

EFFECTIVE APPLICATION OF 3D-GPR SYSTEM FOR VARIOUS CIVIL ENGINEERING TASKS

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As a part of Strategic Highway Research Program (SHRP2), the Florida Department of Transportation is interested in exploring the capabilities of a novel 3D-Radar system for a broad range of civil engineering tasks. A step-frequency array system was utilized as a primary inspection tool in a pilot project for a wide range of applications, such as evaluation of bridge deck conditions, detection of stripping and delaminations, delineation of subsidence zones, pavement material thickness evaluation, grouting columns monitoring, evaluation of dowel bar alignment, etc. Test sites were identified, and two rounds of data collection were performed. Collected data were used to develop post processing and data analysis procedures for effective analysis and evaluation of results. The research outcomes will be used by the Florida DOT to assess the effectiveness of the proposed equipment capabilities; explore the potential implementation of technique for routine testing; compare the 3D-Radar system performance to currently adopted NDT systems; identify areas needing improvement. The presentation encompasses a variety of performed engineering tasks, advantages of the utilized approach over using convenient testing methods, overall potential of the employed GPR system, and capabilities of proprietary software (3dr Examiner).