

TRAFFIC BRIDGE CAPACITY CHECK AND FENDER DESIGN

Design and Navigation Assessment

PRDW Australia was engaged by BG&E to assist in the structural assessment of the ageing timber traffic bridge in the Port of Fremantle. The project comprised structural capacity checks for various vessel collision scenarios, fender re-design and the development of a vessel management plan for safe accommodation of vessels during construction phases

Perth
A004

BG&E
Fremantle, Perth
Western Australia
Australia
2013



General View of the Existing Bridge Structure



Side View of Existing Structure

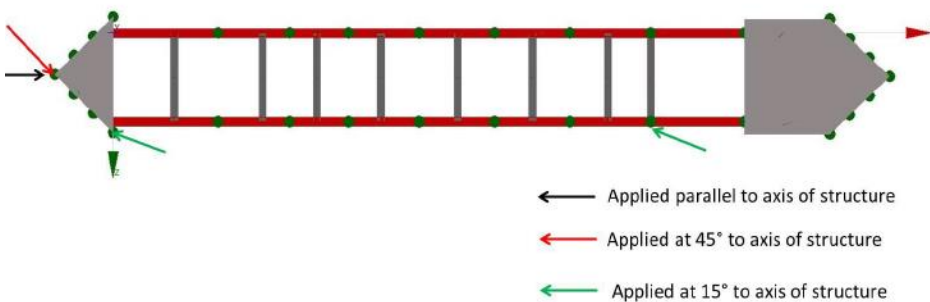
Perth’s iconic Fremantle Traffic Bridge is an ageing timber structure at risk of damage from vessel collision, which occurred at other similar bridges in the area. The adopted approach was to rehabilitate the bridge and fender system in the short to medium term, before complete replacement of the bridge in the longer term.

PRDW determined the capacity of the bridge fender system to withstand a range of vessel impact scenarios. Deliverables included a series of graphs presenting the maximum allowable impact velocity relative to vessel displacement for different accidental and operational cases. These graphs would be used in the subsequent design of the rehabilitation of the structure.

A desktop navigation assessment was carried out in order to establish a vessel management plan and contingency plan to ensure safe and uninterrupted access for recreational and commercial vessels during the construction period.



Side View of Existing Structure



Structural Modelling in Prokon



Structural Modelling in Prokon