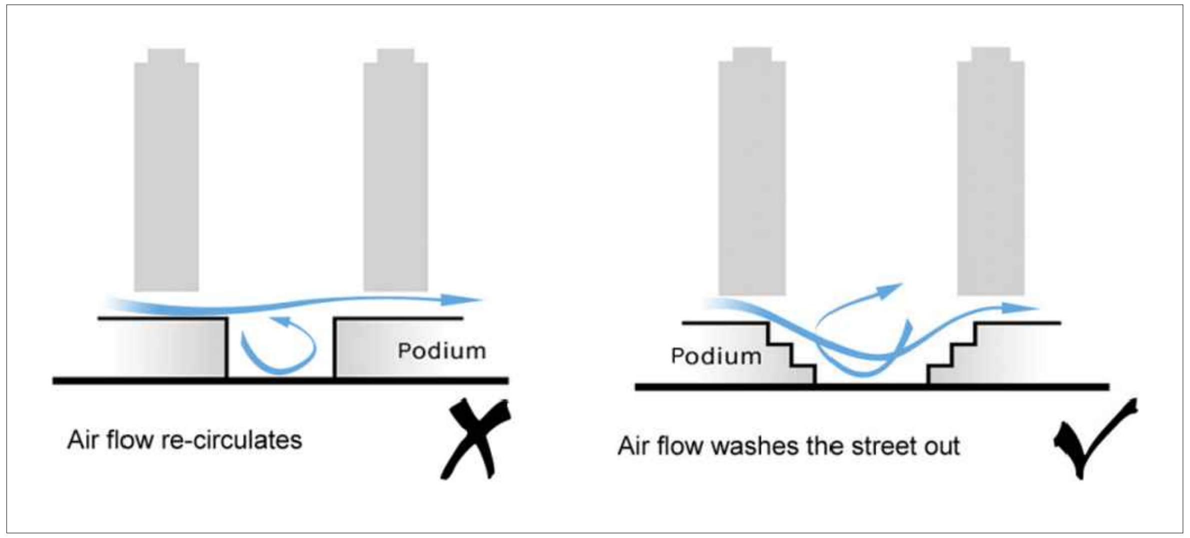
Street Widening/Building Setback



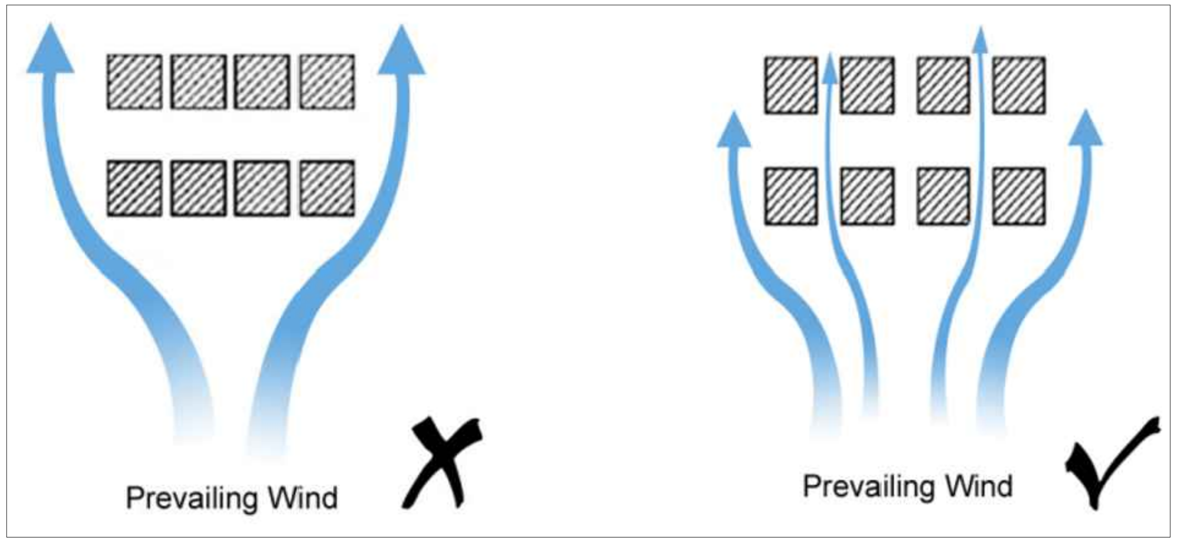
Reducing Site Coverage of the Podia to Allow More Open Space at Grade



Orientation of Building Aligned to Prevailing Wind



Terraced Podium Design



Gaps between Building Blocks to Enhance Air Permeability

Figure:	3.16	RAMBOLL
Title:	Illustrations of Good Design Features (Extracted from Chapter 11 Urban Design Guidelines of HKPSG)	Drawn by: II Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 3.0 Date: May 2022

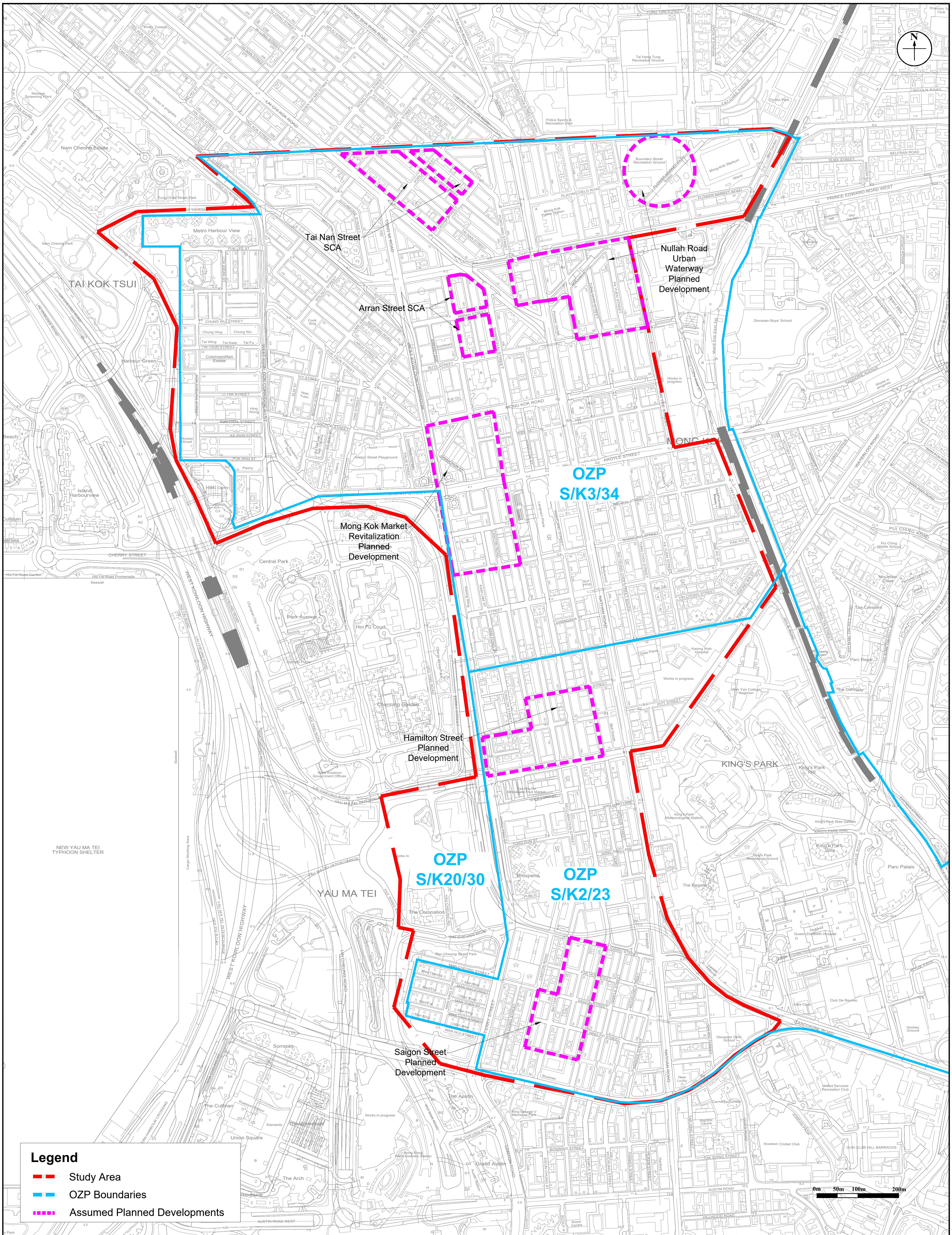


Figure: 3.17

Title: General Area of the Assumed Planned Developments

Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment

RAMBOLL

Drawn by: RS

Checked by: KY

Rev.: 3.0

Date: May 2022

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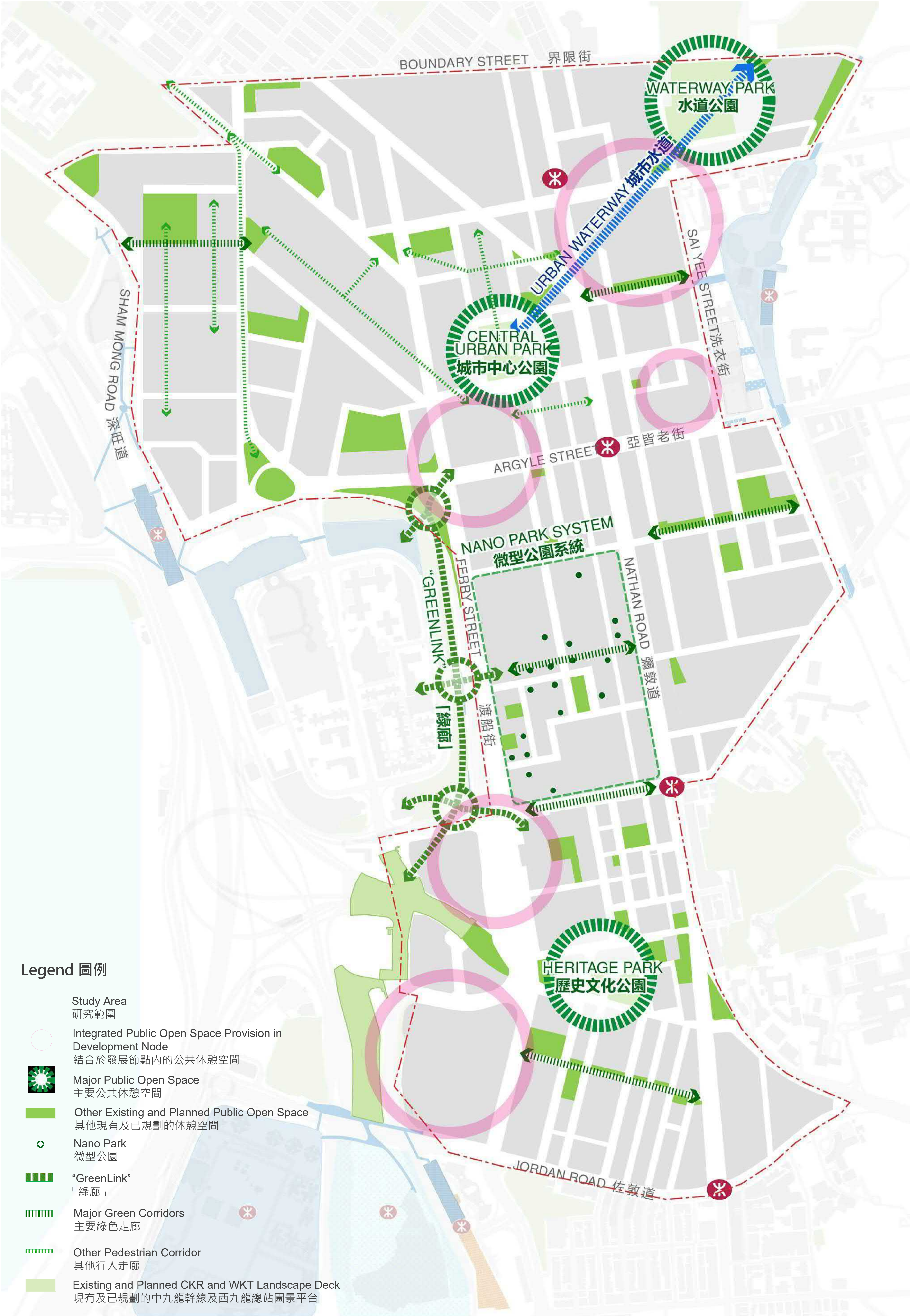

Figure: 3.18	RAMBOLL
Title: Proposed Open Space Framework in the Yau Ma Tei & Mong Kok Study	Drawn by: RS
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei And Mong Kok Districts - Air Ventilation Assessment	Rev.: 3.0
	Date: May 2022

Appendix 1

Preliminary Air Ventilation Appraisal for Assumed Planned Developments under the MRCP

1.1 Assumed Planned Developments

1.1.1 For the assumed planned developments, design features favourable to the air ventilation of the planned development has been generally determined and a rough evaluation of the performance of the surrounding area can be done.

Nullah Road Urban Waterway

1.1.2 NE and ENE wind are able to have better wind penetration to the inner area of MK through the usage of the Nullah Road Urban Waterway planned development which includes the Boundary Street Recreation Ground and the area around Nullah Road. There are plans to increase the open space provided in the recreation ground and provide more building setback from nearby streets compared to the existing condition (the sports centres) that allows for wind flow upstream to flow unhindered to places further within the Study Area. It would also improve the connectivity of at-grade land within the district and increase wind flow penetration to Nullah Road before entering the central cluster of buildings within the Mong Kok District. A direct path for pedestrian wind flow is created from the Boundary Street Recreation Ground to Nullah Road and Nathan Road. There is also additional building setback from Bute Street which will be provided in the planned development and would significantly improve the prevailing E wind flow. Hence, there would likely be an overall improvement in the pedestrian wind environment through the provision of more building setback and open space at pedestrian level.

Mong Kok Market Revitalization

1.1.3 Although the Mong Kok Market Revitalization planned development has much higher building height than the existing condition where more blockage of higher-level wind and a larger wake of decreased wind flow downstream is expected downstream near Cherry Street, the development will include more local low-lying area and open space than the existing condition which promote air movement within the area bounded by Mong Kok Road and Shantung Street while providing building setback along the nearby streets (e.g., Argyle Street). This planned development offers the opportunity to incorporate building setback from Argyle Street on both sides of the street as well as open area at the north of the site next to Mong Kok Road. The proposed mitigation measures would aid the annual wind flow (easterlies) along Mong Kok Road and Argyle Street to downstream areas.

Hamilton Street

1.1.4 In the assumed planned development at Hamilton Street, mitigation measures such as building setback from Waterloo Road will be incorporated. Additional building setback of the entire site along Waterloo Road will be provided to create an open space corridor that assists with the annual wind flow (northeasterlies and easterlies) along Waterloo Road and an improvement in pedestrian air ventilation performance of the site is foreseen through the provision of more building setback and open space at ground level.

Saigon Street

1.1.5 The assumed planned development at Saigon Road will provide mitigation measures at its area to improve the air ventilation environment in its vicinity. Existing local air corridors near the site will be kept and enhanced through the additional setback and local open space that will be implemented at the site. The proposal of a green corridor along Saigon Street with building setback from both sides would enhance the connectivity of the at-grade wind corridor of Saigon Street along with Saigon Street Playground to provide a widened wind corridor to accept incoming eastern winds. Furthermore, two separate planned open spaces on either side of Saigon Street near the intersection of Canton Road and Saigon Street also aids in this endeavour and provides the maximum amount of at-grade open areas possible within the area. The setback for wind blowing through the nearby streets (e.g., Saigon Street and Ming Po Street) is given more space for free flow and this would prevent air stagnation in the area.

Tai Nan Street SCA

1.1.6 At the Tai Nan Street SCA, the opportunity would be taken to incorporate design measures in the development to improve air ventilation performance of the site under summer wind and its performance is expected to be better than that of the existing development. While the orientation of the site itself is not aligned to the summer prevailing S wind, southern winds coming from Tong Mi Road would be able to take advantage of the re-provisioning of the public open space at the site as well as the planned additional building setback at Poplar Street at its intersection with Tong Mi Road to flow to the extended open space and beyond with some deflection, and its wind flow would be increased compared to the current condition of the site. SW wind flow would also be improved compared to existing conditions. The planned additional building setback at Poplar Street and Maple Street offers incoming SW wind with more open area for free wind flow at the site. Overall, it is likely that there would be an improvement in air ventilation impact compared to the existing condition through the provision of more building setback and open space at pedestrian level.

Arran Street SCA

1.1.7 The Arran Street SCA would increase the southern wind flow in the Mong Kok District by providing more high-level separation of residential buildings and more local open space at the Arran Street SCA compared to the existing condition. The local open spaces and building setback provided along Reclamation Street at the SCA improves connectivity of southern wind coming from the low-rise structures and Mong Kok Road Playground upstream. The increase in building setback and local open space in the design of the planned development is desirable for better pedestrian wind flow and provides increased wind comfort to pedestrians.

Summary of Air Ventilation Appraisal of Planned Development

1.1.8 The planned development takes the opportunity to introduce more building setback and open space with an overall aim to connect the existing air paths in Mong Kok and Yau Ma Tei and create a breezeway that spans across the two districts as compared to both OZP-Compliant and OZP-Amendment schemes. It is predicted that there would be an improvement in air ventilation performance near the 6 planned developments through the provision of more building setback and open space at pedestrian level. Therefore, the planned development is not expected to cause adverse air ventilation impact to the Study Area.

Attachment VId of
MPC Paper No. 5/23

Prepared for

Urban Renewal Authority

Prepared by

Ramboll Hong Kong Limited

OUTLINE ZONING PLAN AMENDMENTS
IN YAU MA TEI AND MONG KOK DISTRICTS

AIR QUALITY IMPACT ASSESSMENT REVIEW REPORT

Date	17 June 2022
Prepared by	Yoyo Mok Graduate Environmental Consultant
Signed	
Approved by	Katie Yu Senior Manager
Signed	
Project Reference	URAYMTMKEI00
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CHAPTERS

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FIGURES

APPENDICES

1. INTRODUCTION

1.1 Background

1.1.1 The Yau Mai Tei – Mong Kok districts are densely populated districts with a high proportion of aged buildings. Over half the existing buildings within the districts are aged 50 years or older. There is an urgent need to revitalize the districts through urban renewal.

1.1.2 In 2017, the Urban Renewal Authority (URA) carried out the District Study for Yau Ma Tei and Mong Kok (hereafter "YM Study") with the aim of drawing up a comprehensive urban renewal plan of the two districts. Based on the findings of the baseline review in the study, URA proposed three master renewal concept plans (MRCP) with varying development density, of which the MRCP+ scenario with the highest development intensity was used for technical assessments, including the air quality impact assessment (AQIA), to account for the worst-case scenario.

1.1.3 Following the completion of the YM Study, the Government aims to kick start the first batch of Outline Zoning Plan (OZP) amendments in 2022. In carrying out the OZP amendments, the development parameters adopted in MRCP+ of the YM Study have to be re-visited taking into account latest proposals agreed by the Government which include change in maximum domestic plot ratio for R(A) and R(E) zones, relaxation of plot ratio of C zone, rezoning of some R(A) sites to "Other Specified Uses (Mixed Use)" "OU(MU)" at some character streets. These changes require the review of various technical assessments, including the AQIA.

1.1.4 Ramboll Hong Kong Ltd. has been commissioned to conduct this Air Quality Impact Assessment (AQIA) review report in support of the proposed OZP amendments.

1.2 Objectives of the Report

1.2.1 The purpose of this report is a qualitative review on the air quality impact induced by the proposed OZP amendments with reference to the findings of the AQIA conducted under the YM Study and takes into account the latest development parameters and traffic data in the assessment year 2047.

1.3 Study Area

1.3.1 The Study Area covers the majority of Mong Kok District and Yau Ma Tei District with the study boundary stopping just short of Hoi Wang Road and Jordan Road in Yau Ma Tei. The Study Area is bounded by West Kowloon Cultural District to the southwest and Tsim Sha Tsui to the south. The northern half of the Study Area falls under the approved Mong Kok OZP No. S/K3/34 while the southern half of the Site passed Dundas Street is under the draft Yau Ma Tei OZP No. S/K2/23. The area around The Coronation near Yan Cheung Road is under the Approved South West Kowloon OZP S/K20/30. The Study Area is presented in Figure 1.1.

1.4 The OZP Amendment and Major Assumptions

1.4.1 The proposed OZP amendments comprises the following amendments to the relevant OZPs:

1) For the "R(A)" and "R(E)" zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100 mPD to 115 mPD;
2) For the "C" zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of

15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and

3) Rezone some "R(A)" sites at the Character Streets to "OU(MU)" with a maximum domestic PR of 7.5 and maximum total PR of 9[1]. The building height restriction is proposed to be increased from 100mPD to 115mPD.

1.4.2 Items 2 and 3 of the above proposed amendments have already been adopted for the AQIA in the YM Study. For item 1, the maximum domestic plot ratio for the "R(A)" and "R(E)" zones assumed in the YM Study was 7.5 and 8 in selected areas while the latest amendment is to increase it to a maximum of 8.5.

1.4.3 While the YM Study has proposed 15 redevelopment projects within the Study Area, only 6 of the redevelopment projects, as agreed with concerned departments at the interdepartmental meeting on 17 November 2021, are assumed as planned developments for completion by 2047:

- Nullah Road Urban Waterway
- Hamilton Street
- Mong Kok Market Revitalization
- Saigon Street
- Tai Nan Street SCA
- Arran Street SCA

1.4.4 The proposed OZP amendments together with the planned developments assumed to be completed by 2047 would increase the domestic and non-domestic GFAs within the Study Area, as illustrated in Table 1.1.

Table 1.1 Change in GFA between Existing and Long Term Scenario

	Existing (m^2)	Long Term (m^2)
Domestic	~3,914,000	~4,658,000
Non-Domestic	~3,012,000	~3,696,000

1.4.5 This AQIA will adopt the latest development parameters of the proposed OZP amendment. The consolidated amendments in land use for this technical assessment is shown in Figure 1.2.

[1] Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

2. AIR QUALITY IMPACT ASSESSMENT

2.1 Introduction

2.1.1 This section reviews the potential air quality and emission impacts induced by the proposed OZP amendments in the Study Area.

2.2 Legislation, Standards, Guidelines and Criteria

Air Pollution Control Ordinance (Cap. 311)

2.2.1 The Air Pollution Control Ordinance (Cap. 311) sets out Air Quality Objectives (AQOs) and provides for the periodic review of the AQOs at least once every five years. As the previous AQIA report for long term MRCP+ scenario conducted under the YM Study was in 2020, the AQOs of 2014 to 2021 was adopted as the assessment criteria. It is noted that new AQOs became effective on 1 January 2022 and details of the updated AQOs are listed in Table 2.1 below.

Table 2.1 Hong Kong Air Quality Objectives (AQOs)

Pollutants	Averaging Time	Concentration Limit (µg/m³) [a]		Number of Exceedance Allowed per Year	
		Historic	Updated	Historic	Updated
Respirable Suspended Particulates (RSP or PM_{10}) [b]	24-hour	100	100	9	9
	Annual [d]	50	50	N/A	N/A
Fine Suspended Particulates (FSP or $PM_{2.5}$) [c]	24-hour	<u>75</u>	<u>50</u>	<u>9</u>	<u>35</u>
	Annual [d]	<u>35</u>	<u>25</u>	N/A	N/A
Nitrogen Dioxide (NO_2)	1-hour	200	200	18	18
	Annual [d]	40	40	N/A	N/A

Numbers bolded and underlined are the updated criteria

Notes:

(a) Measured at 293K and a reference pressure of 101.325 kPa

(b) Suspended particles in air with a nominal aerodynamic diameter of 10 µm or less

(c) Suspended particles in air with a nominal aerodynamic diameter of 2.5 µm or less

(d) Derived from arithmetic mean

2.3 Description of Environment

2.3.1 The nearest EPD fixed Air Quality Monitoring Station (AQMS) is located at Sham Shui Po Police Station. Consistent with the description in the previous AQIA report under the YM Study, the annual average monitoring data recorded at EPD's Sham Shui Po AQMS shows a continuous improving trend of pollutant concentrations in the past five years. Even though the criteria for FSP have been tightened in the updated AQOs, the observed FSP are still well below the criteria and declining in the past five years. Like FSP, RSP concentration have also shown a declining trend which is much lower than the criteria. Although the observed NO_2 concentrations were also on a declining trend, its annual average continued to exceed the criterion of 40 µg/m³, with 45 µg/m³ in Year 2020. The ambient NO_2 concentration is of concern in the Mong Kok area. The latest available five years (2016 – 2020) annual average concentrations of air pollutants relevant to the Study are summarized in Table 2.2.

Table 2.2 Average Concentrations of Pollutants in the Recent Five Years (Years 2016 – 2020) at Sham Shui Po EPD Air Quality Monitoring Station

Pollutants	Averaging Time	Concentration (µg/m³)				
		2020	2019	2018	2017	2016
Respirable Suspended Particulates (RSP or PM_{10}) [b]	10th Highest 24-hour	59	65	59	72	77
	Annual [d]	28	33	33	33	35
Fine Suspended Particulates (FSP or $PM_{2.5}$) [c]	10th Highest 24-hour	30	36	41	46	48
	Annual [d]	14	18	21	21	23
Nitrogen Dioxide (NO_2)	19th Highest 1-hour	151	176	152	194	161
	Annual [d]	<u>45</u>	<u>48</u>	<u>49</u>	<u>54</u>	<u>58</u>

Numbers bolded indicates exceedance of the AQO

2.3.2 In line with the findings in previous AQIA report under the YM Study, the ambient NO_2 concentration in the Study Area is of concern while ambient RSP and FSP concentrations have been well below the AQOs with significant margin in the recent past observation. Therefore, NO_2 is considered as the critical air pollutant for the Study. Similar to the quantitative assessment in the previous study, this review will focus on addressing the potential change in air quality impact in terms of annual NO_2 concentration under this proposed OZP amendments.

2.4 Identification of Air Sensitive Receivers

2.4.1 Representative air sensitive receivers (ASRs) within areas proposed for OZP amendments and the planned development sites identified in the previous AQIA of the YM Study have been selected for review in this current technical assessment. They are shown in Figure 2.1.

Table 2.3 Representative ASRs within Areas Proposed for OZP Amendments and Planned Development Sites

ASR ID	Description	Land Use
A04	The Coronation	Residential
A10	Prosperous Garden	Residential
A15	Skypark	Residential/ Commercial
P300, P302-P305, P307, P309-P334	OZP Amendment outside Planned Development Sites	Residential/ Commercial/ Mixed
P24-P35, P107, P113-P115, P116-P125	Nullah Road Urban Waterway	Mixed
P192-P195, P205-P216	Hamilton Street	Residential
P154-P161, P179-P183	Mong Kok Market Revitalisation	Mixed
P229-P236	Saigon Street	Residential
P8-P15	Tai Nan Street SCA	Residential
P103-P106, P108-P112	Arran Street SCA	Residential

2.5 Findings in Previous AQIA Study of YM Study

2.5.1 As concluded in the AQIA report for long term MRCP+ scenario conducted under the YM Study, high ambient NO_2 concentration is anticipated within the Study Area and was confirmed with model prediction. Nonetheless, the overall annual NO_2 would meet the criterion of AQO at 5mAG except for ASRs at the Yau Ma Tei Fruit Market development site and West Kowloon Gateway development site. These two development sites are not incorporated in the first batch of proposed OZP amendments, hence the air quality impact in these areas will remain as their existing condition in this current review.

2.5.2 Exceedance in AQO is also generally expected at near-ground level, i.e. 1.5mAG to 5mAG. To abate the increased vehicular emission impact, the MCRP+ scenario under the YM Study has proposed certain strategies, including the implementation of Smart Mobility Concepts and changeover to EV. According to the predictions, these measures would be effective in reducing the air quality impact and only exceedance at 1.5mAG would be expected. With proper design of the planned development sites at later project implementation stage, i.e. air sensitive use above podium level (10mAG or above) and non-sensitive use underneath, no adverse air quality impact in terms of NO_2 would be anticipated in these developments.

2.6 Update of Traffic Data

2.6.1 With the proposed OZP amendments described in Section 1.4, more population are planned within the Study Area, which would lead to an increase in traffic volume than the existing condition. Yet, the development capacity of the proposed OZP amendments would be smaller than that of the MRCP+ scenario adopted in the technical assessments of the YM Study. As mentioned in Section 1.4.3, only 6 out of 15 planned developments proposed under the MRCP+ scenario are taken as assumptions in this round of assessments. Although the residential element in the inner streets would increase (from maximum domestic PR of 7.5/8 to 8.5), compared with the MRCP+ scenario, the domestic and non-domestic GFA in the proposed OZP amendments within the Study Area would be reduced by about 5% and 21.7%, respectively. Therefore, the overall traffic condition for the proposed OZP amendments is estimated to be better than that predicted in the previous AQIA report while some streets may have higher traffic flow.

2.6.2 Traffic data for year 2047 was predicted by the project traffic consultant based on the latest development parameters with the proposed OZP amendments and the planned development assumed for assessment purpose (Table 1.1 refers). Details of information on morning (AM) and afternoon (PM) peak hour traffic volume of the road segments near the OZP amendment sites and assumed planned redevelopment sites are presented in Appendix 2.1. The % change of traffic volume as compared to those adopted in the YM Study is also presented for reference. As compared with the MRCP+ scenario under the YM Study, most of the road segments near the areas proposed for OZP amendments and the assumed planned development sites are predicted to have reduced traffic flow. Please see Appendix 2.1 for details.

2.7 Evaluation of Impact Induced by the Proposed OZP Amendments

2.7.1 The evaluation of air quality impact was conducted in a qualitative manner with reference to the findings of the AQIA report of the MRCP+ scenario of the YM Study taking into account the traffic forecast of the proposed OZP amendments. As mentioned in Section 2.6.2, the overall traffic condition for the proposed OZP amendments is estimated to be better than that predicted in the assessments in the YM Study for the MRCP+ scenario due to a general reduction in traffic volume. Therefore, the overall air quality within the Study Area under the proposed OZP amendments is expected to be better than that in the previous assessment in the YM Study.

2.7.2 Evaluation of air quality impact on the representative ASRs within areas proposed for OZP amendments and the assumed planned development sites with the traffic flow induced by the proposed OZP amendments are discussed below. To facilitate the comparison, the Study Area is divided into 5 sections, including Tai Kok Tsui (TKT), Mong Kok East (MKE), Mong Kok West (MKW), Yau Ma Tei North (YMTN) and Yau Ma Tei South (YMTS), as shown Figure 2.2, for further discussion.

Tai Kok Tsui (TKT)

2.7.3 Compared with the MRCP+ scenario of the YM Study, the planned developments assumed to be taken forward in the assessment only include Tai Nan Street SCA and Arran Street SCA. Other developments in Tai Kok Tsui area are assumed to retain their OZP zoning except the increase of domestic PR from 7.5/8 to 8.5 mentioned in Section 1.4.1. This will lead to a substantial reduction in the scale of planned developments, less population is proposed in the area. The traffic forecast of the proposed OZP amendments in the Tai Kok Tsui section is shown in Appendix 2.1.

2.7.4 The location of representative ASRs at areas proposed for OZP amendments in the Tai Kok Tsui section is shown in Figure 2.1. Details of the predicted annual NO_2 concentration of these ASRs extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration of these ASRs in the YM Study ranged from 36 to 45 µg/m^3 at 1.5mAG and 35 to 41 µg/m^3 at 5mAG.

2.7.5 The forecasted peak hour traffic flow at Tai Ching Street (R6) and Ivy Street (R9) in both AM and PM are less than that adopted in YM Study. Therefore, the annual NO_2 concentration at ASR P303 (predicted with 39 µg/m^3 at 1.5mAG) located at the corner of Tai Ching Street and Ivy Street is expected to further reduce below the AQO criteria.

2.7.6 Considering that the forecasted morning and afternoon peak traffic flow in Pok Man Street (E89) is lower (in 59 and 32 vehicles) than that adopted in the YM Study, the annual NO_2 concentration at ASR P307 is expected to slightly decrease. Therefore, the predicted annual NO_2 concentration of ASR P307 at 5mAG (predicted annual NO_2 concentration of 39 µg/m^3) is expected to further reduce below the criteria. However, as significant exceedance is found in ASR P307 at 1.5mAG (predicted annual NO_2 concentration of 43 µg/m^3), the decrease in forecasted peak hour traffic flow is unlikely able to reduce the impact to compliance level, and thus need to avoid air sensitive use at below 5mAG.

2.7.7 For ASR P310 (45 µg/m^3 at 1.5 mAG and 41 µg/m^3 at 5 mAG), even though the forecast peak hour traffic flow in Cherry Street, Hoi Wang Road (E56, E64 and E53) are general lowered than that adopted in the YM Study, the decrease in traffic flow is regarded as minor and unlikely able to reduce the significant exceedance found in ASR P310. To be conservative, air sensitive use below 10mAG at ASR P310 is not recommended.

2.7.8 For ASR P309 with predicted annual NO_2 levels at 43 µg/m^3 at 1.5mAG in the YM Study, it is anticipated that the predicted annual NO_2 level under the OZP amendment would still be above 40 µg/m^3 as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to reduce the annual NO_2 concentration by 3 µg/m^3. The annual NO_2 exceedance at ASR P309 is recommended to be mitigated by avoiding air sensitive use under 5mAG.

2.7.9 Similarly, ASRs with predicted annual NO_2 levels at 38 µg/m^3 or below is anticipated to have their annual NO_2 level within the 40 µg/m^3 criterion as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to increase the annual NO_2 level by 2 µg/m^3.

2.7.10 The mitigation measures proposed to be adopted for ASRs at areas proposed for OZP amendments at Tai Kok Tsui Section is summarised in Table 2.4 and illustrated in Figure 2.3a and 2.3b.

Table 2.4 Predicted Annual NO_2 Levels at 1.5mAG and 5mAG for ASRs and Proposed Mitigation Measures in Areas of OZP Amendment at Tai Kok Tsui Section

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG and 5mAG, µg/m^3		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P300, P302-P305, P318	<40 at 1.5mAG	<40 at 1.5 mAG	Nil
P307, P309	43 at 1.5mAG	~43 at 1.5mAG	Avoid air sensitive uses below 5mAG
P310	45 at 1.5mAG 41 at 5mAG	~45 at 1.5mAG ~41 at 5mAG	Avoid air sensitive uses below 10mAG

2.7.11 The location of the representative ASRs at Tai Nan Street SCA is shown in Figure 2.1. Details of the predicted annual NO_2 concentration at Tai Nan Street SCA extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration at this SCA in the YM Study ranged from 29 to 33 µg/m^3 at 1.5mAG, which are well below the criteria of 40 µg/m^3.

2.7.12 Although the forecasted morning peak hour traffic flow at sections of Lai Chi Kok Road (C3 and C11) are 59 and 23 veh/hr more than that adopted in the YM Study, their afternoon peak hour traffic flows are considerably lower (in 60 and 54 vehicles) than the previously adopted data. Since the magnitude of increase in traffic flow in morning peak is comparable to that decrease in afternoon peak, it is predicted that no significant change in impact to the nearby ASR P8. In addition, as the opposite direction of C3 and C11, i.e., C4 and C12, which are closer to the SCA, shows a reduction in forecasted peak hour traffic flow (range from 51-71 vehicles lower) in both morning and afternoon scenario, the increase of traffic flow in C3 and C11 will likely be offset by the decrease of traffic flow in C4 and C12. Both of the morning and afternoon forecasted peak hour traffic flow in a section of Lai Chi Kok Road (C15), Prince Edward Road West (P9) and Boundary Street (B31) are more than that adopted in the YM Study, yet such increases are not expected to have significant impact on the ASRs at Tai Nan Street SCA which would result in exceedance of criteria.

2.7.13 Similarly, even though the forecasted afternoon peak hour traffic flow in sections of Boundary Street (B29-30) are more than that adopted in the YM Study, such increase is relatively small (17 and 42 vehicles more) and unlikely to cause significant impact on ASRs at the planned development.

2.7.14 The predicted NO_2 levels at ASRs at Tai Nan Street SCA are summarised in Table 2.5.

Table 2.5 Predicted Annual NO_2 Levels at 1.5mAG for ASRs in Tai Nan Street SCA

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG, µg/m^3		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P8-P15	<40	<40	Nil

2.7.15 The location of the representative ASRs at Arran Street SCA is shown in Figure 2.1. Details of the predicted annual NO_2 concentration at Arran Street SCA extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. For the planned development at Arran Street SCA, the predicted annual NO_2 concentration at this SCA in the YM Study ranged from 30 to 40 µg/m^3 at 1.5mAG. Two nearby road segments, i.e., Prince Edward Road West (C49) and Bute Street (F54), are identified with a higher forecasted morning peak hour traffic flow than that adopted in the YM Study. While three nearby road segments, including Shanghai Street (F14), Lai Chi Kok Road (F19) and Arran Street (F51), are identified with a higher forecast afternoon peak hour traffic flow than the previously adopted data.

2.7.16 Considering that the forecasted morning peak hour traffic flow at Bute Street (F54) are only 10 veh/hr more than that adopted in the YM Study, while their afternoon peak hour traffic flows are much lower (in 64 vehicles) than that in the previously adopted data. The increase in forecasted morning peak hour traffic flow is minor and unlikely to cause significant increase in impacts to ASRs P103 and P106 at this SCA resulting in exceedance of the 40 µg/m^3 criteria.

2.7.17 Similarly, although the forecasted afternoon peak traffic flow in Shanghai Street (F14) and Lai Chi Kok Road (F19) are slightly higher (in 1 and 7 vehicles) than that adopted in the YM Study, their morning peak traffic flow are lower (in 4 and 13 vehicles) than the previously adopted data. As the magnitude of increase in traffic flow in afternoon peak is comparable to that decrease in morning peak, it is predicted that no significant change in impact to the nearby ASRs in Arran Street SCA.

2.7.18 Besides, as the opposite direction of F19, i.e., F20 shows a reduction in forecasted peak hour traffic flow in both morning and afternoon scenario (64 vehicles lower for AM; 13 vehicles lower for PM), the increase in F19 will likely be offset by the decrease of the opposite direction road segment. Likewise, even though the forecasted morning peak hour traffic flow at Prince Edward Road West (C49) is slightly higher than that adopted in the YM Study, the opposite direction segment C98 shows a notable reduction in forecasted peak hour traffic flow in both morning and afternoon scenario (34 vehicles lower for AM; 79 vehicles lower for PM), the increase in C49 will likely be offset by the decrease of the opposite direction road segment.

2.7.19 For ASRs along Arran Street (F51), it is not expected that the increase in afternoon peak hour traffic flow of just 17 vehicles would have significant impact on the ASRs at this SCA which would result in exceedance of criteria. With reference to the findings of the YM Study, it is expected that the predicted annual NO_2 concentration at 1.5mAG for ASRs along Canton Road would decrease.

2.7.20 The predicted NO_2 levels at ASRs at Arran Street SCA are summarised in Table 2.6.

Table 2.6 Predicted Annual NO_2 Levels at 1.5mAG for ASRs in Arran Street SCA

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG, µg/m^3		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P103-P106, P108-P112	<40	<40	Nil

Mong Kok East (MKE)

2.7.21 Compared with the MRCP+ scenario of the YM Study, apart from the OZP amendments (namely increase in PR from 12 to 15 for "C" zones along Nathan Road and rezoning of character streets from "R(A)" to "OU(MU)" with PR 4.5/4.5, and increase of domestic

PR for "R(A)" and "R(E)" sites from 7.5 to 8.5), the other planned development assumed to be taken forward in the assessment only include the Nullah Road Urban Waterway development. The traffic forecast of the proposed OZP amendments in the vicinity of this planned development site is shown in Appendix 2.1. Compared to the traffic data in the YM Study, sections of Prince Edward Road West, Nathan Road, Bute Street and Sai Yee Street adjoining the planned development site will have more traffic flow while Fa Yuen Street, Sai Yeung Choi Street South and Tung Choi Street will have lower traffic flow. Hence, vehicular emission associated with the proposed OZP amendment and planned developments would generally be reduced in the southern part of this area but may increase in areas along Prince Edward Road West.

2.7.22 The location of representative ASRs at areas proposed for OZP amendments in the Mong Kok East section is shown in Figure 2.1. Details of the predicted annual NO_2 concentration of these ASRs extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration of these ASRs in the YM Study ranged from 30 to 42 µg/m^3 at 1.5mAG.

2.7.23 As the forecasted peak hour traffic flow at Embankment Road (C96) and Prince Edward Road West (C60 and C61) are 73 to 119 vehicles more in AM and 90 to 137 vehicles more in PM than that adopted in the YM Study, it is expected that the annual NO_2 concentration of ASR P315 at 1.5mAG (predicted with 39 µg/m^3) will be raised to about 40 µg/m^3. To be conservative, air sensitive use below 10mAG at ASR P156 is not recommended.

2.7.24 Even though the forecast morning and afternoon peak hour traffic flow at Nathan Road (F28 and F29) are around 87-180 and 101-158 vehicles less than that adopted in the YM Study, while the forecasted morning peak hour traffic flow at Bute Street (F57) is 62 vehicles more, ASR P316 (predicted with annual NO_2 of 41 µg/m^3 at 1.5mAG) located at the junction of Nathan Road and Bute Street, is estimate to have its annal NO_2 concentration decrease slightly or remains at 41 µg/m^3. To be conservative, air sensitive use below 5mAG at ASR P316 is not recommended.

2.7.25 Besides, as the opposite direction of F89 in Argyle Street, i.e. F90, shows a reduction in forecasted peak hour traffic flow in both morning and afternoon scenario (40 vehicles lower for AM; 56 vehicles lower for PM), the increase in F90 (51 vehicles more in AM peak) will likely be offset by the decrease of the opposite direction road segment. Likewise, even though the forecasted afternoon peak hour traffic flow at Yim Po Fong Street (G41) is slightly higher than that adopted in the YM Study by 3 vehicles, the opposite direction segment G42 shows a notable reduction in forecasted peak hour traffic flow in both morning and afternoon scenario (23 vehicles lower for AM; 22 vehicles lower for PM), the increase in G41 will likely be offset by the decrease of the opposite direction road segment. Hence, ASR P320 located at the junction of Argyle Street and Yim Po Fong Street is expected to remain its annual NO_2 concentration at 39 µg/m^3 at 1.5mAG.

2.7.26 Considering that the forecasted PM peak hour traffic flow at Nathan Road (J21) and AM peak hour traffic flow at Waterloo Road (J49) are only 8 and 2 veh/hr more than that adopted in the YM Study respectively, while their opposite direction road segments (J50 and J115) have a lower forecast peak hour traffic flows in both scenarios than the previously adopted data. The increase in forecasted morning peak hour traffic flow is minor and unlikely to cause significant change in impact to ASR P325. Hence, ASR P325 is expected to remain at 41 µg/m^3, air sensitive use below 5mAG at ASR P325 is not recommended.

2.7.27 For ASR P319 with predicted annual NO_2 levels at 42 µg/m^3 at 1.5mAG in the YM Study, it is anticipated that the predicted annual NO_2 level under the OZP amendment would still be above 40 µg/m^3 as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to reduce the annual NO_2 concentration by 2 µg/m³. The annual NO2 exceedance at ASR P319 is recommended to be mitigated by avoiding air sensitive use under 5mAG.

2.7.28 Similarly, ASRs with predicted annual NO_2 levels at 38 µg/m³ or below is anticipated to have their annual NO_2 level within the 40 µg/m³ criterion as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to increase the annual NO_2 level by 2 µg/m³.

2.7.29 The mitigation measures proposed to be adopted for ASRs at areas proposed for OZP amendments at Mong Kok East Section is summarised in Table 2.7 and illustrated in Figure 2.3b to 2.3d.

Table 2.7 Predicted Annual NO_2 Levels at 1.5mAG for ASRs and Proposed Mitigation Measures in Areas of OZP Amendment at Mong Kok East Section

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG, µg/m³		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
A15, P311-P314, P317, P320, P322-P324	<40	<40	Nil
P315	39	~40	Avoid air sensitive uses below 5mAG
P316, P319, P325	41-42	~41-42	Avoid air sensitive uses below 5mAG

2.7.30 The location of the representative ASRs at Nullah Road Urban Waterway development is shown in Figure 2.1. Details of the predicted annual NO_2 concentration at Nullah Road Urban Waterway development extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration at this development site in the YM Study ranged from 30 to 39 µg/m³ at 1.5mAG for the portion north of Prince Edward Road West and ranged from 28 to 44 µg/m³ at 1.5mAG for the portion south of Prince Edward Road West. For the proposed commercial portion at the junction of Nathan Road and Prince Edward Road West, the predicted annual NO_2 concentration ranged from 32 to 40 µg/m³ at 1.5mAG.

2.7.31 The forecasted peak hour traffic flow at Prince Edward Road West (P9, C56) are 158 vehicles more in AM and 76 vehicles more in PM, while forecasted peak hour traffic flow at Sai Yee Street (C39) is 138 vehicles more in AM and 133 vehicles more in PM than that adopted in the YM Study respectively. Although the opposite direction road segment of C56, i.e., C57 shows a significant reduction in forecasted peak hour traffic flow in both morning and afternoon scenario (77 vehicles lower for AM; 39 vehicles lower for PM), the increase in C56 and P9 are unlikely to be compensate by the decrease of C57. Therefore, with reference to the findings of the YM Study, the annual NO_2 concentration of ASR P26 at 1.5mAG (predicted with 39 µg/m³) located at the junction of Prince Edward Road West and Sai Yee Street, is predicted to have a marginal annual NO_2 concentration of about 40 µg/m³. Air sensitive use below 5mAG at ASR P26 is not recommended.

2.7.32 Even though the forecast morning peak hour traffic flow at Prince Edward Road West (C52) is just 9 vehicles more than that adopted in the YM Study, while the forecast afternoon peak hour traffic flow at Nathan Road (F24-25) are just slightly higher than that adopted in YM Study in around 9-35 vehicles, with the increase of forecasted traffic flow in both AM and PM peak of Prince Edward Road West (P9) in 79 and 41 vehicles, ASR P107 (predicted with annual NO_2 of 40 µg/m^3 annual NO_2 at 1.5mAG) located at the junction Nathan Road and Prince Edward Road West, is estimated to have annual NO_2 at about 40 µg/m^3. To be conservative, air sensitive use below 5mAG at ASR P107 is not recommended.

2.7.33 Although the forecasted peak hour traffic flow in Bute Street (F60) are 68 vehicles lower in morning peak and 23 vehicles lower in afternoon peak, with forecasted peak hour traffic flows in Sai Yee Street (F44-45) slightly higher than that adopted in the YM Study, the significant exceedance found in ASR P124 (predicted with annual NO_2 of 44 µg/m^3 at 1.5mAG) at the junction of Sai Yee Street and Bute Street is unlikely able to reduce the impact to compliance level and may need to avoid air sensitive use at below 5mAG.

2.7.34 As the predicted annual NO_2 concentration in other ASRs at the portion south of Prince Edward Road West in the YM Study were well below the criteria of 40 µg/m^3, the change in traffic flow along Prince Edward Road West is unlikely to cause significant increase in impact to other ASRs resulting in exceedance of criteria at this portion of the site.

2.7.35 The predicted NO_2 concentration and mitigation measures proposed to be adopted for Nullah Road Urban Waterway development is summarised in Table 2.8 and illustrated in Figure 2.3.

Table 2.8 Predicted Annual NO_2 Levels at 1.5mAG for ASRs and Proposed Mitigation Measures in Nullah Road Urban Waterway

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG, µg/m^3		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P24-P25, P27-P35	<40	<40	Nil
P26	39	~40	Avoid air sensitive uses below 5mAG
P107	40	~40	Avoid air sensitive uses below 5mAG
P113-P123, P125	<40	<40	Nil
P124	44	~43-44	Avoid air sensitive uses below 5mAG

Mong Kok West (MKW)

2.7.36 Compared with the MRCP+ scenario of the YM Study, apart from the OZP amendments mentioned in Section 1.4.1, the other planned developments assumed to be taken forward only include Mong Kok Market Revitalisation and Hamilton Street development. With a reduction in the scale of planned development, less population is proposed in the area. The traffic forecast of the proposed OZP amendments in the Mong Kok West section is shown in Appendix 2.1. Compared to the traffic data in the YM Study, most of the road segments near the planned development sites show a reduction in traffic flow. Hence, vehicular emission associated with the current proposed OZP amendments would generally be reduced in the area.

2.7.37 The location of representative ASR at areas proposed for OZP amendments in the Mong Kok West section is shown in Figure 2.1. Details of the predicted annual NO_2 concentration of this ASR extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration of ASRs in MKW is well below the 40 µg/m^3 criteria. The change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to increase the annual NO_2 concentration to above 40 µg/m^3 criteria.

2.7.38 The location of the representative ASRs at Mong Kok Market Revitalisation development is shown in Figure 2.1. Details of the predicted annual NO_2 concentration at this planned development site extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration at this development site in the YM Study ranged from 36 to 48 µg/m^3 at 1.5mAG for the portion north of Argyle Street and ranged from 37 to 42 µg/m^3 at 1.5mAG for the portion south of Argyle Street. The forecasted peak hour traffic flow at some sections of the surrounding roads, including Reclamation Street (R24), Ferry Street (G2), Argyle Street (F77), Mong Kok Road (F63) and Tong Mi Road (F8 and F9) are higher than that adopted in the YM Study, while the traffic flow for other roads are lower.

2.7.39 With reference to the findings of the YM Study, ASRs with marginal exceedance in their annual NO_2 concentration including P159 (predicted annual NO_2 concentration of 41 µg/m^3 at 1.5mAG), P155 and P181 (predicted annual NO_2 concentration of 40 µg/m^3 at 1.5mAG) are expected to have their air quality impact slightly worse than the YM Study due to the increased forecast peak hour traffic flow of both morning and afternoon peak in surrounding road segments.

2.7.40 For ASR P159 at the corner of Mong Kok Road (F63) and Argyle Street (R17), although the forecasted peak hour traffic flow in both morning and afternoon scenario of Argyle Street (R17) has reduced significantly (96 vehicles lower for AM; 117 vehicles lower for PM), the increase in Mong Kok Road (F63, 130 vehicles higher for AM; 245 vehicles higher for PM) are unlikely to be compensate by the decrease of R17. Hence, ASR P159 (predicted annual NO_2 concentration of 41 µg/m^3 at 1.5mAG) is expected to have its air quality impact raised to slightly above 41 µg/m^3. Air sensitive use at below 5mAG at ASR P159 is not recommended.

2.7.41 Similarly, for ASR P155, although the forecast peak hour traffic flow in both morning and afternoon scenario of West Kowloon Corridor (P7) has reduced (12 vehicles lower for AM; 16 vehicles lower for PM), the increase in Tong Mi Road (F8 and F9) ranging from 24-74 vehicles more for AM and 36-138 vehicles more for PM, is unlikely to be compensate by the decrease of P7. While for ASR P181 on Argyle Street, the opposite direction road segment of F77, i.e., F78 shows a reduction in forecasted peak hour traffic flow in both morning and afternoon scenario (21 vehicles lower for AM; 46 vehicles lower for PM), yet the significant increase in F77 (114 vehicles lower for AM; 139 vehicles lower for PM) is unlikely to be compensate by the decrease of F78. Therefore, ASR P155 and P181 (predicted annual NO_2 concentration of 40 µg/m^3 at 1.5mAG) are expected to have its air quality impact raised above 40 µg/m^3 and air sensitive use at below 5mAG is not recommended.

2.7.42 With the comparable increase in forecasted peak hour traffic flow in Reclamation Street (R24, 113 vehicles lower for AM; 165 vehicles lower for PM) and the decrease in Shantung Street (G62, 180 vehicles lower for AM; 103 vehicles lower for PM), P182 (predicted annual NO_2 concentration of 40 µg/m^3 at 1.5mAG) are expected to have their air quality impact remained marginally at 40 µg/m^3. To be conservative, air sensitive use at below 5mAG at ASR P159 is not recommended. In addition, with the significant exceedance predicted for P157 at 1.5 mAG (45 µg/m^3), P161 at 1.5 mAG (46 µg/m^3) and P179 at 1.5 mAG (42 µg/m^3), the change in traffic volume nearby is unlikely able to reduce the impact to compliance level. Hence, it is recommended to place non air sensitive uses below 5mAG for these ASRs.

2.7.43 For P156 (48 µg/m^3 at 1.5 mAG and 39 µg/m^3 at 5 mAG), as the forecasted peak hour traffic flow along Tong Mi Road and (F8 and F9) and Argyle Street (F77) are higher than that adopted in the YM Study, it is expected that the annual NO_2 concentration at 5mAG will be raised to about 40 µg/m^3. To be conservative, air sensitive use below 10mAG at ASR P156 is also not recommended.

2.7.44 The predicted NO_2 concentration and mitigation measures proposed to be adopted for the Mong Kok Revitalisation development is summarised in Table 2.9 and illustrated in Figure 2.3.

Table 2.9 Predicted Annual NO_2 Levels at 1.5mAG and 5mAG for ASRs and Proposed Mitigation Measures in Mong Kok Market Revitalisation

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG and 5mAG, µg/m^3		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P154, P158, P160, P180, P183	<40 at 1.5mAG	<40 at 1.5 mAG	Nil
P155, P181	40 at 1.5 mAG	~40-41 at 1.5 mAG	Avoid air sensitive uses below 5mAG
P182	40 at 1.5 mAG	~40 at 1.5 mAG	Avoid air sensitive uses below 5mAG
P159	41 at 1.5 mAG	~41-42 at 1.5 mAG	Avoid air sensitive uses below 5mAG
P157, P161, P179	42-46 at 1.5 mAG	~42-46 at 1.5 mAG	Avoid air sensitive uses below 5mAG
P156	48 at 1.5 mAG 39 at 5 mAG	>48 at 1.5 mAG ~40 at 5 mAG	Avoid air sensitive uses below 10mAG

2.7.45 The location of the representative ASRs at Hamilton Street site is shown in Figure 2.1. Details of the predicted annual NO_2 concentration at this planned development site extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration at this development site in the YM Study ranged from 35 to 46 µg/m^3 at 1.5mAG.

2.7.46 The forecasted peak hour traffic flow at all nearby road segments except a section in Ferry Street (J5) and West Kowloon Corridor (P10) are notably lower than that adopted in the YM Study. The increase in forecasted morning peak hour traffic flow in Ferry Street (J5, 6 vehicles more for PM) and West Kowloon Corridor (P10, 3 vehicles more for AM; 154 vehicles more for PM) is minor and likely to be offset by the notable decrease in forecasted peak hour traffic flow of the nearby road segments. Therefore, with reference to the result from the YM Study, the annual NO_2 of ASRs P193 and P210 (with 39 µg/m^3 annual NO_2 at 1.5mAG) are expected to further reduce below the criteria. For ASRs facing the internal streets, including ASRs P192, P195, P206 and P215 (with 41 µg/m^3 annual NO_2 at 1.5mAG), their annual NO_2 are likely to drop below the criteria of AQO. For ASR P203 (predicted annual NO_2 concentration of 40 µg/m^3 at 1.5mAG), is also expected to have its air quality impact reduced to compliance level.

2.7.47 As significant exceedances were found at ASR P194 (predicted annual NO_2 concentration of 42 µg/m^3 at 1.5mAG) at junction of Hamilton Street and Shanghai Street, and ASRs P201, P202, P207, P211 to P214 (predicted annual NO_2 concentration ranged from 42 µg/m^3 to 46 µg/m^3 at 1.5mAG) along Waterloo Road, the reduction in traffic volume nearby is unlikely able to reduce the impact to compliance level. Hence, it is recommended to place non air sensitive uses below 5 mAG for these ASRs.

2.7.48 The predicted NO_2 concentration and mitigation measures proposed to be adopted for the Hamilton Street development is summarised in Table 2.10 and illustrated in Figure 2.3.

Table 2.10 Predicted Annual NO_2 Levels at 1.5mAG for ASRs and Proposed Mitigation Measures in Hamilton Street

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG, μg/m³		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P193, P194, P196-P200, P204, P205, P208-P210, P216	<40	<40	Nil
P192, P195, P206, P215	41	<40	Nil
P203	40	<40	Nil
P194, P201, P202, P207, P211-P214	42-46	~41-45	Avoid air sensitive uses at below 5mAG

Yau Ma Tei North (YMTN) and Yau Ma Tei South (YMTS)

2.7.49 Compared with the MRCP+ scenario of the YM Study, in addition to the OZP amendments, the planned developments assumed to be taken forward in the assessment only include the Saigon Street development leading to a substantial reduction of the scale of planned development in this area, thus less population is proposed in the area. The traffic forecast of the proposed OZP amendments in the vicinity of this planned development site is shown in Appendix 2.1. Compared to the traffic data in the YM Study, some of the road segments near the planned development site will have less peak hour traffic while some road segments along Saigon Street, Shanghai Street, Canton Road and Gascoigne Road Flyover will have minor increase. Hence, vehicular emission associated with the current proposed OZP amendments would generally be reduced in the area.

2.7.50 The location of representative ASRs at areas proposed for OZP amendments in the Yau Ma Tei North and South sections are shown in Figure 2.1. Details of the predicted annual NO_2 concentration of these ASRs extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration of these ASRs in YMTN are well below the 40 μg/m³ criteria, while those in YMTS ranged from 37 to 40 μg/m³ at 1.5mAG.

2.7.51 For ASR P327 (46 μg/m³ at 1.5 mAG and 39 μg/m³ at 5 mAG), as the forecasted peak hour traffic flow along Kansu Street (J85) and Nathan Road (K28 and K29) are higher than that adopted in the YM Study, it is expected that the annual NO_2 concentration at 5mAG will be raised to about 40 μg/m³. To be conservative, air sensitive use below 10mAG at ASR P327 is not recommended. Similarly, for ASR P332 (39 μg/m³ at 1.5mAG), as the forecasted peak hour traffic flow along Jordan Road (K72 and K73) are higher than that adopted in the YM Study, it is expected that the annual NO_2 concentration at 1.5mAG will be raised to about 40 μg/m³. To be conservative, air sensitive use below 5mAG at ASR P332 is not recommended.

2.7.52 Considering that the forecasted PM peak hour traffic flow at Jordan Road (K55) is only 8 vehicles more than that adopted in the YM Study, while its opposite direction road segment (K54) has a notable lower forecast peak hour traffic flows in PM peak (118 vehicles less) than that adopted in the YM Study, the increase in forecasted PM peak hour traffic flow in K55 is minor and unlikely to cause significant change in impact to

ASR P329. Hence, annual NO_2 concentration of ASR P329 at 5mAG is expected to decrease slightly further below the criteria. As significant exceedance is found at 1.5mAG of ASR P329, the decrease in traffic flow is unlikely to reduce the impact to compliance level. Hence, air sensitive use below 5mAG at ASR P329 is not recommended.

2.7.53 For ASR P334 located at the Nathan Road, even though the forecasted peak hour traffic flow at Nathan Road (K30 and K31) have decrease in both morning and afternoon peak. The magnitude of decrease is considered as insignificant and thus the annual NO_2 concentration of ASR P334 at 1.5mAG is expected to remain at 40 µg/m^3. Hence, to be conservative, air sensitive use below 5mAG at ASR P334 is not recommended.

2.7.54 For ASRs with predicted annual NO_2 levels at 42 µg/m^3 or above in the YM Study as shown in Table 2.11 below, it is anticipated that the predicted annual NO_2 level under the OZP amendment would still be above 40 µg/m^3 as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to reduce the annual NO_2 concentration by 2 µg/m^3. The annual NO_2 exceedance at these ASRs are recommended to be mitigated by avoiding air sensitive use under 5mAG.

2.7.55 Similarly, ASRs with predicted annual NO_2 levels at 38 µg/m^3 or below is anticipated to have their annual NO_2 level within the 40 µg/m^3 criterion as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to increase the annual NO_2 level by 2 µg/m^3.

2.7.56 The mitigation measures proposed to be adopted for ASRs at areas proposed for OZP amendments at Yau Ma Tei South Section is summarised in Table 2.11Table 2.7 and illustrated in Figure 2.3e.

Table 2.11 Predicted Annual NO_2 Levels at 1.5mAG and 5mAG for ASRs and Proposed Mitigation Measures in Areas of OZP Amendment at Yau Ma Tei South Section

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG and 5mAG, µg/m^3		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P328, P333	<40 at 1.5mAG	<40 at 1.5 mAG	Nil
P329	46 at 1.5mAG 39 at 5mAG	~46 at 1.5mAG ~39 at 5mAG	Avoid air sensitive uses below 5mAG
P330, P331	45-49 at 1.5mAG	~45-49 at 1.5mAG	Avoid air sensitive uses below 5mAG
P332, P334	39-40 at 1.5mAG	~40 at 1.5mAG	Avoid air sensitive uses below 5mAG
P327	46 at 1.5mAG 39 at 5mAG	~46-47 at 1.5mAG ~40 at 5mAG	Avoid air sensitive uses below 10mAG

2.7.57 The location of the representative ASRs at Saigon Street site is shown in Figure 2.1. Details of the predicted annual NO_2 concentration at this planned development site extracted from the AQIA Report of the YM Study is shown in Appendix 2.2. The predicted annual NO_2 concentration at this development site in the YM Study ranged from 35 to 46 µg/m^3 at 1.5mAG.

2.7.58 The forecasted peak hour traffic flow at Gascoigne Road Flyover (P16-P17, 5-22 vehicles more for AM; 7 vehicles more for PM) and Kansu Street (J81-J82, 20 vehicles more for AM) is slightly higher than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted annual NO_2 concentration at ASRs facing

Gascoigne Road Flyover, i.e., ASRs P229 and P230, would remain in the range between 42-46 µg/m^3, which is recommended to place non air sensitive uses below 5mAG for these ASRs. According to the result in YM Study, the predicted annual NO_2 concentrations at 1.5mAG at other ASRs are well within the criteria of 40 µg/m^3. As significant exceedance was found for P236 (46 µg/m^3) at 1.5mAG, the change in traffic volume nearby is unlikely able to reduce the impact to compliance level. Hence, it is recommended to place non air sensitive uses below 5mAG.

2.7.59 The mitigation measures proposed to be adopted for ASRs at Saigon Street development are summarised in Table 2.12 and illustrated in Figure 2.3e.

Table 2.12 Predicted Annual NO_2 Levels at 1.5mAG for ASRs and Proposed Mitigation Measures in Saigon Street

ASR ID	Predicted Annual NO_2 Levels at 1.5mAG, µg/m^3		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
P229, P230, P236	~42-46	~42-46	Avoid air sensitive uses at below 5mAG
P231-P235	<40	<40	Nil

2.8 Mitigation Measures

2.8.1 While there will be an increase in traffic volume within the Study Area due to the OZP amendments as compared to the baseline condition, as discussed in Section 2.7, the overall air quality within the Study Area under the proposed OZP amendments is expected to be better than that in the long term MRCP+ 2047 scenario under the YM Study. This air quality impact assessment revealed that most of the ASRs within the OZP amendment sites and assumed planned development would comply with the AQO for annual NO_2 impact and no insurmountable impact is envisaged. Nevertheless, exceedance of annual NO_2 at 1.5 mAG at some parts of the proposed OZP amendment sites and assumed planned development sites are still expected. They are shown in Figure 2.3 and listed below:

- Junction of Prince Edward Road West and Sai Yee Street;
- Junction of Prince Edward Road West and Nathan Road;
- Junction of Sai Yee Street and Bute Street;
- Junction of Bute Street and Nathan Road;
- Section of Mongkok Road between Shanghai Street and Canton Road;
- Section of Tong Mi Road between Argyle Street and Mongkok Road;
- Section of Argle Street between Nathan Road and Tong Mi Road;
- Section of Cherry Street between Hoi Wang Road and Tai Kok Tsui Road;
- Pok Man Street;
- Junction of Anchor Street and Ash Street;
- Junction of Reclamation Street and Shantung Street;
- Junction of Hamilton Street and Shanghai Street;
- Junction of Waterloo Road and Nathan Road;
- Section of Waterloo Road between Nathan Road and Ferry Street;

- Section of Kansu Street between Nathan Road and Battery Street;
- Section of Nathan Road between Kansu Street and Jordan Road;
- Section of Jordan Road between Chi Wo Street and Ferry Street; and
- Junction of Shanghai Street and Nanking Street.

2.8.2 It is recommended to avoid air sensitive uses at 1.5 mAG at the concerned parts of the development sites, while introducing non air sensitive uses such as vented carpark or commercial use with fresh air intake at acceptable level (ie at 5 mAG or above). However, since the R(A) and R(E) sites under the OZP amendment are restricted to maximum domestic PR of 8.5 (total PR of 9), it is unlikely that residential use would be located at below 5 mAG (i.e. at ground level). For P310 facing Cherry Street between Hoi Wang Road and Tai Kok Tsui Road, P327 facing the junction of Nathan road and Kansu Street at OZP amendment sites and P156 facing the junction of Tong Mi Road and Argle Street at Mong Kok Market Revitalisation site, air sensitive uses are recommended to be place at 10 mAG or above. Table 2.13 summarises the recommended mitigation measures for ASRs within area proposed for OZP amendments and the planned developments. The planned development site formed by site amalgamation would also offer opportunities to aid and facilitate proper design, building disposition and layout to avoid any adverse impact. With proper design of the planned development sites, no adverse air quality impact in terms of NO_2 would be anticipated.

Table 2.13 Summary of Proposed Mitigation Measures for Planned Developments

Planned Developments	ASRs	Recommended Mitigation Measures
Areas of OZP Amendment at Tai Kok Tsui section	P307, P309	Avoid air sensitive uses below 5mAG
	P310	Avoid air sensitive uses below 10mAG
Areas of OZP Amendment at Mong Kok East Section	P315, P316, P319, P325	Avoid air sensitive uses below 5mAG
Areas of OZP Amendment at Yau Ma Tei South	P329, P330, P331, P332, P334	Avoid air sensitive uses below 5mAG
	P327	Avoid air sensitive uses below 10mAG
Nullah Road Urban Waterway	P26, P107, P124	Avoid air sensitive uses below 5mAG
Mong Kok Market Revitalisation	P155, P157, P159, P161, P179, P181, P182	Avoid air sensitive uses below 5mAG
	P156	Avoid air sensitive uses below 10mAG
Hamilton Street	P194, P201, P202, P207, P211-P214	Avoid air sensitive uses below 5mAG
Saigon Street	P229, P230, P236	Avoid air sensitive uses below 5mAG

2.8.3 Regarding the three air sensitive receivers, i.e. P310, P327 and P156, while air sensitive uses below 10mAG are not recommended, it is understood that P156 and P327 will remain zoned "Open Space" and "C" respectively on the OZPs. Insurmountable air quality impact on the sites is not anticipated in view of their intended uses. As for P310, it will remain zoned "R(A)". Through appropriate building design, such as placing non-sensitive uses in the lower floors, insurmountable air quality impact on the site is also not anticipated. Besides, in case lease modification is required for redevelopment of the site at P310, relevant department may consider imposing requirements related to air quality in the lease.

3. CONCLUSION

3.1.1 This report has adopted the latest development parameters of the proposed OZP amendments, for the assessment of air quality impact with reference to the findings of the MRCP+ AQIA conducted under the YM Study.

3.1.2 For the areas proposed for OZP amendments and assumed planned developments, the required mitigation measures for consideration in the future design of the planned development have been proposed. With proper design of the planned developments with the necessary mitigation measures incorporated, no adverse air quality impact would be anticipated. As the R(A) and R(E) sites under the OZP amendments are restricted to maximum domestic PR of 8.5 (total PR of 9), it is unlikely that the ground floor would be used for residential level. For P310, P327 and P156, which air sensitive uses below 10mAG are not recommended, it is understood that P156 and P327 will remain zoned “Open Space” and “C” respectively on the OZPs. Insurmountable air quality impact on the sites is not anticipated in view of their intended uses. As for P310, it will remain zoned “R(A)”. Through appropriate building design, such as placing non-sensitive uses in the lower floors, insurmountable air quality impact on the site is also not anticipated. Besides, in case lease modification is required for redevelopment of the site at P310, relevant department may consider imposing requirements related to air quality in the lease. Given the opportunities arising from the major urban restructuring and the scale of site assembly, appropriate design and layout would be possible at project implementation.

