

For information**Legislative Council Panel on Transport****LATEST PROGRESS OF THE WORKS OF
THE HONG KONG-ZHUHAI-MACAO BRIDGE (HZMB) AND
THE HONG KONG PROJECTS****INTRODUCTION**

Spanning over Lingdingyang, the Hong Kong-Zhuhai-Macao Bridge (HZMB), an unprecedented mega transport infrastructure project co-built by Guangdong, Hong Kong and Macao, will connect the Hong Kong Special Administrative Region in the east and the Macao Special Administrative Region and Zhuhai City of Guangdong province in the west. The entire HZMB project consists of two parts: (i) the HZMB Main Bridge (i.e. a 22.9km-long bridge and 6.7km-long subsea tunnel) situated in Mainland waters which is being taken forward by the HZMB Authority; and (ii) the link roads and boundary crossing facilities under the responsibility of the three governments. The layout plan of the HZMB Main Bridge and the Hong Kong projects is shown in **Figure 1**.

CURRENT STATUS

2. Having regard to the progress of the HZMB Main Bridge and the related projects of the three sides, the governments of Guangdong, Hong Kong and Macao as well as the HZMB Authority (which is responsible for the works of the Main Bridge) have been compiling and assessing the works programme and dealing with the difficulties and risks while ensuring the quality of the project and safety of works. Reports have been made to the inter-ministry Task Force of the HZMB, which is chaired by the National Development and Reform Commission and attended by the governments of Guangdong, Hong Kong and Macao.

3. The Task Force attaches great importance to the completion and commissioning date of the HZMB and considers that the three sides should strive for simultaneous commissioning in view of the significance of this unprecedented cross-boundary transport infrastructure connecting Guangdong, Hong Kong and Macao. The Task Force reviewed late last year the works progress of the HZMB Main Bridge, the Hong Kong projects (including the Hong Kong Boundary Crossing Facilities (HKBCF) and the Hong Kong Link Road (HKLR)), the Zhuhai projects (including the Zhuhai Boundary Crossing Facilities and the Zhuhai Link Road) and the Macao projects (including the Macao Boundary Crossing Facilities and the Macao Link Road). The latest progress of the Main Bridge and the Hong Kong projects is summarized as follows.

HZMB MAIN BRIDGE

4. The HZMB Main Bridge mainly includes the following three parts: (i) **tunnel and artificial islands** which comprises two artificial islands for the tunnel landings in the west of the HKSAR boundary and a subsea tunnel section of about 6.7 km long; (ii) a **bridge section** of about 22.9 km long; and (iii) **associated works** including civil and structural works, environmental impact mitigation measures, drainage works, electrical and mechanical works as well as traffic control and surveillance systems, etc.

(1) Tunnel and Artificial Islands

5. The construction of the tunnel and artificial islands of the HZMB Main Bridge is still in progress. Its critical process involves the placement of 33 subsea tunnel segments and the final connection. As of end-January 2017, 31 subsea tunnel segments were placed. Given that the works site is located in a complex sea environment, the project faces huge technical difficulties arising from the need to cater for wind speed and under-water current conditions. Its challenges include overcoming inclement weather and sedimentation of the tunnel bedding.

(2) Bridge Section

6. The bridge section of the HZMB Main Bridge was connected in end-September 2016 and the bridge deck surfacing works are in progress. Given the immense scale of the bridge deck surfacing works and the demanding technical requirements, the progress of works will also be affected by inclement weather.

(3) Associated Works

7. In addition, traffic engineering works including the installation of public utilities and testing and commissioning will still need to be carried out at the Main Bridge.

8. In view of the current works progress, **the HZMB Main Bridge project is expected to be completed in December 2017**. The current construction progress of the HZMB Main Bridge is shown in **Figures 2 to 4**.

9. In March 2010, the Ministry of Transport approved the project estimate of the HZMB Main Bridge project. However, since the commencement of the project, there has been escalation in the construction costs arising from the increase in labour and material costs as well as the refinement of the design and construction schemes. As a result, the contractors of the HZMB Main Bridge submitted applications to the HZMB Authority for adjustment to the project estimate. The contractors also pointed out that it has been a recent phenomenon that the approved project estimates of mega-scale transport infrastructure projects in the Mainland were exceeded. The HZMB Authority has recently reviewed the applications submitted by the contractors and prepared a report on the adjustment of the project estimate. The report, which is currently being assessed by an independent consultant engaged by the Joint Works Committee of the Three Governments (JWC), will be submitted to the JWC for review. Upon JWC's review and consensus reached, it will, in due course, submit the vetted report to the relevant Mainland authorities for examination. The report will finally be submitted to the State Council for approval of the adjusted project estimate. We will report to the Legislative Council timely when there is

a definite estimate as well as to give an account for the required financial arrangement as discussed by Guangdong, Hong Kong and Macao.

