

For information

**Legislative Council
Panel on Planning, Lands and Works**

Pedestrian plan for Causeway Bay

Background and Purpose

In response to the letter dated 15 July 2004 from the Clerk to the Legislative Council Panel on Planning, Lands and Works, the Administration provides in this paper information on the Pedestrian plan for Causeway Bay. The information includes a traffic impact assessment (“TIA”) of the Pedestrian plan and details of the proposed construction of an underground pedestrian-cum-retail link across Hennessy Road.

Traffic Impact Assessment

2. The TIA of the Pedestrian plan is at **Annex 1**. It has established the prima facie feasibility of the proposal. The TIA is on-going and detailed traffic assessments will be conducted nearer the time of implementation.

Underground pedestrian-cum-retail link

3. For the proposed underground link, the Administration has yet to work out the details of the proposal as we wish to take into account public views received in the on-going public consultation exercise. We have prepared at **Annex 2** a short note for Members’ information, and will carefully consider the issue of funding requirements and the observance of private property right in the course of working out the implementation details of the proposal.

Housing, Planning and Lands Bureau
Planning Department
July 2004

**TRAFFIC IMPACT ASSESSMENT OF THE
PROPOSED PEDESTRIAN PLAN FOR CAUSEWAY BAY**

1.1 Introduction

1.1.1 The traffic impact assessments are broad-brush analysis intended primarily to indicate the prima facie feasibility of the proposals in the proposed Pedestrian Plan. Given the dynamic nature of traffic flow, continuous monitoring of the traffic impact is needed in the course of implementation of the proposals. As many major proposals would be implemented in the medium to long term, more detailed traffic impact assessment would be required to ascertain their traffic implications nearer the time.

1.1.2 For the purpose of traffic assessments, the years 2006, 2011 and 2016 are taken as reference points for “short”, “medium” and “long” term respectively.

1.2 Vehicular Traffic Impact

1.2.1 The vehicular traffic impact analysis covered the study years 2006, 2011 and 2016 and encompass the following:

- Vehicular traffic impact making reference to the Base District Traffic Model (2006 and 2011) flows and Atkins in-house 2016 traffic model flows;
- Pedestrian flows;
- Public transport facility provisions and services affected;
- Vehicular access to buildings;
- On-street and off-street parking facilities; and
- On-street loading/unloading facilities.

1.2.2 The vehicular traffic impacts assessment utilizes TD’s Base District Traffic Model (BDTM) of the area. The basic approach to determining the broad-brush impact of the pedestrian proposals on vehicular traffic was to code the BDTM network to reflect the network changes and assess the difference between the ‘do nothing’ reference case and ‘do something’ scheme scenario in terms of link flow (re-routing/diversion) and junction capacity as well as traffic delays and queuing effects. While 2006 and 2011 BDTMs have been developed, there is not currently a 2016 BDTM model available, the consultant

had developed a 2016 model for the KCRC SDC700 contract based on government's latest cordoned SAR-wide CTS-3 matrices for the Hong Kong Island North area. Hence, reference to this model was made for the assessments for 2016. All of the reference case traffic models have also been updated to incorporate all of the changes in the road network arising from TD's recent pedestrianization schemes within the Pedestrian Plan Area (PPA).

1.2.3 Details of the traffic assessment for the short to long term (2006, 2011 and 2016) are presented in the following sections.

SHORT TERM - 2006

Short Term Scheme Traffic Analysis

1.2.4 For 2006 Scheme scenario, the 2006 BDTM Reference network was updated to reflect the 'package' of proposed pedestrian schemes that required changes in the model network and capacity, namely:

- Full-time pedestrianization on Kai Chiu Road and the northern section of Yun Ping Road between Kai Chiu Road and Pak Sha Road upon permanent closure of Hennessy Centre carpark and relocation of loading/unloading bay from Jardine's Crescent to Lee Garden Road;
- Junction improvement at the junction of Lockhart Road/Percival Street, with widening of pedestrian crossing across Lockhart Road west of Percival Street from 5.0m to 8.0m as well as lengthening of pedestrian green times by 6 seconds.

