Determining Layer Thickness and Understanding Moisture Related Damage of State-Owned Roads Using GPR and Capturing Such in a GIS-Based Inventory

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Abstract

The Rhode Island Department of Transportation (RIDOT) has a significant inventory of state- owned roads of which layer thickness and moisture related damage is uncertain. Discrete methods of assessment like coring and visual inspection provide limited data and are both time-consuming and costly in terms of traffic control and personnel. The objective of this study was to evaluate the efficient use of Ground Penetrating Radar (GPR) at traffic speeds to determine layer thickness and moisture content of rural state-owned roads in the State. This is accomplished through field studies of roads with both known and unknown compositions in close collaboration between University of Rhode Island (URI), Roger Williams University (RWU) and RIDOT researchers. The results are currently being incorporated into RIDOT's GIS-based inventory of roads. The ultimate goal of this effort is to establish a system for collecting and viewing pavement layer thickness and moisture related damage on a network level; information that RIDOT can use to better plan, prioritize and properly allocate funding for pavement related projects.

Figure 1: RIDOT Survey Van With and 3, 2GHz Antennas

References

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