HONG KONG BOUNDARY CROSSING FACILITIES

10. The HKBCF is located on an artificial island of about 150 hectares reclaimed from the open waters off the northeast of the Hong Kong International Airport (including about 130 hectares for the HKBCF and about 20 hectares for the southern landfall of the Tuen Mun-Chek Lap Kok Link).

11. The works of the HKBCF include reclamation, construction of cargo and passenger clearance and vehicle inspection facilities (including the Passenger Clearance Building), offices for frontline departments (such as the Immigration Department, the Customs and Excise Department, etc.), road networks, public transport interchange and associated civil works, traffic control and surveillance systems and landscaping works, etc.

12. Reclamation for the HKBCF was largely completed in late last year while the remaining works of installing armour rocks and the removal of surcharge materials are in progress. The nine superstructure works contracts on the HKBCF are now in full swing: the construction of the superstructure and installation of prefabricated roof segments are being carried out for the Passenger Clearance Building; the foundation works and installation of precast bridge deck segments for the land infrastructure works are underway; construction of the vehicle clearance plaza, ancillary buildings and associated facilities are also in progress. The current construction progress of the HKBCF project is shown in **Figures 5 to 8**.

HONG KONG LINK ROAD

13. The 12km-long HKLR comprises (i) a 9.4km-long viaduct section between the HKSAR boundary and Scenic Hill on the Airport Island; (ii) the 1km-long Scenic Hill Tunnel; and (iii) a 1.6km-long at-grade road on the new reclamation formed along the east coast of the Airport Island

connecting to the HKBCF.

14. The HKLR project includes the construction of a dual 3-lane carriageway highway connecting the HZMB Main Bridge at the HKSAR boundary with the HKBCF; and the associated civil, structural, geotechnical, marine, environmental protection, landscaping and drainage works. Other facilities include installation of street lighting, traffic aids (including sign gantries), fire hydrants, traffic control and surveillance systems and E&M works, etc.

15. Bored piles, pile caps, piers and casting of precast bridge deck segments for the marine and land viaducts of the HKLR have been completed. The bridge decks of land viaducts have all been erected and stressing of their post-tensioning tendons is being carried out. The erection of bridge decks of the marine viaducts, construction of the tunnel section and at-grade road works are in progress. The current construction progress of the HKLR is shown in **Figures 9 to 11**.

16. According to the latest works progress, Highways Department (HyD) assesses that **the Hong Kong projects are targeted to achieve readiness for commissioning by end 2017**. HyD and its resident site staff have been closely monitoring the works progress of the Hong Kong projects and will take appropriate measures to ensure the works are progressed as scheduled.

THE ENTIRE HZMB PROJECT

17. In summary, the Task Force acknowledges the difficulties and pressures (including risks in respect of technical challenges, extreme weather, works safety, works interface, etc.) encountered by the HZMB Main Bridge as well as the projects of the three sides. At this stage, there are still certain difficulties to be overcome so as to complete the HZMB project for commissioning by end 2017. Without compromising the quality and safety of works, the HZMB Authority and the three sides are adopting every possible measure to overcome the difficulties they encountered so as to proceed with their relevant projects. With the further consolidated assessment by the JWC, **the three sides strive to**

complete the HZMB project by end 2017 for early simultaneous commissioning, subject to factors such as the implementation of cross-boundary transport arrangements.

CONCLUSION

18. Members are invited to take note of the latest progress of the HZMB Main Bridge and the Hong Kong projects.

**Transport and Housing Bureau
Highways Department
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Legislative Council Panel on Transport

Latest Progress of the Works of the Hong Kong-Zhuhai-Macao Bridge (HZMB) and the Hong Kong Projects

