



Agreement No. CE 26/2000

Territory-Wide Implementation Study for Water-cooled Air Conditioning Systems in Hong Kong



Traffic Review Report



submitted by

Parsons Brinckerhoff (Asia) Limited

in association with



Binnie Black & Veatch Hong Kong Limited
and



City Planning Consultants Limited

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1. BACKGROUND

- 1.1 The proposed pipelines of Water-cooled Air-conditioning Systems (WACS) adopted Central Seawater Scheme and District Cooling Schemes are located at different major and minor roads in Hong Kong Island, Kowloon and New Territories in HKSAR. The proposed pipelaying works for the above WACS schemes are required to be undertaken at or in vicinity of major roads in Central District, Wan Chai, Causeway Bay, Tsim Sha Tsui, , South East Kowloon New Development, West Kowloon New Areas, North Lantau New Reclamation, Penny's Bay, Tung Chung New Reclamation, Tseung Kwan O New Areas, Tuen Mun Area 38 and North-East Corner Commercial District of Chek Lap Kok Airport.
- 1.2 A Traffic Review (TR) of the recommended WACS Scheme has been prepared to identify issues of traffic concern, possible mitigation measures and potential implications. The key objective of the TR was to identify traffic concerns and any special requirements in traffic considerations for carrying out the potential water main installation works.
- 1.3 Comments from relevant government departments on the TR report were received. The findings of this TR formed the basis to determine whether detailed traffic impact assessments would be required during detailed design stages for the ground investigation and implementation of the WACS.
- 1.4 In view of substantial nature of the proposed WACS's works and the likely adverse traffic impacts, it is recommended that detail traffic impact assessments for all the proposed WACS Zones should be conducted before commencement of construction works.

2. TRAFFIC REVIEW

- 2.1 The zone boundary, proposed DCS plant room, seawater pump house and the routing of the WACS pipelines are identified in the early planning stage of the Study having considered the planning and lands requirements. The proposed WACS pipeline installation works to be carried out in different WACS zones in Hong Kong Island, Kowloon and New Territories are summarized and shown in Table 1:

Table 1 Summary of WACS Zones

WACS Zones	Location of WACS Zones
A2, A3 & B1	Central District (West) Central District (Central) Central & Wan Chai New Reclamation
A4 & A5	Wan Chai
A6 & A7	Causeway Bay
A11, A12 & A13	Tsim Sha Tsui
B2	South East Kowloon New Development
B3	West Kowloon New Reclamation Area
B5	North Lantau New Reclamation Area
B6	Penny's Bay
B7	Tung Chung New Reclamation Area
B8 & C6	Tseung Kwan O (New Area) Tseung Kwan O Area 137 (New Area)
C2	Tuen Mun Area 38 New Reclamation Area
C3	North-East Corner Commercial District of Chek Lap Kok Airport

- 2.2 The proposed WACS water main installation works, including the excavation of trenches undertaken at or in vicinity of expressways and major roads having high capacity junctions, normally grade separated, segregated pedestrian facilities and limited frontage access in Hong Kong Island, Kowloon and New Territories are identified. The major roads affected by the proposed water main installation works are shown in Table 2.

Table 2 Summary of Major Roads Affected by the Proposed Water Main Installation Works

Districts	Location of pipelaying works
Central and Wan Chai	Connaught Road Central
	Des Voeux Road Central
	Queen's Road Central
	Cotton Tree Drive
	Harcourt Road
Wan Chai North and Wan Chai South	Arsenal Street
	Gloucester Road

Districts	Location of pipelaying works
	Marsh Road
Causeway Bay North and Causeway Bay South	Marsh Road
	Gloucester Road
	Canal Road East
	Victoria Park Road

- 2.3 Based on the Annual Traffic Census (ATC) 2000, the information of road type and annual average daily traffic (AADT) of the expressways and major roads are summarized and shown in Table 3.

