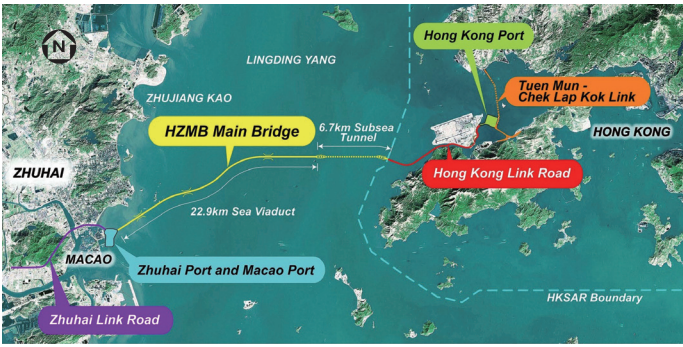




Hong Kong-Zhuhai-Macao Bridge – Hong Kong Section



The Hong Kong-Zhuhai-Macao Bridge (HZMB) is the first cross-boundary land link infrastructure connecting the three cities, namely Hong Kong, Zhuhai and Macao. Its total length is 55km, comprising the 12km-long Hong Kong Link Road (HKLR), 29.6km-long Main Bridge and 13.4km-long Zhuhai Link Road. The HZMB is the longest bridge-cum-tunnel sea crossing in the world. Operating 24 hours a day, it puts major cities in the Pearl River Delta within a 3 hours' commute from Hong Kong. The HZMB Hong Kong Section includes the HKLR and the Hong Kong Port (HKP).

Hong Kong Link Road

The HKLR is a dual three-lane road of about 12km long, connecting the HZMB Main Bridge at the HKSAR boundary and the HKP at the northeastern side of the Airport Island. It comprises a 9.4km-long viaduct spanning from the HKSAR boundary to Scenic Hill on the Airport Island, followed by a 1km-long tunnel leading to the reclamation area along the east coast of the Airport Island, and a 1.6km-long at-grade road on the reclamation connecting to the HKP.

The HKLR viaduct, mainly situated at open waters, is the first bridge in Hong Kong constructed using prestressed precast piers and precast concrete pile cap shells to minimise underwater works. Floating concrete batching plant was also introduced for the first time in Hong Kong to significantly reduce logistics and ensure the concrete produced were of the best quality.



The HKLR adopted a 180m long-span bridge design so that it could span across the northern shore of Lantau Island and avoid disturbing the headland of Sha Lo Wan with high archaeological conservation value.

Four different construction methods were adopted for the 1km-long Scenic Hill Tunnel, including drill and blast method through the Scenic Hill, mining method underneath the Airport Road section, box jacking method for the tunnel box segments underneath the Airport Express Line (AEL), and cut and cover method at the reclamation area. It was the first tunnel blasting operation on the Airport Island since the commissioning of the Hong Kong International Airport (HKIA) in 1998.



Moreover, it was the first project in Hong Kong using the box jacking technique for tunnel carriageway construction with a view to maintaining normal and safe operation of the AEL. The box jacking method involved pushing the tunnel box segments forward sequentially by hydraulic jacks, mimicking a caterpillar's motion with a design jacking force of 19,400 tonnes, which is equivalent to the force needed to lift about 70 empty Airbus A380 in one go. (The largest box segment is approximately 23.5m in width, 14m in height and 5,000 tonnes in weight, equivalent to the weight of 188 double-decker buses.)

Hong Kong Port



The HKP provides clearance facilities for goods and passengers using the HZMB. It is located on the approximately 130 hectare (ha) of reclamation. The HKP together with the HKLR and the Tuen Mun – Chek Lap Kok Link (TM-CLKL) will connect the HZMB and the HKIA as well as the Northwest New Territories and the North Lantau to form a strategic transport network.

Facilities at the Hong Kong Port:

Total number of buildings	78
Total number of vehicle clearance kiosks	72
Cargo clearance facilities	16 kiosks, inbound and outbound cargo examination platforms, inbound and outbound X-ray inspection buildings
Passenger clearance facilities	Passenger Clearance Building (PCB) (about 3.5 ha site coverage), about 200 counters for passengers, 42 kiosks for private cars, 2 private car annexes and associated kiosks and 12 kiosks for coaches/shuttles
Facilities for government departments	Accommodation and other facilities for the Immigration Department, Customs and Excise Department, Hong Kong Police Force, Fire Services Department, Agriculture, Fisheries and Conservation Department, Food and Environmental Hygiene Department and the Department of Health; fire station cum ambulance depots, and maintenance workshop/depots
Supporting facilities	Roads, public transport interchange, passenger drop-off/pick-up area, utilities, 733 public parking spaces, commercial areas within the PCB for tourists

The PCB is an iconic building standing at the HKP. With a construction floor area of over 90,000 square metres, its roof (310m x 192m), with the size of approximately 9 standard football pitches, was constructed with 81 large-scale prefabricated modules. The largest module, which is bigger than an Olympic-size swimming pool, is about 60m long, 25m wide and weighs over 670 tonnes.

The district cooling system (DCS) has been adopted at the HKP. It is an energy-efficient air-conditioning system as it consumes 35% and 20% less electricity as compared with traditional air-cooled air-conditioning systems and individual water-cooled air-conditioning systems using cooling towers respectively. The estimated annual savings in electricity consumption of the DCS is 3.5 million kilowatt-hour, with a corresponding reduction of 2,500 tonnes of carbon dioxide emission per annum as compared with individual water-cooled air-conditioning systems using cooling tower.

The approved project estimates of the HZMB HKLR and HKP are about HK\$25.047 billion and HK\$35.895 billion respectively. The HZMB Hong Kong Section was opened to the public together with the Main Bridge on 24 October 2018.