1.2.5 Key junctions within the PPA that may be affected by proposed short term schemes have been assessed and the results are summarized in Table 1.1. Based on the assessment results, all the junctions assessed would operate satisfactorily in both the Reference and Scheme scenarios. This indicates that the proposed short term schemes would not have a major impact on the operations of the surrounding key junctions and this is expected as the proposed pedestrian schemes do not involve any major changes to the road network.

Table 1.1 Junction Capacity Assessment – Short Term (2006)

| Junction | 2006 Reference | | 2006 Scheme | |
|------------------------------------|----------------|---------|-------------|---------|
| | AM Peak | PM Peak | AM Peak | PM Peak |
| Lockhart Road / Percival Street | 24% | 38% | 13% | 26% |
| Hennessy Road / Percival Street | 39% | 46% | 40% | 45% |
| Yee Wo Street / Jardine Bazaar | 51% | 31% | 51% | 31% |
| Leighton Road / Percival Street | 191% | 135% | 190% | 135% |
| Leighton Road / Caroline Hill Road | 78% | 116% | 79% | 119% |
| Leighton Road / Pennington Street | 40% | 25% | 40% | 25% |

Note: The performance of road junctions is assessed based on the percentage of reserve capacity for signalized junction. A positive value (i.e. greater than 0%) indicates that the signalized junction is operating satisfactorily while a negative value suggests that the junction is overloaded.

- 1.2.6 In summary, all of the key junctions assessed for 2006 were found to operate with spare capacity under the Reference and Scheme scenarios.

MEDIUM TERM – 2011

Proposed Wan Chai Gyratory System

- 1.2.7 It is assumed that the proposed Wan Chai area traffic improvement scheme would have been in place by 2011 and the BDTM traffic models for both the reference and with scheme scenarios have been revised to take into account this scheme.

PTI at Caroline Hill Redevelopment Site

1.2.8 It is assumed that the PTIs at Caroline Hill Redevelopment will be in place by 2011 and that some of the existing on-street public transport terminus in the vicinity of Pak Sha Road area would be relocated to this new PTI. Based on the latest available information from TD, the Caroline Hill Redevelopment PTI will accommodate both franchised bus and GMB services as detailed in Table 1.2.

Table 1.2 Planned Services at Caroline Hill Redevelopment

| Type of Services | Planned Route Nos. |
|-------------------------|--|
| Franchised Bus | 5B, 8X, 92, 2A, 8, 25 (bypass) and 26 (bypass) |
| GMB | 14M, 21A, 21M, 28, 30, 69 |

1.2.9 The layout of the PTI and proposed traffic arrangements would be subject to further detailed design by government.

1.2.10 The proposed Caroline Hill Redevelopment PTI and the associated traffic arrangements have been incorporated in the 2011 transport model for assessment purposes. Based on the planned public transport services as summarized in Table 1.2, the PTI would generate about 52 franchised buses/hr per direction and 30 GMBs/hr per direction.

Central-Wan Chai Bypass & Shatin-Central Link

1.2.11 The Central-Wan Chai Bypass is assumed to be in placed in the BDTM model in the medium term. Hence, the additional east-west link capacity of the Central-Wan Chai Bypass would reduce the through traffic from the existing east-west links such as Victoria Park Road, Gloucester Road, Hennessy Road and Leighton Road. Furthermore, with the opening of the new Shatin-Central Link which is likely to occur in 2011/12, a reduction in the demand for road traffic and for cross-harbour bus services is anticipated.

1.2.12 The above additional road/rail infrastructure would provide an opportunity to convert the section of Hennessy Road - Yee Wo Street corridor between Percival Street and Pennington Street into a tram and bus only corridor. Consequently, other vehicles currently using this section of Hennessy Road - Yee Wo Street would be diverted to alternative east-west links such as Victoria Park Road, Gloucester Road, Hysan Avenue and Leighton Road.

