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Transport Department

Agreement No. CE 53/2009 (TT)
Traffic Study for Admiralty
Executive Summary

August 2012

ARUP

Contents

LIST OF TABLES

LIST OF DIAGRAMS

LIST OF FIGURES

APPENDIX

Abbreviations and Acronyms

ATM	Admiralty Transport Model
AOI	Area of Influence
ATC	Annual Traffic Census
BDTM-HK1	Base District Traffic Model – Hong Kong 1
BOL	Bus Only Lane
CGO	Central Government Offices
CRIII	Central Reclamation Phase III
GMB	Green Mini Bus
LegCo	Legislative Council
LOS	Level of Service
MSM	Micro-simulation Model
MTR	Mass Transit Railway
PTI	Public Transport Interchange
SCL	Shatin to Central Link
SIL(E)	South Island Line (East)
TD	Transport Department
TIA	Traffic Impact Assessment
TTM	Temporary Traffic Management
WIL	West Island Line

1. INTRODUCTION

1.1 Background

1.1.1 With the expansion of the Hong Kong Island's Central Business District towards Admiralty and the increase in developments in Central and Wan Chai, traffic congestion in Admiralty is getting severer. Furthermore, with the Central Government Offices (CGO) commence operation and the future opening of the new rail lines including West Island Line (WIL), South Island Line (East) (SIL(E)) and Shatin to Central Link (SCL), there will be significant traffic and transport changes in Admiralty.

1.1.2 The Public Transport Interchange (PTI) at the ground level of the MTR Admiralty Station acts as the major public transport hub in the area to facilitate interchange among passengers of public transport including MTR, franchised buses and non-franchised buses, Green Mini Buses (GMB) and taxis as well as to provide the loading / unloading facilities for the developments in the vicinity.

Taxi stands locate within Admiralty PTI

1.1.3 Currently, Admiralty lacks adequate spaces for public transport terminals and loading / unloading facilities. Due to the fragmented distribution of the franchised bus stops, GMB stands, taxi stands and general pick-up / drop-off facilities within the Admiralty PTI, the traffic accessing the PTI facilities needs circuitous routeing around them. The traffic entering and leaving the PTI imposes severe weaving problems and affects mainstream traffic in the vicinity.

1.1.4 The existing MTR Admiralty Station will be expanded to accommodate SIL(E) and SCL which are targeted to commence operation in 2015 and 2020 respectively. These new railway lines will induce more passengers in and out of Admiralty. There are insufficient pedestrian and disabled facilities from Admiralty to the Tamar Development area.

1.1.5 To improve the present and forthcoming traffic and pedestrian conditions, Ove Arup & Partners Hong Kong Ltd was appointed by the Transport Department (TD) on 31 May 2010 to undertake the Traffic Study for Admiralty under Agreement No. CE 53/2009 (TT). The Traffic Study for Admiralty was commissioned to develop a Transport Plan and propose practical traffic improvement schemes to sustain the traffic and transport requirements in the future.

Central Government Offices at Tamar

1.2 Study Objectives

1.2.1 The key objectives of this Study are:

- To review existing traffic conditions of the road network during the weekday AM peak (08:45am – 09:45am) and PM peak (05:45pm – 06:45pm) within the Study Area and the Area of Influence (AOI) as shown in **Figure 1.1**;
- To develop Admiralty Transport Model (ATM) and Micro-simulation Model (MSM) for the base year 2010 and three design years 2016, 2021 and 2026 to assess the operation and the effectiveness of the Admiralty PTI and its adjacent road network;
- To carry out traffic impact assessment to identify traffic issues within the Study Area

and AOI for the base year and three design years;

- To carry out pedestrian study to assess the pedestrian issues within the Study Area and AOI for the base year and three design years;
- To propose traffic improvement schemes that can alleviate the traffic congestion for the base year and three design years; and
- To propose implementation programme for the recommended traffic improvement schemes.

1.3 Study Approach and Process

1.3.1 The overall study approach adopted by this Study can be divided broadly into 5 stages as shown in **Diagram 1.1**:

1. **Inception Stage** – Collect and review the relevant information and databases to appreciate the existing Admiralty PTI in respect of both vehicular and pedestrian facilities and the constraints in the PTI.
2. **Data Collection Stage** – Assess the existing vehicular and pedestrian traffic conditions during the weekday AM and PM peak periods by undertaking a series of traffic surveys.
3. **Development of Transport Models Stage** – Develop ATM and MSM. The base year models are validated to replicate the existing traffic conditions in the Study Area. The design year models are used to forecast the traffic and pedestrian issues in the three design years 2016, 2021 and 2026.
4. **Recommendation Stage** – Based on the findings from the transport models and the results of traffic impact assessment, short, medium and long term traffic improvement schemes as well as a Transport Plan are formulated.
5. **Reporting Stage** – Conclude the Study by preparing the Final Report and Executive Summary which contain the planning data, findings of the traffic study, the proposed traffic improvement schemes and the implementation programme for the schemes.

1.4 Report Structure

1.4.1 Following this introductory section, the remaining chapters of this Executive Summary are structured as follows:

- Section 2 presents the traffic surveys undertaken in this Study and gives an overview of the existing vehicular and pedestrian traffic characteristics, transport facilities, public transport patronage and major traffic issues.
- Section 3 presents the development and validation of the base year 2010 transport models.
- Section 4 presents the development of the design years 2016, 2021 and 2026 transport models and summarises the future vehicular and pedestrian traffic performances.
- Section 5 summarises the immediate traffic improvement schemes to alleviate immediately the traffic congestions in the Study Area and the AOI.
- Section 6 presents the proposed bus rationalisation schemes upon opening of the new railway lines.
- Section 7 summarises the proposed traffic improvement schemes to alleviate the traffic congestions as well as to improve the accessibility and connectivity between the Admiralty PTI and its adjacent areas.
- Section 8 summarises the vehicular and pedestrian traffic performances in the three design years after the implementation of the proposed improvement schemes.
- Section 9 summarises the implementation programme of the improvement schemes.
- Section 10 presents the conclusion of the Study.

Diagram 1.1 5-Stage Study Approach

2. KEY TRAFFIC ISSUES AND CONSTRAINTS

2.1 Study Area

2.1.1 The Study Area is shown in **Figure 1.1**. It is bounded by Harcourt Road to the north, Rodney Street to the east, Queensway to the south and Murray Road to the west.

2.2 Review of Traffic and Transport Data

2.2.1 Comprehensive traffic and transport data available from various sources were collated and reviewed. These include, among others, updated information on:

- Traffic management measures;
- Traffic flow data in the Annual Traffic Census (ATC);
- Inventory of public transport services and facilities; and
- Public transport passenger data.

2.3 Traffic Surveys

2.3.1 An important task of the Study involves the undertaking of traffic surveys to establish the existing traffic conditions and the building of an inventory of the existing vehicular and pedestrian facilities within the Study Area. Based on the survey results collected in 2010, a number of traffic issues have been identified.

2.3.2 The data of traffic surveys help establish the level of demand on the existing facilities and current traffic situation as well as provide a basis for developing the transport models. The traffic surveys undertaken between May and August 2010 are summarised in **Table 2.1**.