Table 3 Summary of Annual Traffic Census (ATC) Traffic Growth and Road Type for Major Roads

Location of Pipelaying works	Road Type	Station Number	AADT	% Change
Connaught Road Central	PD	2207	46,580	+9.6
Des Voeux Road Central	DD	2030	17,670	+0.5
Queen's Road Central	PD	2208	17,020	+6.6
Cotton Tree Drive	PD	1411	50,280	-0.6
Harcourt Road	UT	1601	176,580	+1.4
Arsenal Street	PD	1412	28,840	+6.5
Gloucester Road & Victoria Park Road	UT	1401	149,490	+3.3
Marsh Road	DD	1859	16,490	+0.5
Canal Road East	PD	2024	20,920	+3.3
Victoria Park Road	UT	1002	143,210	+1.6
Texaco Road	DD	5437	62,170	+12.8

Notes: DD = District Distributor

PD = Primary Distributor

UT = Urban Trunk Road

% Change = Change in AADT of 2000 as percentage of 1999

- 2.4 Based on Highways Department's Guidance Notes No. RD/GN/021, Guidelines on Traffic Impact Assessment & Day-time Ban Requirements for Road Works on Traffic Sensitive Routes, a review of the proposed works has been undertaken to identify the requirements for Traffic Impact Assessment and Day-time ban at the proposed works areas. The proposed works are generally classified into five categories according to the time constraint:

Category 1 – working on weekend afternoon and at night

Category 2 – working in off-peak hours

Category 3 – working with no specific time constraint

Category 4 – working on footpath on weekend afternoon and at night

Category 5 – detailed TIA required in detailed design stage

The traffic impact assessment and day-time ban requirements at each road for proposed pipelaying works are shown in Tables 4 to 14.

Table 4 Summary of Major Roads in Potential WACS Zone – A2 Central District (West), A3 Central District (Central) & B1 Central and Wan Chai Reclamation Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – A2, A3 & B1 A2 Central District (West) A3 Central District (Central) B1 Central & Wan Chai Reclamation			
Connaught Road Central	Red	Y	(1)
Rumsey Street	-	-	(1)
Des Voeux Road Central	-	-	(1)
Wing Wo Street	-	-	(3)
Murray Road	-	-	(1)
Queen's Road Central	-	Y	(1)
Harbour View Street	-	-	(2)
Queen Victoria Street	-	-	(2)
Pedder Street	-	-	(1)
Man Yiu Street	-	-	(2)
Ice House Street	-	-	(2)
Battery Path	-	-	(3)
Garden Road	Pink	-	(2)
Cotton Tree Drive	-	Y	(1)
Harcourt Road	Red	Y	(1)
Rodney Street	-	-	(2)
Queensway	Pink	-	(2)
Edinburgh Place	-	-	(2)
Lung Wui Road	-	-	(3)
Tim Wa Avenue	-	-	(2)

Notes: (1) working on weekend afternoon and at night
(2) working in off-peak hours

- (3) working with no specific time constraint

Table 5 Summary of Major Roads in Potential WACS Zone – A4 & A5 Wan Chai Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – A4 & A5 A4 & A5 Wan Chai			
Arsenal Street	-	Y	(1)
Gloucester Road crossing	Red	Y	(1), (2)
Gloucester Road Service Road	-	-	(3)
Hennessy Road	-	-	(5)
Junctions in Hennessy Road	-	-	(1)
O'Brien Road	-	-	(2)
Johnston Road	-	-	(2)
Tai Wo Street	-	-	(3)
Wan Chai Road	-	-	(2)
Marsh Road	-	Y	(1)
Convention Avenue	-	-	(3)

- Notes: (1) working on weekend afternoon and at night
 (2) working in off-peak hours
 (3) working with no specific time constraint
 (5) detailed TIA required as Hennessy Road will be re-routed to one-way westbound and an eastbound bus-only lane under the proposed gyratory scheme implemented between 2003 and 2005

Table 6 Summary of Major Roads in Potential WACS Zone – A6 & A7 Causeway Bay Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – A6 & A7 A6 & A7 Causeway Bay			
Marsh Road	-	Y	(1)
Gloucester Road	Red	Y	(1), (2)
Hennessy Road	-	-	(5)
Junctions in Hennessy Road	-	-	(1)