1.2.13 With the general traffic diverted away from the corridor, there is also the opportunity to reduce the corridor to one traffic lane per direction plus tram lanes and thereby facilitating footpath widening on both sides Hennessy Road to improve the pedestrian flow. It should be noted that due to the heavy boarding/alighting activities of buses on this corridor, adequate length for bus laybys would need to be maintained and no physical barrier should be provided to segregate the bus and tram lane. The proposed traffic measures for this tram and bus only corridor are further discussed in the following section.

Proposed Tram and Bus Only Corridor along Hennessy Road - Yee Wo Street

1.2.14 As part of proposed scheme for converting Hennessy Road - Yee Wo Street into a tram and bus only corridor, the signalization scheme of the junction at Yee Wo Street/Pennington Street as proposed in the Hong Kong Island North and Kowloon West District Traffic Study – Additional Work, Pedestrianization Study Final Report would be implemented to improve the accessibility of westbound public transport routes from Causeway Road to Yee Wo Street. Under the proposed signalization scheme, the two eastbound traffic lanes south to the tram lanes would be converted to westbound lanes which then allow direct access for public transport services from Causeway Road.

1.2.15 Minor modifications to the lane configurations on Hennessy Road Eastbound would also be required at the junction of Hennessy Road/ Percival Street to restrict single traffic lane entering the tram and bus only corridor.

1.2.16 Also, it is proposed to extend the existing pedestrian crossing outside 2–6 Causeway Road to allow pedestrians cross the full width of Causeway Road.

1.2.17 Based on the current bus schedule information, there are 51 eastbound bus routes and 31 westbound routes running along the Hennessy Road – Yee Wo Street corridor during the peak hours. This is approximately 300 buses/hr for eastbound and 250 buses/hr for westbound flows. Also, along the proposed tram and bus only corridor on Hennessy Road – Yee Wo Street, there are a total of four bus stopping bays for both directions, i.e. two 39m long bays for the eastbound direction and two 52m long bays for the westbound direction.

Medium Term Scheme Traffic Analysis

1.2.18 For the 2011 ‘Scheme scenario’, the 2011 BDTM ‘Reference’ network was updated to

incorporate the ‘package’ of medium term pedestrian scheme proposals which include the short term proposals plus:

- “Tram and Bus Only Corridor” on Hennessy Road - Yee Wo Street (between Percival Street and Pennington Street) with one through traffic lane per direction plus tram lanes, and associated new pedestrian crossings across Sugar Street, Pennington Street and Causeway Road;
- Full-time pedestrianization on Pak Sha Road and the section of Yun Ping Road between Pak Sha Road and Lan Fong Road upon relocation of GMB terminus from Pak Sha Road and Lan Fong Road to the new Caroline Hill PTI.

1.2.19 The results of the junction capacity assessment for the medium term proposals are presented in Table 1.3.

Table 1.3 Junction Capacity Assessment – Medium Term (2011)

| Junction | 2011 Reference | | 2011 Scheme | |
|---|----------------|---------|-------------|---------|
| | AM Peak | PM Peak | AM Peak | PM Peak |
| Lockhart Road / Percival Street | 282% | 298% | 235% | 378% |
| Hennessy Road / Percival Street | 73% | 59% | 10% | -3% |
| Yee Wo Street / Jardine’s Bazaar | 70% | 54% | 33% | 29% |
| Hennessy Road / Pennington Street * | - | - | 15% | 9% |
| Causeway Road /Tung Lo Wan Road / Yee Wo Street | 64% | 47% | 75% | 69% |
| Leighton Road / Percival Street | 185% | 93% | 225% | 108% |
| Leighton Road / Caroline Hill Road | 80% | 95% | 133% | 110% |
| Leighton Road / Pennington Street | 66% | 32% | 69% | 69% |

* Note: Hennessy Road / Pennington Street junction operates under free flow condition in the “2011 Reference” scenario and junction capacity assessment is not applicable. It is converted to a signalized junction in “2011 With Scheme” Scenario.