3.1.3 In conclusion, no insurmountable problem is envisaged from air quality points of view for the OZP amendment.

Figures

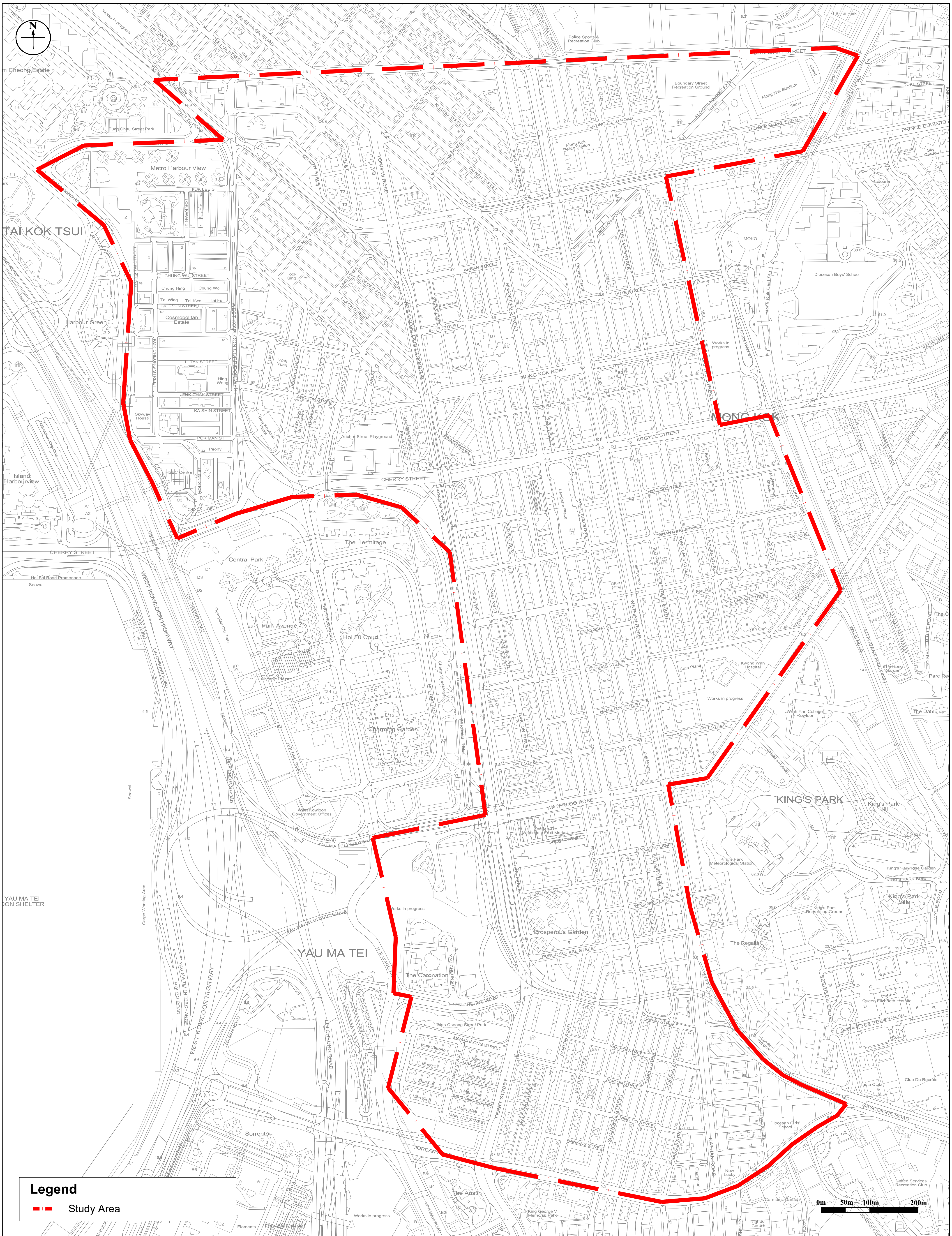

Figure: 1.1	RAMBOLL
Title: Study Area and Its Environ	Drawn by: YM
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Quality Impact Assessment	Rev.: 2.1
	Date: May 2022

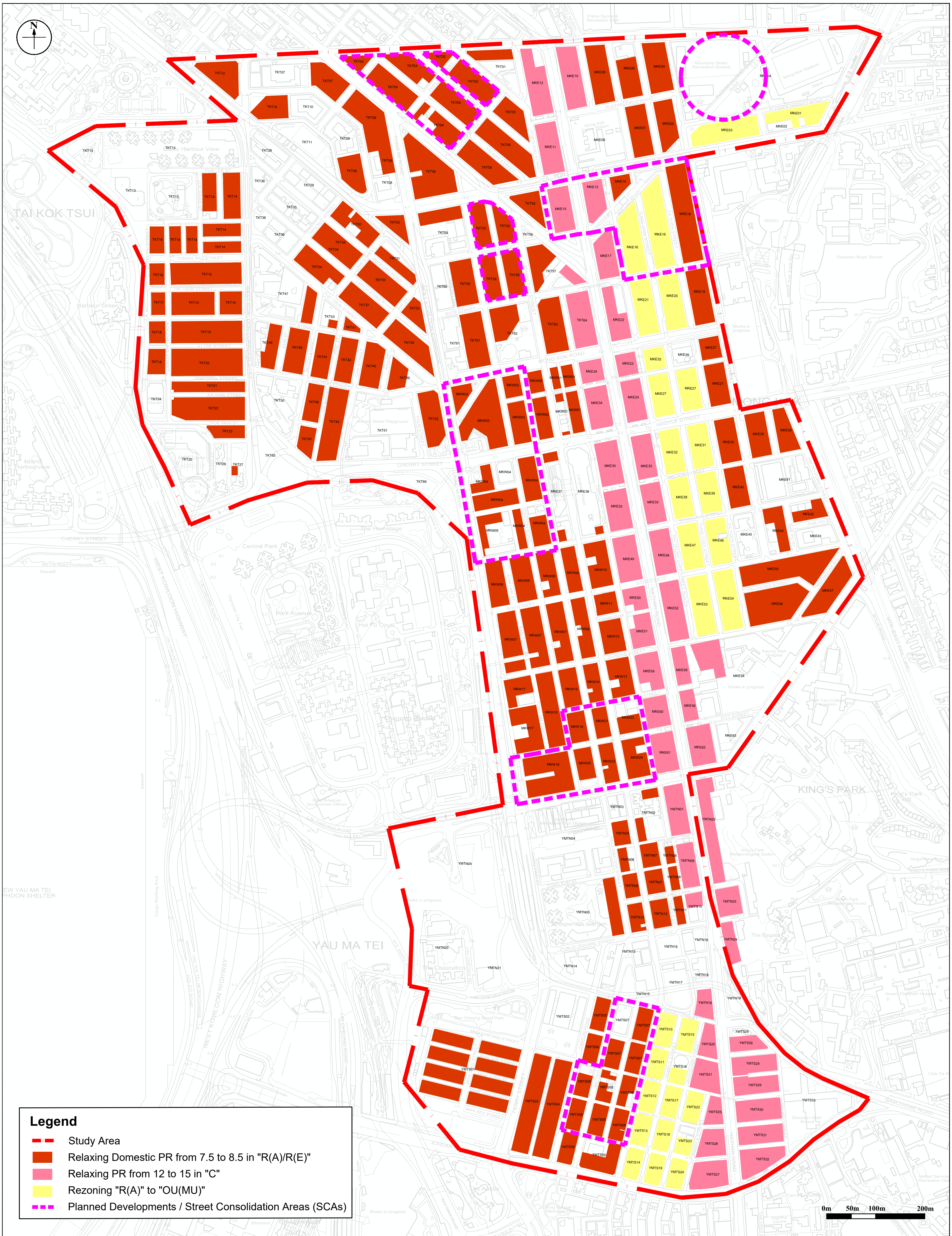

Figure: 1.2	RAMBOLL
Title: Consolidated Amendments in Land Use for Current Technical Assessment	Drawn by: YM
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Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Quality Impact Assessment	Rev.: 2.2
	Date: May 2022

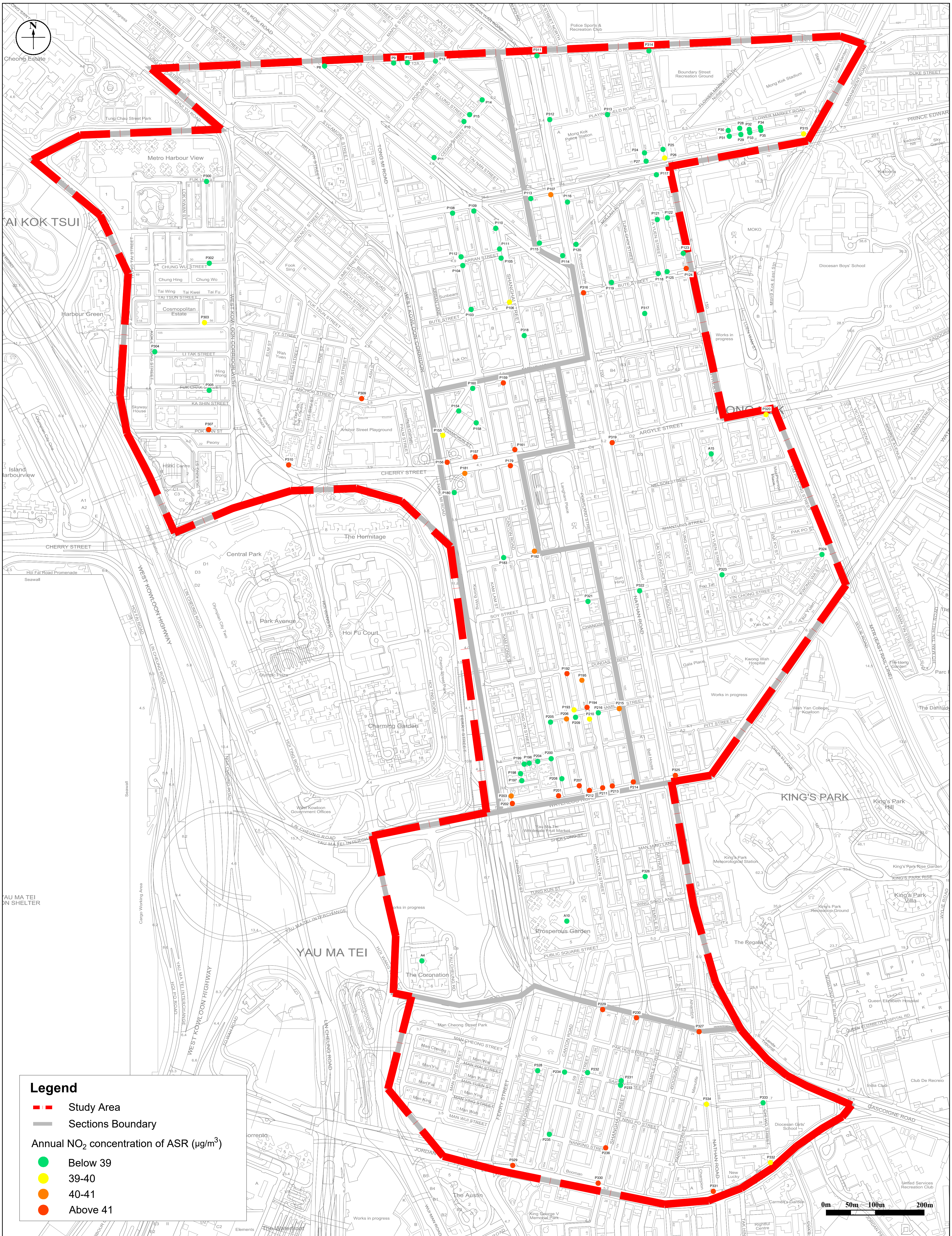

Figure: 2.1	RAMBOLL
Title: Representative Exisiting ASRs and Planned ASRs within Study Area	Drawn by: YM
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Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Quality Impact Assessment	Rev.: 2.1
	Date: May 2022

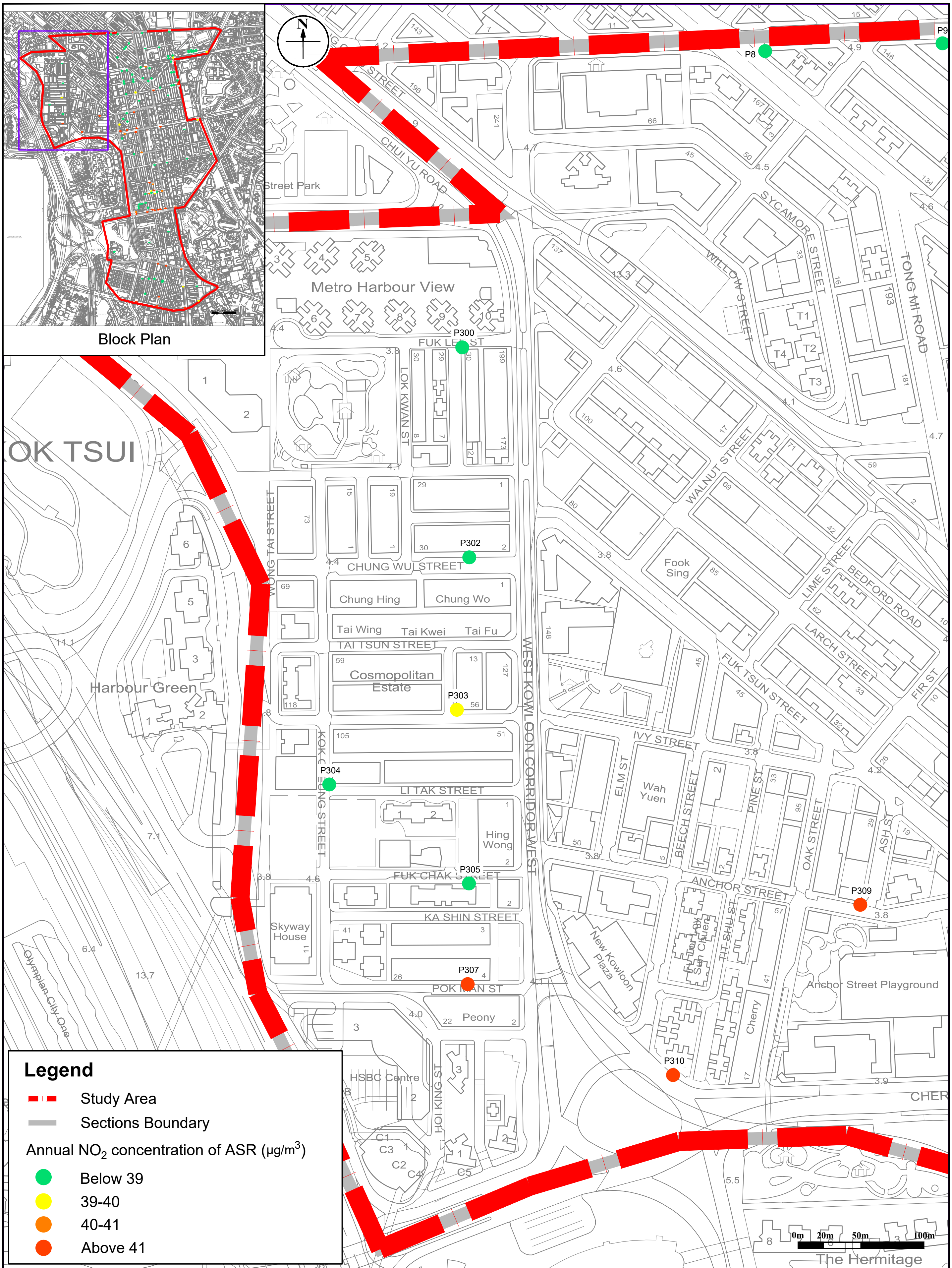

Figure: 2.1a

Title: Representative Exisiting ASRs and Planned ASRs within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBOLL

Drawn by: YM
Checked by: KY
Rev.: 2.1
Date: May 2022

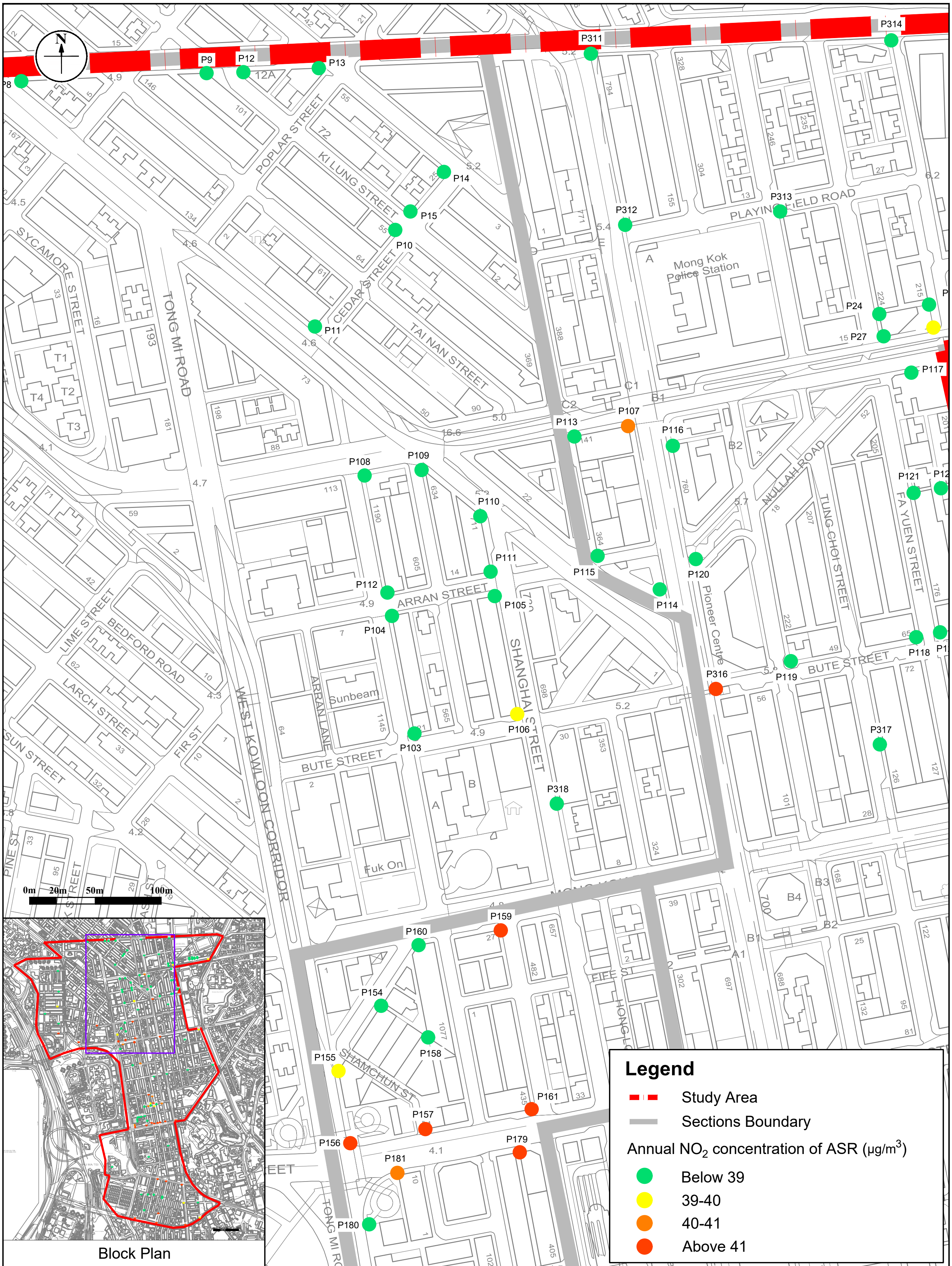

Figure: 2.1b

Title: Representative Exisiting ASRs and Planned ASRs within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBØLL

Drawn by:	YM
Checked by:	KY
Rev.:	2.1
Date:	May 2022

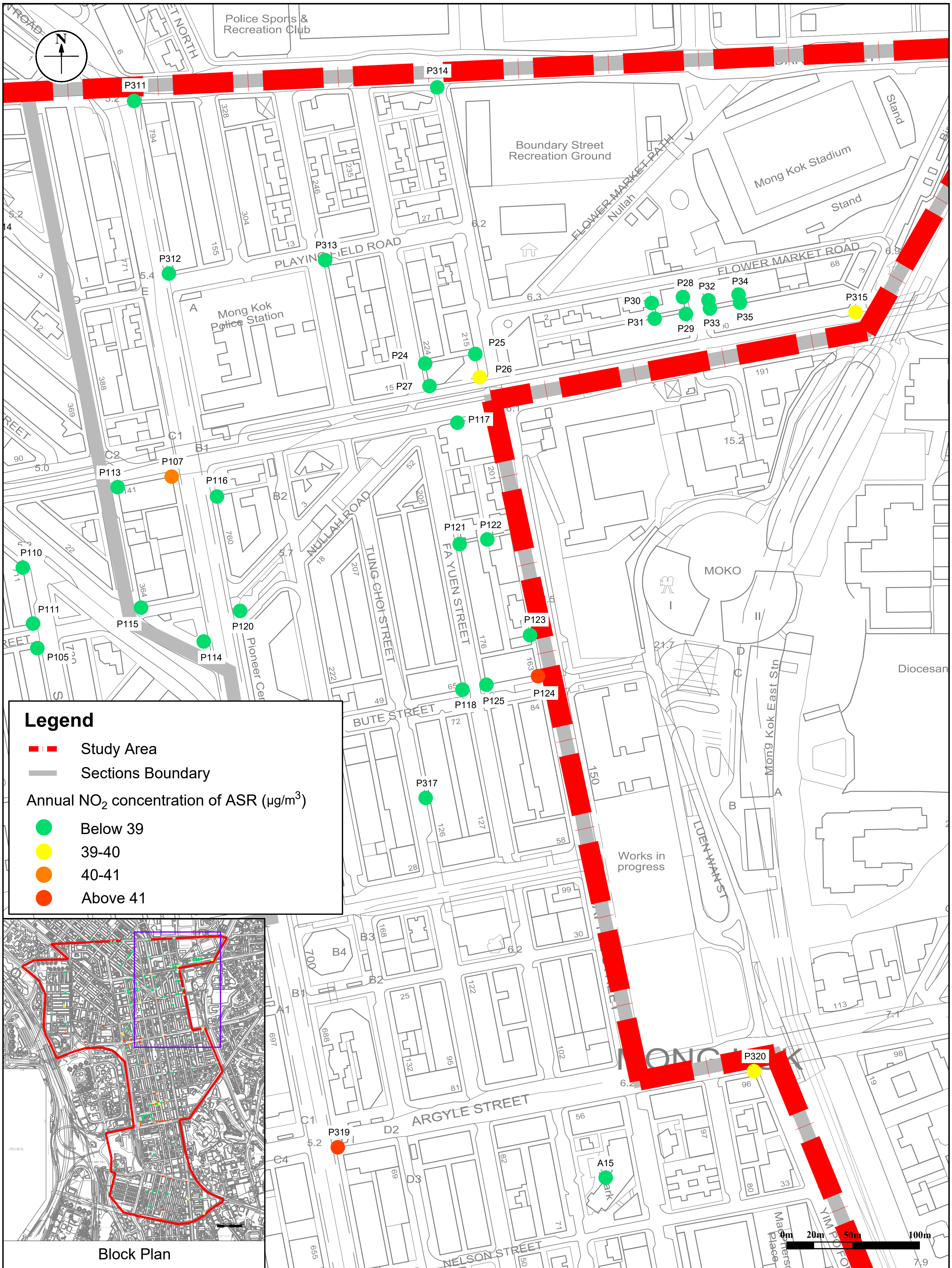

Figure: 2.1c

Title: Representative Exisiting ASRs and Planned ASRs within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBOLL

Drawn by: YM

Checked by: KY

Rev.: 2.1

Date: May 2022

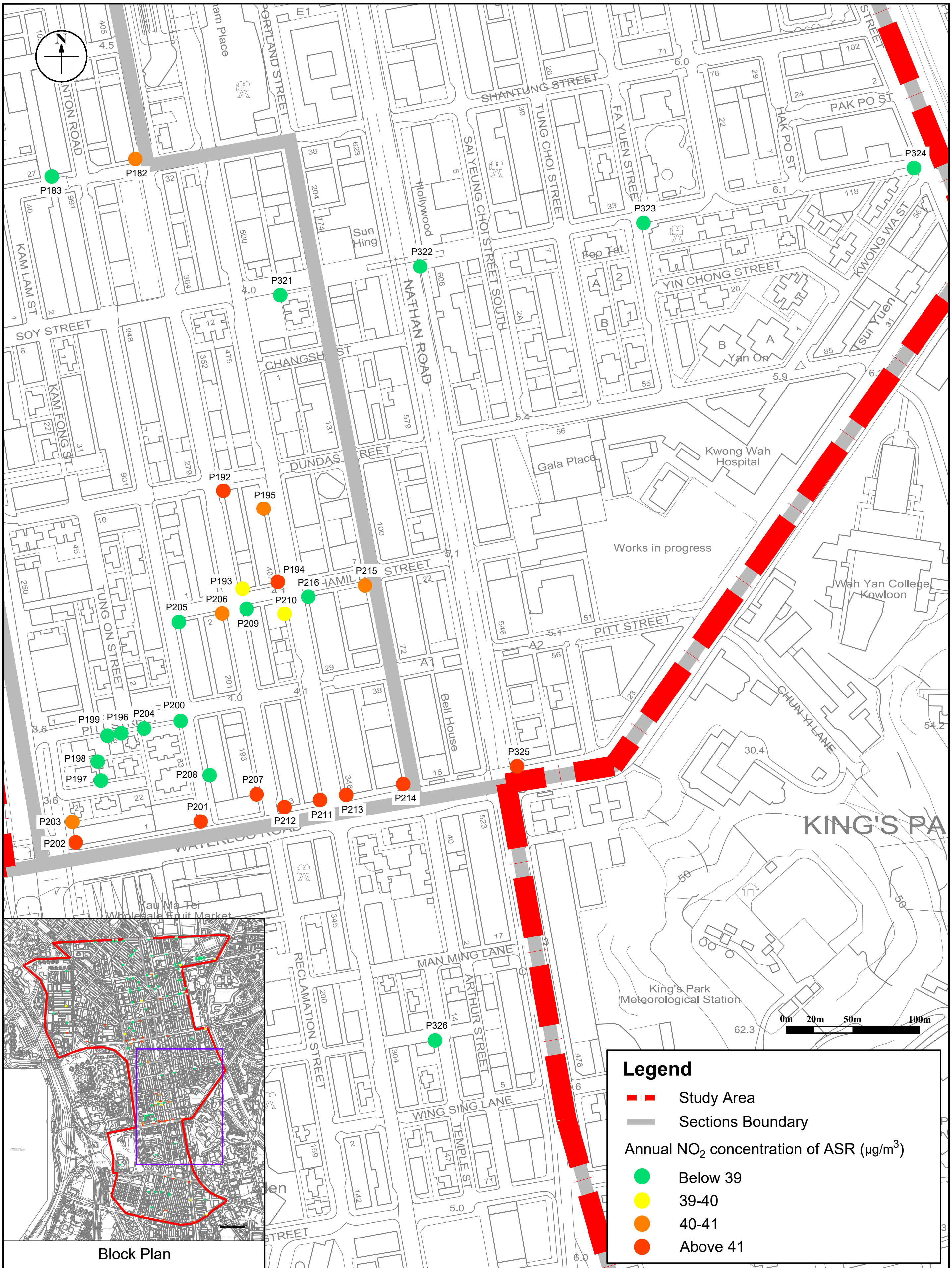

Figure: 2.1d

Title: Representative Exisiting ASRs and Planned ASRs within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBOLL

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Checked by:	KY
Rev.:	2.1
Date:	May 2022

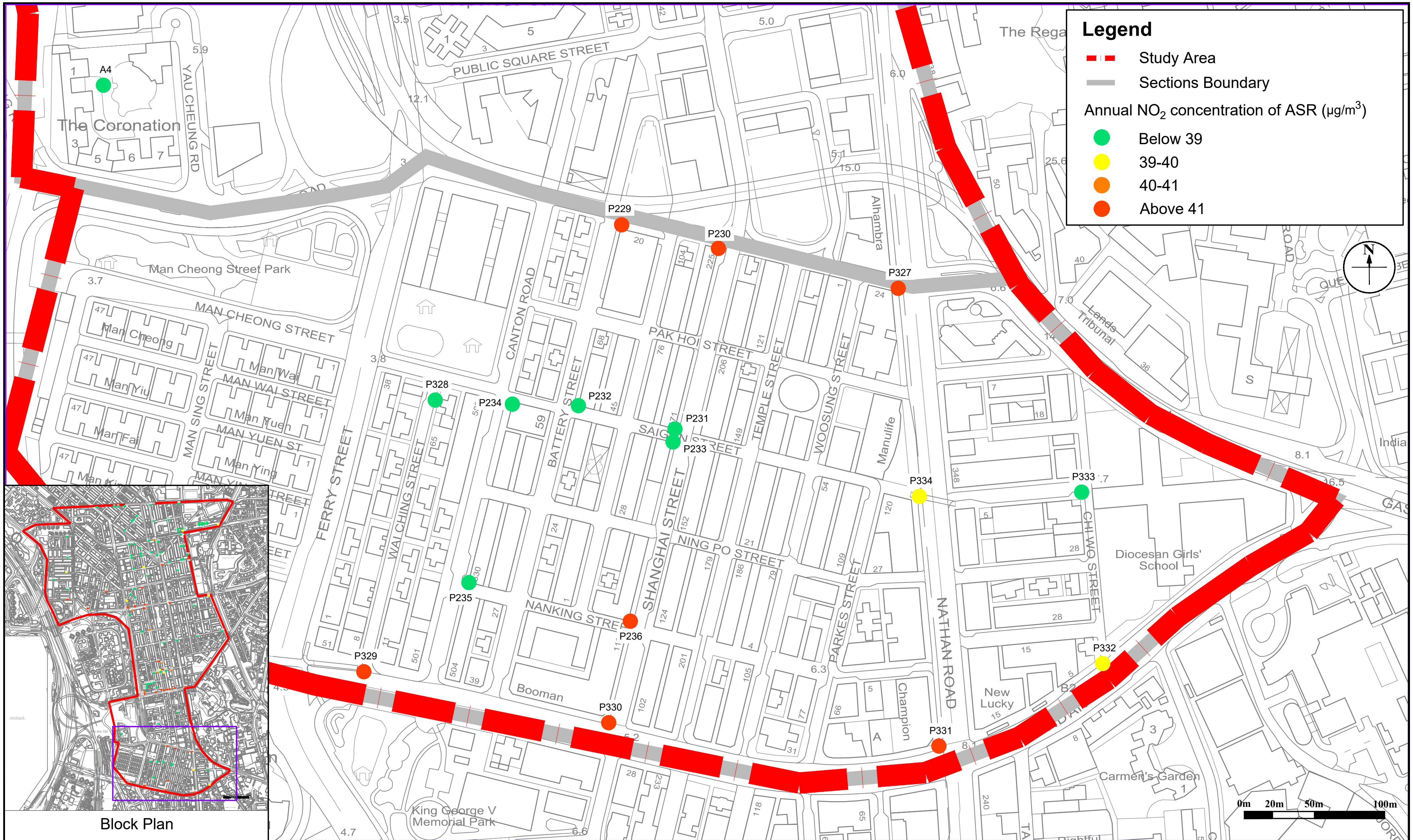


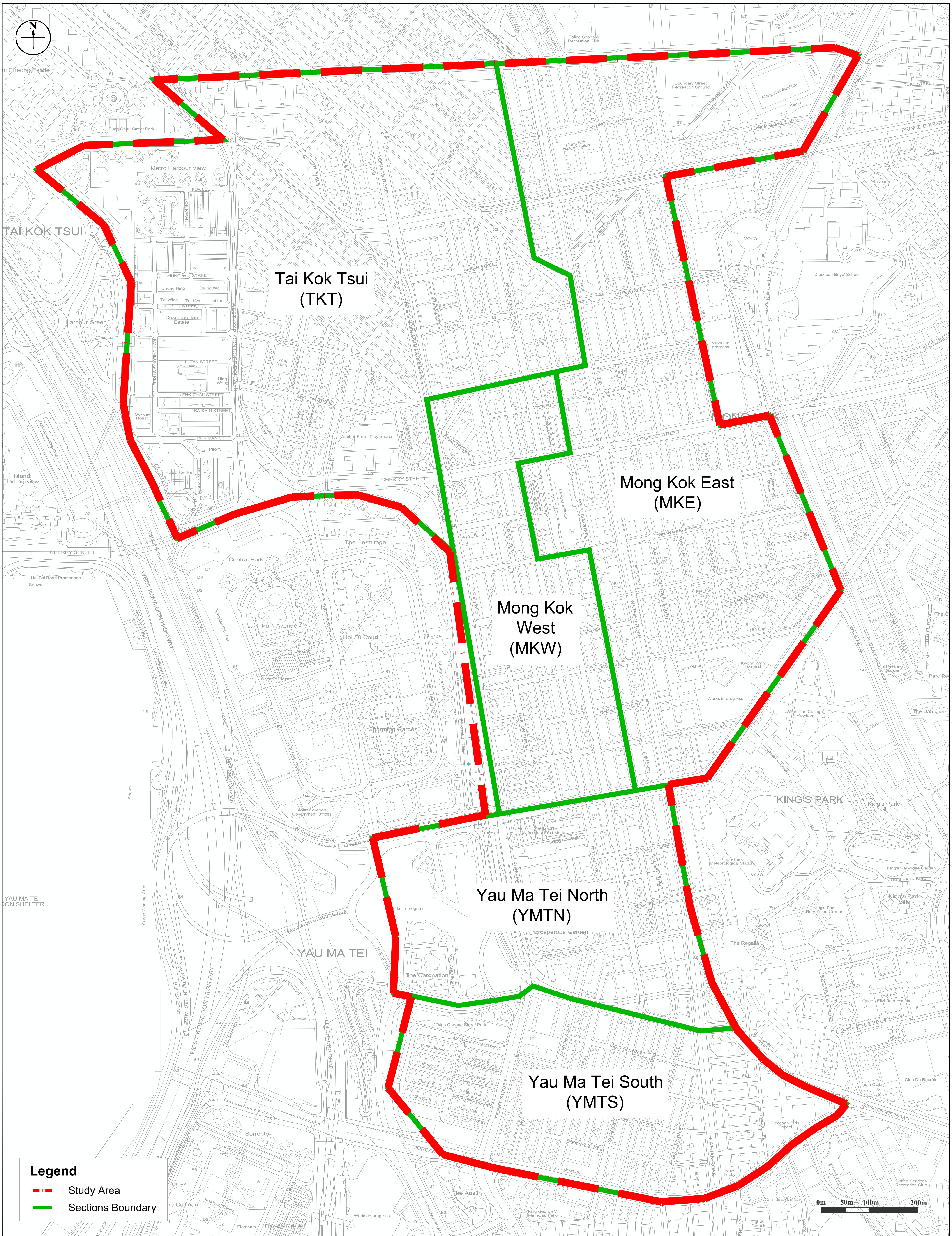
Figure: 2.1e

Title: Representative Exisiting ASRs and Planned ASRs within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBOLL

Drawn by:	YM
Checked by:	KY
Rev.:	2.1
Date:	May 2022



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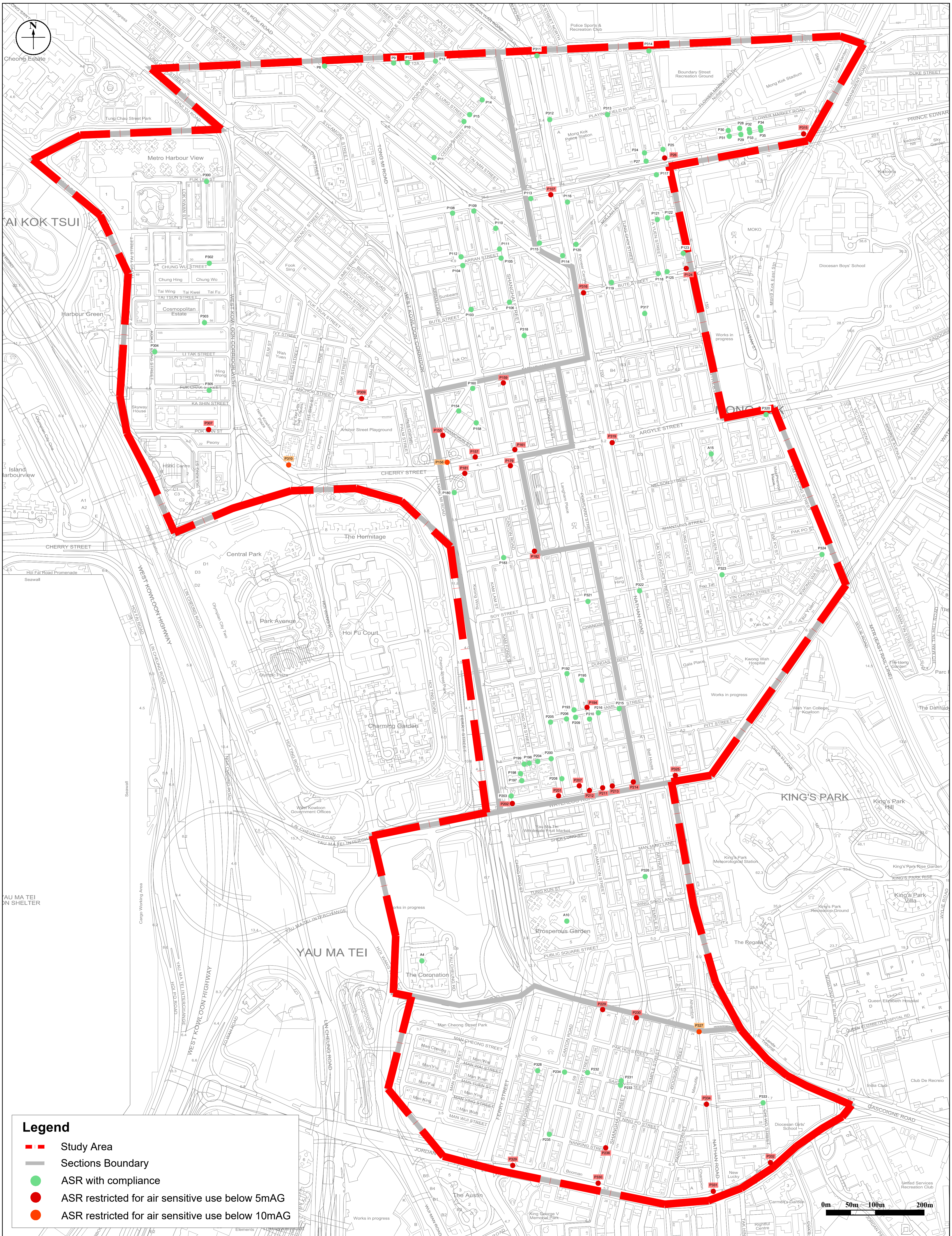
	Date: May 2022



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Title: Location Restricted for Air Sensitive Use within Study Area	Drawn by: YM
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Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Air Quality Impact Assessment	Rev.: 2.1
	Date: May 2022

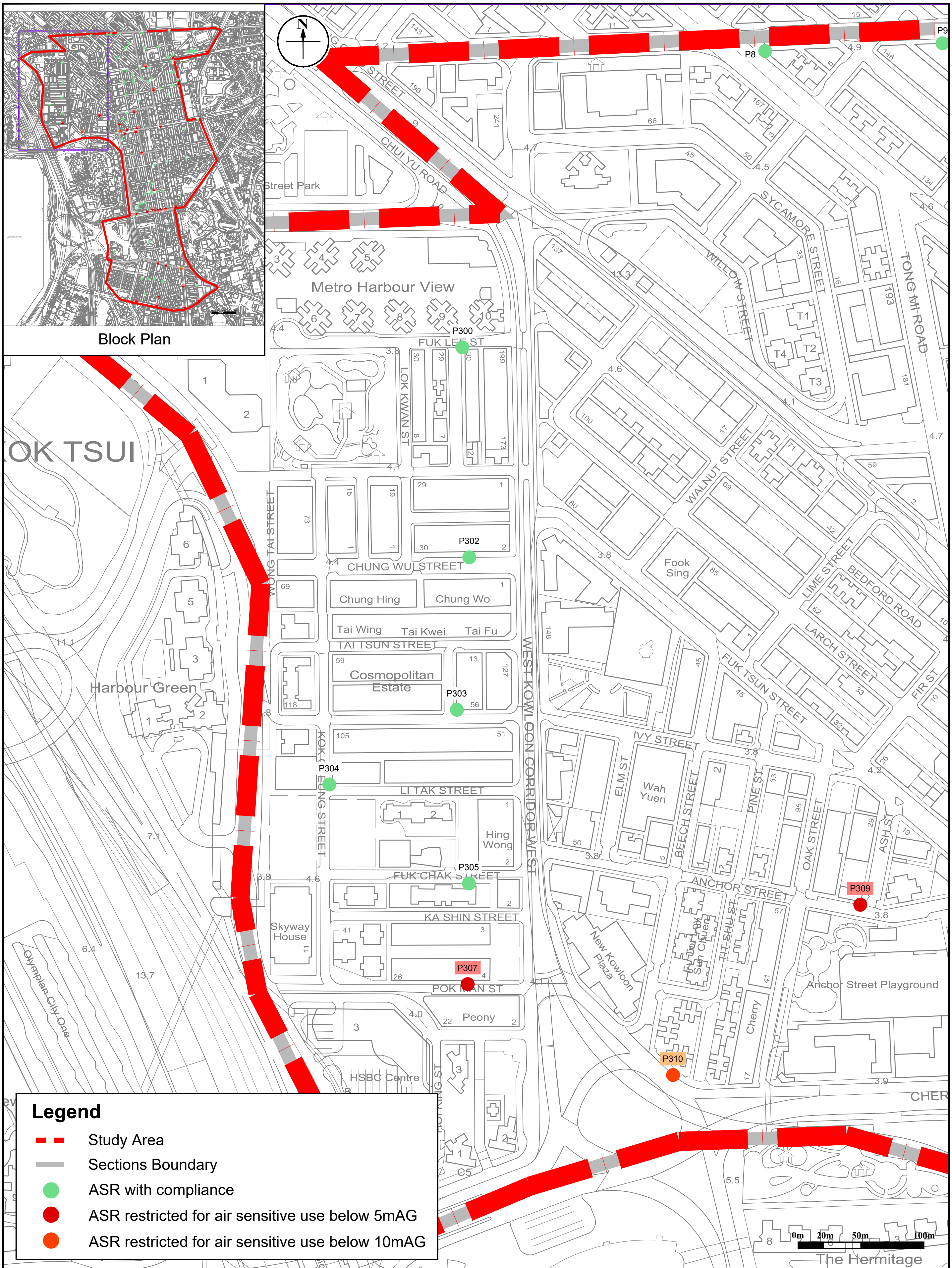

Figure: 2.3a

Title: Location Restricted for Air Sensitive Use within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBOLL

Drawn by:	YM
Checked by:	KY
Rev.:	2.1
Date:	May 2022

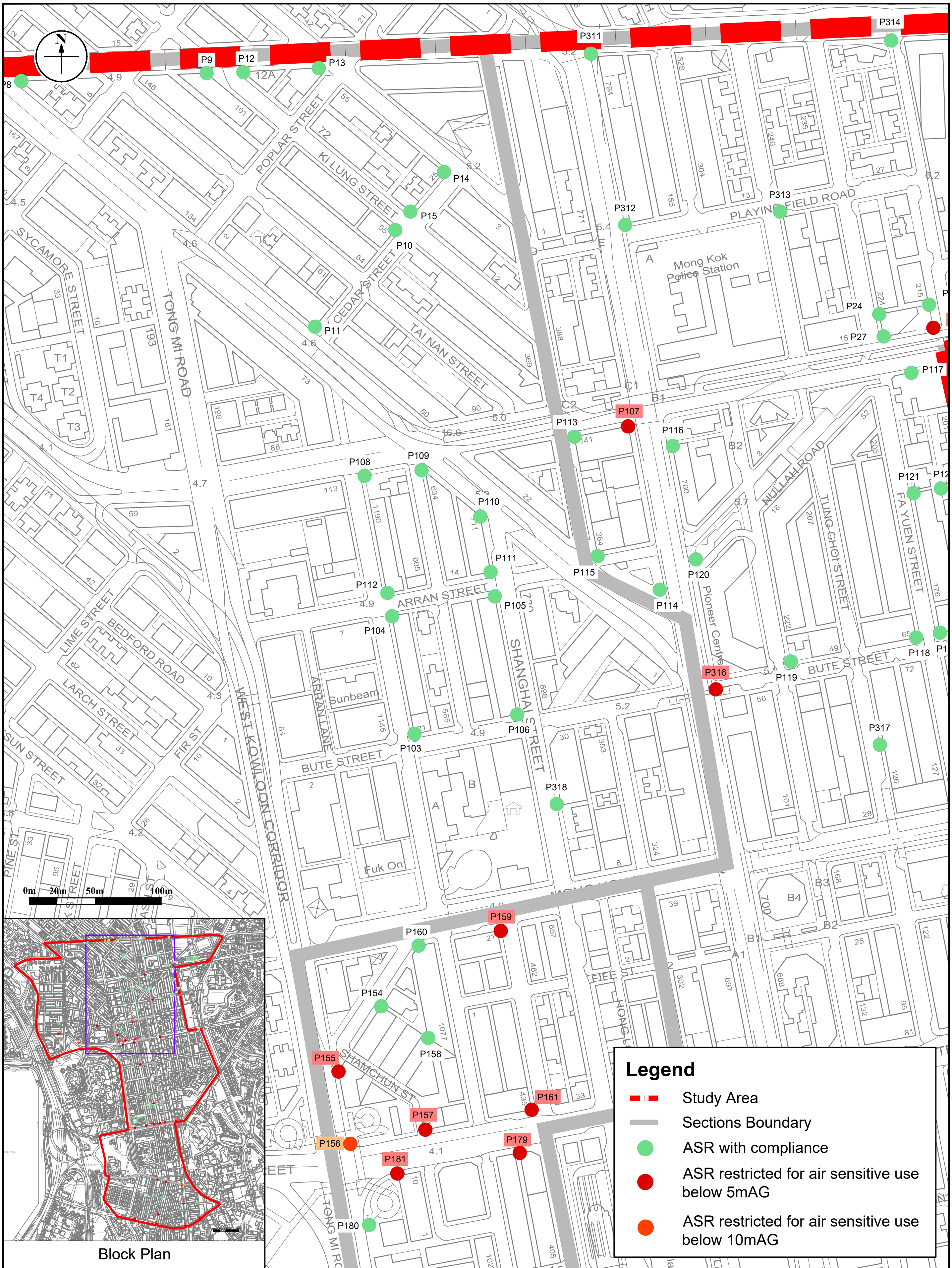

Figure: 2.3b

Title: Location Restricted for Air Sensitive Use within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBØLL

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Checked by:	KY
Rev.:	2.1
Date:	May 2022

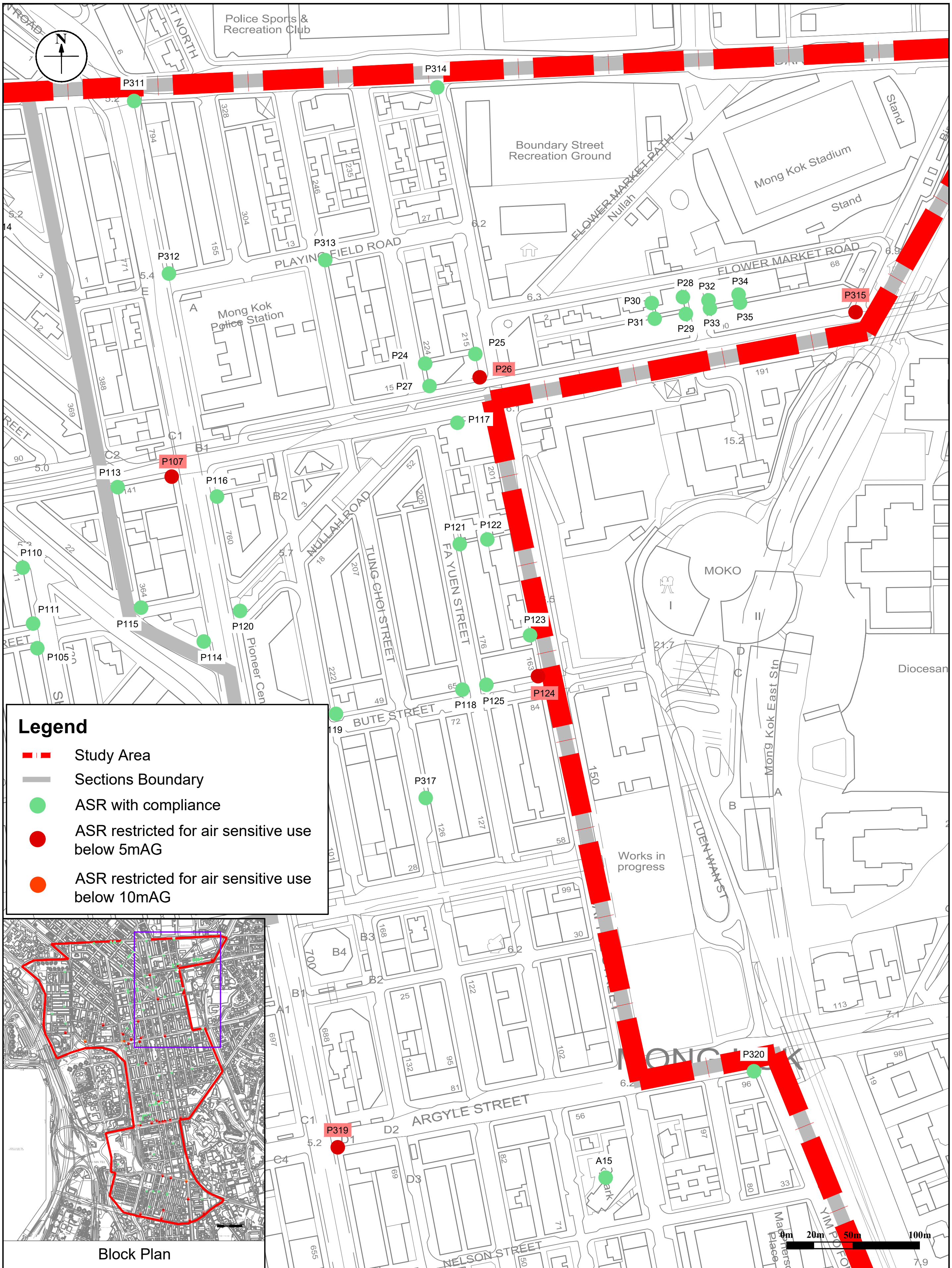

Figure: 2.3c

Title: Location Restricted for Air Sensitive Use within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

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Rev.:	2.1
Date:	May 2022

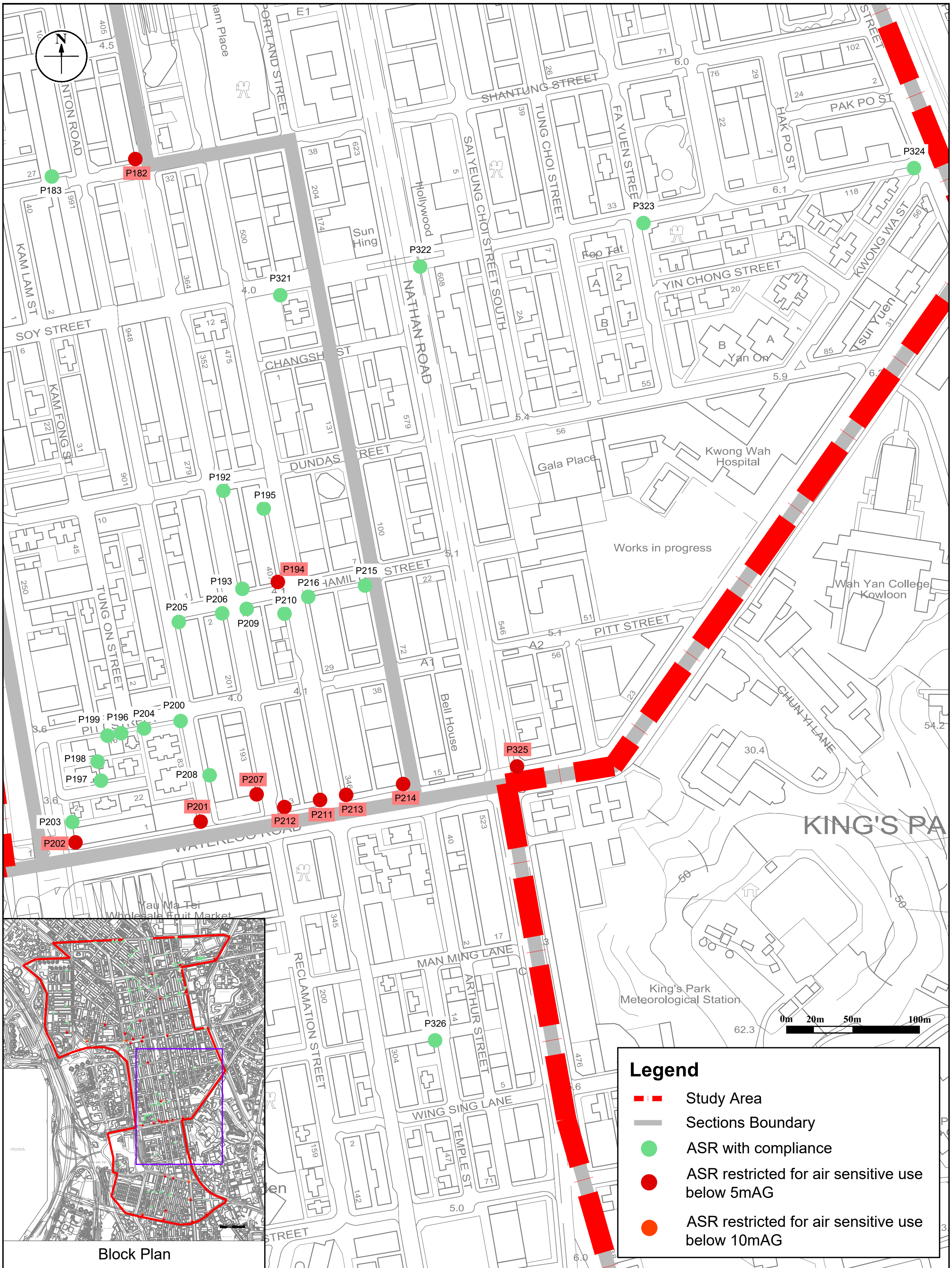

Figure: 2.3d

Title: Location Restricted for Air Sensitive Use within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

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Rev.: 2.1
Date: May 2022

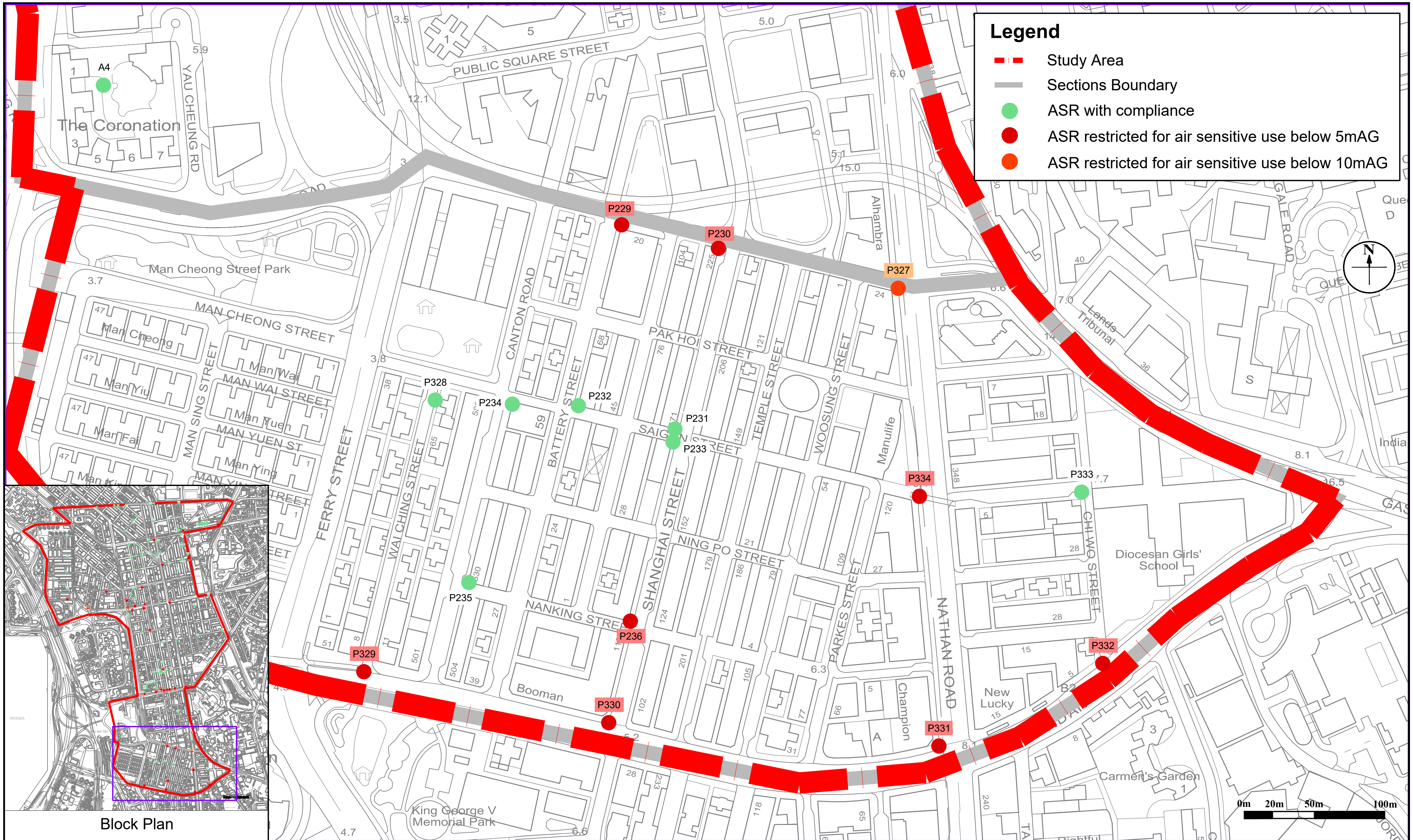


Figure: 2.3e

Title: Location Restricted for Air Sensitive Use within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Air Quality Impact Assessment

RAMBOLL

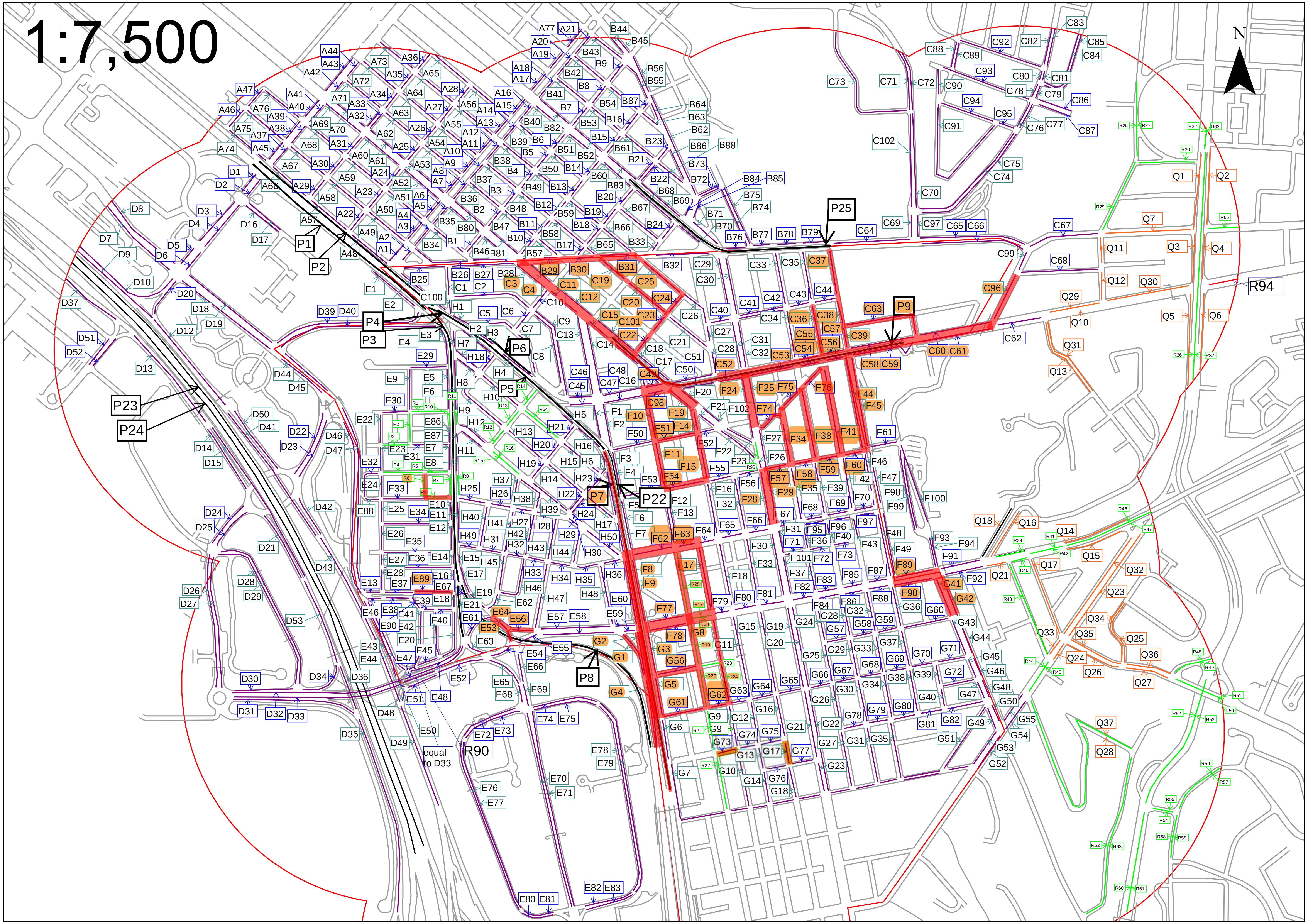
Drawn by: YM
Checked by: KY
Rev.: 2.1
Date: May 2022

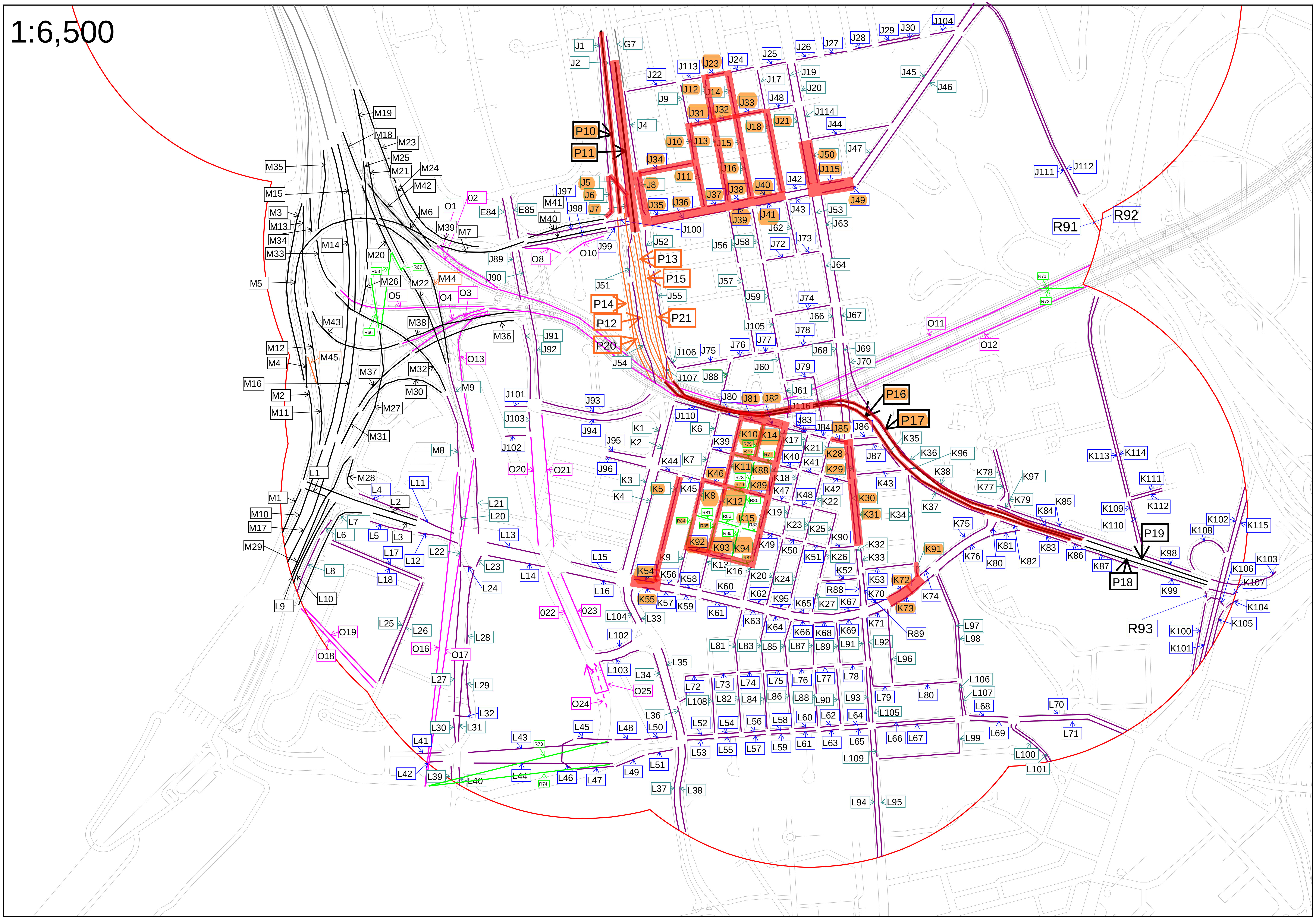
Appendices

Appendix 2.1

Traffic Forecast for Year 2047

Road nearby Planned Projects and SCAs

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P10
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
P21
R91
R92
R93

Overall Traffic Forecast Comparison

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)		OZP Amendment Traffic Flow (veh/hr)		Traffic Flow % Change		Actual Change (veh/hr)	
			2047 AM	2047 PM	2047 AM	2047 PM	2047 AM	2047 PM	2047 AM	2047 PM
C11	Lai Chi Kok Road	TNS SCA	1548	2095	1607	2035	3.80%	-2.88%	59	-60
C12	Lai Chi Kok Road	TNS SCA	615	357	540	306	-12.12%	-14.21%	-75	-51
C15	Lai Chi Kok Road	TNS SCA	1200	1485	1257	1491	4.75%	0.39%	57	6
C101	Lai Chi Kok Road	TNS SCA	334	233	291	219	-12.80%	-5.98%	-43	-14
P9	Prince Edward Road West	TNS SCA	1072	1240	1151	1281	7.38%	3.30%	79	41
C22	Cedar Street	TNS SCA	151	48	35	48	-76.69%	0.00%	-116	0
C23	Cedar Street	TNS SCA	330	246	191	155	-42.19%	-36.96%	-139	-91
B29	Boundary Street	TNS SCA	51	143	51	160	-0.28%	12.21%	0	17
B30	Boundary Street	TNS SCA	64	174	64	216	0.27%	23.97%	0	42
B31	Boundary Street	TNS SCA	389	513	562	626	44.50%	22.06%	173	113
C3	Lai Chi Kok Road	TNS SCA	1362	1932	1385	1878	1.70%	-2.77%	23	-54
C4	Lai Chi Kok Road	TNS SCA	615	357	540	306	-12.12%	-14.21%	-75	-51
C19	Ki Lung Street	TNS SCA	13	13	13	13	0.00%	0.00%	0	0
C20	Ki Lung Street	TNS SCA	13	13	13	13	0.00%	0.00%	0	0
C24	Cedar Street	TNS SCA	367	249	293	219	-20.13%	-12.14%	-74	-30
C25	Yu Chau Street	TNS SCA	592	369	404	316	-31.84%	-14.48%	-188	-53
F11	Canton Road	Arran Street SCA	130	126	108	108	-17.18%	-14.18%	-22	-18
F54	Bute Street	Arran Street SCA	476	436	486	372	2.17%	-14.64%	10	-64
F14	Shanghai Street	Arran Street SCA	262	240	258	241	-1.55%	0.32%	-4	1
F51	Arran Street	Arran Street SCA	97	94	84	111	-13.53%	17.65%	-13	17
F10	Canton Road	Arran Street SCA	174	120	130	87	-25.11%	-27.63%	-44	-33
C98	Prince Edward Road West	Arran Street SCA	659	618	625	539	-5.21%	-12.82%	-34	-79
F15	Shanghai Street	Arran Street SCA	257	215	232	201	-9.69%	-6.51%	-25	-14
C49	Prince Edward Road West	Arran Street SCA	621	680	647	675	4.25%	-0.77%	26	-5
F19	Lai Chi Kok Road	Arran Street SCA	189	171	176	178	-7.10%	3.94%	-13	7
F20	Lai Chi Kok Road	Arran Street SCA	610	538	546	525	-10.55%	-2.47%	-64	-13
P9	Prince Edward Road West	Nullah Road	1072	1240	1151	1281	7.4%	3.3%	79	41
C52	Prince Edward Road West	Nullah Road	937	1037	946	961	1.0%	-7.3%	9	-76
F24	Nathan Road	Nullah Road	575	841	536	850	-6.8%	1.0%	-39	9
F25	Nathan Road	Nullah Road	1747	1483	1668	1518	-4.5%	2.4%	-79	35
C56	Prince Edward Road West	Nullah Road	154	110	233	145	51.2%	32.1%	79	35
C57	Prince Edward Road West	Nullah Road	1437	1595	1360	1556	-5.3%	-2.5%	-77	-39
C60	Prince Edward Road West	Nullah Road	141	110	253	247	79.7%	124.2%	112	137
C61	Prince Edward Road West	Nullah Road	3029	3280	3102	3370	2.4%	2.8%	73	90
C96	Embankment Road	Nullah Road	910	925	1029	1052	13.1%	13.7%	119	127
F41	Fa Yuen Street	Nullah Road	13	13	13	13	0.0%	0.0%	0	0
F75	Fa Yuen Street	Nullah Road	114	157	65	90	-43.3%	-42.7%	-49	-67
F76	Nullah Road	Nullah Road	62	85	52	52	-15.4%	-38.3%	-10	-33
F58	Bute Street	Nullah Road	100	90	93	99	-6.8%	10.5%	-7	9
F59	Bute Street	Nullah Road	39	64	32	89	-18.8%	38.8%	-7	25
F60	Bute Street	Nullah Road	260	230	192	207	-26.2%	-10.1%	-68	-23
F44	Sai Yee Street	Nullah Road	313	539	333	585	6.3%	8.6%	20	46
F45	Sai Yee Street	Nullah Road	549	476	553	442	0.7%	-7.2%	4	-34
F74	Nullah Road	Nullah Road	332	287	299	390	-9.8%	35.8%	-33	103
F34	Sai Yeung Choi Street South	Nullah Road	179	206	167	158	-7.0%	-23.3%	-12	-48
C53	Prince Edward Road West	Nullah Road	1322	1336	1194	1297	-9.7%	-2.9%	-128	-39
C54	Prince Edward Road West	Nullah Road	1768	1918	1516	1748	-14.3%	-8.9%	-252	-170
C55	Prince Edward Road West	Nullah Road	1768	1918	1187	1623	-32.9%	-15.4%	-581	-295
C36	Fa Yuen Street	Nullah Road	698	583	733	599	5.0%	2.8%	35	16
F34	Sai Yeung Choi Street South	Nullah Road	179	206	107	122	-40.4%	-41.0%	-72	-84
F38	Tung Choi Street	Nullah Road	52	72	47	50	-9.5%	-30.6%	-5	-22
C37	Sai Yee Street	Nullah Road	41	44	35	33	-15.4%	-25.0%	-6	-11
C38	Sai Yee Street	Nullah Road	151	218	310	375	105.1%	72.1%	159	157
C39	Sai Yee Street	Nullah Road	447	620	585	753	30.9%	21.4%	138	133
C63	Flower Market Road	Nullah Road	214	243	207	232	-3.2%	-4.4%	-7	-11
C58	Prince Edward Road West	Nullah Road	1960	2041	1612	3517	-17.8%	72.3%	-348	1476
C59	Prince Edward Road West	Nullah Road	38	42	38	43	0.1%	3.3%	0	1

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)		OZP Amendment Traffic Flow (veh/hr)		Traffic Flow % Change		Actual Change (veh/hr)	
			2047 AM	2047 PM	2047 AM	2047 PM	2047 AM	2047 PM	2047 AM	2047 PM
G62	Shantung Street	MK Market	517	474	337	371	-34.9%	-21.8%	-180	-103
R24	Reclamation Street	MK Market	161	261	274	426	70.4%	63.3%	113	165
G2	Ferry Street	MK Market	317	616	373	700	17.6%	13.6%	56	84
G3	Ferry Street	MK Market	1155	942	1064	864	-7.9%	-8.3%	-91	-78
F77	Argyle Street	MK Market	290	313	404	452	39.3%	44.6%	114	139
F78	Argyle Street	MK Market	1724	1748	1703	1702	-1.2%	-2.7%	-21	-46
F17	Reclamation Street	MK Market	368	482	272	356	-26.0%	-26.2%	-96	-126
F62	Mong Kok Road	MK Market	735	922	686	877	-6.7%	-4.9%	-49	-45
F63	Mong Kok Road	MK Market	764	917	894	1162	17.0%	26.7%	130	245
P7	West Kowloon Corridor	MK Market	2492	1994	2480	1978	-0.5%	-0.8%	-12	-16
R17	Argyle Street	MK Market	218	225	122	108	-44.2%	-52.0%	-96	-117
R18	Argyle Street	MK Market	1611	1636	1592	1577	-1.2%	-3.6%	-19	-59
F9	Tong Mi Road	MK Market	1917	1652	1988	1790	3.7%	8.3%	71	138
R25	Canton Road	MK Market	0	0	0	0	0.0%	0.0%	0	0
R19	Canton Road	MK Market	0	0	0	0	0.0%	0.0%	0	0
R20	Canton Road	MK Market	0	0	0	0	0.0%	0.0%	0	0
G56	Nelson Street	MK Market	13	13	13	13	0.0%	0.0%	0	0
G61	Shantung Street	MK Market	506	496	321	374	-36.5%	-24.6%	-185	-122
G4	Ferry Street	MK Market	426	996	357	1000	-16.2%	0.4%	-69	4
G5	Ferry Street	MK Market	1246	975	1152	902	-7.5%	-7.5%	-94	-73
G1	Slip Road From Ferry Street T	MK Market	398	821	249	737	-37.3%	-10.2%	-149	-84
G8	Reclamation Street	MK Market	161	261	153	253	-5.1%	-2.9%	-8	-8
F8	Tong Mi Road	MK Market	579	919	603	955	4.2%	4.0%	24	36
J5	Ferry Street	Hamilton Street	150	278	147	284	-1.97%	2.08%	-3	6
J6	Ferry Street	Hamilton Street	45	112	44	97	-1.39%	-13.79%	-1	-15
J7	Ferry Street	Hamilton Street	330	586	300	560	-9.15%	-4.46%	-30	-26
J8	Ferry Street	Hamilton Street	312	158	262	140	-15.95%	-11.56%	-50	-18
J35	Waterloo Road	Hamilton Street	1227	1406	1153	1342	-6.07%	-4.55%	-74	-64
J36	Waterloo Road	Hamilton Street	1007	1192	973	1147	-3.38%	-3.80%	-34	-45
J11	Canton Road	Hamilton Street	13	13	13	13	0.00%	0.00%	0	0
J37	Waterloo Road	Hamilton Street	1236	1411	1162	1348	-5.98%	-4.46%	-74	-63
J13	Reclamation Street	Hamilton Street	661	873	540	795	-18.28%	-8.89%	-121	-78
J15	Shanghai Street	Hamilton Street	612	805	536	743	-12.38%	-7.74%	-76	-62
J12	Reclamation Street	Hamilton Street	586	867	514	811	-12.27%	-6.42%	-72	-56
J14	Shanghai Street	Hamilton Street	989	1286	864	1204	-12.61%	-6.37%	-125	-82
J23	Dundas Street	Hamilton Street	749	848	736	840	-1.73%	-1.00%	-13	-8
J31	Hamilton Street	Hamilton Street	155	95	84	58	-46.01%	-38.89%	-71	-37
J32	Hamilton Street	Hamilton Street	59	40	22	17	-63.22%	-57.14%	-37	-23
J33	Hamilton Street	Hamilton Street	378	429	288	406	-23.86%	-5.47%	-90	-23
J18	Portland Street	Hamilton Street	557	622	472	556	-15.21%	-10.61%	-85	-66
P10	West Kowloon Corridor	Hamilton Street	1410	2119	1413	2273	0.23%	7.29%	3	154
P11	West Kowloon Corridor	Hamilton Street	2492	1994	2427	1937	-2.59%	-2.85%	-65	-57
J34	Pitt Street	Hamilton Street	13	13	13	13	0.00%	0.00%	0	0
J40	Waterloo Road	Hamilton Street	1437	1742	1285	1586	-10.60%	-8.94%	-152	-156
J41	Waterloo Road	Hamilton Street	1073	1220	1046	1200	-2.53%	-1.60%	-27	-20
J10	Canton Road	Hamilton Street	13	13	13	13	0.00%	0.00%	0	0
J38	Waterloo Road	Hamilton Street	1236	1411	1162	1348	-5.98%	-4.46%	-74	-63
J39	Waterloo Road	Hamilton Street	656	749	632	729	-3.70%	-2.61%	-24	-20
J16	Shanghai Street	Hamilton Street	656	830	581	767	-11.41%	-7.61%	-75	-63

