

## LEGISLATIVE COUNCIL PANEL ON TRANSPORT

### Traffic Impact on Tuen Mun Road upon the Commissioning of Hong Kong – Shenzhen Western Corridor and Deep Bay Link

#### Purpose

This paper informs Members of the traffic impact on Tuen Mun Road upon the commissioning of the Hong Kong – Shenzhen Western Corridor (HK–SWC) and Deep Bay Link (DBL), as well as the options being considered by the Administration to improve the traffic flow of Tuen Mun Road.

#### Background

2. The HK–SWC is a dual three-lane carriageway spanning across Deep Bay linking the northwestern part of the New Territories with Shekou in Shenzhen. The DBL serves as the connecting road between the HK–SWC and the local transport network, linking the HK–SWC at its landing point at Ngau Hom Shek with the Yuen Long Highway. Construction of the DBL and the HK–SWC have commenced in June and August 2003 respectively. They are scheduled for completion by the end of 2005.

#### Traffic Situation of Tuen Mun Road

3. Tuen Mun Road was partially completed and opened in 1978 to link up Tsuen Wan and Tuen Mun. It was fully completed in 1983. It comprises two major sections – the Expressway Section (Wong Chu Road to Tsuen Wan Road) and the Town Centre Section (Wong Chu Interchange to Lam Tei Interchange). The design capacity of the Expressway Section is 118 000 vehicles. In 2003, the average daily traffic on the Expressway Section during weekdays was about 106 000 vehicles. The vehicle/capacity (v/c) ratio<sup>1</sup> is 1.1 during peak hours.

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<sup>1</sup> V/c ratio is normally used to reflect traffic situation during peak hours. A v/c ratio equal to or less than 1.0 means that the road has sufficient capacity to cope with the volume of vehicular traffic under consideration. A v/c ratio below 1 is considered acceptable. A v/c ratio above 1.0 indicates the onset of mild congestion and a v/c ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. Above 1.2 indicates more serious congestion with traffic speeds progressively deteriorating with further increase in traffic and such v/c ratios are considered unacceptable.

4. As for the Town Centre Section, its design capacity is 78 000 vehicles. The v/c ratios of those busy sections, i.e. the southbound two-lane carriageways of the Tsing Tin Road Interchange section, the Town Plaza section and the Wong Chu Road Interchange section, during the morning peak period (7 a.m. – 9 a.m.) are 1, 0.9 and 1 respectively. During the off-peak and evening peak periods (5 p.m. – 7 p.m.), the v/c ratios of all sections in both directions are well below 1.

5. Upon the commissioning of HK–SWC and DBL, the v/c ratio for the peak period at the most critical section of the Expressway Section (i.e. the Sham Tseng Section) is projected to increase from 1.1 in 2002 to about 1.19. As for the Town Centre Section, the traffic flow is projected to increase by 10% – 15%. The v/c ratios of the critical sections, i.e. the southbound carriageways of Tuen Mun Road at Tsing Tin Interchange and Wong Chu Interchange, would range from 1.04 to 1.18.

### **Measures to Improve the Traffic Situation of Tuen Mun Road**

6. In anticipation of an increase in traffic flow on Tuen Mun Road upon the commissioning of HK–SWC and DBL, we plan to introduce the following improvement works to improve the traffic situation.

#### ***(a) Improvements to the Town Centre Section***

7. To improve the traffic handling capability of the Town Centre Section, particularly to cater for traffic growth after 2006, we are considering a whole range of improvement works that would be carried out in different stages. The improvement works to be implemented to tie in with the commissioning of HK–SWC include -

- (a) lengthening and widening of bus bays along the Town Centre Section to reduce the impact of bus queuing and improve the local traffic conditions in terms of efficiency and safety;
- (b) lengthening of the merging lane and improvements to the road markings to facilitate merging of vehicles from Tuen Hi Road, which is a service road parallel to Tuen Mun Road;

- (c) widening of the Town Centre Section near Tsing Tin Road to increase the traffic capacity and ease the morning peak traffic; and
- (d) diversion of intra-town traffic to the southern exit at Wong Chu Road through provision of additional directional signs to relieve the critical sections of the Town Centre Section.

***(b) Tuen Mun Road Reconstruction and Improvement Project***

8. We intend to carry out a Tuen Mun Road Reconstruction and Improvement Project with a view to bringing the Expressway Section up to the current highway standards as far as practicable, and improving the traffic conditions. The project will include reconstructing most of the at-grade sections of the Road, widening and improving certain sections of roads to current highway standards as well as providing standard hard shoulders where possible. We will consult this Panel on the details of the project in the coming months.

9. In planning for the project, we have given due consideration to the possible impact of the project on the traffic along Tuen Mun Road during the works period. We will implement traffic management measures to minimise such disruption. The reduced capacity of Tuen Mun Road will be partly made up for by the widened Castle Peak Road, the widening works of which will largely be completed by 2005. The only exception is the section from Siu Lam to Ka Loon Tsuen, the works of which will be completed by 2007.

***(c) Long Term Highway Network in the Region***

10. To assess the long-term needs for transport infrastructure development in the Northwest New Territories and Lantau, we initiated the Northwest New Territories Traffic and Infrastructure Review (the Review) in 2002. On 29 September 2003, we briefed this Panel of the preliminary outcome of the Review, which comprised several packages of road networks within the region. (Please refer to LC Paper No. CB(1)2291/02-03(04)). We will report progress of the Review to this Panel in the coming months.