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Yee Wo Street	-	-	(2)
Canal Road East	-	Y	(1)
Leighton Road	-	-	(2)
Junctions in Leighton Road	-	-	(1)
Hysan Avenue	-	-	(3)
Sunning Road	-	-	(3)
Victoria Park Road	Red	Y	(1)

- Notes: (1) working on weekend afternoon and at night
(2) working in off-peak hours
(3) working with no specific time constraint
(5) detailed TIA required as Hennessy Road will be re-routed to one-way westbound and an eastbound bus-only lane under the proposed gyratory scheme implemented between 2003 and 2005

Table 7 Summary of Major Roads in Potential WACS Zone – A11, A12 & A13 Tsim Sha Tsui

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – A11, A12 & A13 A11, A12 & A13 Tsim Sha Tsui			
Canton Road	-	-	(2), (5)
Haiphong Road	-	-	(3), (5)
Salisbury Road	Pink	-	(2), (5)
Nathan Road	Pink	-	(2), (5)
Kimberley Road	-	-	(3), (5)
Observatory Road	-	-	(3), (5)
Chatham Road South	-	Y	(2), (5)
Cheong Wan Road	Pink	-	(2), (5)
Hong Tat Path	-	-	(2), (5)
Hong Chong Road	Pink	-	(2), (5)
Science Museum Road	-	-	(2), (5)
Mody Square	-	-	(3), (5)
Mody Road	-	-	(3), (5)

- Notes: (2) working in off-peak hours
(3) working with no specific time constraint
(5) detailed TIA required. TD is conducting the “Study to Tackle Traffic Problems in Tsim Sha Tsui caused by Roadworks up to year 207.”

Also DSD is implementing drainage and sewerage improvement works in West Kowloon up to year 2008.

Table 8 Summary of Major Roads in Potential WACS Zone – B2 South East Kowloon New Development Area Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – B2 South East Kowloon			
New Development Area	-	-	(3)

Notes: (3) working with no specific time constraint

Table 9 Summary of Major Roads in Potential WACS Zone – B3 West Kowloon New Reclamation Area Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – B3 West Kowloon (Art Performance Venue)			
Austin Road West	-	-	(2)

Notes: (2) working in off-peak hours

Table 10 Summary of Major Roads in Potential WACS Zone – B5 North Lantau New Reclamation Area Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – B5 North Lantau Foreshore			
Tsing Chau Wan	-	-	(3)
To Kau Wan	-	-	(3)

Notes: (3) working with no specific time constraint

Table 11 Summary of Major Roads in Potential WACS Zone – B6 Penny's Bay Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – B6 Penny's Bay			
Penny's Bay	-	-	(3)

Notes: (3) working with no specific time constraint

Table 12 Summary of Major Roads in Potential WACS Zone – B8 Tseung Kwan O Area 137 & C6 Tseung Kwan O Industrial Area Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – B8 & C6 B8 Tseung Kwan O Area 137 New Reclamation Area C6 Tseung Kwan O Industrial Estate New Reclamation Area			
Chun Yat Street	-	-	(2), (5)
Chun Cheong Street	-	-	(3), (5)
Chun Ying Street	-	-	(3), (5)
Chun Kwong Street	-	-	(3), (5)
Chun Wang Street	-	-	(3), (5)

Notes: (2) working in off-peak hours
(3) working with no specific time constraint
(5) detailed TIA required to devise Temporary Traffic Management Scheme (TTMS) in Tseung Kwan O Industrial Estate

Table 13 Summary of Major Roads in Potential WACS Zone – C2 Tuen Mun Area 38 New Reclamation Area Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – C2 Tuen Mun Area 38			
Siu Lang Shui	-	-	(3)

Notes: (3) working with no specific time constraint

Table 14 Summary of Major Roads in Potential WACS Zone – C3 Chek Lap Kok Airport North-East Commercial District Affected by the Proposed Water Main Installation Works

Location of pipelaying works	Traffic Review for Working on Carriageway and Junction		
	Route	Day-time ban	Review
Potential WACS Zone – C3 Chek Lap Kok Airport			
Airport Road	-	-	(3)

Notes: (3) working with no specific time constraint

- 2.5 There are access points or stations to be installed in the WACS pipelines for monitoring, isolation, cleaning and control of the pipe loops by sections. These access points or stations will be sited on the footpaths away from the pipe alignment underneath road carriageways so that the above routine and emergency operations can be carried out without the occupation of road carriageway. No traffic impact will therefore be created due to the routine and emergency operations of the WACS.

