

Abstract Submitted  
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**Impedance spectroscopy of concrete cover on bridge decks with reinforcing steel** PAUL BARTHOLOMEW, BRYAN BLANKENAGEL, SPENCER GUTHRIE, BRIAN MAZZEO — Chloride-induced corrosion of reinforcing steel is a major problem for aging bridge structures near marine environments or in cold regions where deicing salts are applied as part of winter maintenance. Corrosion is the result of the interaction of diffused chloride ions with the embedded steel. One property of affected decks that facilitates detection of chloride ions is their ability to conduct electricity. Impedance spectroscopy can be used to measure concrete conductivity and thereby identify areas of increased chloride concentration characterized by elevated risks of corrosion. A new probe and measurement apparatus has been engineered to measure large areas of concrete on bridge decks. Comparison between measurements obtained in the laboratory and in the field will be presented.

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