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)		OZP Amendment Traffic Flow (veh/hr)		Traffic Flow % Change		Actual Change (veh/hr)	
			2047 AM	2047 PM	2047 AM	2047 PM	2047 AM	2047 PM	2047 AM	2047 PM
K10	Battery Street	Saigon Street	162	147	133	136	-18.2%	-7.5%	-29	-11
K88	Shanghai Street	Saigon Street	240	280	241	275	0.5%	-1.8%	1	-5
K94	Shanghai Street	Saigon Street	712	1139	736	1137	3.3%	-0.2%	24	-2
R87	Nanking Street	Saigon Street	45	58	17	24	-61.8%	-59.1%	-28	-34
P16	Gascoigne Road Flyover	Saigon Street	1764	2129	1786	2136	1.2%	0.3%	22	7
P17	Gascoigne Road Flyover	Saigon Street	2194	2246	2199	2237	0.2%	-0.4%	5	-9
J81	Kansu Street	Saigon Street	702	1024	722	1023	2.9%	-0.1%	20	-1
J82	Kansu Street	Saigon Street	702	1024	722	1023	2.9%	-0.1%	20	-1
K14	Shanghai Street	Saigon Street	469	540	574	565	22.4%	4.7%	105	25
K15	Shanghai Street	Saigon Street	461	677	485	597	5.1%	-11.8%	24	-80
K46	Saigon Street	Saigon Street	44	85	56	63	27.8%	-26.5%	12	-22
R79	Saigon Street	Saigon Street	63	44	47	29	-25.3%	-34.0%	-16	-15
K89	Saigon Street	Saigon Street	105	126	105	49	0.0%	-60.8%	0	-77
K8	Canton Road	Saigon Street	216	124	199	126	-8.0%	1.8%	-17	2
R84	Canton Road	Saigon Street	191	84	177	92	-7.5%	9.2%	-14	8
K92	Nanking Street	Saigon Street	13	13	13	13	0.0%	0.0%	0	0
K93	Nanking Street	Saigon Street	45	58	17	24	-61.8%	-59.1%	-28	-34
K11	Battery Street	Saigon Street	26	21	23	13	-11.4%	-39.1%	-3	-8
K12	Battery Street	Saigon Street	0	0	0	0	0.0%	0.0%	0	0
R75	Reclamation Street	Saigon Street	0	0	0	0	0.0%	0.0%	0	0
R76	Pak Hoi Street	Saigon Street	0	0	0	0	0.0%	0.0%	0	0
R77	Pak Hoi Street	Saigon Street	0	0	0	0	0.0%	0.0%	0	0
R85	Battery Street	Saigon Street	0	0	0	0	0.0%	0.0%	0	0
R6	Tai Ching Street	TKT OZP Amendment Site	0	0	0	0	-10.77%	-21.88%	0	0
R9	Ivy Street	TKT OZP Amendment Site	250	328	227	288	-9.32%	-12.12%	-23	-40
E89	Pok Man Street	TKT OZP Amendment Site	593	488	534	456	-9.97%	-6.52%	-59	-32
E56	Cherry Street	TKT OZP Amendment Site	388	437	395	413	1.89%	-5.40%	7	-24
E53	Hoi Wang Road	TKT OZP Amendment Site	916	717	840	673	-8.31%	-6.15%	-76	-44
E64	Cherry Street	TKT OZP Amendment Site	837	679	806	627	-3.65%	-7.70%	-31	-52
C60	Prince Edward Road West	MKE OZP Amendment Site	141	110	253	247	79.65%	124.17%	112	137
C61	Prince Edward Road West	MKE OZP Amendment Site	3029	3280	3102	3370	2.40%	2.76%	73	90
C96	Embankment Road	MKE OZP Amendment Site	910	925	1029	1052	13.07%	13.68%	119	127
F28	Nathan Road	MKE OZP Amendment Site	776	986	689	885	-11.18%	-10.21%	-87	-101
F29	Nathan Road	MKE OZP Amendment Site	1720	1526	1540	1368	-10.47%	-10.33%	-180	-158
F57	Bute Street	MKE OZP Amendment Site	101	235	163	207	61.16%	-11.76%	62	-28
F89	Argyle Street	MKE OZP Amendment Site	1366	1326	1417	1310	3.76%	-1.17%	51	-16
F90	Argyle Street	MKE OZP Amendment Site	1145	880	1105	824	-3.46%	-6.42%	-40	-56
G41	Yim Po Fong Street	MKE OZP Amendment Site	569	605	536	608	-5.76%	0.43%	-33	3
G42	Yim Po Fong Street	MKE OZP Amendment Site	287	324	264	302	-7.87%	-6.83%	-23	-22
J21	Nathan Road	MKE OZP Amendment Site	390	578	389	586	-0.30%	1.32%	-1	8
J50	Nathan Road	MKE OZP Amendment Site	977	983	952	934	-2.61%	-4.94%	-25	-49
J115	Waterloo Road	MKE OZP Amendment Site	1293	1245	1284	1187	-0.68%	-4.64%	-9	-58
J49	Waterloo Road	MKE OZP Amendment Site	1293	1245	1295	1224	0.13%	-1.71%	2	-21
J85	Kansu Street	YMTS OZP Amendment Site	361	751	502	761	38.94%	1.35%	141	10
K28	Nathan Road	YMTS OZP Amendment Site	605	1049	694	1065	14.78%	1.52%	89	16
K29	Nathan Road	YMTS OZP Amendment Site	733	617	750	595	2.35%	-3.53%	17	-22
K5	Wai Ching Street	YMTS OZP Amendment Site	80	21	80	21	0.00%	0.00%	0	0
K54	Jordan Road	YMTS OZP Amendment Site	1541	1896	1541	1778	0.00%	-6.21%	0	-118
K55	Jordan Road	YMTS OZP Amendment Site	933	1205	924	1213	-0.93%	0.67%	-9	8
K91	Chi Wo Street	YMTS OZP Amendment Site	236	222	220	202	-6.90%	-9.23%	-16	-20
K72	Jordan Road	YMTS OZP Amendment Site	983	1583	1093	1627	11.23%	2.78%	110	44
K73	Jordan Road	YMTS OZP Amendment Site	455	340	464	350	2.04%	3.02%	9	10
K30	Nathan Road	YMTS OZP Amendment Site	440	788	424	740	-3.69%	-6.09%	-16	-48
K31	Nathan Road	YMTS OZP Amendment Site	1094	908	1026	783	-6.22%	-13.72%	-68	-125

Remarks

(i) Cells highlighted in yellow represent increase in traffic flow

(ii) Cells highlight in pink is with 0 traffic flow due to proposed road closure

Appendix 2.2

Predicted Annual NO_2 Concentration in YM Study

Annual NO_2 Concentration ($\mu g/m^3$)

= 39-40 | = 40-41 | Above 41

			Height (mAG)																																										
Receptor ID	Area	Related SCA/ Project	1.5	5	10	15	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410
P8	TKT	TNS SCA	32	29	27	26	25	24	23	22	21	20	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P9	TKT	TNS SCA	29	28	27	26	25	24	22	22	21	20	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P10	TKT	TNS SCA	31	29	27	26	25	24	22	21	21	20	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P11	TKT	TNS SCA	31	30	28	27	26	24	22	22	21	20	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P12	TKT	TNS SCA	30	28	27	26	25	24	22	22	21	20	20	20	20	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P13	TKT	TNS SCA	33	29	27	26	25	24	22	22	21	20	20	20	20	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P14	TKT	TNS SCA	32	29	27	26	25	23	22	21	21	20	20	20	20	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P15	TKT	TNS SCA	31	29	27	26	25	24	22	21	21	20	20	20	20	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P24	MKE	Nullah Road	34	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P25	MKE	Nullah Road	35	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P26	MKE	Nullah Road	39	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P27	MKE	Nullah Road	36	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P28	MKE	Nullah Road	31	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P29	MKE	Nullah Road	33	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P30	MKE	Nullah Road	31	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P31	MKE	Nullah Road	33	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P32	MKE	Nullah Road	31	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P33	MKE	Nullah Road	32	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P34	MKE	Nullah Road	30	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P35	MKE	Nullah Road	31	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P107	MKE	Nullah Road	40	31	28	26	25	23	22	21	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P113	MKE	Nullah Road	34	31	29	26	25	23	22	21	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P114	MKE	Nullah Road	38	30	27	26	25	23	22	21	20	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P115	MKE	Nullah Road	32	31	28	26	25	23	22	21	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P116	MKE	Nullah Road	31	29	27	25	24	23	21	21	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-
P117	MKE	Nullah Road	36	30	27	25	24	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-
P118	MKE	Nullah Road	32	30	27	25	24	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-
P119	MKE	Nullah Road	34	30	27	25	24	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-
P120	MKE	Nullah Road	32	29	27	25	24	23	21	21	20	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-
P121	MKE	Nullah Road	28	27	25	24	23	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P122	MKE	Nullah Road	28	27	25	24	23	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P123	MKE	Nullah Road	34	29	26	24	23	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P124	MKE	Nullah Road	44	33	26	24	23	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P125	MKE	Nullah Road	33	31	27	25	23	22	21	20	20	20	19	19	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P103	TKT	Arran Street SCA	38	35	33	32	31	29	27	27	26	25	25	25	25	25	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P104	TKT	Arran Street SCA	30	29	28	27	26	24	22	21	21	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P105	TKT	Arran Street SCA	32	30	28	27	25	23	22	21	21	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P106	TKT	Arran Street SCA	40	36	33	32	31	29	27	26	26	25	25	25	25	25	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P108	TKT	Arran Street SCA	32	30	28	27	26	24	22	21	21	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P109	TKT	Arran Street SCA	32	30	28	27	25	23	22	21	21	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P110	TKT	Arran Street SCA	32	29	28	26	25	23	22	21	21	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P111	TKT	Arran Street SCA	33	30	28	27	25	23	22	21	21	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P112	TKT	Arran Street SCA	31	29	28	27	26	24	22	21	21	20	20	20	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P154	MKW	MK Market	36	35	34	32	31	29	28	27	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P155	MKW	MK Market	40	36	35	33	31	29	28	27	26	26	25	25	25	25	24	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P156	MKW	MK Market	48	39	35	32	31	29	27	27	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P157	MKW	MK Market	45	38	34	32	31	29	27	27	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P158	MKW	MK Market	36	35	34	32	31	29	27	27	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P159	MKW	MK Market	41	37	34	32	31	29	27	26	26	25	25	25	25	25	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P160	MKW	MK Market	38	36	34	32	31	29	27	27	26	25	25	25	25	25	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P161	MKW	MK Market	46	38	34	32	30	29	27	26	26	25	25	25	25	25	24	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P179	MKW	MK Market	42	37	34	32	30	28	27	26	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	24	25	25	25	25	25	25	24	24	24	24	24	24	-	-	-	-	-	-	-	-
P180	MKW	MK Market	37	35	33	32	30	29	27	27	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	24	25	25	25	25	25	25	24	24	24	24	24	24	-	-	-	-	-	-	-	-
P181	MKW	MK Market	40	36	34	32	31	29	27	27	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	24	25	25	25	25	25	25	24	24	24	24	24	24	-	-	-	-	-	-	-	-
P182	MKW	MK Market	40	35	32	31	30	28	27	26	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	24	25	25	25	25	25	24	24	24	24	24	24	24	-	-	-	-	-	-	-	-
P183	MKW	MK Market	37	34	32	31	30	28	27	26	26	25	25	25	25	25	24	24	24	24	24	24	24	24	24	24	25	25	25	25	25	25	24	24	24	24	24	24	-	-	-	-	-	-	-	-
P192	MKW	Hamilton Street	41	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P193	MKW	Hamilton Street	39	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P194	MKW	Hamilton Street	42	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P195	MKW	Hamilton Street	41	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P196	MKW	Hamilton Street	35	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P197	MKW	Hamilton Street	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P198	MKW	Hamilton Street	36	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P199	MKW	Hamilton Street	35	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P200	MKW	Hamilton Street	36	35	33	32	31	28	27	27	26	26	25	25	25	25	25	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P201	MKW	Hamilton Street	46	39	35	33	32	30	29	28	28	28	27	27	27	27	27	27	27	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P202	MKW	Hamilton Street	46	39	36	34	33	31	29	29	28	28	27	27	27	27	27	27	27	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P203	MKW	Hamilton Street	40	38	36	34	33	31	29	29	28	28	27	27	27	27	27	27	27	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P204	MKW	Hamilton Street	35	35	33	32	31	29	27	27	26	26	25	25	25	25	25	25	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P205	MKW	Hamilton Street	36	35	33	31	30	28	27	26	26	25	25	25	25	25	25	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P206	MKW	Hamilton Street	41	35	32	31	29	27	26	26	25	25	24	24	24	24	24	24	24	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P207	MKW	Hamilton Street	42	36	32	29	28	26	25	24	24	23	23	23	23	23	23	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P208	MKW	Hamilton Street	38	37	34	32	30	28	27	26	26	26	25	25	25	25	25	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P209	MKW	Hamilton Street	38	35	32	30	29	27	26	26	25	25	24	24	24	24	24	24	24	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P210	MKW	Hamilton Street	39	34	32	30	29	27	26	25	25	25	24	24	24	24	24	24	23	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P211	MKW	Hamilton Street	45	36	31	29	27	26	25	24	24	23	23	23	23	23	23	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P212	MKW	Hamilton Street	43	36	31	29	28	26	25	24	24	23	23	23	23	23	23	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P213	MKW	Hamilton Street	42	35	31	29	27	26	25	24	24	23	23	23	23	23	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P214	MKW	Hamilton Street	46	36	31	29	28	27	26	25	25	25	24	24	24	24	24	23	23	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P215	MKW	Hamilton Street	41	34	31	30	28	27	26	25	25	24	24	24	24	24	24	24	23	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P216	MKW	Hamilton Street	37	34	32	30	29	27	26	25	25	25	24	24	24	24	24	24	23	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Height (mAG)																																											
Receptor ID	Area	Related SCA/ Project	1.5	5	10	15	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410
P229	YMTS	Saigon Street	42	38	35	33	31	28	26	25	24	24	23	23	23	23	22	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P230	YMTS	Saigon Street	46	38	35	33	31	28	26	25	24	24	23	23	23	23	22	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P231	YMTS	Saigon Street	37	34	33	31	30	28	26	25	24	24	23	23	23	23	22	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P232	YMTS	Saigon Street	34	34	33	31	30	28	26	25	24	24	23	23	23	23	22	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P233	YMTS	Saigon Street	38	34	33	31	30	28	26	25	24	24	23	23	23	23	22	22	22	22	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P234	YMTS	Saigon Street	35	34	32	31	30	28	26	25	24	24	23	23	23	23	22	22	22	22	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P235	YMTS	Saigon Street	37	36	35	34	32	31	29	29	28	28	27	27	27	27	27	27	26	26	26	26	26	26	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P236	YMTS	Saigon Street	46	35	31	30	29	27	25	25	24	23	23	23	23	23	22	22	22	22	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A4	YMTN	Exisiting	-	-	-	-	34	32	31	30	29	28	28	27	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A10	YMTN	Exisiting	34	33	32	31	29	27	26	25	24	24	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A15	MKE	Exisiting	-	-	-	-	28	27	26	25	25	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P300	TKT	OZP Amendment Site	36	35	33	30	28	25	23	22	21	21	20	20	20	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P302	TKT	OZP Amendment Site	38	35	32	30	28	25	23	22	21	21	20	20	20	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P303	TKT	OZP Amendment Site	39	37	36	34	32	30	28	27	27	26	26	25	25	25	25	25	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P304	TKT	OZP Amendment Site	36	35	34	33	32	30	29	27	27	26	26	25	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P305	TKT	OZP Amendment Site	38	37	36	34	32	30	28	27	27	26	26	25	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P307	TKT	OZP Amendment Site	43	39	36	34	33	30	28	27	27	26	25	25	25	25	25	25	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P309	TKT	OZP Amendment Site	43	37	35	33	32	30	28	27	26	26	25	25	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P310	TKT	OZP Amendment Site	45	41	37	34	32	30	28	27	26	26	25	25	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P311	MKE	OZP Amendment Site	34	30	28	26	25	23	22	21	21	20	20	20	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P312	MKE	OZP Amendment Site	33	29	27	26	25	23	22	21	21	20	20	20	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P313	MKE	OZP Amendment Site	30	29	27	25	24	23	22	21	20	20	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P314	MKE	OZP Amendment Site	33	28	26	25	24	22	21	21	20	20	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P315	MKE	OZP Amendment Site	39	30	26	24	23	22	21	20	20	19	19	19	19	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P316	MKE	OZP Amendment Site	41	35	32	30	29	27	26	25	25	24	24	24	24	24	24	24	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P317	MKE	OZP Amendment Site	35	34	32	30	29	27	26	25	25	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P318	TKT	OZP Amendment Site	37	36	34	32	31	29	27	26	26	25	25	25	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P319	MKE	OZP Amendment Site	42	36	32	30	29	27	26	25	25	24	24	24	24	24	24	24	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P320	MKE	OZP Amendment Site	39	33	30	28	28	26	25	25	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P321	MKW	OZP Amendment Site	34	33	31	30	29	27	26	25	25	25	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P322	MKE	OZP Amendment Site	34	32	30	29	28	27	26	25	25	24	24	24	24	24	24	24	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P323	MKE	OZP Amendment Site	33	31	30	29	28	27	26	25	25	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P324	MKE	OZP Amendment Site	36	31	29	28	27	26	25	25	24	24	24	24	24	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P325	MKE	OZP Amendment Site	41	33	30	29	28	27	26	25	25	24	24	24	24	24	24	24	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P326	YMTN	OZP Amendment Site	32	31	29	28	27	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P327	YMTS	OZP Amendment Site	46	39	36	34	31	27	25	24	24	23	23	23	23	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P328	YMTS	OZP Amendment Site	38	37	35	34	33	31	30	29	28	28	27	27	27	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P329	YMTS	OZP Amendment Site	46	39	35	33	32	30	29	29	28	28	27	27	27	27	27	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P330	YMTS	OZP Amendment Site	49	36	31	29	28	26	25	24	24	23	23	23	23	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P331	YMTS	OZP Amendment Site	45	33	29	28	27	26	25	24	24	23	23	23	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P332	YMTS	OZP Amendment Site	39	32	30	29	28	26	25	24	23	23	23	23	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P333	YMTS	OZP Amendment Site	37	36	34	33	31	28	26	24	24	23	23	23	22	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P334	YMTS	OZP Amendment Site	40	35	33	31	30	28	26	25	24	23	23	23	23	22	22	22	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Prepared for

Urban Renewal Authority

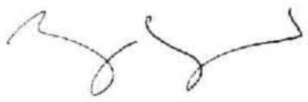
Prepared by

Ramboll Hong Kong Limited

OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

ROAD TRAFFIC NOISE IMPACT ASSESSMENT REVIEW REPORT

RAMBOLL

Date	**16 June 2022**
Prepared by	**Yoyo Mok** **Graduate Environmental Consultant**
Signed	
Approved by	**Katie Yu** **Senior Manager**
Signed	
Project Reference	**URAYMTMKEI00**
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CHAPTERS

TABLES

FIGURES

APPENDICES

1. INTRODUCTION

1.1 Background

1.1.1 The Yau Mai Tei – Mong Kok districts are densely populated districts with a high proportion of aged buildings. Over half the existing buildings within the districts are aged 50 years or older. There is an urgent need to revitalize the districts through urban renewal.

1.1.2 In 2017, the Urban Renewal Authority (URA) carried out the District Study for Yau Ma Tei and Mong Kok (hereafter "YM Study") with the aim of drawing up a comprehensive urban renewal plan of the two districts. Based on the findings in the Study, URA proposed three master renewal concept plans (MRCP) with varying development density, of which the MRCP+ scenario with the highest development intensity was used for technical assessments, including the road traffic noise impact assessment (NIA), to account for the worst-case scenario.

1.1.3 Following the completion of the YM Study, the Government aims to kick start the first batch of Outline Zoning Plan (OZP) amendments in 2022. In carrying out the OZP amendments, the development parameters adopted in MRCP+ of the YM Study have to be re-visited taking into account latest proposals agreed by Government which include change in maximum domestic plot ratio for R(A) and R(E) zones, relaxation of plot ratio of C zone, rezoning of some R(A) sites to "Other Specified Uses (Mixed Use)" "OU(MU)" at character streets. These changes require the review of various technical assessments, including the NIA.

1.1.4 Ramboll Hong Kong Ltd. has been commissioned to conduct this Road Traffic Noise Impact Assessment (NIA) review report in support of the proposed OZP amendments.

1.2 Objectives of the Report

1.2.1 The purpose of this report is a qualitative review on the traffic noise impact induced by the proposed OZP amendments with reference to the findings of the NIA conducted under the YM Study and takes into account the latest development parameters and traffic data in the assessment year 2047.

1.3 Study Area

1.3.1 The Study Area covers the majority of Mong Kok District and Yau Ma Tei District with the study boundary stopping just short of Hoi Wang Road and Jordan Road in Yau Ma Tei. The Study Area is bounded by West Kowloon Cultural District to the southwest and Tsim Sha Tsui to the south. The northern half of the Study Area falls under the approved Mong Kok OZP No. S/K3/34 while the southern half of the Site past Dundas Street is under the draft Yau Ma Tei OZP No. S/K2/23. The area around The Coronation near Yan Cheung Road is under the Approved South West Kowloon OZP S/K20/30. The Study Area is presented in **Figure 1.1**.

1.4 The OZP Amendment and Major Assumptions

1.4.1 The proposed OZP amendments comprises the following amendments to the relevant OZPs:

1) For the "R(A)" and "R(E)" zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100 mPD to 115 mPD;
2) For the "C" zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of

15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and

3) Rezone some "R(A)" sites at the Character Streets to "OU(MU)" with a maximum domestic PR of 7.5 and maximum total PR of 9[1]. The building height restriction is proposed to be increased from 100mPD to 115mPD.

1.4.2 Items 2 and 3 of the above proposed amendments have already been adopted for the NIA in the YM Study. For item 1, the maximum domestic plot ratio for the "R(A)" and "R(E)" zones assumed in the YM Study was 7.5 and 8 in selected area while the latest amendment is to increase it to a maximum of 8.5.

1.4.3 While the YM Study has proposed 15 redevelopment projects within the Study Area, only 6 of the redevelopment projects, as agreed with concerned departments at the interdepartmental meeting on 17 November 2021, are assumed as planned developments in the proposed OZP amendments for completion by 2047:

- Nullah Road Urban Waterway
- Hamilton Street
- Mong Kok Market Revitalization
- Saigon Street
- Tai Nan Street SCA
- Arran Street SCA

1.4.4 The proposed OZP amendments together with the planned developments assumed to be completed by 2047 would increase the domestic and non-domestic GFAs within the Study Area, as illustrated in **Table 1.1**.

Table 1.1 Change in GFA between Existing and Long Term Scenario

	Existing (m^2)	Long Term (m^2)
Domestic	~3,914,000	~4,658,000
Non-Domestic	~3,012,000	~3,696,000

1.4.5 This NIA will adopt the latest development parameters of the proposed OZP amendments. The consolidated amendments in land use for this technical assessment is shown in **Figure 1.2**.

[1] Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

2. ROAD TRAFFIC NOISE IMPACT ASSESSMENT

2.1 Introduction

2.1.1 This section reviews the potential road traffic noise impacts induced by the proposed OZP amendments in the Study Area.

2.2 Road Traffic Noise Standards

2.2.1 Noise standards are recommended in Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG) for planning against potential noise impact from road traffic.

2.2.2 According to the HKPSG, the following $L_{10(1\ hour)}$ criteria stipulated in the HKPSG are adopted for different types of noise sensitive receivers (NSRs):

- 70 dB(A) for residential dwellings, hotels, offices;
- 65 dB(A) for schools, places of public worship, courts of law, places where unaided voice communication is required; and
- 55 dB(A) for hospitals or clinics.

2.2.3 This criterion applies to premises which rely on open windows for ventilation.

2.3 Identification of Noise Sensitive Receivers

2.3.1 Representative noise sensitive receivers (NSRs) within areas proposed for OZP amendments and planned development sites identified in the previous NIA of the YM Study have been selected for review in this current technical assessment. An additional NSR (NR11) has been added to the Nullah Road Urban Waterway. The location of NSRs are shown in **Figure 2.1**.

Table 2.1 Representative Planned NSRs within Areas Proposed for OZP Amendments and Planned Development Sites

NSR ID	Description	Land Use
N1-N156	Areas proposed for OZP amendments	Residential
NR01-NR11	Nullah Road Urban Waterway	Mixed
HMT01-HMT20	Hamilton Street	Residential
MMD01-MMD14	Mong Kok Market Revitalisation	Mixed
YMT01-YMT24	Saigon Street	Residential
TNS01-TNS19, TNS_E1-TNS_E6	Tai Nan Street SCA	Residential
PERW01-PERW25	Arran Street SCA	Residential

2.4 Findings in Previous NIA Study of YM Study

2.4.1 As concluded in the NIA report for long term MRCP+ scenario conducted under the YM Study, road traffic noise impact on most of NSRs within the Study Area would exceed the noise limit of 70 dB(A) at the morning peak hour due to busy major roads within the Study Area. However, most facades would be exposed to noise levels less than 78 dB(A) and can be mitigated by architectural fin, acoustic window or acoustic balcony subject to the level of noise exceedance and building orientation. Predicted noise level exceedance of 8 dB(A) or more is observed at some assessment point of NSRs facing Tong Mi Road, West Kowloon Corridor, Tong Mi Road, Ferry Street, Tai Kok Tsui Road, Lai Chi Kok Road, Boundary Street, West Kowloon Highway, Argyle Street and Mong Kok Road (major traffic noise sources), subject to building orientation and distance from noise source. These affected facades are proposed to be non-noise sensitive uses or blank wall designs, and to be further studied during detailed design stages.

2.5 Update of Traffic Data

2.5.1 With the proposed OZP amendments described in **Section 1.4**, more population are planned within the Study Area, which would lead to an increase in traffic volume than the existing condition. Yet, the development capacity of the proposed OZP amendments would be smaller than that of the MRCP+ scenario adopted in the technical assessments of the YM Study. As mentioned in **Section 1.4.3**, only 6 out of 15 planned development projects proposed under the MRCP+ scenario are taken as assumptions in this round of assessments. Although the residential element in the inner streets would increase (from maximum domestic PR of 7.5/8 to 8.5), compared with the MRCP+ scenario, the domestic and non-domestic GFA in the proposed OZP amendments within the Study Area would be reduced by about 5% and 21.7%, respectively. Therefore, the overall traffic condition for the proposed OZP amendments is estimated to be better than that predicted in the previous NIA report while some streets may have higher traffic flow.

2.5.2 Traffic data for year 2047 was predicted by the project traffic consultant based on the latest development parameters with the proposed OZP amendments (**Table 1.1** refers). Details of information on morning peak hour traffic volume of the road segments near the areas proposed for OZP amendments and assumed planned development sites are presented in **Appendix 2.1**. The % change of traffic volume as compared to those adopted in the YM Study is also presented for reference. As compared with the "+" scenario under the YM Study, most of the road segments near the areas proposed for OZP amendments and the assumed planned development sites are predicted to have reduced traffic flow. Please see **Appendix 2.1** for details.

2.6 Evaluation of Impact Induced by the Proposed OZP Amendments

2.6.1 The evaluation of traffic noise impact was conducted in a qualitative manner with reference to the findings of the NIA report of the MRCP+ scenario of the YM Study taking into account the traffic forecast of the proposed OZP amendments. As mentioned in **Section 2.5.2**, the overall traffic condition for the proposed OZP amendments is estimated to be better than that predicted in the assessments in the YM Study for the MRCP+ scenario due to a general reduction in traffic volume. Therefore, the overall road traffic noise impact within the Study Area under the proposed OZP amendments is expected to be better than that in the previous assessment in the YM Study.

2.6.2 Evaluation of road traffic noise impact on the representative NSRs within areas proposed for OZP amendments and the assumed planned development sites with the traffic flow induced by the proposed OZP amendments are discussed below. To facilitate the discussion, the Study Area is divided into 5 sections, including Tai Kok Tsui (TKT), Mong Kok East (MKE), Mong Kok West (MKW), Yau Ma Tei North (YMTN) and Yau Ma Tei South (YMTS), as shown **Figure 2.2,** for further discussion.

<u>Tai Kok Tsui (TKT)</u>

2.6.3 Compared with the MRCP+ scenario of the YM Study, the planned developments assumed to be taken forward only include Tai Nan Street SCA and Arran Street SCA. Other development such as community nodes and other SCAs are not included. Hence, with a substantial reduction in the scale of planned development, less population is proposed in the area. On the other hand, under the proposed OZP amendments, there is a general increase in domestic GFA and plot ratio in the Study Area, especially at the two SCAs. The traffic forecast of the proposed OZP amendments in the Tai Kok Tsui section is shown in **Appendix 2.1.**

2.6.4 The location of representative NSRs at areas proposed for OZP amendments in the Tai Kok Tsui section is shown in **Figure 2.1**. Details of the predicted noise levels of these NSRs extracted from the NIA Report of the YM Study is shown in **Appendix 2.2.** The predicted maximum noise level of these NSRs in the YM Study ranged from 67 to 82 dB(A). There are 33 NSRs exceeding the 70 dB(A) criteria, of which 5 NSRs (N119, N120, N132, N153 and N154) exceeding 78 dB(A).

2.6.5 NSRs N118, N130 and N144 were predicted with a maximum noise level of 77 dB(A) in the YM Study. The forecasted peak hour traffic flow along Lai Chi Kok Road (F19, F20, F21, F102) near NSR N118, Fuk Tsun Street (H38, H39) near NSR N130 and Cherry Street (E47, E48, #61, E63), West Kowloon Corridor (E21) and Tai Kok Tsui Road (E20) near NSR N144 are generally lower than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted maximum noise levels at NSRs N118, N130 and N144 are expected to be reduced to below 77 dB(A).

2.6.6 NSRs N121, N125, N142, N145 and N151 were predicted with a maximum noise level of 78 dB(A) in the YM Study. The forecasted peak hour traffic flow along Willow Street (C7), Tung Chau Street (H4) and West Kowloon Corridor (P5 and P6) near NSR121, Cherry Street (E47, E48, E61, E63), West Kowloon Corridor (E21) and Tai Kok Tsui Road (E20) near NSR N145 and Cherry Street (E53, E55, E56), West Kowloon Corridor (P8) and Hoi Wang Road (E53) near NSR N142 are generally lower than that adopted in the YM Study. With reference to the findings of the YM Study, it is predicted that N121, N145 and N142 would have a maximum noise level lower than 78 dB(A). The forecasted peak hour traffic flow along Tai Kok Tsui Road (E14, E15, E16) and West Kowloon Corridor (P3) near N151 are generally lower than that adopted in the YM Study. Although road segment E14 would have slight increase in traffic flow, the increment (15 out of 623 veh/hr) is insignificant. It is predicted that N151 would have a maximum noise level at about 78 dB(A) or slightly lower. The forecasted peak hour traffic flow along Tong Mi Road (F5, F6, F7) and Larch Street (H17) in front of N125 are higher than that adopted in the YM Study while West Kowloon Corridor (P7) has peak hour traffic flow slightly lower than that adopted in the YM Study. Overall, it is predicted that N125 would have a maximum noise level higher than 78 dB(A).

2.6.7 NSRs N150 and N152 were predicted with a maximum noise level of 71 dB(A) in the YM Study. The forecasted peak hour traffic flow along Li Tak Street (E34), Kok Cheung Street (E25, E26), Tai Kok Tsui Road (E10, E12) and West Kowloon Corridor (P3) near these NSRs are notably lower than that adopted in the YM Study. With reference to the findings of the YM Study, it is predicted that the maximum noise level at these NSRs would comply with the criteria of 70 dB(A).

2.6.8 NSRs N116, N133 and N140 were predicted with a maximum noise level of 69-70 dB(A) in the YM Study. The forecasted peak hour traffic flow along Bute Street (F55 and F56) and Portland Street (F32) near NSR N116 and Palm Street (H48) near NSR N133 are generally lower than that adopted in the YM Study, while the forecasted peak hour traffic flow along Tit Shu Street (H46) near NSR N140 remains the same as that adopted in the YM Study. With reference to the findings of the YM Study, it is predicted that the maximum noise level at these NSRs would comply with the criteria of 70 dB(A).

2.6.9 For NSRs with predicted maximum noise level between 72 and 76 dB(A) in the YM Study as shown in **Table 2.2** below, it is anticipated that the predicted noise level at these NSRs under the OZP amendment would still be within the range of about 71 and 77 dB(A) as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to reduce or increase the noise levels by 2 dB(A).

The noise exceedances at these NSRs are recommended to be mitigated by the use of architectural fins and acoustic windows.

2.6.10 Similarly, NSRs with predicted maximum noise level at 68 dB(A) or below is anticipated to have their noise levels within the 70 dB(A) criterion as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to increase the noise levels by 2 dB(A).

2.6.11 The mitigation measures proposed to be adopted for NSRs at areas proposed for OZP amendments at Tai Kok Tsui Section is summarised in **Table 2.4** and illustrated in **Figure 2.3a and 2.3b**.

Table 2.2 Predicted Maximum Noise Levels at NSRs at Areas of OZP Amendment at Tai Kok Tsui Section

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
N114, N115, N117, N122-N124, N126, N131, N134-N139, N141, N143, N155, N156	72 - 76	~71 - 77	Architectural fins and/or acoustic windows/balconies
N119, N120, N132, N153, N154	>78	~78 or above	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Prince Edward Road West for N119 on 1-5/F, West Kowloon Corridor at N120, West Kowloon Expressway for N153, Tong Mi Road for N132 and Tai Kok Tsui Road for N154
N118, N121, N130, N142, N144, N145, N151	77 - 78	<78	Architectural fins and/or acoustic windows/balconies
N125	78	>78	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Tong Mi Road
N116, N133, N140 N146, N149	67 - 70	<70	Nil
N150, N152	71	70	Nil

2.6.12 The location of the representative NSRs at Tai Nan Street SCA is shown in **Figure 2.1**. Details of the predicted noise levels at Tai Nan Street SCA extracted from the NIA Report of the YM Study is shown in **Appendix 2.2**. The predicted maximum noise level at this SCA in the YM Study ranged from 62 to 80 dB(A), of which 9 NSRs (TNS02, TNS05, TNS13, TNS14, TNS16-TNS18, TNS_E2 and TNS_E5) exceeded the criteria of 70 dB(A) and 1 NSR (TNS_E6) exceeded the criteria of 78 dB(A).

2.6.13 The forecasted peak hour traffic flow at Boundary Street (B29-30) remains unchanged while the peak hour flow at Boundary Street (B31) is 173 vehicles more than that adopted in the YM Study. With reference to the findings of the YM Study, it is thus expected that the predicted maximum noise levels for NSRs facing Boundary Street would lie marginally at the criteria of 70 dB(A) and 71 dB(A).

2.6.14 The forecasted peak hour traffic flow at westbound Lai Chi Kok Road (C3, C11, C15) is more than that adopted in the YM Study by up to 59 vehicles while the eastbound Lai Chi Kok Road (C4, C12 and C101) is less by around up to 75 vehicles. Prince Edward Road West flyover (P9) joining Lai Chi Kok Road will have 79 vehicles more than that adopted in YM Study. With reference to the findings of the YM study, it is expected that the predicted maximum noise levels for NSRs facing Lai Chi Kok Road (TNS14, TNS17, TNS18) would be slightly below 78 dB(A) if located close to the site boundary. For NSR TNS-E6 at the podium, the predicted noise level is expected to be around 80 dB(A).

2.6.15 For NSRs facing Ceder Street and located further away from Lai Chi Kok Road, the predicted noise levels is expected to exceed 70 dB(A) but below 74 dB(A) if located adjacent to the road. The predicted noise levels at NSRs with further setback from Cedar Street will comply with the noise criteria.

2.6.16 For NSRs predicted with maximum noise level between 70 and 78 dB(A), architectural fins and/or acoustic windows/balconies are recommended to mitigate the noise impact. For NSRs predicted with maximum noise level above 78 dB(A), additional measures such as building setback, building orientation, use of non-noise sensitive use or blank wall design will be required to mitigate the noise impact.

2.6.17 The mitigation measures proposed to be adopted for Tai Nan Street SCA is summarised in **Table 2.3** and illustrated in **Figure 2.3b**.

Table 2.3 Predicted Maximum Noise Levels at NSRs and Proposed Mitigation Measures for Tai Nan Street SCA

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
TNS19, TNS05, TNS01	70 - 71	~70 - 71	Architectural fins or acoustic windows
TNS02, TNS13, TNS16, TNS14, TNS17, TNS18	72 - 78	~72 - 78	Architectural fins and/or acoustic windows/balconies
TNS03, TNS04, TNS06-TNS12, TNS15, TNS-E1, TNS-E3, TNS-E4	<70	<70	Nil
TNS-E2, TNS-E5	74	~72 - 73	Architectural fins and/or acoustic windows/balconies
TNS-E6	80	~80	Non-noise sensitive use or blank wall design for 1-3/F of podium

2.6.18 The location of the representative NSRs at Arran Street SCA is shown in **Figure 2.1**. Details of the predicted noise levels at Arran Street SCA extracted from the NIA Report of the YM Study is shown in **Appendix 2.2.** For Arran Street SCA, the predicted maximum noise level at this SCA in the YM Study ranged from 70 to 79 dB(A) for the northern portion and 69 to 74 for the southern portion. There are 16 NSRs (PERW01-

PERW03, PERW07-PERW09, PERW11, PERW13-PERW16, PERW18-PERW20 and PERW22-PERW23) exceeding the 70 dB(A) criteria and 1 NSR (PERW10) exceeding 78 dB(A).

2.6.19 The overall forecasted peak hour traffic flow at Prince Edward Road West (C49, C98) is a few vehicles lower than that adopted in the YM Study while that for Bute Street (F54), Shanghai Street (F14) and Arran Street (F51) are comparable to that adopted in the YM Study while the traffic flow at Canton Road (F11) is slightly lower (22 vehicles) than that adopted in the YM Study. With reference to the findings of the YM Study, it is expected that the predicted maximum noise levels for NSRs along Bute Street, Shanghai Street and Canton Road would be within the range between 70 dB(A) and 76 dB(A), which can be mitigated by the use of architectural fins and acoustic windows. NSRs with further setback from the roads would have noise levels complying with the noise criteria. NSR PERW10 on 1/F is expected to have its noise level at around 78 dB(A), where additional building setback, building orientation and use of non-noise sensitive uses or blank wall design may be required.

2.6.20 The mitigation measures proposed to be adopted for Arran Street SCA is summarised in **Table 2.4** and illustrated in **Figure 2.3b**.

Table 2.4 Predicted Maximum Noise Levels at NSRs and Proposed Mitigation Measures for Arran Street SCA

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
PERW01-PERW03, PERW07-PERW09, PERW11, PERW13-PERW16, PERW18, PERW20-PERW23	72 - 76	~71 - 76	Architectural fins and/or acoustic windows/balconies
PERW10	79	~78	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive façade or blank wall design for 1/F
PERW04-PERW06, PERW17, PERW19, PERW24, PERW25	<70 - 71	<70	Nil

<u>Mong Kok East (MKE)</u>

2.6.21 Compared with the MRCP+ scenario of the YM Study, the planned developments assumed to be taken forward only include the Nullah Road Urban Waterway development while the Argyle Street Integrated Hub project is not included. On the other hand, under the proposed OZP amendments, there is a general increase in domestic and plot ratio in the Study Area, especially at the assumed planned development site, and non-domestic GFA and plot ratio at the "C" zone along Nathan Road. The traffic forecast of the proposed OZP amendments in the Mong Kok East Section is shown in **Appendix 2.1.**

2.6.22 The location of representative NSRs at areas proposed for OZP amendments in the Mong Kok East section is shown in **Figure 2.1**. Details of the predicted noise levels of these NSRs extracted from the NIA Report of the YM Study is shown in **Appendix 2.2.** The predicted maximum noise level of these NSRs in the YM Study ranged from 65 to

80 dB(A). There are 28 NSRs exceeding the 70 dB(A) criteria, of which 5 NSRs (N7, N11, N21, N26 and N31) exceeding 78 dB(A).

2.6.23 NSRs N4, N22, N23, N30, N39 and N40 were predicted with maximum noise level of 77 dB(A) in the YM Study. The overall forecasted peak hour traffic flow along Boundary Street and Boundary Street Flyover (B78, B79, P25) near NSR N4 are slightly higher than that adopted in the YM Study while the traffic flow along Fa Yuen Street (C35) is lower. As the overall changes in traffic flow are minor, with reference to the findings of the YM Study, the predicted maximum noise level at NSR N4 would still be at around 77 dB(A). The forecasted peak hour traffic flow along Sai Yee Street (F44, F45, F46, F47) in front of NSRs N22 and N23 shows minor changes as compared to that of the YM Study. As the overall changes are minor, the predicted maximum noise levels at NSRs N22 and N23 would still be at around 77 dB(A). The forecasted peak hour traffic flow along Yim Po Fong Street (G41, G42, G49, G50), Argyle Street (F91, F92) and Waterloo Road (G52, G53) near NSRs N30, N39 and N40 are lower than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted maximum noise levels at NSRs N30, N39 and N40 would be lower than 77 dB(A).

2.6.24 NSRs N1 and N20 were predicted with maximum noise level of 78 dB(A) in the YM Study. The forecasted peak hour traffic flow along Prince Edward Road West (C60, C61) near NSR N1 are higher than that adopted in the YM Study. The traffic flow traffic flow data shows that road segment C61 is the dominant noise source to NSR N1 and the change in traffic flow along this road segment is insignificant (73 out of 3102 veh/hr). With reference to the findings of the YM Study, the predicted maximum noise level of NSR N1 would remain as about 78 dB(A). The overall forecasted peak hour traffic flow along Prince Edward Road West (C54, C55, P9) in front of NSR N20 are lower than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted maximum noise level of NSR N20 would be reduced and lower than 78 dB(A).

2.6.25 NSRs N5, N35, N37, N42 and N44 were predicted with maximum noise levels of 69-70 dB(A) in the YM Study. The forecasted peak hour traffic flow along Sai Yee Street (C37) and Boundary Street (C64) near NSR N5 have insignificant changes as compared to that adopted in the YM Study. With reference to the findings of the YM Study, the predicted noise level at NSR N5 would remain within compliance level of 70 dB(A). The forecasted peak hour traffic flow along Tung Choi Street (G29 and G30) near NSRs N35 and N37, Dundas Street (J29, J30, J104) near NSR N42 and Fa Yuen Street (G35) near NSR N44 are lower than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted noise levels at NSRs N35, N37, N42 and N44 would be reduced and remain within compliance level of 70 dB(A).

2.6.26 NSRs N2, N8 and N32 were predicted with maximum noise level of 71 dB(A) in the YM Study. The forecasted peak hour traffic flow along Flower Market Road (C63) in front of NSR N2 is slightly lower than that adopted in the YM Study, yet traffic flow along the road segments further away along Sai Yee Street (C38) and Boundary Street (C64) are higher. Overall, with reference to the findings of the YM Study, the predicted the maximum noise level at NSR N2 would remain as about 71 dB(A). The forecasted peak hour traffic flow along Tung Choi Street (C34) near NSR N8 and Prince Edward Road West (C53, C54, P9) further away from NSR N8 are lower than that adopted in the YM Study. Overall, it is predicted that the maximum noise level at NSR N8 would be reduced to about compliance level at 70 dB(A). The forecasted peak hour traffic flow along Sai Yee Street (G36) near NSR N32 and Nelson Street (G59) and Argyle Street (F87, F88) further away from N32 are lower than that adopted in the YM Study. Overall, it is predicted that the maximum noise level at NSR N8 would be reduced to about compliance level at 70 dB(A).

2.6.27 For NSRs with predicted maximum noise level between 72 and 76 dB(A) in the YM Study as shown in **Table 2.5** below, it is anticipated that the predicted noise level at these NSRs under the OZP amendment would still be within the range of 71 and 77 dB(A) as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to reduce or increase the noise levels by 2 dB(A). The noise exceedances at these NSRs are recommended to be mitigated by the use of architectural fins and acoustic windows.

2.6.28 Similarly, NSRs with predicted maximum noise level at 68 dB(A) or below is anticipated to have their noise levels within the 70 dB(A) criterion as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to increase the noise levels by 2 dB(A).

2.6.29 The mitigation measures proposed to be adopted for NSRs at areas proposed for OZP amendments at Mong Kok East Section is summarised in **Table 2.5** and illustrated in **Figure 2.3b to 2.3c**.

Table 2.5 Predicted Maximum Noise Levels at NSRs at Areas of OZP Amendment at Mong Kok East Section

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
N3, N6, N9, N10, N12, N13, N34, N36, N38, N41, N43, N45	72 - 76	~71 - 77	Architectural fins and/or acoustic windows/balconies
N7, N11, N21, N26, N31	>78	~78 or above	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Prince Edward Road West for N7 and N21, Boundary Street for 2-3/F of N11, Mong Kok Road for 1-3/F of N26 and Argyle Street for 3-5/F of N31.
N4, N22, N23, N30, N39, N40	77	~77 or below	Architectural fins and/or acoustic windows/balconies
N1, N20,	78	~78 or below	Architectural fins and/or acoustic windows/balconies
N5, N35, N37, N42, N44	69 - 70	<70	Nil
N24, N25, N27, N33	65 - 68	<70	Nil
N2	71	~71	Architectural fins and/or acoustic windows
N8, N32	71	~70	Nil

2.6.30 The location of the representative NSRs at Nullah Road Urban Waterway development is shown in **Figure 2.1**. Details of the predicted noise levels at this planned development extracted from the NIA Report of the YM Study is shown in **Appendix 2.2**. The predicted maximum noise level at this planned development in the YM Study ranged from 61 to 73 dB(A), of which only 3 NSRs (NR01, NR04-NR05) exceeded the criteria of 70 dB(A).

2.6.31 The forecasted peak hour traffic flow at Nullah Road (F76) and Prince Edward Road West (P9, C56 and C57) is 10 vehicles less and 81 vehicles more than that adopted in the YM Study respectively. With reference to the findings of the YM Study, the overall maximum noise level at NSR NR04 and NR05 is predicted to be about 71 dB(A). The forecasted peak hour traffic flow at Bute Street (F59 and F60) is up to 68 vehicles less than that adopted in the YM Study. With reference to the findings of the YM Study, the overall maximum noise level at NSR NR01 is predicted to be about 72 dB(A). The minor exceedance at these NSRs can be mitigated by architectural fins or acoustic windows. The predicted noise levels at NSRs along Fa Yue Street and Tung Choi Street are expected to stay within the compliance level of 70 dB(A).

2.6.32 An additional NSR, NR11, located above podium along Prince Edward Road West has been added to the Nullah Road Urban Waterway development. Based on the forecasted peak hour traffic flow along Prince Edward Road West, Sai Yee Street and Flower Market Road, the predicted maximum noise level at NR11 is about 76 dB(A).

2.6.33 The mitigation measures proposed to be adopted for Nullah Road Urban Waterway development is summarised in **Table 2.6** and illustrated in **Figure 2.3c**.

Table 2.6 Predicted Maximum Noise Levels at NSRs and Proposed Mitigation Measures for Nullah Road Urban Waterway

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
NR01, NR03, NR04	71 - 73	~71 - 72	Architectural fins and/or acoustic windows/balconies
NR02, NR03, NR06-NR10	<70	<70	Nil
NR11	-	~76	Architectural fins and/or acoustic windows/balconies

Mong Kok West (MKW)

2.6.34 Compared with the MRCP+ scenario of the YM Study, the planned developments assumed to be taken forward only include Mong Kok Market Revitalisation and Hamilton Street development, while the super block site south of Mong Kok Market is excluded. With a reduction in the scale of planned development, less population is proposed in the area. On the other hand, under the proposed OZP amendments, there is a general increase in domestic and plot ratio in the Study Area, especially at the assumed planned development sites. The traffic forecast of the proposed OZP amendments in the Mong Kok West section is shown in **Appendix 2.1.**

2.6.35 The location of representative NSRs at areas proposed for OZP amendments in the Mong Kok West section is shown in **Figure 2.1**. Details of the predicted noise levels of these NSRs extracted from the NIA Report of the YM Study is shown in **Appendix 2.2.** The predicted maximum noise level of these NSRs in the YM Study ranged from 70 to 81 dB(A). There are 17 NSRs exceeding the 70 dB(A) criteria, of which 3 NSRs (N90, N92 and N106) exceeding 78 dB(A).

2.6.36 NSR N110 was predicted with a maximum noise level of 77 dB(A) in the YM Study. The forecasted peak hour traffic flow along Shanghai Street (F18) and Argle Street (F79 and F80) near this NSR are lower than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted maximum noise level at NSR N110 would be below 77 dB(A).

2.6.37 NSRs N112 and N113 were predicted with a maximum noise level of 78 dB(A) in the YM Study. The forecasted peak hour traffic flow along Mong Kok Road (F64, F65) near NSR N112 are higher than that adopted in the YM Study. The forecasted peak hour traffic along Mong Kok Road (F62) and West Kowloon Corridor (P7) near NSR N113 are lower than that adopted in the YM Study, yet the traffic flow along Tong Mi Road (F6, F7, F8, F9) are higher. With reference to the findings of the YM Study, it is conservatively predicted that the maximum noise level at these NSRs would be around or slightly above 78 dB(A).

2.6.38 NSRs N93 and N94 were predicted with a maximum noise level of 69-70 dB(A) in the YM Study. The forecasted peak hour traffic flow along Canton Road (J9) is lower than that adopted in the YM Study while traffic flow along Dundas Street (J22, J113) are higher and traffic flow along Pitt Street (J34) remains unchanged. As the change in traffic flow along these road segments are minor, with reference to the findings of the YM Study, the predicted maximum noise level at these NSRs would still comply with the criterion of 70 dB(A).

2.6.39 For NSRs with predicted maximum noise level between 72 and 76 dB(A) in the YM Study as shown in **Table 2.7** below, it is anticipated that the predicted noise level at these NSRs under the OZP amendment would still be within the range of 71 and 77 dB(A) as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to reduce or increase the noise levels by 2 dB(A). The noise exceedances at these NSRs are recommended to be mitigated by the use of architectural fins and acoustic windows.

2.6.40 The mitigation measures proposed to be adopted for NSRs at areas proposed for OZP amendments at Mong Kok West Section is summarised in **Table 2.7** and illustrated in **Figure 2.3b and 2.3d**.

Table 2.7 Predicted Maximum Noise Levels at NSRs at Areas of OZP Amendment at Mong Kok West Section

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
N91, N95-N97, N100-N105, N111	72 - 76	~71 - 77	Architectural fins and/or acoustic windows/balconies
N90, N92, N106	>78	~78 or above	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Ferry Street and West Kowloon Corridor
N110	77	<77	Architectural fins and/or acoustic windows/balconies
N112, N113	78	~78 or above	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Mong Kok Road and Tong Mi Road

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
N93, N94	70	<70	Nil

2.6.41 The location of the representative NSRs at Mong Kok Market Revitalisation development is shown in **Figure 2.1**. Details of the predicted noise levels at this planned development extracted from the NIA Report of the YM Study is shown in **Appendix 2.2.** The predicted maximum noise level at this development site in the YM Study ranged from 73 to 78 dB(A) for the portion north of Argyle Street and ranged from 68 to 72 dB(A) for the portion south of Argyle Street.

2.6.42 The noise level of all NSRs, except for MMD13, exceeded the 70 dB(A) criteria. The forecasted peak hour traffic flow at some sections of the surrounding roads, including Reclamation Street (R24), Ferry Street (G2), Argyle Street (F77), Mong Kok Road (F63) and Tong Mi Road (F8 and F9) are higher than that adopted in the YM Study, while the traffic flow for other roads are lower. NSR MMD10, with marginal 78 dB(A) in its noise level predicted in the YM Study, is expected to be about or slightly higher than 78 dB(A) given an increase in peak hour traffic along Tong Mi Road and Argyle Street, implying that the use of acoustic windows/balconies together with building setback, building orientation or façade with non-noise sensitive use or blank wall design will be required to mitigate the exceedance. NSR MMD05, predicted with 77 dB(A) in the YM Study, is expected to remain as about 77 dB(A) with a lower peak hour traffic flow at the section of Argyle Street in front of it but higher peak hour traffic flow at the section of Argyle Street further away. With reference to the findings of the YM Study and the traffic forecast, the predicted maximum noise level at other NSRs would still be higher than 70 dB(A) but below 77 dB(A). Exceedance in these NSRs will also require mitigation measure such as architectural fins and acoustic windows or balconies.

2.6.43 The mitigation measures proposed to be adopted for Mong Kok Market Revitalisation development is summarised in **Table 2.8** and illustrated in **Figure 2.3b**.

Table 2.8 Predicted Maximum Noise Levels at NSRs and Proposed Mitigation Measures for Mong Kok Market Revitalisation

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
MMD01-MMD09, MMD11-MMD12	72 – 77	~71 – 77	Architectural fins and/or acoustic windows/balconies
MMD10	78	~78 or slightly above	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive façade or blank wall design
MMD13	<70	<70	Nil

2.6.44 The location of the representative NSRs at Hamilton Street site is shown in **Figure 2.1**. Details of the predicted noise levels at this planned development site extracted from the NIA Report of the YM Study is shown in **Appendix 2.2.** The predicted maximum noise level at this planned development site in the YM Study ranged from 65 to 77 dB(A), of which most NSRs (except HMT03, HMT05, HMT07, HMT15-16, HMT18 and HMT21-HTM22) exceeded the noise criteria of 70 dB(A).

2.6.45 The forecasted peak hour traffic flow at Reclamation Street (J11-J12), Shanghai Street (J13 to J15), Dundas Street (J23), Hamilton Street (J31 to J32), Pitt Street (J33) and Portland Street (J18) are lower than that adopted in the YM Study. Noise level of all NSRs within the site is expected to be lower than that predicted in the YM Study. With reference to the findings of the YM Study, the predicted maximum noise levels of NSRs HMT01 and HMT14 facing Hamilton Street with traffic flow about half of that adopted in the YM Study are expected to comply with the noise criteria of 70 dB(A). While for other NSRs previously predicted to have noise exceedances in the YM Study, the predicted maximum noise levels are now predicted to be in the range between 70 dB(A) and 77 dB(A), which can be mitigated by the use of architectural fins and acoustic windows/balconies.

2.6.46 The mitigation measures proposed to be adopted for the Hamilton Street development is summarised in **Table 2.9** and illustrated in **Figure 2.3d**.

Table 2.9 Predicted Maximum Noise Levels at NSRs and Proposed Mitigation Measures for Hamilton Street

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
HMT02, HMT04, HMT06, HMT08-HMT13, HMT17, HMT19, HMT20, HMT23	72 - 77	~71 - 76	Architectural fins and/or acoustic windows/balconies
HMT01, HMT14	71	<70	Nil
HMT03, HMT05, HMT07, HMT15, HMT16, HMT18, HMT21, HMT22	<70	<70	Nil

<u>Yau Ma Tei North (YMTN) and Yau Ma Tei South (YMTS)</u>

2.6.47 Compared with the MRCP+ scenario of the YM Study, the planned development assumed to be taken forward only include the Saigon Street development, while the Development Node at Yau Ma Tei Fruit Market and West Kowloon Gateway are not included. With a substantial reduction of the scale of planned development in this area, less population is proposed in the area. On the other hand, under the proposed OZP amendments, there is a general increase in domestic GFA and plot ratio in the Study Area, especially at the planned development sites, and non-domestic GFA and plot ratio at the "C" zone along Nathan Road. The traffic forecast of the proposed OZP amendments in the Yau Ma Tei North and South section is shown in **Appendix 2.1.**

2.6.48 The location of representative NSRs at areas proposed for OZP amendments in the Yau Ma Tei North and South section is shown in **Figure 2.1**. Details of the predicted noise levels of these NSRs extracted from the NIA Report of the YM Study is shown in **Appendix 2.2.** The predicted maximum noise level of these NSRs in the YM Study ranged from 67 to 77 dB(A). There are 19 NSRs exceeding the 70 dB(A) criteria.

2.6.49 NSRs N55, N81 and N85 were predicted with maximum noise level of 77 dB(A) in the YM Study. The forecasted peak hour traffic flow of Saigon Street (K48, K25) and Woosung Street (K22, K23) near NSR N55, Shanghai Street (J105, J60) and Public Square Street (J77, J78) near NSR N81 and Reclamation Street (J56, J57) near N85 are lower than that adopted in the YM Study. With reference to the findings of the YM

Study, the predicted maximum noise level of these NSRs would be reduced to below 77 dB(A).

2.6.50 NSRs N51, N53, N56 and N65 were predicted with maximum noise level of 71 dB(A) in the YM Study. The forecasted peak hour traffic flow along Woosung Street (K24) near NSR N51, Woosung Street (K21) near NSR N53, Temple Street (K19, K20), Ning Po Street (K49, K50) and Woosung Street (K23, K24) near NSR N56 and Canton Road (R84, K9) and Nanking Street (K92) near NSR N65 are lower than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted maximum noise level of these NSRs would be reduced to comply with 70 dB(A).

2.6.51 NSRs N54, N70 and N83 were predicted with maximum noise level of 69-70 dB(A) in the YM Study. The forecasted peak hour traffic flow along Temple Street (K17, K18) and Pak Hoi Street (K40, K41) near N54, Yan Cheung Road (J93, J94) near N70 and Yan Cheung Road (J74) near N83 are lower than that adopted in the YM Study. With reference to the findings of the YM Study, the predicted maximum noise level of these NSRs would be reduced and within the compliance level.

2.6.52 For NSRs with predicted maximum noise level between 72 and 76 dB(A) in the YM Study as shown in **Table 2.10** below, it is anticipated that the predicted noise level at these NSRs under the OZP amendment would still be within the range of 71 and 77 dB(A) as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to reduce or increase the noise levels by 2 dB(A). The noise exceedances at these NSRs is recommended to be mitigated by the use of architectural fins and acoustic windows.

2.6.53 Similarly, NSRs with predicted maximum noise level at 68 dB(A) or below is anticipated to have their noise levels within the 70 dB(A) criterion as the change in traffic flow as compared to that adopted in the YM Study would unlikely be significant enough to increase the noise levels by 2 dB(A).

2.6.54 The mitigation measures proposed to be adopted for NSRs at areas of OZP Amendment at Yau Ma Tei North and Yau Ma Tei South sections is summarised in **Table 2.10** and illustrated in **Figure 2.3d and 2.3e**.

Table 2.10 Predicted Maximum Noise Levels at NSRs at Areas of OZP Amendment at Yau Ta Tei North and South Sections

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
N50, N52, N59, N60, N62-N64, N66, N68, N80, N82, N84	72 - 76	~71 - 77	Architectural fins and/or acoustic windows/balconies
N55, N81, N85	77	<77	Architectural fins and/or acoustic windows/balconies
N51, N53, N56, N65	71	~70	Nil
N54, N70, N83	69 - 70	<70	Nil
N57, N58, N61, N67	68 or below	<70	Nil

2.6.55 The location of the representative NSRs at Saigon Street development is shown in **Figure 2.1**. Details of the predicted noise levels at this planned development extracted from the NIA Report of the YM Study is shown in **Appendix 2.2**. The predicted maximum noise level at this development site in the YM Study ranged from 56 to 77 dB(A). There are 9 NSRs exceeding the 70 dB(A) criteria, and 6 of them are facing Shanghai Street and 3 of them are facing Gascoigne Road Flyover.

2.6.56 The forecasted peak hour traffic flow at Gascoigne Road Flyover and Kansu Street (P16-P17 and J81-J82) are slightly more than that adopted in the YM Study by about 20 vehicles. With reference to the findings of the YM Study, the predicted maximum noise level at NSRs facing Gascoigne Road Flyover would be of similar order in the range between 73 to 76 dB(A), which require architectural fin and/or acoustic windows/balconies to mitigate the noise impact. The forecasted traffic flow at Shanghai Street (K14-K15, K88 and K94) are more than that adopted in the YM Study, with minor increase of 1 to 24 vehicles for the segment K15, K88 and K94 and with notable increase of 105 vehicles at Shanghai Street (K14). The maximum noise levels of NSRs along Shanghai Street would range from 66 dB(A) to 77 dB(A) with the exceedance to be mitigated by architectural fin and/or acoustic windows/balconies. The predicted noise levels of NSRs along Battery Street are expected to comply with the criteria of 70 dB(A).

2.6.57 The mitigation measures proposed to be adopted for Saigon Street development is summarised in **Table 2.11** and illustrated in **Figure 2.3e**.

Table 2.11 Predicted Maximum Noise Levels at NSRs and Proposed Mitigation Measures for Saigon Street

NSR ID	Predicted Maximum Noise Levels, dB(A)		Recommended Mitigation Measures
	YM Study	Proposed OZP Amendments	
YMT01-YTM06, YMT09-YMT11	71 - 77	~71 - 77	Architectural fins and/or acoustic windows/balconies
YMT07, YMT08, YMT12-YMT24	<70	<70	Nil

2.7 Mitigation Measures

2.7.1 While there will be an increase in traffic volume within the Study Area due to the OZP amendments as compared to the baseline condition, as discussed in **Section 2.6**, the overall road traffic noise impact within the Study Area under the proposed OZP amendments is expected to be better than that in the long term MRCP+ 2047 scenario. Nevertheless, exceedance of noise level of 70 dB(A) at some parts of the proposed OZP amendment areas and planned development sites and are still expected and some specific locations with noise levels exceeding 78 dB(A). They are shown in **Figure 2.3**.

2.7.2 For residential NSRs exposing the road traffic noise level less than or equal to 78 dB(A), it is recommended to be mitigated by architectural fin, acoustic window or acoustic balcony subject to the level of noise exceedance and building orientation. Predicted noise level exceedance of more than 8 dB(A) is observed at specific assessment points at areas proposed for OZP amendments and NSRs in Tai Nan Street SCA and Arran Street SCA, facing Lai Chi Kok Road and Prince Edward Road West (major traffic noise sources) respectively, and a NSR at Mong Kok Market Revitalisation facing Tong Mi Road, subject to building orientation and separation distance from noise source. To reduce the noise levels to compliance level, additional measures such as the use of fixed window, non-noise sensitive use design/blank wall at some facades may be required. **Table 2.12** summarises the recommended mitigation measures for the planned developments. These design measures should be considered during detailed design of the planned developments.

Table 2.12 Summary of Proposed Mitigation Measures for Planned Developments

Planned Developments	NSRs	Recommended Mitigation Measures
Areas of OZP Amendment at Tai Kok Tsui section	N114, N115, N117, N118, N121, N122-N124, N126, N130, N131, N134-N139, N141-N145, N151, N155, N156	Architectural fins and/or acoustic windows/balconies
	N119, N120, N125, N132, N153, N154	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Prince Edward Road West for N119 on 1-5/F, West Kowloon Corridor at N120, West Kowloon Expressway for N153, Tong Mi Road for N132, Tai Kok Tsui Road for N154 and Tong Mi Road for N125.
Areas of OZP Amendment at Mong Kok East section	N1-N4, N6, N9, N10, N12, N13, N20, N22, N23, N30, N34, N36, N38-N41, N43, N45	Architectural fins and/or acoustic windows/balconies
	N7, N11, N21, N26, N31	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Prince Edward Road West for N7 and N21, Boundary Street for 2-3/F of N11, Mong Kok Road for 1-3/F of N26 and Argyle Street for 3-5/F of N31.
Areas of OZP Amendment at Mong Kok West section	N91, N95-N97, N100-N105, N111, N110	Architectural fins and/or acoustic windows/balconies
	N90, N92, N106, N112, N113	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive use or blank wall design for façade directly facing Ferry Street and West Kowloon Corridor for N90, N92 and N106 and Mong Kok Road and Tong Mi Road for N112 and N113
Areas of OZP Amendment at Yau Ma Tei North and South section	N50, N52, N55, N59, N60, N62-N64, N66, N68, N80, N81, N82, N84, N85	Architectural fins and/or acoustic windows/balconies
Tai Nan Street SCA	TNS01, TNS05, TNS19,	Architectural fins or acoustic windows
	TNS02, TNS13, TNS14, TNS16, TNS17, TNS18, TNS-E2, TNS-E5	Architectural fins and/or acoustic windows/balconies

Planned Developments	NSRs	Recommended Mitigation Measures
	TNS-E6	Non-noise sensitive use or blank wall design for 1-3/F within podium
Arran Street SCA	PERW01-PERW03, PERW07-PERW09, PERW11, PERW13-PERW16, PERW18, PERW20-PERW23	Architectural fins and/or acoustic windows/balconies
	PERW10	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, non-noise sensitive façade or blank wall design for 1/F
Nullah Road Urban Waterway	NR01, NR03, NR04, NR11	Architectural fins and/or acoustic windows/balconies
Mong Kok Market Revitalisation	MMD01-MMD09, MMD11-MMD12	Architectural fins and/or acoustic windows/balconies
	MMD10	Architectural fins and/or acoustic windows/balconies, building setback, building orientation, or non-noise sensitive façade or blank wall design
Hamilton Street	HMT02, HMT04, HMT06, HMT08-HMT13, HMT17, HMT19, HMT20, HMT23	Architectural fins and/or acoustic windows/balconies
Saigon Street	YMT01-YTM06, YMT09-YMT11	Architectural fins and/or acoustic windows/balconies

3. CONCLUSION

3.1.1 This report has adopted the latest development parameters of the proposed OZP amendments, for the review of noise impact with reference to the findings of the MRCP+ NIA conducted under the YM Study.

3.1.2 For the areas proposed for OZP amendments and assumed planned developments, the required mitigation measures for consideration in the future design of the development have been proposed. With proper design of the planned developments with the necessary mitigation measures incorporated, no adverse road traffic noise impact would be anticipated.

3.1.3 With the scale of planned developments reduced for the proposed OZP amendments, the overall traffic condition, and thus the traffic noise impact for the proposed OZP amendments scenario is estimated to be generally better in most areas than that predicted in the assessments in the MRCP+ scenario in the YM Study.

Figures

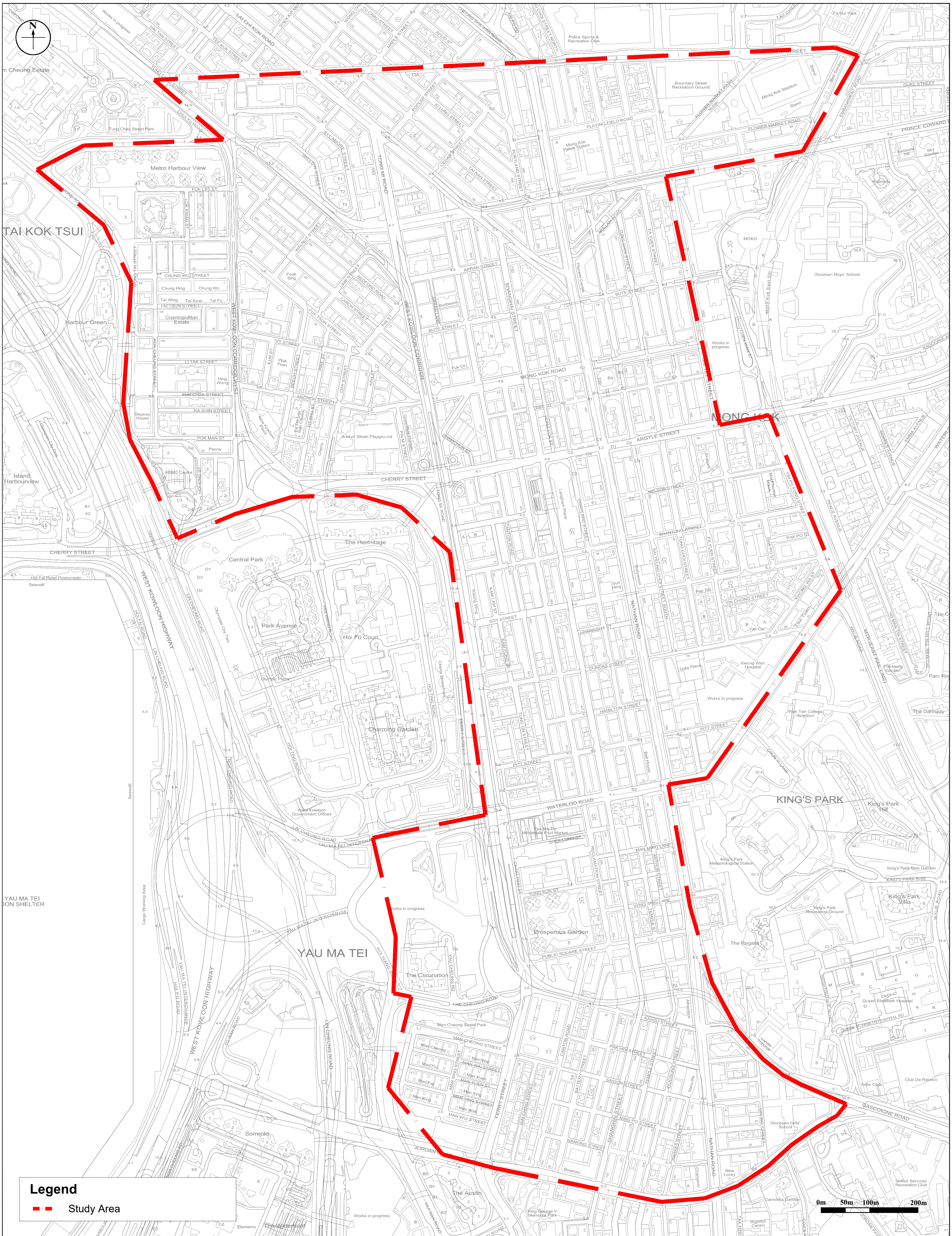

Figure: 1.1	RAMBOLL
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Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Road Traffic Noise Impact Assessment	Rev.: 2.0
	Date: May 2022

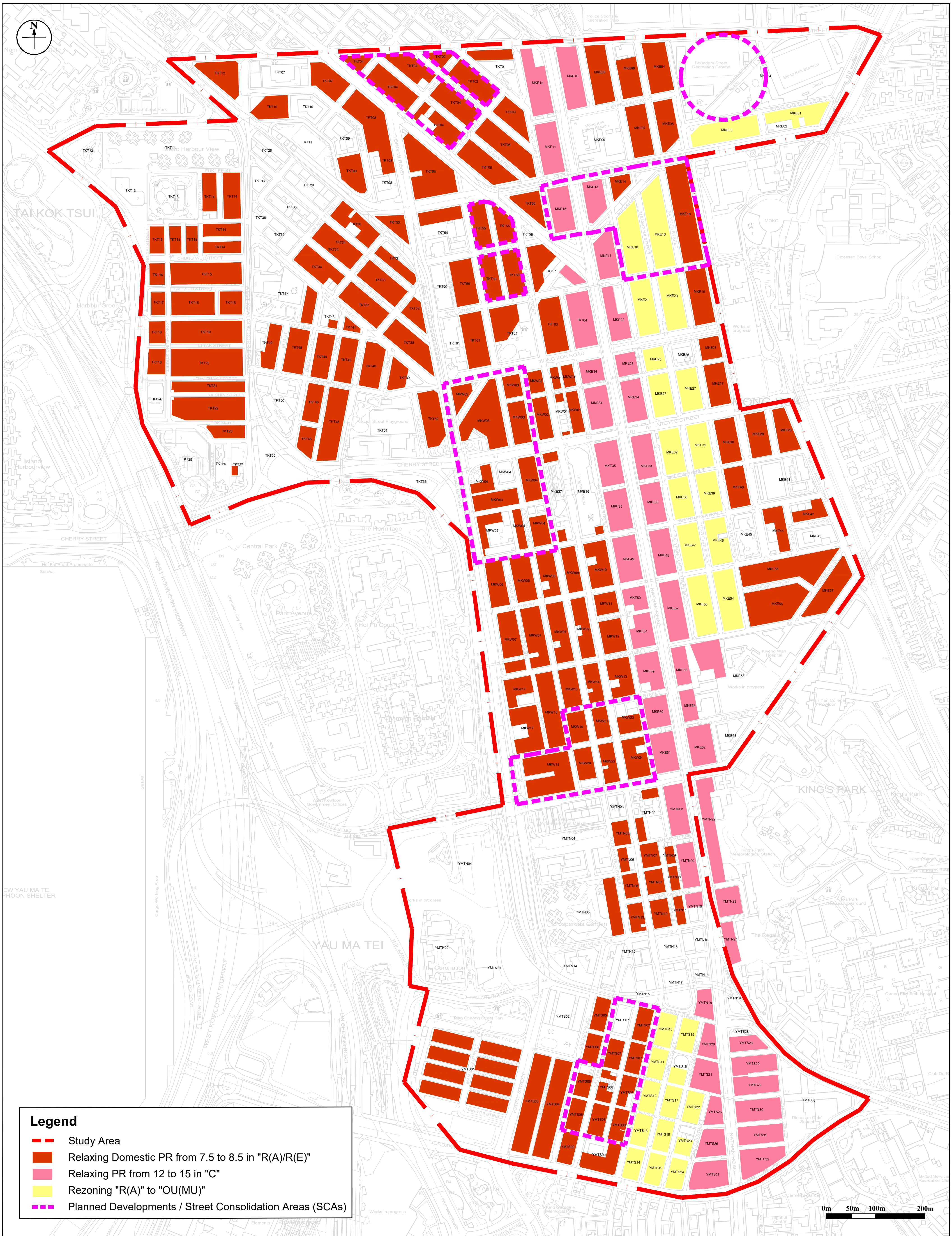

Figure: 1.2

Title: Consolidated Amendments in Land Use for Current Technical Assessment

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Road Traffic Noise Impact Assessment

RAMBOLL

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Checked by:	KY
Rev.:	2.1
Date:	May 2022

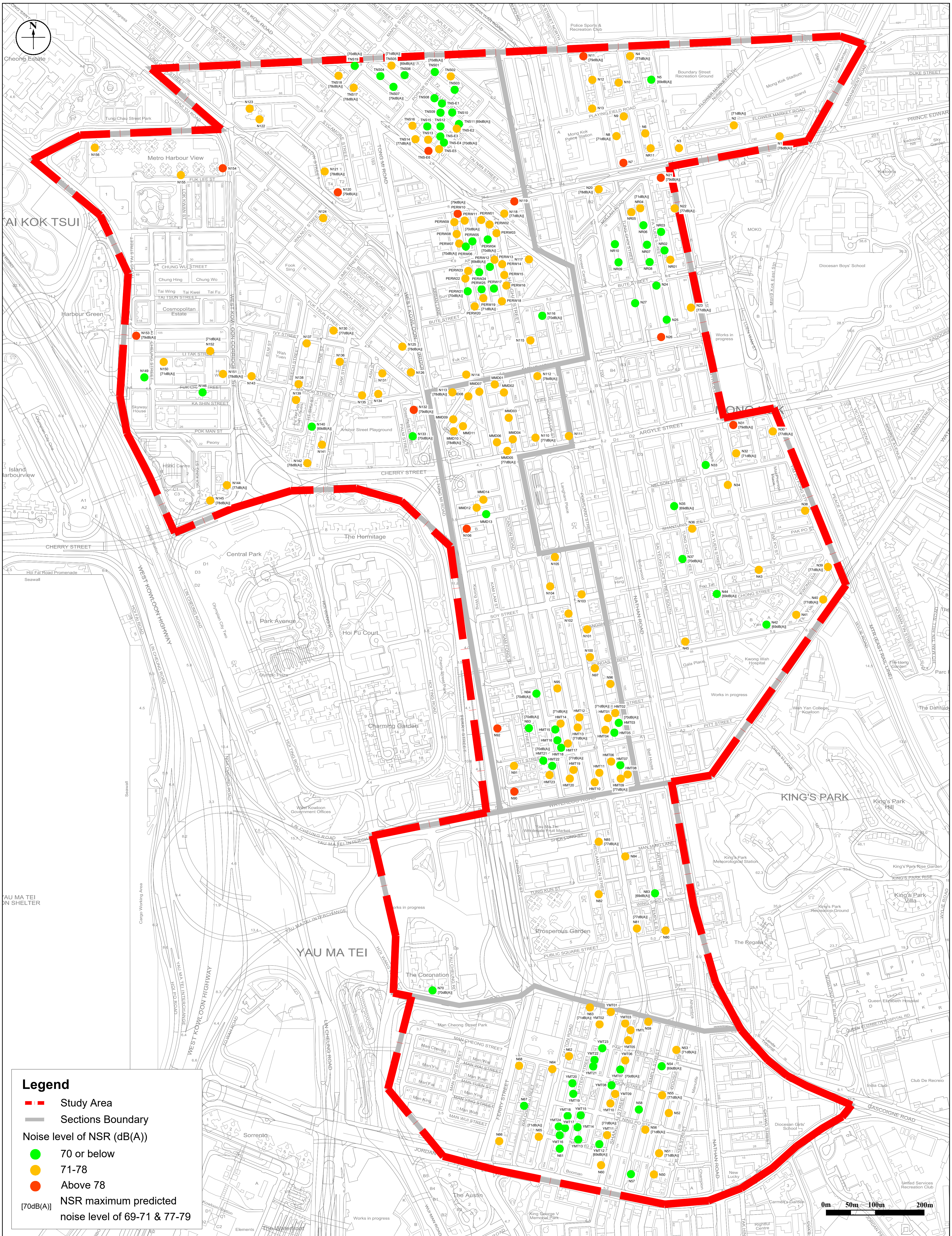

Figure: 2.1	RAMBOLL
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Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Road Traffic Noise Impact Assessment	Rev.: 2.0
	Date: May 2022

