

Review of High Wind Management in Tsing Ma Control Area

The Tsing Ma Control Area (TMCA) covers about 21km of road network and is a transport infrastructure for access to the Hong Kong International Airport at Chek Lap Kok and the North West New Territories. It comprises a system of expressways, tunnel and bridges, these includes Tsing Kwai Highway, Cheung Tsing Tunnel, Cheung Tsing Highway, Tsing Yi North Coastal Road, Ting Kau Bridge, Lantau Link, Ma Wan Road and part of the North Lantau Highway (up to Yam O Interchange). The Lantau Link is a double-decked bridge which spans 3.5km between Tsing Yi and Lantau Island whereas the Ting Kau Bridge spans 1.2km linking Tai Lam Tunnel to Tsing Yi.

The TMCA is an important transport node for access to the Hong Kong International Airport at Chek Lap Kok and the North West New Territories. Under the high wind conditions, wind susceptible vehicles will be prohibited from using the upper deck of the Lantau Link and Ting Kau Bridge. With implementation of this high wind management scheme, congestion is often resulted on Tuen Mun Road, and Cheung Tsing Highway. As the traffic flows on Tsing Ma Bridge are expected to increase with on-going developments on Lantau, it is necessary to review the high wind management measures with a view to minimizing disruption to traffic flows on these strategic links while maintaining traffic safety in TMCA.

MVA Hong Kong Limited (MVA) in association with BMT Fluid Mechanics Ltd. (BMT) were commissioned by Transport Department to undertake the review of high wind management in TMCA. The progress of the study was directed by Working Group under the chairmanship of the Principal Transport Officer for Transport Department.

The main objectives of the study are as follows:

- ▶ Provide a full review of the current TMCA wind management system and its' implementation in high winds with reference to the best international industry practice with a view to minimise disruption to traffic flows on the demand growing Lantau Link and Ting Kau Bridge due to the on-going developments on Lantau such as Disneyland and Tung Chung Cable Car projects and residential developments in NWNT, while maintaining road users' safety in TMCA and to resolve the associated traffic congestion problem on Tuen Mun Road/Tai Lam Tunnel (Kowloon bound) during morning peak hours

and on Cheung Tsing Highway (Airport/NT bounds) during evening peak hours.

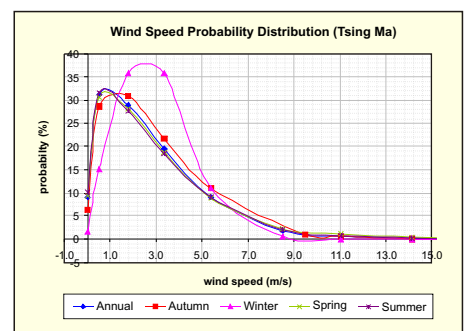
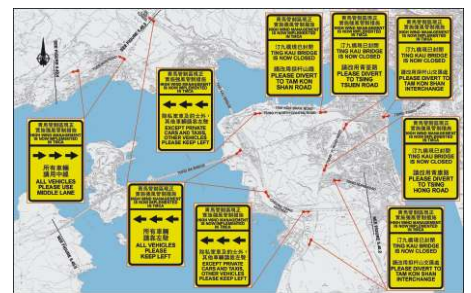
- ▶ Provide proposals for amendments to the current wind management system as appropriate.
- ▶ Provide a review of the definition and categorisation of wind susceptible vehicles inherent in the current TMCA wind management system with reference to best international industry practice.
- ▶ Provide a review of the threshold wind speeds that trigger the different stages of the current TMCA wind management system with reference to best international industry practice.
- ▶ Provide a review of the lane and vehicle speed restrictions imposed on traffic on the bridge decks of the Tsing Ma Bridge, Ma Wan Viaduct and the Ting Kau Bridge when the TMCA wind management system becomes active in high winds.
- ▶ Provide a review of the effectiveness of the current TMCA wind management system as triggered by wind speed readings from existing anemometers.
- ▶ Provide proposals for improvement of the system and derive an assessment of the potential for these measures to reduce disruption to traffic flows on the Lantau Link and the Ting Kau Bridge relative to current levels.
- ▶ Provide a review of the existing traffic management scheme and provide proposals for improving the current traffic management arrangement.

The following major findings / recommendations were proposed :

- ▶ Wind Speed (HAWS) recorded on either TKB and LL triggered bridge closure had been revised from 65 kph to 90 kph;
- ▶ Definition of WSVs proposed to be revised;
- ▶ Erection of new information signs to speed up vehicle screening process; and
- ▶ Implementation of bridge closure for LL and TKB separately.
- ▶ High wind management scheme is proposed to be carried in 3 stages under Do-Nothing, Short-term and Long-term Recommendation.

Current High Wind Management Scheme :

		Some Wind	Stage I	Stage II	Stage III
Hourly Mean Wind Speed (kph)		35-40	40-65	65-165	>165
Traffic Management Measures	Affected Vehicles	All	<1.6m High	>1.6m High	All
	Lantau Link	Closure of Middle Lane	Use Upper Deck	Use Lower Deck Only	Prohibited
	Ting Kau Bridge	Closure of Middle Lane	Allowed	Prohibited	Prohibited
	Speed Limit (kph)	50	50	50	--



Tsing Ma Control Area (TMCA) Information :

Cover about 21km of road network including Tsing Ma Bridge, Kap Shui Mun Bridge & Ting Kau Bridge

Study Period : Sept. 2004 - Feb. 2006

Study Cost : HK\$ 0.9M (Approx.)

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