Table 2.1 Traffic Surveys Summary

Surveys	Methodology	Locations
Traffic Counts and Queuing Surveys	• To carry out manual traffic counts classified by vehicle types; and • To concurrently record traffic queue length when traffic counts are taken.	• 19 junctions for traffic count survey; • 7 junctions for traffic queue survey.
Car Journey Time Surveys	• To adopt the 'Moving Car (Modified)' Method as described in the Transport Planning and Design Manual.	4 routes covering Connaught Road Central / Harcourt Road, Connaught Road Central / Cotton Tree Drive / Queensway, Queensway / Queen's Road Central, Chater Road / Murray Road / Queensway.
Trip Generation Surveys	• To carry out manual traffic counts classified by vehicle types to enumerate vehicles entering / leaving the surveyed developments; and • To collect information on the surveyed developments for derivation of trip rates.	Key buildings including CGO, Murray Building, LegCo Complex and Lippo Centre.
Pedestrian Count and Boarding / Alighting Surveys	• To establish current demand of pedestrians arriving and leaving the Study Area ; • To count the boarding / alighting passengers of public transport services; and • To establish current demand of pedestrians using the existing escalator and walkway system.	• Boarding / alighting surveys for MTR Exits, Franchised and non-franchised buses, GMB, Tram, Taxis and Private Cars. • 6 footbridges for horizontal movements; • 11 locations at stairs / escalators for vertical movements.
Pedestrian Interview Surveys	• To establish current travel characteristics of pedestrians.	Key locations including PT stops and footbridges, with over 2,000 survey responses collected.
Video Surveys	• To supplement the general observations and interview surveys on pedestrian movements and other kerbside activities for model development and model validation.	6 key locations within the Admiralty PTI.
Site Surveys on Kerbside Activities	• To record the number and type of vehicles engaged in kerbside activities, durations taken as well as the disruption caused to the through traffic.	8 locations along key road corridors.

2.4 Existing Traffic Conditions

2.4.1 The Admiralty PTI within the Study Area comprises two public transport termini and general pick-up / drop-off points serving franchised and non-franchised buses, Green Mini Buses and taxis. In addition, the Study Area serves rail-based public transport, namely MTR and tram. The traffic circulation within the Study Area is presented in **Figure 2.1**.

2.4.2 According to our on-site observation, there is capacity constraint at the Harcourt Road / Cotton Tree Drive junction. Moreover, Tamar Street is congested during both AM and PM peaks. Police intervention is required at the junction of Harcourt Road / Tamar Street to temporarily stop traffic on Harcourt Road to allow the traffic to be cleared on Tamar Street. This is mainly due to weaving problems along Harcourt Road where traffic heading towards the Mid-Levels is required to change lanes at this busy junction. The traffic condition is found to be the severest when traffic queue tailbacks along Drake Street extending all the way to Rodney Street. Thus the key junctions including Drake Street / Tamar Street and Drake Street / Rodney Street are blocked and sometimes gridlock conditions prevail within the Admiralty PTI.

2.4.3 Car journey time surveys were undertaken at four selected routes running across the AOI in the east-west direction:

- Connaught Road Central / Harcourt Road
- Connaught Road Central / Cotton Tree Drive / Queensway
- Queensway / Queen's Road Central
- Chater Road / Murray Road / Queensway

2.4.4 The average speed of the four selected routes is between 13 to 17 km/hr during the AM peak. The average speed is between 12 to 30 km/hr during the PM peak. The low travel speed is mainly due to the heavy traffic flow and weaving activities along the main corridors, i.e. Queensway and Harcourt Road.

Queensway

2.4.5 Queensway, which accommodates a large number of public transport routes, experiences high traffic flow. There are major traffic problems along this corridor and this is largely due to intensive boarding and alighting activities from the 53 franchised bus routes serving this corridor. There are approximately 3,700 and 4,300 franchised bus passengers boarding and alighting at Queensway during the AM and PM peaks respectively. Due to the manoeuvring of buses towards the bus stops, severe weaving problems affect traffic along Queensway particularly near the closely-spaced bus lay-bys at the roadside.

Weaving problems along Queensway

Cotton Tree Drive

2.4.6 There are 57 franchised bus routes running along Cotton Tree Drive to Queensway. Many buses weaving in / out of the bus bays for boarding / alighting activities along Cotton Tree Drive southbound towards Queensway cause delay to other traffic. Traffic from Harcourt Road / Cotton Tree Drive junction to Admiralty PTI are required to route around Cotton Tree Drive twice in anti-clockwise direction, the first on arrival and the second on departure. This unnecessarily adds to the traffic on Cotton Tree Drive and causes traffic congestion.

Traffic queue extends to Cotton Tree Drive

Harcourt Road

2.4.7 A major traffic issue on Harcourt Road is traffic weaving by franchised bus and non-franchised bus services with other vehicles. There are intensive boarding and alighting activities from 26 franchised bus routes and 9

non-franchised bus routes at Harcourt Road westbound near Admiralty Centre. Due to the manoeuvring of buses towards the bus stops, severe weaving problems affect traffic along Harcourt Road westbound. In addition, weaving problem is commonly observed at the Harcourt Road westbound for traffic heading towards Cotton Tree Drive to the Mid-Levels during peak periods. This causes extensive tailback problem on Tamar Street and blocked the traffic coming out from the Admiralty PTI. As a consequence, the traffic queue extends along Drake Street and Rodney Street.

Traffic queue extends to Drake Street / Rodney Street

Drake Street fronting Admiralty Centre

2.4.8 Inappropriate use of loading / unloading bay on Drake Street outside Admiralty Centre has led to traffic congestions. The vehicles are required to undertake pick-up / drop-off activities on the carriageway hence blocking all other traffic on this section of Drake Street.

Inappropriate use of loading / unloading bay at Drake Street

2.5 Existing Pedestrian Conditions

Access to the New Harbourfront Developments

2.5.1 Currently, the pedestrian facilities from Admiralty PTI to New Harbourfront Developments are not adequate. The pedestrian can get there only by routeing through the podium level of the developments and the footbridges across Harcourt Road where direct and convenient route for disabled is not adequate.

MTR Admiralty Station Exit C1

2.5.2 Pedestrian congestion problem is found at the MTR Admiralty Station Exit C1 on ground level with about 5,000 pedestrian using the escalators accessing Queensway Plaza during both AM and PM peaks. The capacity of the escalators to Queensway Plaza which serves as the preferred access to the podium level for alighting passengers from MTR and bus stops along Queensway is not enough, thus causing major pedestrian congestion. Conflicting movements at MTR Admiralty Station Exit C1 also arise since the escalator direction does not match the internal pedestrian flow direction within the MTR exit.

Pedestrian congestion at MTR Admiralty Station Exit C1

3. MODEL DEVELOPMENT

3.1 Development of Base Year Models

3.1.1 In order to replicate the existing situation, two modelling tools – Admiralty Transport Model (ATM) and Micro-Simulation Model (MSM) are adopted and validated for the base year 2010. The traffic models help to forecast the possible traffic and pedestrian problems in the three design years 2016, 2021 and 2026 for the development of traffic improvement schemes.

Admiralty Transport Model (ATM)

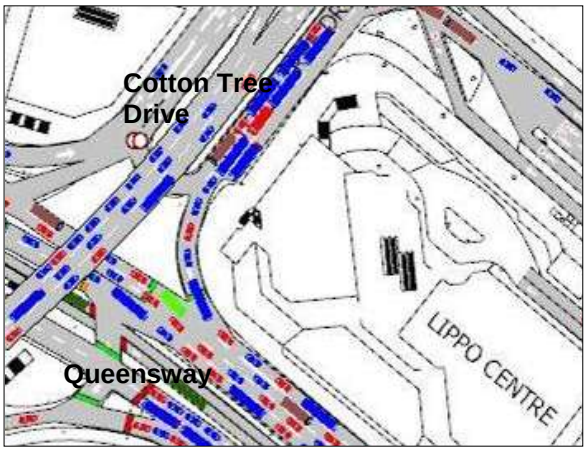
3.1.2 For the development of the base year ATM, the 2008-based Base District Traffic Model – Hong Kong 1 (BDTM-HK1) was adopted as the basis and cordoned to a smaller area covering the AOI. The cordoned network was updated to the base year 2010 taking into account the changes from 2008 to 2010 including the highway infrastructures, public transport services and new developments.

Micro-simulation Model (MSM)

3.1.3 A Micro-simulation Model (MSM) comprising a Vehicular MSM and a Pedestrian MSM covers the whole Study Area on both the ground and the podium levels was developed to simulate the interactions amongst vehicles and pedestrians during the AM and PM peaks.

3.1.4 The base year vehicular MSM was calibrated based on a number of features including road sections and traffic characteristics. The following presents the observed condition from on-site video surveys and the modelled traffic in the vehicular MSM.