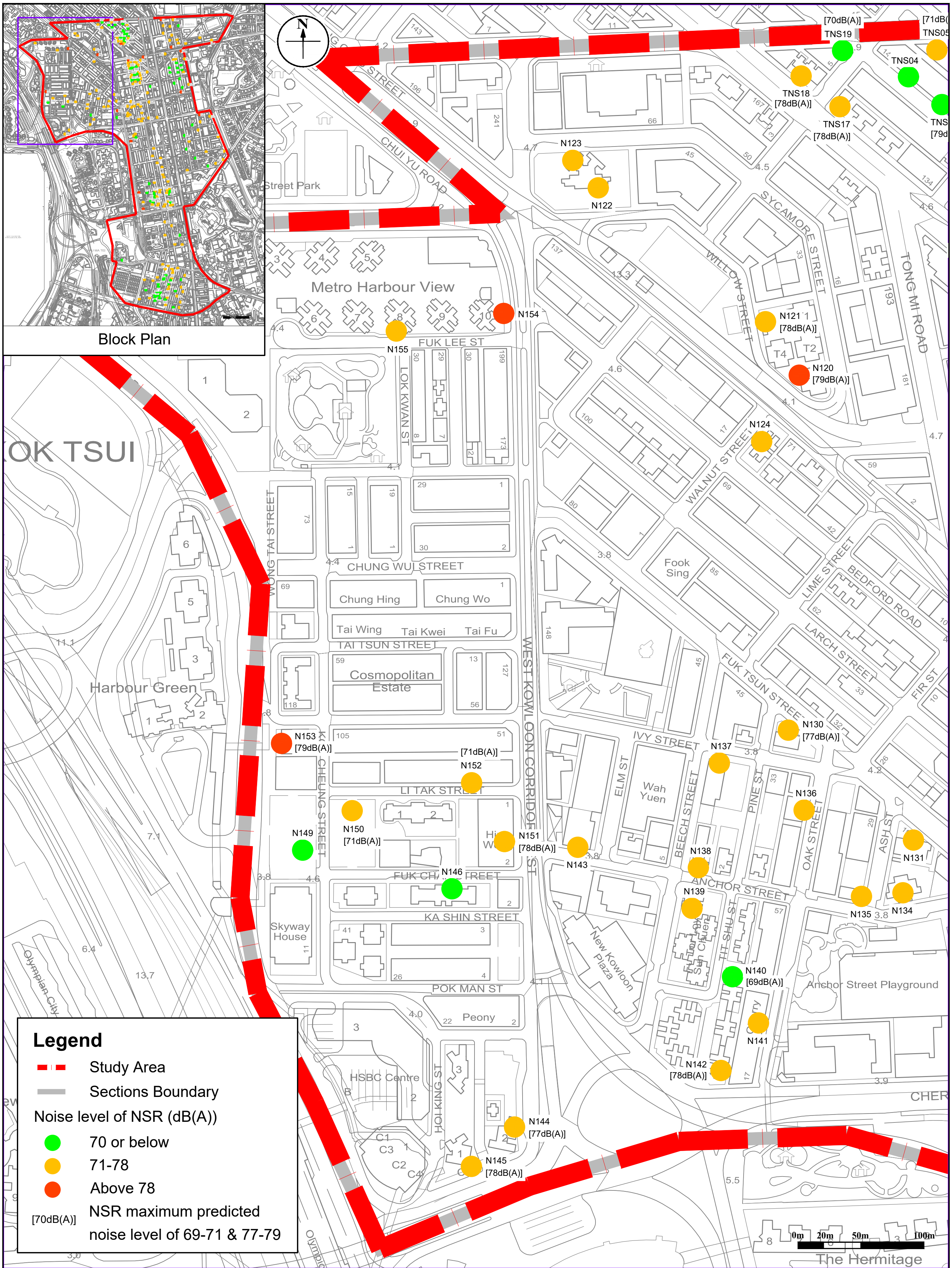

Figure: 2.1a	RAMBOLL
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	Date: May 2022

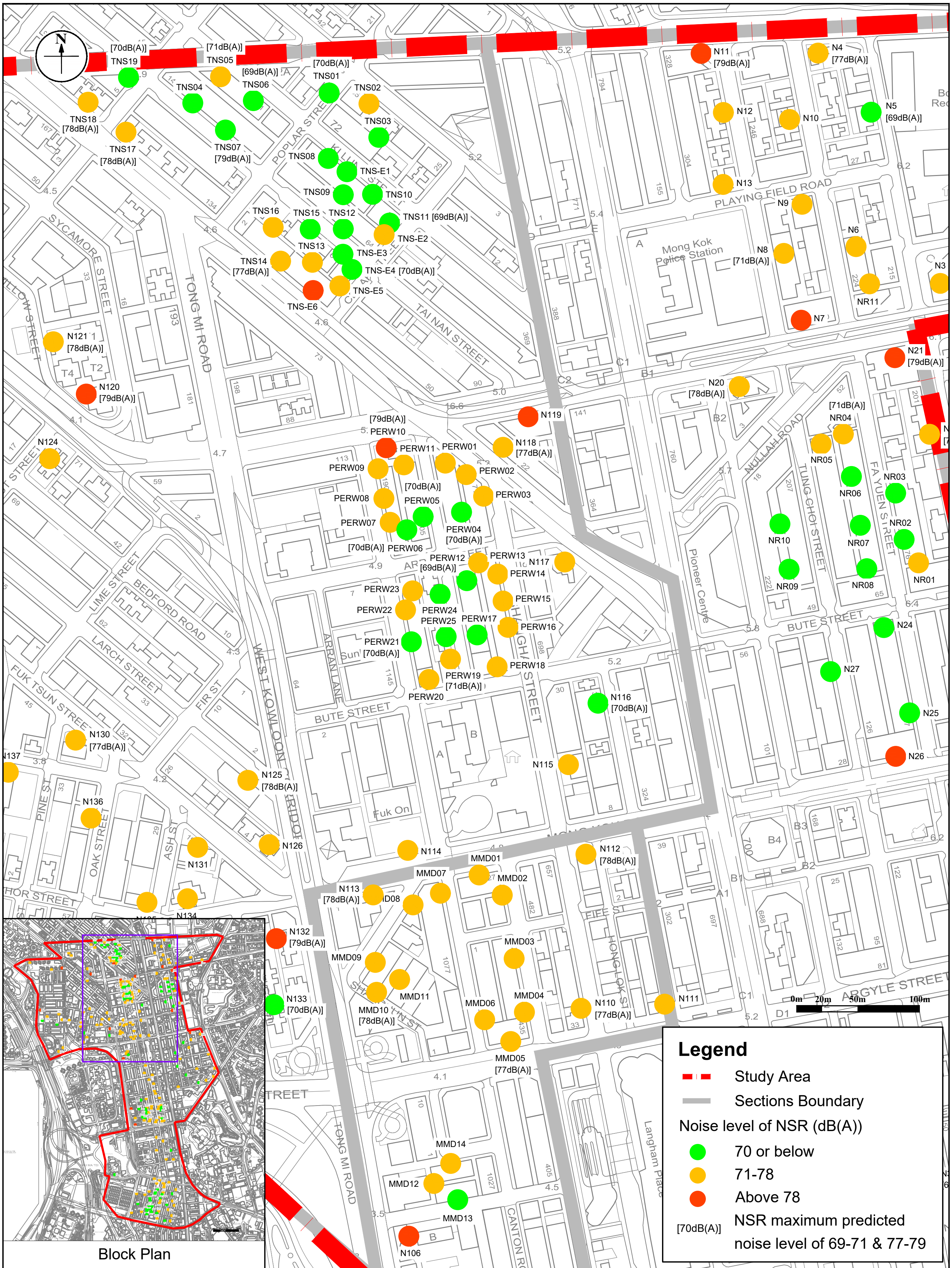

Figure: 2.1b

Title: Representative Existing NSRs and Planned NSRs within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Road Traffic Noise Impact Assessment

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Date: May 2022

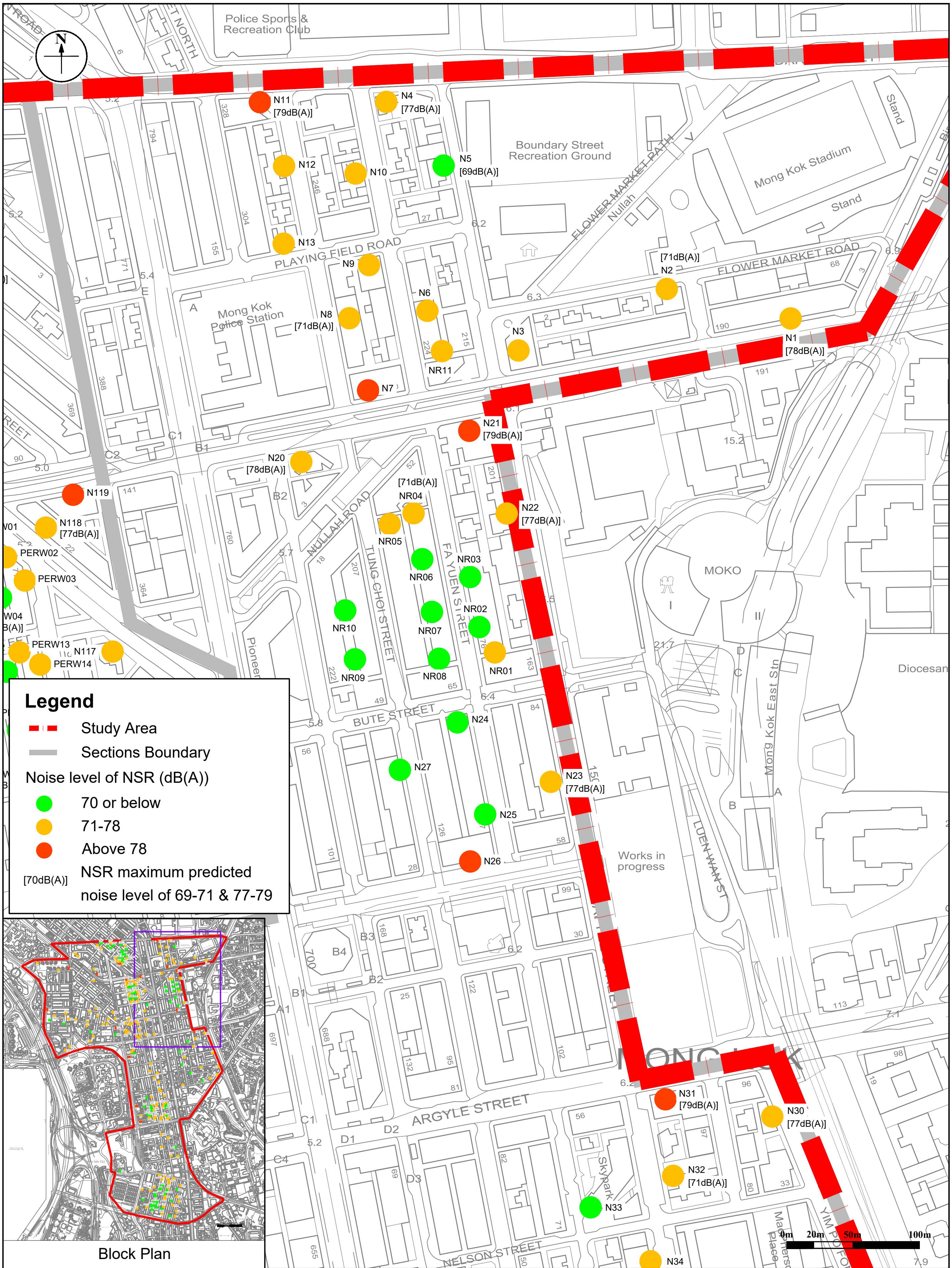

Figure: 2.1c

Title: Representative Existing NSRs and Planned NSRs within Study Area

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Road Traffic Noise Impact Assessment

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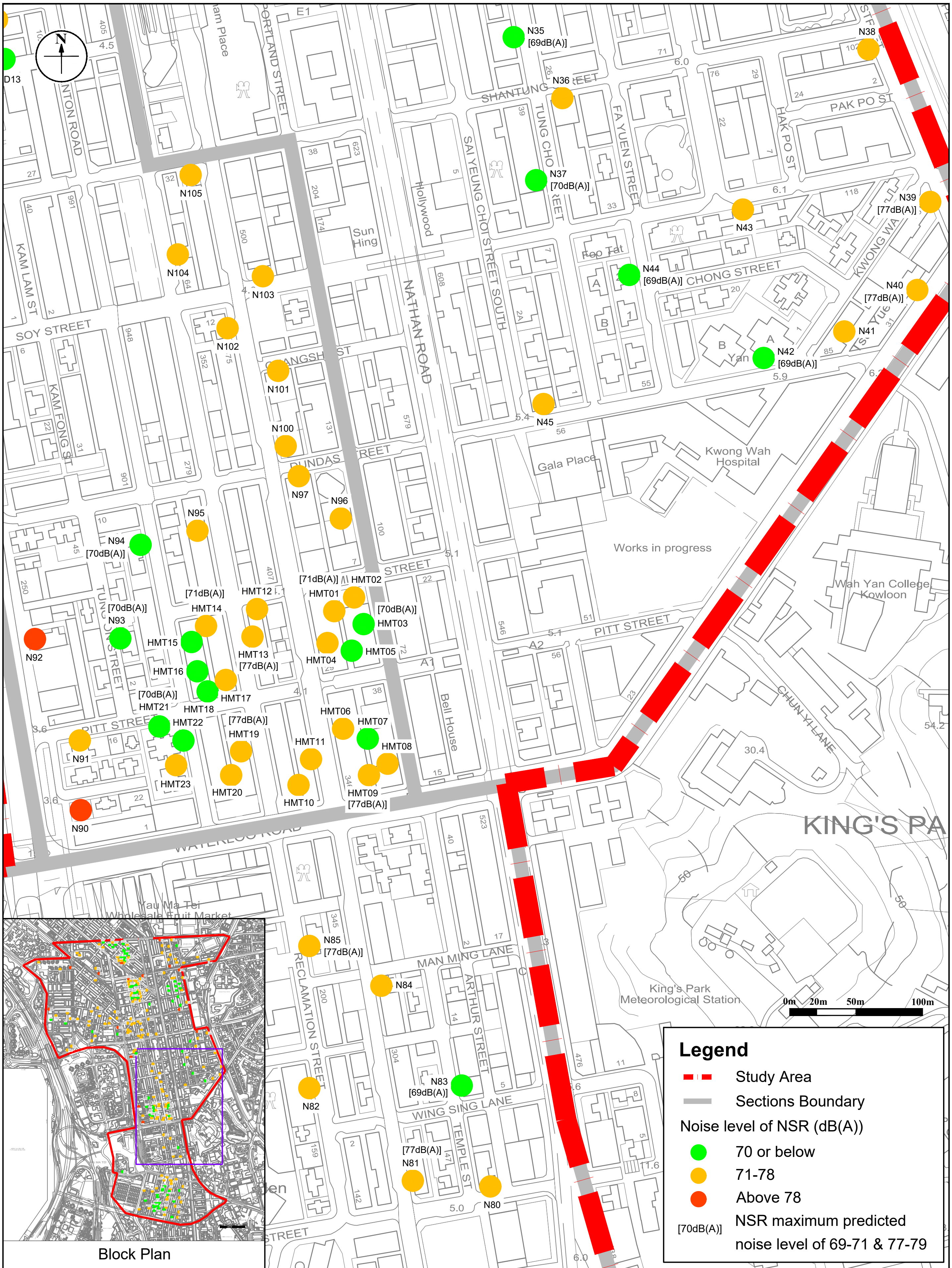

Figure:	2.1d	RAMBOLL
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		Date: May 2022

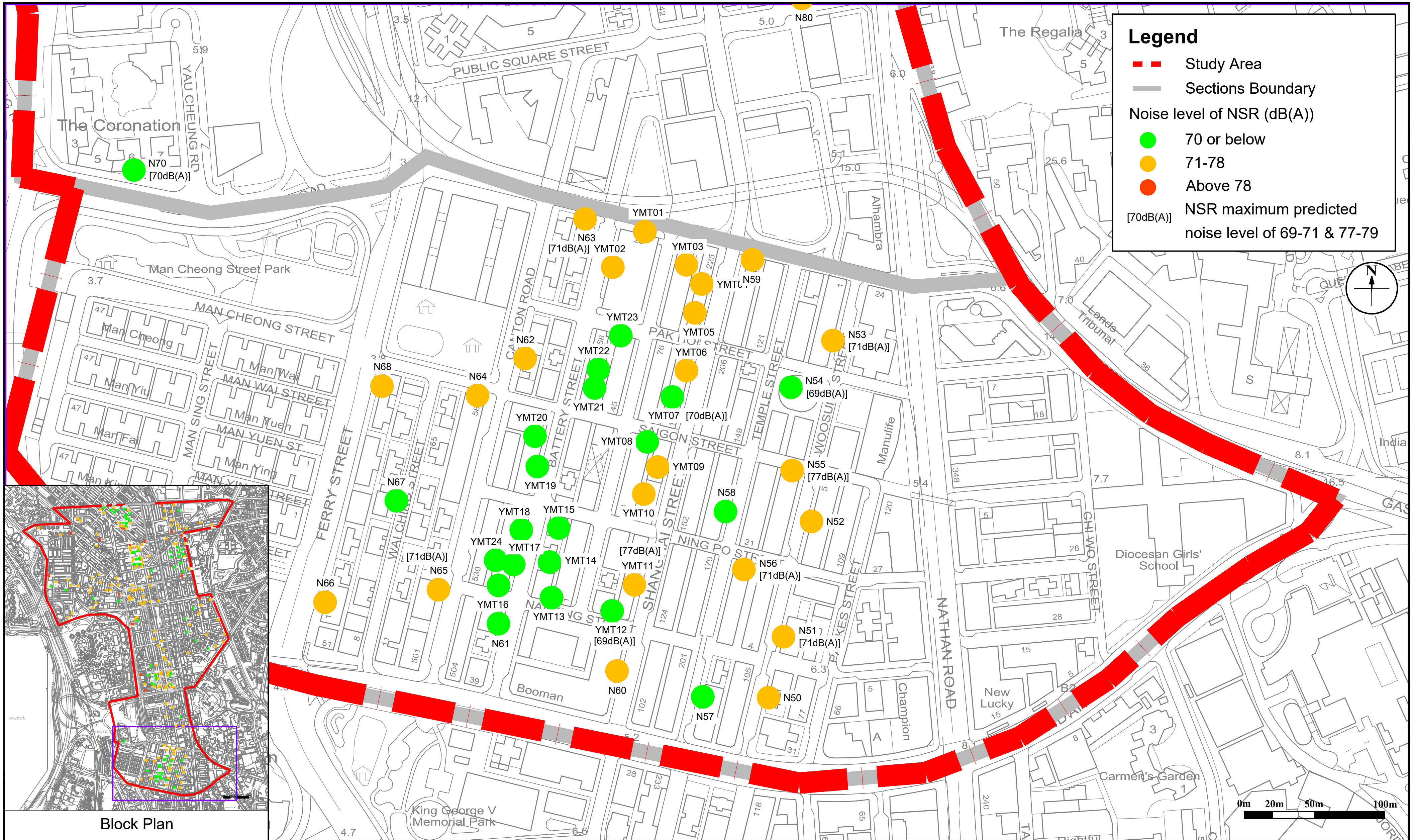

Figure: 2.1e

Title: Representative Existing NSRs and Planned NSRs within Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Road Traffic Noise Impact Assessment

RAMBOLL

Drawn by: YM
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Rev.: 2.0
Date: May 2022

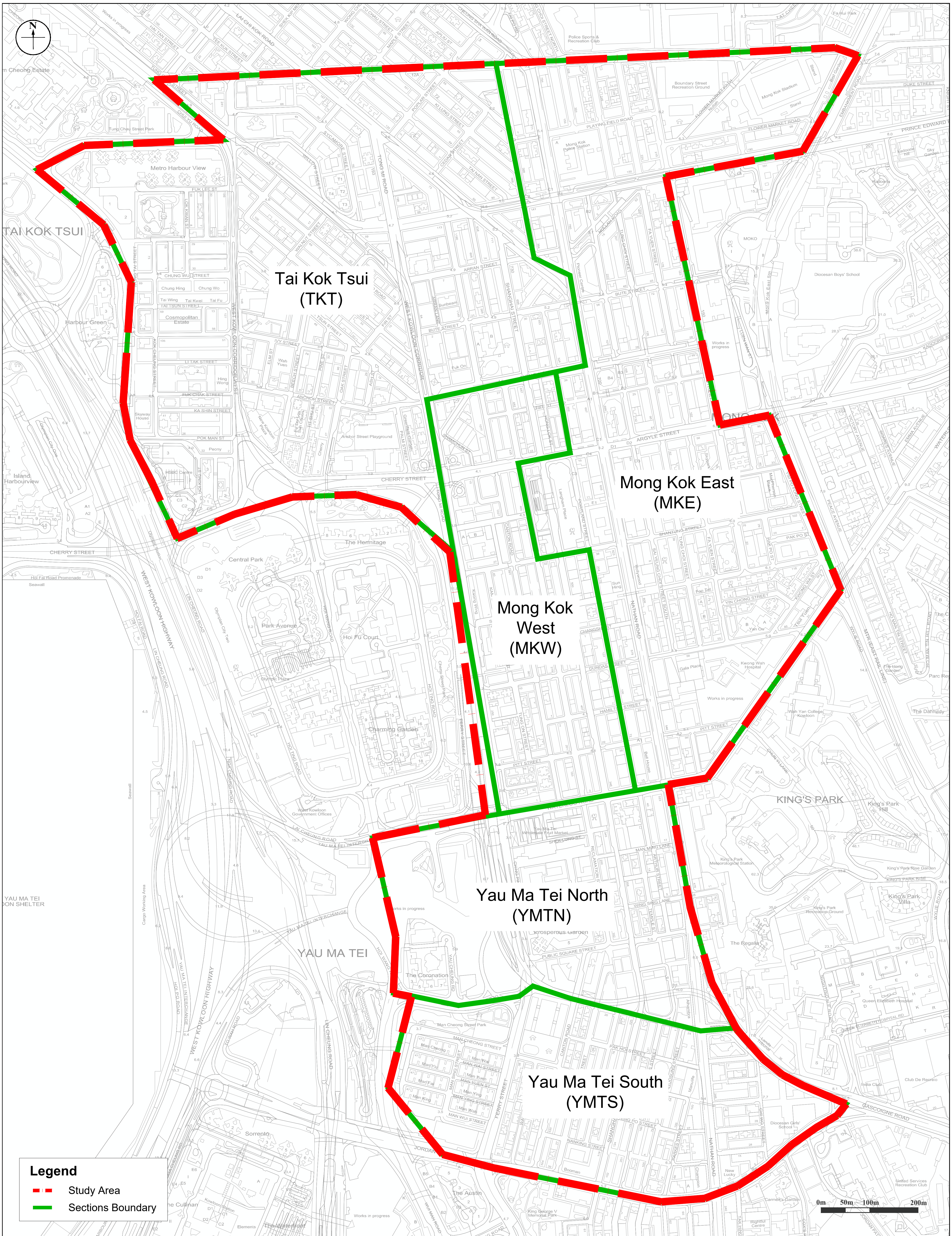

Figure: 2.2

Title: Division of Area within the Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Road Traffic Noise Impact Assessment

RAMBOLL

Drawn by: YM
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Rev.: 2.0
Date: May 2022

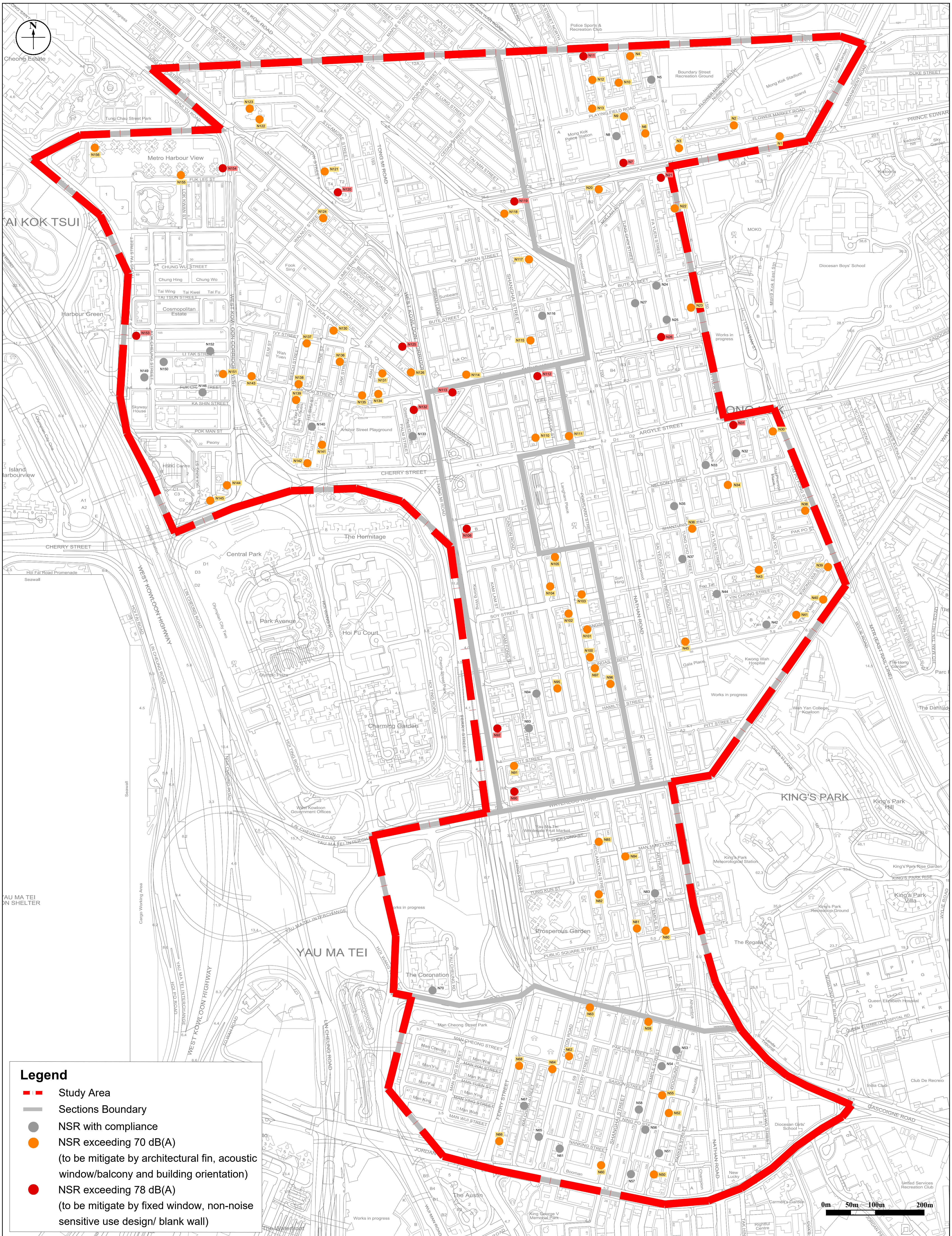

Figure:	2.3	RAMBOLL
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		Date: May 2022

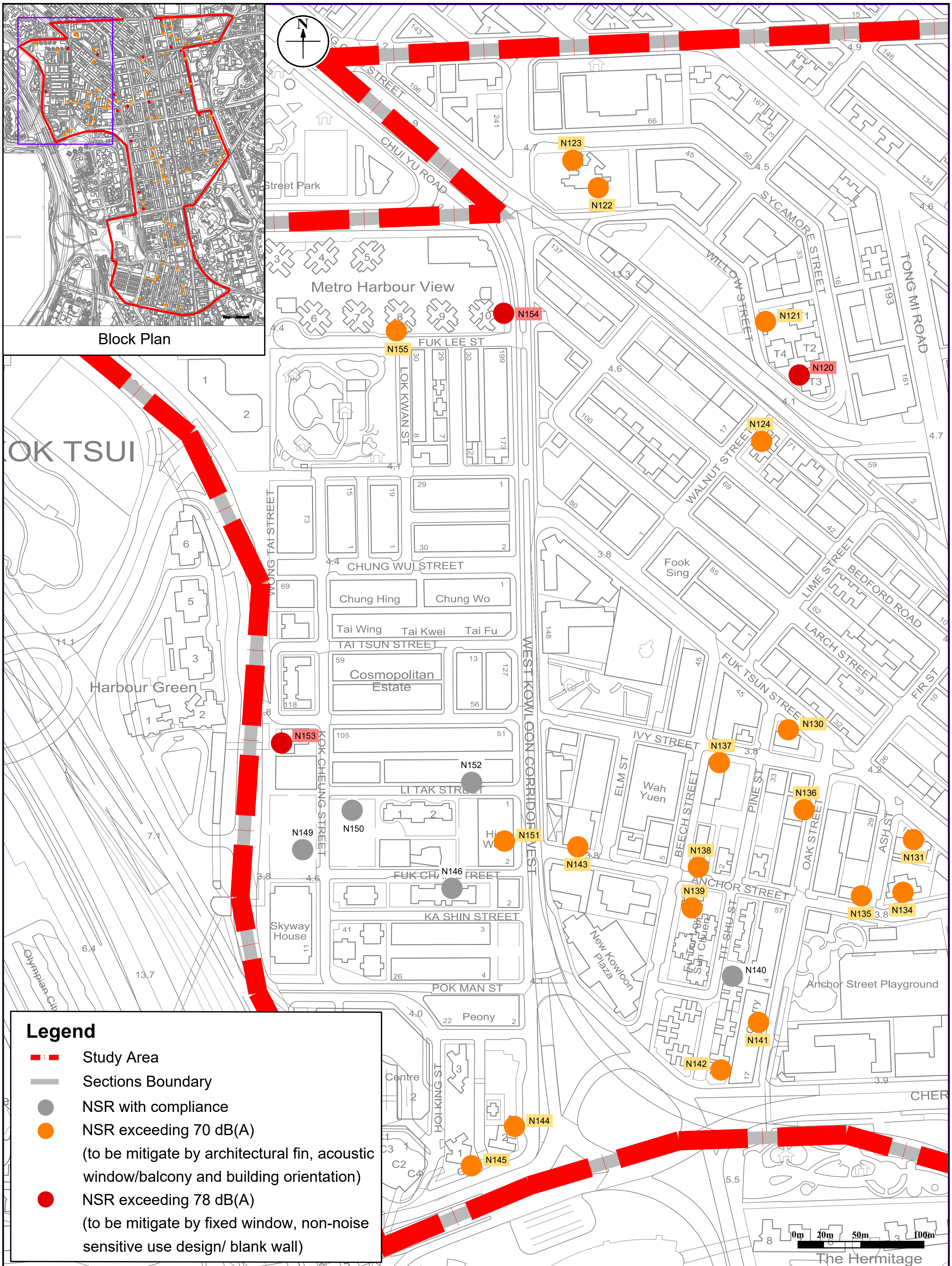

Figure: 2.3a	RAMBOLL
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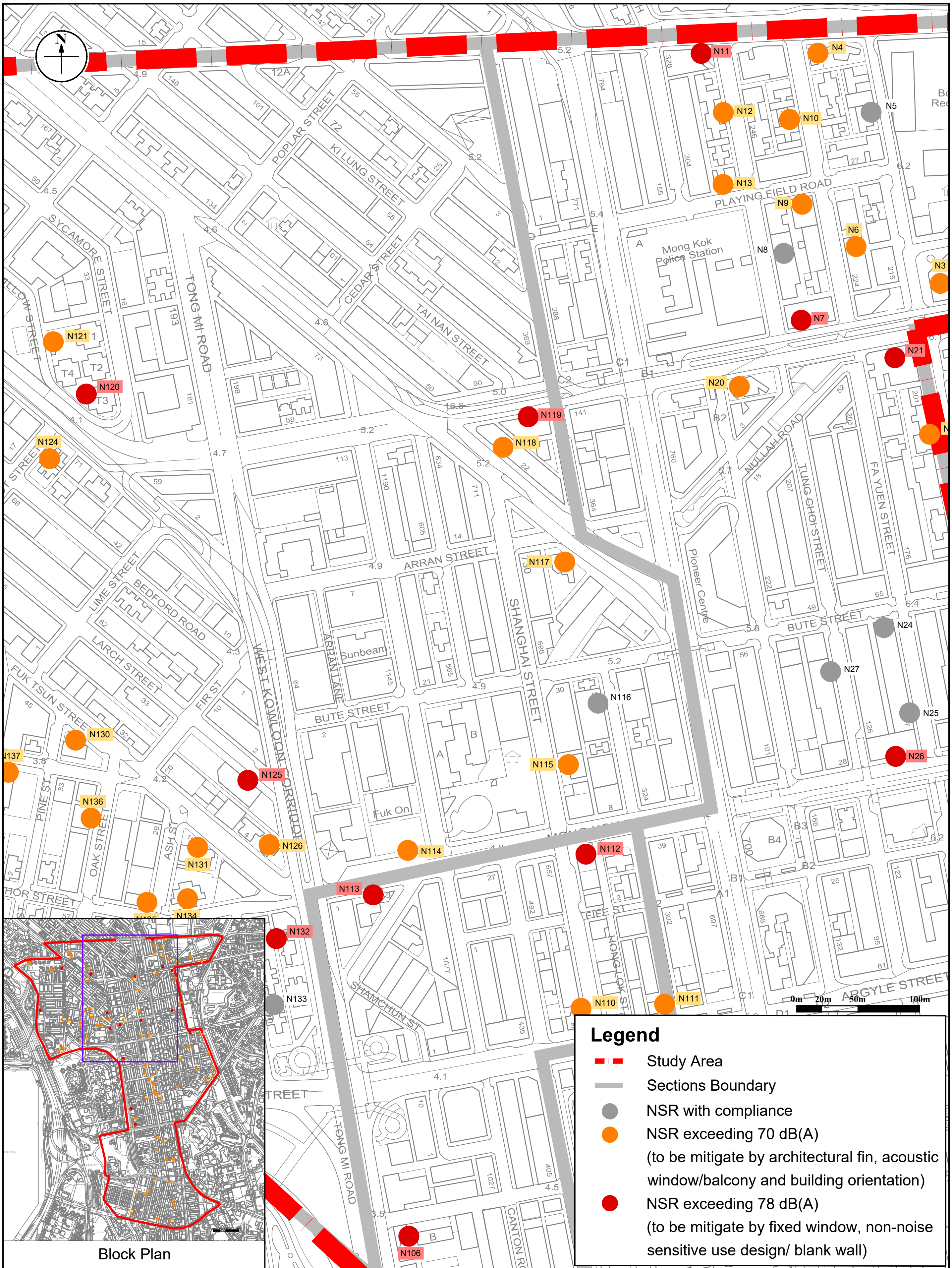
	Date: May 2022



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Project:	Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Road Traffic Noise Impact Assessment	Rev.: 2.0
		Date: May 2022

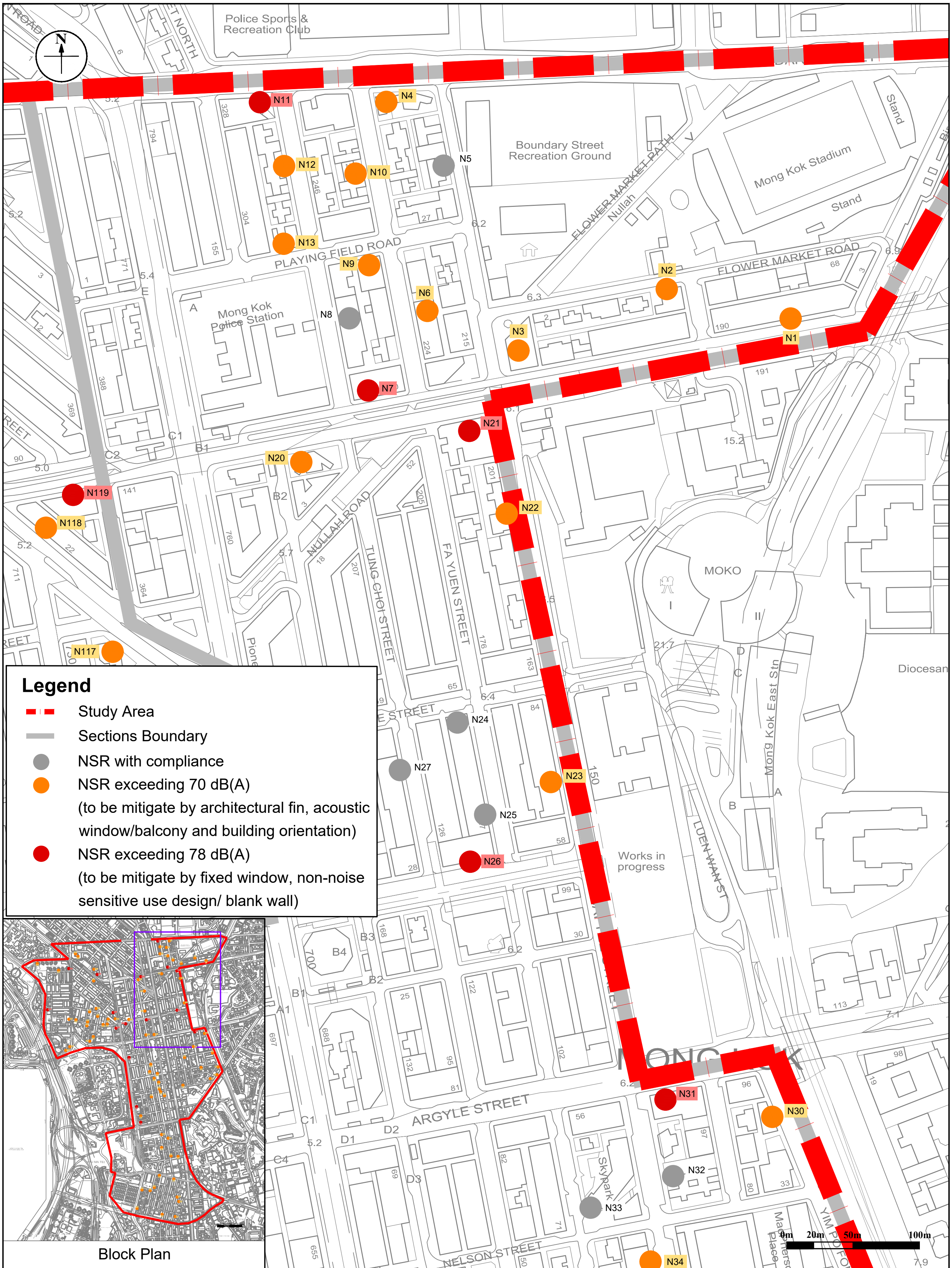


Figure:	2.3c	RAMBOLL
Title:	Location of NSRs with exceedance	Drawn by: YM Checked by: KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts Road Traffic Noise Impact Assessment	Rev.: 2.0 Date: May 2022

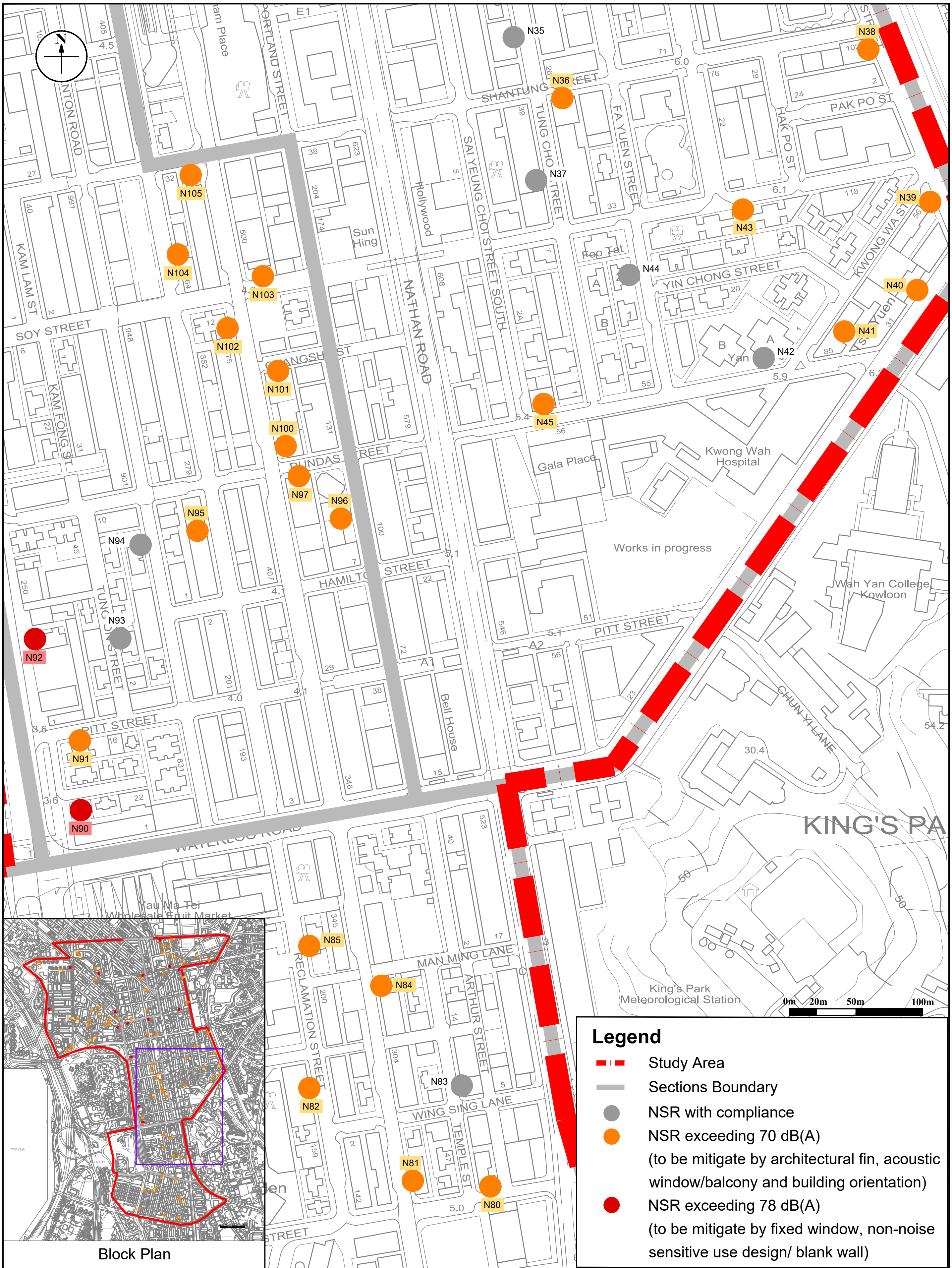


Figure: 2.3d

Title: Location of NSRs with exceedance

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Road Traffic Noise Impact Assessment

RAMBOLL

Drawn by: YM
Checked by: KY
Rev.: 2.0
Date: May 2022

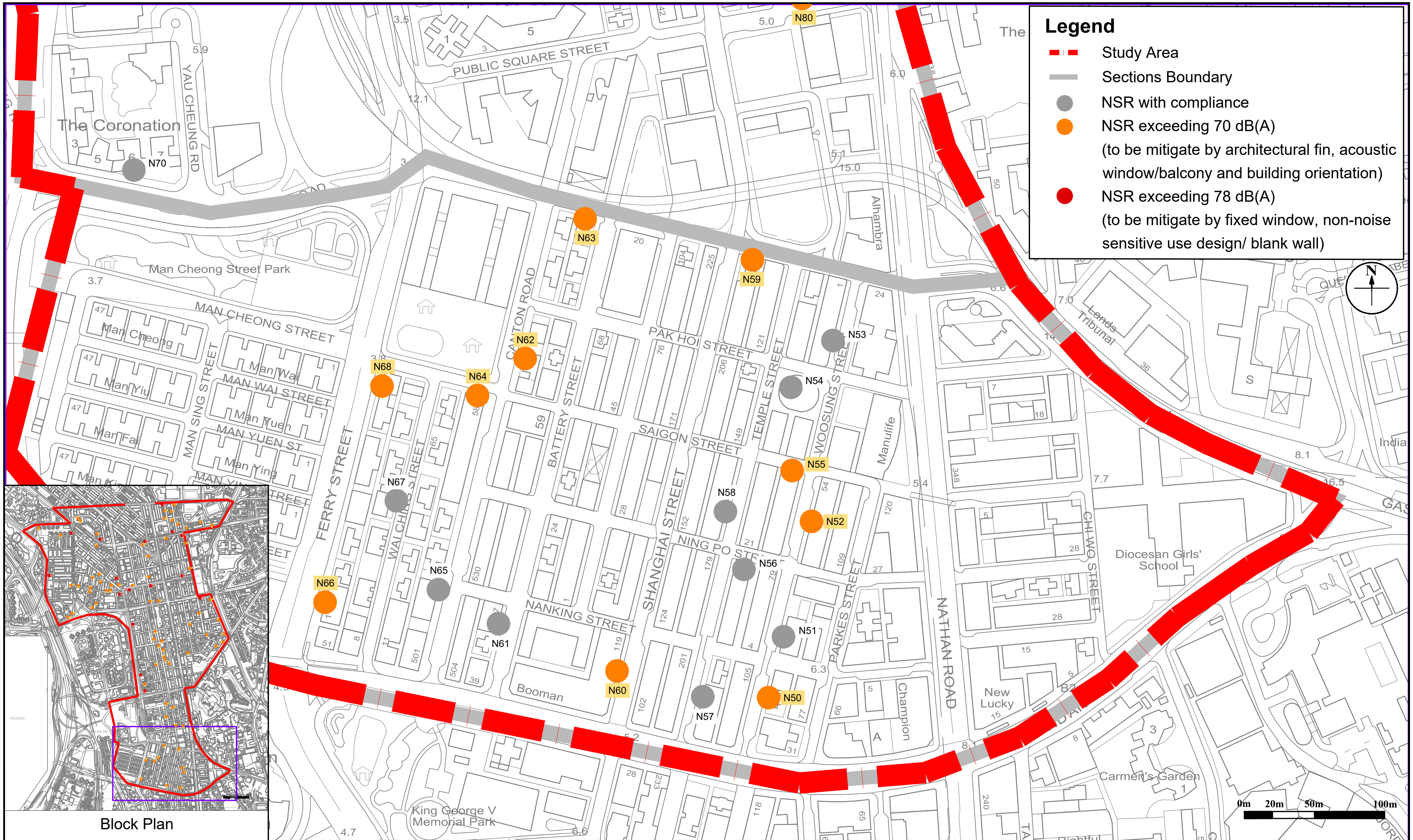


Figure: 2.3e

Title: Location of NSRs with exceedance

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts
Road Traffic Noise Impact Assessment

RAMBOLL

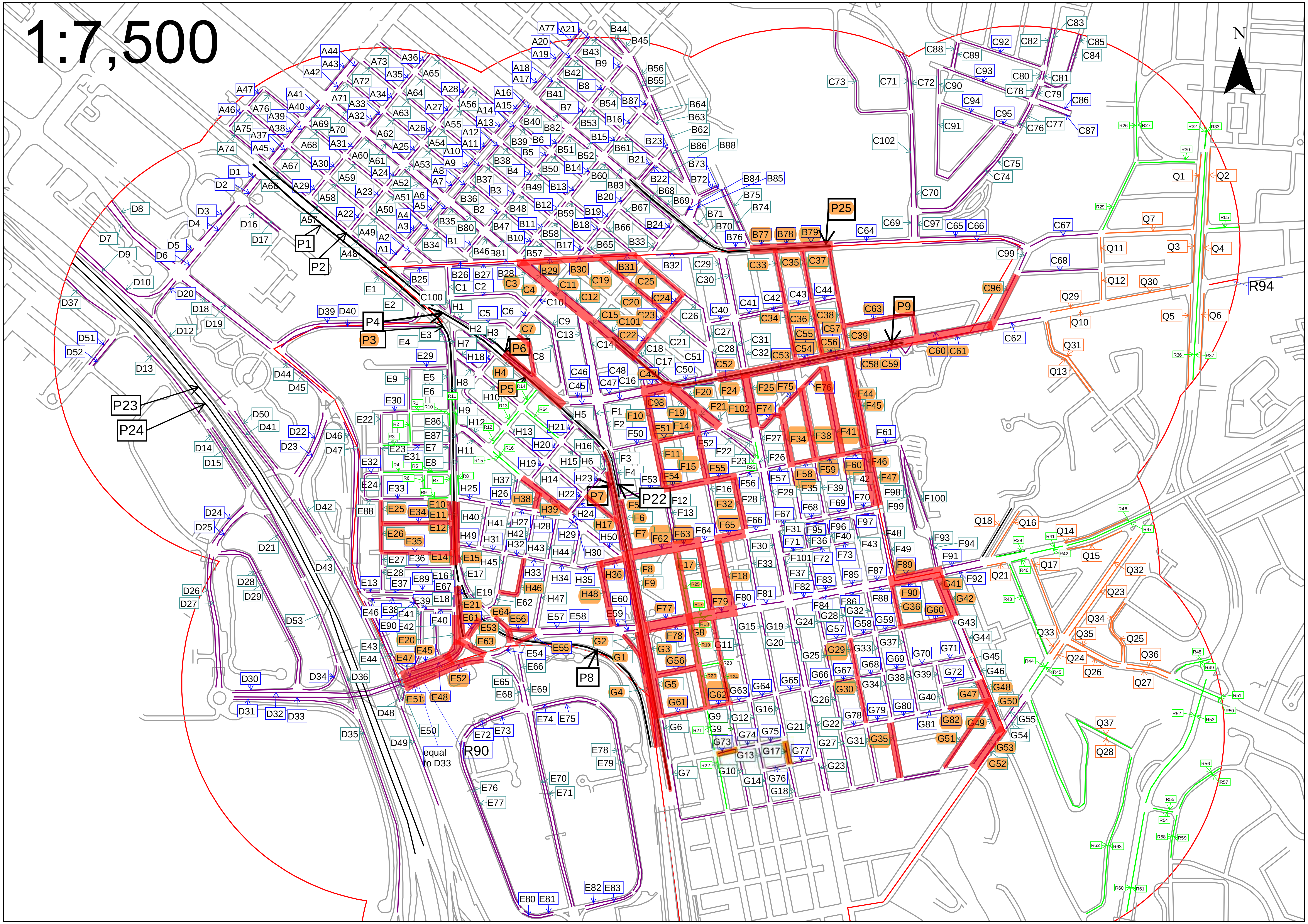
Drawn by:	YM
Checked by:	KY
Rev.:	2.0
Date:	May 2022

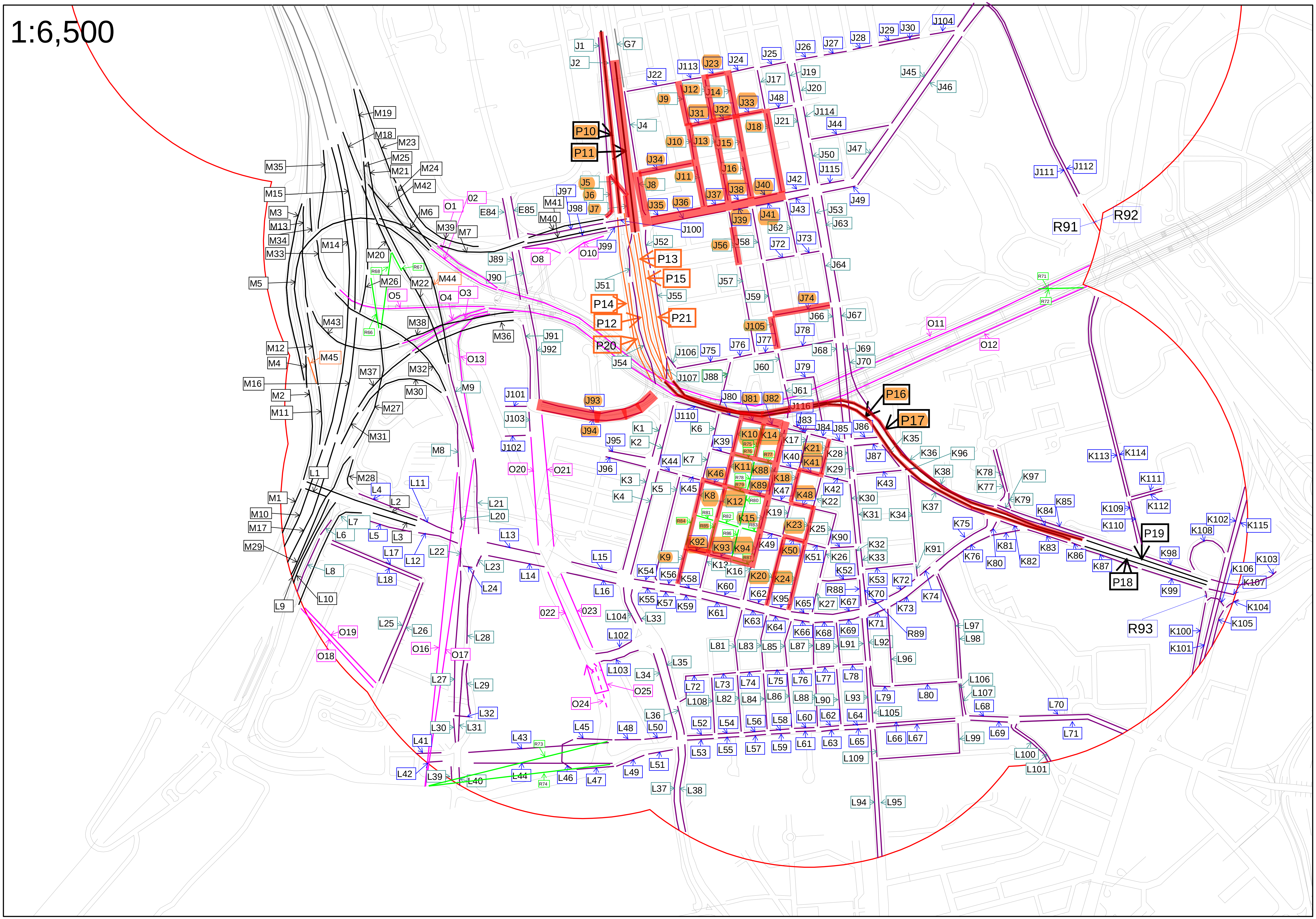
Appendices

Appendix 2.1

Traffic Forecast for Year 2047

Road nearby Planned Projects and SCAs

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P10
P11
P13
P15
P14
P12
P21
P20
P16
P17
P19
P18
R91
R92
R93

Overall Traffic Forecast Comparison

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)	OZP Amendment Traffic Flow (veh/hr)	Traffic Flow % Change	Actual Change (veh/hr)	Predicted Change in noise level (dB(A))
C11	Lai Chi Kok Road	TNS SCA	1548	1607	3.8%	59	0.2
C12	Lai Chi Kok Road	TNS SCA	615	540	-12.1%	-75	-0.6
C15	Lai Chi Kok Road	TNS SCA	1200	1257	4.8%	57	0.2
C101	Lai Chi Kok Road	TNS SCA	334	291	-12.8%	-43	-0.6
P9	Prince Edward Road West	TNS SCA	1072	1151	7.4%	79	0.3
C22	Cedar Street	TNS SCA	151	35	-76.7%	-116	-6.3
C23	Cedar Street	TNS SCA	330	191	-42.2%	-139	-2.4
B29	Boundary Street	TNS SCA	51	51	-0.3%	0	0
B30	Boundary Street	TNS SCA	64	64	0.3%	0	0
B31	Boundary Street	TNS SCA	389	562	44.5%	173	1.6
C3	Lai Chi Kok Road	TNS SCA	1362	1385	1.7%	23	0.1
C4	Lai Chi Kok Road	TNS SCA	615	540	-12.1%	-75	-0.6
C19	Ki Lung Street	TNS SCA	13	13	0.0%	0	0
C20	Ki Lung Street	TNS SCA	13	13	0.0%	0	0
C24	Cedar Street	TNS SCA	367	293	-20.1%	-74	-1
C25	Yu Chau Street	TNS SCA	592	404	-31.8%	-188	-1.7
F11	Canton Road	Arran Street SCA	130	108	-17.2%	-22	-0.8
F54	Bute Street	Arran Street SCA	476	486	2.2%	10	0.1
F14	Shanghai Street	Arran Street SCA	262	258	-1.6%	-4	-0.1
F51	Arran Street	Arran Street SCA	97	84	-13.5%	-13	-0.6
F10	Canton Road	Arran Street SCA	174	130	-25.1%	-44	-1.3
C98	Prince Edward Road West	Arran Street SCA	659	625	-5.2%	-34	-0.2
F15	Shanghai Street	Arran Street SCA	257	232	-9.7%	-25	-0.4
C49	Prince Edward Road West	Arran Street SCA	621	647	4.3%	26	0.2
F19	Lai Chi Kok Road	Arran Street SCA	189	176	-7.1%	-13	-0.3
F20	Lai Chi Kok Road	Arran Street SCA	610	546	-10.6%	-64	-0.5
P9	Prince Edward Road West	Nullah Road	1072	1151	7.4%	79	0.3
C52	Prince Edward Road West	Nullah Road	937	946	1.0%	9	0
F24	Nathan Road	Nullah Road	575	536	-6.8%	-39	-0.3
F25	Nathan Road	Nullah Road	1747	1668	-4.5%	-79	-0.2
C56	Prince Edward Road West	Nullah Road	154	233	51.2%	79	1.8
C57	Prince Edward Road West	Nullah Road	1437	1360	-5.3%	-77	-0.2
C60	Prince Edward Road West	Nullah Road	141	253	79.7%	112	2.5
C61	Prince Edward Road West	Nullah Road	3029	3102	2.4%	73	0.1
C96	Embankment Road	Nullah Road	910	1029	13.1%	119	0.5
F41	Fa Yuen Street	Nullah Road	13	13	0.0%	0	0
F75	Fa Yuen Street	Nullah Road	114	65	-43.3%	-49	-2.4
F76	Nullah Road	Nullah Road	62	52	-15.4%	-10	-0.8
F58	Bute Street	Nullah Road	100	93	-6.8%	-7	-0.3
F59	Bute Street	Nullah Road	39	32	-18.8%	-7	-0.9
F60	Bute Street	Nullah Road	260	192	-26.2%	-68	-1.3
F44	Sai Yee Street	Nullah Road	313	333	6.3%	20	0.3
F45	Sai Yee Street	Nullah Road	549	553	0.7%	4	0
F74	Nullah Road	Nullah Road	332	299	-9.8%	-33	-0.5
F34	Sai Yeung Choi Street South	Nullah Road	179	167	-7.0%	-12	-0.3
C53	Prince Edward Road West	Nullah Road	1322	1194	-9.7%	-128	-0.4
C54	Prince Edward Road West	Nullah Road	1768	1516	-14.3%	-252	-0.7
C55	Prince Edward Road West	Nullah Road	1768	1187	-32.9%	-581	-1.7
C36	Fa Yuen Street	Nullah Road	698	733	5.0%	35	0.2
F34	Sai Yeung Choi Street South	Nullah Road	179	107	-40.4%	-72	-2.2
F38	Tung Choi Street	Nullah Road	52	47	-9.5%	-5	-0.4
C37	Sai Yee Street	Nullah Road	41	35	-15.4%	-6	-0.7
C38	Sai Yee Street	Nullah Road	151	310	105.1%	159	3.1
C39	Sai Yee Street	Nullah Road	447	585	30.9%	138	1.2
C63	Flower Market Road	Nullah Road	214	207	-3.2%	-7	-0.1
C58	Prince Edward Road West	Nullah Road	1960	1612	-17.8%	-348	-0.8
C59	Prince Edward Road West	Nullah Road	38	38	0.1%	0	0

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)	OZP Amendment Traffic Flow (veh/hr)	Traffic Flow % Change	Actual Change (veh/hr)	Predicted Change in noise level (dB(A))
G62	Shantung Street	MK Market	517	337	-34.9%	-180	-1.9
R24	Reclamation Street	MK Market	161	274	70.4%	113	2.3
G2	Ferry Street	MK Market	317	373	17.6%	56	0.7
G3	Ferry Street	MK Market	1155	1064	-7.9%	-91	-0.4
F77	Argyle Street	MK Market	290	404	39.3%	114	1.4
F78	Argyle Street	MK Market	1724	1703	-1.2%	-21	-0.1
F17	Reclamation Street	MK Market	368	272	-26.0%	-96	-1.3
F62	Mong Kok Road	MK Market	735	686	-6.7%	-49	-0.3
F63	Mong Kok Road	MK Market	764	894	17.0%	130	0.7
P7	West Kowloon Corridor	MK Market	2492	2480	-0.5%	-12	0
R17	Argyle Street	MK Market	218	122	-44.2%	-96	-2.5
R18	Argyle Street	MK Market	1611	1592	-1.2%	-19	-0.1
F9	Tong Mi Road	MK Market	1917	1988	3.7%	71	0.2
R25	Canton Road	MK Market	0	0	0.0%	0	0
R19	Canton Road	MK Market	0	0	0.0%	0	0
R20	Canton Road	MK Market	0	0	0.0%	0	0
G56	Nelson Street	MK Market	13	13	0.0%	0	0
G61	Shantung Street	MK Market	506	321	-36.5%	-185	-2
G4	Ferry Street	MK Market	426	357	-16.2%	-69	-0.8
G5	Ferry Street	MK Market	1246	1152	-7.5%	-94	-0.3
G1	Slip Road From Ferry Street T	MK Market	398	249	-37.3%	-149	-2
G8	Reclamation Street	MK Market	161	153	-5.1%	-8	-0.2
F8	Tong Mi Road	MK Market	579	603	4.2%	24	0.2

J5	Ferry Street	Hamilton Street	150	147	-2.0%	-3	-0.1
J6	Ferry Street	Hamilton Street	45	44	-1.4%	-1	-0.1
J7	Ferry Street	Hamilton Street	330	300	-9.2%	-30	-0.4
J8	Ferry Street	Hamilton Street	312	262	-16.0%	-50	-0.8
J35	Waterloo Road	Hamilton Street	1227	1153	-6.1%	-74	-0.3
J36	Waterloo Road	Hamilton Street	1007	973	-3.4%	-34	-0.1
J11	Canton Road	Hamilton Street	13	13	0.0%	0	0
J37	Waterloo Road	Hamilton Street	1236	1162	-6.0%	-74	-0.3
J13	Reclamation Street	Hamilton Street	661	540	-18.3%	-121	-0.9
J15	Shanghai Street	Hamilton Street	612	536	-12.4%	-76	-0.6
J12	Reclamation Street	Hamilton Street	586	514	-12.3%	-72	-0.6
J14	Shanghai Street	Hamilton Street	989	864	-12.6%	-125	-0.6
J23	Dundas Street	Hamilton Street	749	736	-1.7%	-13	-0.1
J31	Hamilton Street	Hamilton Street	155	84	-46.0%	-71	-2.7
J32	Hamilton Street	Hamilton Street	59	22	-63.2%	-37	-4.3
J33	Hamilton Street	Hamilton Street	378	288	-23.9%	-90	-1.2
J18	Portland Street	Hamilton Street	557	472	-15.2%	-85	-0.7
P10	West Kowloon Corridor	Hamilton Street	1410	1413	0.2%	3	0
P11	West Kowloon Corridor	Hamilton Street	2492	2427	-2.6%	-65	-0.1
J34	Pitt Street	Hamilton Street	13	13	0.0%	0	0
J40	Waterloo Road	Hamilton Street	1437	1285	-10.6%	-152	-0.5
J41	Waterloo Road	Hamilton Street	1073	1046	-2.5%	-27	-0.1
J10	Canton Road	Hamilton Street	13	13	0.0%	0	0
J38	Waterloo Road	Hamilton Street	1236	1162	-6.0%	-74	-0.3
J39	Waterloo Road	Hamilton Street	656	632	-3.7%	-24	-0.2
J16	Shanghai Street	Hamilton Street	656	581	-11.4%	-75	-0.5

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)	OZP Amendment Traffic Flow (veh/hr)	Traffic Flow % Change	Actual Change (veh/hr)	Predicted Change in noise level (dB(A))
K10	Battery Street	Saigon Street	162	133	-18.2%	-29	-0.9
K88	Shanghai Street	Saigon Street	240	241	0.5%	1	0
K94	Shanghai Street	Saigon Street	712	736	3.3%	24	0.1
R87	Nanking Street	Saigon Street	45	17	-61.8%	-28	-4.2
P16	Gascoigne Road Flyover	Saigon Street	1764	1786	1.2%	22	0.1
P17	Gascoigne Road Flyover	Saigon Street	2194	2199	0.2%	5	0
J81	Kansu Street	Saigon Street	702	722	2.9%	20	0.1
J82	Kansu Street	Saigon Street	702	722	2.9%	20	0.1
K14	Shanghai Street	Saigon Street	469	574	22.4%	105	0.9
K15	Shanghai Street	Saigon Street	461	485	5.1%	24	0.2
K46	Saigon Street	Saigon Street	44	56	27.8%	12	1
R79	Saigon Street	Saigon Street	63	47	-25.3%	-16	-1.3
K89	Saigon Street	Saigon Street	105	105	0.0%	0	0
K8	Canton Road	Saigon Street	216	199	-8.0%	-17	-0.4
R84	Canton Road	Saigon Street	191	177	-7.5%	-14	-0.3
K92	Nanking Street	Saigon Street	13	13	0.0%	0	0
K93	Nanking Street	Saigon Street	45	17	-61.8%	-28	-4.2
K11	Battery Street	Saigon Street	26	23	-11.4%	-3	-0.5
K12	Battery Street	Saigon Street	0	0	0.0%	0	0
R75	Reclamation Street	Saigon Street	0	0	0.0%	0	0
R76	Pak Hoi Street	Saigon Street	0	0	0.0%	0	0
R77	Pak Hoi Street	Saigon Street	0	0	0.0%	0	0
R85	Battery Street	Saigon Street	0	0	0.0%	0	0

P9	Prince Edward Road West	MKE OZP Amendment Site	1072	1151	7.4%	79	0.3
C52	Prince Edward Road West	MKE OZP Amendment Site	937	946	1.0%	9	0
C56	Prince Edward Road West	MKE OZP Amendment Site	154	233	51.2%	79	1.8
C57	Prince Edward Road West	MKE OZP Amendment Site	1437	1360	-5.3%	-77	-0.2
C60	Prince Edward Road West	MKE OZP Amendment Site	141	253	79.7%	112	2.5
C61	Prince Edward Road West	MKE OZP Amendment Site	3029	3102	2.4%	73	0.1
C96	Embankment Road	MKE OZP Amendment Site	910	1029	13.1%	119	0.5
F90	Argyle Street	MKE OZP Amendment Site	1145	1105	-3.5%	-40	-0.2
G41	Yim Po Fong Street	MKE OZP Amendment Site	569	536	-5.8%	-33	-0.3
G42	Yim Po Fong Street	MKE OZP Amendment Site	287	264	-7.9%	-23	-0.4
F44	Sai Yee Street	MKE OZP Amendment Site	313	333	6.3%	20	0.3
F45	Sai Yee Street	MKE OZP Amendment Site	549	553	0.7%	4	0
F46	Sai Yee Street	MKE OZP Amendment Site	429	392	-8.6%	-37	-0.4
F47	Sai Yee Street	MKE OZP Amendment Site	696	704	1.2%	8	0
C53	Prince Edward Road West	MKE OZP Amendment Site	1322	1194	-9.7%	-128	-0.4
C37	Sai Yee Street	MKE OZP Amendment Site	41	35	-15.4%	-6	-0.7
C63	Flower Market Road	MKE OZP Amendment Site	214	207	-3.2%	-7	-0.1
B77	Boundary Street	MKE OZP Amendment Site	1165	1353	16.1%	188	0.6
B78	Boundary Street	MKE OZP Amendment Site	1615	1686	4.4%	71	0.2
B79	Boundary Street	MKE OZP Amendment Site	1037	1139	9.9%	102	0.4
P25	Boundary Street Flyover	MKE OZP Amendment Site	1297	1209	-6.8%	-88	-0.3
C33	Tung Choi Street	MKE OZP Amendment Site	376	342	-9.2%	-34	-0.4
C34	Tung Choi Street	MKE OZP Amendment Site	198	123	-38.0%	-75	-2.1
C35	Fa Yuen Street	MKE OZP Amendment Site	484	455	-5.9%	-29	-0.3
F89	Argyle Street	MKE OZP Amendment Site	1366	1417	3.8%	51	0.2
G29	Tung Choi Street	MKE OZP Amendment Site	335	205	-38.8%	-130	-2.1
G30	Tung Choi Street	MKE OZP Amendment Site	385	197	-48.9%	-188	-2.9
G36	Sai Yee Street	MKE OZP Amendment Site	187	148	-20.7%	-39	-1
G49	Yim Po Fong Street	MKE OZP Amendment Site	361	332	-7.9%	-29	-0.4
G50	Yim Po Fong Street	MKE OZP Amendment Site	348	322	-7.4%	-26	-0.3
G59	Nelson Street	MKE OZP Amendment Site	148	98	-33.50%	-50	-1.8
G60	Nelson Street	MKE OZP Amendment Site	66	44	-33.0%	-22	-1.8
G47	Yim Po Fong Street	MKE OZP Amendment Site	281	233	-17.0%	-48	-0.8
G48	Yim Po Fong Street	MKE OZP Amendment Site	348	322	-7.4%	-26	-0.3
G82	Soy Street	MKE OZP Amendment Site	133	130	-1.9%	-3	-0.1
G51	Kwong Wa Street	MKE OZP Amendment Site	344	302	-12.3%	-42	-0.6
F87	Argyle Street	MKE OZP Amendment Site	543	537	-1.19%	-6	0
F88	Argyle Street	MKE OZP Amendment Site	1718	1676	-2.47%	-42	-0.1
C54	Prince Edward Road West	MKE OZP Amendment Site	1768	1516	-14.28%	-252	-0.7
C55	Prince Edward Road West	MKE OZP Amendment Site	1768	1187	-32.86%	-581	-1.7
C38	Sai Yee Street	MKE OZP Amendment Site	151	310	105.14%	159	3.1
C64	Boundary Street	MKE OZP Amendment Site	2403	2417	0.57%	14	0
F91	Argyle Street	MKE OZP Amendment Site	1288	1209	-6.10%	-79	-0.3

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)	OZP Amendment Traffic Flow (veh/hr)	Traffic Flow % Change	Actual Change (veh/hr)	Predicted Change in noise level (dB(A))
F92	Argyle Street	MKE OZP Amendment Site	1266	1004	-20.69%	-262	-1
G35	Fa Yuen Street	MKE OZP Amendment Site	135	122	-9.42%	-13	-0.4
G53	Waterloo Road	MKE OZP Amendment Site	929	815	-12.31%	-114	-0.6
G52	Waterloo Road	MKE OZP Amendment Site	1183	1136	-3.97%	-47	-0.2
J29	Dundas Street	MKE OZP Amendment Site	32	24	-25.00%	-8	-1.2
J30	Dundas Street	MKE OZP Amendment Site	112	62	-44.70%	-50	-2.6
J104	Dundas Street	MKE OZP Amendment Site	339	263	-22.41%	-76	-1.1
K9	Canton Road	YMTS OZP Amendment Site	223	200	-10.1%	-23	-0.5
K18	Temple Street	YMTS OZP Amendment Site	320	258	-19.5%	-62	-0.9
K20	Temple Street	YMTS OZP Amendment Site	13	13	0.0%	0	0
K21	Woosung Street	YMTS OZP Amendment Site	147	128	-13.0%	-19	-0.6
K23	Woosung Street	YMTS OZP Amendment Site	458	362	-20.9%	-96	-1
K24	Woosung Street	YMTS OZP Amendment Site	150	126	-16.1%	-24	-0.8
K41	Pak Hoi Street	YMTS OZP Amendment Site	341	314	-8.0%	-27	-0.4
K48	Saigon Street	YMTS OZP Amendment Site	361	321	-11.1%	-40	-0.5
K50	Ning Po Street	YMTS OZP Amendment Site	238	213	-10.6%	-25	-0.5
K17	Temple Street	YMTN OZP Amendment Site	167	110	-34.01%	-57	-1.8
K22	Woosung Street	YMTN OZP Amendment Site	243	208	-14.24%	-35	-0.7
K40	Pak Hoi Street	YMTN OZP Amendment Site	227	207	-9.00%	-20	-0.4
K25	Saigon Street	YMTN OZP Amendment Site	588	473	-19.49%	-115	-0.9
K49	Ning Po Street	YMTN OZP Amendment Site	255	213	-16.56%	-42	-0.8
J56	Reclamation Street	YMTN OZP Amendment Site	975	906	-7.0%	-69	-0.3
J93	Yan Cheung Road	YMTN OZP Amendment Site	64	57	-11.5%	-7	-0.5
J94	Yan Cheung Road	YMTN OZP Amendment Site	765	706	-7.7%	-59	-0.3
J105	Shanghai Street	YMTN OZP Amendment Site	534	468	-12.3%	-66	-0.6
J74	Wing Sing Lane	YMTN OZP Amendment Site	231	200	-13.6%	-31	-0.6
J57	Reclamation Street	YMTN OZP Amendment Site	992	837	-15.64%	-155	-0.7
J60	Shanghai Street	YMTN OZP Amendment Site	714	628	-12.05%	-86	-0.6
J77	Public Square Street	YMTN OZP Amendment Site	228	179	-21.28%	-49	-1.1
J78	Public Square Street	YMTN OZP Amendment Site	435	351	-19.21%	-84	-0.9
F18	Shanghai Street	MKW OZP Amendment Site	779	653	-16.1%	-126	-0.8
F65	Mong Kok Road	MKW OZP Amendment Site	698	720	3.1%	22	0.1
J9	Canton Road	MKW OZP Amendment Site	55	52	-5.1%	-3	-0.2
F79	Argyle Street	MKW OZP Amendment Site	1714	1520	-11.3%	-194	-0.5
F62	Mong Kok Road	MKW OZP Amendment Site	735	686	-6.7%	-49	-0.3
F6	Tong Mi Road	MKW OZP Amendment Site	1488	1597	7.32%	109	0.3
F7	Tong Mi Road	MKW OZP Amendment Site	579	603	4.18%	24	0.2
P7	West Kowloon Corridor	MKW OZP Amendment Site	2492	2480	-0.49%	-12	0
J22	Dundas Street	MKW OZP Amendment Site	467	472	0.98%	5	0
J11	Canton Road	MKW OZP Amendment Site	13	13	0.00%	0	0
J34	Pitt Street	MKW OZP Amendment Site	13	13	0.00%	0	0
F9	Tong Mi Road	MKW OZP Amendment Site	1917	1988	3.68%	71	0.2
F64	Mong Kok Road	MKW OZP Amendment Site	1201	1215	1.13%	14	0.1
F8	Tong Mi Road	MKW OZP Amendment Site	579	603	4.18%	24	0.2
F80	Argyle Street	MKW OZP Amendment Site	1362	1233	-9.44%	-129	-0.4

Road ID	Road Name	Planned Development Sites	YM Study Traffic Flow (veh/hr)	OZP Amendment Traffic Flow (veh/hr)	Traffic Flow % Change	Actual Change (veh/hr)	Predicted Change in noise level (dB(A))
F32	Portland Street	TKT OZP Amendment Site	261	185	-29.0%	-76	-1.5
F21	Lai Chi Kok Road	TKT OZP Amendment Site	171	158	-7.4%	-13	-0.3
F102	Lai Chi Kok Road	TKT OZP Amendment Site	309	297	-4.0%	-12	-0.2
E64	Cherry Street	TKT OZP Amendment Site	837	806	-3.7%	-31	-0.2
C7	Willow Street	TKT OZP Amendment Site	453	449	-0.8%	-4	0
H4	Tung Chau Street	TKT OZP Amendment Site	629	560	-11.0%	-69	-0.5
P6	West Kowloon Corridor	TKT OZP Amendment Site	1151	1043	-9.4%	-108	-0.4
P5	West Kowloon Corridor	TKT OZP Amendment Site	3334	3186	-4.4%	-148	-0.2
E56	Cherry Street	TKT OZP Amendment Site	388	395	1.9%	7	0.1
E55	Cherry Street	TKT OZP Amendment Site	2501	2267	-9.3%	-234	-0.4
H38	Pine Street	TKT OZP Amendment Site	170	169	-0.8%	-1	0
H39	Fuk Tsun Street	TKT OZP Amendment Site	950	816	-14.1%	-134	-0.7
H36	Anchor Street	TKT OZP Amendment Site	684	527	-23.0%	-157	-1.1
H48	Palm Street	TKT OZP Amendment Site	415	352	-15.1%	-63	-0.7
H46	Tit Shu Street	TKT OZP Amendment Site	36	36	0.0%	0	0
E53	Cherry Street	TKT OZP Amendment Site	916	840	-8.3%	-76	-0.4
E21	West Kowloon Corridor West	TKT OZP Amendment Site	755	737	-2.4%	-18	-0.1
E61	Cherry Street	TKT OZP Amendment Site	467	459	-1.7%	-8	-0.1
P3	West Kowloon Corridor West	TKT OZP Amendment Site	2110	2053	-2.7%	-57	-0.1
E20	Tai Kok Tsui Road	TKT OZP Amendment Site	782	752	-3.9%	-30	-0.2
E45	Cherry Street	TKT OZP Amendment Site	836	778	-6.9%	-58	-0.3
E52	Cherry Street	TKT OZP Amendment Site	2558	2422	-5.3%	-136	-0.2
E51	Cherry Street	TKT OZP Amendment Site	1785	1654	-7.4%	-131	-0.3
E47	Cherry Street	TKT OZP Amendment Site	382	387	1.3%	5	0.1
E48	Cherry Street	TKT OZP Amendment Site	31	26	-15.2%	-5	-0.8
E63	Cherry Street	TKT OZP Amendment Site	809	666	-17.7%	-143	-0.8
E14	Tai Kok Tsui Road	TKT OZP Amendment Site	608	623	2.5%	15	0.1
E15	Tai Kok Tsui Road	TKT OZP Amendment Site	448	384	-14.3%	-64	-0.7
E25	Kok Cheung Street	TKT OZP Amendment Site	155	138	-11.2%	-17	-0.5
E26	Kok Cheung Street	TKT OZP Amendment Site	195	174	-10.6%	-21	-0.5
E10	Tai Kok Tsui Road	TKT OZP Amendment Site	425	391	-8.0%	-34	-0.4
E12	Tai Kok Tsui Road	TKT OZP Amendment Site	489	451	-7.8%	-38	-0.4
E34	Li Tak Street	TKT OZP Amendment Site	27	24	-11.4%	-3	-0.5
E35	Fuk Chak Street	TKT OZP Amendment Site	77	62	-19.0%	-15	-0.9
H17	Larch Street	TKT OZP Amendment Site	192	200	4.4%	8	0.2
F5	Tong Mi Road	TKT OZP Amendment Site	325	367	12.9%	42	0.5
F6	Tong Mi Road	TKT OZP Amendment Site	1488	1597	7.3%	109	0.3
F7	Tong Mi Road	TKT OZP Amendment Site	579	603	4.2%	24	0.2
F55	Bute Street	TKT OZP Amendment Site	559	579	3.5%	20	0.2
F19	Lai Chi Kok Road	TKT OZP Amendment Site	189	176	-7.1%	-13	-0.3
F20	Lai Chi Kok Road	TKT OZP Amendment Site	610	546	-10.6%	-64	-0.5
P8	West Kowloon Corridor West	TKT OZP Amendment Site	1355	1315	-2.92%	-40	-0.1
P7	West Kowloon Corridor	TKT OZP Amendment Site	2492	2480	-0.49%	-12	0
E16	Tai Kok Tsui Road	TKT OZP Amendment Site	657	557	-15.20%	-100	-0.7
F56	Bute Street	TKT OZP Amendment Site	165	139	-15.98%	-26	-0.7

Remarks

(i) Cells highlighted in yellow represent increase in traffic flow

(ii) Cells highlight in pink is with 0 traffic flow due to proposed road closure

Appendix 2.2

Predicted Road Traffic Noise Levels in YM Study

Predicted Road Traffic Noise Level under 2047 AM Peak in YM Study

Notes:

(green)	Noise level exceeded 1dB(A) to 8 dB(A) as compared with noise limit; 70dB(A) for Residential and Elderly centre; 65dB(A) for Kindergarten. Exceedance can be mitigated by architectural fin, acoustic window or acoustic balcony subject to the noise exceedance and building orientation.
(orange)	Noise level exceeded 8 dB(A) as compared with noise limit; 70dB(A) for Residential and Elderly centre; 65dB(A) for Kindergarten. For noise exceedance over 8 dB(A), recommend to use fixed window, non-noise sensitive use design or blank wall.