3. RECOMMENDED TEMPORARY TRAFFIC ARRANGEMENTS

- 3.1 The trenches for the proposed water main installation works will be constructed and formed using the conventional open trench excavation method where site conditions permitted. Lane by lane decked trench excavation method will basically be adopted so that only one traffic lane will be affected each time. After laying the water mains, the affected carriageway will be backfilled and reinstated immediately. For heavily trafficked roads, trenchless method is required in order to avoid overloading the existing roads which are already saturated.

At carriageway

- 3.2 For road opening works at expressways, high intensity flashing beacons will be used to draw drivers' attention to the potential hazard at works areas and to warn drivers to take special care. The first advance warning sign will be provided at least 600 m ahead of the working areas. A safety clearance of 0.5 m on roads with approach speed up to 85 km/h and 1.2 m on roads with approach speed over 85 km/h will be provided between the working area and any part of the trafficked carriageway. The 1.2 m safety zone will be provided along the working area on expressways except where work zone protection barriers provided.
- 3.3 After the completion of water main installation works, all the affected roads will be

reinstated. Temporary traffic control with “Stop / Go” traffic signs will be adopted for the excavated areas with one-lane two-way traffic during daytime construction while temporary traffic lights will be used during night time. The existing bus stops, taxi stands, green mini-bus (GMB) stands and loading / unloading lay-bys adjacent to the construction areas will be temporarily relocated during construction period. The affected bus stops, taxi stands, GMB stands and loading / unloading lay-bys will be relocated back to the original positions after the completion of the works.

At footpath

- 3.4 The pipelaying works at footpath will be carried out by trench excavation method. After the completion of the laying of water mains, the excavated area will be backfilled and reinstated. All existing pedestrian facilities will be maintained during construction. Adequate barriers and warning signs will be provided to ensure pedestrian safety. A minimum of 1.5 m wide pedestrian footpath will be provided along the affected footpath. For heavily trafficked footpaths such as footpaths along Queen’s Road Central between Pedder Street and Jubilee Street, wider footpath is required. Pedestrian flows will be conducted in detailed design stage to assess the reduced width of footpaths. Pedestrian diversion will be required at the working areas where a closure of footpath is necessary.
- 3.5 Plastic, wooden or steel plates will be provided for decking-over the excavated pedestrian area outside working hours. In addition, a temporary pedestrian footbridge with barriers will be provided across the trench excavation area for pedestrian access at approximately 25 m intervals. Trenches will be decked over during peak hours in busy areas.

4. SUMMARY

- 4.1 The proposed WACS pipeline installation works will be carried out in various major roads in Hong Kong Island, Kowloon and New Territories. As the proposed works lie in major busy roads, detailed Traffic Impact Assessments (TIA) for the proposed works at roadways are recommended at the ground investigation and detailed design stages by the developers / owners / service provider of specific zonal WACS. The principle objective of the TIA is to assess the traffic impact during construction of the WACS water mains installation works in different WACS zones and to provide a basis for the development of the corresponding Temporary Traffic Management Scheme (TTMS) and Area Traffic Management Measures (ATMM). The purposes and aims of the TIA are as follows:
- (a) to appraise the existing traffic conditions in the vicinity of the works by collecting and review information with respect to existing traffic flow, existing carriageway configurations, street furniture, junction signal settings and existing public

transport services in the area;

- (b) based on the survey data and the traffic forecast, to carry out the necessary assessment and formulate traffic requirements and constraints for the proposed pipelaying works aiming to minimize traffic disruption during construction;
- (c) to prepare TTMS and ATMM for the proposed WACS water main installation works; and
- (d) to assess the traffic impact on the surrounding road networks caused by implementation of TTMS and ATMM necessary for construction of the proposed WACS water main installation works.