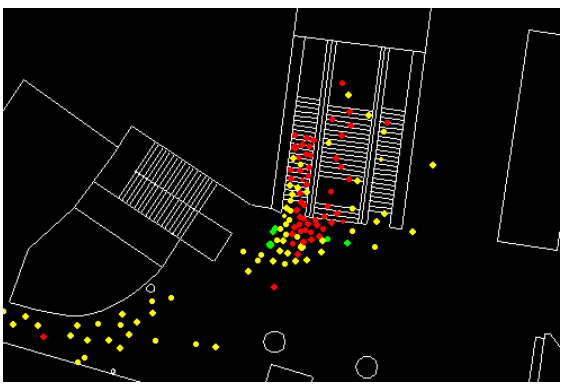
Observed Cotton Tree Drive Traffic Condition



MSM modelled Cotton Tree Drive / Queensway Traffic Condition in the Base Year

3.1.5 The pedestrian MSM was calibrated based on the pedestrian travel characteristics. It was validated to the observed pedestrian flows at key locations and pedestrian walking times at major passageways. The following presents the observed condition from on-site video surveys and the modelled traffic in the pedestrian MSM.

Observed MTR Admiralty Exit C1 (Ground Level) Pedestrian Condition



MSM modelled MTR Admiralty Exit C1 (Ground Level) Pedestrian Condition in the Base Year

4. DESIGN YEAR TRAFFIC CONDITIONS

4.1 Design Year Planned Land Use Developments

4.1.1 The Admiralty Transport Model (ATM) and the Micro-Simulation Model (MSM) are used to forecast the future traffic and pedestrian conditions for three design years 2016, 2021 and 2026.

4.1.2 The developmemt of design year ATM has taken into account the latest planning assumptions, future traffic growth, new railway lines (including West Island Line, South Island Line (East) and Shatin to Central Link) as well as future highway infrastructures. The summary of future highway infrastructures and their phasing for inclusion in the ATM are outlined in **Table 4.1**:

Table 4.1 Summary of Future Highway Infrastructures

Future Highway Infrastructures	Design Year		
	2016	2021	2026
Tamar Development and its associated road network	✓	✓	✓
Central Reclamation Phase III (CRIII) – Ground Level road network including the Road P2 underpass	✓	✓	✓
Immediate Traffic Improvement Schemes proposed under this Study	✓	✓	✓
Wan Chai Development Phase II – Road P2 and realigned Hung Hing Road (Road D2)		✓	✓
Central Reclamation Phase III (CRIII) – Central Wanchai Bypass road network		✓	✓

Note: ✓represents the highway infrastructures to be included in design year ATM.

4.1.3 The development of design year MSM has taken into account of the planned pedestrian facilities in the vicinity of Tamar Development, New Central Harbourfront Promenade and Admiralty area. **Table 4.2** shows the summary of the future year pedestrian facilities and their phasing for inclusion in the MSM.

Table 4.2 Summary of Future Year Pedestrian Facilities

Future Year Pedestrian Facilities	Design Year		
	2016	2021	2026
Tamar Development	✓	✓	✓
New Central Harbourfront Promenade	✓	✓	✓
Footbridge across Harcourt Road (between Admiralty Centre and Tamar Development)	✓	✓	✓
Footbridge connecting to Tamar Development and Citic footbridge	✓	✓	✓
"Tamar Park" Pedestrian Link between Tamar and New Central Harbourfront Promenade	✓	✓	✓
MTR Admiralty Station Exit E connects between Harcourt Garden and Citic footbridge	✓	✓	✓
Elevated walkway along the northern side of Gloucester Road, between Wan Chai and Citic footbridge (above junction Harcourt Road / Tim Mei Avenue)		✓	✓
Footbridge across P2 Road (near City Hall)		✓	✓
Footbridge across P2 Road (at the east of Tamar Development)		✓	✓
Footbridge across Lung Wui Road		✓	✓

Note: ✓represents the pedestrian facilities to be included in design year MSM.

4.2 Performance Indicators for Vehicular and Pedestrian Traffic Conditions

4.2.1 A number of performance indicators are used to evaluate the vehicular and pedestrian traffic conditions in the three design years. Average travel speed and average journey time along key corridors are used to assess the performance of vehicular traffic while the Level of Service (LOS) as illustrated below is used for assessment of the pedestrian walking environment.

Level of Service (LOS) Types A to F

Future Vehicular Traffic Performance (Without Improvement Schemes)

4.2.2 As compared to the vehicular traffic flows in 2010, the traffic growths in 2016, 2021 and 2026 AM peak are 2.8%, 6.2% and 7.3% respectively while the traffic growths for PM peak are 2.2%, 5.2% and 5.7% respectively.

4.2.3 By 2026, there will be an increase of 19.4% in the average journey time of the entire road network within the Study Area in the AM peak and a reduction of 11.3% in average travel speed. The average journey time in the PM peak will be increased by 10.5% and the average speed reduction will be 10.0% as compared to 2010. The results are listed in **Table 4.3**.

Table 4.3 Changes of 2026 Average Journey Time and Average Travel Speed as Percentage of 2010 – Without Improvement Schemes

2026 compared to 2010	AM Peak	PM Peak
Change in Journey Time (%)	+19.4%	+10.5%
Change in Speed (%)	-11.3%	-10.0%

4.2.4 Junction assessments were undertaken for year 2026 based on the simulation model assignment results. A number of junctions and road corridors would require mitigation measures including Harcourt Road / Tamar Street, Queensway / Cotton Tree Drive, Harcourt Road / Cotton Tree Drive, taxi queuing lane along Drake Street westbound and loading / unloading bay along Drake Street eastbound outside Admiralty Centre.

4.2.5 The results of 2026 MSM also identified that the current weaving problems are expected to get worse at the Harcourt Road and Queensway corridors. As a consequence, traffic queue will extend along Tamar Street, Drake Street and Rodney Street. This, in turn, will cause traffic gridlock at Admiralty PTI.

Future Pedestrian Traffic Performance (Without Improvement Schemes)

4.2.6 In terms of pedestrian traffic and using base year 2010 as the base, the growths in design year 2016 AM and PM peaks are 14.7% and 10.3% respectively, while the growths in 2021 AM and PM peaks are 20.9% and 15.8% respectively. There pedestrian flow in design 2026 remains more or less the same as in 2021 with insignificant increase during the peak hours.

4.2.7 A high volume of pedestrian traffic is predicted to use the MTR Admiralty Station Exit A at Admiralty Centre to access the Central Government Offices and New Central Harbourfront Promenade via the Tamar Footbridge before 2015.

4.2.8 The volume of pedestrian flow is forecasted to increase at MTR Admiralty Station Exit E of the expanded Admiralty Station at Harcourt Garden due to the opening of SIL(E) by 2015 and SCL by 2020.

4.2.9 The pedestrian congestion problem at MTR Admiralty Station Exit C1 would remain as this is the most direct and convenient access for alighting passengers from MTR and bus stops along Queensway to the podium level of Queensway Plaza. The landing area of the escalators to Queensway Plaza will experience LOS F in year 2026.

5. IMMEDIATE TRAFFIC IMPROVEMENT SCHEMES

5.1 Formulation of Immediate Traffic Improvement Schemes

5.1.1 Immediate traffic improvement schemes focus mainly on relieving the current congestions at Cotton Tree Drive, Queensway and the associated junctions. These could be achieved by improving traffic circulation near Tamar Development and the provision of bus stopping facilities near the Tamar Development so as to facilitate the re-routed bus services from Admiralty PTI. The proposed immediate traffic improvement schemes are illustrated in **Figure 5.1.**

Road P2 / Road D9 Junction Improvement Works (Figure 5.2)

5.1.2 It is proposed to modify Road D9 into a single two-way carriageway with a signalised junction with the Road P2 westbound carriageway. This would allow a left turn movement from Road D9 northbound to Road P2 westbound such that a loop of road around the Tamar Development is formed to improve the traffic circulation. In addition, the cautionary crossing could be replaced by a signalised pedestrian crossing and thus improve the safety of pedestrians.