1.2.20 Based on the results of the junction assessment, it was found that the junction of Hennessy Road/Percival Street would be operating over capacity while the junction at Hennessy Road/Pennington Street would be operating close to capacity. Also, it can be seen that the major junctions along Leighton Road were predicted to operate with spare capacity. Hence, a broad assessment was undertaken to determine the available spare capacity along Leighton Road to determine the potential number of bus routes that could be diverted away from the Hennessy Road – Yee Wo Street corridor and onto Leighton Road.

1.2.21 In order to improve the junction performances of those over capacity or close to capacity road junctions along Hennessy Road, about 10 westbound buses and 50 eastbound buses would need to be diverted away from Hennessy Road and onto Leighton Road during the peak hours. Under this proposed bus diversion scheme, the resulting junction reserve capacities for those affected junctions are summarized in Table 1.4.

Table 1.4 Junction Capacity Assessment – Medium Term (2011) with Bus Diversion

| Junction | 2011 Scheme | | 2011 Scheme + Bus Diversion | |
|------------------------------------|-------------|---------|-----------------------------|---------|
| | AM Peak | PM Peak | AM Peak | PM Peak |
| Hennessy Road / Percival Street | 10% | -3% | 10% | 10% |
| Yee Wo Street / Jardine’s Bazaar | 33% | 29% | 33% | 30% |
| Hennessy Road / Pennington Street | 15% | 9% | 15% | 10% |
| Leighton Road / Percival Street | 225% | 108% | 225% | 93% |
| Leighton Road / Caroline Hill Road | 133% | 110% | 133% | 95% |
| Leighton Road / Pennington Street | 69% | 69% | 69% | 60% |

- 1.2.22 From Table 1.4, it can be seen that all of the junctions affected by the proposed bus diversion would operate within capacity. Hence, it can be concluded that for the proposed medium term schemes, all of the key junctions within the PPA would operate within capacity.
- 1.2.23 In summary, the medium term proposals have been assessed based on the current public transport services operating along the Hennessy Road – Yee Wo Street with the exception of bus relocation and diversions to the proposed Caroline Hill Redevelopment as provided by TD. No other public transport restructuring has been assumed apart from routing of some buses from the Hennessy Road – Yee Wo Street corridor and onto the Leighton Road corridor. However, the medium term proposals do rely upon the availability of the Central-Wan Chai Bypass to reduce traffic volumes along major east-west corridor within the PPA.
- 1.2.24 With the completion of the Shatin-Central Link, the amount of cross harbour buses along the Shatin-Central Link corridor would likely be reduced subject to further detailed study. Since the broad brush analysis undertaken for the medium term did not take into account of any reduction to cross harbour buses, therefore, the results as presented in Tables 1.3 and 1.4 would represent a conservative assessment.

LONG TERM – 2016

Proposed Wan Chai Gyratory System

- 1.2.25 The proposed Wan Chai area traffic improvement scheme has also been assumed to in place by 2011 for both the reference and with scheme scenarios.
- 1.2.26 In the long term, it is assumed that two additional PTIs at the peripheral of the PPA would be available to facilitate public transport relocation, restructuring and truncation. The two PTIs are located at Victoria Park and near Bowrington Road Market. Together with the PTI at Caroline Hill Redevelopment, the majority of the on-street public transport terminus within the PPA would be further reduced.

