

DETECTION OF ROAD VOIDS IN URBAN AREA USING MULTI-FREQUENCY, TWO-DIMENSIONAL GPR ARRAY

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Unaware voids underneath operational roads pose tremendous hazards to traffic and cause huge economical lose every year globally and has been regarded as one of the most significant geological hazards in urban area. Fast and accurate detection and remediation of road voids is one of the most challenging tasks to highway authorities. Ground penetrating radar (GPR) is the known and proved best tool in geotechnical engineering with many applications. Typical applications include detections of voids in coastal dikes and levees, reservoir dam defects, and voids under transportation infrastructures. We use a system with multiple antennas to form a multi-frequency, two-dimensional GPR array to test the improvement of the capability for detecting road voids, in comparison with the results of using one pair of antennas with only one single central frequency. We will report the comparison results at the symposium.