"Residential"

Related Project	NSR ID	Floor	1st Assessment level, mPD	Noise Limit dB(A)	Predicted Noise Level, L10-1hr, dB(A)		Floor(s) with >8dB(A) noise exceedance
					min	max	
Nullah Road Urban Waterway	NR01	1/F - 48/F	26.2	70	68	73	
	NR02	1/F - 48/F	26.2	70	56	63	
	NR03	1/F - 48/F	26.2	70	59	66	
	NR04	1/F - 48/F	26.2	70	58	71	
	NR05	1/F - 48/F	26.2	70	65	72	
	NR06	1/F - 48/F	26.2	70	56	65	
	NR07	1/F - 48/F	26.2	70	50	61	
	NR08	1/F - 48/F	26.2	70	60	68	
	NR09	1/F - 48/F	26.2	70	58	68	
	NR10	1/F - 48/F	26.2	70	56	68	
Mongkok Market Revitialization	MMD01	1/F - 44/F	36.2	70	70	76	
	MMD02	1/F - 44/F	36.2	70	69	74	
	MMD03	1/F - 46/F	36.2	70	68	73	
	MMD04	1/F - 48/F	36.2	70	69	75	
	MMD05	1/F - 48/F	36.2	70	71	77	
	MMD06	1/F - 48/F	36.2	70	70	74	
	MMD07	1/F - 42/F	36.2	70	69	74	
	MMD08	1/F - 42/F	36.2	70	71	75	
	MMD12	1/F - 30/F	36.2	70	71	72	
	MMD13	1/F - 30/F	36.2	70	67	68	
	MMD14	1/F - 30/F	36.2	70	71	72	
	MMD09	1/F - 53/F	36.2	70	72	76	
	MMD10	1/F - 53/F	36.2	70	73	78	
	MMD11	1/F - 53/F	36.2	70	69	73	
Arran Street SCA	PERW01	1/F - 40/F	26.2	70	71	76	
	PERW02	1/F - 40/F	26.2	70	71	76	
	PERW03	1/F - 40/F	26.2	70	71	75	
	PERW04	1/F - 40/F	26.2	70	68	70	
	PERW05	1/F - 40/F	26.2	70	67	70	
	PERW06	1/F - 40/F	26.2	70	69	70	
	PERW07	1/F - 40/F	26.2	70	71	73	
	PERW08	1/F - 40/F	26.2	70	72	75	
	PERW09	1/F - 40/F	26.2	70	72	76	
	PERW10	1/F - 40/F	26.2	70	73	79	1F
	PERW11	1/F - 40/F	26.2	70	70	76	
	PERW12	1/F - 37/F	26.2	70	67	69	
	PERW13	1/F - 37/F	26.2	70	70	72	
	PERW14	1/F - 37/F	26.2	70	70	74	
	PERW15	1/F - 37/F	26.2	70	69	74	
	PERW16	1/F - 37/F	26.2	70	69	73	
	PERW17	1/F - 37/F	26.2	70	58	61	
	PERW18	1/F - 37/F	26.2	70	69	74	
	PERW19	1/F - 37/F	26.2	70	68	71	
	PERW20	1/F - 37/F	26.2	70	69	74	
	PERW21	1/F - 37/F	26.2	70	66	70	
	PERW22	1/F - 37/F	26.2	70	69	71	
	PERW23	1/F - 37/F	26.2	70	69	72	
	PERW24	1/F - 37/F	26.2	70	65	66	
	PERW25	1/F - 37/F	26.2	70	65	67	
Saigon Street	YMT01	1/F - 34/F	21.2	70	72	76	
	YMT02	1/F - 34/F	21.2	70	66	71	
	YMT03	1/F - 42/F	21.2	70	69	74	
	YMT04	1/F - 42/F	21.2	70	65	74	
	YMT05	1/F - 42/F	21.2	70	61	73	
	YMT06	1/F - 42/F	21.2	70	68	75	
	YMT07	1/F - 42/F	21.2	70	58	70	
	YMT08	1/F - 42/F	21.2	70	58	66	
	YMT09	1/F - 42/F	21.2	70	58	72	
	YMT10	1/F - 42/F	21.2	70	59	72	
	YMT11	1/F - 36/F	26.2	70	70	77	
	YMT12	1/F - 36/F	26.2	70	66	69	
	YMT13	1/F - 36/F	26.2	70	65	66	
	YMT14	1/F - 36/F	26.2	70	49	63	
	YMT15	1/F - 36/F	26.2	70	52	56	
	YMT16	1/F - 40/F	21.2	70	65	67	
	YMT17	1/F - 40/F	21.2	70	61	64	
	YMT18	1/F - 31/F	21.2	70	60	61	
	YMT19	1/F - 22/F	21.2	70	60	61	
	YMT20	1/F - 22/F	21.2	70	66	67	
	YMT21	1/F - 50/F	21.2	70	59	65	
	YMT22	1/F - 50/F	21.2	70	54	66	
	YMT23	1/F - 50/F	21.2	70	66	67	
	YMT24	1/F - 40/F	21.2	70	56	67	

Related Project	NSR ID	Floor	1st Assessment level, mPD	Noise Limit dB(A)	Predicted Noise Level, L10-1hr, dB(A)		Floor(s) with >8dB(A) noise exceedance
					min	max	
Tai Nan Street SCA	TNS01	1/F - 42/F	21.2	70	54	70	
	TNS02	1/F - 42/F	21.2	70	71	76	
	TNS03	1/F - 42/F	21.2	70	52	68	
	TNS04	1/F - 48/F	21.2	70	63	67	
	TNS05	1/F - 48/F	21.2	70	68	71	
	TNS06	1/F - 48/F	21.2	70	65	69	
	TNS07	1/F - 48/F	21.2	70	59	69	
	TNS08	1/F - 42/F	29.2	70	61	65	
	TNS09	1/F - 42/F	29.2	70	58	65	
	TNS10	1/F - 42/F	29.2	70	64	67	
	TNS11	1/F - 42/F	29.2	70	65	69	
	TNS12	1/F - 42/F	29.2	70	62	68	
	TNS13	1/F - 43/F	26.2	70	68	72	
	TNS14	1/F - 43/F	26.2	70	72	77	
	TNS15	1/F - 43/F	26.2	70	57	63	
	TNS16	1/F - 43/F	26.2	70	71	73	
	TNS17	1/F - 48/F	11.2	70	59	78	
	TNS18	1/F - 48/F	11.2	70	58	78	
	TNS19	1/F - 48/F	11.2	70	53	70	
Hamilton Street	HMT01	1/F - 42/F	21.2	70	60	71	
	HMT02	1/F - 42/F	21.2	70	62	72	
	HMT03	1/F - 42/F	21.2	70	57	70	
	HMT04	1/F - 42/F	21.2	70	63	74	
	HMT05	1/F - 42/F	21.2	70	53	67	
	HMT06	1/F - 42/F	21.2	70	63	74	
	HMT07	1/F - 42/F	21.2	70	52	67	
	HMT08	1/F - 42/F	21.2	70	61	74	
	HMT09	1/F - 42/F	21.2	70	67	77	
	HMT10	1/F - 42/F	21.2	70	66	76	
	HMT11	1/F - 42/F	21.2	70	70	76	
	HMT12	1/F - 42/F	21.2	70	69	76	
	HMT13	1/F - 42/F	21.2	70	69	77	
	HMT14	1/F - 42/F	21.2	70	62	71	
	HMT15	1/F - 42/F	21.2	70	54	66	
	HMT16	1/F - 42/F	21.2	70	56	65	
	HMT17	1/F - 42/F	21.2	70	64	74	
	HMT18	1/F - 42/F	21.2	70	63	68	
	HMT19	1/F - 42/F	21.2	70	70	77	
	HMT20	1/F - 42/F	21.2	70	62	73	
	HMT21	1/F - 42/F	21.2	70	68	70	
	HMT22	1/F - 42/F	21.2	70	63	68	
	HMT23	1/F - 42/F	21.2	70	64	73	

"Elderly Centre"

Related Project	NSR ID	Floor	1st Assessment level, mPD	Noise Limit dB(A)	Predicted Noise Level, L10-1hr, dB(A)		Floor(s) with >8dB(A) noise exceedance
					min	max	
Tai Nan Street SCA	TNS_E1	1/F - 2/F	16.2	70	62	62	
	TNS_E2	1/F - 2/F	16.2	70	73	74	
	TNS_E3	1/F - 4/F	6.2	70	64	65	
	TNS_E4	1/F - 4/F	6.2	70	69	70	
	TNS_E5	1/F - 4/F	6.2	70	73	74	
	TNS_E6	1/F - 4/F	6.2	70	78	80	1F - 3F

OZP Amendment Outside Planned Development Site

Area	NSR ID	Assumed Floor	Assumed Assessment level, mPD	Noise Limit dB(A)	Predicted Noise Level, L10-1hr, dB(A)		Floor(s) with >8dB(A) noise exceedance
					min	max	
MKE	N1	40	16.2	70	73	78	
	N2	40	16.2	70	68	71	
	N3	40	16.2	70	71	76	
	N4	40	16.2	70	70	77	
	N5	40	16.2	70	59	69	
	N6	40	16.2	70	69	76	
	N7	40	16.2	70	74	80	2-10/F
	N8	40	16.2	70	65	71	
	N9	40	16.2	70	67	72	
	N10	40	16.2	70	63	73	
	N11	40	16.2	70	72	79	2-3/F
	N12	40	16.2	70	67	73	
	N13	40	16.2	70	69	73	
	N20	40	16.2	70	72	78	
	N21	40	16.2	70	74	79	2-8/F
	N22	40	16.2	70	72	77	
	N23	40	16.2	70	68	77	
	N24	40	11.2	70	61	68	
	N25	40	11.2	70	55	68	
	N26	40	11.2	70	71	80	1-3/F
	N27	40	11.2	70	47	65	
	N30	40	16.2	70	71	77	
	N31	40	16.2	70	72	79	3-5/F
	N32	40	16.2	70	63	71	
	N33	40	29.5	70	44	67	
	N34	40	16.2	70	67	72	
	N35	40	11.2	70	47	69	
	N36	40	11.2	70	67	74	
	N37	40	11.2	70	48	70	
	N38	40	16.2	70	70	75	
	N39	40	16.2	70	71	77	
	N40	40	16.2	70	70	77	
	N41	40	16.2	70	61	72	
	N42	40	16.2	70	60	69	
	N43	40	16.2	70	66	72	
	N44	40	11.2	70	63	69	
	N45	40	16.2	70	65	72	
YMTS	N50	40	16.2	70	67	72	
	N51	40	16.2	70	66	71	
	N52	40	16.2	70	67	75	
	N53	40	16.2	70	65	71	
	N54	40	11.2	70	58	69	
	N55	40	16.2	70	70	77	
	N56	40	11.2	70	67	71	
	N57	40	11.2	70	46	67	
	N58	40	11.2	70	46	66	
	N59	40	16.2	70	70	75	
	N60	40	16.2	70	67	76	
	N61	40	16.2	70	64	68	
	N62	40	16.2	70	69	74	
	N63	40	16.2	70	70	74	
	N64	40	16.2	70	69	74	
	N65	40	16.2	70	66	71	
	N66	40	16.2	70	69	74	
	N67	40	16.2	70	62	67	
	N68	40	16.2	70	68	74	
YMTN	N70	40	31.1	70	62	70	
	N80	40	16.2	70	72	76	
	N81	40	16.2	70	71	77	
	N82	40	16.2	70	72	76	
	N83	40	16.2	70	65	69	
	N84	40	16.2	70	72	76	
	N85	40	16.2	70	71	77	
MKW	N90	40	16.2	70	76	80	2-16/F
	N91	40	16.2	70	72	75	
	N92	40	16.2	70	76	81	2-17/F
	N93	40	16.2	70	68	70	
	N94	40	16.2	70	66	70	
	N95	40	16.2	70	66	74	
	N96	40	16.2	70	60	72	
	N97	40	16.2	70	69	75	
	N100	40	16.2	70	67	76	
	N101	40	16.2	70	68	72	
	N102	40	16.2	70	64	74	
	N103	40	16.2	70	68	73	
	N104	40	16.2	70	65	73	
	N105	40	16.2	70	69	75	
	N106	40	16.2	70	74	80	2-11/F
	N110	40	16.2	70	70	77	
	N111	40	21.2	70	67	72	
	N112	40	16.2	70	72	78	
	N113	40	16.2	70	73	78	

Area	NSR ID	Assumed Floor	Assumed Assessment level, mPD	Noise Limit dB(A)	Predicted Noise Level, L10-1hr, dB(A)		Floor(s) with >8dB(A) noise exceedance
					min	max	
TKT	N114	40	16.2	70	72	76	
	N115	40	16.2	70	68	74	
	N116	40	16.2	70	60	70	
	N117	40	16.2	70	72	76	
	N118	40	16.2	70	71	77	
	N119	40	16.2	70	72	80	1-5/F
	N120	40	16.2	70	73	79	3-9/F
	N121	40	16.2	70	74	78	
	N122	40	16.2	70	72	75	
	N123	40	16.2	70	71	76	
	N124	40	21.2	70	71	76	
	N125	40	22.2	70	73	78	
	N126	40	16.2	70	46	75	
	N130	40	16.2	70	69	77	
	N131	40	15.7	70	66	75	
	N132	40	16.2	70	74	79	4-8/F
	N133	40	16.2	70	58	70	
	N134	40	16.2	70	69	73	
	N135	40	6.2	70	71	73	
	N136	40	16.2	70	69	73	
	N137	40	44.2	70	65	72	
	N138	40	44.2	70	70	73	
	N139	40	16.2	70	62	72	
	N140	40	16.2	70	62	69	
	N141	40	16.2	70	70	74	
	N142	40	16.2	70	73	78	
	N143	40	16.2	70	73	76	
	N144	40	27.9	70	73	77	
	N145	40	27.9	70	75	78	
	N146	40	16.2	70	56	68	
	N149	40	16.2	70	55	67	
	N150	40	16.2	70	65	71	
	N151	40	16.2	70	73	78	
	N152	40	16.2	70	67	71	
	N153	40	16.2	70	74	79	5-9/F
	N154	40	20.8	70	61	82	1-13/F
	N155	40	20.8	70	59	75	
	N156	40	20.8	70	75	75	

Prepared for

Urban Renewal Authority

Prepared by

Ramboll Hong Kong Limited

OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

WATER SUPPLY IMPACT ASSESSMENT

Date	**16 June 2022**
Prepared by	**Ken Li** **Assistant Environmental Consultant**
Signed	
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Signed	
Project Reference	**URAYMTMKEI00**
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CHAPTERS

TABLES

FIGURES

APPENDICES

Appendix 2.3 Water Demand Estimation (7.5DPR/1.5NDPR)

1. INTRODUCTION

1.1 Project Background

1.1.1 The Yau Mai Tei – Mong Kok districts are densely populated districts with a high proportion of aged buildings. Over half the existing buildings within the districts are aged 50 years or older. There is an urgent need to revitalize the districts through urban renewal.

1.1.2 In 2017, the Urban Renewal Authority (URA) carried out the District Study for Yau Ma Tei and Mong Kok (hereafter "YM Study") with the aim of drawing up a comprehensive urban renewal plan of the two districts. Based on the findings in the Study, URA proposed three master renewal concept plans (MRCP) with varying development density, of which the MRCP+ scenario with the highest development intensity was used for technical assessments, including the Water Supply Impact Assessment (WSIA), to account for the worst-case scenario.

1.1.3 Following the completion of the YM Study, the Government aims to kick start the first batch of Outline Zoning Plan (OZP) amendments in 2022. In carrying out the OZP amendments, the development parameters adopted in MRCP+ of the YM Study have to be re-visited taking into account latest proposals agreed by the Government which include change in the maximum domestic plot ratio for R(A) and R(E) zones, relaxation of plot ratio of C zone, rezoning of some R(A) sites to "Other Specified Uses (Mixed Use)" "OU(MU)" at character streets. These changes require the review of various technical assessments, including WSIA.

1.1.4 Ramboll Hong Kong Limited has been appointed to conduct this WSIA for the proposed OZP amendment.

1.2 Objectives of the Report

1.2.1 This WSIA report aims to assess the water supply impact due to the proposed OZP amendments with the selected planned developments taken as assumption (hereafter "OZP Amendment Scheme") as compared to the baseline condition representing the existing OZP scheme.

1.3 Study Area

1.3.1 The Study Area is presented in **Figure 1.1** and the location of street blocks is shown in **Figure 1.2**. The Study Area covers the majority of Mong Kok District and Yau Ma Tei District with the boundary stopping just short of Hoi Wang Road and Jordan Road in Yau Ma Tei. The Study Area is bounded by West Kowloon Cultural District to the southwest and Tsim Sha Tsui to the south. The northern half of the Study Area falls under the approved Mong Kok OZP No. S/K3/32 while the southern half of the Site passed Dundas Street is under the draft Yau Ta Tei OZP No. S/K2/23. The area around The Coronation near Yan Cheung Road is under the Approved South West Kowloon OZP S/K20/30.

1.3.2 The Study Area is densely populated with medium to high-rise buildings throughout the two districts. Buildings within the Study Area are all connected by the fresh and salt water mains.

1.3.3 The current OZP conditions of the Study Area are taken to be the baseline condition.

1.4 OZP Amendment and Major Assumptions

1.4.1 The OZP Amendment Scheme comprises the following OZP amendment elements:

- For the "R(A)" and "R(E)" zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100mPD to 115mPD;
- For the "C" zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of 15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and
- Rezone some "R(A)" sites at the Character Streets to "OU(MU)" with a maximum domestic PR of 7.5 and maximum total PR of 9[1]. The building height restriction is proposed to be increased from 100mPD to 115mPD.

1.4.2 In addition, the following planned developments, as agreed with concerned departments at the interdepartmental meeting on 17 November 2021, are assumed to be completed by 2047:

- Nullah Road Urban Waterway
- Mong Kok Market Revitalisation
- Hamilton Street
- Saigon Street
- Tai Nan Street SCA
- Arran Street SCA

1.4.3 The proposed OZP amendments together with the planned developments assumed to be completed by 2047 would increase the domestic and non-domestic GFAs within the Study Area, as illustrated in **Table 1.1**.

Table 1.1 Change in GFA between Existing and Long Term Scenario

	Existing (m^2)	Long Term (m^2)
Domestic	~3,914,000	~4,658,000
Non-Domestic	~3,012,000	~3,696,000

1.4.4 This WSIA will adopt the latest development parameters of the proposed OZP amendments and the planned development.

[1] Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

2. WATER SUPPLY IMPACT ASSESSMENT

2.1 Assessment Criteria and Methodology

2.1.1 WSD's Departmental Instruction (DI) 1309 has been used to estimate the freshwater and flushing water demand from the OZP Amendment Scheme.

2.1.2 Appendix III of Environmental Protection Department's (EPD's) Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning, Version 1 (GESF) has been referred to for the purposes of estimating the freshwater and flushing water for commercial employee from the OZP Amendment Scheme.

2.1.3 For the estimation of freshwater and flushing water demand from the OZP Amendment Scheme, the following unit water demand factors are summarised in **Table 2.1**:

Table 2.1 Unit Demand Adopted for Assessment

Population Type	Unit Freshwater Demand (m^3/person/day)	Unit Flushing Water Demand (m^3/person/day)
Residential – R2	0.3	0.07
School Student	0.025	0.025
Employment	0.07	0.05

Notes:
(1) The unit freshwater and flushing water demand from residential population and school student are referenced from WSD DI 1309.
(2) The unit freshwater demand from employment population is 0.04+0.03=0.07m^3/day. 0.04m^3/day is referenced from WSD's DI 1309 (service trade unit demand factor), as agreed with WSD, and 0.03m^3/person/day is referenced from page 4 of EPD's GESF Appendix III (employee consumption rate).
(3) The unit flushing water demand from employment population is referenced from page 4 of EPD's GESF Appendix III (employee consumption rate).

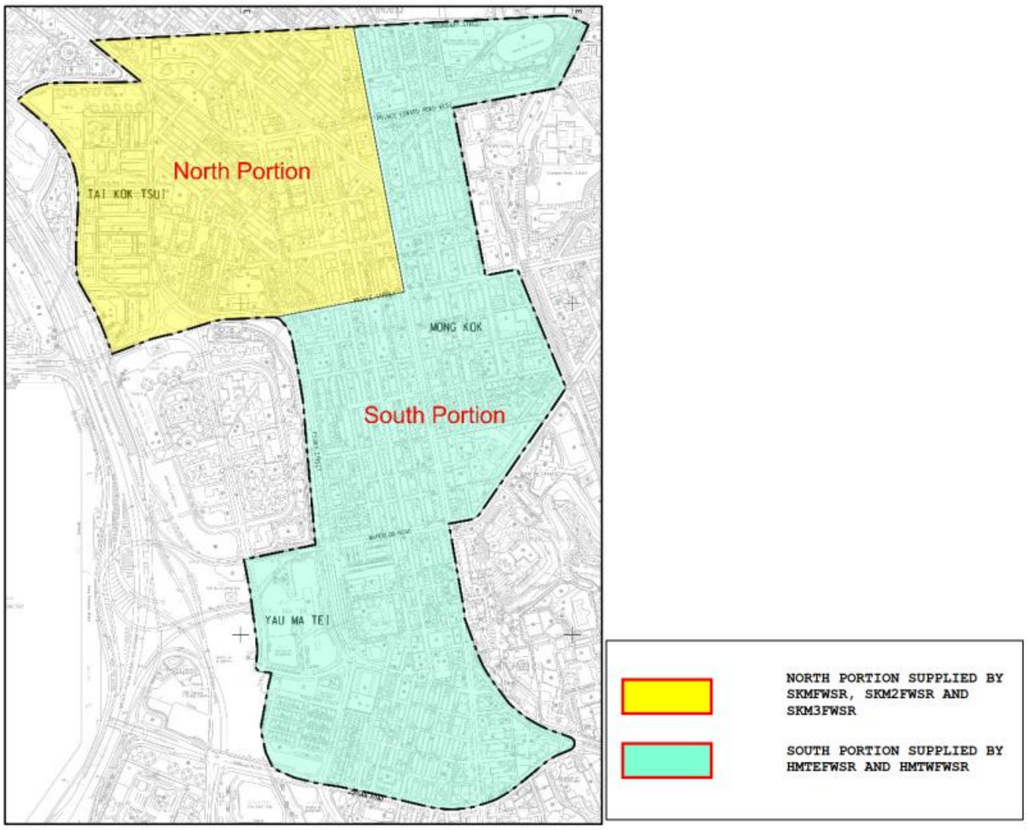
2.1.4 The unit daily irrigation water demand is assumed as multiplication of 0.01m^3/m^2/day of the greening area.

2.1.5 The baseline residential population is based on the 2016 Population By-census with the street block population distribution referencing the assumption adopted in Year 2047 TPEDM data. The employment population follows those from the Year 2047 TPEDM data.

2.2 Existing Water Waterworks Facilities

2.2.1 The freshwater in the Study Area is supplied by Shek Kip Mei FWSR, Shek Kip Mei No. 2 FWSR, Shek Kip Mei No. 3 FWSR, Ho Man Tin East FWSR and Ho Man Tin West FWSR, as shown in **Figure 2.1**.

Figure 2.1 Fresh Water Supply Zones of the Study Area



Source: WSIA Report of YM Study (Dec 2020)

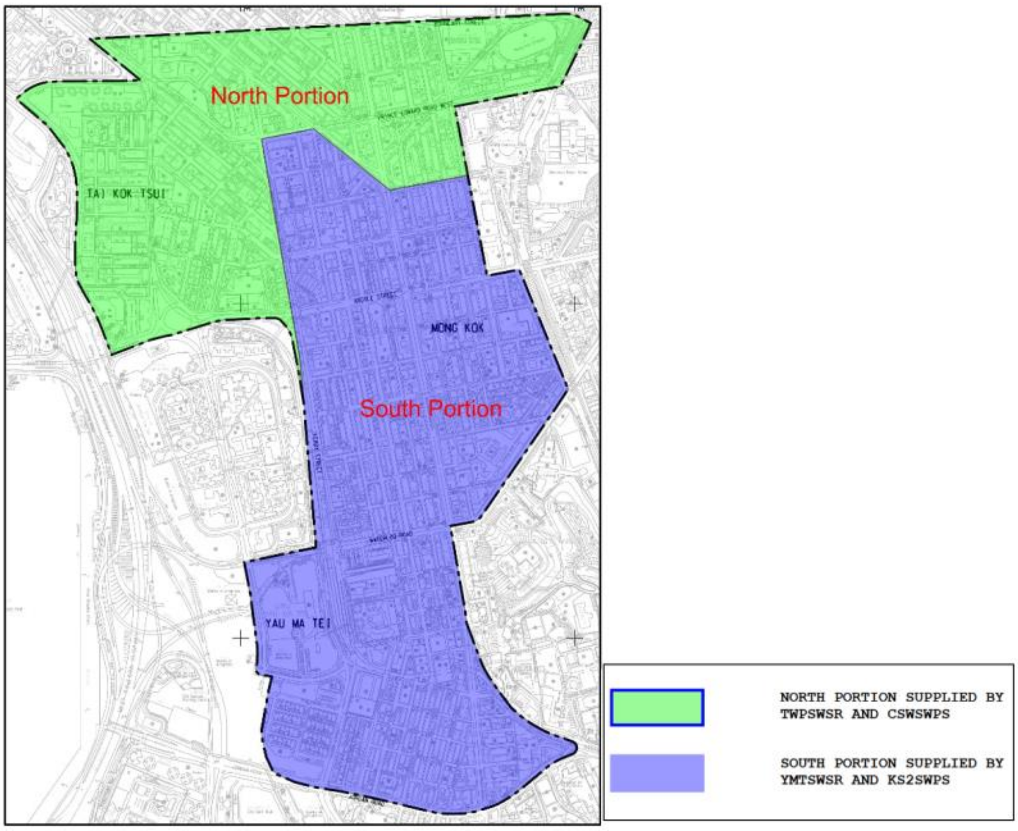
2.2.2 According to WSD DI No. 1309, capacity requirement of freshwater service reservoir (FSWR) in interconnected supply zones is 75% of the Mean Daily Demand (MDD). The capacity of the freshwater service reservoirs is listed in **Table 2.2**.

Table 2.2 Capacity of Freshwater Service Reservoir (FWSR)

Region	Freshwater Service Reservoir	Capacity	Estimated Designed MDD (m^3/day)
North	SKMFWSR	132,000	176,000
	SKM2FWSR	40,000	53,333
	SKM3FWSR	48,188	64,251
		Sub-total	293,584
South	HMTEFWSR	152,000	202,667
	HMTWFWSR	67,434	89,912
		Sub-total	292,579

2.2.3 The flushing water (saltwater) in the Study Area is supplied by Tai Wo Ping SWSR, Cheung Sha Wan SWPS, Yau Ma Tei SWSR and Kowloon South No.2 SWPS as shown in **Figure 2.2**.

Figure 2.2 Saltwater Supply Zones of the Study Area



Source: WSIA Report of YM Study (Dec 2020)

2.2.4 According to WSD DI No. 1309, capacity requirement of saltwater service reservoir (SWSR) in interconnected supply zones is 75% of the Mean Daily Demand (MDD). The capacity of the freshwater service reservoirs is listed in **Table 2.3**.

Table 2.3 Capacity of Saltwater Service Reservoir (SWSR) / Pumping Station (PS)

Region	Saltwater Service Reservoir	Capacity	Estimated Designed MDD (m^3/day)
North	TWPSWSR	15,561	62,244
	CSWSWPS	82,240	328,290
		Sub-total	391,204
South	YMTSWSR	7,830	31,320
	KS2SWPS	68,660	274,640
		Sub-total	305,960

2.3 Water Demand Estimation

2.3.1 Based on the assumption in **Section 2.1**, the water demand has been estimated for the baseline scenario (as presented in **Appendix 2.1**) and OZP Amendment Scheme for two tested plot ratio assumption for the proposed "OU(MU)" zones, i.e. domestic and non-domestic plot ratio split of 4.5/4.5 and 7.5/1.5.

2.3.2 A total of 24 street blocks in "OU(MU)" zones are tested for the two different plot ratio assumption:

- MKE: 01, 20, 21, 25, 27, 31, 32, 38, 46, 47, 53, 54
- YMTS: 10-19, 23, 24

Domestic and Non-Domestic Plot Ratio Split of 4.5/4.5

2.3.3 The detailed calculation of water demand arising from a domestic and non-domestic plot ratio split of 4.5/4.5 is presented in **Appendix 2.2**. The results have been compared with the estimated demand of the baseline scenario and summarised in **Table 2.4** and **Table 2.5**.

Table 2.4 Freshwater Demand Comparison (4.5 Domestic Plot Ratio/4.5 Non-Domestic Plot Ratio)

Region	Freshwater Service Reservoir	Designed MDD (m^3/day)	Freshwater Demand (m^3/day)	Percentage of the Designed MDD Service Reservoir
North	SKMFWSR SKM2FWSR SKM3FWSR	293,584	Baseline Scenario	
			30,866.0	10.5%
			OZP Amendment Scheme	
			30,051.8	10.2%
		Difference	-814.2	-0.3%
South	HMTEFWSR HMTWFWSR	292,579	Baseline Scenario	
			45,332.6	15.5%
			OZP Amendment Scheme	
			47,676.2	16.3%
		Difference	2,343.6	0.8%

Table 2.5 Flushing Water Demand Comparison (4.5 Domestic Plot Ratio/4.5 Non-Domestic Plot Ratio)

Region	Saltwater Service Reservoir	Designed MDD (m^3/day)	Flushing Water Demand (m^3/day)	Percentage of the Designed MDD Service Reservoir
North	TWPSWSR CSWSWPS	391,204	Baseline Scenario	
			8,330.7	2.1%
			OZP Amendment Scheme	
			8,486.3	2.2%
		Difference	155.6	0.0%
South	YMTSWSR KS2SWPS	305,960	Baseline Scenario	
			15,468.1	5.1%
			OZP Amendment Scheme	

Region	Saltwater Service Reservoir	Designed MDD (m^3/day)	Flushing Water Demand (m^3/day)	Percentage of the Designed MDD Service Reservoir
			15,874.4	5.2%
		Difference	406.4	0.1%

Domestic and Non-Domestic Plot Ratio Split of 7.5/1.5

2.3.4 The detailed calculation of water demand arising from a domestic and non-domestic plot ratio split of 7.5/1.5 is presented in **Appendix 2.3**. The results have been compared with the estimated demand of the baseline scenario and summarised in **Table 2.6** and **Table 2.7**

Table 2.6 Freshwater Demand Comparison (7.5 Domestic Plot Ratio/1.5 Non-Domestic Plot Ratio)

Region	Freshwater Service Reservoir	Designed MDD (m^3/day)	Freshwater Demand (m^3/day)	Percentage of the Designed MDD Service Reservoir
North	SKMFWSR SKM2FWSR SKM3FWSR	293,584	Baseline Scenario	
			30,866.0	10.5%
			OZP Amendment Scheme	
			30,051.8	10.2%
		Difference	-814.2	-0.3%
South	HMTEFWSR HMTWFWSR	292,579	Baseline Scenario	
			45,332.6	15.5%
			OZP Amendment Scheme	
			48,108.0	16.4%
		Difference	2,775.5	0.9%

Table 2.7 Flushing Water Demand Comparison (7.5 Domestic Plot Ratio/1.5 Non-Domestic Plot Ratio)

Region	Saltwater Service Reservoir	Designed MDD (m^3/day)	Flushing Water Demand (m^3/day)	Percentage of the Designed MDD Service Reservoir
North	TWPSWSR CSWSWPS	391,204	Baseline Scenario	
			8,330.7	2.1%
			OZP Amendment Scheme	
			8,488.2	2.2%
		Difference	157.5	0.0%
South	YMTSWSR KS2SWPS	305,960	Baseline Scenario	
			15,468.1	5.1%

Region	Saltwater Service Reservoir	Designed MDD (m^3/day)	Flushing Water Demand (m^3/day)	Percentage of the Designed MDD Service Reservoir
			OZP Amendment Scheme	
			15,897.9	5.2%
		Difference	429.8	0.1%

2.4 Impact on Freshwater and Saltwater Supply System

2.4.1 The estimated water demand of assuming a domestic and non-domestic plot ratio split of 7.5/1.5 is found to be greater than that of assuming a domestic and non-domestic plot ratio split of 4.5/4.5. Therefore as a more conservative approach, the estimated water demand of the 7.5/1.5 domestic and non-domestic plot ratio split is used to assess the impact on the freshwater and saltwater supply system.

2.4.2 The total freshwater demand of the OZP Amendment Scheme is increased by 1,808.2 m^3/day and the saltwater demand is increased by 587.3 m^3/day when compared to the baseline scenario. For freshwater service reservoir, the utilisation is reduced by 0.3% for the north region but increased by 0.9% for the south region, while the change for saltwater service reservoir utilisation is insignificant for the north region and increased by 0.1% for the south region.

2.4.3 The current freshwater and saltwater supply infrastructures are adequate to cater for the water demand in the baseline scenario. The capacity of the water supply infrastructure has been studied in the YM Study with upgrading works proposed. With reference to the findings of the YM Study and the latest population and demand assumptions for the OZP Amendment Scheme, the increase for both freshwater and flushing water demand under the OZP Amendment Scheme are found to be insignificant when compared to the baseline scenario (less than 1% of the respective service reservoirs), and the current freshwater and saltwater supply infrastructure will be adequate to cater for the water demand from the OZP Amendment Scheme. Therefore, no insurmountable impact is envisaged from the water supply perspective. No upgrading works on watermains will be required.

2.4.4 The feasibility of water recycling for different purposes should be explored during the detailed building design stage.

3. CONCLUSION

3.1.1 This report has adopted the latest development parameters of the OZP Amendment Scheme, comprising proposed OZP amendments and assumed planned developments, for the assessment of water supply impact.

3.1.2 The freshwater of the Study Area is supplied by Shek Kip Mei FWSR, Shek Kip Mei No. 2 FWSR, Shek Kip Mei No. 3 FWSR, Ho Man Tin East FWSR and Ho Man Tin West FWSR, while the flushing water is supplied by Tai Wo Ping SWSR, Cheung Sha Wan SWPS, Yau Ma Tei SWSR and Kowloon South No.2 SWPS.

3.1.3 The implementation of the OZP Amendment Scheme would only cause an insignificant freshwater and flushing water demand increase as compared to the baseline condition under the existing OZPs. Hence, no insurmountable problem in water supply impact is envisaged and no upgrading works on the water supply infrastructure will be required.

Figures

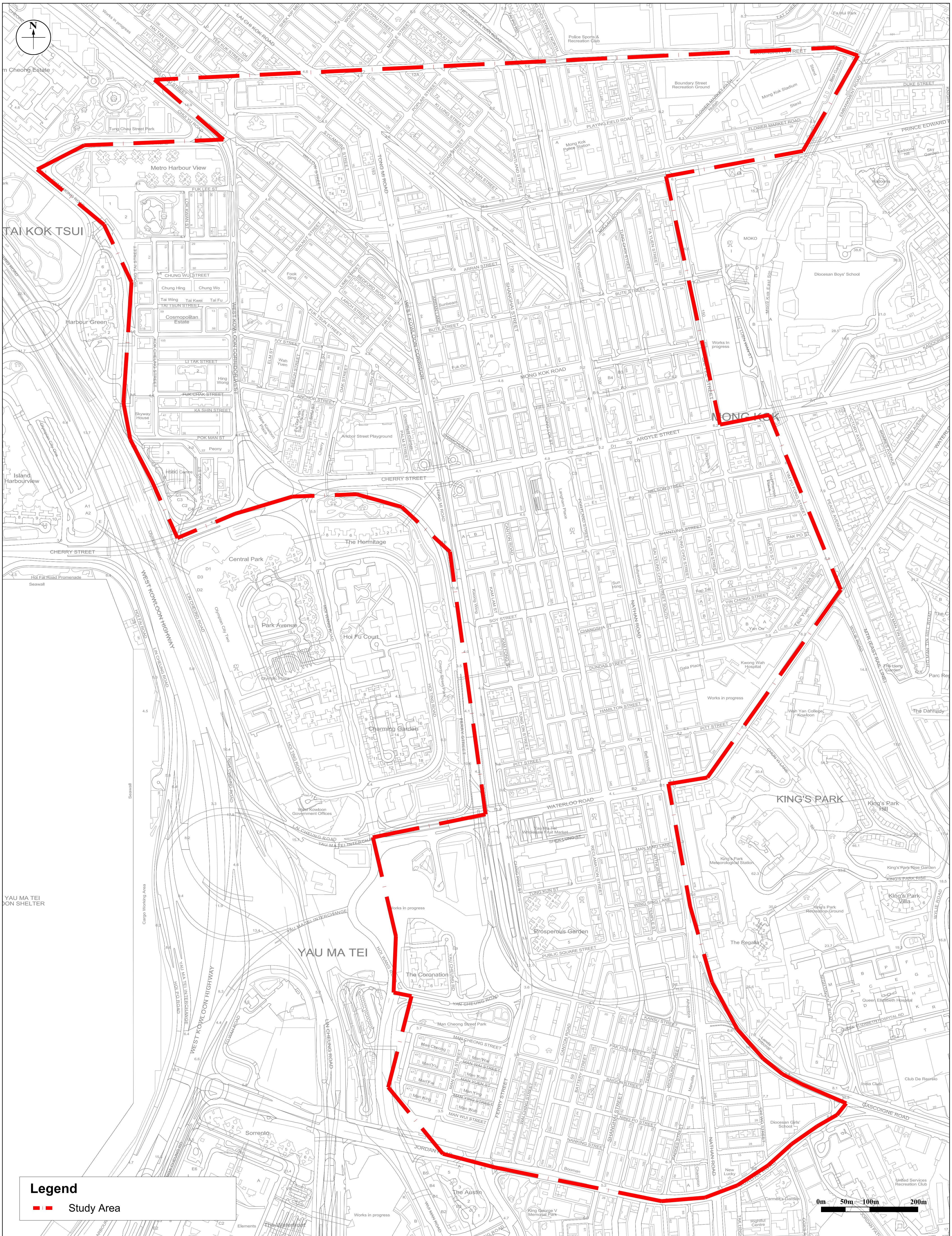


Figure: 1.1

Title: Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts

RAMBOLL

Drawn by:	KL
Checked by:	KY
Rev.:	2.0
Date:	May 2022

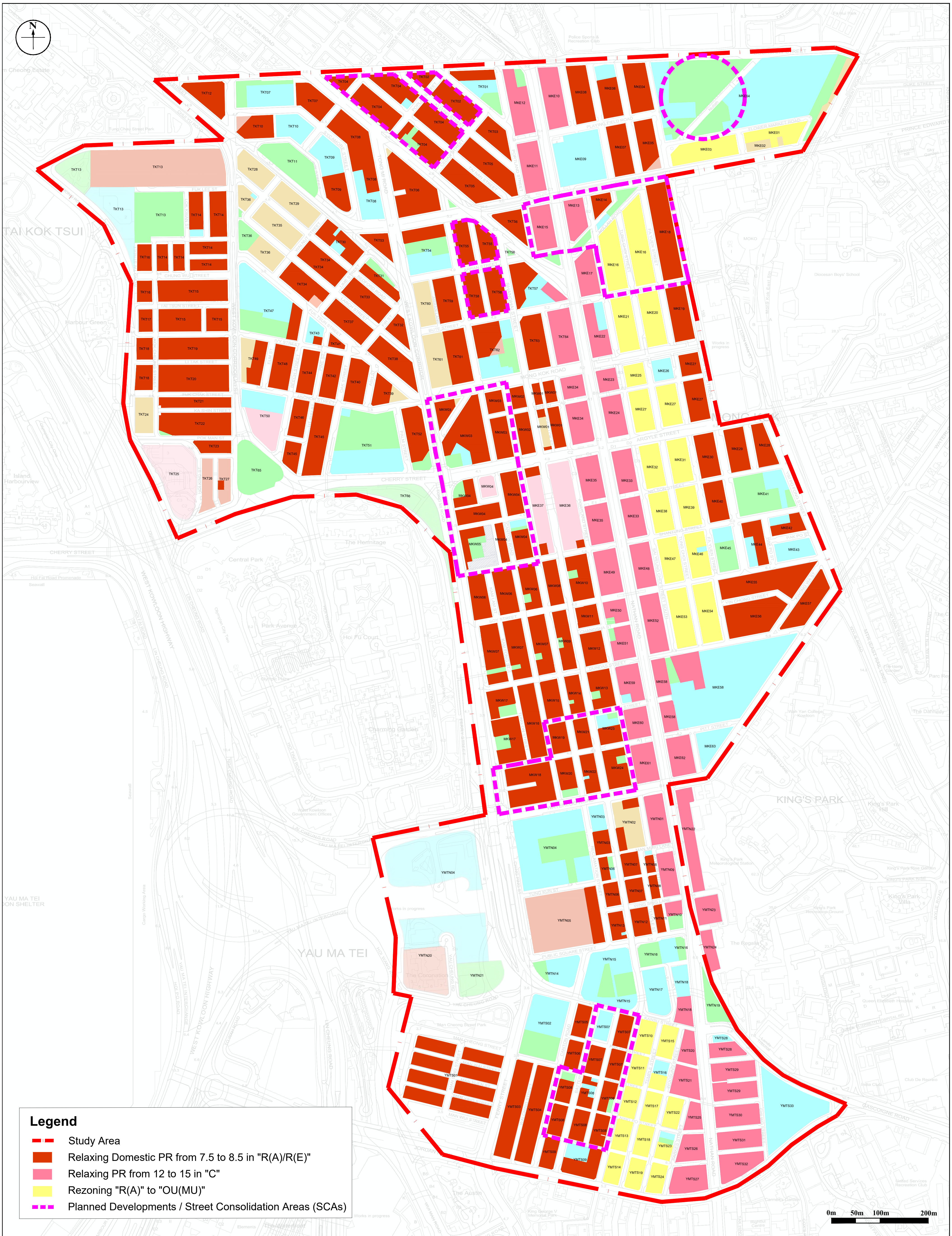


Figure: 1.2	
Title: Location of Street Blocks	Drawn by: KL
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts	Rev.: 2.0
	Date: May 2022

Appendix 2.1

Water Demand Estimation (Baseline Scenario)

Freshwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
						Unit Demand Factor			Mean Demand			Total
		Residential[1]	Employment[2]	Student		Residential	Employment[3]	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Shek Kip Mei FWSR, Shek Kip Mei No. 2 FWSR & Shek Kip Mei No. 3 FWSR	MKE11	761	868	0	R2	0.3	0.07	0.025	228.2	60.8	0.0	288.9
	MKE12	729	974	0	R2	0.3	0.07	0.025	218.7	68.2	0.0	286.9
	MKE15	665	974	0	R2	0.3	0.07	0.025	199.4	68.2	0.0	267.6
	MKE34	1167	2440	0	R2	0.3	0.07	0.025	350.0	170.8	0.0	520.8
	MKW01	775	1228	0	R2	0.3	0.07	0.025	232.4	86.0	0.0	318.4
	MKW02	835	946	0	R2	0.3	0.07	0.025	250.5	66.2	0.0	316.7
	MKW03	3703	1974	0	R2	0.3	0.07	0.025	1110.8	138.2	0.0	1248.9
	TKT01	385	295	0	R2	0.3	0.07	0.025	115.4	20.7	0.0	136.0
	TKT02+TKT04	6173	1649	0	R2	0.3	0.07	0.025	1851.8	115.4	0.0	1967.3
	TKT03	655	280	0	R2	0.3	0.07	0.025	196.4	19.6	0.0	216.0
	TKT05+TKT12	3920	1322	0	R2	0.3	0.07	0.025	1175.9	92.5	0.0	1268.5
	TKT06+TKT07+TKT08	6146	1570	0	R2	0.3	0.07	0.025	1843.7	109.9	0.0	1953.6
	TKT09	1274	102	0	R2	0.3	0.07	0.025	382.1	7.1	0.0	389.3
	TKT10	1617	199	0	R2	0.3	0.07	0.025	485.0	13.9	0.0	499.0
	TKT11	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT13	11454	1314	0	R2	0.3	0.07	0.025	3436.1	92.0	0.0	3528.0
	TKT14+TKT16	7041	467	0	R2	0.3	0.07	0.025	2112.2	32.7	0.0	2144.8
	TKT15+TKT17	5865	828	0	R2	0.3	0.07	0.025	1759.6	58.0	0.0	1817.6
	TKT18	593	986	0	R2	0.3	0.07	0.025	178.0	69.0	0.0	247.0
	TKT19	2163	341	0	R2	0.3	0.07	0.025	648.9	23.9	0.0	672.7
	TKT20	2530	164	0	R2	0.3	0.07	0.025	759.1	11.5	0.0	770.6
	TKT21+TKT22+TKT23	3520	496	0	R2	0.3	0.07	0.025	1055.9	34.7	0.0	1090.6
	TKT24	0	1115	0	R2	0.3	0.07	0.025	0.0	78.1	0.0	78.1
	TKT25	0	3353	0	R2	0.3	0.07	0.025	0.0	234.7	0.0	234.7
	TKT26	1530	50	0	R2	0.3	0.07	0.025	458.9	3.5	0.0	462.4
	TKT27	878	222	0	R2	0.3	0.07	0.025	263.3	15.5	0.0	278.9
	TKT28	0	810	0	R2	0.3	0.07	0.025	0.0	56.7	0.0	56.7
	TKT29	0	1232	0	R2	0.3	0.07	0.025	0.0	86.2	0.0	86.2
	TKT30+TKT31+TKT32+TKT33+TKT34+TKT36 +TKT37+TKT38+TKT48+TKT49	7071	7906	792	R2	0.3	0.07	0.025	2121.2	553.4	19.8	2694.4
	TKT35	0	1423	0	R2	0.3	0.07	0.025	0.0	99.6	0.0	99.6
	TKT39	555	321	0	R2	0.3	0.07	0.025	166.4	22.5	0.0	188.9
	TKT40	460	600	0	R2	0.3	0.07	0.025	138.1	42.0	0.0	180.1
	TKT41	257	33	0	R2	0.3	0.07	0.025	77.2	2.3	0.0	79.5
	TKT42	546	245	0	R2	0.3	0.07	0.025	163.8	17.2	0.0	181.0
	TKT43	96	3	0	R2	0.3	0.07	0.025	28.7	0.2	0.0	28.9
	TKT44	1278	225	0	R2	0.3	0.07	0.025	383.4	15.8	0.0	399.2
	TKT45	3671	361	0	R2	0.3	0.07	0.025	1101.3	25.3	0.0	1126.6
	TKT46	912	170	0	R2	0.3	0.07	0.025	273.6	11.9	0.0	285.5
	TKT47	0	550	0	R2	0.3	0.07	0.025	0.0	38.5	0.0	38.5
	TKT50	0	1817	0	R2	0.3	0.07	0.025	0.0	127.2	0.0	127.2
	TKT51	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT52	1068	619	0	R2	0.3	0.07	0.025	320.4	43.3	0.0	363.7
	TKT53	996	63	0	R2	0.3	0.07	0.025	298.9	4.4	0.0	303.3
	TKT54	951	186	0	R2	0.3	0.07	0.025	285.2	13.0	0.0	298.2
	TKT55	1494	363	0	R2	0.3	0.07	0.025	448.2	25.4	0.0	473.6
	TKT56	250	964	0	R2	0.3	0.07	0.025	75.1	67.5	0.0	142.5
	TKT57	367	685	0	R2	0.3	0.07	0.025	110.2	48.0	0.0	158.2
	TKT58	1744	815	0	R2	0.3	0.07	0.025	523.2	57.1	0.0	580.3
	TKT59+TKT60+TKT61	0	10318	720	R2	0.3	0.07	0.025	0.0	722.3	18.0	740.3

Freshwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential[1]	Employment[2]	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment[3]	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	TKT62	590	1647	0	R2	0.3	0.07	0.025	177.1	115.3	0.0	292.4
	TKT63	1151	788	0	R2	0.3	0.07	0.025	345.2	55.2	0.0	400.4
	TKT64	1475	1359	0	R2	0.3	0.07	0.025	442.6	95.1	0.0	537.7
	TKT65	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE01	329	49	0	R2	0.3	0.07	0.025	98.6	3.4	0.0	102.1
	MKE02	366	314	0	R2	0.3	0.07	0.025	109.8	22.0	0.0	131.8
	MKE03	1164	701	0	R2	0.3	0.07	0.025	349.1	49.1	0.0	398.2
	MKE04	848	467	0	R2	0.3	0.07	0.025	254.3	32.7	0.0	287.0
	MKE05	673	123	536	R2	0.3	0.07	0.025	202.0	8.6	13.4	224.0
	MKE06	736	196	0	R2	0.3	0.07	0.025	220.9	13.7	0.0	234.6
	MKE07	955	424	0	R2	0.3	0.07	0.025	286.5	29.7	0.0	316.2
	MKE08	912	370	0	R2	0.3	0.07	0.025	273.6	25.9	0.0	299.5
	MKE09	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE10	935	1280	0	R2	0.3	0.07	0.025	280.5	89.6	0.0	370.1
	MKE13	252	59	0	R2	0.3	0.07	0.025	75.5	4.1	0.0	79.6
	MKE14	217	53	0	R2	0.3	0.07	0.025	65.2	3.7	0.0	68.9
	MKE16	3620	1460	0	R2	0.3	0.07	0.025	1085.9	102.2	0.0	1188.1
	MKE17	0	2275	0	R2	0.3	0.07	0.025	0.0	159.3	0.0	159.3
	MKE18	1577	575	0	R2	0.3	0.07	0.025	473.0	40.3	0.0	513.3
	MKE19	1800	392	0	R2	0.3	0.07	0.025	539.9	27.4	0.0	567.4
	MKE20	1630	343	0	R2	0.3	0.07	0.025	488.9	24.0	0.0	512.9
	MKE21	1308	394	0	R2	0.3	0.07	0.025	392.4	27.6	0.0	420.0
	MKE22	981	1048	0	R2	0.3	0.07	0.025	294.2	73.4	0.0	367.6
	MKE23	0	1689	0	R2	0.3	0.07	0.025	0.0	118.2	0.0	118.2
	MKE24	0	3038	0	R2	0.3	0.07	0.025	0.0	212.7	0.0	212.7
	MKE25	226	842	0	R2	0.3	0.07	0.025	67.8	58.9	0.0	126.7
	MKE26	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE27	4906	1668	2052	R2	0.3	0.07	0.025	1471.9	116.8	51.3	1639.9
	MKE28	995	269	0	R2	0.3	0.07	0.025	298.5	18.8	0.0	317.3
	MKE29	871	576	0	R2	0.3	0.07	0.025	261.2	40.3	0.0	301.5
	MKE30	1187	388	0	R2	0.3	0.07	0.025	356.0	27.2	0.0	383.1
	MKE31	996	345	0	R2	0.3	0.07	0.025	298.9	24.2	0.0	323.1
	MKE32	748	579	0	R2	0.3	0.07	0.025	224.3	40.5	0.0	264.8
	MKE33	553	4239	0	R2	0.3	0.07	0.025	166.0	296.7	0.0	462.7
	MKE35	317	5295	0	R2	0.3	0.07	0.025	95.2	370.7	0.0	465.9
	MKE36	0	7010	0	R2	0.3	0.07	0.025	0.0	490.7	0.0	490.7
	MKE37	339	2882	0	R2	0.3	0.07	0.025	101.6	201.7	0.0	303.4
	MKE38	655	443	0	R2	0.3	0.07	0.025	196.4	31.0	0.0	227.4
	MKE39	889	262	0	R2	0.3	0.07	0.025	266.8	18.3	0.0	285.1
	MKE40	586	1011	1989	R2	0.3	0.07	0.025	175.8	70.8	49.7	296.3
	MKE41	722	467	0	R2	0.3	0.07	0.025	216.6	32.7	0.0	249.3
	MKE42	932	147	0	R2	0.3	0.07	0.025	279.6	10.3	0.0	289.9
	MKE43	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE44	522	120	0	R2	0.3	0.07	0.025	156.5	8.4	0.0	164.9
	MKE45	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE46	792	401	0	R2	0.3	0.07	0.025	237.6	28.1	0.0	265.7
	MKE47	823	705	0	R2	0.3	0.07	0.025	247.0	49.4	0.0	296.4
	MKE48	339	2464	0	R2	0.3	0.07	0.025	101.6	172.5	0.0	274.1
	MKE49	941	2095	0	R2	0.3	0.07	0.025	282.2	146.7	0.0	428.8
	MKE50	6	1051	0	R2	0.3	0.07	0.025	1.7	73.6	0.0	75.3

Freshwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential[1]	Employment[2]	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment[3]	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Ho Man Tin East FWSR & Ho Man Tin West FWSR	MKE51	77	1296	0	R2	0.3	0.07	0.025	23.2	90.7	0.0	113.9
	MKE52	17	3716	0	R2	0.3	0.07	0.025	5.1	260.1	0.0	265.3
	MKE53	580	2115	0	R2	0.3	0.07	0.025	174.1	148.1	0.0	322.2
	MKE54	1384	478	0	R2	0.3	0.07	0.025	415.1	33.5	0.0	448.6
	MKE55	1890	1501	0	R2	0.3	0.07	0.025	567.0	105.1	0.0	672.0
	MKE56	2131	1012	180	R2	0.3	0.07	0.025	639.4	70.8	4.5	714.8
	MKE57	1410	928	0	R2	0.3	0.07	0.025	422.9	65.0	0.0	487.8
	MKE58	1048	3754	0	R2	0.3	0.07	0.025	314.4	262.8	0.0	577.1
	MKE59	266	1196	0	R2	0.3	0.07	0.025	79.8	83.7	0.0	163.5
	MKE60	310	1110	0	R2	0.3	0.07	0.025	93.1	77.7	0.0	170.8
	MKE61	1217	868	0	R2	0.3	0.07	0.025	365.0	60.8	0.0	425.7
	MKE62	869	769	0	R2	0.3	0.07	0.025	260.7	53.8	0.0	314.6
	MKE63	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE64	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKW04	3036	1730	0	R2	0.3	0.07	0.025	910.9	121.1	0.0	1032.0
	MKW05	1647	248	0	R2	0.3	0.07	0.025	494.1	17.4	0.0	511.4
	MKW06	3375	799	0	R2	0.3	0.07	0.025	1012.5	55.9	0.0	1068.5
	MKW07	2796	3671	0	R2	0.3	0.07	0.025	838.9	257.0	0.0	1095.8
	MKW08	487	277	0	R2	0.3	0.07	0.025	146.2	19.4	0.0	165.6
	MKW09	1066	547	0	R2	0.3	0.07	0.025	319.9	38.3	0.0	358.2
	MKW10	593	556	0	R2	0.3	0.07	0.025	178.0	38.9	0.0	216.9
	MKW11	277	155	0	R2	0.3	0.07	0.025	83.2	10.9	0.0	94.0
	MKW12	332	1099	0	R2	0.3	0.07	0.025	99.5	76.9	0.0	176.4
	MKW13	375	1025	0	R2	0.3	0.07	0.025	112.4	71.8	0.0	184.1
	MKW14	433	782	950	R2	0.3	0.07	0.025	129.9	54.7	23.8	208.4
	MKW15	497	1111	1480	R2	0.3	0.07	0.025	149.2	77.8	37.0	264.0
	MKW16	1834	818	0	R2	0.3	0.07	0.025	550.2	57.3	0.0	607.5
	MKW17	3124	644	332	R2	0.3	0.07	0.025	937.1	45.1	8.3	990.4
	MKW18+MKW19+MKW20	4585	1362	0	R2	0.3	0.07	0.025	1375.4	95.3	0.0	1470.7
	MKW21+MKW22+MKW23+MKW24	2157	1612	0	R2	0.3	0.07	0.025	647.2	112.8	0.0	760.0
	YMTN01	969	824	0	R2	0.3	0.07	0.025	290.8	57.7	0.0	348.5
	YMTN02	1718	155	0	R2	0.3	0.07	0.025	515.5	10.9	0.0	526.3
	YMTN03	570	160	0	R2	0.3	0.07	0.025	171.1	11.2	0.0	182.3
	YMTN04	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN05	6639	874	0	R2	0.3	0.07	0.025	1991.6	61.2	0.0	2052.8
	YMTN06	619	238	0	R2	0.3	0.07	0.025	185.7	16.7	0.0	202.4
	YMTN07	542	333	0	R2	0.3	0.07	0.025	162.5	23.3	0.0	185.8
	YMTN08	204	219	0	R2	0.3	0.07	0.025	61.3	15.3	0.0	76.7
	YMTN09	613	607	0	R2	0.3	0.07	0.025	184.0	42.5	0.0	226.5
	YMTN10	0	1067	960	R2	0.3	0.07	0.025	0.0	74.7	24.0	98.7
	YMTN11	163	401	600	R2	0.3	0.07	0.025	48.9	28.1	15.0	92.0
	YMTN12	440	490	1266	R2	0.3	0.07	0.025	132.1	34.3	31.7	198.0
	YMTN13	423	267	1080	R2	0.3	0.07	0.025	126.9	18.7	27.0	172.6
	YMTN14	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN15	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN16	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN17	0	0	180	R2	0.3	0.07	0.025	0.0	0.0	4.5	4.5
	YMTN18	1271	457	0	R2	0.3	0.07	0.025	381.3	32.0	0.0	413.3
	YMTN19	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN20	1287	600	0	R2	0.3	0.07	0.025	386.0	42.0	0.0	428.0

Freshwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
						Unit Demand Factor			Mean Demand			Total
		Residential[1]	Employment[2]	Student		Residential	Employment[3]	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTN21	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTS01	10789	960	0	R2	0.3	0.07	0.025	3236.6	67.2	0.0	3303.8
	YMTS02	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTS03	1502	1814	0	R2	0.3	0.07	0.025	450.7	127.0	0.0	577.7
	YMTS04	1728	1416	0	R2	0.3	0.07	0.025	518.5	99.1	0.0	617.6
	YMTS05	658	262	0	R2	0.3	0.07	0.025	197.3	18.3	0.0	215.6
	YMTS06	510	458	0	R2	0.3	0.07	0.025	153.1	32.1	0.0	185.2
	YMTS07+YMTS08	3781	1500	0	R2	0.3	0.07	0.025	1134.3	105.0	0.0	1239.3
	YMTS09	1993	529	0	R2	0.3	0.07	0.025	597.8	37.0	0.0	634.9
	YMTS10	479	365	0	R2	0.3	0.07	0.025	143.7	25.6	0.0	169.2
	YMTS11	416	306	0	R2	0.3	0.07	0.025	124.8	21.4	0.0	146.2
	YMTS12	419	179	0	R2	0.3	0.07	0.025	125.7	12.5	0.0	138.2
	YMTS13	533	152	0	R2	0.3	0.07	0.025	160.0	10.6	0.0	170.6
	YMTS14	366	284	0	R2	0.3	0.07	0.025	109.8	19.9	0.0	129.7
	YMTS15	453	406	0	R2	0.3	0.07	0.025	136.0	28.4	0.0	164.4
	YMTS16	226	56	0	R2	0.3	0.07	0.025	67.8	3.9	0.0	71.7
	YMTS17	656	104	0	R2	0.3	0.07	0.025	196.8	7.3	0.0	204.1
	YMTS18	639	87	0	R2	0.3	0.07	0.025	191.7	6.1	0.0	197.8
	YMTS19	758	204	0	R2	0.3	0.07	0.025	227.3	14.3	0.0	241.6
	YMTS20	610	1042	0	R2	0.3	0.07	0.025	183.1	72.9	0.0	256.1
	YMTS21	170	1778	0	R2	0.3	0.07	0.025	51.0	124.5	0.0	175.5
	YMTS22	426	202	0	R2	0.3	0.07	0.025	127.8	14.1	0.0	141.9
	YMTS23	330	167	0	R2	0.3	0.07	0.025	99.1	11.7	0.0	110.8
	YMTS24	572	273	0	R2	0.3	0.07	0.025	171.5	19.1	0.0	190.7
	YMTS25	585	460	0	R2	0.3	0.07	0.025	175.4	32.2	0.0	207.6
	YMTS26	952	641	1454	R2	0.3	0.07	0.025	285.6	44.9	36.3	366.8
	YMTS27	500	1975	0	R2	0.3	0.07	0.025	150.1	138.3	0.0	288.4
	YMTS28	0	1229	0	R2	0.3	0.07	0.025	0.0	86.0	0.0	86.0
	YMTS29	379	2967	0	R2	0.3	0.07	0.025	113.6	207.7	0.0	321.3
	YMTS30	885	987	0	R2	0.3	0.07	0.025	265.5	69.1	0.0	334.6
	YMTS31	648	1219	0	R2	0.3	0.07	0.025	194.3	85.3	0.0	279.6
	YMTS32	1811	429	0	R2	0.3	0.07	0.025	543.4	30.0	0.0	573.4
	YMTS33	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
Total		213,000	170,491	14,570					63,900.0	11,934.4	364.2	76,198.6

1:The residential population of the Study Area is based on the population from "2016 Population By Census"

2:The employment population is based on 2047 TPEDM as the employment population is not publicly available.

3: As agreed with WSD, the unit demand factor for employment =0.04+0.03=0.07m^3/day. 0.04m^3/day is referenced from WSD's DI 1309 (service trade unit demand factor) and 0.03m^3/person/day is referenced from page 4 of EPD's GESF Appendix III (employee consumption rate).

