

Structural Identification of Various Constructed Systems and the Resulting Impact on Decisions

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Abstract

For over a decade, the Drexel Intelligent Infrastructure Institute (DI3) has served numerous infrastructure owners through wide ranging applications of structural identification (St-Id). These owners include both local and distributed toll authorities as well as several state departments of transportation. Further, applications of structural identification by DI3 range from long-span (suspension, arch and truss) landmark bridges to undocumented short-span reinforced concrete slab, t-beam and arch bridges. This presentation will begin by contrasting the distinct motivations and constraints faced by various classes of owners, and how these realities impact the way in which they view St-Id results. Specifically, the influence that funding mechanisms (toll versus tax) have on how various owners view St-Id will be examined and illustrated with examples. In addition, this presentation will discuss and examine the reasoning behind St-Id applications for short- and long-span bridges as well as the internal challenges owners face for securing resources for such applications. The presentation will conclude with a series of recommendations for how to conceive and execute St-Id while remaining cognizant of the various motivations and constraints associated with different classes of owners.