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W. K. Rudy (DATE 12/13/78)

Contact: Jim Donovan/Sharon Sebaly
Publications and Information Office
(404) 894-3405

GEORGIA TECH USES RADAR TO DETECT
VOIDS UNDER CONCRETE HIGHWAYS

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For Immediate Release

ATLANTA, GA.....Radar research at Georgia Tech could lead to smoother roads with fewer detours. Preliminary research has indicated that radar techniques can be used to locate voids beneath concrete highways that cause the roadway to be rough and often hazardous to rapidly moving traffic. Maintenance to correct cracks, settlement, bumps, and depressions due to voids beneath the pavement is time consuming, costly and disruptive to normal traffic movement. Radar detection of these voids during periodic nondestructive surveys would permit replacement of support material before the development of pavement distress and loss of structural qualities, according to project director James Echard of Georgia Tech's Engineering Experiment Station.

Sponsored by the Georgia Department of Transportation, research demonstrated the use of a short-pulse radar to detect voids under concrete highways. This research was based on buried mine detection techniques developed at Georgia Tech during research sponsored by the U.S. Army Mobility Equipment Research and Development Command (MERADCOM) at Fort Belvoir, Virginia; the short-pulse radar, loaned to Tech by MERADCOM, was used to collect data from selected locations on an interstate highway in Georgia.

Information was collected before and after grout pumping operations. Some of the slabs on which radar measurements were made were also drilled,

or cored, to permit physical measurement of the void size. The data collected demonstrated the use of mine detection techniques for radar detection of voids. In addition, radar measurements of a simulated void indicated that void size can also be estimated.

As part of the National Cooperative Highway Research Program, further studies in this area by Georgia Tech researchers are being sponsored by the Transportation Research Board National Council. The primary objective of the program is to determine if it is practical to use radar technology to locate holes beneath reinforced and nonreinforced portland cement concrete pavements up to 18 inches thick. The goal is to define the voids beneath pavements with an accuracy of at least one-half inch in depth and six inches in horizontal dimension.