Tim Mei Avenue Roundabout Improvement Works (Figure 5.3)

5.1.3 To cope with the proposed single two-way carriageway of Road D9, some modification work at the northern approach arm would be required. A roundabout of 30m in diameter would be provided. This roundabout would form a part of the proposed bus diversion scheme.

Lung Wui Road / Fenwick Pier Street Junction Improvement Works (Figure 5.4)

5.1.4 Another proposed scheme is the junction improvement at Lung Wui Road / Fenwick Pier Street to allow Road P2 southbound straight-ahead movement and Lung Wui Road eastbound right-turn to Fenwick Pier Street southbound. This would relieve the current traffic burden at Tim Wa Avenue southbound. It would also form a part of the proposed bus diversion scheme and eliminate the weaving problem where the bus leaving the proposed bus bay on Harcourt Road cuts into the fast lane while the Tamar Development traffic cuts into the slow lane to access the Tamar Development.

Proposed Harcourt Road Bus Bay (Figure 5.5)

5.1.5 There is a lack of bus stops on the northern kerb of Harcourt Road serving the Tamar Development and the Central Harbourfront Development. Therefore, a bus lay-by of 49m in length along Harcourt Road eastbound outside the Tamar Development is proposed to accommodate some bus services currently bound for Queensway but which will be diverted to continue on Harcourt Road instead. This will relieve the current traffic burden along Queensway.

Proposed Lung Wui Road Taxi Stand (Figure 5.6)

5.1.6 Since there is a lack of space for provision of taxi stand at Tim Mei Avenue, it is proposed to convert the existing lay-by at Lung Wui Road westbound fronting Citic Tower into a 20m long taxi stand and a 25m long general pick-up / drop-off lay-by. Public to/from the Tamar Development would be able to access the proposed taxi stand via the at-grade crossing immediately south of Tim Mei Avenue roundabout or via the footbridge connecting the Citic Tower.

Proposed Pedestrian Connections within Admiralty PTI (Figure 5.7)

5.1.7 An at-grade barrier-free pedestrian route is proposed to improve the accessibility within the Admiralty PTI. Three sets of drop kerbs together with a pair of access ramps at Admiralty Centre would connect the bus stops at Queensway and Admiralty Centre leading to the Tamar footbridge. A section of Drake Street outside Admiralty Centre would be narrowed with widened footpath to improve the safety of the pedestrian crossing Drake Street.

5.2 Implementation Programme

5.2.1 The implementation programme for the improvement schemes was prioritised according to the urgency of the provisions, the complexity of construction works involved, the lead time for consultation and construction programme of the projects in the vicinity. The implementation programme for the immediate traffic improvement schemes is shown in **Table 5.1**.

Table 5.1 Implementation Programme for the Immediate Traffic Improvement Schemes

Schemes	Proposed Works Completion Date	Remark
Proposed Lung Wui Road Taxi Stand (**Figure 5.6**)	August 2011	• Independent to other schemes and could be implemented at any time
Proposed Pedestrian Connections within Admiralty PTI (**Figure 5.7**)	August 2011	• Independent to other schemes and could be implemented at any time
Road P2 / Road D9 Junction Improvement Works (**Figure 5.2**)	September 2011	• Interface with CRIII project
Tim Mei Avenue Roundabout Improvement Works (**Figure 5.3**)	September 2011	• Interface with CRIII project
Proposed Harcourt Road Bus Bay (**Figure 5.5**)	February 2012	• Depends on the underground condition such as utilities diversion
Lung Wui Road / Fenwick Pier Street Junction Improvement Works (**Figure 5.4**)	August 2012	• Interface with CRIII project

Note: Except Lung Wui Road / Fenwick Pier Street Junction Improvement Works (**Figure 5.4**), all the Immediate Traffic Improvement Schemes were completed by February 2012.

6. BUS RATIONALISATION

6.1 Bus Rationalisation on Opening of New Rail Lines

6.1.1 The opening of new rail lines, e.g., WIL in 2014, SIL(E) in 2015 and SCL in 2020, will have certain impacts on the traffic and pedestrian flows in Admiralty PTI. Part of bus services would be rationalised. It is expected that some of bus passengers from the Western and the Southern Districts would be diverted to use the railway. This Study use MSM to simulate the bus rationalisation schemes and assess the traffic performance after the implementation of bus rationalisation schemes. **Table 6.1** shows the bus rationalisation schemes and their phasing for inclusion in the MSM.

Table 6.1 Summary of Bus Rationalisation Schemes

Bus Rationalisation Schemes	Design Year		
	2016	2021	2026
Bus Rationalisation Scheme (West Island Line)	✓	✓	✓
Bus Rationalisation Scheme (South Island Line (East))	✓	✓	✓
Bus Rationalisation Scheme (Shatin to Central Link)		✓	✓

Note: ✓represents the Bus Rationalisation Schemes to be included in design year MSM.

Vehicular Traffic Performance for Bus Rationalisation

6.1.2 With the implementation of the proposed bus rationalisation scheme in 2026, the average journey time will be reduced by 4.7 % and 2.2% for AM and PM peaks respectively. The average travel speed is forecasted to increase by 3.1% and 1.2% for the AM and PM peaks respectively. **Table 6.2** shows the changes in vehicular traffic performance after the implementation of the bus rationalisation schemes in the 2026 AM and PM peaks.

Table 6.2 Summary of 2026 Vehicular Traffic Performance with Bus Rationalisation Schemes Implemented

2026 without and with Bus Rationalisation Schemes Comparison	AM Peak	PM Peak
Change in Journey Time (%)	-4.7%	-2.2%
Change in Speed (%)	+3.1%	+1.2%

7. ADMIRALTY PUBLIC TRANSPORT INTERCHANGE (PTI) TRANSPORT PLAN

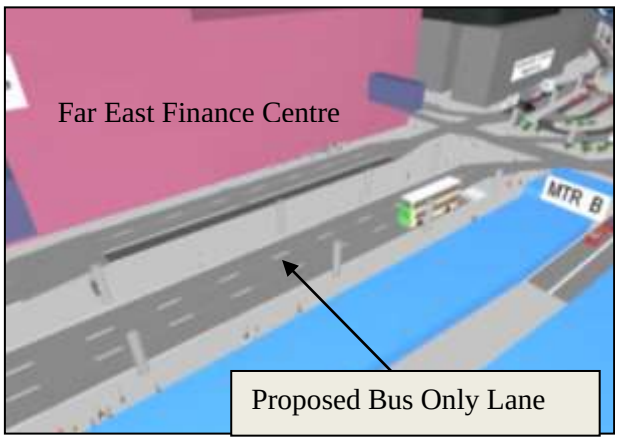
7.1 Proposed Improvement Schemes in Admiralty PTI

7.1.1 All bus rationalisation schemes proposed are subject to the consultation with the District Council and the bus operators. There is no guarantee that the bus rationalisation schemes could be fully implemented. Therefore, a series of improvement schemes to optimise the road network are formulated to improve traffic circulation around the Admiralty PTI with the assumption that the existing bus services would largely remain unchanged.

7.1.2 The current road configuration forces most of the buses and other traffic loop twice around the Admiralty PTI. This arrangement imposes conflicting movements within the PTI and causes congestions to the roads around the PTI. To improve this situation, various schemes as illustrated in **Figure 7.1** are proposed to provide an integrated solution to the various traffic issues inside and around the Admiralty PTI. These are described below:

Bus Only Lane (BOL) within Admiralty PTI (Scheme 1.1)

7.1.3 One of the proposed improvement schemes is to re-arrange the traffic circulation within the Admiralty PTI. Queensway mainly suffers from heavy franchised bus traffic. It causes severe weaving problems affecting other traffic. This scheme aims to re-arrange the traffic circulation within the PTI to alleviate the traffic congestion on Queensway.



Proposed Bus Only Lane within Admiralty PTI

7.1.4 A BOL is proposed within Admiralty PTI connecting Cotton Tree Drive and Rodney Street. This BOL would serve as a through road inside Admiralty for buses to access the bus terminus underneath United Centre. It would divert 126 buses per hour (or 51% of the buses) currently running along Cotton Tree Drive to Queensway and reduce the conflict with other through traffic along Cotton Tree Drive southbound to Queensway eastbound.

