



Shenzhen Bay Bridge



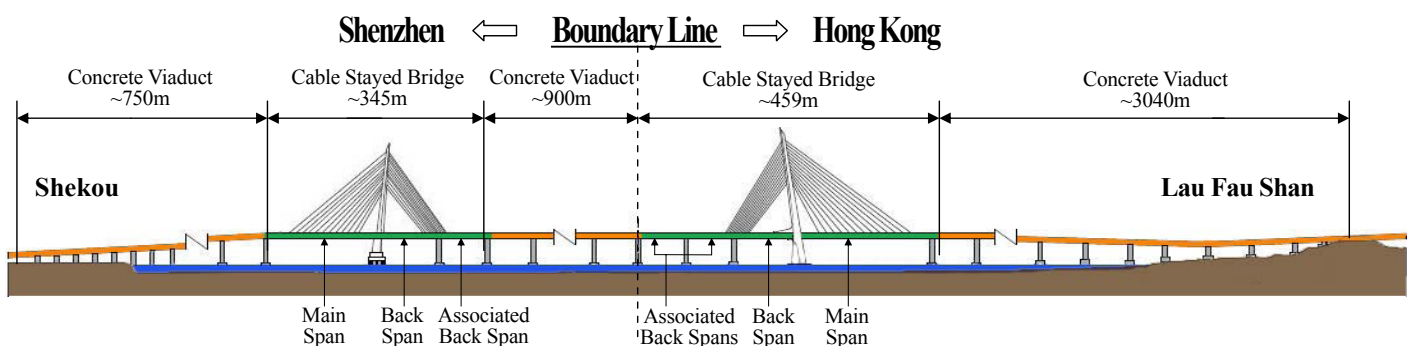
Shenzhen Bay Bridge (formerly known as the Hong Kong-Shenzhen Western Corridor) is the fourth vehicular boundary crossing linking Hong Kong and the mainland China. It is a 5.5km-long dual three-lane carriageway spanning across Deep Bay from Lau Fau Shan of Hong Kong to Shekou of Shenzhen.

The bridge consists of two sections, namely Hong Kong Section and Shenzhen Section, which were constructed respectively by the HKSAR Government and the Shenzhen Municipal Government and connected at the maritime boundary of the two places. The Hong Kong Section was constructed at a project cost of \$3.2 billion and has a length of 3.5km, whilst the Shenzhen Section has a length of 2km. The bridge basically takes the form of a multi-span concrete viaduct except at the two navigation channels, where cable-stayed steel bridges are constructed to meet the longer-span requirements. Both cable-stayed bridges are supported off a single main tower. The towers of the two cable-stayed bridges are inclined towards each other, as if pulling their approach viaducts towards the boundary. These two cable-stayed bridges have become the iconic structures above Deep Bay.

The cable-stayed bridge of Hong Kong Section consists of a 210m-long main span, a 99m-long back span and two associated back spans each of about 75m-long. Its reinforced concrete main tower is supported by bored piles. The steel plates of the deck were manufactured in Japan and then fabricated in Jiujiang. All deck segments were assembled in Dongguan and were then delivered to site by barges. In order to suit different construction methods, the main span was fabricated into standard 12m-long segments, while the back span and the associated back spans were fabricated into three single segments.

The erection of the bridge deck started with the back span and associated back spans. After construction of the piers, the single 1600-ton back span segment and the two 1300-ton associated back span segments were lifted in place by a strand jack system. Welding was then carried out to connect these segments. As for the main span, the standard 12m-long segments were lifted by lifting gantries and fixed in place one by one starting from the tower side. After erection of each segment, a pair of stayed cables (one for main span and one for back span) was installed in parallel to connect the segment with the main tower. There are altogether 13 pairs of cables. Cables at different locations consist of different number of 15.7mm-diameter galvanized strand, ranging from 29 to 95, depending on loadings.

Shenzhen Bay Bridge was opened to traffic on 1 July 2007.



Overall Length of Cable Stayed Bridges

- Hong Kong Section	459m
- Shenzhen Section	345m

Main Span of Cable Stayed Bridges

- Hong Kong Section	210m
- Shenzhen Section	180m

Number of Stayed Cables

- Hong Kong Section	13 pairs
- Shenzhen Section	12 pairs

Depth of Steel Deck Girder of Cable Stayed Bridges

- Hong Kong Section	4.1m
- Shenzhen Section	4.1m

Height of Towers (above pile cap)

- Hong Kong Section	155m
- Shenzhen Section	139m