PTI at Victoria Park

- 1.2.27 The Victoria Park PTI could be designed to accommodate franchised and non-franchised buses, mini-buses as well as taxis. This PTI would facilitate relocation and truncation of

buses as well as serve as a bus-to-bus interchange (BBI) facility to reduce the number of buses going to Causeway Bay from eastern part of Hong Kong and Eastern Crossing routes. This PTI could potentially serve to accommodate all of the existing on-street public transport services especially those currently located to the streets north of Hennessy Road and those at Jardine's Bazaar. The ingress/egress for the PTI is envisaged to be via both Gloucester Road opposite to Windsor House and Causeway Road.

1.2.28 In the current assessment, it is assumed that the following services may be able to be accommodated within the PTI :

- Up to 8 franchised bus routes
- Up to 8 GMB routes
- Queuing space for up to 8 PLBs
- Taxi stands of up to 80m in length

1.2.29 Based on the above assumptions on the facilities within the PTI, it has been broadly estimated that the maximum traffic generations is in the order of about 80 franchised buses/hr, 40 GMBs/hr, 40 PLBs/hr and 240 taxis/hr per direction.

1.2.30 It is envisaged that pedestrian access to/from this PTI to the Causeway Bay area would be mainly via Great George Street and that the existing crossing at this location would not be able to accommodate for the envisaged large number of pedestrians generated by this PTI. Hence, it is suggested that a dedicated pedestrian subway be provided to serve as a convenient and direct pedestrian access to the PTI.

PTI near Bowrington Road Market

1.2.31 The PTI near Bowrington Road Market (exact location subject to further examination) is envisaged to facilitate truncation of Southern District bus routes which would help to further reduce the number of buses along the Hennessy Road – Yee Wo Street. As a preliminary assumption, it is envisaged that up to 6 bus routes can be accommodated within the PTI. The anticipated traffic generation from this PTI is about 40 franchised buses/hr per direction.

Long Term Scheme Traffic Analysis

1.2.32 Similarly, the 2016 'Scheme scenario' was updated based on the 2016 'Reference

scenario’ to reflect the changes in the road network to incorporate the ‘package’ of long term pedestrian scheme proposals which include the short and medium term proposals plus:

- Full-time pedestrianization of Jardine’s Bazaar upon relocation of RMB terminus to Victoria Park PTI;
- Lower speed limit on all streets within the PPA with the exception of Percival Street as this street serves as the primary north-south link connecting Gloucester Road and Leighton Road.

1.2.33 The result of the junction capacity assessment for the long term is given in Table 1.5. The proposed bus diversions from the Hennessy Road – Yee Wo Street corridor to Leighton Road as outlined for the medium term has also been assumed for the long term scenario. Realistically, some of the buses along the Hennessy Road – Yee Wo Street corridor could be relocated or truncated at the Victoria Park PTI such that the amount of bus diversion to Leighton Road could be reduced. As this is a planning study, the details for the overall bus diversion and rerouting plan is outside the scope of this study. More detailed study on the potential routes to be diverted and opportunity for truncation of routes to the Victoria Park PTI and Bowrington Road Market PTI as well as impact on junction capacity in the vicinity could be further investigated in the detailed design stage.

Table 1.5 Junction Capacity Assessment – Long Term (2016)

| Junction | 2016 Reference | | 2016 Scheme | |
|--|----------------|---------|-------------|---------|
| | AM Peak | PM Peak | AM Peak | PM Peak |
| Lockhart Road / Percival Street | 255% | 284% | 212% | 366% |
| Hennessy Road / Percival Street | 71% | 55% | 10% | 10% |
| Yee Wo Street / Jardine’s Bazaar | 69% | 52% | 127% | 132% |
| Hennessy Road / Pennington Street | - | - | 17% | 12% |
| Causeway Road /Tung Lo Wan Road / Yee Wo | 59% | 44% | 77% | 63% |

| | | | | |
|------------------------------------|------|-----|------|-----|
| Street | | | | |
| Leighton Road / Percival Street | 167% | 78% | 197% | 84% |
| Leighton Road / Caroline Hill Road | 67% | 80% | 118% | 93% |
| Leighton Road / Pennington Street | 57% | 28% | 61% | 61% |

1.2.34 Based on the results of the preliminary broad-brush assessment, all of the key junctions assessed would be operating within capacity.