Relocation of Drake Street Taxi Stand (Scheme 1.2)

7.1.5 It is proposed to relocate the taxi stand and reverse the exit to Drake Street eastbound such that taxis would leave via Drake Street eastbound. Two parallel taxi bays would be provided as well as an additional 70m taxi queuing lane. Those taxis not intending to enter the taxi stand could leave the PTI via Tamar Street as usual.

7.1.6 This proposed taxi stand arrangement would allow longer weaving length (about 200m) for the taxis and other vehicles weaving on Harcourt Road westbound, so to minimise the blocking back from the Harcourt Road / Tamar Street junction. It also provides a more direct access to Queensway eastbound via the proposed turn-around facilities at Rodney Street.

7.1.7 To ensure the smooth operation of the new taxi stand, it is proposed to extend the 24-hour no-stopping restriction to the new taxi stand exit at Drake Street. The existing disabled parking space at Tamar Street southbound would be relocated to Drake Street eastbound close to the Admiralty Centre.

Proposed Relocation of Drake Street Taxi Stand

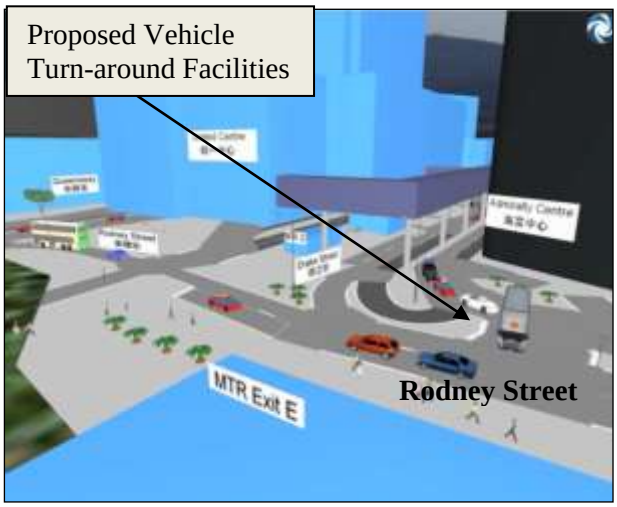
Closure of Rodney Street Entrance from Queensway (Scheme 1.3)

7.1.8 It is proposed to close Rodney Street northbound (section at the south of Drake Street). Traffic will be diverted to Tamar Street northbound, Drake Street eastbound and the proposed turn-around facility at Rodney Street. This measure would reduce the weaving problem along Queensway and allow the existing bus lay-by along Queensway to be extended by 39m in length towards Rodney Street.

Rodney Street Vehicle Turn-around Facilities (Scheme 1.4)

7.1.9 A turn-around facility is proposed at the Rodney Street / Drake Street junction. Traffic from Drake Street would make use of this turn-around facility to access Queensway eastbound without passing through the congested Harcourt Road / Cotton Tree Drive junction. It would provide the essential component for the alternative route to the Harcourt Garden underground car park after the closure of the Rodney Street northbound entry lane.

7.1.10 A mini U-turn facility for taxis and private cars would be provided at Drake Street and would act as a short-cut to access Drake Street westbound. As an exclusive free-flow lane would allow taxis to access the taxi stand via this U-turn facility, this would relieve the traffic burden of the priority junction at the turn-around facility at Rodney Street.

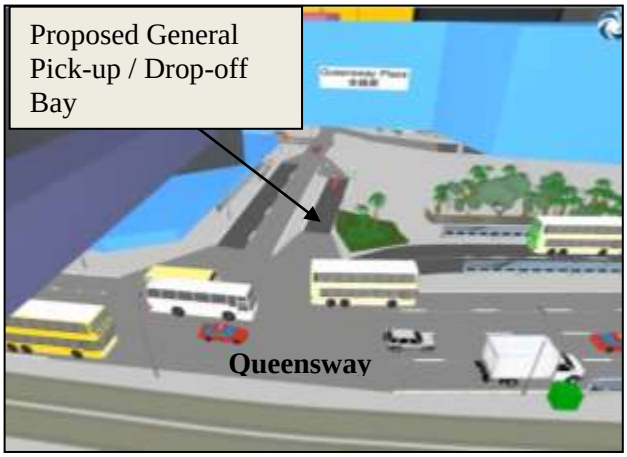


Proposed Rodney Street Turn-around Facilities

General Pick-up / Drop-off Points (Scheme 1.5)

7.1.11 In order to improve traffic circulation within the PTI, it is proposed to reorganise the loading / unloading and pick-up / drop-off facilities and five general pick-up / drop-off locations are proposed as follows:

- Drake Street near Far East Finance Centre (Length = 52m);
- Drake Street westbound (south of Taxi Stand) (Length = 25m);
- Drake Street westbound (near MTR Admiralty Station Exit D) (Length = 17m);
- Tamar Street southbound (west of Admiralty Centre) (Length = 25m); and
- Rodney Street southbound near MTR Admiralty Station Exit E (Length = 35m).



Proposed General Pick-up / Drop-off Bay on Tamar Street

7.1.12 It is expected that the pick-up / drop-off demands outside MTR Admiralty Exit E would increase greatly with the opening of SIL(E) and SCL. The proposed 35m long lay-by on Rodney Street southbound would facilitate the increased demand, as well as people with disabilities to access the elevated walkway system and the MTR Admiralty Station via Entrance E where a lift will be provided under the SIL(E) project.

7.1.13 After the re-arrangement of the transport facilities within Admiralty PTI, an additional 24m long general pick-up / drop-off space and 70m long taxi queuing lane would be provided to accommodate the growing demands in pick-up / drop-off space within Admiralty PTI.

Free Flow Lane to Admiralty PTI (Scheme 1.6)

7.1.14 It is proposed to slightly modify the kerb to provide an additional free flow lane at Harcourt Road westbound approach left turn to Cotton Tree Drive. This free flow lane would be solely for traffic (especially buses) heading towards the Admiralty PTI. The island at the

junction of Harcourt Road / Tamar Street would be trimmed off to form a priority junction to improve the efficiency of the proposed free flow lane.

Proposed Free Flow Lane on Harcourt Road

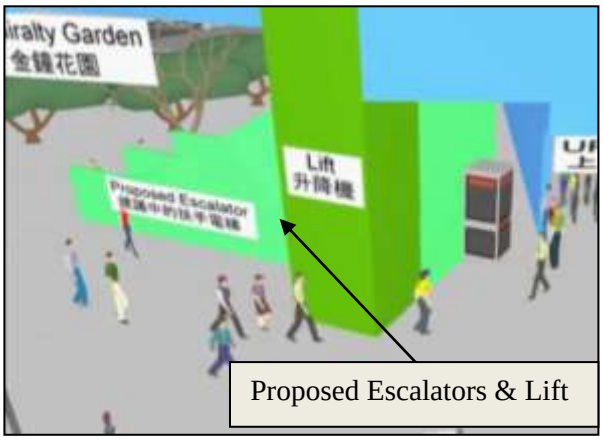
Improvement to Harcourt Road / Cotton Tree Drive Junction (Scheme 4) (Figures 7.2 & 7.3)

7.1.15 Other than the proposed free-flow lane at the Harcourt Road / Cotton Tree Drive junction, it is proposed to designate the Cotton Tree Drive northbound slow lane to Tim Wa Avenue only as a short term measure. The Harcourt Road eastbound slow lane would be designated as bus-only lane to facilitate buses coming from the Harcourt Road eastbound intending to access the newly proposed bus bay outside the Tamar Development. This would also channelize the traffic (except bus) to the second lane such that the Tim Wa Avenue southbound traffic could access the Harcourt Road easier. The proposed junction layout is presented in **Figure 7.2**.

7.1.16 In the medium term, an additional short left-turn lane is proposed to provide a designated lane to Tim Wa Avenue while the remaining three lanes in the direction of Harcourt Road westbound would be maintained. It is expected that the additional short lane would increase the space for vehicle stacking and shorten the queue length on Cotton Tree Drive. This would minimise the chance of blockage of Lambeth Walk. The proposed junction layout is presented in **Figure 7.3**.

