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FATIGUE TESTING OF CABLES
ISSUES AND LESSONS LEARNED

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Pedestrian bridge design is becoming more demanding and challenging as architects create new ways to experience bridges. This is particularly evident in the design of cable supported pedestrian structures. Innovative and creative concepts require a higher level of fatigue testing to verify cable systems meet design demands and reach structure design life.

The Scioto River Pedestrian Bridge (*figure 1*) is one such example of innovative pedestrian bridge design. The structure is a suspension bridge with non-redundant cable support on one side of the deck. Experience on previous cable supported pedestrian bridges has shown that the cables have a propensity to display fatigue issues at the cable to socket interface. To address this issue, new fatigue testing requirements were developed which were intended to verify that the cable system and manufacturing quality control were fit for the unique structure demands. The lessons learned through the process of design, testing, and construction of the cables on this project are useful tools for teams seeking to successfully deliver future cable supported bridge projects.

As this method of fatigue testing becomes more common, it is vital for designers and owners to understand how the testing may impact their project and how to mitigate those impacts. This presentation will cover the lessons learned and best practices for fatigue testing of cables for pedestrian bridges. Issues such as laboratory coordination, cost estimating, scheduling, test set-up and test results for various cable sizes will be discussed. Cable supported bridges are elegant and iconic structures that provide an experience like no other. New fatigue cable testing will allow our industry to push the limits on design and create new pedestrian bridge experiences.

Fig. 1. Scioto River Pedestrian Bridge during Construction

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