

ABSTRACT

Bridge decks in Indiana face the brunt of the deterioration mechanisms associated with structural deficiencies. These deficiencies do not always present themselves in noticeable ways, however, their detection is imperative to the performance of the deck and the bridges' overall health. The inspection of these bridge decks presents engineers with not only a timely, but dangerous process as maintenance of traffic (MOT) from the states' department of transportation (DOT) is not a viable option for most inspections. This results in engineers taking an unnecessary risk to inspect these decks for deteriorations. The most detrimental of these structural deficiencies, delaminations, do not always result in a visual confirmation. Leading to more time spent in the roadway trying to sound for these defects. This paper introduces a state-of-the-art review of previous NDT studies in relation to bridge structures along with the validation of their results. Background information on all testing methods being evaluated will also be provided in this study. This paper also presents an in depth investigation using multiple consultants and a variety of NDT methods to assess the viability of delamination detection in relation to these methods. These methods were verified through coring at select locations on the deck. This paper then discusses the practical implications of these NDT methods that provide an accurate level of delamination detection on project and network level inspections.