Proposed Escalators and Lift to Queensway Plaza (Scheme 3) (Figure 7.4)

7.1.17 In terms of pedestrian traffic, it is proposed to demolish the existing staircase connecting the ground level and the Queensway Plaza footbridge and replace it with a pair of escalators and a passenger lift. This would serve passengers at the bus and GMB stops along Queensway and relieve the burden at the existing escalators next to MTR Admiralty Station Exit C1. A tidal flow arrangement with 3 upward movements / 1 downward movement or 3 downward movements / 1 upward movement would be implemented during the peak periods to further alleviate the heavy pedestrian demands. Land from existing allocations need to be revised such that the proposed escalators and passenger lift could be constructed.



Proposed Escalators and Passenger Lift to Queensway Plaza

7.2 Provision of Transport Facilities

Overview

7.2.1 This section reviews the provision of transport facilities and their impacts within the Admiralty PTI after the implementation of the improvement schemes.

Franchised Buses

7.2.2 Under the Admiralty PTI Improvement Schemes, the current isolated bus terminus under United Centre and west PTI would be integrated with the proposed BOL within the Admiralty PTI. Ventilation and lighting would be enhanced to improve its appeal to the general public. Furthermore, a new cautionary crossing would be provided at the entrance of PTI near MTR Admiralty Station Exit C2. The connectivity for people with disabilities or reduced mobility of the PTI to other surrounding facilities would be improved.

7.2.3 The travel direction of the existing westbound carriageway and bus stops outside Lippo Centre would be reversed to form a BOL running eastbound. On-street bus stops of 5 bus bays in length would be provided on this section of road. At the southern kerbside of the BOL, a

stacking area would be provided for bus stacking. Two cautionary crossings would be provided to connect Far East Finance Centre at the north with MTR Admiralty Station Exit B at the south.

7.2.4 Most of the bus stops within the Admiralty PTI would be maintained as existing, except for the following bus termini:

- Route 601 which is currently located on Drake Street would be removed and the vacated space converted to taxi stand. Route 601 would be relocated to the bus stops along the proposed BOL within the Admiralty PTI.
- Route 789 which is currently located on Rodney Street would be removed and the vacated space converted to the proposed general pick-up / drop-off bay. Route 789 would be relocated to the bus stops along the proposed BOL within the Admiralty PTI.

7.2.5 After the implementation of the proposed Admiralty PTI Improvement Schemes, an additional 39m of bus bay length would be provided. The proposed provision of bus bays before and after the implementation of the Improvement Schemes are summarised in **Table 7.1** below:

Table 7.1 Comparison of Bus Bays Provision "Before" and "After" Implementation of the Improvement Schemes

Bus Bay	"Before"	"After"	Difference
Total Length	507m	546m	+39m

Pick-up / Drop-off and Loading / Unloading Facilities

7.2.6 Under the Admiralty PTI Improvement Schemes, the section of Drake Street eastbound between Tamar Street and Rodney Street would prohibit vehicle from stopping and waiting while the existing GMB termini would be maintained.

7.2.7 With the opening of SIL(E) in 2015 and SCL in 2020, it is expected that the pick-up / drop-off demand near the expanded Admiralty Station Exit E would increase substantially. A pick-up / drop off bay of 35m in length is proposed on Rodney Street southbound near MTR Admiralty Station Exit E. In addition, a new pick-up / drop-off bay is proposed on Tamar Street northbound next to the Admiralty Garden.

7.2.8 The proposed provision of general pick-up / drop-off bays before and after the implementation of the Improvement Schemes is listed in **Table 7.2** below:

Table 7.2 Comparison of General Pick-up / Drop-off Bays Provision "Before" and "After" Implementation of the Improvement Schemes

General Pick-up / Drop-off Bay	"Before"	"After"	Difference
Total Length	208m	232m	+24m

Taxis

7.2.9 With the implementation of the Admiralty PTI Improvement Schemes, the travel direction of the taxi stand would be reversed to Drake Street eastbound and the length for boarding would be maintained with two queuing bays. An additional 70m long taxi queuing space would be provided to alleviate the queuing problems along Drake Street. The existing taxi drop-off point near MTR Admiralty Station Exit D would be maintained.

7.2.10 The proposed provision of taxi bays and taxi queuing space before and after the implementation of the Improvement Schemes is listed in **Table 7.3** below:

Table 7.3 Comparison of Taxi Bays and Taxi Queuing Space Provision "Before" and "After" Implementation of the Improvement Schemes

Taxi Bay & Taxi Queuing Space	"Before"	"After"	Difference
Total Length	150m	220m	+70m

Green Mini Bus Termini

7.2.11 The existing Green Mini Bus (GMB) termini / stops located at Drake Street eastbound (near Admiralty Centre) and along Queensway would be maintained as existing.

Non-franchised Buses

7.2.12 After the implementation of the Admiralty PTI Improvement Schemes, non-franchised bus services including tourist services, hotel services, school services, employee services, residential services, and contract hire services would be designated to the layby outside Far East Finance Centre for pick-up / drop-off.

8. TRAFFIC PERFORMANCES WITH PROPOSED IMPROVEMENT SCHEMES

8.1 Vehicular and Pedestrian Traffic Performances

8.1.1 All of the proposed improvement schemes were tested with the micro-simulation models (MSM) for assessing their impacts to the vehicular and pedestrian traffic performances in the three design years 2016, 2021 and 2026.

Vehicular Traffic Performance (With Improvement Schemes Implemented)

8.1.2 With the implementation of the proposed improvement schemes, the model results for year 2016 show that average journey time will be reduced by 11.0% and 8.2% in the AM and PM peaks respectively. The average travel speed will increase by 9.3% for the AM peak and 7.3% for the PM peak as listed in **Table 8.1**.

Table 8.1 Vehicular Traffic Performance – Year 2016 with Improvement Schemes Implemented

2016 with Improvement Schemes (as compared with 2016 without Improvement Schemes)	AM Peak	PM Peak
Change in Journey Time (%)	-11.0%	-8.2%
Change in Speed (%)	+9.3%	+7.3%

8.1.3 In 2021, the average journey time will reduce by 9.1% and 7.2% in the AM and PM peaks respectively with the proposed improvement schemes implemented. The MSM results also show that the increases in the average travel speed are 7.2% and 6.3% for the AM and PM peaks respectively as listed in **Table 8.2**.

Table 8.2 Vehicular Traffic Performance – Year 2021 with Improvement Schemes Implemented

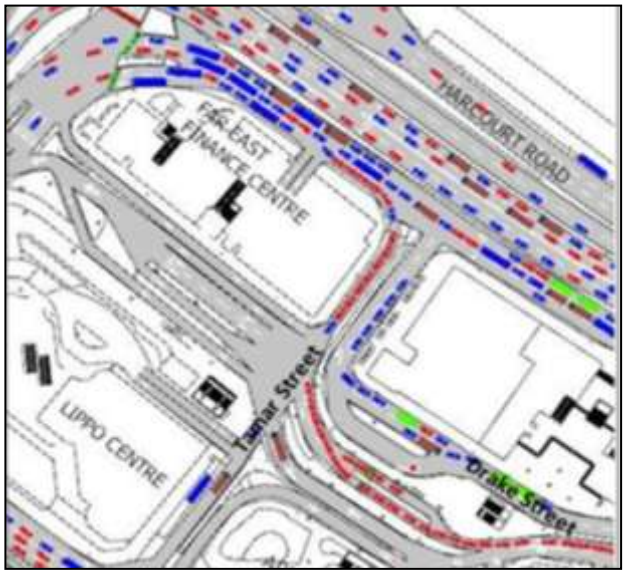
2021 with Improvement Schemes (as compared with 2021 without Improvement Schemes)	AM Peak	PM Peak
Change in Journey Time (%)	-9.1%	-7.2%
Change in Speed (%)	+7.2%	+6.3%

8.1.4 The 2026 MSM results show that the reductions in the average journey time will be 10.1% and 7.9% in the AM and PM peaks respectively while the average travel speed will increase by 4.6% for the AM peak and 6.4% for the PM peak with the improvement schemes implemented as listed in **Table 8.3**.

