



Workshop on Redundancy in Bridges for Risk Mitigation in a Multi-Hazard Environment

Location: Virtual

Sponsored by: FHWA

Important Dates:

Presentation Session: July 21, 2020 (10 am to 4 pm EDT) – presentations will be recorded and participants questions will be addressed during the asynchronous session

AASHTO Session: July 23, 2020 (10 am to Noon EDT) – By invitation only

Asynchronous Session: July 21-July 28, 2020 (Electronic Discussion Board)

Breakout Sessions: July 28, 2020 (10 am to 2 pm EDT)

Workshop Participation:

- By invitation only
- AASHTO session restricted to AASHTO Committee members only)

Recent collapse of several bridges, such as the I-35 truss bridge in Minneapolis in 2007, Ponte Morandi cable stayed bridge in Genoa, Italy, in 2018, Florida International University Pedestrian Bridge in 2018 and Nanfang'ao steel single-arch bridge in Taiwan in 2019, have highlighted the importance of the role of redundancy in the safety of bridges. The purpose of this virtual workshop is to identify needs and gaps in the current state-of-the-art / practice on different aspects of redundancy, which is defined as “the quality of a bridge that enables it to perform its design function in the damaged state”. The commentary of the AASHTO LRFD Bridge Design Specification (C.1.3.2.1) notes that the current approach of incorporating redundancy in bridge design is “*arbitrary*” and “*subjective*”. The use of redundancy as a means for hazard mitigation in the event of loss of a critical member has also not been explored in the current framework. Current simulation technology has advanced to the point where it can be used for assessing the effect of member criticality on the overall system collapse response. This approach is more rational and objective for assessing redundancy in critical and important bridges, but particularly for long-span bridges which are critical assets. There is therefore an urgent need for an open forum discussion through a workshop for assessing the current framework on redundancy and identifying the gaps and challenges, and future research priorities.