

The partial collapse of the Bridge Galeria dos Estados in Brasília, DF, Brazil

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1 Abstract

The partial collapse of the Bridge *Galeria dos Estados* occurred on February 6th, 2018, in Brasília, Brazil when blocked the strategic traffic of downtown. Accessing the central bus station came to a complete stop, vitally impacting the commercial, banking and hospital sectors, and Government Administration District of the capital. The viaduct was built for the inauguration of Brasília, in February 1960, exactly 58 years ago. With 5,000 m², the viaduct has 8 spans with dimensions of 21.70 m and 27.0 m. The partial collapse of the viaduct suddenly occurred without large deformations, or other evidence visible to the naked eye, which could indicate, in advance, the fragility of the structure. The investigations indicated stress-corrosion on all prestressed cable the cap beam. The corrosion is systematic damage that occurs in all seven bent of the bridge. The structural retrofit of the bridge makes removals and reconstruction of the cap beam, easy for maintenance. Finally, the partial collapse could have been avoided if there was any visual inspection possibility, of reasonable cost, which would allow repairs before the collapse.

Keywords: bridge collapse, detailing, durability, forensic study, Prestress corrosion