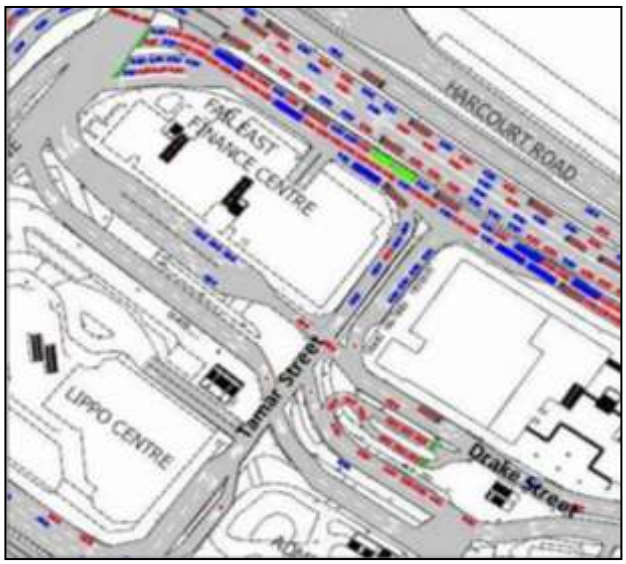
Table 8.3 Vehicular Traffic Performance – Year 2026 with Improvement Schemes Implemented

2026 with Improvement Schemes (as compared with 2026 without Improvement Schemes)	AM Peak	PM Peak
Change in Journey Time (%)	-10.1%	-7.9%
Change in Speed (%)	+4.6%	+6.4%

8.1.5 According to the results of the Design year 2026 MSM, the blocking issues on Tamar Street and Drake Street would be relieved after the implementation of the proposed improvement schemes.

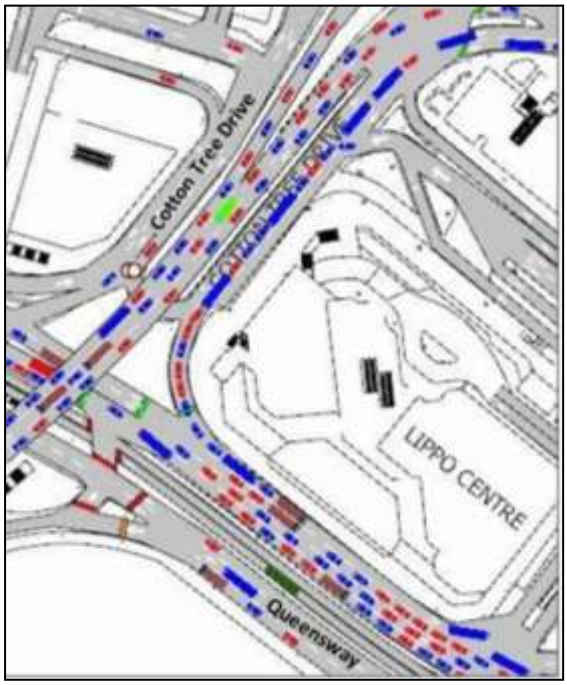


Design Year 2026 AM Peak Without Improvement : Traffic blocking issues along Tamar Street and Drake Street

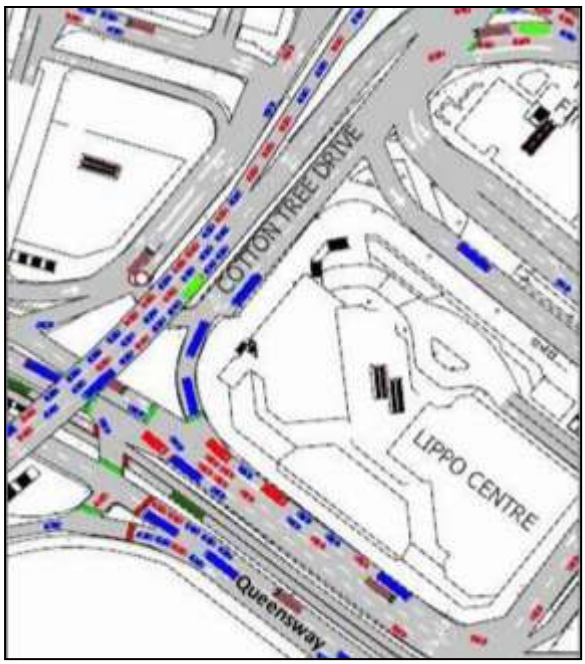


Design Year 2026 AM Peak With Improvement : Blocking back issue on Tamar Street relieved

8.1.6 The most significant improvement would be the relief in traffic congestion along Cotton Tree Drive southbound as the buses would be diverted to the BOL within the Admiralty PTI, thereby solving the weaving traffic problems along Cotton Tree Drive and Queensway.

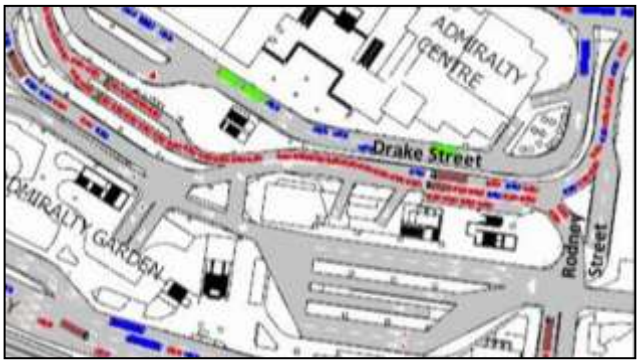


Design Year 2026 PM Peak Without Improvement : Weaving problems along Cotton Tree Drive and Queensway

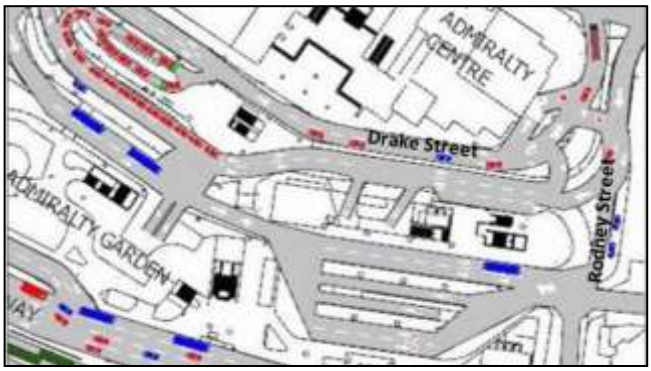


Design Year 2026 PM Peak With Improvement : Relief in traffic congestion along Cotton Tree Drive and Queensway

8.1.7 The Design Year 2026 MSM results also show that the traffic queue along Drake Street and Rodney Street would be shortened by around 150m as the blocking issues on Tamar Street is resolved.



Design Year 2026 AM Peak Without Improvement : Traffic queue along Drake Street extending to Rodney Street



Design Year 2026 AM Peak With Improvement : Traffic queue on Drake Street is shortened and the traffic congestion is relieved on Rodney Street

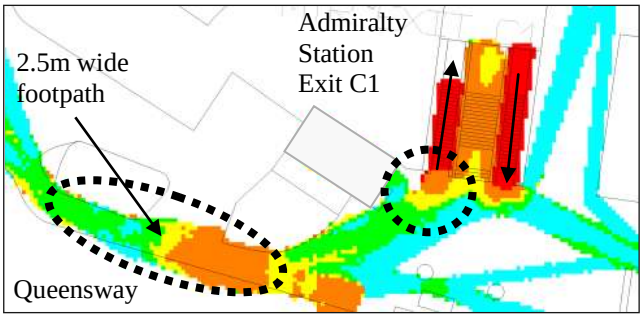
Pedestrian Traffic Performance (With Improvement Schemes Implemented)

8.1.8 With the opening of SIL(E) in 2015 and SCL in 2020, the pedestrian flows will shift to the expanded MTR Admiralty Station Exit E. Based on the MSM results, more pedestrians will use the Citic footbridge to access the Tamar Development and New Central Harbourfront Promenade.