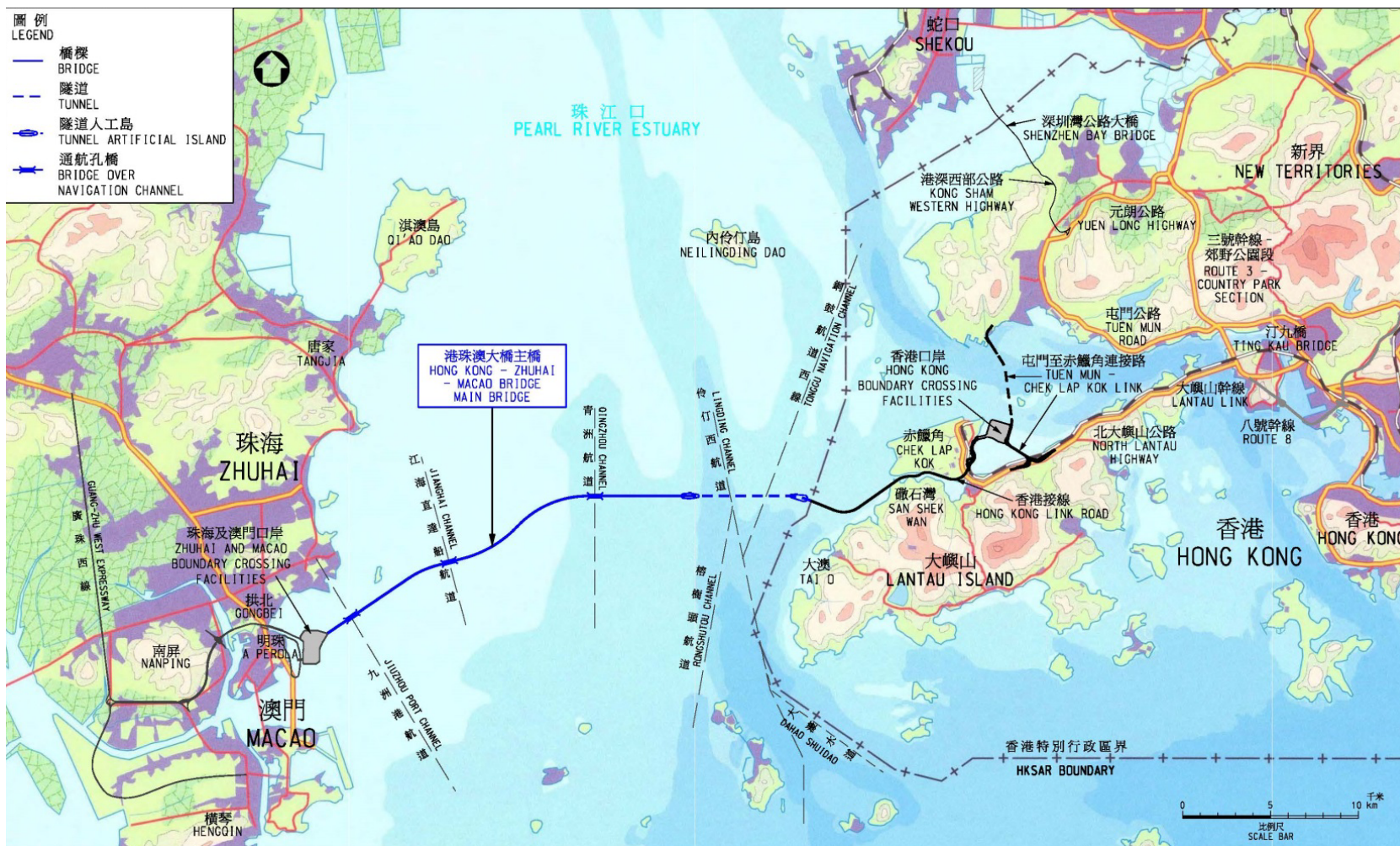


Figure 1: Layout plan for HZMB Main Bridge and the Hong Kong projects

HZMB Main Bridge



Figure 2: Installation of bridge decks of the HZMB Main Bridge was completed. Bridge deck surfacing works are in progress.



Figure 3: Installation of a tunnel segment of the HZMB Main Bridge.



Figure 4: Construction of superstructures at the East Artificial Island of the HZMB Main Bridge is in progress.

Hong Kong Boundary Crossing Facility (HKBCF)



Figure 5: Installation of prefabricated roof segments for the Passenger Clearance Building of the HKBCF is in progress.



Figure 6: Construction of kiosks at the Vehicle Clearance Plaza of the HKBCF is in progress.



Figure 7: Construction of ancillary buildings and associated facilities of the HKBCF is in progress.



Figure 8: Construction of bridge infrastructures of the HKBCF is in progress.

Hong Kong Link Road (HKLR)



Figure 9: Construction of the marine viaduct of the HKLR is in progress.



Figure 10: Installation of bridge decks of the land viaduct of the HKLR was completed. Bridge deck surfacing works are in progress.



Figure 11: Construction of the Scenic Hill Tunnel of the HKLR is in progress.