



## Design Concept of the Twin River Bridges in Chongqing

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### Summary

The Dongshuimen Bridge over the Yangtze River and the Qianximen Bridge over the Jialing River in Chongqing are located at the tip of the Yuzhong Peninsula. Together, they are called the Twin River Bridges. Both are double deck structures carrying four lanes of traffic on their upper decks and two transit tracks on their lower decks. The girders are steel truss structures with orthotropic plates and the towers are made of concrete. Aesthetics were carefully considered for the design of these bridges because of their visibility in the city and their neighboring landmarks.

**Keywords:** Long span bridges, partially cable-supported girder bridge, cable-stayed bridge, extradosed, steel truss, bridge aesthetics, Chongqing

### 1. Introduction

With a population of 32 million, Chongqing remains one of the largest cities in the world. Its metropolitan area is bisected by two major rivers, the Yangtze River in the south and the Jialing River in the north. The municipality of Chongqing is comprised of three parts: the southern district, the northern district and the Yuzhong Peninsula in the middle, where the central business district is located. In recent years, several bridges have been built to facilitate traffic through these three regions of Chongqing. Despite these efforts to relieve congestion, the rapid growth of the City continues to outpace transportation planners' traffic projections and the existing bridges are not sufficient to handle the ever-increasing traffic. In response to this problem, the city is planning to build approximately 500 km of transit tracks to reduce pressure on city roads in addition to erecting yet another two bridges.

The new Dongshuimen Bridge ( Fig. 1 ) will cross the Yangtze River, connecting the southern district to the Yuzhong District. The new Qianximen Bridge will cross the Jialing River, connecting the Yuzhong District to the northern district. A tunnel in the Yuzhong District will connect these two bridges, allowing both transit and road traffic from the southern district to flow through Yuzhong to the northern district without interruption. Both bridges will have four lanes of highway traffic as well as pedestrian paths on their upper decks and they will carry two tracks of transit on their lower decks. The Twin River bridges will belong to transit line number 6.