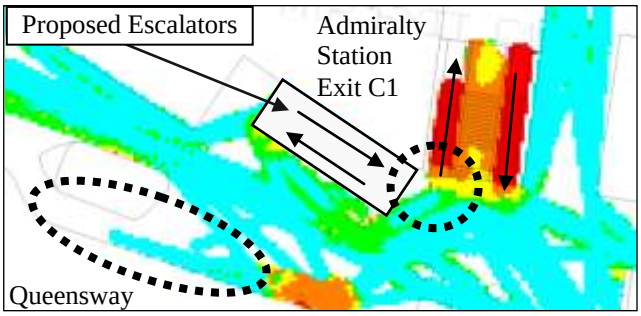
8.1.9 The three pairs of proposed drop kerbs within Admiralty PTI would provide a barrier-free and convenient access connecting the bus stops at Queensway and Admiralty Centre leading to the Tamar footbridge.

8.1.10 The proposed escalators and passenger lift connecting the ground level on Queensway and Queensway Plaza would relieve the burden

on the existing escalators to Queensway plaza at MTR Admiralty Station Exit C1, especially the alighting passengers from the Queensway bus stops. Thus, the pedestrian performance outside MTR Admiralty Station Exit C1 would improve substantially from LOS E to LOS B. In addition, pedestrians would spread to the area near Admiralty Garden in order to access the proposed escalators. The pedestrian performance for the majority of the congested footpath along Queensway will improve greatly from LOS E to LOS B in Design Year 2026.



Design Year 2026 PM Peak Without Improvement : Pedestrian congestion at MTR Admiralty Station Exit C1 and footpath along Queensway



Design Year 2026 PM Peak With Improvement : The proposed escalators would relieve the pedestrian congestion at MTR Admiralty Station Exit C1 and the footpath along Queensway

Note: Different colours represent different Level of Service (LOS) Types A to F

9. IMPLEMENTATION

9.1 Consultation

9.1.1 During the Study, the public transport trades for taxis, GMB and franchised buses have been consulted and they accepted the proposed improvement schemes at the Admiralty PTI. The Traffic and Transport Committee of the Central and Western District Council was also consulted in February 2012. The committee in general welcomed the proposed improvement schemes.

9.2 Implementation Programme

9.2.1 The improvement schemes would be implemented in three stages under the short, medium and long term packages respectively. The short term schemes would commence works between 2012 and early 2013. The medium term schemes would be implemented in phases between 2013 and 2015. The long term scheme would be implemented in 2016 and beyond. The implementation sequence and programme of traffic improvement schemes are shown in **Table A1** and **Bar-chart A** respectively in the **Appendix**.

9.2.2 As shown in **Figure 7.1**, the proposed relocation of taxi stand at Drake Street (**Scheme 1.2**) would be implemented after the relocation of Bus Route No. 601. To tie in with that taxi stand relocation, provision of the loading / unloading bay on the Tamar Street southbound (**Scheme 1.5**), extension of 24-hour no-stopping restriction on Drake Street and the relocation of a parking space for the disabled to Drake Street would be implemented. The general pick-up / drop-off bay south of the new taxi stand and outside Far East Finance Centre (**Scheme 1.5**) would be formed. The Harcourt Road / Cotton Tree Drive junction improvement works (**Scheme 4** - Short Term Measure), which is to designate the Cotton Tree Drive northbound slow lane to Tim Wa Avenue only and is independent of the other schemes, could be commenced in 2012.

9.2.3 In the medium term, it is proposed to re-arrange the traffic lane outside Far East Finance Centre and bus stops outside Lippo Centre to form the proposed BOL (**Scheme 1.1**) parallel to Queensway. The allocation of the bus services to the new BOL would require further coordination with the bus company after the opening of the SIL(E) by 2015. Implementation of a free flow lane from Harcourt Road westbound to Admiralty PTI (**Scheme 1.6**) and an additional traffic lane from downhill Cotton Tree Drive to Harcourt Road eastbound (**Scheme 4** - Medium Term Measure) would further improve the performance of the junction.

9.2.4 The provision of general pick-up / drop-off bays on Tamar Street northbound and Rodney Street southbound (**Scheme 1.5**) and the proposed vehicle turn-around facilities (**Scheme 1.4**) may involve implementing temporary traffic management on Rodney Street that have to match with the construction programme of SIL(E) and SCL. After the implementation of Rodney Street vehicle turn-around facilities, Rodney Street northbound could be closed (**Scheme 1.3**). The traffic will be diverted to access Harcourt Garden Underground Carpark via the Tamar Street northbound, the Drake Street eastbound and the Rodney Street vehicle turn-around facilities.

9.2.5 In the long term, the proposed escalators and passenger lift connecting Queensway Plaza (**Scheme 3**) would be implemented in 2016 and beyond. Delineation of the land from the existing allocations is needed for the construction of the proposed escalators and passenger lift. As the construction of the escalators-cum-passenger lift is independent of the other proposed traffic schemes, opportunities should be explored to implement them early once the land allocation matters are resolved.

Existing staircase connecting Queensway Plaza to be replaced by the proposed escalators and passenger lift

10. CONCLUSION

10.1.1 This Study has assessed the traffic conditions in the base year 2010 based on the results of traffic surveys and utilised the traffic models to forecast the traffic issues in three design years 2016, 2021 and 2026. A number of traffic improvement schemes, including immediate traffic improvement schemes, bus rationalisation schemes and a series of improvement schemes on the road network in Admiralty, are proposed under this Study.

10.1.2 Immediate traffic improvement schemes aim to improve immediately the traffic circulation at Tamar Development area. Bus stopping facilities at Harcourt Road eastbound are provided to re-route some of the existing bus services from the congested Admiralty area. The proposed immediate traffic improvement schemes are summarised in **Figure 5.1**.

10.1.3 With the assumption that the existing bus services would largely remain unchanged, a series of traffic improvement schemes are formulated and packaged into short term, medium term and long term schemes to optimise the road network in Admiralty. The short term schemes would commence works between 2012 and early 2013. The medium term schemes would be implemented in phases between 2013 and 2015. The long term scheme would be implemented in 2016 and beyond. The recommended traffic improvement schemes are summarised in **Table 10.1**.

Table 10.1 Summary of Recommended Traffic Improvement Schemes

Priority of Schemes	Schemes
Short Term Schemes	Relocation of Taxi Stand at Drake Street
	Provision of General Pick-up / Drop-off Bay (at the south of taxi stand)
	Improvement to Harcourt Road / Cotton Tree Drive Junction (Short Term Measure)
	Provision of General Pick-up / Drop-off Bay (near Far East Finance Centre)
Medium Term Schemes	BOL within Admiralty PTI
	Free Flow Lane to Admiralty PTI
	Improvement to Harcourt Road / Cotton Tree Drive Junction (Medium Term Measure)
Medium Term Schemes (Continued)	Closure of Rodney Street entrance from Queensway
	Proposed Vehicle Turn-around facilities at Rodney Street
	Provision of General Pick-up / Drop-off Bay (at Rodney Street)
	Provision of General Pick-up / Drop-off Bay (at Tamar Street)
Long Term Scheme	Proposed Escalators and Lift to Queensway Plaza

10.1.4 With the implementation of the proposed improvement schemes, the traffic circulation in Admiralty will be improved. Based on the results of the MSM models, the average journey time during the peak hours in the three design years will decrease by 7.2% to 11.0% after the implementation of the proposed improvement schemes. The average travel speed will increase by 4.6% to 9.3% during the peak periods.

Micro-simulation Model (MSM) : Traffic conditions on Queensway

10.1.5 In the formulation of the traffic improvement schemes, emphasis has been given to the practical implementation of the schemes. Apart from meeting the demands due to traffic growth and operational considerations, other key factors such as public acceptability and influence to the public transport passengers are duly considered. With these improvement schemes all put in place, the traffic and pedestrian conditions in Admiralty are expected to improve significantly.