- 4.2 Based on the findings of the Traffic Review, the proposed WACS pipeline installation works at the locations shown in Table 15 are recommended to be carried out by trenchless construction method in order not to affect the existing traffic which is already in saturation.

Table 15 Locations of Trenchless Construction

Potential WACS Zone	Road
A4 – Wan Chai North	Along Marsh Road
A5 – Wan Chai South	Across Gloucester Road
A6 – Causeway Bay North	Canal Road East
A7 – Causeway Bay South	Canal Road East

- 4.3 Based on the findings of the Traffic Review, the proposed works at the locations shown in Table 16 and 17 are recommended to be carried out at night and off-peak hours respectively. The exact time constraints will be subject to traffic impact assessment.

Table 16 Locations of Night Work

Potential WACS Zone	Road
A2 – Central District (West), A3 – Central District (Central) & B1 – Central and Wan Chai Reclamation	Connaught Road Central
	Queen’s Road Central
	Des Voeux Road Central
	Pedder Street
	Ice House Street
	Murray Road
	Cotton Tree Drive
	Gloucester Road crossing

Potential WACS Zone	Road
A4 & A5 – Wan Chai	Harcourt Road
	Arsenal Street
	Marsh Road
	Junctions in Hennessy Road
	Convention Avenue
A6 & A7 – Causeway Bay	Junctions in Hennessy Road
	Junctions in Leighton Road
	Gloucester Road
	Canal Road East
	Victoria Park Road

Note: Construction works at Pedder Street are carried out on footpath at night or weekend afternoon.

Table 17 Locations of Works to be carried out during Off-Peak Hours

Potential WACS Zone	Road
A2 – Central District (West), A3 – Central District (Central) & B1 – Central and Wan Chai Reclamation	Rumsey Street
	Connaught Road Central
	Harbour View Street
	Queen Victoria Street
	Garden Road
	Rodney Street
	Queensway
	Edinburgh Place
	Tim Wa Avenue
A4 & A5 – Wan Chai	Hennessy Road
	O'Brien Road
	Johnston Road
	Wan Chai Road
A6 & A7 – Causeway Bay	Yee Wo Street
	Leighton Road
	Hing Fat Street
	Tsing Fung Street
A11, A12 & A13 – Tsim Sha Tsui	Canton Road
	Salisbury Road
	Nathan Road
	Chatham Road South
	Cheong Wan Road
	Hong Tat Path

Potential WACS Zone	Road
	Hong Chong Road
	Science Museum Road
	Wui Cheung Road
B3 – West Kowloon New Reclamation	Austin Road West
B7 – Tung Chung New Reclamation	Tung Chung Waterfront Road
B8 – Tseung Kwan O New Area & C6 – Tseung Kwan O Area 137 New Area	Chun Yat Street

- 4.4 The Traffic Review indicates that there is no specific time constraint for working along the locations shown in Table 18. However, this should be confirmed in traffic impact assessment before carrying out the works.

Table 18 Locations of Works with no specific Time Constraint

Potential WACS Zone	Road
A2 – Central District (West), A3 – Central District (Central) & B1 – Central and Wan Chai Reclamation	Wing Wo Street
	Battery Path
	Lung Wui Road
A4 & A5 Wan Chai	Tai Wo Street
A6 & A7 Causeway Bay	Hysan Avenue
	Sunning Road
A11, A12 & A13 – Tsim Sha Tsui	Haiphong Road
	Kimberley Road
	Observatory Road
	Mody Square
	Mody Road
B2 – South East Kowloon New Development	Runway
B5 – North Lantau New Reclamation	Tsing Chau Wan
	To Kau Wan
B6 – Penny’s Bay New Reclamation	Penny’s Bay
B8 – Tseung Kwan O New Area & C6 Tseung Kwan O Area 137 New Area	Chun Cheong Street
	Chun Ying Street
	Chun Kwong Street
	Chun Wang Street
C2 – Tuen Mun Area 38 New Reclamation	Siu Lang Shui
C3 – North-East Corner Commercial District of Chek Lap Kok Airport	Airport Road