Irrigation Demand Estimation (Baseline Scenario)

Water Supply Zone	Site	Unpaved Area	Freshwater	
			Unit Demand Factor	Mean Demand
		m^2	$m^3/m^2/day$	m^3/day
Ho Man Tin East FW SR & Ho Man Tin West FW SR	Irrigation demand from baseline scenario of WSIA report in YM Study	15,310	0.01	153.1
Total		15,310		153.1

Saltwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential[1]	Employment[2]	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Tai Wo Ping SWSR & Cheung Sha Wan SWPS	MKE01	329	49	0	R2	0.07	0.05	0.025	23.0	2.5	0.0	25.5
	MKE02	366	314	0	R2	0.07	0.05	0.025	25.6	15.7	0.0	41.3
	MKE03	1164	701	0	R2	0.07	0.05	0.025	81.5	35.1	0.0	116.5
	MKE04	848	467	0	R2	0.07	0.05	0.025	59.3	23.4	0.0	82.7
	MKE05	673	123	536	R2	0.07	0.05	0.025	47.1	6.2	13.4	66.7
	MKE06	736	196	0	R2	0.07	0.05	0.025	51.5	9.8	0.0	61.3
	MKE07	955	424	0	R2	0.07	0.05	0.025	66.8	21.2	0.0	88.0
	MKE08	912	370	0	R2	0.07	0.05	0.025	63.8	18.5	0.0	82.3
	MKE09	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE10	935	1280	0	R2	0.07	0.05	0.025	65.4	64.0	0.0	129.4
	MKE11	761	868	0	R2	0.07	0.05	0.025	53.2	43.4	0.0	96.6
	MKE12	729	974	0	R2	0.07	0.05	0.025	51.0	48.7	0.0	99.7
	MKE13	252	59	0	R2	0.07	0.05	0.025	17.6	3.0	0.0	20.6
	MKE14	217	53	0	R2	0.07	0.05	0.025	15.2	2.7	0.0	17.9
	MKE15	665	974	0	R2	0.07	0.05	0.025	46.5	48.7	0.0	95.2
	MKE16	3620	1460	0	R2	0.07	0.05	0.025	253.4	73.0	0.0	326.4
	MKE17	0	2275	0	R2	0.07	0.05	0.025	0.0	113.8	0.0	113.8
	MKE18	1577	575	0	R2	0.07	0.05	0.025	110.4	28.8	0.0	139.1
	TKT01	385	295	0	R2	0.07	0.05	0.025	26.9	14.8	0.0	41.7
	TKT02+TKT04	6173	1649	0	R2	0.07	0.05	0.025	432.1	82.5	0.0	514.5
	TKT03	655	280	0	R2	0.07	0.05	0.025	45.8	14.0	0.0	59.8
	TKT05+TKT12	3920	1322	0	R2	0.07	0.05	0.025	274.4	66.1	0.0	340.5
	TKT06+TKT07+TKT08	6146	1570	0	R2	0.07	0.05	0.025	430.2	78.5	0.0	508.7
	TKT09	1274	102	0	R2	0.07	0.05	0.025	89.2	5.1	0.0	94.3
	TKT10	1617	199	0	R2	0.07	0.05	0.025	113.2	10.0	0.0	123.1
	TKT11	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT13	11454	1314	0	R2	0.07	0.05	0.025	801.7	65.7	0.0	867.4
	TKT14+TKT16	7041	467	0	R2	0.07	0.05	0.025	492.8	23.4	0.0	516.2
	TKT15+TKT17	5865	828	0	R2	0.07	0.05	0.025	410.6	41.4	0.0	452.0
	TKT18	593	986	0	R2	0.07	0.05	0.025	41.5	49.3	0.0	90.8
	TKT19	2163	341	0	R2	0.07	0.05	0.025	151.4	17.1	0.0	168.5
	TKT20	2530	164	0	R2	0.07	0.05	0.025	177.1	8.2	0.0	185.3
	TKT21+TKT22+TKT23	3520	496	0	R2	0.07	0.05	0.025	246.4	24.8	0.0	271.2
	TKT24	0	1115	0	R2	0.07	0.05	0.025	0.0	55.8	0.0	55.8
	TKT25	0	3353	0	R2	0.07	0.05	0.025	0.0	167.7	0.0	167.7
	TKT26	1530	50	0	R2	0.07	0.05	0.025	107.1	2.5	0.0	109.6
	TKT27	878	222	0	R2	0.07	0.05	0.025	61.4	11.1	0.0	72.5
	TKT28	0	810	0	R2	0.07	0.05	0.025	0.0	40.5	0.0	40.5
	TKT29	0	1232	0	R2	0.07	0.05	0.025	0.0	61.6	0.0	61.6
	TKT30+TKT31+TKT32+TKT33+TKT34+TKT36 +TKT37+TKT38+TKT48+TKT49	7071	7906	792	R2	0.07	0.05	0.025	494.9	395.3	19.8	910.0
	TKT35	0	1423	0	R2	0.07	0.05	0.025	0.0	71.2	0.0	71.2
	TKT39	555	321	0	R2	0.07	0.05	0.025	38.8	16.1	0.0	54.9
	TKT40	460	600	0	R2	0.07	0.05	0.025	32.2	30.0	0.0	62.2
	TKT41	257	33	0	R2	0.07	0.05	0.025	18.0	1.7	0.0	19.7
	TKT42	546	245	0	R2	0.07	0.05	0.025	38.2	12.3	0.0	50.5
	TKT43	96	3	0	R2	0.07	0.05	0.025	6.7	0.2	0.0	6.9
	TKT44	1278	225	0	R2	0.07	0.05	0.025	89.5	11.3	0.0	100.7
	TKT45	3671	361	0	R2	0.07	0.05	0.025	257.0	18.1	0.0	275.0
	TKT46	912	170	0	R2	0.07	0.05	0.025	63.8	8.5	0.0	72.3
	TKT47	0	550	0	R2	0.07	0.05	0.025	0.0	27.5	0.0	27.5

Saltwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential[1]	Employment[2]	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	TKT50	0	1817	0	R2	0.07	0.05	0.025	0.0	90.9	0.0	90.9
	TKT51	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT52	1068	619	0	R2	0.07	0.05	0.025	74.8	31.0	0.0	105.7
	TKT53	996	63	0	R2	0.07	0.05	0.025	69.7	3.2	0.0	72.9
	TKT56	250	964	0	R2	0.07	0.05	0.025	17.5	48.2	0.0	65.7
	TKT65	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE19	1800	392	0	R2	0.07	0.05	0.025	126.0	19.6	0.0	145.6
	MKE20	1630	343	0	R2	0.07	0.05	0.025	114.1	17.2	0.0	131.2
	MKE21	1308	394	0	R2	0.07	0.05	0.025	91.6	19.7	0.0	111.3
	MKE22	981	1048	0	R2	0.07	0.05	0.025	68.6	52.4	0.0	121.0
	MKE23	0	1689	0	R2	0.07	0.05	0.025	0.0	84.5	0.0	84.5
	MKE24	0	3038	0	R2	0.07	0.05	0.025	0.0	151.9	0.0	151.9
	MKE25	226	842	0	R2	0.07	0.05	0.025	15.8	42.1	0.0	57.9
	MKE26	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE27	4906	1668	2052	R2	0.07	0.05	0.025	343.4	83.4	51.3	478.1
	MKE28	995	269	0	R2	0.07	0.05	0.025	69.6	13.5	0.0	83.1
	MKE29	871	576	0	R2	0.07	0.05	0.025	60.9	28.8	0.0	89.7
	MKE30	1187	388	0	R2	0.07	0.05	0.025	83.1	19.4	0.0	102.5
	MKE31	996	345	0	R2	0.07	0.05	0.025	69.7	17.3	0.0	87.0
	MKE32	748	579	0	R2	0.07	0.05	0.025	52.3	29.0	0.0	81.3
	MKE33	553	4239	0	R2	0.07	0.05	0.025	38.7	212.0	0.0	250.7
	MKE34	1167	2440	0	R2	0.07	0.05	0.025	81.7	122.0	0.0	203.7
	MKE35	317	5295	0	R2	0.07	0.05	0.025	22.2	264.8	0.0	287.0
	MKE36	0	7010	0	R2	0.07	0.05	0.025	0.0	350.5	0.0	350.5
	MKE37	339	2882	0	R2	0.07	0.05	0.025	23.7	144.1	0.0	167.8
	MKE38	655	443	0	R2	0.07	0.05	0.025	45.8	22.2	0.0	68.0
	MKE39	889	262	0	R2	0.07	0.05	0.025	62.2	13.1	0.0	75.3
	MKE40	586	1011	1989	R2	0.07	0.05	0.025	41.0	50.6	49.7	141.3
	MKE41	722	467	0	R2	0.07	0.05	0.025	50.5	23.4	0.0	73.9
	MKE42	932	147	0	R2	0.07	0.05	0.025	65.2	7.4	0.0	72.6
	MKE43	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE44	522	120	0	R2	0.07	0.05	0.025	36.5	6.0	0.0	42.5
	MKE45	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE46	792	401	0	R2	0.07	0.05	0.025	55.4	20.1	0.0	75.5
	MKE47	823	705	0	R2	0.07	0.05	0.025	57.6	35.3	0.0	92.9
	MKE48	339	2464	0	R2	0.07	0.05	0.025	23.7	123.2	0.0	146.9
	MKE49	941	2095	0	R2	0.07	0.05	0.025	65.8	104.8	0.0	170.6
	MKE50	6	1051	0	R2	0.07	0.05	0.025	0.4	52.6	0.0	53.0
	MKE51	77	1296	0	R2	0.07	0.05	0.025	5.4	64.8	0.0	70.2
	MKE52	17	3716	0	R2	0.07	0.05	0.025	1.2	185.8	0.0	187.0
	MKE53	580	2115	0	R2	0.07	0.05	0.025	40.6	105.8	0.0	146.4
	MKE54	1384	478	0	R2	0.07	0.05	0.025	96.9	23.9	0.0	120.8
	MKE55	1890	1501	0	R2	0.07	0.05	0.025	132.3	75.1	0.0	207.3
	MKE56	2131	1012	180	R2	0.07	0.05	0.025	149.2	50.6	4.5	204.3
	MKE57	1410	928	0	R2	0.07	0.05	0.025	98.7	46.4	0.0	145.1
	MKE58	1048	3754	0	R2	0.07	0.05	0.025	73.4	187.7	0.0	261.1
	MKE59	266	1196	0	R2	0.07	0.05	0.025	18.6	59.8	0.0	78.4
	MKE60	310	1110	0	R2	0.07	0.05	0.025	21.7	55.5	0.0	77.2
	MKE61	1217	868	0	R2	0.07	0.05	0.025	85.2	43.4	0.0	128.6

Saltwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential[1]	Employment[2]	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Yau Ma Tei SWSR & Kowloon South No.2 SWPS	MKE62	869	769	0	R2	0.07	0.05	0.025	60.8	38.5	0.0	99.3
	MKE63	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE64	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKW01	775	1228	0	R2	0.07	0.05	0.025	54.2	61.4	0.0	115.6
	MKW02	835	946	0	R2	0.07	0.05	0.025	58.4	47.3	0.0	105.7
	MKW03	3703	1974	0	R2	0.07	0.05	0.025	259.2	98.7	0.0	357.9
	MKW04	3036	1730	0	R2	0.07	0.05	0.025	212.5	86.5	0.0	299.0
	MKW05	1647	248	0	R2	0.07	0.05	0.025	115.3	12.4	0.0	127.7
	MKW06	3375	799	0	R2	0.07	0.05	0.025	236.3	40.0	0.0	276.2
	MKW07	2796	3671	0	R2	0.07	0.05	0.025	195.7	183.6	0.0	379.3
	MKW08	487	277	0	R2	0.07	0.05	0.025	34.1	13.9	0.0	48.0
	MKW09	1066	547	0	R2	0.07	0.05	0.025	74.7	27.4	0.0	102.0
	MKW10	593	556	0	R2	0.07	0.05	0.025	41.5	27.8	0.0	69.3
	MKW11	277	155	0	R2	0.07	0.05	0.025	19.4	7.8	0.0	27.2
	MKW12	332	1099	0	R2	0.07	0.05	0.025	23.2	55.0	0.0	78.2
	MKW13	375	1025	0	R2	0.07	0.05	0.025	26.2	51.3	0.0	77.5
	MKW14	433	782	950	R2	0.07	0.05	0.025	30.3	39.1	23.8	93.2
	MKW15	497	1111	1480	R2	0.07	0.05	0.025	34.8	55.6	37.0	127.4
	MKW16	1834	818	0	R2	0.07	0.05	0.025	128.4	40.9	0.0	169.3
	MKW17	3124	644	332	R2	0.07	0.05	0.025	218.6	32.2	8.3	259.1
	MKW18+MKW19+MKW20	4585	1362	0	R2	0.07	0.05	0.025	320.9	68.1	0.0	389.0
	MKW21+MKW22+MKW23+MKW24	2157	1612	0	R2	0.07	0.05	0.025	151.0	80.6	0.0	231.6
	TKT54	951	186	0	R2	0.07	0.05	0.025	66.5	9.3	0.0	75.8
	TKT55	1494	363	0	R2	0.07	0.05	0.025	104.6	18.2	0.0	122.7
	TKT57	367	685	0	R2	0.07	0.05	0.025	25.7	34.3	0.0	60.0
	TKT58	1744	815	0	R2	0.07	0.05	0.025	122.1	40.8	0.0	162.8
	TKT59+TKT60+TKT61	0	10318	720	R2	0.07	0.05	0.025	0.0	515.9	18.0	533.9
	TKT62	590	1647	0	R2	0.07	0.05	0.025	41.3	82.4	0.0	123.7
	TKT63	1151	788	0	R2	0.07	0.05	0.025	80.6	39.4	0.0	120.0
	TKT64	1475	1359	0	R2	0.07	0.05	0.025	103.3	68.0	0.0	171.2
	YMTN01	969	824	0	R2	0.07	0.05	0.025	67.8	41.2	0.0	109.0
	YMTN02	1718	155	0	R2	0.07	0.05	0.025	120.3	7.8	0.0	128.0
	YMTN03	570	160	0	R2	0.07	0.05	0.025	39.9	8.0	0.0	47.9
	YMTN04	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN05	6639	874	0	R2	0.07	0.05	0.025	464.7	43.7	0.0	508.4
	YMTN06	619	238	0	R2	0.07	0.05	0.025	43.3	11.9	0.0	55.2
	YMTN07	542	333	0	R2	0.07	0.05	0.025	37.9	16.7	0.0	54.6
	YMTN08	204	219	0	R2	0.07	0.05	0.025	14.3	11.0	0.0	25.3
	YMTN09	613	607	0	R2	0.07	0.05	0.025	42.9	30.4	0.0	73.3
	YMTN10	0	1067	960	R2	0.07	0.05	0.025	0.0	53.4	24.0	77.4
	YMTN11	163	401	600	R2	0.07	0.05	0.025	11.4	20.1	15.0	46.5
	YMTN12	440	490	1266	R2	0.07	0.05	0.025	30.8	24.5	31.7	87.0
	YMTN13	423	267	1080	R2	0.07	0.05	0.025	29.6	13.4	27.0	70.0
	YMTN14	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN15	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN16	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN17	0	0	180	R2	0.07	0.05	0.025	0.0	0.0	4.5	4.5
	YMTN18	1271	457	0	R2	0.07	0.05	0.025	89.0	22.9	0.0	111.8
	YMTN19	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN20	1287	600	0	R2	0.07	0.05	0.025	90.1	30.0	0.0	120.1

Saltwater Demand Estimation (Baseline Scenario)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential[1]	Employment[2]	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTN21	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTS01	10789	960	0	R2	0.07	0.05	0.025	755.2	48.0	0.0	803.2
	YMTS02	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTS03	1502	1814	0	R2	0.07	0.05	0.025	105.2	90.7	0.0	195.9
	YMTS04	1728	1416	0	R2	0.07	0.05	0.025	121.0	70.8	0.0	191.8
	YMTS05	658	262	0	R2	0.07	0.05	0.025	46.0	13.1	0.0	59.1
	YMTS06	510	458	0	R2	0.07	0.05	0.025	35.7	22.9	0.0	58.6
	YMTS07+YMTS08	3781	1500	0	R2	0.07	0.05	0.025	264.7	75.0	0.0	339.7
	YMTS09	1993	529	0	R2	0.07	0.05	0.025	139.5	26.5	0.0	165.9
	YMTS10	479	365	0	R2	0.07	0.05	0.025	33.5	18.3	0.0	51.8
	YMTS11	416	306	0	R2	0.07	0.05	0.025	29.1	15.3	0.0	44.4
	YMTS12	419	179	0	R2	0.07	0.05	0.025	29.3	9.0	0.0	38.3
	YMTS13	533	152	0	R2	0.07	0.05	0.025	37.3	7.6	0.0	44.9
	YMTS14	366	284	0	R2	0.07	0.05	0.025	25.6	14.2	0.0	39.8
	YMTS15	453	406	0	R2	0.07	0.05	0.025	31.7	20.3	0.0	52.0
	YMTS16	226	56	0	R2	0.07	0.05	0.025	15.8	2.8	0.0	18.6
	YMTS17	656	104	0	R2	0.07	0.05	0.025	45.9	5.2	0.0	51.1
	YMTS18	639	87	0	R2	0.07	0.05	0.025	44.7	4.4	0.0	49.1
	YMTS19	758	204	0	R2	0.07	0.05	0.025	53.0	10.2	0.0	63.2
	YMTS20	610	1042	0	R2	0.07	0.05	0.025	42.7	52.1	0.0	94.8
	YMTS21	170	1778	0	R2	0.07	0.05	0.025	11.9	88.9	0.0	100.8
	YMTS22	426	202	0	R2	0.07	0.05	0.025	29.8	10.1	0.0	39.9
	YMTS23	330	167	0	R2	0.07	0.05	0.025	23.1	8.4	0.0	31.5
	YMTS24	572	273	0	R2	0.07	0.05	0.025	40.0	13.7	0.0	53.7
	YMTS25	585	460	0	R2	0.07	0.05	0.025	40.9	23.0	0.0	63.9
	YMTS26	952	641	1454	R2	0.07	0.05	0.025	66.6	32.1	36.3	135.0
	YMTS27	500	1975	0	R2	0.07	0.05	0.025	35.0	98.8	0.0	133.8
	YMTS28	0	1229	0	R2	0.07	0.05	0.025	0.0	61.5	0.0	61.5
	YMTS29	379	2967	0	R2	0.07	0.05	0.025	26.5	148.4	0.0	174.9
	YMTS30	885	987	0	R2	0.07	0.05	0.025	61.9	49.4	0.0	111.3
	YMTS31	648	1219	0	R2	0.07	0.05	0.025	45.3	61.0	0.0	106.3
	YMTS32	1811	429	0	R2	0.07	0.05	0.025	126.8	21.5	0.0	148.2
	YMTS33	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
Total		213,000	170,491	14,570					14,910.0	8,524.6	364.2	23,798.8

1:The residential population of the Study Area is based on the population from "2016 Population By Census"

2:The employment population is based on 2047 TPEDM as the employment population is not publicly available.

Appendix 2.2

Water Demand Estimation (4.5DPR/4.5NDPR)

Freshwater Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
						Unit Demand Factor			Mean Demand			Total
		Residential	Employment	Student		Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Shek Kip Mei FWSR, Shek Kip Mei No. 2 FWSR & Shek Kip Mei No. 3 FWSR	MKE11	630	1536	0	R2	0.3	0.07	0.025	189.1	107.5	0.0	296.6
	MKE12	490	2010	0	R2	0.3	0.07	0.025	146.9	140.7	0.0	287.6
	MKE15	8	1894	0	R2	0.3	0.07	0.025	2.5	132.6	0.0	135.0
	MKE34	600	3054	0	R2	0.3	0.07	0.025	180.1	213.8	0.0	393.8
	MKW01	813	922	0	R2	0.3	0.07	0.025	244.0	64.5	0.0	308.5
	MKW02	864	763	0	R2	0.3	0.07	0.025	259.3	53.4	0.0	312.8
	MKW03	5328	6067	0	R2	0.3	0.07	0.025	1598.3	424.7	0.0	2023.0
	TKT01	520	275	0	R2	0.3	0.07	0.025	156.0	19.3	0.0	175.3
	TKT02+TKT04	14318	670	0	R2	0.3	0.07	0.025	4295.4	46.9	0.0	4342.3
	TKT03	834	142	0	R2	0.3	0.07	0.025	250.2	9.9	0.0	260.1
	TKT05+TKT12	3692	920	0	R2	0.3	0.07	0.025	1107.5	64.4	0.0	1171.9
	TKT06+TKT07+TKT08	5753	1391	960	R2	0.3	0.07	0.025	1725.9	97.4	24.0	1847.3
	TKT09	901	138	600	R2	0.3	0.07	0.025	270.4	9.7	15.0	295.1
	TKT10	1144	261	1266	R2	0.3	0.07	0.025	343.2	18.3	31.7	393.2
	TKT11	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT13	7240	1607	0	R2	0.3	0.07	0.025	2171.9	112.5	0.0	2284.4
	TKT14+TKT16	6507	600	0	R2	0.3	0.07	0.025	1952.0	42.0	0.0	1994.0
	TKT15+TKT17	4151	1057	0	R2	0.3	0.07	0.025	1245.3	74.0	0.0	1319.3
	TKT18	420	106	0	R2	0.3	0.07	0.025	126.1	7.4	0.0	133.5
	TKT19	1834	398	0	R2	0.3	0.07	0.025	550.3	27.9	0.0	578.2
	TKT20	1369	132	0	R2	0.3	0.07	0.025	410.6	9.2	0.0	419.8
	TKT21+TKT22+TKT23	3037	647	0	R2	0.3	0.07	0.025	911.0	45.3	0.0	956.3
	TKT24	0	1427	0	R2	0.3	0.07	0.025	0.0	99.9	0.0	99.9
	TKT25	0	4265	0	R2	0.3	0.07	0.025	0.0	298.6	0.0	298.6
	TKT26	1082	73	0	R2	0.3	0.07	0.025	324.6	5.1	0.0	329.7
	TKT27	622	289	0	R2	0.3	0.07	0.025	186.5	20.2	0.0	206.7
	TKT28	0	1677	0	R2	0.3	0.07	0.025	0.0	117.4	0.0	117.4
	TKT29	0	1327	0	R2	0.3	0.07	0.025	0.0	92.9	0.0	92.9
	TKT30+TKT31+TKT32+TKT33+TKT34+TKT36 +TKT37+TKT38+TKT48+TKT49	6105	9395	0	R2	0.3	0.07	0.025	1831.5	657.7	0.0	2489.1
	TKT35	0	1973	0	R2	0.3	0.07	0.025	0.0	138.1	0.0	138.1
	TKT39	444	253	0	R2	0.3	0.07	0.025	133.3	17.7	0.0	151.0
	TKT40	513	451	0	R2	0.3	0.07	0.025	154.0	31.6	0.0	185.5
	TKT41	182	49	0	R2	0.3	0.07	0.025	54.6	3.4	0.0	58.0
	TKT42	476	294	0	R2	0.3	0.07	0.025	142.8	20.6	0.0	163.4
	TKT43	67	15	0	R2	0.3	0.07	0.025	20.2	1.1	0.0	21.2
	TKT44	905	292	0	R2	0.3	0.07	0.025	271.4	20.4	0.0	291.8
	TKT45	2598	464	0	R2	0.3	0.07	0.025	779.3	32.5	0.0	811.8
	TKT46	645	224	0	R2	0.3	0.07	0.025	193.5	15.7	0.0	209.2
	TKT47	0	705	1454	R2	0.3	0.07	0.025	0.0	49.4	36.4	85.7
	TKT50	0	2316	0	R2	0.3	0.07	0.025	0.0	162.1	0.0	162.1
	TKT51	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT52	883	492	0	R2	0.3	0.07	0.025	265.0	34.4	0.0	299.4
	TKT53	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT54	0	0	612	R2	0.3	0.07	0.025	0.0	0.0	15.3	15.3
	TKT55	2561	135	0	R2	0.3	0.07	0.025	768.2	9.5	0.0	777.6
	TKT56	275	963	0	R2	0.3	0.07	0.025	82.4	67.4	0.0	149.8
	TKT57	511	1126	0	R2	0.3	0.07	0.025	153.3	78.8	0.0	232.2
	TKT58	2968	155	0	R2	0.3	0.07	0.025	890.5	10.9	0.0	901.4
	TKT59+TKT60+TKT61	140	7755	0	R2	0.3	0.07	0.025	42.0	542.9	0.0	584.9

Freshwater Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
						Unit Demand Factor			Mean Demand			Total
		Residential	Employment	Student		Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	TKT62	472	1299	0	R2	0.3	0.07	0.025	141.7	90.9	0.0	232.6
	TKT63	1369	531	0	R2	0.3	0.07	0.025	410.6	37.2	0.0	447.7
	TKT64	1036	1754	0	R2	0.3	0.07	0.025	310.8	122.8	0.0	433.6
	TKT65	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT66	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE01	612	339	0	R2	0.3	0.07	0.025	183.7	23.7	0.0	207.4
	MKE02	121	120	0	R2	0.3	0.07	0.025	36.3	8.4	0.0	44.7
	MKE03	1257	617	0	R2	0.3	0.07	0.025	377.0	43.2	0.0	420.1
	MKE04	966	468	0	R2	0.3	0.07	0.025	289.7	32.8	0.0	322.4
	MKE05	1398	311	0	R2	0.3	0.07	0.025	419.5	21.8	0.0	441.2
	MKE06	964	199	720	R2	0.3	0.07	0.025	289.1	13.9	18.0	321.0
	MKE07	1117	418	0	R2	0.3	0.07	0.025	335.1	29.3	0.0	364.3
	MKE08	1164	360	0	R2	0.3	0.07	0.025	349.2	25.2	0.0	374.4
	MKE09	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE10	866	1669	0	R2	0.3	0.07	0.025	259.7	116.8	0.0	376.5
	MKE13	277	67	0	R2	0.3	0.07	0.025	83.0	4.7	0.0	87.7
	MKE14	239	61	0	R2	0.3	0.07	0.025	71.8	4.3	0.0	76.1
	MKE16	6186	0	0	R2	0.3	0.07	0.025	1855.8	0.0	0.0	1855.8
	MKE17	0	2262	0	R2	0.3	0.07	0.025	0.0	158.3	0.0	158.3
	MKE18	2118	708	0	R2	0.3	0.07	0.025	635.4	49.6	0.0	685.0
	MKE19	1504	310	0	R2	0.3	0.07	0.025	451.2	21.7	0.0	472.9
	MKE20	1334	414	0	R2	0.3	0.07	0.025	400.3	29.0	0.0	429.2
	MKE21	1091	419	0	R2	0.3	0.07	0.025	327.2	29.3	0.0	356.6
	MKE22	785	833	0	R2	0.3	0.07	0.025	235.5	58.3	0.0	293.8
	MKE23	0	1336	0	R2	0.3	0.07	0.025	0.0	93.5	0.0	93.5
	MKE24	0	2395	0	R2	0.3	0.07	0.025	0.0	167.7	0.0	167.7
	MKE25	200	669	0	R2	0.3	0.07	0.025	59.9	46.8	0.0	106.7
	MKE26	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE27	4003	1433	0	R2	0.3	0.07	0.025	1201.0	100.3	0.0	1301.3
	MKE28	1085	237	0	R2	0.3	0.07	0.025	325.4	16.6	0.0	342.0
	MKE29	953	504	0	R2	0.3	0.07	0.025	285.8	35.3	0.0	321.1
	MKE30	1248	344	0	R2	0.3	0.07	0.025	374.4	24.1	0.0	398.5
	MKE31	1053	341	0	R2	0.3	0.07	0.025	315.9	23.9	0.0	339.8
	MKE32	790	573	0	R2	0.3	0.07	0.025	236.9	40.1	0.0	277.0
	MKE33	414	4102	0	R2	0.3	0.07	0.025	124.2	287.1	0.0	411.4
	MKE35	334	4575	0	R2	0.3	0.07	0.025	100.2	320.3	0.0	420.5
	MKE36	0	6056	0	R2	0.3	0.07	0.025	0.0	423.9	0.0	423.9
	MKE37	106	2457	0	R2	0.3	0.07	0.025	31.7	172.0	0.0	203.7
	MKE38	727	488	0	R2	0.3	0.07	0.025	218.2	34.2	0.0	252.4
	MKE39	935	228	0	R2	0.3	0.07	0.025	280.6	16.0	0.0	296.6
	MKE40	617	882	0	R2	0.3	0.07	0.025	185.0	61.7	0.0	246.8
	MKE41	759	27	0	R2	0.3	0.07	0.025	227.8	1.9	0.0	229.7
	MKE42	980	138	950	R2	0.3	0.07	0.025	294.1	9.7	23.8	327.5
	MKE43	0	0	1480	R2	0.3	0.07	0.025	0.0	0.0	37.0	37.0
	MKE44	789	97	0	R2	0.3	0.07	0.025	236.7	6.8	0.0	243.5
	MKE45	0	0	332	R2	0.3	0.07	0.025	0.0	0.0	8.3	8.3
	MKE46	836	362	0	R2	0.3	0.07	0.025	250.8	25.3	0.0	276.1
	MKE47	874	642	0	R2	0.3	0.07	0.025	262.3	44.9	0.0	307.3
	MKE48	356	2133	0	R2	0.3	0.07	0.025	106.9	149.3	0.0	256.2
	MKE49	912	2302	0	R2	0.3	0.07	0.025	273.6	161.1	0.0	434.8

Freshwater Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
						Unit Demand Factor			Mean Demand			Total
		Residential	Employment	Student		Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Ho Man Tin East FWSR & Ho Man Tin West FWSR	MKE50	0	1289	0	R2	0.3	0.07	0.025	0.0	90.2	0.0	90.2
	MKE51	0	1515	0	R2	0.3	0.07	0.025	0.0	106.1	0.0	106.1
	MKE52	0	3356	0	R2	0.3	0.07	0.025	0.0	234.9	0.0	234.9
	MKE53	653	1860	0	R2	0.3	0.07	0.025	195.9	130.2	0.0	326.1
	MKE54	1462	436	0	R2	0.3	0.07	0.025	438.7	30.5	0.0	469.3
	MKE55	1955	1279	0	R2	0.3	0.07	0.025	586.4	89.5	0.0	676.0
	MKE56	2242	882	0	R2	0.3	0.07	0.025	672.7	61.7	0.0	734.4
	MKE57	1540	810	0	R2	0.3	0.07	0.025	461.9	56.7	0.0	518.6
	MKE58	1058	3305	0	R2	0.3	0.07	0.025	317.3	231.4	0.0	548.6
	MKE59	104	1778	0	R2	0.3	0.07	0.025	31.1	124.5	0.0	155.6
	MKE60	193	1377	0	R2	0.3	0.07	0.025	57.8	96.4	0.0	154.2
	MKE61	1228	772	0	R2	0.3	0.07	0.025	368.4	54.0	0.0	422.5
	MKE62	746	1037	0	R2	0.3	0.07	0.025	223.9	72.6	0.0	296.5
	MKE63	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE64	0	5590	0	R2	0.3	0.07	0.025	0.0	391.3	0.0	391.3
	MKW04	5716	6441	0	R2	0.3	0.07	0.025	1714.8	450.9	0.0	2165.7
	MKW05	1367	150	0	R2	0.3	0.07	0.025	410.0	10.5	0.0	420.5
	MKW06	2737	632	0	R2	0.3	0.07	0.025	821.2	44.2	0.0	865.4
	MKW07	3185	1876	0	R2	0.3	0.07	0.025	955.4	131.3	0.0	1086.7
	MKW08	692	206	0	R2	0.3	0.07	0.025	207.7	14.4	0.0	222.1
	MKW09	863	287	0	R2	0.3	0.07	0.025	259.0	20.1	0.0	279.1
	MKW10	713	493	0	R2	0.3	0.07	0.025	214.0	34.5	0.0	248.5
	MKW11	331	138	0	R2	0.3	0.07	0.025	99.3	9.7	0.0	109.0
	MKW12	335	732	0	R2	0.3	0.07	0.025	100.5	51.2	0.0	151.8
	MKW13	471	880	0	R2	0.3	0.07	0.025	141.2	61.6	0.0	202.8
	MKW14	0	204	0	R2	0.3	0.07	0.025	0.0	14.3	0.0	14.3
	MKW15	497	612	0	R2	0.3	0.07	0.025	149.0	42.8	0.0	191.8
	MKW16	1409	445	0	R2	0.3	0.07	0.025	422.7	31.2	0.0	453.9
	MKW17	2443	317	0	R2	0.3	0.07	0.025	733.0	22.2	0.0	755.2
	MKW18+MKW19+MKW20	2385	339	0	R2	0.3	0.07	0.025	715.4	23.7	0.0	739.2
	MKW21+MKW22+MKW23+MKW24	6530	1726	0	R2	0.3	0.07	0.025	1958.9	120.8	0.0	2079.7
	YMTN01	834	1257	0	R2	0.3	0.07	0.025	250.1	88.0	0.0	338.1
	YMTN02	1765	141	0	R2	0.3	0.07	0.025	529.4	9.9	0.0	539.3
	YMTN03	418	96	0	R2	0.3	0.07	0.025	125.5	6.7	0.0	132.2
	YMTN04	0	0	1989	R2	0.3	0.07	0.025	0.0	0.0	49.7	49.7
	YMTN05	4760	475	0	R2	0.3	0.07	0.025	1427.9	33.3	0.0	1461.1
	YMTN06	592	129	0	R2	0.3	0.07	0.025	177.5	9.0	0.0	186.6
	YMTN07	764	248	0	R2	0.3	0.07	0.025	229.2	17.4	0.0	246.6
	YMTN08	302	180	0	R2	0.3	0.07	0.025	90.7	12.6	0.0	103.3
	YMTN09	610	588	0	R2	0.3	0.07	0.025	183.0	41.2	0.0	224.2
	YMTN10	0	599	0	R2	0.3	0.07	0.025	0.0	41.9	0.0	41.9
	YMTN11	142	223	0	R2	0.3	0.07	0.025	42.5	15.6	0.0	58.1
	YMTN12	326	280	0	R2	0.3	0.07	0.025	97.8	19.6	0.0	117.4
	YMTN13	366	146	0	R2	0.3	0.07	0.025	109.8	10.2	0.0	120.0
	YMTN14	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN15	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN16	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN17	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN18	890	260	0	R2	0.3	0.07	0.025	266.9	18.2	0.0	285.1
	YMTN19	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0

Freshwater Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
						Unit Demand Factor			Mean Demand			Total
		Residential	Employment	Student		Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTN20	2382	411	0	R2	0.3	0.07	0.025	714.7	28.8	0.0	743.5
	YMTN21	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTS01	11309	770	0	R2	0.3	0.07	0.025	3392.6	53.9	0.0	3446.5
	YMTS02	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTS03	1190	1551	0	R2	0.3	0.07	0.025	356.9	108.6	0.0	465.4
	YMTS04	1437	1199	0	R2	0.3	0.07	0.025	431.2	83.9	0.0	515.2
	YMTS05	461	156	0	R2	0.3	0.07	0.025	138.2	10.9	0.0	149.1
	YMTS06	304	245	0	R2	0.3	0.07	0.025	91.1	17.2	0.0	108.3
	YMTS07+YMTS08	9181	1935	0	R2	0.3	0.07	0.025	2754.4	135.5	0.0	2889.9
	YMTS09	1518	441	536	R2	0.3	0.07	0.025	455.5	30.9	13.4	499.7
	YMTS10	366	360	0	R2	0.3	0.07	0.025	109.9	25.2	0.0	135.1
	YMTS11	313	344	0	R2	0.3	0.07	0.025	93.8	24.1	0.0	117.9
	YMTS12	339	323	0	R2	0.3	0.07	0.025	101.8	22.6	0.0	124.4
	YMTS13	396	264	0	R2	0.3	0.07	0.025	118.8	18.5	0.0	137.3
	YMTS14	283	438	0	R2	0.3	0.07	0.025	85.0	30.7	0.0	115.6
	YMTS15	337	392	0	R2	0.3	0.07	0.025	101.2	27.4	0.0	128.6
	YMTS16	141	133	0	R2	0.3	0.07	0.025	42.3	9.3	0.0	51.6
	YMTS17	461	168	0	R2	0.3	0.07	0.025	138.3	11.8	0.0	150.1
	YMTS18	454	227	0	R2	0.3	0.07	0.025	136.3	15.9	0.0	152.2
	YMTS19	543	290	0	R2	0.3	0.07	0.025	162.8	20.3	0.0	183.1
	YMTS20	426	899	0	R2	0.3	0.07	0.025	127.7	62.9	0.0	190.6
	YMTS21	118	1530	0	R2	0.3	0.07	0.025	35.5	107.1	0.0	142.6
	YMTS22	333	354	0	R2	0.3	0.07	0.025	99.8	24.8	0.0	124.5
	YMTS23	233	169	0	R2	0.3	0.07	0.025	69.9	11.8	0.0	81.7
	YMTS24	408	345	0	R2	0.3	0.07	0.025	122.5	24.2	0.0	146.6
	YMTS25	340	628	0	R2	0.3	0.07	0.025	102.1	44.0	0.0	146.1
	YMTS26	609	834	0	R2	0.3	0.07	0.025	182.8	58.4	0.0	241.2
	YMTS27	191	2213	0	R2	0.3	0.07	0.025	57.3	154.9	0.0	212.2
	YMTS28	0	1055	0	R2	0.3	0.07	0.025	0.0	73.9	0.0	73.9
	YMTS29	114	3049	0	R2	0.3	0.07	0.025	34.1	213.4	0.0	247.5
	YMTS30	369	1791	0	R2	0.3	0.07	0.025	110.8	125.4	0.0	236.2
	YMTS31	418	1174	0	R2	0.3	0.07	0.025	125.3	82.2	0.0	207.4
	YMTS32	1090	985	0	R2	0.3	0.07	0.025	327.0	69.0	0.0	395.9
	YMTS33	0	175	2052	R2	0.3	0.07	0.025	0.0	12.3	51.3	63.6
	YMTN22	1437	1395	0	R2	0.3	0.07	0.025	431.2	97.7	0.0	528.8
	YMTN23	488	763	0	R2	0.3	0.07	0.025	146.4	53.4	0.0	199.8
	YMTN24	564	526	0	R2	0.3	0.07	0.025	169.3	36.8	0.0	206.1
Total									64,636.2	12,537.2	323.8	77,497.2

*:The unit demand factor for employment =0.04+0.03=0.07m^3/day. 0.04m^3/day is referenced from WSD's DI 1309 (service trade unit demand factor) and 0.03m^3/person/day is referenced from page 4 of EPD's GESF Appendix III (employee consumption rate)

**:The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Irrigation Demand Estimation (4.5 Domestic Plot Ratio/4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Site	Unpaved Area	Freshwater	
			Unit Demand Factor	Mean Demand
		m^2	$m^3/m^2/day$	m^3/day
Shek Kip Mei FWSR, Shek Kip Mei No. 2 FWSR & Shek Kip Mei No. 3 FWSR	Nullah Road Urban Waterway	10,797	0.01	108.0
	Tai Nan Street	2,246	0.01	22.5
	Arran Street SCA (North)	333	0.01	3.3
	Arran Street SCA (South)	356	0.01	3.6
Ho Man Tin East FW SR & Ho Man Tin West FW SR	Nullah Road Urban Waterway	166	0.01	1.7
	Mong Kok Market	1,154	0.01	11.5
	Hamilton Street	1,606	0.01	16.1
	Saigon Street	6,422	0.01	64.2
Total		23,080		230.8

*:The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Flushing Water Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population				Flushing Water						
		Residential	Employment	Student	Housing Type	Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Tai Wo Ping SWSR & Cheung Sha Wan SWPS	MKE01	612	339	0	R2	0.07	0.05	0.025	42.9	17.0	0.0	59.8
	MKE02	121	120	0	R2	0.07	0.05	0.025	8.5	6.0	0.0	14.5
	MKE03	1257	617	0	R2	0.07	0.05	0.025	88.0	30.9	0.0	118.8
	MKE04	966	468	0	R2	0.07	0.05	0.025	67.6	23.4	0.0	91.0
	MKE05	1398	311	0	R2	0.07	0.05	0.025	97.9	15.6	0.0	113.4
	MKE06	964	199	720	R2	0.07	0.05	0.025	67.5	10.0	18.0	95.4
	MKE07	1117	418	0	R2	0.07	0.05	0.025	78.2	20.9	0.0	99.1
	MKE08	1164	360	0	R2	0.07	0.05	0.025	81.5	18.0	0.0	99.5
	MKE09	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE10	866	1669	0	R2	0.07	0.05	0.025	60.6	83.5	0.0	144.0
	MKE11	630	1536	0	R2	0.07	0.05	0.025	44.1	76.8	0.0	120.9
	MKE12	490	2010	0	R2	0.07	0.05	0.025	34.3	100.5	0.0	134.8
	MKE13	277	67	0	R2	0.07	0.05	0.025	19.4	3.4	0.0	22.7
	MKE14	239	61	0	R2	0.07	0.05	0.025	16.8	3.1	0.0	19.8
	MKE15	8	1894	0	R2	0.07	0.05	0.025	0.6	94.7	0.0	95.3
	MKE16	6186	0	0	R2	0.07	0.05	0.025	433.0	0.0	0.0	433.0
	MKE17	0	2262	0	R2	0.07	0.05	0.025	0.0	113.1	0.0	113.1
	MKE18	2118	708	0	R2	0.07	0.05	0.025	148.3	35.4	0.0	183.7
	TKT01	520	275	0	R2	0.07	0.05	0.025	36.4	13.8	0.0	50.2
	TKT02+TKT04	14318	670	0	R2	0.07	0.05	0.025	1002.3	33.5	0.0	1035.8
	TKT03	834	142	0	R2	0.07	0.05	0.025	58.4	7.1	0.0	65.5
	TKT05+TKT12	3692	920	0	R2	0.07	0.05	0.025	258.4	46.0	0.0	304.4
	TKT06+TKT07+TKT08	5753	1391	960	R2	0.07	0.05	0.025	402.7	69.6	24.0	496.3
	TKT09	901	138	600	R2	0.07	0.05	0.025	63.1	6.9	15.0	85.0
	TKT10	1144	261	1266	R2	0.07	0.05	0.025	80.1	13.1	31.7	124.8
	TKT11	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT13	7240	1607	0	R2	0.07	0.05	0.025	506.8	80.4	0.0	587.1
	TKT14+TKT16	6507	600	0	R2	0.07	0.05	0.025	455.5	30.0	0.0	485.5
	TKT15+TKT17	4151	1057	0	R2	0.07	0.05	0.025	290.6	52.9	0.0	343.4
	TKT18	420	106	0	R2	0.07	0.05	0.025	29.4	5.3	0.0	34.7
	TKT19	1834	398	0	R2	0.07	0.05	0.025	128.4	19.9	0.0	148.3
	TKT20	1369	132	0	R2	0.07	0.05	0.025	95.8	6.6	0.0	102.4
	TKT21+TKT22+TKT23	3037	647	0	R2	0.07	0.05	0.025	212.6	32.4	0.0	244.9
	TKT24	0	1427	0	R2	0.07	0.05	0.025	0.0	71.4	0.0	71.4
	TKT25	0	4265	0	R2	0.07	0.05	0.025	0.0	213.3	0.0	213.3
	TKT26	1082	73	0	R2	0.07	0.05	0.025	75.7	3.7	0.0	79.4
	TKT27	622	289	0	R2	0.07	0.05	0.025	43.5	14.5	0.0	58.0
	TKT28	0	1677	0	R2	0.07	0.05	0.025	0.0	83.9	0.0	83.9
	TKT29	0	1327	0	R2	0.07	0.05	0.025	0.0	66.4	0.0	66.4
	TKT30+TKT31+TKT32+TKT33+TKT34+TKT36+TKT37+TKT38+TKT48+TKT49	6105	9395	0	R2	0.07	0.05	0.025	427.3	469.8	0.0	897.1
	TKT35	0	1973	0	R2	0.07	0.05	0.025	0.0	98.7	0.0	98.7
	TKT39	444	253	0	R2	0.07	0.05	0.025	31.1	12.7	0.0	43.8
	TKT40	513	451	0	R2	0.07	0.05	0.025	35.9	22.6	0.0	58.5
	TKT41	182	49	0	R2	0.07	0.05	0.025	12.7	2.5	0.0	15.2

Flushing Water Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population				Flushing Water						
		Residential	Employment	Student	Housing Type	Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	TKT42	476	294	0	R2	0.07	0.05	0.025	33.3	14.7	0.0	48.0
	TKT43	67	15	0	R2	0.07	0.05	0.025	4.7	0.8	0.0	5.5
	TKT44	905	292	0	R2	0.07	0.05	0.025	63.3	14.6	0.0	77.9
	TKT45	2598	464	0	R2	0.07	0.05	0.025	181.8	23.2	0.0	205.0
	TKT46	645	224	0	R2	0.07	0.05	0.025	45.1	11.2	0.0	56.3
	TKT47	0	705	1454	R2	0.07	0.05	0.025	0.0	35.3	36.4	71.6
	TKT50	0	2316	0	R2	0.07	0.05	0.025	0.0	115.8	0.0	115.8
	TKT51	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT52	883	492	0	R2	0.07	0.05	0.025	61.8	24.6	0.0	86.4
	TKT53	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT56	275	963	0	R2	0.07	0.05	0.025	19.2	48.2	0.0	67.4
	TKT65	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT66	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE19	1504	310	0	R2	0.07	0.05	0.025	105.3	15.5	0.0	120.8
	MKE20	1334	414	0	R2	0.07	0.05	0.025	93.4	20.7	0.0	114.1
	MKE21	1091	419	0	R2	0.07	0.05	0.025	76.4	21.0	0.0	97.3
	MKE22	785	833	0	R2	0.07	0.05	0.025	55.0	41.7	0.0	96.6
	MKE23	0	1336	0	R2	0.07	0.05	0.025	0.0	66.8	0.0	66.8
	MKE24	0	2395	0	R2	0.07	0.05	0.025	0.0	119.8	0.0	119.8
	MKE25	200	669	0	R2	0.07	0.05	0.025	14.0	33.5	0.0	47.4
	MKE26	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE27	4003	1433	0	R2	0.07	0.05	0.025	280.2	71.7	0.0	351.9
	MKE28	1085	237	0	R2	0.07	0.05	0.025	75.9	11.9	0.0	87.8
	MKE29	953	504	0	R2	0.07	0.05	0.025	66.7	25.2	0.0	91.9
	MKE30	1248	344	0	R2	0.07	0.05	0.025	87.4	17.2	0.0	104.6
	MKE31	1053	341	0	R2	0.07	0.05	0.025	73.7	17.1	0.0	90.8
	MKE32	790	573	0	R2	0.07	0.05	0.025	55.3	28.7	0.0	83.9
	MKE33	414	4102	0	R2	0.07	0.05	0.025	29.0	205.1	0.0	234.1
	MKE34	600	3054	0	R2	0.07	0.05	0.025	42.0	152.7	0.0	194.7
	MKE35	334	4575	0	R2	0.07	0.05	0.025	23.4	228.8	0.0	252.1
	MKE36	0	6056	0	R2	0.07	0.05	0.025	0.0	302.8	0.0	302.8
	MKE37	106	2457	0	R2	0.07	0.05	0.025	7.4	122.9	0.0	130.2
	MKE38	727	488	0	R2	0.07	0.05	0.025	50.9	24.4	0.0	75.3
	MKE39	935	228	0	R2	0.07	0.05	0.025	65.5	11.4	0.0	76.9
	MKE40	617	882	0	R2	0.07	0.05	0.025	43.2	44.1	0.0	87.3
	MKE41	759	27	0	R2	0.07	0.05	0.025	53.2	1.4	0.0	54.5
	MKE42	980	138	950	R2	0.07	0.05	0.025	68.6	6.9	23.8	99.3
	MKE43	0	0	1480	R2	0.07	0.05	0.025	0.0	0.0	37.0	37.0
	MKE44	789	97	0	R2	0.07	0.05	0.025	55.2	4.9	0.0	60.1
	MKE45	0	0	332	R2	0.07	0.05	0.025	0.0	0.0	8.3	8.3
	MKE46	836	362	0	R2	0.07	0.05	0.025	58.5	18.1	0.0	76.6
	MKE47	874	642	0	R2	0.07	0.05	0.025	61.2	32.1	0.0	93.3
	MKE48	356	2133	0	R2	0.07	0.05	0.025	25.0	106.7	0.0	131.6
	MKE49	912	2302	0	R2	0.07	0.05	0.025	63.8	115.1	0.0	178.9

Flushing Water Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Flushing Water						
		Residential	Employment	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Yau Ma Tei SWSR & Kowloon South No.2 SWPS	MKE50	0	1289	0	R2	0.07	0.05	0.025	0.0	64.5	0.0	64.5
	MKE51	0	1515	0	R2	0.07	0.05	0.025	0.0	75.8	0.0	75.8
	MKE52	0	3356	0	R2	0.07	0.05	0.025	0.0	167.8	0.0	167.8
	MKE53	653	1860	0	R2	0.07	0.05	0.025	45.7	93.0	0.0	138.7
	MKE54	1462	436	0	R2	0.07	0.05	0.025	102.4	21.8	0.0	124.2
	MKE55	1955	1279	0	R2	0.07	0.05	0.025	136.8	64.0	0.0	200.8
	MKE56	2242	882	0	R2	0.07	0.05	0.025	157.0	44.1	0.0	201.1
	MKE57	1540	810	0	R2	0.07	0.05	0.025	107.8	40.5	0.0	148.3
	MKE58	1058	3305	0	R2	0.07	0.05	0.025	74.0	165.3	0.0	239.3
	MKE59	104	1778	0	R2	0.07	0.05	0.025	7.3	88.9	0.0	96.2
	MKE60	193	1377	0	R2	0.07	0.05	0.025	13.5	68.9	0.0	82.3
	MKE61	1228	772	0	R2	0.07	0.05	0.025	86.0	38.6	0.0	124.6
	MKE62	746	1037	0	R2	0.07	0.05	0.025	52.2	51.9	0.0	104.1
	MKE63	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE64	0	5590	0	R2	0.07	0.05	0.025	0.0	279.5	0.0	279.5
	MKW01	813	922	0	R2	0.07	0.05	0.025	56.9	46.1	0.0	103.0
	MKW02	864	763	0	R2	0.07	0.05	0.025	60.5	38.2	0.0	98.7
	MKW03	5328	6067	0	R2	0.07	0.05	0.025	372.9	303.4	0.0	676.3
	MKW04	5716	6441	0	R2	0.07	0.05	0.025	400.1	322.1	0.0	722.2
	MKW05	1367	150	0	R2	0.07	0.05	0.025	95.7	7.5	0.0	103.2
	MKW06	2737	632	0	R2	0.07	0.05	0.025	191.6	31.6	0.0	223.2
	MKW07	3185	1876	0	R2	0.07	0.05	0.025	222.9	93.8	0.0	316.7
	MKW08	692	206	0	R2	0.07	0.05	0.025	48.5	10.3	0.0	58.8
	MKW09	863	287	0	R2	0.07	0.05	0.025	60.4	14.4	0.0	74.8
	MKW10	713	493	0	R2	0.07	0.05	0.025	49.9	24.7	0.0	74.6
	MKW11	331	138	0	R2	0.07	0.05	0.025	23.2	6.9	0.0	30.1
	MKW12	335	732	0	R2	0.07	0.05	0.025	23.5	36.6	0.0	60.1
	MKW13	471	880	0	R2	0.07	0.05	0.025	33.0	44.0	0.0	77.0
	MKW14	0	204	0	R2	0.07	0.05	0.025	0.0	10.2	0.0	10.2
	MKW15	497	612	0	R2	0.07	0.05	0.025	34.8	30.6	0.0	65.4
	MKW16	1409	445	0	R2	0.07	0.05	0.025	98.6	22.3	0.0	120.9
	MKW17	2443	317	0	R2	0.07	0.05	0.025	171.0	15.9	0.0	186.9
	MKW18+MKW19+MKW20	2385	339	0	R2	0.07	0.05	0.025	166.9	17.0	0.0	183.9
	MKW21+MKW22+MKW23+MKW24	6530	1726	0	R2	0.07	0.05	0.025	457.1	86.3	0.0	543.4
	TKT54	0	0	612	R2	0.07	0.05	0.025	0.0	0.0	15.3	15.3
	TKT55	2561	135	0	R2	0.07	0.05	0.025	179.2	6.8	0.0	186.0
	TKT57	511	1126	0	R2	0.07	0.05	0.025	35.8	56.3	0.0	92.1
	TKT58	2968	155	0	R2	0.07	0.05	0.025	207.8	7.8	0.0	215.5
	TKT59+TKT60+TKT61	140	7755	0	R2	0.07	0.05	0.025	9.8	387.8	0.0	397.6
	TKT62	472	1299	0	R2	0.07	0.05	0.025	33.1	65.0	0.0	98.0
	TKT63	1369	531	0	R2	0.07	0.05	0.025	95.8	26.6	0.0	122.4
	TKT64	1036	1754	0	R2	0.07	0.05	0.025	72.5	87.7	0.0	160.2
	YMTN01	834	1257	0	R2	0.07	0.05	0.025	58.4	62.9	0.0	121.2

Flushing Water Demand Estimation (4.5 Domestic Plot Ratio/4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Flushing Water						
		Residential	Employment	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTN02	1765	141	0	R2	0.07	0.05	0.025	123.5	7.1	0.0	130.6
	YMTN03	418	96	0	R2	0.07	0.05	0.025	29.3	4.8	0.0	34.1
	YMTN04	0	0	1989	R2	0.07	0.05	0.025	0.0	0.0	49.7	49.7
	YMTN05	4760	475	0	R2	0.07	0.05	0.025	333.2	23.8	0.0	356.9
	YMTN06	592	129	0	R2	0.07	0.05	0.025	41.4	6.5	0.0	47.9
	YMTN07	764	248	0	R2	0.07	0.05	0.025	53.5	12.4	0.0	65.9
	YMTN08	302	180	0	R2	0.07	0.05	0.025	21.2	9.0	0.0	30.2
	YMTN09	610	588	0	R2	0.07	0.05	0.025	42.7	29.4	0.0	72.1
	YMTN10	0	599	0	R2	0.07	0.05	0.025	0.0	30.0	0.0	30.0
	YMTN11	142	223	0	R2	0.07	0.05	0.025	9.9	11.2	0.0	21.1
	YMTN12	326	280	0	R2	0.07	0.05	0.025	22.8	14.0	0.0	36.8
	YMTN13	366	146	0	R2	0.07	0.05	0.025	25.6	7.3	0.0	32.9
	YMTN14	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN15	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN16	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN17	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN18	890	260	0	R2	0.07	0.05	0.025	62.3	13.0	0.0	75.3
	YMTN19	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN20	2382	411	0	R2	0.07	0.05	0.025	166.8	20.6	0.0	187.3
	YMTN21	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTS01	11309	770	0	R2	0.07	0.05	0.025	791.6	38.5	0.0	830.1
	YMTS02	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTS03	1190	1551	0	R2	0.07	0.05	0.025	83.3	77.6	0.0	160.8
	YMTS04	1437	1199	0	R2	0.07	0.05	0.025	100.6	60.0	0.0	160.6
	YMTS05	461	156	0	R2	0.07	0.05	0.025	32.2	7.8	0.0	40.0
	YMTS06	304	245	0	R2	0.07	0.05	0.025	21.3	12.3	0.0	33.5
	YMTS07+YMTS08	9181	1935	0	R2	0.07	0.05	0.025	642.7	96.8	0.0	739.5
	YMTS09	1518	441	536	R2	0.07	0.05	0.025	106.3	22.1	13.4	141.7
	YMTS10	366	360	0	R2	0.07	0.05	0.025	25.6	18.0	0.0	43.6
	YMTS11	313	344	0	R2	0.07	0.05	0.025	21.9	17.2	0.0	39.1
	YMTS12	339	323	0	R2	0.07	0.05	0.025	23.7	16.2	0.0	39.9
	YMTS13	396	264	0	R2	0.07	0.05	0.025	27.7	13.2	0.0	40.9
	YMTS14	283	438	0	R2	0.07	0.05	0.025	19.8	21.9	0.0	41.7
	YMTS15	337	392	0	R2	0.07	0.05	0.025	23.6	19.6	0.0	43.2
	YMTS16	141	133	0	R2	0.07	0.05	0.025	9.9	6.7	0.0	16.5
	YMTS17	461	168	0	R2	0.07	0.05	0.025	32.3	8.4	0.0	40.7
	YMTS18	454	227	0	R2	0.07	0.05	0.025	31.8	11.4	0.0	43.2
	YMTS19	543	290	0	R2	0.07	0.05	0.025	38.0	14.5	0.0	52.5
	YMTS20	426	899	0	R2	0.07	0.05	0.025	29.8	45.0	0.0	74.7
	YMTS21	118	1530	0	R2	0.07	0.05	0.025	8.3	76.5	0.0	84.8
	YMTS22	333	354	0	R2	0.07	0.05	0.025	23.3	17.7	0.0	41.0
	YMTS23	233	169	0	R2	0.07	0.05	0.025	16.3	8.5	0.0	24.8
	YMTS24	408	345	0	R2	0.07	0.05	0.025	28.6	17.3	0.0	45.8

Flushing Water Demand Estimation (4.5 Domestic Plot Ratio / 4.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population				Flushing Water						
		Residential	Employment	Student	Housing Type	Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTS25	340	628	0	R2	0.07	0.05	0.025	23.8	31.4	0.0	55.2
	YMTS26	609	834	0	R2	0.07	0.05	0.025	42.7	41.7	0.0	84.4
	YMTS27	191	2213	0	R2	0.07	0.05	0.025	13.4	110.7	0.0	124.0
	YMTS28	0	1055	0	R2	0.07	0.05	0.025	0.0	52.8	0.0	52.8
	YMTS29	114	3049	0	R2	0.07	0.05	0.025	8.0	152.5	0.0	160.4
	YMTS30	369	1791	0	R2	0.07	0.05	0.025	25.9	89.6	0.0	115.4
	YMTS31	418	1174	0	R2	0.07	0.05	0.025	29.2	58.7	0.0	87.9
	YMTS32	1090	985	0	R2	0.07	0.05	0.025	76.3	49.3	0.0	125.5
	YMTS33	0	175	2052	R2	0.07	0.05	0.025	0.0	8.8	51.3	60.1
	YMTN22	1437	1395	0	R2	0.07	0.05	0.025	100.6	69.8	0.0	170.4
	YMTN23	488	763	0	R2	0.07	0.05	0.025	34.2	38.2	0.0	72.3
	YMTN24	564	526	0	R2	0.07	0.05	0.025	39.5	26.3	0.0	65.8
Total									15,081.8	8,955.2	323.8	24,360.7

**:The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Appendix 2.3

Water Demand Estimation (7.5DPR/1.5NDPR)

Freshwater Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential	Employment	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Shek Kip Mei FWSR, Shek Kip Mei No. 2 FWSR & Shek Kip Mei No. 3 FWSR	MKE11	630	1536	0	R2	0.3	0.07	0.025	189.1	107.5	0.0	296.6
	MKE12	490	2010	0	R2	0.3	0.07	0.025	146.9	140.7	0.0	287.6
	MKE15	8	1894	0	R2	0.3	0.07	0.025	2.5	132.6	0.0	135.0
	MKE34	600	3054	0	R2	0.3	0.07	0.025	180.1	213.8	0.0	393.8
	MKW01	813	922	0	R2	0.3	0.07	0.025	244.0	64.5	0.0	308.5
	MKW02	864	763	0	R2	0.3	0.07	0.025	259.3	53.4	0.0	312.8
	MKW03	5328	6067	0	R2	0.3	0.07	0.025	1598.3	424.7	0.0	2023.0
	TKT01	520	275	0	R2	0.3	0.07	0.025	156.0	19.3	0.0	175.3
	TKT02+TKT04	14318	670	0	R2	0.3	0.07	0.025	4295.4	46.9	0.0	4342.3
	TKT03	834	142	0	R2	0.3	0.07	0.025	250.2	9.9	0.0	260.1
	TKT05+TKT12	3692	920	0	R2	0.3	0.07	0.025	1107.5	64.4	0.0	1171.9
	TKT06+TKT07+TKT08	5753	1391	960	R2	0.3	0.07	0.025	1725.9	97.4	24.0	1847.3
	TKT09	901	138	600	R2	0.3	0.07	0.025	270.4	9.7	15.0	295.1
	TKT10	1144	261	1266	R2	0.3	0.07	0.025	343.2	18.3	31.7	393.2
	TKT11	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT13	7240	1607	0	R2	0.3	0.07	0.025	2171.9	112.5	0.0	2284.4
	TKT14+TKT16	6507	600	0	R2	0.3	0.07	0.025	1952.0	42.0	0.0	1994.0
	TKT15+TKT17	4151	1057	0	R2	0.3	0.07	0.025	1245.3	74.0	0.0	1319.3
	TKT18	420	106	0	R2	0.3	0.07	0.025	126.1	7.4	0.0	133.5
	TKT19	1834	398	0	R2	0.3	0.07	0.025	550.3	27.9	0.0	578.2
	TKT20	1369	132	0	R2	0.3	0.07	0.025	410.6	9.2	0.0	419.8
	TKT21+TKT22+TKT23	3037	647	0	R2	0.3	0.07	0.025	911.0	45.3	0.0	956.3
	TKT24	0	1427	0	R2	0.3	0.07	0.025	0.0	99.9	0.0	99.9
	TKT25	0	4265	0	R2	0.3	0.07	0.025	0.0	298.6	0.0	298.6
	TKT26	1082	73	0	R2	0.3	0.07	0.025	324.6	5.1	0.0	329.7
	TKT27	622	289	0	R2	0.3	0.07	0.025	186.5	20.2	0.0	206.7
	TKT28	0	1677	0	R2	0.3	0.07	0.025	0.0	117.4	0.0	117.4
	TKT29	0	1327	0	R2	0.3	0.07	0.025	0.0	92.9	0.0	92.9
	TKT30+TKT31+TKT32+TKT33+TKT34+TKT36 +TKT37+TKT38+TKT48+TKT49	6105	9395	0	R2	0.3	0.07	0.025	1831.5	657.7	0.0	2489.1
	TKT35	0	1973	0	R2	0.3	0.07	0.025	0.0	138.1	0.0	138.1
	TKT39	444	253	0	R2	0.3	0.07	0.025	133.3	17.7	0.0	151.0
	TKT40	513	451	0	R2	0.3	0.07	0.025	154.0	31.6	0.0	185.5
	TKT41	182	49	0	R2	0.3	0.07	0.025	54.6	3.4	0.0	58.0
	TKT42	476	294	0	R2	0.3	0.07	0.025	142.8	20.6	0.0	163.4
	TKT43	67	15	0	R2	0.3	0.07	0.025	20.2	1.1	0.0	21.2
	TKT44	905	292	0	R2	0.3	0.07	0.025	271.4	20.4	0.0	291.8
	TKT45	2598	464	0	R2	0.3	0.07	0.025	779.3	32.5	0.0	811.8
	TKT46	645	224	0	R2	0.3	0.07	0.025	193.5	15.7	0.0	209.2
	TKT47	0	705	1454	R2	0.3	0.07	0.025	0.0	49.4	36.4	85.7
	TKT50	0	2316	0	R2	0.3	0.07	0.025	0.0	162.1	0.0	162.1
	TKT51	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT52	883	492	0	R2	0.3	0.07	0.025	265.0	34.4	0.0	299.4
	TKT53	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT54	0	0	612	R2	0.3	0.07	0.025	0.0	0.0	15.3	15.3
	TKT55	2561	135	0	R2	0.3	0.07	0.025	768.2	9.5	0.0	777.6
	TKT56	275	963	0	R2	0.3	0.07	0.025	82.4	67.4	0.0	149.8
	TKT57	511	1126	0	R2	0.3	0.07	0.025	153.3	78.8	0.0	232.2
	TKT58	2968	155	0	R2	0.3	0.07	0.025	890.5	10.9	0.0	901.4
	TKT59+TKT60+TKT61	140	7755	0	R2	0.3	0.07	0.025	42.0	542.9	0.0	584.9
	TKT62	472	1299	0	R2	0.3	0.07	0.025	141.7	90.9	0.0	232.6

Freshwater Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential	Employment	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	TKT63	1369	531	0	R2	0.3	0.07	0.025	410.6	37.2	0.0	447.7
	TKT64	1036	1754	0	R2	0.3	0.07	0.025	310.8	122.8	0.0	433.6
	TKT65	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	TKT66	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE01	741	197	0	R2	0.3	0.07	0.025	222.3	13.8	0.0	236.1
	MKE02	121	120	0	R2	0.3	0.07	0.025	36.3	8.4	0.0	44.7
	MKE03	1257	617	0	R2	0.3	0.07	0.025	377.0	43.2	0.0	420.1
	MKE04	966	468	0	R2	0.3	0.07	0.025	289.7	32.8	0.0	322.4
	MKE05	1398	311	0	R2	0.3	0.07	0.025	419.5	21.8	0.0	441.2
	MKE06	964	199	720	R2	0.3	0.07	0.025	289.1	13.9	18.0	321.0
	MKE07	1117	418	0	R2	0.3	0.07	0.025	335.1	29.3	0.0	364.3
	MKE08	1164	360	0	R2	0.3	0.07	0.025	349.2	25.2	0.0	374.4
	MKE09	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE10	866	1669	0	R2	0.3	0.07	0.025	259.7	116.8	0.0	376.5
	MKE13	277	67	0	R2	0.3	0.07	0.025	83.0	4.7	0.0	87.7
	MKE14	239	61	0	R2	0.3	0.07	0.025	71.8	4.3	0.0	76.1
	MKE16	6186	0	0	R2	0.3	0.07	0.025	1855.8	0.0	0.0	1855.8
	MKE17	0	2262	0	R2	0.3	0.07	0.025	0.0	158.3	0.0	158.3
	MKE18	2118	708	0	R2	0.3	0.07	0.025	635.4	49.6	0.0	685.0
	MKE19	1504	310	0	R2	0.3	0.07	0.025	451.2	21.7	0.0	472.9
	MKE20	1460	277	0	R2	0.3	0.07	0.025	438.0	19.4	0.0	457.4
	MKE21	1188	312	0	R2	0.3	0.07	0.025	356.5	21.8	0.0	378.4
	MKE22	785	833	0	R2	0.3	0.07	0.025	235.5	58.3	0.0	293.8
	MKE23	0	1336	0	R2	0.3	0.07	0.025	0.0	93.5	0.0	93.5
	MKE24	0	2395	0	R2	0.3	0.07	0.025	0.0	167.7	0.0	167.7
	MKE25	222	643	0	R2	0.3	0.07	0.025	66.7	45.0	0.0	111.7
	MKE26	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE27	4117	1308	0	R2	0.3	0.07	0.025	1235.2	91.6	0.0	1326.7
	MKE28	1085	237	0	R2	0.3	0.07	0.025	325.4	16.6	0.0	342.0
	MKE29	953	504	0	R2	0.3	0.07	0.025	285.8	35.3	0.0	321.1
	MKE30	1248	344	0	R2	0.3	0.07	0.025	374.4	24.1	0.0	398.5
	MKE31	1079	313	0	R2	0.3	0.07	0.025	323.7	21.9	0.0	345.6
	MKE32	838	520	0	R2	0.3	0.07	0.025	251.3	36.4	0.0	287.7
	MKE33	414	4102	0	R2	0.3	0.07	0.025	124.2	287.1	0.0	411.4
	MKE35	334	4575	0	R2	0.3	0.07	0.025	100.2	320.3	0.0	420.5
	MKE36	0	6056	0	R2	0.3	0.07	0.025	0.0	423.9	0.0	423.9
	MKE37	106	2457	0	R2	0.3	0.07	0.025	31.7	172.0	0.0	203.7
	MKE38	823	382	0	R2	0.3	0.07	0.025	246.8	26.7	0.0	273.5
	MKE39	935	228	0	R2	0.3	0.07	0.025	280.6	16.0	0.0	296.6
	MKE40	617	882	0	R2	0.3	0.07	0.025	185.0	61.7	0.0	246.8
	MKE41	759	27	0	R2	0.3	0.07	0.025	227.8	1.9	0.0	229.7
	MKE42	980	138	950	R2	0.3	0.07	0.025	294.1	9.7	23.8	327.5
	MKE43	0	0	1480	R2	0.3	0.07	0.025	0.0	0.0	37.0	37.0
	MKE44	789	97	0	R2	0.3	0.07	0.025	236.7	6.8	0.0	243.5
	MKE45	0	0	332	R2	0.3	0.07	0.025	0.0	0.0	8.3	8.3
	MKE46	850	346	0	R2	0.3	0.07	0.025	255.0	24.2	0.0	279.2
	MKE47	902	612	0	R2	0.3	0.07	0.025	270.6	42.8	0.0	313.4
	MKE48	356	2133	0	R2	0.3	0.07	0.025	106.9	149.3	0.0	256.2
	MKE49	912	2302	0	R2	0.3	0.07	0.025	273.6	161.1	0.0	434.8
	MKE50	0	1289	0	R2	0.3	0.07	0.025	0.0	90.2	0.0	90.2

Freshwater Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
						Unit Demand Factor			Mean Demand			Total
		Residential	Employment	Student		Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Ho Man Tin East FWSR & Ho Man Tin West FWSR	MKE51	0	1515	0	R2	0.3	0.07	0.025	0.0	106.1	0.0	106.1
	MKE52	0	3356	0	R2	0.3	0.07	0.025	0.0	234.9	0.0	234.9
	MKE53	690	1818	0	R2	0.3	0.07	0.025	207.1	127.3	0.0	334.3
	MKE54	1485	410	0	R2	0.3	0.07	0.025	445.6	28.7	0.0	474.3
	MKE55	1955	1279	0	R2	0.3	0.07	0.025	586.4	89.5	0.0	676.0
	MKE56	2242	882	0	R2	0.3	0.07	0.025	672.7	61.7	0.0	734.4
	MKE57	1540	810	0	R2	0.3	0.07	0.025	461.9	56.7	0.0	518.6
	MKE58	1058	3305	0	R2	0.3	0.07	0.025	317.3	231.4	0.0	548.6
	MKE59	104	1778	0	R2	0.3	0.07	0.025	31.1	124.5	0.0	155.6
	MKE60	193	1377	0	R2	0.3	0.07	0.025	57.8	96.4	0.0	154.2
	MKE61	1228	772	0	R2	0.3	0.07	0.025	368.4	54.0	0.0	422.5
	MKE62	746	1037	0	R2	0.3	0.07	0.025	223.9	72.6	0.0	296.5
	MKE63	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	MKE64	0	5590	0	R2	0.3	0.07	0.025	0.0	391.3	0.0	391.3
	MKW04	5716	6441	0	R2	0.3	0.07	0.025	1714.8	450.9	0.0	2165.7
	MKW05	1367	150	0	R2	0.3	0.07	0.025	410.0	10.5	0.0	420.5
	MKW06	2737	632	0	R2	0.3	0.07	0.025	821.2	44.2	0.0	865.4
	MKW07	3185	1876	0	R2	0.3	0.07	0.025	955.4	131.3	0.0	1086.7
	MKW08	692	206	0	R2	0.3	0.07	0.025	207.7	14.4	0.0	222.1
	MKW09	863	287	0	R2	0.3	0.07	0.025	259.0	20.1	0.0	279.1
	MKW10	713	493	0	R2	0.3	0.07	0.025	214.0	34.5	0.0	248.5
	MKW11	331	138	0	R2	0.3	0.07	0.025	99.3	9.7	0.0	109.0
	MKW12	335	732	0	R2	0.3	0.07	0.025	100.5	51.2	0.0	151.8
	MKW13	471	880	0	R2	0.3	0.07	0.025	141.2	61.6	0.0	202.8
	MKW14	0	204	0	R2	0.3	0.07	0.025	0.0	14.3	0.0	14.3
	MKW15	497	612	0	R2	0.3	0.07	0.025	149.0	42.8	0.0	191.8
	MKW16	1409	445	0	R2	0.3	0.07	0.025	422.7	31.2	0.0	453.9
	MKW17	2443	317	0	R2	0.3	0.07	0.025	733.0	22.2	0.0	755.2
	MKW18+MKW19+MKW20	2385	339	0	R2	0.3	0.07	0.025	715.4	23.7	0.0	739.2
	MKW21+MKW22+MKW23+MKW24	6530	1726	0	R2	0.3	0.07	0.025	1958.9	120.8	0.0	2079.7
	YMTN01	834	1257	0	R2	0.3	0.07	0.025	250.1	88.0	0.0	338.1
	YMTN02	1765	141	0	R2	0.3	0.07	0.025	529.4	9.9	0.0	539.3
	YMTN03	418	96	0	R2	0.3	0.07	0.025	125.5	6.7	0.0	132.2
	YMTN04	0	0	1989	R2	0.3	0.07	0.025	0.0	0.0	49.7	49.7
	YMTN05	4760	475	0	R2	0.3	0.07	0.025	1427.9	33.3	0.0	1461.1
	YMTN06	592	129	0	R2	0.3	0.07	0.025	177.5	9.0	0.0	186.6
	YMTN07	764	248	0	R2	0.3	0.07	0.025	229.2	17.4	0.0	246.6
	YMTN08	302	180	0	R2	0.3	0.07	0.025	90.7	12.6	0.0	103.3
	YMTN09	610	588	0	R2	0.3	0.07	0.025	183.0	41.2	0.0	224.2
	YMTN10	0	599	0	R2	0.3	0.07	0.025	0.0	41.9	0.0	41.9
	YMTN11	142	223	0	R2	0.3	0.07	0.025	42.5	15.6	0.0	58.1
	YMTN12	326	280	0	R2	0.3	0.07	0.025	97.8	19.6	0.0	117.4
	YMTN13	366	146	0	R2	0.3	0.07	0.025	109.8	10.2	0.0	120.0
	YMTN14	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN15	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN16	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN17	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN18	890	260	0	R2	0.3	0.07	0.025	266.9	18.2	0.0	285.1
	YMTN19	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTN20	2382	411	0	R2	0.3	0.07	0.025	714.7	28.8	0.0	743.5

Freshwater Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Freshwater						
		Residential	Employment	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Employment*	Student	Residential	Employment	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTN21	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTS01	11309	770	0	R2	0.3	0.07	0.025	3392.6	53.9	0.0	3446.5
	YMTS02	0	0	0	R2	0.3	0.07	0.025	0.0	0.0	0.0	0.0
	YMTS03	1190	1551	0	R2	0.3	0.07	0.025	356.9	108.6	0.0	465.4
	YMTS04	1437	1199	0	R2	0.3	0.07	0.025	431.2	83.9	0.0	515.2
	YMTS05	461	156	0	R2	0.3	0.07	0.025	138.2	10.9	0.0	149.1
	YMTS06	304	245	0	R2	0.3	0.07	0.025	91.1	17.2	0.0	108.3
	YMTS07+YMTS08	9181	1935	0	R2	0.3	0.07	0.025	2754.4	135.5	0.0	2889.9
	YMTS09	1518	441	536	R2	0.3	0.07	0.025	455.5	30.9	13.4	499.7
	YMTS10	511	200	0	R2	0.3	0.07	0.025	153.3	14.0	0.0	167.3
	YMTS11	445	198	0	R2	0.3	0.07	0.025	133.5	13.9	0.0	147.3
	YMTS12	494	131	0	R2	0.3	0.07	0.025	148.1	9.2	0.0	157.3
	YMTS13	518	131	0	R2	0.3	0.07	0.025	155.3	9.2	0.0	164.5
	YMTS14	448	208	0	R2	0.3	0.07	0.025	134.3	14.6	0.0	148.8
	YMTS15	380	344	0	R2	0.3	0.07	0.025	114.0	24.1	0.0	138.0
	YMTS16	214	53	0	R2	0.3	0.07	0.025	64.3	3.7	0.0	68.0
	YMTS17	525	99	0	R2	0.3	0.07	0.025	157.6	6.9	0.0	164.5
	YMTS18	568	102	0	R2	0.3	0.07	0.025	170.5	7.1	0.0	177.6
	YMTS19	630	194	0	R2	0.3	0.07	0.025	188.9	13.6	0.0	202.4
	YMTS20	426	899	0	R2	0.3	0.07	0.025	127.7	62.9	0.0	190.6
	YMTS21	118	1530	0	R2	0.3	0.07	0.025	35.5	107.1	0.0	142.6
	YMTS22	333	354	0	R2	0.3	0.07	0.025	99.8	24.8	0.0	124.5
	YMTS23	250	144	0	R2	0.3	0.07	0.025	74.9	10.1	0.0	85.0
	YMTS24	496	248	0	R2	0.3	0.07	0.025	148.7	17.4	0.0	166.1
	YMTS25	340	628	0	R2	0.3	0.07	0.025	102.1	44.0	0.0	146.1
	YMTS26	609	834	0	R2	0.3	0.07	0.025	182.8	58.4	0.0	241.2
	YMTS27	191	2213	0	R2	0.3	0.07	0.025	57.3	154.9	0.0	212.2
	YMTS28	0	1055	0	R2	0.3	0.07	0.025	0.0	73.9	0.0	73.9
	YMTS29	114	3049	0	R2	0.3	0.07	0.025	34.1	213.4	0.0	247.5
	YMTS30	369	1791	0	R2	0.3	0.07	0.025	110.8	125.4	0.0	236.2
	YMTS31	418	1174	0	R2	0.3	0.07	0.025	125.3	82.2	0.0	207.4
	YMTS32	1090	985	0	R2	0.3	0.07	0.025	327.0	69.0	0.0	395.9
	YMTS33	0	175	2052	R2	0.3	0.07	0.025	0.0	12.3	51.3	63.6
	YMTN22	1437	1395	0	R2	0.3	0.07	0.025	431.2	97.7	0.0	528.8
	YMTN23	488	763	0	R2	0.3	0.07	0.025	146.4	53.4	0.0	199.8
	YMTN24	564	526	0	R2	0.3	0.07	0.025	169.3	36.8	0.0	206.1
Total		217,416	176,864	12,951					65,224.8	12,380.5	323.8	77,929.1

*:The unit demand factor for employment =0.04+0.03=0.07m^3/day. 0.04m^3/day is referenced from WSD's DI 1309 (service trade unit demand factor) and 0.03m^3/person/day is referenced from page 4 of EPD's GESF Appendix III (employee consumption rate)

**:The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Irrigation Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Site	Unpaved Area	Freshwater	
			Unit Demand Factor	Mean Demand
		m^2	$m^3/m^2/day$	m^3/day
Shek Kip Mei FWSR, Shek Kip Mei No. 2 FWSR & Shek Kip Mei No. 3 FWSR	Nullah Road Urban Waterway	10,797	0.01	108.0
	Tai Nan Street	2,246	0.01	22.5
	Arran Street SCA (North)	333	0.01	3.3
	Arran Street SCA (South)	356	0.01	3.6
Ho Man Tin East FW SR & Ho Man Tin West FW SR	Nullah Road Urban Waterway	166	0.01	1.7
	Mong Kok Market	1,154	0.01	11.5
	Hamilton Street	1,606	0.01	16.1
	Saigon Street	6,422	0.01	64.2
Total		23,080		230.8

*:The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Flushing Water Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population				Flushing Water						
		Residential	Employment	Student	Housing Type	Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Tai Wo Ping SWSR & Cheung Sha Wan SWPS	MKE01	741	197	0	R2	0.07	0.05	0.025	51.9	9.9	0.0	61.7
	MKE02	121	120	0	R2	0.07	0.05	0.025	8.5	6.0	0.0	14.5
	MKE03	1257	617	0	R2	0.07	0.05	0.025	88.0	30.9	0.0	118.8
	MKE04	966	468	0	R2	0.07	0.05	0.025	67.6	23.4	0.0	91.0
	MKE05	1398	311	0	R2	0.07	0.05	0.025	97.9	15.6	0.0	113.4
	MKE06	964	199	720	R2	0.07	0.05	0.025	67.5	10.0	18.0	95.4
	MKE07	1117	418	0	R2	0.07	0.05	0.025	78.2	20.9	0.0	99.1
	MKE08	1164	360	0	R2	0.07	0.05	0.025	81.5	18.0	0.0	99.5
	MKE09	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE10	866	1669	0	R2	0.07	0.05	0.025	60.6	83.5	0.0	144.0
	MKE11	630	1536	0	R2	0.07	0.05	0.025	44.1	76.8	0.0	120.9
	MKE12	490	2010	0	R2	0.07	0.05	0.025	34.3	100.5	0.0	134.8
	MKE13	277	67	0	R2	0.07	0.05	0.025	19.4	3.4	0.0	22.7
	MKE14	239	61	0	R2	0.07	0.05	0.025	16.8	3.1	0.0	19.8
	MKE15	8	1894	0	R2	0.07	0.05	0.025	0.6	94.7	0.0	95.3
	MKE16	6186	0	0	R2	0.07	0.05	0.025	433.0	0.0	0.0	433.0
	MKE17	0	2262	0	R2	0.07	0.05	0.025	0.0	113.1	0.0	113.1
	MKE18	2118	708	0	R2	0.07	0.05	0.025	148.3	35.4	0.0	183.7
	TKT01	520	275	0	R2	0.07	0.05	0.025	36.4	13.8	0.0	50.2
	TKT02+TKT04	14318	670	0	R2	0.07	0.05	0.025	1002.3	33.5	0.0	1035.8
	TKT03	834	142	0	R2	0.07	0.05	0.025	58.4	7.1	0.0	65.5
	TKT05+TKT12	3692	920	0	R2	0.07	0.05	0.025	258.4	46.0	0.0	304.4
	TKT06+TKT07+TKT08	5753	1391	960	R2	0.07	0.05	0.025	402.7	69.6	24.0	496.3
	TKT09	901	138	600	R2	0.07	0.05	0.025	63.1	6.9	15.0	85.0
	TKT10	1144	261	1266	R2	0.07	0.05	0.025	80.1	13.1	31.7	124.8
	TKT11	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT13	7240	1607	0	R2	0.07	0.05	0.025	506.8	80.4	0.0	587.1
	TKT14+TKT16	6507	600	0	R2	0.07	0.05	0.025	455.5	30.0	0.0	485.5
	TKT15+TKT17	4151	1057	0	R2	0.07	0.05	0.025	290.6	52.9	0.0	343.4
	TKT18	420	106	0	R2	0.07	0.05	0.025	29.4	5.3	0.0	34.7
	TKT19	1834	398	0	R2	0.07	0.05	0.025	128.4	19.9	0.0	148.3
	TKT20	1369	132	0	R2	0.07	0.05	0.025	95.8	6.6	0.0	102.4
	TKT21+TKT22+TKT23	3037	647	0	R2	0.07	0.05	0.025	212.6	32.4	0.0	244.9
	TKT24	0	1427	0	R2	0.07	0.05	0.025	0.0	71.4	0.0	71.4
	TKT25	0	4265	0	R2	0.07	0.05	0.025	0.0	213.3	0.0	213.3
	TKT26	1082	73	0	R2	0.07	0.05	0.025	75.7	3.7	0.0	79.4
	TKT27	622	289	0	R2	0.07	0.05	0.025	43.5	14.5	0.0	58.0
	TKT28	0	1677	0	R2	0.07	0.05	0.025	0.0	83.9	0.0	83.9
	TKT29	0	1327	0	R2	0.07	0.05	0.025	0.0	66.4	0.0	66.4
	TKT30+TKT31+TKT32+TKT33+TKT34+TKT36+ TKT37+TKT38+TKT48+TKT49	6105	9395	0	R2	0.07	0.05	0.025	427.3	469.8	0.0	897.1
	TKT35	0	1973	0	R2	0.07	0.05	0.025	0.0	98.7	0.0	98.7
	TKT39	444	253	0	R2	0.07	0.05	0.025	31.1	12.7	0.0	43.8
	TKT40	513	451	0	R2	0.07	0.05	0.025	35.9	22.6	0.0	58.5
	TKT41	182	49	0	R2	0.07	0.05	0.025	12.7	2.5	0.0	15.2

