

## PROJECT BRIEF

## Structural Strengthening of Luoxi Bridge with the TYFO® Fibrwrap® Composite System



Guangzhou, China  
January 2006



Commissioned in August 1988, the Luoxi bridge is one of the few bridges that link the city of Guangzhou and the district of Panyu. It is a very prominent landmark, having won the gold medal award for project excellence as well as the first Chinese civil engineering works (Zhan Tianyou) award; it has been honoured as one of the top ten bridges in the country.



The bridge experienced substantially increased vehicular loading over the years as bilateral trade between both sides flourished. This led to extensive cracks that caused grave public concern. A comprehensive assessment was performed and a panel of renowned bridge experts from all over the country was convened. The unanimous verdict was a call for extensive structural repairs and strengthening.



The total length of the bridge is 1.9 km with bridge approaches that tower more than 20m in height from river level and a spectacular prestressed main beam span of 180m. The TYFO® SCH-11UP Carbon System was used in this project. The surface of the concrete was found to be in rather poor condition and thus the surface preparation and crack injection works turned out to be one of the critical paths on the construction schedule. The client, Parsons Brinckerhoff China (Shanghai Office) imposed very stringent and meticulous quality control measures on site.

Being both a national landmark as well as the pride of Guangzhou city, the repairs and strengthening works attracted intense media coverage. The local authorities made a public commitment to not wholly shut down the bridge during the upgrade, and to complete strengthening works before the 2006 Chinese Lunar New Year in time to serve festive traffic demand. Therefore, the entire project had to be completed in slightly over 3 weeks. Without the use of advanced materials such as the TYFO® SCH-11UP Composite System, completing a retrofit of this scale within such a demanding schedule would certainly be unattainable.

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