- 4.5 To minimize public disruptions, the detailed programmes for road openings being planned by DSD, WSD and other utility undertakings especially on major or sensitive routes should be taken into account in the design of temporary traffic management scheme (TTMS) and Area Traffic Management Measures (ATMM). The implementation programmes for the WACS should be circulated to District Office (DO) of respective districts to consult and notify the likely traffic impacts caused by the proposed pipelaying works, TTMS and ATMM so that the local views can be sought and incorporated into the detailed design.
- 4.6 Temporary traffic arrangements during construction will follow the Code of Practice for the Lighting, Signing and Guarding of Road Works (January 1996) published by Highways Department. Appropriate temporary traffic arrangements will be implemented to maintain the traffic flow during construction. The proposed trench excavation works will be carried out lane by lane. Multiple sequence warning signs will be provided at approach tapers for all stages of works to warn drivers to take special care for the temporary traffic arrangements. During non-working period, the excavation trenches are decked following details shown on Highways Department Standard Drawing No. H6135A. For pedestrian safety, temporary railings will be erected to separate the pedestrian pavement from the works area. Outside working hours, the excavation trenches are decked with plastic or wooden plates. Detailed Traffic Impact Assessments (TIA) will be undertaken based on the recommendations of traffic review.
- 4.7 Where appropriate, proper mitigation measures should be prepared for works at the works area and should be submitted to Transport Department for approval prior to work commencement.
- 4.8 A Traffic Management Liaison Group (TMLG) is envisaged to be needed for this large-scale project. The TMLG group should include officers from Highways Department, Transport Department, Hong Kong Police Force, Water Supplies Department and Electrical & Mechanical Services Department. Prior to the commencement of works, temporary traffic management scheme (TTMS) and Area Traffic Management Measures (ATMM) with relevant analysis prepared by qualified traffic consultant should be submitted to the TMLG group for comments and agreement. Furthermore, the TTMS and ATMM proposal should be endorsed and approved by the TMLG and the Supervising Officer of the project.

Appendix 1: Summary of Junctions in Potential WACS Zones

Table A1: Junctions affected in A2 – Central District (West), A3 – Central District (Central) & B1 – Central and Wan Chai New Reclamation Area

Junctions Affected by the Proposed Water Main Installation Works	
Connaught Road Central	Rumsey Street
	Wing Wo Street
	Jubilee Street
	Queen Victoria Street
	Harbour View Street
	Pottinger Street
	Pedder Street
Man Yiu Street	Harbour View Street
	Man Po Street
	Man Chiu Street
Man Cheung Street	Man Yiu Street
Des Voeux Road Central	Rumsey Street
	Wing Lok Street
	Gilman Street
	Jubilee Street
	Queen Victoria Street
	Pottinger Street
	Chiu Lung Street
Queen's Road Central	Pedder Street
	Jubilee Street
	Queen Victoria Street
	Pottinger Street
	Chiu Lung Street
	Theatre Lane
	D'Aguilar Street
Wyndham Street	
Connaught Road Central	Pedder Street
	Connaught Place
	Edinburgh Place
	Jackson Road
	Club Street
	Murray Road
	Tim Wa Avenue
Tim Mei Avenue	
Harcourt Road	Cotton Tree Drive
	Tamar Street
	Rodney Street
Des Voeux Road Central	Ice House Street
	Murray Road
	Cotton Tree Drive
	Tamar Street
	Rodney Street

Junctions Affected by the Proposed Water Main Installation Works	
Drake Street	Rodney Street
Queen's Road Central	Ice House Street
	Garden Street
Battery Path	Battery Path
	Garden Road
Gloucester Road	Fenwick Pier Street
Lung Wui Road	Fenwick Pier Street
	Edinburgh Place
	Tim Wa Avenue
	Tim Mei Avenue