Flushing Water Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population				Flushing Water						
		Residential	Employment	Student	Housing Type	Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	TKT42	476	294	0	R2	0.07	0.05	0.025	33.3	14.7	0.0	48.0
	TKT43	67	15	0	R2	0.07	0.05	0.025	4.7	0.8	0.0	5.5
	TKT44	905	292	0	R2	0.07	0.05	0.025	63.3	14.6	0.0	77.9
	TKT45	2598	464	0	R2	0.07	0.05	0.025	181.8	23.2	0.0	205.0
	TKT46	645	224	0	R2	0.07	0.05	0.025	45.1	11.2	0.0	56.3
	TKT47	0	705	1454	R2	0.07	0.05	0.025	0.0	35.3	36.4	71.6
	TKT50	0	2316	0	R2	0.07	0.05	0.025	0.0	115.8	0.0	115.8
	TKT51	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT52	883	492	0	R2	0.07	0.05	0.025	61.8	24.6	0.0	86.4
	TKT53	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT56	275	963	0	R2	0.07	0.05	0.025	19.2	48.2	0.0	67.4
	TKT65	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	TKT66	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE19	1504	310	0	R2	0.07	0.05	0.025	105.3	15.5	0.0	120.8
	MKE20	1460	277	0	R2	0.07	0.05	0.025	102.2	13.9	0.0	116.1
	MKE21	1188	312	0	R2	0.07	0.05	0.025	83.2	15.6	0.0	98.8
	MKE22	785	833	0	R2	0.07	0.05	0.025	55.0	41.7	0.0	96.6
	MKE23	0	1336	0	R2	0.07	0.05	0.025	0.0	66.8	0.0	66.8
	MKE24	0	2395	0	R2	0.07	0.05	0.025	0.0	119.8	0.0	119.8
	MKE25	222	643	0	R2	0.07	0.05	0.025	15.6	32.2	0.0	47.7
	MKE26	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE27	4117	1308	0	R2	0.07	0.05	0.025	288.2	65.4	0.0	353.6
	MKE28	1085	237	0	R2	0.07	0.05	0.025	75.9	11.9	0.0	87.8
	MKE29	953	504	0	R2	0.07	0.05	0.025	66.7	25.2	0.0	91.9
	MKE30	1248	344	0	R2	0.07	0.05	0.025	87.4	17.2	0.0	104.6
	MKE31	1079	313	0	R2	0.07	0.05	0.025	75.5	15.7	0.0	91.2
	MKE32	838	520	0	R2	0.07	0.05	0.025	58.6	26.0	0.0	84.6
	MKE33	414	4102	0	R2	0.07	0.05	0.025	29.0	205.1	0.0	234.1
	MKE34	600	3054	0	R2	0.07	0.05	0.025	42.0	152.7	0.0	194.7
	MKE35	334	4575	0	R2	0.07	0.05	0.025	23.4	228.8	0.0	252.1
	MKE36	0	6056	0	R2	0.07	0.05	0.025	0.0	302.8	0.0	302.8
	MKE37	106	2457	0	R2	0.07	0.05	0.025	7.4	122.9	0.0	130.2
	MKE38	823	382	0	R2	0.07	0.05	0.025	57.6	19.1	0.0	76.7
	MKE39	935	228	0	R2	0.07	0.05	0.025	65.5	11.4	0.0	76.9
	MKE40	617	882	0	R2	0.07	0.05	0.025	43.2	44.1	0.0	87.3
	MKE41	759	27	0	R2	0.07	0.05	0.025	53.2	1.4	0.0	54.5
	MKE42	980	138	950	R2	0.07	0.05	0.025	68.6	6.9	23.8	99.3
	MKE43	0	0	1480	R2	0.07	0.05	0.025	0.0	0.0	37.0	37.0
	MKE44	789	97	0	R2	0.07	0.05	0.025	55.2	4.9	0.0	60.1
	MKE45	0	0	332	R2	0.07	0.05	0.025	0.0	0.0	8.3	8.3
	MKE46	850	346	0	R2	0.07	0.05	0.025	59.5	17.3	0.0	76.8
	MKE47	902	612	0	R2	0.07	0.05	0.025	63.1	30.6	0.0	93.7
	MKE48	356	2133	0	R2	0.07	0.05	0.025	25.0	106.7	0.0	131.6
	MKE49	912	2302	0	R2	0.07	0.05	0.025	63.8	115.1	0.0	178.9

Flushing Water Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Flushing Water						
		Residential	Employment	Student		Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
Yau Ma Tei SWSR & Kowloon South No.2 SWPS	MKE50	0	1289	0	R2	0.07	0.05	0.025	0.0	64.5	0.0	64.5
	MKE51	0	1515	0	R2	0.07	0.05	0.025	0.0	75.8	0.0	75.8
	MKE52	0	3356	0	R2	0.07	0.05	0.025	0.0	167.8	0.0	167.8
	MKE53	690	1818	0	R2	0.07	0.05	0.025	48.3	90.9	0.0	139.2
	MKE54	1485	410	0	R2	0.07	0.05	0.025	104.0	20.5	0.0	124.5
	MKE55	1955	1279	0	R2	0.07	0.05	0.025	136.8	64.0	0.0	200.8
	MKE56	2242	882	0	R2	0.07	0.05	0.025	157.0	44.1	0.0	201.1
	MKE57	1540	810	0	R2	0.07	0.05	0.025	107.8	40.5	0.0	148.3
	MKE58	1058	3305	0	R2	0.07	0.05	0.025	74.0	165.3	0.0	239.3
	MKE59	104	1778	0	R2	0.07	0.05	0.025	7.3	88.9	0.0	96.2
	MKE60	193	1377	0	R2	0.07	0.05	0.025	13.5	68.9	0.0	82.3
	MKE61	1228	772	0	R2	0.07	0.05	0.025	86.0	38.6	0.0	124.6
	MKE62	746	1037	0	R2	0.07	0.05	0.025	52.2	51.9	0.0	104.1
	MKE63	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	MKE64	0	5590	0	R2	0.07	0.05	0.025	0.0	279.5	0.0	279.5
	MKW01	813	922	0	R2	0.07	0.05	0.025	56.9	46.1	0.0	103.0
	MKW02	864	763	0	R2	0.07	0.05	0.025	60.5	38.2	0.0	98.7
	MKW03	5328	6067	0	R2	0.07	0.05	0.025	372.9	303.4	0.0	676.3
	MKW04	5716	6441	0	R2	0.07	0.05	0.025	400.1	322.1	0.0	722.2
	MKW05	1367	150	0	R2	0.07	0.05	0.025	95.7	7.5	0.0	103.2
	MKW06	2737	632	0	R2	0.07	0.05	0.025	191.6	31.6	0.0	223.2
	MKW07	3185	1876	0	R2	0.07	0.05	0.025	222.9	93.8	0.0	316.7
	MKW08	692	206	0	R2	0.07	0.05	0.025	48.5	10.3	0.0	58.8
	MKW09	863	287	0	R2	0.07	0.05	0.025	60.4	14.4	0.0	74.8
	MKW10	713	493	0	R2	0.07	0.05	0.025	49.9	24.7	0.0	74.6
	MKW11	331	138	0	R2	0.07	0.05	0.025	23.2	6.9	0.0	30.1
	MKW12	335	732	0	R2	0.07	0.05	0.025	23.5	36.6	0.0	60.1
	MKW13	471	880	0	R2	0.07	0.05	0.025	33.0	44.0	0.0	77.0
	MKW14	0	204	0	R2	0.07	0.05	0.025	0.0	10.2	0.0	10.2
	MKW15	497	612	0	R2	0.07	0.05	0.025	34.8	30.6	0.0	65.4
	MKW16	1409	445	0	R2	0.07	0.05	0.025	98.6	22.3	0.0	120.9
	MKW17	2443	317	0	R2	0.07	0.05	0.025	171.0	15.9	0.0	186.9
	MKW18+MKW19+MKW20	2385	339	0	R2	0.07	0.05	0.025	166.9	17.0	0.0	183.9
	MKW21+MKW22+MKW23+MKW24	6530	1726	0	R2	0.07	0.05	0.025	457.1	86.3	0.0	543.4
	TKT54	0	0	612	R2	0.07	0.05	0.025	0.0	0.0	15.3	15.3
	TKT55	2561	135	0	R2	0.07	0.05	0.025	179.2	6.8	0.0	186.0
	TKT57	511	1126	0	R2	0.07	0.05	0.025	35.8	56.3	0.0	92.1
	TKT58	2968	155	0	R2	0.07	0.05	0.025	207.8	7.8	0.0	215.5
	TKT59+TKT60+TKT61	140	7755	0	R2	0.07	0.05	0.025	9.8	387.8	0.0	397.6
	TKT62	472	1299	0	R2	0.07	0.05	0.025	33.1	65.0	0.0	98.0
	TKT63	1369	531	0	R2	0.07	0.05	0.025	95.8	26.6	0.0	122.4
	TKT64	1036	1754	0	R2	0.07	0.05	0.025	72.5	87.7	0.0	160.2
	YMTN01	834	1257	0	R2	0.07	0.05	0.025	58.4	62.9	0.0	121.2

Flushing Water Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population			Housing Type	Flushing Water						
						Unit Demand Factor			Mean Demand			Total
		Residential	Employment	Student		Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTN02	1765	141	0	R2	0.07	0.05	0.025	123.5	7.1	0.0	130.6
	YMTN03	418	96	0	R2	0.07	0.05	0.025	29.3	4.8	0.0	34.1
	YMTN04	0	0	1989	R2	0.07	0.05	0.025	0.0	0.0	49.7	49.7
	YMTN05	4760	475	0	R2	0.07	0.05	0.025	333.2	23.8	0.0	356.9
	YMTN06	592	129	0	R2	0.07	0.05	0.025	41.4	6.5	0.0	47.9
	YMTN07	764	248	0	R2	0.07	0.05	0.025	53.5	12.4	0.0	65.9
	YMTN08	302	180	0	R2	0.07	0.05	0.025	21.2	9.0	0.0	30.2
	YMTN09	610	588	0	R2	0.07	0.05	0.025	42.7	29.4	0.0	72.1
	YMTN10	0	599	0	R2	0.07	0.05	0.025	0.0	30.0	0.0	30.0
	YMTN11	142	223	0	R2	0.07	0.05	0.025	9.9	11.2	0.0	21.1
	YMTN12	326	280	0	R2	0.07	0.05	0.025	22.8	14.0	0.0	36.8
	YMTN13	366	146	0	R2	0.07	0.05	0.025	25.6	7.3	0.0	32.9
	YMTN14	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN15	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN16	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN17	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN18	890	260	0	R2	0.07	0.05	0.025	62.3	13.0	0.0	75.3
	YMTN19	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTN20	2382	411	0	R2	0.07	0.05	0.025	166.8	20.6	0.0	187.3
	YMTN21	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTS01	11309	770	0	R2	0.07	0.05	0.025	791.6	38.5	0.0	830.1
	YMTS02	0	0	0	R2	0.07	0.05	0.025	0.0	0.0	0.0	0.0
	YMTS03	1190	1551	0	R2	0.07	0.05	0.025	83.3	77.6	0.0	160.8
	YMTS04	1437	1199	0	R2	0.07	0.05	0.025	100.6	60.0	0.0	160.6
	YMTS05	461	156	0	R2	0.07	0.05	0.025	32.2	7.8	0.0	40.0
	YMTS06	304	245	0	R2	0.07	0.05	0.025	21.3	12.3	0.0	33.5
	YMTS07+YMTS08	9181	1935	0	R2	0.07	0.05	0.025	642.7	96.8	0.0	739.5
	YMTS09	1518	441	536	R2	0.07	0.05	0.025	106.3	22.1	13.4	141.7
	YMTS10	511	200	0	R2	0.07	0.05	0.025	35.8	10.0	0.0	45.8
	YMTS11	445	198	0	R2	0.07	0.05	0.025	31.1	9.9	0.0	41.0
	YMTS12	494	131	0	R2	0.07	0.05	0.025	34.6	6.6	0.0	41.1
	YMTS13	518	131	0	R2	0.07	0.05	0.025	36.2	6.6	0.0	42.8
	YMTS14	448	208	0	R2	0.07	0.05	0.025	31.3	10.4	0.0	41.7
	YMTS15	380	344	0	R2	0.07	0.05	0.025	26.6	17.2	0.0	43.8
	YMTS16	214	53	0	R2	0.07	0.05	0.025	15.0	2.7	0.0	17.6
	YMTS17	525	99	0	R2	0.07	0.05	0.025	36.8	5.0	0.0	41.7
	YMTS18	568	102	0	R2	0.07	0.05	0.025	39.8	5.1	0.0	44.9
	YMTS19	630	194	0	R2	0.07	0.05	0.025	44.1	9.7	0.0	53.8
	YMTS20	426	899	0	R2	0.07	0.05	0.025	29.8	45.0	0.0	74.7
	YMTS21	118	1530	0	R2	0.07	0.05	0.025	8.3	76.5	0.0	84.8
	YMTS22	333	354	0	R2	0.07	0.05	0.025	23.3	17.7	0.0	41.0
	YMTS23	250	144	0	R2	0.07	0.05	0.025	17.5	7.2	0.0	24.7
	YMTS24	496	248	0	R2	0.07	0.05	0.025	34.7	12.4	0.0	47.1

Flushing Water Demand Estimation (7.5 Domestic Plot Ratio / 1.5 Non-Domestic Plot Ratio)

Water Supply Zone	Street Block	Population				Flushing Water						
		Residential	Employment	Student	Housing Type	Unit Demand Factor			Mean Demand			Total
						Residential	Commercial	Student	Residential	Commercial	Student	
		(Person)	(Person)	(Person)		m^3/person/day	m^3/person/day	m^3/person/day	m^3/day	m^3/day	m^3/day	m^3/day
	YMTS25	340	628	0	R2	0.07	0.05	0.025	23.8	31.4	0.0	55.2
	YMTS26	609	834	0	R2	0.07	0.05	0.025	42.7	41.7	0.0	84.4
	YMTS27	191	2213	0	R2	0.07	0.05	0.025	13.4	110.7	0.0	124.0
	YMTS28	0	1055	0	R2	0.07	0.05	0.025	0.0	52.8	0.0	52.8
	YMTS29	114	3049	0	R2	0.07	0.05	0.025	8.0	152.5	0.0	160.4
	YMTS30	369	1791	0	R2	0.07	0.05	0.025	25.9	89.6	0.0	115.4
	YMTS31	418	1174	0	R2	0.07	0.05	0.025	29.2	58.7	0.0	87.9
	YMTS32	1090	985	0	R2	0.07	0.05	0.025	76.3	49.3	0.0	125.5
	YMTS33	0	175	2052	R2	0.07	0.05	0.025	0.0	8.8	51.3	60.1
	YMTN22	1437	1395	0	R2	0.07	0.05	0.025	100.6	69.8	0.0	170.4
	YMTN23	488	763	0	R2	0.07	0.05	0.025	34.2	38.2	0.0	72.3
	YMTN24	564	526	0	R2	0.07	0.05	0.025	39.5	26.3	0.0	65.8
Total									15,219.1	8,843.2	323.8	24,386.1

**:The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Prepared for

Urban Renewal Authority

Prepared by

Ramboll Hong Kong Limited

OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

DRAINAGE IMPACT ASSESSMENT

Date	**16 June 2022**
Prepared by	**Ken Li** **Assistant Environmental Consultant**
Signed	
Approved by	**Katie Yu** **Senior Manager**
Signed	
Project Reference	**URAYMTMKEI00**
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CHAPTERS

TABLES

FIGURES

APPENDICES

1. INTRODUCTION

1.1 Project Background

1.1.1 The Yau Mai Tei – Mong Kok districts are densely populated districts with a high proportion of aged buildings. Over half the existing buildings within the districts are aged 50 years or older. There is an urgent need to revitalize the districts through urban renewal.

1.1.2 In 2017, the Urban Renewal Authority (URA) carried out the District Study for Yau Ma Tei and Mong Kok (hereafter "YM Study") with the aim of drawing up a comprehensive urban renewal plan of the two districts. Based on the findings of the Study, URA proposed three master renewal concept plans (MRCP) with varying development density, of which the MRCP+ scenario with the highest development intensity was used for technical assessments, including the Drainage Impact Assessment (DIA), to account for the worst-case scenario.

1.1.3 Following the completion of the YM Study, the Government aims to kick start the first batch of Outline Zoning Plan (OZP) amendments in 2022. In carrying out the OZP amendments, the development parameters adopted in MRCP+ of the YM Study have to be re-visited taking into account latest proposals agreed by the Government which include change in the maximum domestic plot ratio for R(A) and R(E) zones, relaxation of plot ratio of C zone, rezoning of some R(A) sites to "Other Specified Uses (Mixed Use)" "OU(MU)" at character streets. These changes require the review of various technical assessments, including the DIA.

1.1.4 Ramboll Hong Kong Limited has been appointed to conduct this DIA for the proposed OZP amendments.

1.2 Objectives of the Report

1.2.1 This DIA report aims to assess the drainage impact due to the proposed OZP amendments with the selected planned developments taken as assumption (hereafter "OZP Amendment Scheme") as compared to the baseline condition representing the existing OZP scheme. The DIA also made reference to the findings of the MRCP+ DIA conducted under the YM Study where appropriate.

1.3 Study Area

1.3.1 The Study Area covers the majority of Mong Kok District and Yau Ma Tei District with the study boundary stopping just short of Hoi Wang Road and Jordan Road in Yau Ma Tei. The Study Area is bounded by West Kowloon Cultural District to the southwest and Tsim Sha Tsui to the south. The northern half of the Study Area falls under the approved Mong Kok OZP No. S/K3/34 while the southern half of the Site passed Dundas Street is under the draft Yau Ma Tei OZP No. S/K2/23. The area around The Coronation near Yan Cheung Road is under the Approved South West Kowloon OZP S/K20/30. The Study Area is presented in **Figure 1.1**.

1.3.2 The Study Area is densely populated with medium to high-rise buildings throughout the two districts. Stormwater runoff are collected by drainage pipes and box culvert with a flow direction generally from east to west for discharge to Yau Ma Tei Typhoon Shelter and Stonecutter embayment area. The majority of the area is concrete paved.

1.3.3 The current OZP conditions of the Study Area are taken to be the baseline condition.

1.4 OZP Amendment and Major Assumptions

1.4.1 The OZP Amendment Scheme comprises the following OZP amendment elements:

- For the "R(A)" and "R(E)" zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100mPD to 115mPD;
- For the "C" zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of 15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and
- Rezone some "R(A)" sites at the Character Streets to "OU(MU)" with a maximum domestic PR of 7.5 and maximum total PR of 9[1]. The building height restriction is proposed to be increased from 100mPD to 115mPD.

1.4.2 In addition, the following planned developments, as agreed with concerned departments at the interdepartmental meeting on 17 November 2021, are assumed to be completed by 2047:

- Nullah Road Urban Waterway
- Mong Kok Market Revitalisation
- Hamilton Street
- Saigon Street
- Tai Nan Street SCA
- Arran Street SCA

1.4.3 The proposed OZP amendments together with the planned developments assumed to be completed by 2047 would increase the domestic and non-domestic GFAs within the Study Area, as illustrated in **Table 1.1**.

Table 1.1 Change in GFA between Existing and Long Term Scenario

	Existing (m^2)	Long Term (m^2)
Domestic	~3,914,000	~4,658,000
Non-Domestic	~3,012,000	~3,696,000

1.4.4 This DIA will adopt the latest development parameters of the proposed OZP amendments and the planned developments.

[1] Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

2. DRAINAGE IMPACT ASSESSMENT

2.1 Assessment Criteria and Methodology

2.1.1 The assessment standard and method comply with the Stormwater Drainage Manual (5th Edition, January 2018) published by DSD (DSD SDM). The Study Area is located within an urban drainage branch system and a 1 in 50 years return period has been adopted in this DIA.

2.1.2 The surface runoff has been calculated using the "Rational Method", as outlined in the DSD SDM:

$$Qp = 0.278 \times C \times i \times A$$

Where

Qp = peak runoff in m^3/s

C = runoff coefficient (dimensionless)

i = rainfall intensity in mm/hr

A = catchment area in km^2

2.1.3 With reference to Table 28 of DSD SDM and a 1 in 50 years return period, 10.4% increase of rainfall due to climate change has been considered in the calculations.

2.2 Drainage Catchment and Changes in Open Area

2.2.1 The Study Area is divided into 18 catchment zones according to the MRCP+ DIA of the YM Study. The catchment plan is shown in **Figure 2.1**.

2.2.2 The paved and unpaved assumptions for the baseline scenario are referenced from that adopted in the MRCP+ DIA of the YM Study and presented in **Figure 2.2**.

2.2.3 While the proposed OZP amendments have not proposed additional open space zoning within the Study Area, except enlarging the open space at Boundary Street playground, the planned developments at Nullah road Urban Waterway, Mong Kok Market, Hamilton Street and Saigon Street take the opportunity to incorporate more open areas within the project sites (about 30% of the site area), with at least 20% greening ratio assumed for open area less than 1,000 sqm and 50% greening ratio assumed for open area over 1,000 sqm. For the two SCAs, the greening ratio of the 25% and 15% are assumed for open area within Tai Nan Street SCA and Arran Street SCA, respectively.

2.2.4 The assumed paved and unpaved area within the assumed planned development sites are summarised in **Table 2.1**

Table 2.1 Paved and Unpaved Area Distribution Assumed within the Planned Development Sites

Site Name	Baseline Scenario		OZP Amendment Scheme	
	Paved Area (ha)	Unpaved Area (ha)	Paved Area (ha)	Unpaved Area (ha)
Nullah Road Urban Waterway	5.37	0.55	4.83	1.10
Mong Kok Market	1.94	0.02	1.84	0.12
Hamilton Street	1.59	0.00	1.43	0.16
Saigon Street	2.70	0.00	2.06	0.64
Tai Nan Street SCA	2.87	0.00	2.62	0.26

Site Name	Baseline Scenario		OZP Amendment Scheme	
	Paved Area (ha)	Unpaved Area (ha)	Paved Area (ha)	Unpaved Area (ha)
Arran Street SCA	1.37	0.00	1.03	0.07
Total	15.84	0.57	14.07	2.34

2.2.5 The paved and unpaved area in baseline scenario and the OZP Amendment Scheme are summarised in **Table 2.2**. With the planned developments implemented under the OZP Amendment Scheme, there is more unpaved area (including those within and outside the assumed planned developments) within the Study Area.

Table 2.2 Paved and Unpaved Area Distribution in Baseline Scenario and OZP Amendment Scheme

Zone	Area (ha)	Baseline Scenario		OZP Amendment Scheme	
		Paved Area (ha)	Unpaved Area (ha)	Paved Area (ha)	Unpaved Area (ha)
Z1	2.73	2.73	0.00	2.73	0.00
Z2	14.27	14.27	0.00	14.27	0.00
Z3	3.48	3.48	0.00	3.48	0.00
Z4	1.17	1.17	0.00	1.17	0.00
Z5	7.80	7.80	0.00	7.80	0.00
Z6	5.99	5.99	0.00	5.99	0.00
Z7	9.70	9.70	0.00	9.44	0.26
Z8	25.02	23.49	1.53	22.85	2.17
Z9	2.57	2.57	0.00	2.57	0.00
Z10	3.25	3.25	0.00	3.25	0.00
Z11	8.30	8.30	0.00	8.29	0.01
Z12	11.81	11.81	0.00	11.81	0.00
Z13	6.68	6.68	0.00	6.59	0.09
Z14	10.72	10.72	0.00	10.65	0.07
Z15	6.66	6.66	0.00	6.66	0.00
Z16	13.27	13.27	0.00	12.77	0.50
Z17	3.47	3.47	0.00	3.33	0.14
Z18	11.10	11.10	0.00	11.10	0.00
Total	**147.99**	**146.46**	**1.53**	**144.76**	**3.24**

2.3 Surface Runoff Comparison

2.3.1 By using the formula mentioned in **Section 2.1.2**, the peak surface runoff has been estimated for the OZP Amendment Scheme, with detailed calculation presented in **Appendix 2.1**. The results have been compared with the estimated runoff of the baseline scenario and summarised in **Table 2.3**.

Table 2.3 Surface Runoff Comparison

Zone	Estimated Surface Runoff (m^3/s)		
	Baseline Scenario	OZP Amendment Scheme	Net Difference
Z1	1.83	1.82	0.00
Z2	9.53	9.53	0.00
Z3	2.32	2.33	0.00
Z4	0.78	0.78	0.00
Z5	5.21	5.21	0.00
Z6	4.00	4.00	0.00
Z7	6.48	6.37	-0.11
Z8	16.07	15.80	-0.27
Z9	1.71	1.72	0.00
Z10	2.17	2.17	0.00
Z11	5.55	5.54	-0.01
Z12	7.89	7.89	0.00
Z13	4.46	4.43	-0.04
Z14	7.16	7.13	-0.03
Z15	4.45	4.45	0.00
Z16	8.86	8.66	-0.20
Z17	2.32	2.26	-0.06
Z18	7.42	7.42	0.00

2.3.2 The estimated surface runoff due to the change in paved/unpaved area under the OZP Amendment Scheme is found to be 0.69 m^3/s less than the baseline scenario.

2.3.3 As the OZP Amendment Scheme will lead to a reduction of surface runoff, hence no adverse drainage impact is anticipated and no drainage improvement works are required due to the proposed OZP amendment and the assumed planned developments.

2.3.4 However, as concluded in the DIA report for long term MRCP+ scenario conducted under the YM Study, a number of trunks and branch drains are surcharged (i.e. manholes having insufficient freeboard or flooded) in worst scenario of 10-year and 50-year flood level return period respectively in the baseline scenario, should the MRCP+ scenario to be implemented in full, investigation to assess the adverse drainage effect is suggested to be carried out and mitigation should be provided by DSD in the future.

3. CONCLSUION

3.1.1 This report has adopted the latest development parameters of the OZP Amendment Scheme, comprising proposed OZP amendments and planned developments, for the assessment of drainage impact and made reference to the findings of the MRCP+ DIA conducted under the YM Study.

3.1.2 The OZP Amendment Scheme would generate less surface runoff when compared to the baseline scenario as the total paved area is reduced at the planned development sites. Hence no adverse drainage impact is anticipated.

3.1.3 However, a number of trunks and branch drains are surcharged in worst scenario of 10-year and 50-year flood level return period respectively in the baseline scenario, therefore investigation to assess the adverse drainage effect is suggested to be carried out and mitigation should be provided by DSD in the future when necessary.

Figures

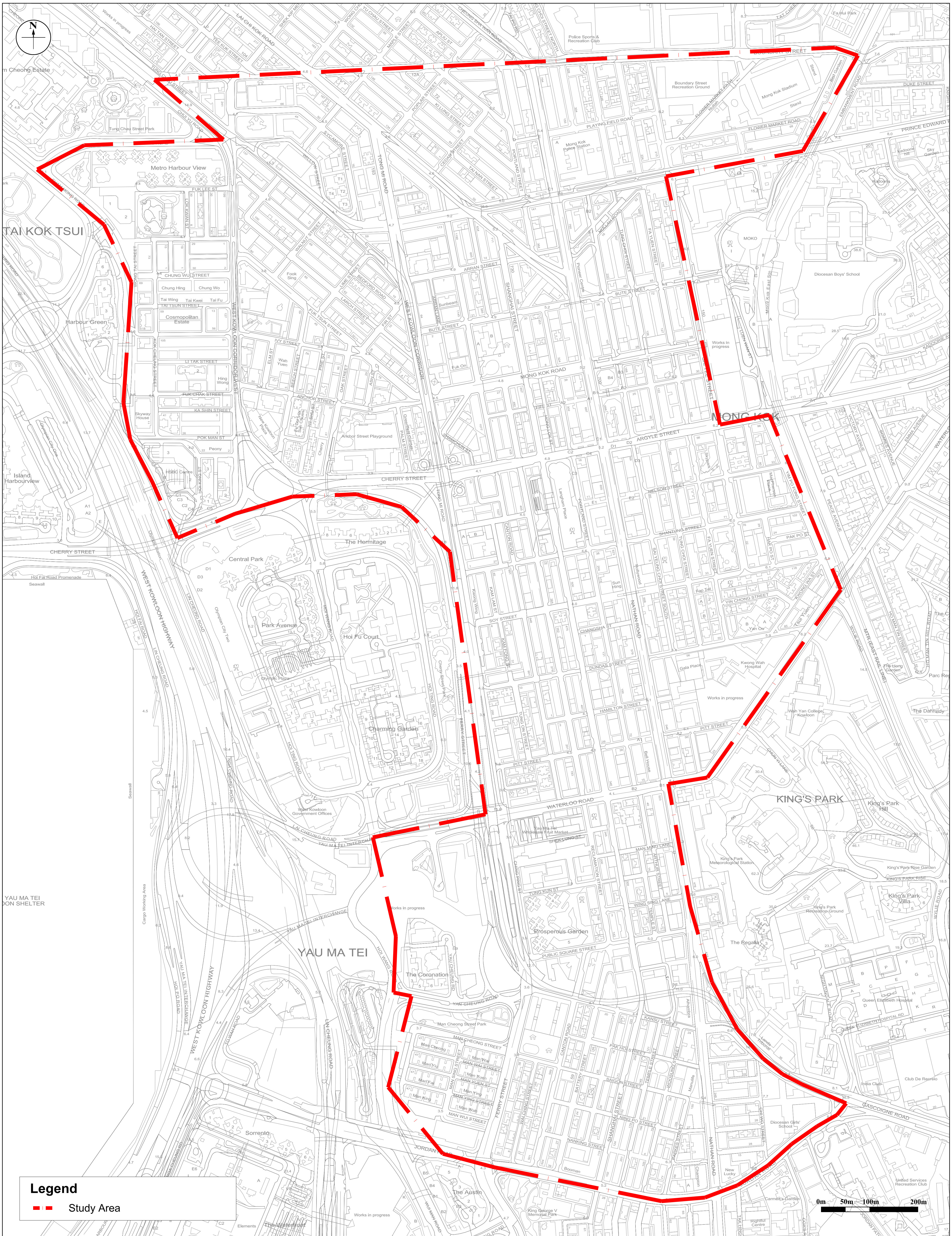

Figure: 1.1

Title: Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts

Drawn by:	KL
Checked by:	KY
Rev.:	2.0
Date:	May 2022

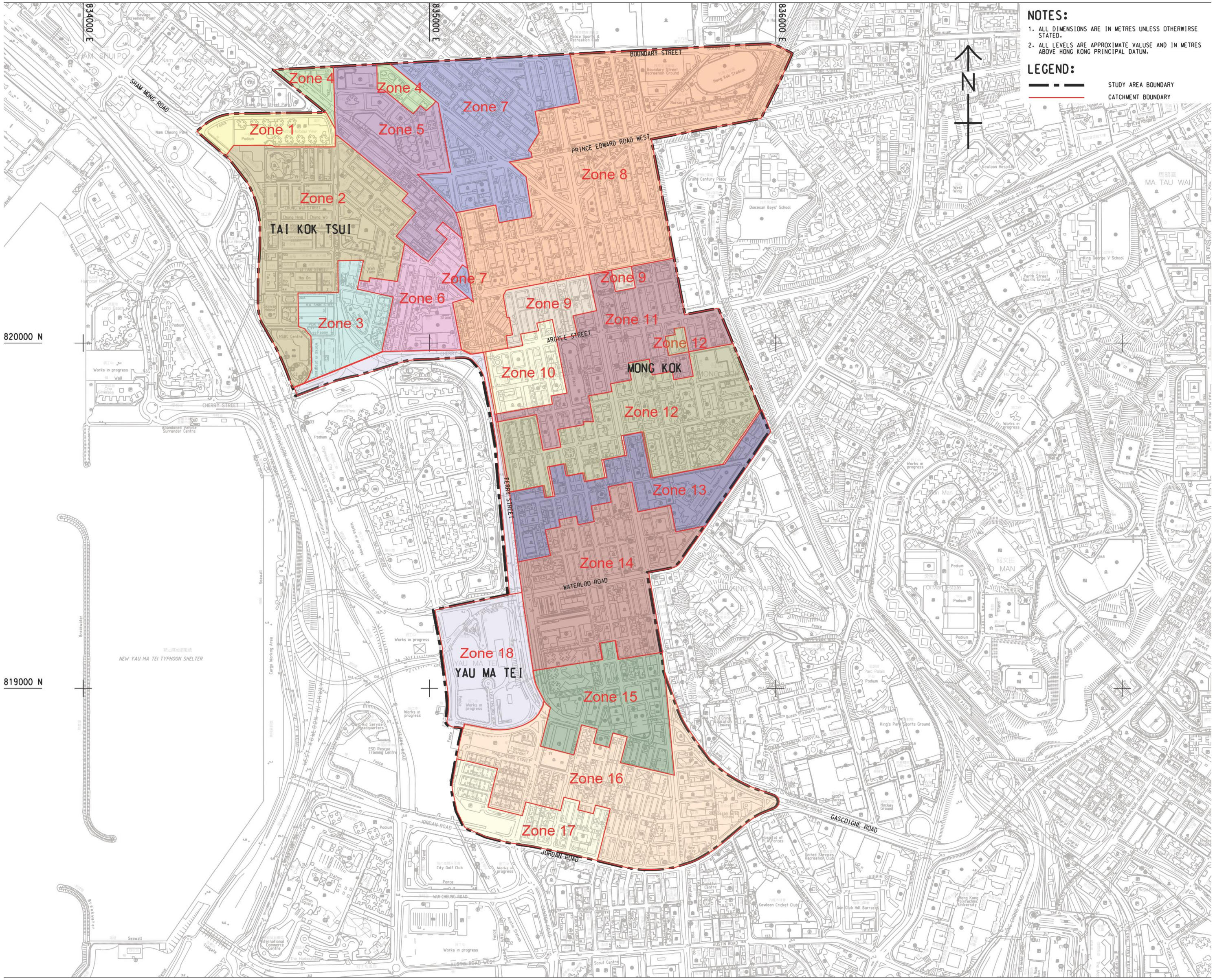

Figure: 2.1		RAMBOLL
Title: Catchment Plan (Extracted from DIA report of YM Study)		Drawn by: KL
		Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts		Rev.: 2.0
		Date: May 2022

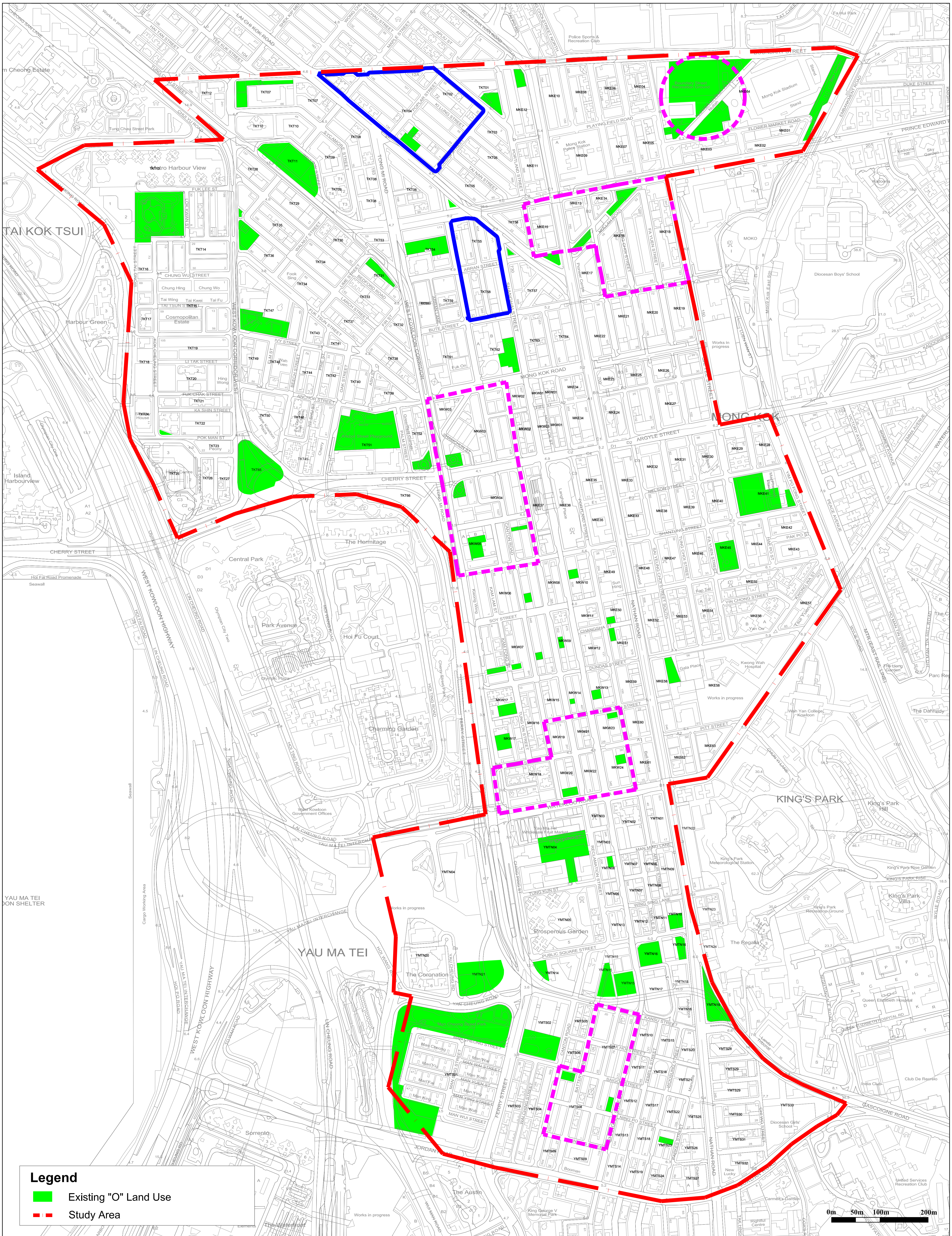

Figure:	2.2		
Title:	Existing Open Space	Drawn by:	KL
		Checked by:	KY
Project:	Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts	Rev.:	2.1
		Date:	May 2022

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Appendix 2.1

Surface Runoff Estimation

Catchments are reasonably small, so Rational Method is appropriate

Based on Section 7.5.2 of DSD SDM, the peak runoff by Rational Method is given by the following expression:

$Q_p = 0.278C\ i\ A$

where
Q_p = peak runoff in m^3/s
C = runoff coefficient (dimensionless)
i = rainfall intensity in mm/hr
A = catchment area in km^2

Based on Section 4.3.3 of DSD SDM, $i = \frac{a}{(t_d+b)^c}$

where
i = extreme mean intensity in mm/hr
t_d = duration in minutes ($t_d \leq 240$)
a, b and c = storm constants

Surface Runoff Estimation for OZP Amendment Scheme

From	To	Catchment Area (ha) (A)		Catchment Area (km^2) (A)		Time of Duration (t_d)	Intensity (included rainfall increase due to cliamte change) (i)	Runoff (Qp)
		Paved	Unpaved	Paved	Unpaved	(min)	(mm/hr)	m^3/s
Zone 1	Existing Drainage System	2.73	0.00	0.03	0.00	5	253	1.82
Zone 2	Existing Drainage System	14.27	0.00	0.14	0.00	5	253	9.53
Zone 3	Existing Drainage System	3.48	0.00	0.03	0.00	5	253	2.33
Zone 4	Existing Drainage System	1.17	0.00	0.01	0.00	5	253	0.78
Zone 5	Existing Drainage System	7.80	0.00	0.08	0.00	5	253	5.21
Zone 6	Existing Drainage System	5.99	0.00	0.06	0.00	5	253	4.00
Zone 7	Existing Drainage System	9.44	0.26	0.09	0.00	5	253	6.37
Zone 8	Existing Drainage System	22.85	2.17	0.23	0.02	5	253	15.80
Zone 9	Existing Drainage System	2.57	0.00	0.03	0.00	5	253	1.72
Zone 10	Existing Drainage System	3.25	0.00	0.03	0.00	5	253	2.17
Zone 11	Existing Drainage System	8.29	0.01	0.08	0.00	5	253	5.54
Zone 12	Existing Drainage System	11.81	0.00	0.12	0.00	5	253	7.89
Zone 13	Existing Drainage System	6.59	0.09	0.07	0.00	5	253	4.43
Zone 14	Existing Drainage System	10.65	0.07	0.11	0.00	5	253	7.13
Zone 15	Existing Drainage System	6.66	0.00	0.07	0.00	5	253	4.45
Zone 16	Existing Drainage System	12.77	0.50	0.13	0.01	5	253	8.66
Zone 17	Existing Drainage System	3.33	0.14	0.03	0.00	5	253	2.26
Zone 18	Existing Drainage System	11.10	0.00	0.11	0.00	5	253	7.42

Parameters:

Paved Area Runoff Coefficient (C): 0.95

Unpaved Area Runoff Coefficient (C): 0.35

Rainfall Increase due to Climate Change: 10.4%

Extract of Table 3a from DSD SDM – Storm Constants for Different Return Periods of HKO Headquarters

Rain Storm Return Period = 50 years	
a	451.3
b	2.46
c	0.337

*The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Prepared for

Urban Renewal Authority

Prepared by

Ramboll Hong Kong Limited

OUTLINE ZONING PLAN AMENDMENTS IN YAU MA TEI AND MONG KOK DISTRICTS

SEWERAGE IMPACT ASSESSMENT

Date	**16 June 2022**
Prepared by	**Ken Li** **Assistant Environmental Consultant**
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Signed	
Project Reference	**URAYMTMKEI00**
Document No.	**R8439_v2.3.docx**

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CHAPTERS

TABLES

FIGURES

APPENDICES

1. INTRODUCTION

1.1 Project Background

1.1.1 The Yau Mai Tei – Mong Kok districts are densely populated districts with a high proportion of aged buildings. Over half the existing buildings within the districts are aged 50 years or older. There is an urgent need to revitalize the districts through urban renewal.

1.1.2 In 2017, the Urban Renewal Authority (URA) carried out the District Study for Yau Ma Tei and Mong Kok (hereafter "YM Study") with the aim of drawing up a comprehensive urban renewal plan of the two districts. Based on the findings in the Study, URA proposed three master renewal concept plans (MRCP) with varying development density, of which the MRCP+ scenario with the highest development intensity was used for technical assessments, including the Sewerage Impact Assessment (SIA), to account for the worst-case scenario.

1.1.3 Following the completion of the YM Study, the Government aims to kick start the first batch of Outline Zoning Plan (OZP) amendments in 2022. In carrying out the OZP amendments, the development parameters adopted in MRCP+ of the YM Study have to be re-visited taking into account latest proposals agreed by the Government which include change in the maximum domestic plot ratio for R(A) and R(E) zones, relaxation of plot ratio of C zone, rezone of some R(A) sites to "Other Specified Uses (Mixed Use)" "OU(MU)" at character streets. These changes require the review of various technical assessments, including the SIA.

1.1.4 Ramboll Hong Kong Limited has been appointed to conduct this SIA for the proposed OZP amendment.

1.2 Objectives of the Report

1.2.1 This SIA report aims to assess the sewerage impact due to the proposed OZP amendments with the selected planned developments taken as assumption (hereafter "OZP Amendment Scheme") as compared to the baseline condition representing the existing OZP scheme. The SIA also made reference to the findings of the MRCP+ SIA conducted under the YM Study where appropriate.

1.3 Study Area

1.3.1 The Study Area is shown in **Figure 1.1** and the location of street blocks is shown in **Figure 1.2**. The Study Area covers the majority of Mong Kok District and Yau Ma Tei District with the boundary stopping just short of Hoi Wang Road and Jordan Road in Yau Ma Tei. The Study Area is bounded by West Kowloon Cultural District to the southwest and Tsim Sha Tsui to the south.

1.3.2 The Study Area is densely populated with medium to high-rise buildings throughout the two districts. Buildings within the Study Area are all connected by the sewerage network leading to the Anchor Street Sewage Pumping Station (SPS), West Kowloon No. 1 SPS, Sham Shui Po No. 1 and 2 Sewage Screening Plant (SSP) and Cheung Sha Wan SPS before discharging to the Stonecutter Island Sewage Treatment Works (SCISTW).

1.3.3 As the assessment is to examine the implications arising from the OZP amendments as compared to the permitted land use and intensity under the current OZPs, conditions of the Study Area with population data under the current OZPs are taken to be the baseline condition.

1.4 OZP Amendment and Major Assumptions

1.4.1 The OZP Amendment Scheme comprises the following amendments to the relevant OZPs:

- For the "R(A)" and "R(E)" zones, relax the maximum domestic PR of 7.5 to 8.5 while the maximum total PR remains at 9. The building height restriction is proposed to be increased from 100mPD to 115mPD;
- For the "C" zone along Nathan Road, remove the maximum PR of 12 (i.e. to follow the PR restriction in Building (Planning) Regulations with maximum PR of 15 for non-domestic buildings) and corresponding increase of building height restrictions from 110mPD/130mPD to 140mPD/160mPD; and
- Rezone some "R(A)" sites at the Character Streets to "OU(MU)" with a maximum domestic PR of 7.5 and maximum total PR of 9[1]. The building height restriction is proposed to be increased from 100mPD to 115mPD.

1.4.2 In addition, as agreed with concerned departments at the interdepartmental meeting on 17 November 2021, the following planned developments are assumed to be completed by 2047:

- Nullah Road Urban Waterway
- Mong Kok Market Revitalisation
- Hamilton Street
- Saigon Street
- Tai Nan Street SCA
- Arran Street SCA

1.4.3 The proposed OZP amendments together with the planned developments assumed to be completed by 2047 would increase the domestic and non-domestic GFAs within the Study Area, as illustrated in **Table 1.1**.

Table 1.1 Change in GFA between Existing and Long Term Scenario

	Existing (m^2)	Long Term (m^2)
Domestic	~3,914,000	~4,658,000
Non-Domestic	~3,012,000	~3,696,000

1.4.4 This SIA will adopt the latest development parameters of the proposed OZP amendments and the planned developments.

[1] Domestic and non-domestic PR split of 4.5/4.5 is adopted as an assumption in the assessment representing a possible scenario.

2. SEWERAGE IMPACT ASSESSMENT

2.1 Existing Sewerage System

2.1.1 The sewage generated from the Study Area are discharged to Anchor Street SPS, West Kowloon No.1 SPS and Sham Shui Po No.1 & 2 Sewage Screening Plant (SSP).

2.1.2 As shown in **Figure 2.1**, the Study Area is divided into 25 catchments (YM1 to YM25). The sewage from YM1 to YM7, YM16 (the southern part of the Study Area) are discharged to the existing Anchor Street SPS, while for the sewage from YM19 (north-western part of the Study Area) are discharged to West Kowloon No.1 SPS.

2.1.3 The sewage from the north-eastern part of the Study Area and the sewage of Anchor Street SPS and West Kowloon No.1 SPS are discharged to Sham Shui Po No.1 & 2 SSP. Eventually the sewage is discharged to Cheung Sha Wan SPS and then pumped to Stonecutter Island Sewage Treatment Works (SCISTW).

2.1.4 The information of the SPS and SSP from the SIA report of the YM Study is reproduced in **Table 2.1**.

Table 2.1 Information of Sewerage Facilities

Sewerage Facilities	Capacity		Record Flow in 2016-2017 (m^3/day)	Downstream Sewerage Facilities
	L/s	m^3/day		
Anchor Street SPS	3,150	272,160	96,467	Sham Shui Po No.1 & 2 SSP
West Kowloon No.1 SPS	2,520	217,728	21,356	Sham Shui Po No.1 & 2 SSP
Sham Shui Po No.1 SSP	3,160	273,024	22,998	Cheung Sha Wan SPS
Sham Shui Po No.2 SSP	6,000	518,400	287,710	Cheung Sha Wan SPS
Cheung Sha Wan SPS	14,700	1,271,808	387,727	North West Kowloon PTW

2.2 Assessment Criteria and Methodology

2.2.1 Environmental Protection Department's (EPD's) Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning, Version 1 (GESF) has been referred to for the purposes of estimating the quantity of the sewage generated from the Study Area. The unit flow factors from GESF and the unit flow factors adopted in this SIA follow the assumptions in the SIA report of the YM Study. The unit flow factors extracted from GESF are presented in **Table 2.2**. The overall unit flow is composed of flows due to employees and the associated activities and is presented in **Table 2.3**.

Table 2.2 Unit Flow Factors from GESF

Name	Description	Unit Flow Factor (m^3/person/day)
Domestic type R1	-	0.190
Domestic type R2	-	0.270
Commercial employee (C)	-	0.080
Commercial activities J2	Electricity Gas & Water	0.250

Name	Description	Unit Flow Factor (m^3/person/day)
Commercial activities J3	Transport, Storage & Communication	0.100
Commercial activities J4	Wholesale & Retail	0.200
Commercial activities J5	Import & Export	-
Commercial activities J6	Finance, Insurance, Real Estate & Business Services	-
Commercial activities J7	Agriculture & Fishing	-
Commercial activities J8	Mining & Quarrying	-
Commercial activities J9	Construction	0.150
Commercial activities J10	Restaurants & Hotels	1.500
Commercial activities J11	Community, Social & Personal Services	0.200
Commercial activities J12	Public Administration	-
Commercial activities for General – Territorial Average	-	0.200
Student	-	0.040

Table 2.3 Unit Flow Factors Adopted in this SIA

Name	Unit Flow Factor Involved	Adopted Unit Flow Factor (m^3/person/day)
Private Housing	R2	0.270
Student	Student	0.040
S1 Agriculture, Forestry & Fishing, Mining & Quarrying	C + J7 + J8	0.080
S2 Manufacturing	C + General	0.280
S3 Electricity & Gas Supply, Water Supply, Sewerage & Waste Management	C + J2	0.330
S4 Construction	C + J9	0.230
S5 Import & Export Trade	C + J5	0.080
S6 Wholesale	C + J4	0.280
S7 Retail Trade	C + J4	0.280
S8 Transportation, Storage, Postal & Courier Services	C + J3	0.180
S9 Short Term Accommodation Activities	C + J10	1.580
S10 Food & Beverage Service Activities	C + J10	1.580
S11 Information & Communications	C + J3	0.180
S12 Financial & Insurance Activities	C + J6	0.080
S13 Real Estate Activities	C + J6	0.080

Name	Unit Flow Factor Involved	Adopted Unit Flow Factor (m^3/person/day)
S14 Professional, Scientific / Technical, Administrative & Support Service Activities	C + J12	0.080
S15 Public Administration	C + J12	0.080
S16 Education	C + General	0.280
S17 Human Health Activities	C + J11	0.280
S18 Other Social & Personal Services	C + J11	0.280
S19 Work Activities within Domestic Household	C + General	0.280

2.2.2 The residential population is derived from the domestic GFA resultant from the OZP amendment, assuming an average flat size of 55m^2 with a household size of 2.5 people per household (Census 2020 for the Yau Tsim Mong District), while the commercial activities population are derived from the non-domestic GFA, assuming there is one worker every 20m^2 with reference to the worker density for business use in Chapter 5 of the Hong Kong Planning Standards and Guidelines.

2.3 Sewage Flow Estimation

Baseline Scenario

2.3.1 The baseline residential population is based on the 2016 Population By-census with the street block population distribution referencing the assumption adopted in Year 2047 TPEDM data. The employment population follows those from the Year 2047 TPEDM data.

2.3.2 The estimated sewage flow of the baseline scenario is summarised in **Table 2.4** with detailed calculation presented in **Appendix 2.1**.

Table 2.4 Sewage Flow from the Baseline Scenario

Population Type	ADWF (m^3/d)
Residential	57,510
Commercial	47,738
School	518
Total	**105,766**

OZP Amendment Scheme

2.3.3 The sewage flow due to the OZP Amendment Scheme by Year 2047 are estimated based on the assumption mentioned in **Section 2.2**, with detailed calculation presented in **Appendix 2.2**. The estimated sewage flow is summarised in **Table 2.5**. The by-catchment comparison with estimated sewage flow of the baseline scenario is shown in **Table 2.6**.

Table 2.5 Sewage Flow from the OZP Amendment Scheme

Population Type	ADWF (m^3/d)
Residential	58,173
Commercial	65,570
School	518
Total	**124,261**

Table 2.6 Sewage Flow Comparison with Baseline Scenario

Catchment	Baseline Scenario	OZP Amendment Scheme	Difference
	m^3/day		
YM1	13,990	19,026	5,036
YM2	1,739	2,287	548
YM3	766	1,005	239
YM4	5,141	6,996	1,855
YM5	0	0	0
YM6	26,533	28,761	2,228
YM7	1,649	1,352	-298
YM8	4,165	6,199	2,033
YM9	800	1,007	207
YM10	587	728	141
YM11	4,879	5,114	236
YM12	6,228	7,760	1,532
YM13+YM18+YM24	11,197	11,294	97
YM14	701	576	-125
YM15	2,303	2,059	-243
YM16	2,174	3,173	1,000
YM17	3,246	2,854	-392
YM19	3,460	2,583	-877
YM20	1,743	3,834	2,091
YM21	5,071	6,064	992
YM22	1,981	2,213	232
YM23+YM25	7,413	9,376	1,963
Total	**105,766**	**124,261**	**18,495**

2.3.4 Out of the total 124,261 m^3/d of sewage flow, 62,600 m^3/d generated by YM1-7 and YM16 located at the southern part of the catchment area are collected by Anchor Street SPS, and 2,583 m^3/d generated by catchment YM19 at the northwestern part of the catchment area are connected to West Kowloon No. 1 SPS. Rest of the discharge (59,078 m^3/d) from the northeastern part of the catchment area is directly conveyed to Sham Shui Po No. 1 & 2 SSP.

2.3.5 With the increase in population and commercial activities from the OZP Amendments, the sewage flow arising from the OZP Amendment is greater than the sewage flow of the baseline scenario (i.e. without the proposed OZP Amendments) in year 2047 by 36,296 m^3/d. The impacts on the sewerage infrastructure due to the increased sewage flow are discussed in the subsequent sections.

Sensitivity Test for Street Blocks Rezoning from "R(A)" to "OU(MU)"

2.3.6 While domestic plot ratio of 4.5 and non-domestic plot ratio of 4.5 for OU(MU) zone are assumed in the assessment as a worst case scenario, a sensitivity test has also been carried out for domestic plot ratio of 7.5 and non-domestic plot ratio of 1.5 for OU(MU) zone.

2.3.7 A total of 24 street blocks are tested for the redistribution of proposed plot ratio of 7.5 for domestic and 1.5 for non-domestic.

- MKE: 01, 20, 21, 25, 27, 31, 32, 38, 46, 47, 53, 54
- YMTS: 10-19, 23, 24

2.3.8 Generally, the sewage flow from these street blocks is found to be less than that of the original plot ratio (4.5 for domestic / 4.5 for non-domestic) assumed in the OZP Amendment Scheme for all street blocks except MKE27 with an insignificant increase as shown in **Table 2.7**. Hence, the OZP Amendment Scheme still serves as a more conservative scenario for the sewerage infrastructure planning point of view. Details of the calculation are enclosed in **Appendix 2.3**.

Table 2.7 Sewage Flow Comparison for Sensitivity Test

Street Block	Sewage Flow under the OZP Amendment Scheme (m^3/day)	Sewage Flow under the Sensitivity Test (m^3/day)	Difference
MKE01	437	358	-79
MKE20	813	697	-116
MKE21	752	662	-91
MKE25	785	763	-22
MKE27	1395	1400	5
MKE31	390	389	0
MKE32	391	387	-4
MKE38	634	565	-69
MKE46	550	540	-10
MKE47	812	792	-19
MKE53	1845	1817	-28
MKE54	786	769	-17
YMTS10	492	356	-136
YMTS11	460	337	-123
YMTS12	445	299	-145
YMTS13	395	283	-112
YMTS14	555	404	-151
YMTS15	519	478	-41
YMTS16	183	116	-68
YMTS17	308	250	-58
YMTS18	371	265	-106
YMTS19	264	248	-16
YMTS23	134	129	-5

Street Block	Sewage Flow under the OZP Amendment Scheme (m^3/day)	Sewage Flow under the Sensitivity Test (m^3/day)	Difference
YMTS24	257	238	-19

2.4 Utilisation on Sewerage Facilities

2.4.1 The capacity of the sewerage facilities has been compared to the estimated peak flow generated from the OZP Amendment Scheme and summarised in **Table 2.8**.

Table 2.8 Utilisation of Sewerage Facilities

Sewerage Facilities	Capacity (m^3/day)	Contributing Catchments	Record Flow of SPSs and SSPs in 2016-2017 (m^3/day) (a)	Sewage Flow under Baseline Scenario (m^3/day) (b)	Sewage Flow under OZP Amendment Scheme (m^3/day) (c)	Sewage Flow Increase due to the OZP Amendment Scheme (m^3/day) (c-b)	Total Sewage Flow (m^3/day) (c-b+a)	Peaking Factor[1]	Peak Flow (m^3/day)	Utilisation
Anchor Street SPS	272,160	YM1-YM7, YM16	96,467	51,992	62,600	10,608	107,075	2.643	283,049	104.00%
West Kowloon No.1 SPS	217,728	YM19	21,356	3,460	2,583	-877	20,479	2.944	60,280	27.69%
Sham Shui Po No.1 & 2 SSP	791,424	YM1-YM25	310,708	105,766	124,261	18,495	329,203	2.457	808,970	102.22%
Cheung Sha Wan SPS	1,271,808	YM1-YM25	387,727	105,766	124,261	18,495	406,222	2.424	984,685	77.42%

Notes:

1. *Table T-5 of GESF "Peaking Factor (including stormwater allowance) for facility with existing upstream sewerage.*

2.5 Impact on Sewerage Infrastructure

2.5.1 As shown in **Table 2.8**, the results show Anchor Street SPS and Sham Shui Po No.1 & 2 SSP will have their capacity exceeded (i.e. 104% and 102% respectively) due to the sewage generated from the OZP Amendment Scheme, therefore it is suggested to upgrade the capacity of Anchor Street SPS to at least 290,000 m^3/day and the capacity of Sham Shui Po No.1 & 2 SSP to at least 810,000 m^3/day to cater for the increased sewage flow from the OZP Amendment Scheme. The upgrading works of the district wide sewerage facilities will be taken up by the relevant works department of the government.

2.5.2 The impact on the sewerage network has been assessed using a hydraulic model for the MRCP+ scenario in the YM Study. As concluded in the SIA report of YM Study, the model results reveal some manholes and their relevant trunk sewers will be surcharged (i.e. insufficient freeboard) therefore sewer improvement works are proposed.

2.5.3 As shown in **Figure 2.2**, the proposed sewer upgrading locations are as follows:

- Flower Market Path
- Playing Field Road between Sai Yee Street and Fa Yuen Street
- Fa Yuen Street between Playing Field Road and Prince Edward Road West
- Prince Edward Road West between Yuen Po Street and Sai Yeung Choi Street South
- Nullah Road
- Arran Street
- Tong Mi Road between Lai Chi Kok Road and Tung Chau Street
- Battery Street
- Kansu Street between Battery Street and Ferry Street
- Reclamation Street between Public Square Street and Waterloo Road
- Wing Sing Lane
- Waterloo Road between Nathan Road and Ferry Street

2.5.4 The YM Study has proposed upgrading of these sewers to cater for the MRCP+ scenario. These proposed upgrading works shall be implemented for the OZP Amendment Scheme. The project proponents of development would be required to submit sewerage connection proposals during the later building design stage to comply with the relevant statutory submission requirements. With the appropriate upgrading works implemented, no insurmountable sewerage impact on the sewerage capacity is expected.

3. CONCLUSION

3.1.1 This report has adopted the latest development parameters of the OZP Amendment Scheme, comprising proposed OZP amendments and the assumed planned developments, for the assessment of sewerage impact and made reference to the findings of the MRCP+ SIA conducted under the YM Study.

3.1.2 The sewage from the southern part of the Study Area is discharged to the existing Anchor Street SPS, while for the sewage from the north-western part of the Study Area are discharged to West Kowloon No.1 SPS. The sewage from the north-eastern part of the Study Area and the sewage of Anchor Street SPS and West Kowloon No.1 SPS are discharged to Sham Shui Po No.1 & 2 SSP. Eventually the sewage is discharged to Cheung Sha Wan SPS and then pumped to Stonecutter Island Sewage Treatment Works (SCISTW).

3.1.3 The implementation of the OZP Amendment Scheme would generate additional sewage flow to the downstream sewerage network and SPSs as compared to the baseline condition. As a result, the Anchor Street SPS and Sham Shui Po No.1 & 2 SSP will have their capacity exceeded. It is proposed to upgrade the Sham Shui Po No.1 & 2 SSP and Anchor Street SPS to a capacity of 290,000 m^3/day and 810,000 m^3/day to cater for the sewage flow from the OZP Amendment Scheme, following the upgrading proposal in the YM Study.

3.1.4 As suggested in the YM Study, sewer improvement works are required at some locations due to increased sewage generation and these sewer improvement proposal shall be implemented for the OZP Amendment Scheme. With the appropriate upgrading works implemented, no insurmountable sewerage impact on the sewerage capacity is expected.

Figures

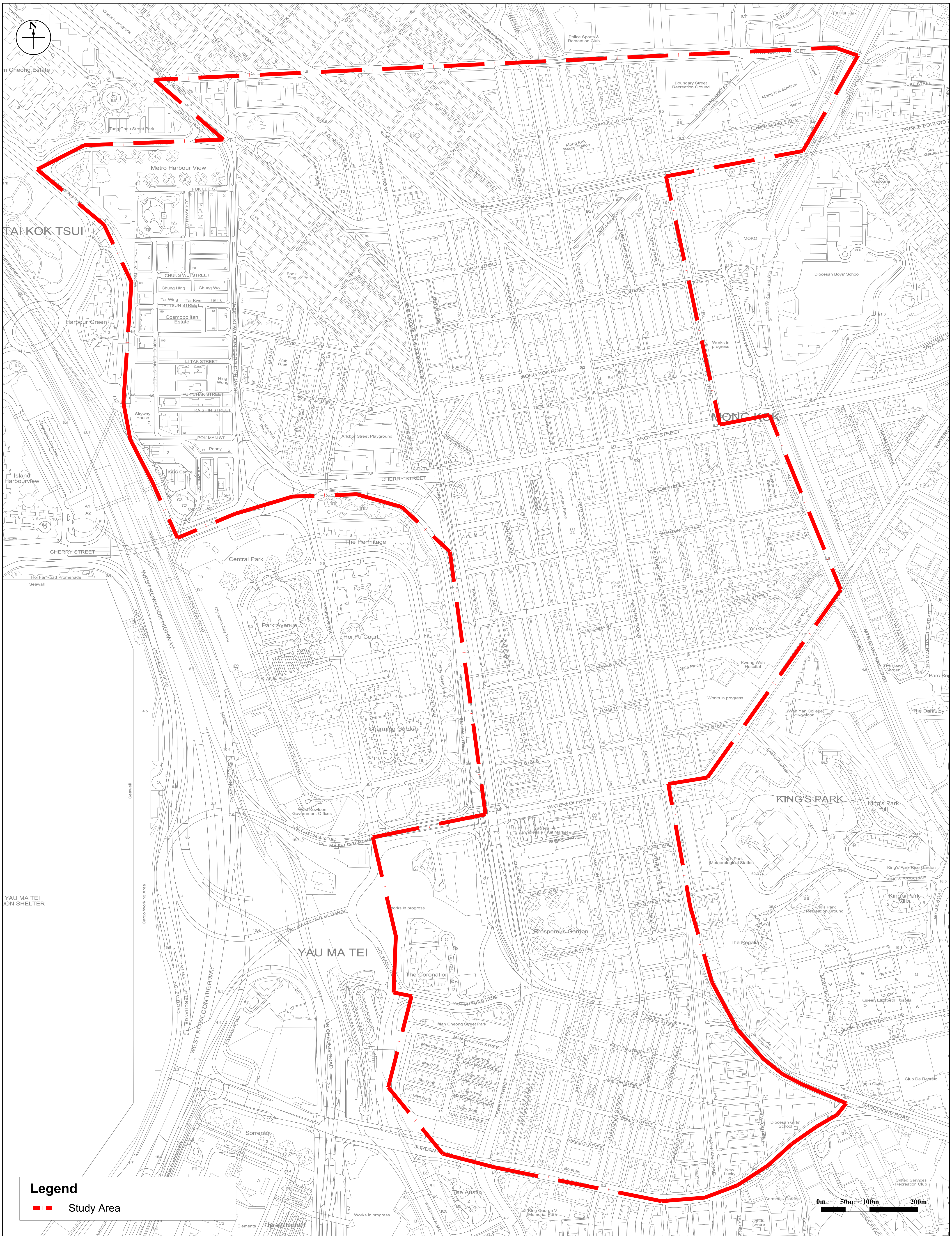

Figure: 1.1

Title: Study Area

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts

Drawn by:	KL
Checked by:	KY
Rev.:	2.0
Date:	May 2022

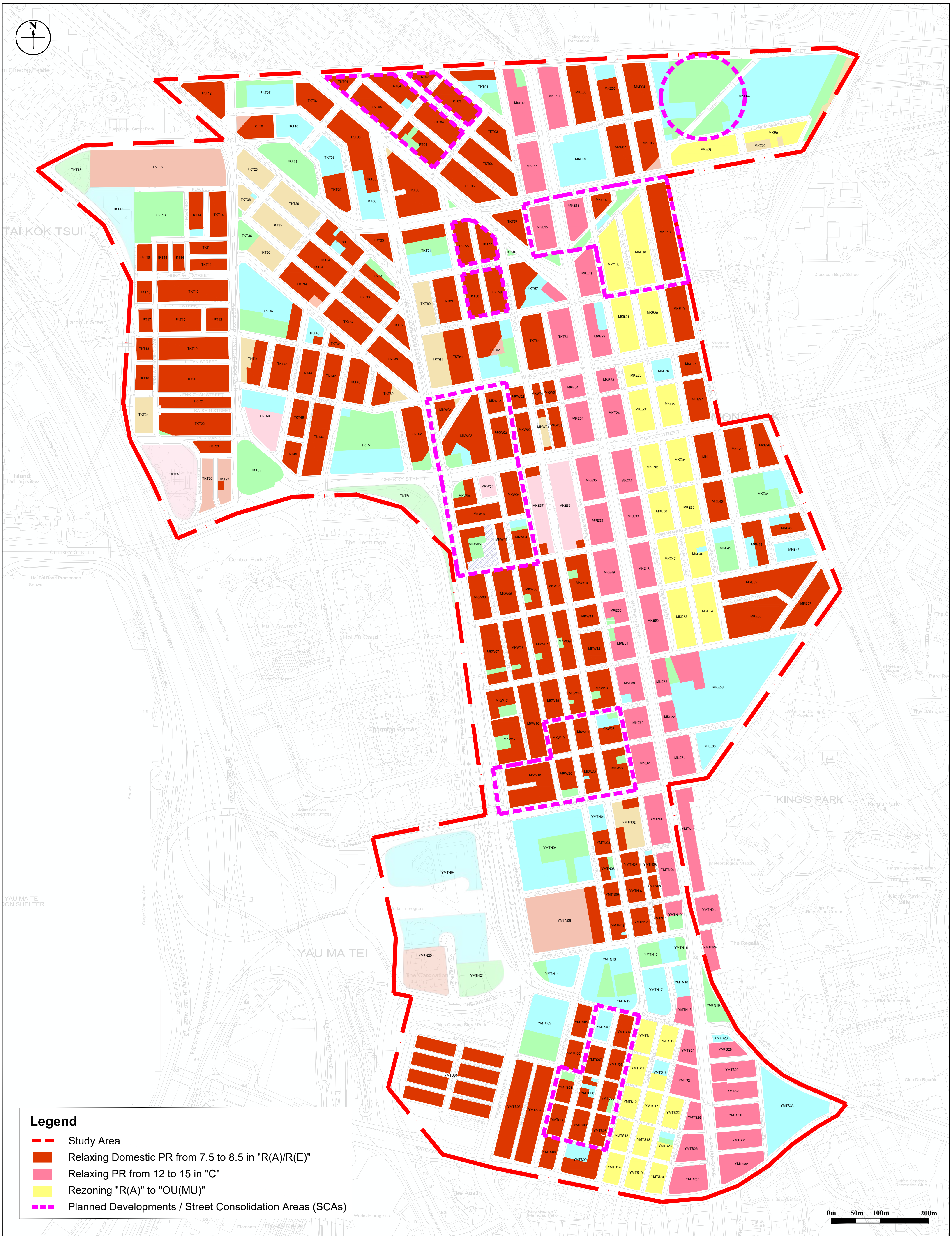

Figure: 1.2

Title: Location of Street Blocks

Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts

RAMBOLL

Drawn by: KL

Checked by: KY

Rev.: 2.0

Date: May 2022

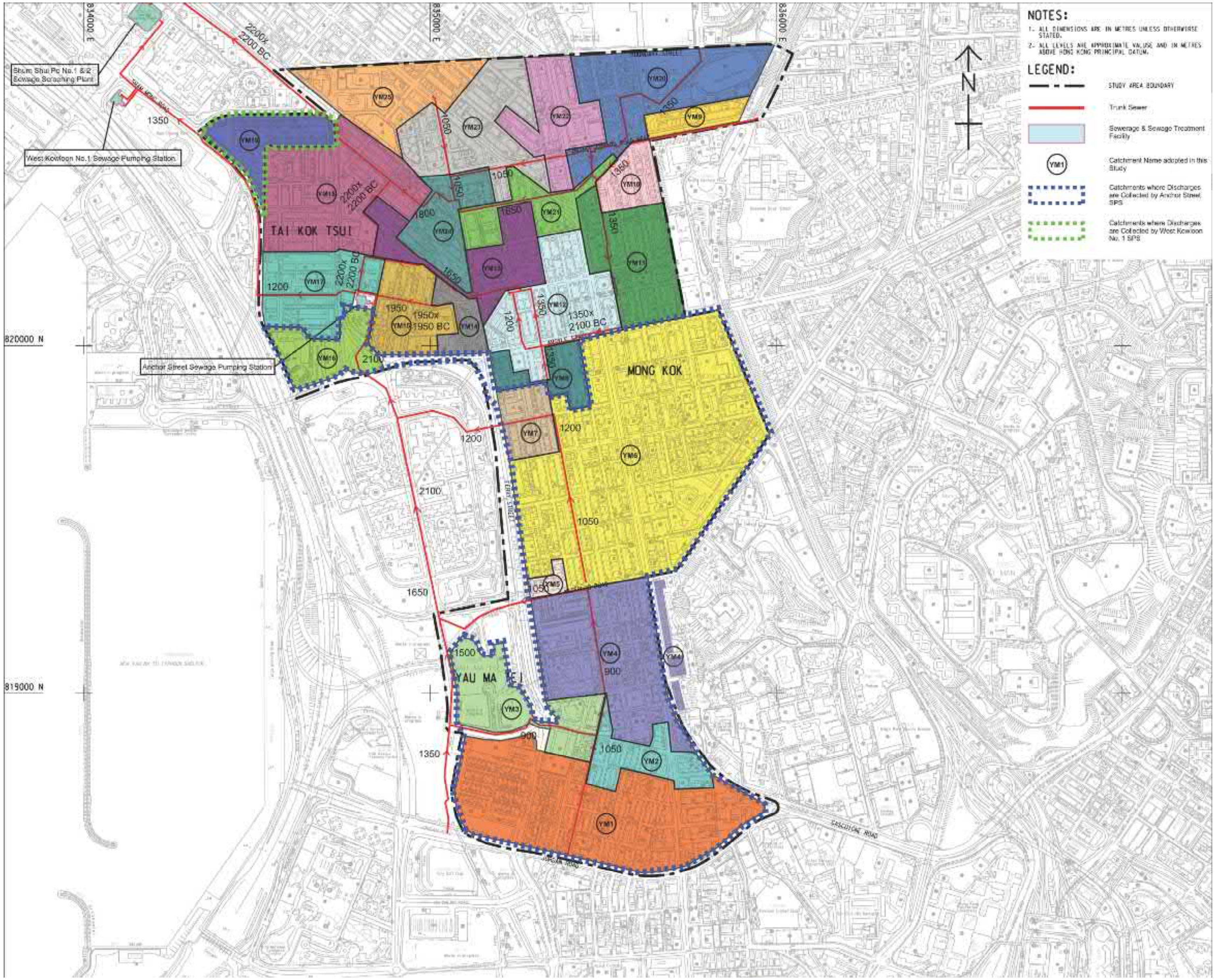

Figure: 2.1	RAMBØLL
Title: Catchment Plan (Referenced from SIA Report of YM Study)	Drawn by: KL
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts	Rev.: 2.0
	Date: May 2022