SUMMARY

1.2.35 Based on the preliminary ‘broad-brush’ impact analysis undertaken for the proposed short, medium and long term measures, it can be concluded that the proposals are achievable subject to further detailing in subsequent detailed design study.

1.2.36 In general, there would be little changes to the public transport provisions with the proposed short-term schemes.

1.2.37 The feasibility of the medium term proposals much depends on the advent of the Central-Wan Chai Bypass coupled with some bus relocation and diversion. Also, the Caroline Hill Redevelopment PTI is assumed to be in place along with relocation of bus and GMB routes as proposed by government.

1.2.38 The feasibility of the long-term proposals would also rely upon the advent of the Central-Wan Chai Bypass as well as the availability of the Victoria Park PTI, and preferably, the Bowrington Road Market PTI. The PTIs are needed to facilitate the relocation of on-street public transport services such that more road space could be allocated to enhance pedestrian access. The same bus diversion measures as assumed under the medium term have also been adopted for the long term.

1.2.39 The completion of the Shatin-Central Link which is likely to be around 2011/12 would also play a key role in reducing the amount of the road based vehicular traffic including cross harbour buses that are currently operating along the Hennessy Road – Yee Wo Street and Gloucester Road – Victoria Park Road corridors. However, the assessment for both

the medium and long term has not taken into account of the likely bus reduction arising from the completion of the Shatin-Central Link.

1.2.40 In the future, there is also the opportunity to introduce a Tram Only corridor along Hennessy Road – Yee Wo Street within the PPA. Such a proposal would require major public transport restructuring within and around the PPA and this would include the provision of BBIs and bus priority measures to reduce the volume of buses entering the PPA by truncation of bus services at the peripheral of the PPA. It is envisaged that extensive public transport restructuring are achievable especially with the completion of new rail infrastructures such as West Rail, East Rail Extensions, Kowloon Southern Link and Shatin-Central Link (and possibly the MTR North and South Island Line in the much longer term). Furthermore, various public transport restructuring proposals have been put forward under the Study of Traffic Restraint Measures and Strategic Traffic Review which would reduce the number of buses going through Causeway Bay (such as truncation of Western Harbour crossing routes and Western Districts routes at Wan Chai and truncation of Eastern Harbour crossing routes to a new PTI at Tin Hau or Victoria Park PTI). All of these potential measures would certainly facilitate a tram only corridor for Causeway Bay in the future, however, a much more comprehensive detailed study is required to develop this proposal as well as to assess the extent of the bus restructuring and associated infrastructures along with detailed implementation plans.

1.2.41 Overall, upgrading of the tram services is also recommended to increase the level of quality and services to passengers. This would allow the tram to serve its primary role as a proficient feeder service within the PPA.

Planning Department

July 2004

**Supplementary Information on the Underground
Pedestrian-Cum-Retail Link across Hennessy Road**

Background

The proposed underground pedestrian-cum-retail link across the Hennessy Road is intended to connect directly or indirectly the Hennessy Centre, Sogo and the Causeway Bay MTR Station. Its objective is two-fold, namely to relieve the congestion of pedestrians at the pedestrian crossing at Hennessy Road in front of Sogo, and to integrate the retail facilities located to the north and south of Hennessy Road.

2. The retail element could also increase the commercial viability of the project and attractiveness of the link to pedestrians.

Way Forward

3. The scale of the link is subject to further study. A preliminary investigation of the link has been undertaken. Further discussions with the landowners of Hennessy Centre and Sogo and the MTRC are required to ascertain the connection points of the link.

4. The implementation of the project has to be further examined. We are open to different modes of implementation and disposal approaches.

5. The construction cost of the pedestrian link would be financed by the project.