Table A1.2: Junctions affected in A4 – Wan Chai North & A5 – Wan Chai South

Junctions Affected by the Proposed Water Main Installation Works	
Gloucester Road	Arsenal Street
	Fenwick Street
	Luard Road
	O'Brien Road
	Fleming Road
	Stewart Road
	Tonnochy Road
	March Road
Harbour Road	Fleming Road
Convention Avenue	Fleming Road
Jaffe Road	Arsenal Street
	O'Brien Road
Lockhart Road	Arsenal Street
	O'Brien Road
	Marsh Road
Hennessy Road	Arsenal Street
	Johnston Road
	Fenwick Street
	Luard Road
	Fleming Road
	Stewart Road
	Tonnochy Road
Marsh Road	
Thomson Road	O'Brien Road
Johnston Road	O'Brien Road
Wan Chai Road	Tai Wo Street
Stone Nullah Lane	Tai Wo Street
Queen's Road East	Wan Chai Road
	Tai Yuen Street
	McGregor Street
	Spring Garden Lane

Table A1.3: Junctions affected in A6 – Causeway Bay North & A7 – Causeway Bay South

Junctions Affected by the Proposed Water Main Installation Works	
Gloucester Road	Marsh Street
	Canal Road West
	Percival Street
	Cannon Street
	Jaffe Street
	Paterson Street
	Cleveland Street
	Kingston Street
	Great George Street
	Sugar Street
Jaffe Road	Marsh Road
Lockhart Road	Marsh Road
Hennessy Road	Marsh Road
	Bowrington Road
	Canal Road West
	Canal Road East
	Percival Street
	Lee Garden Street
Great George Street	Jardine's Bazaar
Yee Wo Street	East Point Street
	Pennington Street
Tung Lo Wan Road	Tung Lo Wan Road
Tang Lung Street	Canal Road East
Sharp Street East	Canal Road East
Yiu Wa Street	Canal Road East
Leighton Road	Canal Road East
	Wong Nai Chung Road
	Matheson Street
	Percival Street
	Hoi Ping Road
	Sunning Road
	Yun Ping Road
	Keswick Street
Irving Street	
Hysan Avenue	Lee Garden Street
	Sun Wui Street
	Hoi Ping Street

Table A1.4: Junctions affected in A13 – Tsim Sha Tsui District

Junctions Affected by the Proposed Water Main Installation Works	
Salisbury Road	Canton Road
	Kowloon Park Drive
	Hankow Road
	Nathan Road
	Middle Road
	Chatham Road South
Mody Road	Chatham Road South
	Mody Square
Chatham Road South	Hart Avenue
	Prat Avenue
	Cameron Road
	Granville Avenue
	Observatory Road
	Chatham Court
	Austin Avenue
Cheong Wan Road	Chatham Road South
	Science Museum Road
Hong Tai Path	Science Museum Road
	Hong Wing Path
Hong Chong Road	Science Museum Road

Table A1.5: Junctions affected in B2 – South East Kowloon New Development Area

Junctions Affected by the Proposed Water Main Installation Works	
Airport Tunnel	Kai Fuk Road

Table A1.6: Junctions affected in B3 – West Kowloon New Reclamation Area

Junctions Affected by the Proposed Water Main Installation Works	
Austin Road West	Lin Cheung Road

Table A1.7: Junctions affected in B7 – Tung Chung New Reclamation Area

Junctions Affected by the Proposed Water Main Installation Works	
Tung Chung Waterfront Road	Yi Tung Road
Ying Hei Road	Main Tung Road

Table A1.8: Junctions affected in B8 – Tseung Kwan O Area 137 New Area
and C6 – Tseung Kwan O New Reclamation Area

Junctions Affected by the Proposed Water Main Installation Works	
Chun Ying Street	Chun Kwong Street
Chun Wang Street	Chun Kwong Street
	Chun Yat Street