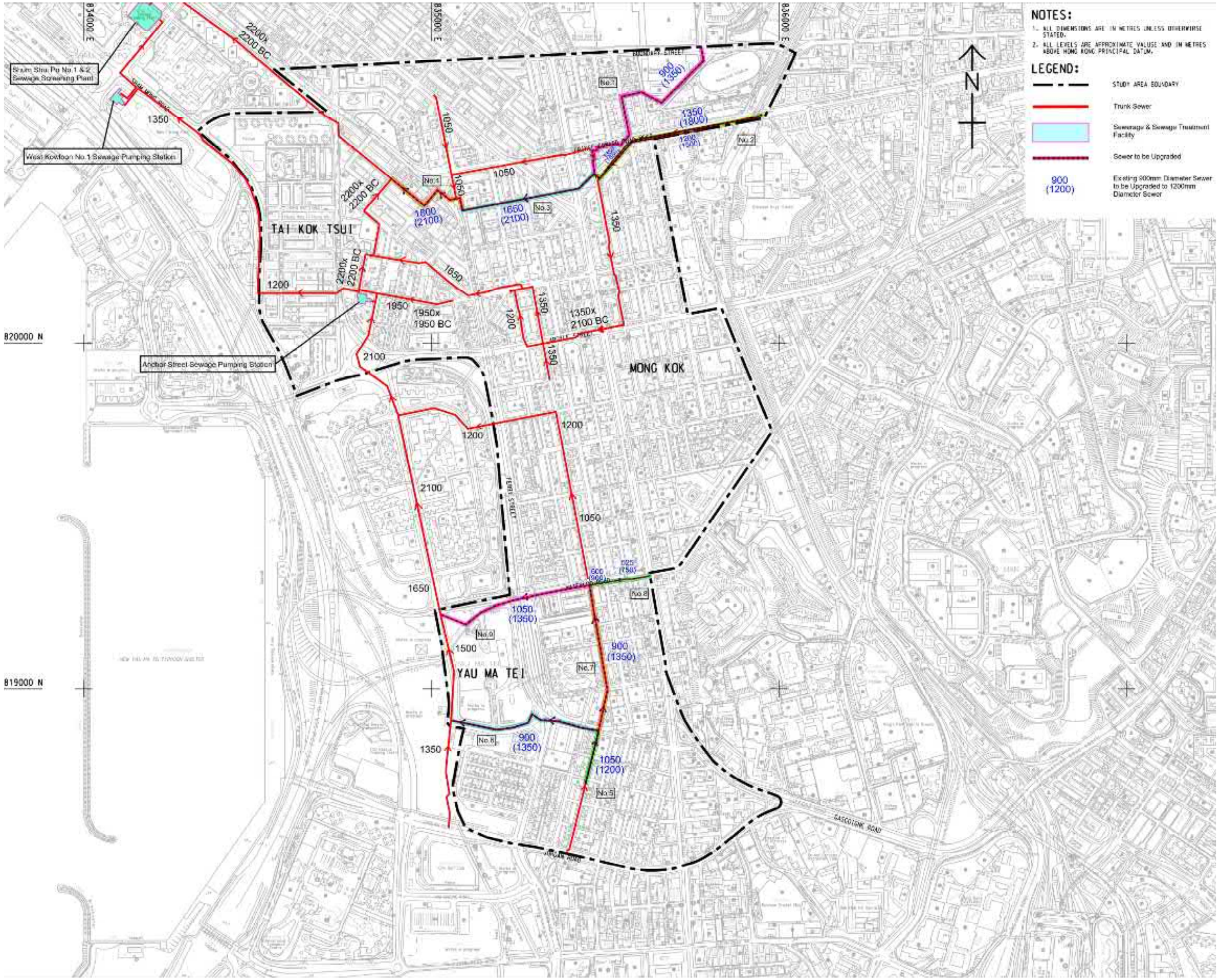

Figure: 2.2	RAMBOLL
Title: Proposed Sewer to be Upgraded (Extracted from SIA Report of YM Study)	Drawn by: KL
	Checked by: KY
Project: Outline Zoning Plan Amendments in Yau Ma Tei and Mong Kok Districts	Rev.: 2.0
	Date: May 2022

Appendix 2.1

Sewage Flow Estimation (Baseline Scenario)

Street Block		Private			School		Employment	
		0.27			0.04		0.28	
	Population[1]	ADWF	Total Residential ADWF	Number of Students	Total ADWF of Student	Employment Population[2]	ADWF for Employment	Total ADWF m^3/day
MKE01	329	88.8	88.8		0.0	49	13.7	102.5
MKE02	366	98.8	98.8		0.0	314	87.9	186.7
MKE03	1,164	314.2	314.2		0.0	701	196.3	510.5
MKE04	848	228.9	228.9		0.0	467	130.8	359.6
MKE05	673	181.8	181.8		0.0	123	34.4	216.2
MKE06	736	198.8	198.8	720	28.8	196	54.9	282.5
MKE07	955	257.8	257.8		0.0	424	118.7	376.6
MKE08	912	246.3	246.3		0.0	370	103.6	349.9
MKE09	0	0.0	0.0		0.0	0	0.0	0.0
MKE10	935	252.4	252.4		0.0	1,280	358.4	610.8
MKE11	761	205.3	205.3		0.0	868	243.0	448.4
MKE12	729	196.8	196.8		0.0	974	272.7	469.6
MKE13	252	67.9	67.9		0.0	59	16.5	84.5
MKE14	217	58.7	58.7		0.0	53	14.8	73.5
MKE15	665	179.5	179.5		0.0	974	272.7	452.2
MKE16	3,620	977.3	977.3		0.0	1,460	408.8	1386.1
MKE17	0	0.0	0.0		0.0	2,275	637.0	637.0
MKE18	1,577	425.7	425.7		0.0	575	161.0	586.7
MKE19	1,800	485.9	485.9		0.0	392	109.8	595.7
MKE20	1,630	440.0	440.0		0.0	343	96.0	536.1
MKE21	1,308	353.2	353.2		0.0	394	110.3	463.5
MKE22	981	264.8	264.8		0.0	1,048	293.4	558.2
MKE23	0	0.0	0.0		0.0	1,689	472.9	472.9
MKE24	0	0.0	0.0		0.0	3,038	850.6	850.6
MKE25	226	61.0	61.0		0.0	842	235.8	296.7
MKE26	0	0.0	0.0		0.0	0	0.0	0.0
MKE27	4,906	1324.7	1324.7		0.0	1,668	467.0	1791.7
MKE28	995	268.6	268.6		0.0	269	75.3	344.0
MKE29	871	235.1	235.1		0.0	576	161.3	396.3
MKE30	1,187	320.4	320.4		0.0	388	108.6	429.0
MKE31	996	269.0	269.0		0.0	345	96.6	365.6
MKE32	748	201.9	201.9		0.0	579	162.1	364.0
MKE33	553	149.4	149.4		0.0	4,239	1186.9	1336.3
MKE34	1,167	315.0	315.0		0.0	2,440	683.2	998.2
MKE35	317	85.7	85.7		0.0	5,295	1482.6	1568.3
MKE36	0	0.0	0.0		0.0	7,010	1962.8	1962.8
MKE37	339	91.5	91.5		0.0	2,882	807.0	898.4
MKE38	655	176.8	176.8		0.0	443	124.0	300.8
MKE39	889	240.1	240.1		0.0	262	73.4	313.4
MKE40	586	158.3	158.3		0.0	1,011	283.1	441.3
MKE41	722	194.9	194.9		0.0	467	130.8	325.7
MKE42	932	251.7	251.7	950	38.0	147	41.2	330.8
MKE43	0	0.0	0.0	1480	59.2	0	0.0	59.2
MKE44	522	140.9	140.9		0.0	120	33.6	174.5
MKE45	0	0.0	0.0	332	13.3	0	0.0	13.3

Street Block	Population[1]	Private ADWF	Total Residential ADWF	Number of Students	School Total ADWF of Student	Employment Population[2]	Employment ADWF for Employment	Total ADWF m^3/day
		0.27			0.04		0.28	
MKE46	792	213.8	213.8		0.0	401	112.3	326.1
MKE47	823	222.3	222.3		0.0	705	197.4	419.7
MKE48	339	91.5	91.5		0.0	2,464	689.9	781.4
MKE49	941	254.0	254.0		0.0	2,095	586.6	840.6
MKE50	6	1.5	1.5		0.0	1,051	294.3	295.8
MKE51	77	20.8	20.8		0.0	1,296	362.9	383.7
MKE52	17	4.6	4.6		0.0	3,716	1040.5	1045.1
MKE53	580	156.7	156.7		0.0	2,115	592.2	748.9
MKE54	1,384	373.6	373.6		0.0	478	133.8	507.5
MKE55	1,890	510.3	510.3		0.0	1,501	420.3	930.5
MKE56	2,131	575.5	575.5		0.0	1,012	283.4	858.9
MKE57	1,410	380.6	380.6		0.0	928	259.8	640.4
MKE58	1,048	282.9	282.9		0.0	3,754	1051.1	1334.0
MKE59	266	71.8	71.8		0.0	1,196	334.9	406.7
MKE60	310	83.8	83.8		0.0	1,110	310.8	394.6
MKE61	1,217	328.5	328.5		0.0	868	243.0	571.5
MKE62	869	234.7	234.7		0.0	769	215.3	450.0
MKE63	0	0.0	0.0		0.0	0	0.0	0.0
MKE64	0	0.0	0.0		0.0	0	0.0	0.0
MKW01	775	209.2	209.2		0.0	1,228	343.8	553.0
MKW02	835	225.4	225.4		0.0	946	264.9	490.3
MKW03	3,703	999.7	999.7		0.0	1,974	552.7	1552.4
MKW04	3,036	819.8	819.8		0.0	1,730	484.4	1304.2
MKW05	1,647	444.6	444.6		0.0	248	69.4	514.1
MKW06	3,375	911.3	911.3		0.0	799	223.7	1135.0
MKW07	2,796	755.0	755.0		0.0	3,671	1027.9	1782.9
MKW08	487	131.6	131.6		0.0	277	77.6	209.2
MKW09	1,066	287.9	287.9		0.0	547	153.2	441.1
MKW10	593	160.2	160.2		0.0	556	155.7	315.9
MKW11	277	74.9	74.9		0.0	155	43.4	118.3
MKW12	332	89.5	89.5		0.0	1,099	307.7	397.3
MKW13	375	101.1	101.1		0.0	1,025	287.0	388.1
MKW14	433	117.0	117.0		0.0	782	219.0	335.9
MKW15	497	134.3	134.3		0.0	1,111	311.1	445.4
MKW16	1,834	495.2	495.2		0.0	818	229.0	724.3
MKW17	3,124	843.4	843.4		0.0	644	180.3	1023.7
MKW18+MKW19+MKW20	4,585	1237.8	1237.8		0.0	1,362	381.4	1619.2
MKW21+MKW22+MKW23+MKW24	2,157	582.4	582.4		0.0	1,612	451.4	1033.8
TKT01	385	103.8	103.8		0.0	295	82.6	186.4
TKT03	655	176.8	176.8		0.0	280	78.4	255.2
TKT02+TKT04	6,173	1666.7	1666.7		0.0	1,649	461.7	2128.4
TKT05+TKT12	3,920	1058.4	1058.4		0.0	1,322	370.2	1428.5
TKT06+TKT07+TKT08	6,146	1659.3	1659.3	960	38.4	1,570	439.6	2137.3
TKT09	1,274	343.9	343.9	600	24.0	102	28.6	396.5
TKT10	1,617	436.5	436.5	1266	50.6	199	55.7	542.9

Street Block	Population[1]	Private 0.27 ADWF	Total Residential ADWF	Number of Students	School 0.04 Total ADWF of Student	Employment Population[2]	Employment 0.28 ADWF for Employment	Total ADWF m³/day
TKT11	0	0.0	0.0		0.0	0	0.0	0.0
TKT13	11,454	3092.5	3092.5		0.0	1,314	367.9	3460.4
TKT14+TKT16	7,041	1900.9	1900.9		0.0	467	130.8	2031.7
TKT15+TKT17	5,865	1583.7	1583.7		0.0	828	231.8	1815.5
TKT18	593	160.2	160.2		0.0	986	276.1	436.3
TKT19	2,163	584.0	584.0		0.0	341	95.5	679.5
TKT20	2,530	683.2	683.2		0.0	164	45.9	729.1
TKT21+TKT22+TKT23	3,520	950.3	950.3		0.0	496	138.9	1089.2
TKT24	0	0.0	0.0		0.0	1,115	312.2	312.2
TKT25	0	0.0	0.0		0.0	3,353	938.8	938.8
TKT26	1,530	413.0	413.0		0.0	50	14.0	427.0
TKT27	878	237.0	237.0		0.0	222	62.2	299.2
TKT28	0	0.0	0.0		0.0	810	226.8	226.8
TKT29	0	0.0	0.0		0.0	1,232	345.0	345.0
TKT30+TKT31+TKT32+TKT33+TKT34+TKT36 +TKT37+TKT38+TKT48+TKT49	7,071	1909.0	1909.0		0.0	7,906	2213.7	4122.7
TKT35	0	0.0	0.0		0.0	1,423	398.4	398.4
TKT39	555	149.8	149.8		0.0	321	89.9	239.6
TKT40	460	124.3	124.3		0.0	600	168.0	292.3
TKT41	257	69.5	69.5		0.0	33	9.2	78.7
TKT42	546	147.4	147.4		0.0	245	68.6	216.0
TKT43	96	25.9	25.9		0.0	3	0.8	26.7
TKT44	1,278	345.1	345.1		0.0	225	63.0	408.1
TKT45	3,671	991.2	991.2		0.0	361	101.1	1092.3
TKT46	912	246.3	246.3		0.0	170	47.6	293.9
TKT47	0	0.0	0.0	1454	58.2	550	154.0	212.2
TKT50	0	0.0	0.0		0.0	1,817	508.8	508.8
TKT51	0	0.0	0.0		0.0	0	0.0	0.0
TKT52	1,068	288.3	288.3		0.0	619	173.3	461.6
TKT53	996	269.0	269.0		0.0	63	17.6	286.7
TKT54	951	256.7	256.7	612	24.5	186	52.1	333.2
TKT55	1,494	403.3	403.3		0.0	363	101.6	505.0
TKT56	250	67.5	67.5		0.0	964	269.9	337.5
TKT57	367	99.2	99.2		0.0	685	191.8	291.0
TKT58	1,744	470.9	470.9		0.0	815	228.2	699.1
TKT59+TKT60+TKT61	0	0.0	0.0		0.0	10,318	2889.0	2889.0
TKT62	590	159.4	159.4		0.0	1,647	461.2	620.6
TKT63	1,151	310.7	310.7		0.0	788	220.6	531.4
TKT64	1,475	398.3	398.3		0.0	1,359	380.5	778.8
TKT65	0	0.0	0.0		0.0	0	0.0	0.0
YMTN01	969	261.7	261.7		0.0	824	230.7	492.4
YMTN02	1,718	463.9	463.9		0.0	155	43.4	507.3
YMTN03	570	154.0	154.0		0.0	160	44.8	198.8
YMTN04	0	0.0	0.0	1989	79.6	0	0.0	79.6

Street Block		Private			School		Employment	
		0.27			0.04		0.28	
	Population[1]	ADWF	Total Residential ADWF	Number of Students	Total ADWF of Student	Employment Population[2]	ADWF for Employment	Total ADWF m^3/day
YMTN05	6,639	1792.5	1792.5		0.0	874	244.7	2037.2
YMTN06	619	167.1	167.1		0.0	238	66.6	233.8
YMTN07	542	146.3	146.3		0.0	333	93.2	239.5
YMTN08	204	55.2	55.2		0.0	219	61.3	116.5
YMTN09	613	165.6	165.6		0.0	607	170.0	335.5
YMTN10	0	0.0	0.0		0.0	1,067	298.8	298.8
YMTN11	163	44.0	44.0		0.0	401	112.3	156.3
YMTN12	440	118.9	118.9		0.0	490	137.2	256.1
YMTN13	423	114.2	114.2		0.0	267	74.8	189.0
YMTN14	0	0.0	0.0		0.0	0	0.0	0.0
YMTN15	0	0.0	0.0		0.0	0	0.0	0.0
YMTN16	0	0.0	0.0		0.0	0	0.0	0.0
YMTN17	0	0.0	0.0		0.0	0	0.0	0.0
YMTN18	1,271	343.1	343.1		0.0	457	128.0	471.1
YMTN19	0	0.0	0.0		0.0	0	0.0	0.0
YMTN20	1,287	347.4	347.4		0.0	600	168.0	515.4
YMTN21	0	0.0	0.0		0.0	0	0.0	0.0
YMTS01	10,789	2913.0	2913.0		0.0	960	268.8	3181.8
YMTS02	0	0.0	0.0		0.0	0	0.0	0.0
YMTS03	1,502	405.7	405.7		0.0	1,814	507.9	913.6
YMTS04	1,728	466.6	466.6		0.0	1,416	396.5	863.1
YMTS05	658	177.6	177.6		0.0	262	73.4	250.9
YMTS06	510	137.8	137.8		0.0	458	128.2	266.0
YMTS07+YMTS08	3,781	1020.9	1020.9		0.0	1,500	420.0	1440.9
YMTS09	1,993	538.1	538.1	536	21.4	529	148.1	707.6
YMTS10	479	129.3	129.3		0.0	365	102.2	231.5
YMTS11	416	112.3	112.3		0.0	306	85.7	198.0
YMTS12	419	113.1	113.1		0.0	179	50.1	163.2
YMTS13	533	144.0	144.0		0.0	152	42.6	186.5
YMTS14	366	98.8	98.8		0.0	284	79.5	178.3
YMTS15	453	122.4	122.4		0.0	406	113.7	236.0
YMTS16	226	61.0	61.0		0.0	56	15.7	76.7
YMTS17	656	177.2	177.2		0.0	104	29.1	206.3
YMTS18	639	172.5	172.5		0.0	87	24.4	196.9
YMTS19	758	204.6	204.6		0.0	204	57.1	261.7
YMTS20	610	164.8	164.8		0.0	1,042	291.8	456.6
YMTS21	170	45.9	45.9		0.0	1,778	497.8	543.8
YMTS22	426	115.0	115.0		0.0	202	56.6	171.6
YMTS23	330	89.2	89.2		0.0	167	46.8	135.9
YMTS24	572	154.4	154.4		0.0	273	76.4	230.8
YMTS25	585	157.9	157.9		0.0	460	128.8	286.7
YMTS26	952	257.1	257.1		0.0	641	179.5	436.5
YMTS27	500	135.1	135.1		0.0	1,975	553.0	688.1
YMTS28	0	0.0	0.0		0.0	1,229	344.1	344.1

Street Block	Population[1]	Private ADWF (0.27)	Total Residential ADWF	Number of Students	School: Total ADWF of Student (0.04)	Employment Population[2]	Employment: ADWF for Employment (0.28)	Total ADWF m^3/day
YMTS29	379	102.3	102.3		0.0	2,967	830.8	933.0
YMTS30	885	238.9	238.9		0.0	987	276.4	515.3
YMTS31	648	174.8	174.8		0.0	1,219	341.3	516.2
YMTS32	1,811	489.0	489.0		0.0	429	120.1	609.2
YMTS33	0	0.0	0.0	2052	82.1	0	0.0	82.1
Total	213,000		57,510.0	12,951	518.0	170,491	47,737.5	105,765.5

[1]:The residential population of the Study Area is based on the population from "2016 Population By Census" with the street block population distribution referencing the assumption adopted in Year 2047 TPEDM data.

[2]:The employment population is based on 2047 TPEDM as the employment population is not publicly available.

[3]: As there are different commercial activites within the Study Area and their nature varies, a general unit flow factor 0.28m^3/day (0.08m^3/day for commercial employee and 0.2m^3/day for general commercial activity) is adopted for the existing commercial activities.

Appendix 2.2

Sewage Flow Estimation (OZP Amendment Scheme)

Street Block	Private				School	Non-domestic GFA	Agriculture, Forestry & Fishing, Mining & Quarrying	ADWF of S1	Manufacturing	ADWF of S2	Electricity & Gas Supply, Water Supply, Sewerage & Waste Management	ADWF of S3	Construction	ADWF of S4	Import & Export Trade	ADWF of S5	Wholesale	ADWF of S6	Retail Trade	ADWF of S7	Transportation, Storage, Postal & Courier Services	ADWF of S8	Short Term Accommodation Activities	ADWF of S9
		0.27			0.04																			
	Population	ADWF	Total Residential ADWF	Number of Students	Total ADWF of Student	m²	S1	0.08	S2	0.28	S3	0.33	S4	0.23	S5	0.08	S6	0.28	S7	0.28	S8	0.18	S9	1.58
MKE01	612	165.3	165.3		0.0	6,752		0.0		0.0		0.0		0.0		0.0		0.0	203	56.8		0.0		0.0
MKE02	121	32.7	32.7		0.0	2,387		0.0		0.0		0.0		0.0		0.0		0.0	72	20.2		0.0		0.0
MKE03	1,257	339.3	339.3		0.0	13,640		0.0		0.0		0.0		0.0	83	6.6	5	1.4	10	2.8	19	3.4	7	11.1
MKE04	966	260.7	260.7		0.0	9,147	0	0.0	2	0.6	15	5.0	15	3.5	56	4.5	3	0.8	11	3.1	13	2.3	5	7.9
MKE05	1,398	377.5	377.5		0.0	6,046	0	0.0	2	0.6	10	3.3	10	2.3	37	3.0	2	0.6	8	2.2	9	1.6	3	4.7
MKE06	964	260.2	260.2	720	28.8	3,824	0	0.0	1	0.3	6	2.0	6	1.4	24	1.9	2	0.6	5	1.4	6	1.1	2	3.2
MKE07	1,117	301.6	301.6		0.0	8,163	0	0.0	2	0.6	13	4.3	13	3.0	50	4.0	3	0.8	10	2.8	12	2.2	5	7.9
MKE08	1,164	314.3	314.3		0.0	7,008	0	0.0	2	0.6	11	3.6	11	2.5	43	3.4	3	0.8	9	2.5	10	1.8	4	6.3
MKE09		0.0	0.0		0.0	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MKE10	866	233.7	233.7		0.0	33,097	0	0.0	7	2.0	52	17.2	52	12.0	202	16.2	10	2.8	39	10.9	46	8.3	17	26.9
MKE11	630	170.2	170.2		0.0	30,599	0	0.0	6	1.7	48	15.8	48	11.0	186	14.9	9	2.5	36	10.1	42	7.6	15	23.7
MKE12	490	132.2	132.2		0.0	39,891	0	0.0	8	2.2	63	20.8	63	14.5	243	19.4	12	3.4	47	13.2	55	9.9	20	31.6
MKE13	277	74.7	74.7		0.0	1,157	0	0.0	1	0.3	2	0.7	2	0.5	8	0.6	1	0.3	2	0.6	2	0.4	1	1.6
MKE14	239	64.6	64.6		0.0	1,037	0	0.0	1	0.3	2	0.7	2	0.5	7	0.6	1	0.3	2	0.6	2	0.4	1	1.6
MKE15	8	2.2	2.2		0.0	63,105		0.0		0.0		0.0		0.0		0.0		0.0	1894	530.3		0.0		0.0
MKE16	6,186	1670.2	1670.2		0.0	147,837		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
MKE17	0	0.0	0.0		0.0	44,881	0	0.0	9	2.5	71	23.4	71	16.3	273	21.8	14	3.9	53	14.8	62	11.2	23	36.3
MKE18	2,118	571.9	571.9		0.0	13,933	0	0.0	3	0.8	22	7.3	22	5.1	85	6.8	5	1.4	17	4.8	20	3.6	7	11.1
MKE19	1,504	406.1	406.1		0.0	6,029	0	0.0	2	0.6	10	3.3	10	2.3	37	3.0	2	0.6	8	2.2	9	1.6	3	4.7
MKE20	1,334	360.2	360.2		0.0	8,264		0.0		0.0		0.0		0.0		0.0		0.0	155	43.4		0.0	104	164.3
MKE21	1,091	294.5	294.5		0.0	8,347		0.0		0.0		0.0		0.0		0.0		0.0	157	44.0		0.0	105	165.9
MKE22	785	212.0	212.0		0.0	16,424	0	0.0	4	1.1	26	8.6	26	6.0	100	8.0	5	1.4	20	5.6	23	4.1	9	14.2
MKE23	0	0.0	0.0		0.0	26,461	0	0.0	6	1.7	42	13.9	42	9.7	161	12.9	8	2.2	32	9.0	37	6.7	13	20.5
MKE24	0	0.0	0.0		0.0	47,580	0	0.0	10	2.8	75	24.8	75	17.3	290	23.2	14	3.9	56	15.7	66	11.9	24	37.9
MKE25	200	53.9	53.9		0.0	13,349		0.0		0.0		0.0		0.0		0.0		0.0	251	70.3		0.0	167	263.9
MKE26		0.0	0.0		0.0	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MKE27	4,003	1080.9	1080.9		0.0	28,403	0	0.0	6	1.7	45	14.9	45	10.4	173	13.8	9	2.5	34	9.5	39	7.0	14	22.1
MKE28	1,085	292.9	292.9		0.0	4,549	0	0.0	1	0.3	1	0.3	12	2.8	21	1.7	3	0.8	24	6.7	8	1.4	2	3.2
MKE29	953	257.2	257.2		0.0	9,878	0	0.0	2	0.6	1	0.3	25	5.8	45	3.6	6	1.7	51	14.3	17	3.1	5	7.9
MKE30	1,248	337.0	337.0		0.0	6,696	0	0.0	2	0.6	1	0.3	17	3.9	30	2.4	4	1.1	35	9.8	11	2.0	3	4.7
MKE31	1,053	284.3	284.3		0.0	6,639	0	0.0	2	0.6	1	0.3	17	3.9	30	2.4	4	1.1	34	9.5	11	2.0	3	4.7
MKE32	790	213.2	213.2		0.0	11,283	0	0.0	3	0.8	1	0.3	28	6.4	51	4.1	7	2.0	58	16.2	19	3.4	5	7.9
MKE33	414	111.8	111.8		0.0	81,903	0	0.0	15	4.2	5	1.7	203	46.7	366	29.3	44	12.3	417	116.8	134	24.1	35	55.3
MKE34	600	162.1	162.1		0.0	60,900	0	0.0	11	3.1	4	1.3	151	34.7	272	21.8	33	9.2	310	86.8	100	18.0	26	41.1
MKE35	334	90.2	90.2		0.0	91,335	0	0.0	17	4.8	6	2.0	226	52.0	408	32.6	49	13.7	465	130.2	150	27.0	39	61.6
MKE36	0	0.0	0.0		0.0	120,920	0	0.0	22	6.2	8	2.6	299	68.8	540	43.2	65	18.2	616	172.5	198	35.6	51	80.6
MKE37	106	28.5	28.5		0.0	48,950	0	0.0	9	2.5	3	1.0	121	27.8	219	17.5	27	7.6	249	69.7	81	14.6	21	33.2
MKE38	727	196.4	196.4		0.0	9,713		0.0		0.0		0.0		0.0		0.0		0.0	163	45.6		0.0	81	128.0
MKE39	935	252.6	252.6		0.0	4,527		0.0		0.0		0.0		0.0		0.0		0.0	76	21.3		0.0	38	60.0
MKE40	617	166.5	166.5		0.0	17,434	0	0.0	4	1.1	2	0.7	44	10.1	78	6.2	10	2.8	89	24.9	29	5.2	8	12.6
MKE41	759	205.0	205.0		0.0	8,062		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
MKE42	980	264.7	264.7	950	38.0	2,528	0	0.0	1	0.3	1	0.3	7	1.6	12	1.0	2	0.6	13	3.6	5	0.9	2	3.2
MKE43		0.0	0.0	1480	59.2	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MKE44	789	213.0	213.0		0.0	1,764	0	0.0	1	0.3	1	0.3	5	1.2	8	0.6	1	0.3	9	2.5	3	0.5	1	1.6
MKE45		0.0	0.0	332	13.3	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MKE46	836	225.7	225.7		0.0	7,208		0.0		0.0		0.0		0.0		0.0		0.0	121	33.9		0.0	60	94.8
MKE47	874	236.1	236.1		0.0	12,825		0.0		0.0		0.0		0.0		0.0		0.0	215	60.2		0.0	106	167.5
MKE48	356	96.2	96.2		0.0	42,503	0	0.0	8	2.2	3	1.0	105	24.2	190	15.2	23	6.4	217	60.8	70	12.6	18	28.4
MKE49	912	246.3	246.3		0.0	45,860	0	0.0	9	2.5	3	1.0	114	26.2	205	16.4	25	7.0	234	65.5	76	13.7	20	31.6
MKE50	0	0.0	0.0		0.0	25,564	0	0.0	5	1.4	2	0.7	64	14.7	115	9.2	14	3.9	131	36.7	42	7.6	11	17.4
MKE51	0	0.0	0.0		0.0	30,124	0	0.0	6	1.7	2	0.7	75	17.3	135	10.8	17	4.8	154	43.1	50	9.0	13	20.5
MKE52	0	0.0	0.0		0.0	66,960	0	0.0	12	3.4	4	1.3	166	38.2	299	23.9	36	10.1	341	95.5	110	19.8	28	44.2
MKE53	653	176.3	176.3		0.0	37,137		0.0		0.0		0.0		0.0		0.0		0.0	623	174.4		0.0	307	485.1

Street Block	Population	ADWF	Total Residential ADWF	Number of Students	Total ADWF of Student	m²	S1	ADWF of S1	S2	ADWF of S2	S3
YMTS26	609	164.5	164.5		0.0	16,576	0	0.0	3	0.8	0
YMTS27	191	51.6	51.6		0.0	44,280	0	0.0	8	2.2	0
YMTS28	0	0.0	0.0		0.0	21,029	0	0.0	4	1.1	0
YMTS29	114	30.7	30.7		0.0	60,990	0	0.0	11	3.1	0
YMTS30	369	99.7	99.7		0.0	35,766	0	0.0	7	2.0	0
YMTS31	418	112.7	112.7		0.0	23,391	0	0.0	5	1.4	0
YMTS32	1,090	294.3	294.3		0.0	19,588	0	0.0	4	1.1	0
YMTS33	0	0.0	0.0	2052	82.1	3,366	0	0.0	1	0.3	0
Total			58,172.6		518.0		0		534		644

*Employment split % follows SIA report of YM Study

**The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Appendix 2.3

Sewage Flow Estimation (Sensitivity Test)

Non-domestic GFA

Street Block to be Tested	Total Non-domestic GFA (m^2)	PR 4.5 Proposed Non-domestic GFA (m^2)	PR 1.5 Proposed Non-domestic GFA (m^2)	Total Non-domestic GFA (m^2) for Testing
MKE01	6752.319	4248.315	1416.105	3920.109
MKE20	8263.860	4152.960	1384.320	5495.220
MKE21	8347.015	3222.019	1074.006	6199.002
MKE25	13348.803	752.490	250.830	12847.143
MKE27	28403.291	3760.965	1253.655	25895.981
MKE31	6639.129	852.843	284.281	6070.567
MKE32	11282.636	1586.520	528.840	10224.956
MKE38	9713.329	3139.068	1046.356	7620.617
MKE46	7207.966	464.040	154.680	6898.606
MKE47	12824.663	905.805	301.935	12220.793
MKE53	37137.459	1226.979	408.993	36319.473
MKE54	8665.996	753.300	251.100	8163.796
YMTS10	7159.039	4768.740	1589.580	3979.879
YMTS11	6831.966	4364.595	1454.865	3922.236
YMTS12	6400.295	5099.180	1699.727	3000.842
YMTS13	5268.620	4021.020	1340.340	2587.940
YMTS14	8744.068	5420.835	1806.945	5130.178
YMTS15	7807.749	1405.620	468.540	6870.669
YMTS16	2632.880	2419.020	806.340	1020.200
YMTS17	3333.265	2117.565	705.855	1921.555
YMTS18	4512.345	3757.275	1252.425	2007.495
YMTS19	5631.026	2860.965	953.655	3723.716
YMTS23	3221.218	553.950	184.650	2851.918
YMTS24	6777.553	2889.243	963.081	4851.391

Domestic GFA

Street Block to be Tested	Total Domestic GFA (m^2)	PR 4.5 Proposed Domestic GFA (m^2)	PR 7.5 Proposed Domestic GFA (m^2)	PR 7.5 Total Domestic GFA (m^2)	PR 7.5 Derived Population
MKE01	13471.572	4248.315	7080.525	16303.782	741.081
MKE20	29352.700	4152.960	6921.600	32121.340	1460.061
MKE21	23997.379	3222.019	5370.032	26145.392	1188.427
MKE25	4389.460	752.490	1254.150	4891.120	222.324
MKE27	88071.513	3760.965	6268.275	90578.823	4117.219
MKE31	23167.248	852.843	1421.405	23735.810	1078.900
MKE32	17370.450	1586.520	2644.200	18428.130	837.642
MKE38	16002.468	3139.068	5231.780	18095.180	822.508
MKE46	18390.840	464.040	773.400	18700.200	850.009
MKE47	19236.830	905.805	1509.675	19840.700	901.850
MKE53	14367.234	1226.979	2044.965	15185.220	690.237
MKE54	32174.300	753.300	1255.500	32676.500	1485.295
YMTS10	8061.110	4768.740	7947.900	11240.270	510.921
YMTS11	6877.971	4364.595	7274.325	9787.701	444.896
YMTS12	7463.390	5099.180	8498.633	10862.843	493.766
YMTS13	8710.610	4021.020	6701.700	11391.290	517.786
YMTS14	6232.025	5420.835	9034.725	9845.915	447.542
YMTS15	7420.450	1405.620	2342.700	8357.530	379.888
YMTS16	3101.390	2419.020	4031.700	4714.070	214.276
YMTS17	10144.885	2117.565	3529.275	11556.595	525.300
YMTS18	9998.545	3757.275	6262.125	12503.395	568.336
YMTS19	11941.908	2860.965	4768.275	13849.218	629.510
YMTS23	5123.229	553.950	923.250	5492.529	249.660
YMTS24	8982.089	2889.243	4815.405	10908.251	495.830

Street Block	Population	Private ADWF (0.27)	Total Residential ADWF	School: Number of Students	Total ADWF of Student (0.04)	Non-domestic GFA (m²)	Agriculture, Forestry & Fishing, Mining & Quarrying (S1)	ADWF of S1 (0.08)	Manufacturing (S2)	ADWF of S2 (0.28)
MKE01	741	200.1	200.1		0.0	3,920		0.0		0.0
MKE20	1,460	394.2	394.2		0.0	5,495		0.0		0.0
MKE21	1,188	320.9	320.9		0.0	6,199		0.0		0.0
MKE25	222	60.0	60.0		0.0	12,847		0.0		0.0
MKE27	4,117	1111.6	1111.6		0.0	25,896	0	0.0	6	1.7
MKE31	1,079	291.3	291.3		0.0	6,071	0	0.0	2	0.6
MKE32	838	226.2	226.2		0.0	10,225	0	0.0	2	0.6
MKE38	823	222.1	222.1		0.0	7,621		0.0		0.0
MKE46	850	229.5	229.5		0.0	6,899		0.0		0.0
MKE47	902	243.5	243.5		0.0	12,221		0.0		0.0
MKE53	690	186.4	186.4		0.0	36,319		0.0		0.0
MKE54	1,485	401.0	401.0		0.0	8,164		0.0		0.0
YMTS10	511	137.9	137.9		0.0	3,980		0.0		0.0
YMTS11	445	120.1	120.1		0.0	3,922		0.0		0.0
YMTS12	494	133.3	133.3		0.0	3,001		0.0		0.0
YMTS13	518	139.8	139.8		0.0	2,588		0.0		0.0
YMTS14	448	120.8	120.8		0.0	5,130		0.0		0.0
YMTS15	380	102.6	102.6		0.0	6,871		0.0		0.0
YMTS16	214	57.9	57.9		0.0	1,020		0.0		0.0
YMTS17	525	141.8	141.8		0.0	1,922		0.0		0.0
YMTS18	568	153.5	153.5		0.0	2,007		0.0		0.0
YMTS19	630	170.0	170.0		0.0	3,724	0	0.0	2	0.6
YMTS23	250	67.4	67.4		0.0	2,852	0	0.0	1	0.3
YMTS24	496	133.9	133.9		0.0	4,851	0	0.0	1	0.3
Total			5,365.8		0.0		0		14	

Employment

Street Block	Electricity & Gas Supply, Water Supply, Sewerage & Waste Management (S3)	ADWF of S3 (0.33)	Construction (S4)	ADWF of S4 (0.23)	Import & Export Trade (S5)	ADWF of S5 (0.08)	Wholesale (S6)	ADWF of S6 (0.28)	Retail Trade (S7)	ADWF of S7 (0.28)	Transportation, Storage, Postal & Courier Services (S8)	ADWF of S8 (0.18)
MKE01		0.0		0.0		0.0		0.0	118	33.0		0.0
MKE20		0.0		0.0		0.0		0.0	104	29.1		0.0
MKE21		0.0		0.0		0.0		0.0	117	32.8		0.0
MKE25		0.0		0.0		0.0		0.0	241	67.5		0.0
MKE27	41	13.5	41	9.4	158	12.6	8	2.2	31	8.7	36	6.5
MKE31	1	0.3	15	3.5	28	2.2	4	1.1	31	8.7	10	1.8
MKE32	1	0.3	26	6.0	46	3.7	6	1.7	53	14.8	17	3.1
MKE38		0.0		0.0		0.0		0.0	128	35.8		0.0
MKE46		0.0		0.0		0.0		0.0	116	32.5		0.0
MKE47		0.0		0.0		0.0		0.0	205	57.4		0.0
MKE53		0.0		0.0		0.0		0.0	609	170.5		0.0
MKE54		0.0		0.0		0.0		0.0	137	38.4		0.0
YMTS10		0.0		0.0		0.0		0.0	75	21.0		0.0
YMTS11		0.0		0.0		0.0		0.0	74	20.7		0.0
YMTS12		0.0		0.0		0.0		0.0	57	16.0		0.0
YMTS13		0.0		0.0		0.0		0.0	49	13.7		0.0
YMTS14		0.0		0.0		0.0		0.0	97	27.2		0.0
YMTS15		0.0		0.0		0.0		0.0	129	36.1		0.0
YMTS16		0.0		0.0		0.0		0.0	20	5.6		0.0
YMTS17		0.0		0.0		0.0		0.0	37	10.4		0.0
YMTS18		0.0		0.0		0.0		0.0	38	10.6		0.0
YMTS19	1	0.3	9	2.1	28	2.2	3	0.8	23	6.4	8	1.4
YMTS23	0	0.0	5	1.2	27	2.2	2	0.6	23	6.4	4	0.7
YMTS24	0	0.0	9	2.1	45	3.6	4	1.1	39	10.9	7	1.3
Total	44		105		332		27		2,551		82	

Street Block	Short Term Accommodation Activities (S9)	ADWF of S9 (1.58)	Food & Beverage Service Activities (S10)	ADWF of S10 (1.58)	Information & Communications (S11)	ADWF of S11 (0.18)	Financial & Insurance Activities (S12)	ADWF of S12 (0.08)	Real Estate Activities (S13)	ADWF of S13 (0.08)
MKE01		0.0	79	124.8		0.0		0.0		0.0
MKE20	69	109.0	104	164.3		0.0		0.0		0.0
MKE21	78	123.2	117	184.9		0.0		0.0		0.0
MKE25	161	254.4	241	380.8		0.0		0.0		0.0
MKE27	13	20.5	72	113.8	94	16.9	305	24.4	171	13.7
MKE31	3	4.7	30	47.4	15	2.7	43	3.4	13	1.0
MKE32	5	7.9	49	77.4	25	4.5	71	5.7	22	1.8
MKE38	63	99.5	128	202.2		0.0	63	5.0		0.0
MKE46	57	90.1	116	183.3		0.0	57	4.6		0.0
MKE47	101	159.6	205	323.9		0.0	101	8.1		0.0
MKE53	300	474.0	609	962.2		0.0	300	24.0		0.0
MKE54	68	107.4	137	216.5		0.0	68	5.4		0.0
YMTS10	50	79.0	75	118.5		0.0		0.0		0.0
YMTS11	50	79.0	74	116.9		0.0		0.0		0.0
YMTS12	38	60.0	57	90.1		0.0		0.0		0.0
YMTS13	33	52.1	49	77.4		0.0		0.0		0.0
YMTS14	65	102.7	97	153.3		0.0		0.0		0.0
YMTS15	86	135.9	129	203.8		0.0		0.0		0.0
YMTS16	13	20.5	20	31.6		0.0		0.0		0.0
YMTS17	25	39.5	37	58.5		0.0		0.0		0.0
YMTS18	26	41.1	38	60.0		0.0		0.0		0.0
YMTS19	7	11.1	24	37.9	5	0.9	13	1.0	6	0.5
YMTS23	7	11.1	20	31.6	4	0.7	11	0.9	5	0.4
YMTS24	11	17.4	34	53.7	7	1.3	19	1.5	8	0.6
Total	1,329		2,541		150		1,051		225	

Street Block	Professional, Scientific / Technical, Administrative & Support Service Activities (S14)	ADWF of S14 (0.08)	Public Administration (S15)	ADWF of S15 (0.08)	Education (S16)	ADWF of S16 (0.28)	Human Health Activities (S17)	ADWF of S17 (0.28)	Other Social & Personal Services (S18)	ADWF of S18 (0.28)	Work Activities within Domestic Household (S19)	ADWF of S19 (0.28)	Total ADWF for Employment	Total ADWF m³/day
MKE01		0.0		0.0		0.0		0.0		0.0		0.0	157.9	358.0
MKE20		0.0		0.0		0.0		0.0		0.0		0.0	302.5	696.7
MKE21		0.0		0.0		0.0		0.0		0.0		0.0	340.9	661.7
MKE25		0.0		0.0		0.0		0.0		0.0		0.0	702.6	762.7
MKE27	244	19.5	0	0.0	28	7.8	18	5.0	39	10.9	3	0.8	288.1	1399.8
MKE31	60	4.8	4	0.3	14	3.9	12	3.4	20	5.6	8	2.2	97.7	389.0
MKE32	101	8.1	7	0.6	23	6.4	19	5.3	34	9.5	13	3.6	161.0	387.1
MKE38		0.0		0.0		0.0		0.0		0.0		0.0	342.7	564.7
MKE46		0.0		0.0		0.0		0.0		0.0		0.0	310.4	539.9
MKE47		0.0		0.0		0.0		0.0		0.0		0.0	549.0	792.5
MKE53		0.0		0.0		0.0		0.0		0.0		0.0	1630.7	1817.1
MKE54		0.0		0.0		0.0		0.0		0.0		0.0	367.7	768.7
YMTS10		0.0		0.0		0.0		0.0		0.0		0.0	218.5	356.4
YMTS11		0.0		0.0		0.0		0.0		0.0		0.0	216.6	336.8
YMTS12		0.0		0.0		0.0		0.0		0.0		0.0	166.1	299.4
YMTS13		0.0		0.0		0.0		0.0		0.0		0.0	143.3	283.1
YMTS14		0.0		0.0		0.0		0.0		0.0		0.0	283.1	404.0
YMTS15		0.0		0.0		0.0		0.0		0.0		0.0	375.8	478.4
YMTS16		0.0		0.0		0.0		0.0		0.0		0.0	57.7	115.6
YMTS17		0.0		0.0		0.0		0.0		0.0		0.0	108.3	250.2
YMTS18		0.0		0.0		0.0		0.0		0.0		0.0	111.8	265.2
YMTS19	24	1.9	4	0.3	9	2.5	10	2.8	12	3.4	6	1.7	77.9	247.9
YMTS23	22	1.8	0	0.0	4	1.1	2	0.6	7	2.0	2	0.6	61.9	129.3
YMTS24	38	3.0	0	0.0	7	2.0	4	1.1	12	3.4	3	0.8	104.1	238.0
Total	489		15		85		65		124		35		7,176.3	12,542.1

*Employment split % follows SIA report of YM Study

**The above parameters are estimates and may vary at project implementation stages when site details and discussions with concerned departments are taken into account

Provision of Major Government, Institution and Community Facilities and Open Space in Yau Ma Tei Planning Area - S/K2/24A

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG) Requirements	Requirement based on planned population	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
District Open Space	10 ha per 100,000 persons#	7.03 ha	8.21 ha	10.58 ha	+3.55 ha
Local Open Space	10 ha per 100,000 persons#	7.03 ha	3.65 ha	5.38 ha	-1.65 ha
Sports Centre	1 per 50,000 to 65,000 persons# (assessed on a district basis)	1	0	0	-1
Sports Ground/ Sport Complex	1 per 200,000 to 250,000 persons# (assessed on a district basis)	0	0	0	0
Swimming Pool Complex – standard	1 complex per 287,000 persons# (assessed on a district basis)	0	0	0	0
District Police Station	1 per 200,000 to 500,000 persons (assessed on a regional basis)	0	0	0	0
Divisional Police Station	1 per 100,000 to 200,000 persons (assessed on a regional basis)	0	0	0	0
Magistracy (with 8 courtrooms)	1 per 660,000 persons (assessed on a regional basis)	0	0	0	0

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG) Requirements	Requirement based on planned population	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
Community Hall	No set standard	N.A.	1	1	N.A.
Library	1 district library for every 200,000 persons[π] (assessed on a district basis)	0	1	1	+1
Kindergarten/ Nursery	34 classrooms for 1,000 children aged 3 to under 6	22 classrooms	38 classrooms	38 classrooms	+16 classrooms
Primary School	1 whole-day classroom for 25.5 persons aged 6-11 (assessed by EDB on a district/school network basis)	86 classrooms	202 classrooms	202 classrooms	+116 classrooms
Secondary School	1 whole-day classroom for 40 persons aged 12-17 (assessed by EDB on a territory-wide basis)	83 classrooms	170 classrooms	170 classrooms	+87 classrooms
Hospital	5.5 beds per 1,000 persons (assessed by Hospital Authority on a regional/cluster basis)	462 beds	3,203 beds	3,723 beds	3,261 beds
Clinic/Health Centre	1 per 100,000 persons (assessed on a district basis)	0	2	2	+2

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG) Requirements	Requirement based on planned population	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
Child Care Centre	100 aided places per 25,000 persons# (assessed by SWD on a local basis)	281 places	116 places	116 places	-165 places~ (A long-term target assessed on a wider spatial context by SWD~)
Integrated Children and Youth Services Centre	1 for 12,000 persons aged 6-24# (assessed by SWD on a local basis)	0	1	1	+1
Integrated Family Services Centre	1 for 100,000 to 150,000 persons# (assessed by SWD on a service boundary basis)	0	1	1	+1
District Elderly Community Centres	One in each new development area with a population of around 170,000 or above# (assessed by SWD)	N.A.	1	1	N.A.
Neighbourhood Elderly Centres	One in a cluster of new and redeveloped housing areas with a population of 15,000 to 20,000 persons, including both public and private housing# (assessed by SWD)	N.A.	3	2	N.A.
Community Care Services (CCS) Facilities	17.2 subsidised places per 1,000 elderly persons aged 65 or above#* (assessed by SWD on a district basis)	415 places	145 places	145 places	-270 places~ (A long-term target assessed on a wider spatial context by SWD~)

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG) Requirements	Requirement based on planned population	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	**Planned Provision (including Existing Provision)**	
Residential Care Homes for the Elderly	21.3 subsidised beds per 1,000 elderly persons aged 65 or above[#] (assessed by SWD on a cluster basis)	514 beds	84 beds	84 beds	-430 beds[~] (A long-term target assessed on a wider spatial context by SWD[~])
Pre-school Rehabilitation Services	23 subvented places per 1,000 children aged 0-6[#] (assessed by SWD on a district basis)	34 places	0 places	0 places	-34 places[~] (A long-term target assessed on a wider spatial context by SWD[~])
Day Rehabilitation Services	23 subvented places per 10,000 persons aged 15 or above[#] (assessed by SWD on a district basis)	136 places	150 places	150 places	+14 places[~] (A long-term target assessed on a wider spatial context by SWD[~])
Residential Care Services	36 subvented places per 10,000 persons aged 15 or above[#] (assessed by SWD on a cluster basis)	214 places	147 places	147 places	-67 places[~] (A long-term target assessed on a wider spatial context by SWD[~])
Community Rehabilitation Day Centre	1 centre per 420,000 persons[#] (assessed by SWD on a district basis)	0	0	0	0
District Support Centre for Persons with Disabilities	1 centre per 280,000 persons[#] (assessed by SWD on a district basis)	0	0	0	0

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG) Requirements	Requirement based on planned population	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision (including Existing Provision)	
Integrated Community Centre for Mental Wellness	1 standard scale centre per 310,000 persons# (assessed by SWD on a district basis)	0	0	0	0

Note:
The Planned Resident Population includes Usual Residents (UR) and Mobile Residents (MR) in Yau Ma Tei is about 70,300. If including Transients, the overall planned population is about 84,000. All population figures have been adjusted to the nearest hundred.

Remarks:

\#	The requirements exclude planned population of transients.

π	Small libraries are counted towards meeting the HKPSG requirement.

*	Consisting of 40% centre-based CCS and 60% home-based CCS.

~	The deficit in provision is based on OZP planned population while the Social Welfare Department (SWD) adopts a wider spatial context/cluster in the assessment of provision for such facility. In applying the population-based planning standards, the distribution of welfare facilities, supply in different districts, service demand as a result of the population growth and demographic changes as well as the provision of different welfare facilities have to be considered. As the HKPSG requirements for these facilities are a long-term goal, the actual provision will be subject to consideration of the SWD in the planning and development process as appropriate. The Government has been adopting a multi-pronged approach with long-, medium- and short-term strategies to identify suitable sites or premises for the provision of more welfare services which are in acute demand.

JUNE 2023

2020 至 2023 年度油尖旺區議會
第十三次會議記錄

日期：2021 年 11 月 30 日(星期二)
時間：下午 2 時 30 分
地點：九龍旺角聯運街 30 號
旺角政府合署 4 樓
油尖旺區議會會議室

出席者：

主席

林健文議員

副主席

朱子洛議員

區議員

鍾澤暉議員	許德亮議員，JP	李偉峰議員
何富榮議員	孔昭華議員，MH	

政府部門代表

余健強先生，JP	油尖旺民政事務專員	民政事務總署
梁瀞允女士	油尖旺民政事務助理專員(一)	民政事務總署
陳子欣女士	油尖旺民政事務助理專員(二)	民政事務總署

列席者：

韋志成先生, GBS, JP, FHKEng	行政總監	市區重建局
潘信榮先生	執行董事(商務)	市區重建局
區俊豪先生	總監(規劃及設計)	市區重建局
麥中傑先生	總經理(規劃及設計)	市區重建局
譚錦儀女士	總經理(社區發展)	市區重建局
葉志興先生	油尖旺區副康樂事務經理(分區支援)	康樂及文化事務署

秘書

許希蓓女士　油尖旺民政事務處高級行政主任(區議會)　民政事務總署

開會詞

林健文主席歡迎與會人士。為配合防疫抗疫工作，他請議員、部門代表和列席人士發言時盡量精簡，重複的意見可以從略，以便盡早完成會議。因應疫情，是次會議盡量減少與會人數，部分部門常設代表沒有出席或只會出席討論與其相關的議項。他將於討論有關議項時再介紹相關政府部門代表和列席者。

議項一：通過油尖旺區議會第十二次會議及特別會議(2021年10月15日)會議記錄

2. 第十二次會議和特別會議(2021年10月15日)的會議記錄無須修訂，獲得通過。

議項二：市區重建局油麻地及旺角地區研究(油尖旺區議會第95/2021號文件)

3. 林健文主席歡迎市區重建局(“市建局”)行政總監韋志成先生、執行董事(商務)潘信榮先生、總監(規劃及設計)區俊豪先生、總經理(規劃及設計)麥中傑先生和總經理(社區發展)譚錦儀女士。

----- 4. 麥中傑先生以電腦投影片(附件一)簡介市建局油麻地及旺角地區研究(“油旺研究”)。

(許德亮議員於下午2時46分到席。)

5. 朱子洛副主席提出以下意見和查詢：(i)油旺區的老化樓宇眾多，重建規模巨大，市建局表示難以獨自進行所有重建項目，需要邀請私人發展商參與重建。就此，他詢問市建局會否統籌私人發展商在油旺區的重建事宜，例如會

否如以往般將整合街區的工作交由私人發展商進行，抑或會參考之前的做法，但給予私人發展商更多的自主權，還是有其他的處理方式；(ii)很多居民擔心，當油旺區重建完成後，他們卻無法原區安置，未能享受改善後的居住環境。就此，他詢問私人發展商在進行收購時，會否盡量依循市建局現時的安置安排；以及(iii)油旺區有不少老化的大廈已收到屋宇署及香港消防處的修葺令，着令進行維修，但不少居民擔心當維修工程完成後，大廈很快便會被收購，令他們得不償失。若居民知道大廈多年後才會獲得重建，他們便會較願意進行多一些維修工程，例如翻新大堂或更換升降機等。因此，他請市建局向居民提供清晰的重建時間表和重建的先後次序，以增加資訊透明度。

6.　　<u>許德亮議員</u>提出以下意見和查詢：(i)感謝市建局設計如此長遠的重建藍圖；(ii)他詢問重建的時間表及優先次序，因為當年土地發展公司曾承諾進行很多重建計劃，油尖旺區議會(“區議會”)亦就「波鞋街」的重建和朗豪坊附近的街市進行了長時間的討論，但後來土地發展公司由市建局接手後，便無人再理會土地發展公司當時所作的承諾。前車可鑑，雖然市建局現時推出長遠的重建藍圖，但他較關注計劃日後的發展，例如當計劃由其他政府部門接手時，他們會否繼續落實已承諾的重建計劃；(iii)落實此藍圖需要大量的時間及資金。他詢問市建局有否長遠計劃以計算總投資額，以及資金來源為何。他建議市建局詳盡地向市民作出介紹，讓市民對此計劃有更深入的了解；以及(iv)有關藍圖有助開展日後的房屋政策，希望可盡早落實。

7.　　<u>林健文主席</u>提出以下意見和查詢：(i)在房屋方面，油旺研究提到會為市民提供「首置」單位，但沒有提到曾否研究在區內撥出土地興建公共房屋。油尖旺區「劏房」林立，不少基層市民面對住屋困難，他們根本沒有能力買樓，未必可受惠於「首置」計劃，油旺研究並沒有顧及他們的需要。雖然物色土地興建公屋十分困難，但油尖旺區只有海富苑一個公共屋苑，如區內能增建公共屋苑，可使本區的基層市民受惠；(ii)油旺研究提到會重建舊樓，他詢問市建局有否為重建訂立優先次序。他認為「三無」大廈是油尖旺區非常嚴峻的問題，大廈內「劏房」林立，已發生多宗奪命火災，因此他認為必須優先重建「三無」大廈；(iii)有關活化果欄方面，他作為區議會「關注油麻地果欄工作小組」主席，對市建局的建議表示支持。他詢問市建局提議

將巧翔街政府用地改建成水果批發市場一事，事先有否諮詢業內人士，以及他們的反應如何，是否支持建議。如他們反對，市建局有否替代方案；以及(iv)有關區內停車位不足的問題，年初油麻地停車場大廈清拆後，停車位不足的問題短期內將無法解決。雖然油旺研究有粗略提及在一些節點興建地下停車場，但資料不夠詳細，他希望市建局進一步闡述。

8. 李偉峰議員提出以下意見和查詢：(i)油旺研究不單是重建項目，而且是區內的長遠發展規劃。然而，他對油旺研究的範圍卻感到失望，因為渡船街及深旺道以西的部分沒有納入研究範圍，而研究範圍的西面亦只包括櫻桃街，沒有包括海泓道。他認為海泓道已有一條通道，稍經改善後，便可南北直通。另外，油旺研究也沒有納入海濱長廊通道，他對該研究不包括這兩條通道感到可惜。他又指，若根據研究所建議的方案進行發展，最終只會令公屋區及居屋區成為唯一的舊區，情況令人費解；(ii)在公屋方面，他詢問當油旺研究交由其他部門研究後，當局會否興建一定比例的公屋或特定的適切房屋，或為獨居人士/二至三人家庭提供短期租約。他認為，若區內沒有大型主導式租用住宅，將難以控制區內的人口，無法解決環境擠迫的長遠規劃問題；(iii)有關地積比轉移的問題，他建議只可轉移旁邊及附近地段或者 500 或 700 米半徑內的地段的地積比，否則會出現不良情況。例如，有人想發展佐敦，卻轉移大角咀邊界土地的地積比，令規劃失去平衡，導致某些土地可能變成荒地，影響日後的發展。若只發展較密集和較有價值的地段，便不能達致分流及平均享用空間的目的；(iv)當局在整合街區時，似乎沒有考慮物流業日後的需要，因為商場每日都要上落貨，但整合街區後，馬路會消失，屆時大型交通運輸工具不能直達商場大門，會影響居民日後的生活；以及(v)有關果欄方面，市建局已決定活化果欄，但該局曾在其他會議上表示難以進入果欄視察設施老化的情況，以及內裡有何具價值的設施。他詢問，在這情況下，是否不論果欄的設施如何殘破，以及內裡有否具歷史價值的建築羣，市建局都會堅持活化。

9. 孔昭華議員提出以下意見和查詢：(i)同意油旺研究的重建方案，認為舊區及舊樓需要重建和優化，從而增加地積比及設施，以提高生活質素；(ii)希望市建局提供關於住宅、商業及其他設施的類型(例如是公營或私人住宅)、比例

及位置的實質數據，他並期望這些設施會根據周邊的環境及政府的政策而規劃；(iii)同意重新規劃交通幹道、解決交通擠塞問題、整合小街小路，以及提升行人網絡的通暢度；(iv)根據油旺研究，休憩空間會由現時的16公頃大幅增加至48公頃。他詢問休憩空間主要位於什麼位置、透過什麼途徑增加，以及當中包括什麼康體或綠化設施；(v)至於果欄方面，他詢問擬建的大廈的地積比和高度為何，以及會否把整座大廈用作水果批發用途。他留意到該處將有隧道通往果欄現址，他希望局方多加研究；以及(vi)有關重建「八文樓」及整合橫街事宜，規劃署最近對圖則S/K2/23提出修訂，當中包括三個地點，其中一個是「八文樓」，修訂項目包括增加高度，其餘兩個地點是彌敦道及佐敦道交界和登打士街。他希望市建局與規劃署在研究社區重建時可更為全面。

10. <u>韋志成先生</u>回應如下：

(i) 有關市建局的統籌角色方面，以往公眾會視市建局為土地發展商，主要原因是市建局在成立時接收了很多土地發展公司的項目，需要先處理這些項目，導致予人發展商的印象。事實上，根據《市區重建條例》，市建局有兩個重要職能，即重整及重新規劃舊區土地，充分發揮舊區的潛力，以及推廣樓宇維修保養。就第一個職能而言，局方眼見油旺區在過往20年沒甚改變，已建設環境繼續老化，現行的機制亦無法發揮區內大範圍的更新潛力，因此決定對油旺區進行更新規劃研究。有關計劃現時仍是概念圖，接着會進行的工作包括：(1)市建局按照概念藍圖的規劃目標按資源擬備合適的項目並納入五年業務計劃；(2)市建局與政府相關政策局及部門合作，將概念藍圖的重點分階段加入分區計劃大綱圖，使私人發展商知道如何落實概念，進而參與其中；以及(3)如政府同意研究內的建議，便應爭取資源興建相關的政府設施。因此，市建局不會負責整個地區的統籌工作。以發展一個新區為例，統籌工作是依賴新的分區計劃大綱圖而展開。當規劃署完成分區計劃大綱圖後，私人發展商便可看到機會及參與，並與政府合作推展計劃。

(ii) 至於私人發展商項目的安置安排方面，每個項目的安置安排均由私人發展商決定，市建局和政府難以控制。

(iii) 對於有議員表示業主或會因區內將會大規模重建而不進行大廈維修，他表示如果只由市建局按現時機制收購及重建佔地212公頃的3 000多幢樓宇，收購成本會超過11,000億元，但市建局現時只有不足500億元的資產。如果只利用局方的資源進行重建，需要很長時間才能完成所有重建項目。因此，改劃分區計劃大綱圖的其中一個最重要的功能是活化私人市場，令私人發展商能真正參與市區更新，使整個規劃得以推展。由於整個舊區的重建需時甚久，因此市建局須要執行另一個職能，即推廣樓宇維修。在樓宇復修方面，現時面對的最大難題是業主沒有履行樓宇復修責任，令樓齡到達約50年的樓宇亦要清拆，其實只要維修得當，樓宇壽命可以延長。他續稱，市建局日後在油旺重建方面可做的事情不會很多，主要是推動私人市場參與和延長現狀仍然理想的樓宇的壽命，以換取時間累積資源，從而達成如此龐大的維修願景。事實上，局方在收購已開展的項目內的樓宇時，如發現大廈曾進行維修而又未用盡其維修壽命，局方會向大廈業主提供補償，不會令他們白白浪費金錢去履行業主責任進行維修。

(iv) 有關時間表及優先次序方面，他重申重建的時間表很長，而且市建局需要將內容保密，不會預先公布在何時開展重建項目，因此不會公開有關的時間表。至於會否優先處理「三無」大廈，他指市建局在過去兩年除了進行油旺研究外，亦進行了樓宇復修的策略性研究，涉及香港3 000多幢樓宇，得出的結論是「三無」大廈的情況並非最嚴峻，部分「三無」大廈的情況其實良好，關鍵是有否用心管理。相反，有一些樓宇雖然有業主立案法團，但沒有物業管理公司，導致樓宇狀況比「三無」大廈還差。因此，在制定重建優次時，市建局雖然會考慮一籃子因素，包括「三無」大廈，但他希望議員不要誤以為「三無」大廈的狀

況必然欠佳。

(v) 至於資金來源方面，若市建局完全不作為，20年後的油旺區會與20年前一樣，毫無變化。因此，現時市建局邁出了重要的第一步，即先進行整體重新規劃，找出有潛力的地點。在是次地區研究中，擬定規劃藍圖時候，市建局於「正」方案先將現時剩餘約7%的地積比提升至約35%，即發揮約30%的潛力，但這仍未足夠。如純粹由市建局負責所有重建項目，需耗資數千億元，局方並未有足夠資金完成。因此，局方會就每個項目盡量向政府爭取盡用土地潛力。局方現時先以「正」方案作起步，把總樓面面積由700萬平方米增加至940萬平方米。在本年度的施政報告中，政府公布將會大規模開發土地。若有土地資源，便可用以支援舊區更新，逐漸降低舊區的密度，因此土地及資金來源需視乎未來的發展。

(vi) 有關「首置」單位方面，法例訂明，市建局的職能是進行規劃及推廣復修，因此市建局不可能完成所有政府部門及其他公營機構的工作，彼此應有分工。兩年前，政府在施政報告中提到市建局將進行一項新工作，即提供「首置」單位。雖然如此，公營房屋仍須由香港房屋協會及香港房屋委員會負責，以作適當分工。當土地被規劃作住宅用地後，市建局會選擇適當的用地以提供「首置」單位。同樣地，如政府在研究此概念藍圖後，發現可利用住宅用地興建公屋，則應由政府自行決定是否付諸實行。

(vii) 政府在施政報告中要求市建局進行果欄保護及活化研究，有關報告已完成，當中包括短、中和長期的建議，政府現正考慮相關建議。政府過去曾針對果欄進行了多個研究，但一直沒有結論。有意見認為應將果欄搬遷，有的則認為應予以保留，但他相信普遍的意見是果欄為居民及交通造成相當程度的滋擾，因此這個問題始終需要處理。他認為油旺研究中提出的方案較為合理，即在原址保留零售業務，而把批發業務重置到現時已有批發活動的巧翔街。至於示意圖中的大廈，則只有部分的基座會用作批發中心。局方在參考

初步技術資料後，認為可嘗試利用隧道經渡船街連接大樓，以便商戶在起卸貨物後可將貨物運至零售點。至於日後如何落實，則有待政府審閱報告後提出要求，市建局會配合相關決定。

(viii) 有關渡船街的問題，根據法例，市建局的其中一個職能是重整和重新規劃舊區土地，以發揮舊區土地的潛能。若區內的樓宇及設施仍未老化，市建局不會為其進行更新研究。因此，油旺研究所包括的212公頃土地均是多年未有更新活動的舊土地，因此才需要進行重整和規劃。

(ix) 渡船街在地理上的確把新區及舊區分割，因此局方建議在「綠色走廊」增加連接點，使舊區在更新後可與新區連接，直達海濱。至於海濱活化事宜，則會由政府部門負責。

(x) 他同意李偉峰議員的意見，認為轉移地積比時不能太過自由。局方建議兩個方法，其中一個是改劃大綱圖。在改劃的過程中，會列明送出地盤及接收地盤的地點。另一個方法是行政手段，即跟隨指引進行地積比轉移。另外，發展商亦可參考指引的資料以進行轉移地積比。若發展商遵照指引的資料向城市規劃委員會申請轉移地積比，成功的機會會更高。

(xi) 有關整合街區方面，局方希望在新發展區內，起卸貨區可劃設在地底，以免影響地面的交通或阻礙車輛。

(xii) 至於孔議員問及的具體項目數據，油旺研究是規劃概念，需要先與政府商討。在每次推出新項目前，局方會重新就該項目進行諮詢，屆時便會有更具體的項目數據。

(xiii) 至於行人網絡及休憩空間方面，市建局現正推行泊車後以步行接駁的措施，因此將優化整區的行人網絡。除現有的停車場及在節點的大型停車場，亦會在大型節點項目中增設公眾停車場。

(xiv) 政府正就油麻地區包括「八文樓」的高度限制進行修訂，市建局會與政府協調。但是，如果只是調整高度限制，並不能解決「八文樓」的問題。

市建局需要超過幾百億元才可收購及重建「八文樓」，因此需要累積資金。此外，亦要重新規劃「八文樓」，使其兼備住宅以外的用途，從而達致全面的市區更新。

11. 朱子洛副主席提出以下意見和查詢：(i)市建局表示無權干涉私人發展商對於居民的安置安排，但不少居民，尤其是長者，對搬遷至新環境感到徬徨無助，擔心難以適應，因此居民的關注是真切的。行政長官曾提到會將「強拍」的門檻降低，讓私人發展商更容易參與，此舉令居民十分擔心私人發展商的安置安排。他請市建局向發展局轉達意見，如市建局無法進行統籌，則應由發展局負責統籌，以確保居民在安置上有所保障；(ii)油尖旺區有很多少數族裔居民，例如佐敦一帶就有很多尼泊爾裔居民。少數族裔人士基本上對油旺重建毫不知情，相關消息主要由中文媒體報道，因此他希望市建局向少數族裔居民介紹方案；(iii)九龍城在 2011 至 2014 年曾經推行「市區更新地區諮詢平台」，及後一直未有類似平台。他認為這個平台可以讓地區持份者由下而上地反映區內居民的關注，十分重要。局方代表在簡報時提到會再次進行地區持份者諮詢工作，他詢問會否考慮在油旺區成立「市區更新地區諮詢平台」，從而了解地區持份者的需要；以及(iv)一些果欄商販認為難以將批發及零售分開，而且批發活動必須在地面進行，不能移去樓上。他建議市建局可從道路系統規劃的角度向果欄商販進行講解，以便盡快推動果欄更新，從而解決油麻地居民在交通及衞生方面的困擾。

12. 鍾澤暉議員提出以下意見及查詢：(i)在過往的舊區重建中，通常是由私人發展商及市建局收購「三無」大廈或地積比率尚未用盡、有利可圖的大廈。但是，現時的規劃規模龐大，牽涉很多已用盡地積比率，甚至已超越地積比率的大廈；(ii)居民通常希望當局在舊區進行收購時，可以向他們提供一定的資源，讓他們在區內重新置業。市建局的津貼是以單位假定為七年樓齡的相等價值計算，但由於過去一段時間樓價上升，津貼難以追上樓價，恐會令收購出現困難；(iii)藍圖需要整體地落實，但現時有很多較小型的大廈或較容易收購的樓宇已被不同持份者「落釘」，他擔心會影響整個發展規劃；(iv)在交通方面，他詢問擴闊街道和增加停車設施的措施對交通的效益有多大，希望市建局提供實際數字；以及(v)有關舊區復修方面，過去有不少

大廈曾配合復修計劃，但通常需要政府提供誘因，例如向市建局提供資源或推行「樓宇更新大行動」。然而，這些誘因似乎具階段性，在政府停止提供誘因後，市民及業權人未必有很大動力進行樓宇復修。他建議市建局與政府溝通，讓政府提供額外資源，以持續進行樓宇復修，以便在確保市區舊樓的安全之餘，又可改善發展規劃。

13. 許德亮議員提出以下意見和查詢：(i)他認為藍圖可提供規劃方案讓政府研究及考慮，對此他表示讚賞；(ii)他詢問局方在提出藍圖後，會如何提供誘因，吸引私人發展商參與將會推行的項目；(iii)他詢問將來在重建樓宇時，市建局會否規限發展商興建的單位類型，例如新填地街現時大多是小型單位，如在整個區域全部興建小型單位，讓夫婦二人或三人同住，長遠而言，年輕人亦或會在該區落地生根，以致需要增加幼稚園及其他設施；以及(iv)整個社會規劃需要政府配合，市建局不可能替政府決定交通及其他方面的規劃。現時的規劃只包括油旺區，但如果以較宏觀的角度考慮，則應放眼油尖旺區和九龍西區，不可能單靠一套交通或醫療配套設施便可滿足兩個社區的需求。油旺研究的藍圖龐大，他詢問政府有何支援措施，以推動每一個步驟。

14. 林健文主席提出以下意見及查詢：(i)有關果欄方面，市建局的計劃看似可解決問題，但根據經驗及過往記錄，似乎果欄業內人士對建議的反應不會太正面。果欄搬遷計劃已討論了 50 年，但建議始終未獲業內人士支持。這次市建局建議利用巧翔街用地作批發市場，但業內人士強烈認為將批發及零售分開並不適當，以及應在地面進行批發活動。事實上，上一屆區議會的「關注油麻地果欄工作小組」曾經進行活化果欄研究，其中一個方案就是利用巧翔街用地，當時亦有反對聲音。因此，他認為果欄的建議需要詳細研究，如業界人士不配合，他擔心會一直無法實行；以及(ii)有議員提到一些大型重建計劃，例如「八文樓」，並提到賠償問題，他認為市建局的油旺研究值得支持，但他擔心市民未必清楚知道計劃現時只是概念，需要長時間研究，最終能否實行仍需多方配合。他建議市建局加強推廣，以免市民被某些報道誤導，或者在得知油旺研究後，以為重建在即，很快便可以與當局討論賠償事宜，因而刻意購買可能被重建的單位。尤其是「八文樓」是一個牽涉 3 000 多個單位的大型屋苑，若由私人發展商收購，需要很長時間，

難度很大，業主在收購過程中往往各持己見，最後談不攏。因此，若只交由私人發展商進行收購和重建，而非由市建局進行，他詢問大概需時多久；若需時甚久，他擔心不少市民會抱有即將重建的想法，而不復修樓宇，最終影響市建局的復修計劃。他認為市建局需要加強推廣，讓市民清楚計劃現時是概念性階段，需要長時間研究。

15. 油尖旺民政事務專員(“民政專員”)余健強先生回應，政府已收到市建局的果欄研究報告。有關問題較複雜，須視乎油旺研究的進展。政府亦會顧及果欄營辦者的意見，日後會再與其商討。就活化果欄方面，政府會繼續從交通及治安等不同方面跟進，盡量將果欄營運帶來的影響減到最低。

16. 韋志成先生回應如下：

(i) 市建局無法定權力規管私人發展商的收購安排，但會向相關政策局及部門反映議員的擔憂。

(ii) 市建局知道油旺區的少數族裔居民眾多，因此在每次推行項目時都會顧及少數族裔人士的關注。

(iii) 有關「市區更新地區諮詢平台」方面，根據2011年的《市區重建策略》，政府會在試點建立諮詢平台。然而，市建局從九龍城試點的經驗發現，由於規劃涉及很多專業判斷及知識，如果純粹由下而上蒐集市民意見，將難以協助局方進行市區更新的規劃。因此，油旺研究的模式是先參考過去的研究，包括區議會曾進行的相關研究，以及區議會在過去五年的大會及委員會會議中提出的關注，加以綜合後得出地區關注的問題，然後再把相關問題納入規劃以進行研究。他相信將來亦會沿用此模式。

(iv) 市建局的津貼是以單位假定為七年樓齡的相等價值計算，這是整個香港舊區更新的問題關鍵，若不解決此問題，市建局的財政負擔將會十分沉重，而對於社會來說，以七年樓齡計算津貼額是否公平，市民可以再作討論。

(v) 有關業主「落釘」的問題，即使有人「落釘」，但如果大廈的發展潛力不足，亦不能進行重建。

市建局在進行整體規劃時，暫時不會考慮是否有人「落釘」，而是先完成規劃。在選出項目後，若發現有人已在項目「落釘」，會考慮合適機制與相關人士合作進行收購。

(vi) 大廈復修對香港舊區更新十分重要，若市區老化的速度比重建或更新的速度快，便無法處理問題，故法例要求市建局進行大廈復修方面的推廣，局方會盡量加強推廣工作，亦會與政府部門討論如何在政策上予以配合，但業主必須明白復修是其責任。

(vii) 市建局在開始進行油旺研究時，已經不斷向市民解釋現階段只是高層次的規劃概念。雖然如此，局方仍會繼續向市民清楚傳遞此訊息。

(viii) 市建局並沒有法定權力決定重建後的單位的大小，最近亦有報道指政府開始關注單位的大小，他認為有關事宜應由政府負責處理。

(ix) 在整個規劃中，市建局已諮詢所有相關政府部門，詢問他們希望在油旺區增加的設施，並將有關建議納入規劃，同時保留現有的設施和翻新舊有設施。在有需要時，局方會利用「一地多用」的模式，整合不同設施。在新發展的節點，亦會加入政府需要的社區設施，因此市民不需擔心會有社區設施被忽略。

(x) 在交通規劃方面，油旺研究沒有進行跨區交通評估，而只是著眼於研究範圍，以及根據已有的跨區交通資料進行評估，以改善小區的交通。在加入地下停車場、泊車設施及步行設施的概念後，市建局曾進行整體交通影響評估，發現情況有所改善，除主要幹道不能改變外，其他道路面積可透過規劃減少百分之 20 以上，騰出的土地可用作其他用途，以增加可使用的土地面積。

(xi) 有關「八文樓」方面，發展商應不會主動收購和重建，因為「八文樓」已超越現時規劃的發展上限，需要考慮重新改劃，以發揮該土地的潛力，並配合附近道路及休憩空間用地整體規劃。

17. <u>林健文主席</u>感謝市建局代表參與討論此議項。