### **Diversion of Traffic from Tuen Mun Road to Route 3**

11. Route 3 (Country Park Section) was opened in 1998. It is a dual three-lane north-south expressway connecting Ting Kau and Au Tau. It serves as an alternative to Tuen Mun Road and Tolo Highway. It has a design capacity of 118 000 vehicles per day. The Route 3 (Country Park Section) Company Limited was granted in 1995 a 30-year franchise to build and operate Route 3. The franchise would expire in 2025<sup>2</sup>.

12. In 2003, the average daily traffic throughput of Route 3 on weekdays was about 46 000 vehicles<sup>3</sup>. The v/c ratio during peak hours was around 0.7 in 2003. Our current estimate is that upon the commissioning of HK-SWC and DBL, the v/c ratio for Route 3 during peak hours would rise from 0.7 in 2003 to 0.9.

13. As mentioned in paragraph 11 above, Route 3 offers an alternative to Tuen Mun Road. We estimate that of the 46 000 vehicles using Route 3 each day, the majority of them would have used Tuen Mun Road instead, if Route 3 had not been built. In other words, Route 3 has helped prevent the occurrence of extremely serious congestion in Tuen Mun Road with its potential peak hour v/c ratio rising to as high as 1.6. To some extent, it has served its purpose of relieving the traffic situation at Tuen Mun Road.

14. Nevertheless, we have been examining different measures to divert more traffic from Tuen Mun Road to Route 3 so as to further improve the traffic distribution between the two routes. It must however be noted that this is not a simple issue as it involves the need to divert traffic from a toll-free road to a tolled one. In addition, motorists' choices of routes are determined by many factors, including the costs (including both fuel cost and tolls), travelling time as well as places covered en-route. Measures that we have been working on are set out in the following paragraphs.

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<sup>2</sup> The Company has since 2001/02 been operating at a profit.

<sup>3</sup> The traffic flow was about 56% of the Company's traffic forecast and was between 76% (high range projection) and 109% (low range projection) of the Government's forecast in the Project Brief.

***(a) Widening of Yuen Long Highway (between Lam Tei and Shap Pat Heung Interchange)***

15. The Yuen Long Highway was built in 1989, with a capacity of 78 000. Currently, the section of the Highway at Shap Pat Heung Interchange has a v/c ratio of 0.9. We are now widening the section of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange from dual two-lane to dual three-lane. The Finance Committee had in February 2003 approved \$931 million for the project, and works have commenced in July 2003. The project is scheduled for completion by the end of 2005.

***(b) Reduction in the Level of Tolls of Route 3***

16. As pointed out above, there are many factors affecting a motorist's choice of routes, and in the current economic conditions, cost is definitely an important factor. Hence, we are of the view that reduction in the toll levels of Route 3 would be the most effective incentive to attract motorists to divert from Tuen Mun Road to Route 3, as the cost differential between the two routes would be narrowed.

17. We note that since July 2002, Route 3 has been offering concessions to articulated heavy goods vehicles (HGVs). Articulated HGVs with empty trailers or those that use Route 3 during midnight hours (0000-0600) would only need to pay \$25, instead of \$40. This offer has been rather successful – it reduced the cost substantially for HGVs, and at the same time increased the patronage of and revenue from HGVs. It has thus demonstrated a win-win situation for both the operator and the community. We will continue to discuss with the operator of Route 3 the possibility of reducing tolls or offering more concessions to more classes of vehicles.

***(c) Traffic Management Measures***

18. We are also examining traffic management measures that may help improve the traffic flow at Tuen Mun Road. One example is the installation of variable message signs (VMSs) to inform motorists of the prevailing traffic conditions of the various strategic routes. The objective is to encourage motorists to switch to routes with better traffic flow, which in turn will facilitate more effective use of the road capacities. VMSs will be provided under the HK-SWC/DBL project to facilitate diversion of traffic to Route 3 from Tuen Mun Road.

***(d) Construction of the Easterly Link Road***

19. We have examined the feasibility of an Easterly Link Road (ELR) to serve as a possible additional access road connecting the HK-SWC and DBL to the existing road system to facilitate traffic heading east from the DBL. At the meeting in December 2002, we informed Members of the alignment options for this road (LC Paper No. CB(1)527/02-03(05)). However, it must be noted that the effectiveness of this ELR in channelling motorists to Route 3 hinges largely on the toll levels of Route 3. We believe that unless the toll levels of Route 3 are reduced, the number of motorists using Route 3 via the ELR would be very limited. We have hence initiated discussions with the Route 3 Company to explore possible reductions in tolls before deciding on the way forward for the ELR.

***(e) Buying out the Ownership of Route 3***

20. It has been suggested that the Government should buy out the ownership of Route 3. Supporters of this measure believe that once the ownership is reverted to the Government, the toll levels of Route 3 could be adjusted to improve the traffic distribution between the two routes. However, this proposal would involve substantial capital and recurrent expenditure on the part of the public coffer. Given the Government's current financial position, this option will not be considered in the short to medium term.

***(f) Provision of Subsidies to Motorists***

21. There are also suggestions that the Government should provide subsidies to motorists to encourage them to use Route 3 rather than Tuen Mun Road. We have reservations on such a measure. First, it again involves huge recurrent expenditure from the public coffer. Second, any subsidy schemes for targeted vehicle or resident groups would involve immense technical difficulties, and could lead to all types of abuses. There would also be the question of parity treatment for different user groups. We do not intend to pursue this option.

**Advice Sought**

22. Members' views are invited on the aforesaid measures being examined by the Administration to improve the traffic flow of Tuen Mun Road.

Government Secretariat  
Environment, Transport and Works Bureau  
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