

State DOT: Michigan

State Report Questions on NDT Testing

1. What NDT testing methods for concrete materials, concrete pavements, and overlays are you trying?
 - a. Ground Penetrating Radar - Used for specialty sub surface investigations.
 - b. MIT Scan - We borrowed the FHWA device several time and have recently purchased one for our use. Specifications have yet to be developed.
 - c. Cover meter – Used for as-needed concrete pavement and structure investigations.
 - d. Falling-Weight Deflectometer – Used for design and research services.
 - e. RFID Maturity Meter – Used for early opening traffic strength for pavement repairs and temperature differential measurements for mass concrete placements.
 - f. Surpro Rolling Profiler – Used to calibrate the test site for all of the department and contractor’s lightweight and high speed pavement surface profilers, and other special investigations, as needed.
 - g. Thermal Imaging Camera – Used in conjunction with bridge deck delamination investigations.
 - h. LiDAR Mobile Digital Measurement Technology – This device was recently demonstrated to generate a Digital Terrain Model (DTM), calculating differences in surface profiles between the original PCC pavement, HMA interlayer, and final PCC overlaid surface in efforts to accurately determine in-place concrete volume of the unbonded concrete overlay.
 - i. Currently conducting research using high speed imaging to determine aggregate gradation and particle shape in lieu of mechanical analysis and hand-pick particle characterization.
 - j. Texture Measuring Laser – Used to quantify macro-texture of pavement surfaces.
 - k. Etal.

2. In your experience, how does the reliability of NDT testing methods compare to traditional testing methods?
 - a. The reliability depends on the nature of the NDT device.
 - b. The necessary level of reliability depends if the NDT is being used for forensics, quality control, or acceptance.
 - c. The reliability may be highly operator sensitive.
 - d. Some NDT methods require a high level of experience in order to accurately interpret the data.
 - e. Proper calibration is necessary.
 - f. Depending on the NDT method, the reliability of the test results may only be as reliable as the respective standard by which it is calibrated.
 - g. In general, many of the NDT methods may not have the history, or reliability to be used for acceptance and payment.