# State DOT:    PENNSYLVANIA

## State Report Questions on NDT Testing

1.  What NDT testing methods for concrete materials, concrete pavements, and overlays are you trying?

    PennDOT performs Falling Weight Deflectometer (FWD) testing on our pavements by request. We are currently looking into the use of Rolling Weight Deflectometer (RWD). We have also experimented with the MIT-2 Scan device to evaluate dowel bar placement. Additionally we are in the infancy of a research study into the use of ground penetrating radar (GPR) to analyze our pavements.

2.  In your experience, how does the reliability of NDT testing methods compare to traditional testing methods?

    PennDOT operates one of four regional FWD calibration sites. The center for the North Atlantic Region is located at the PennDOT BOMO Annex facility, and has been in operation since 1992. Twenty to thirty calibrations are performed at the center annually, for State and Federal agencies, as well as private vendors.

    PennDOT uses FWD testing to aid in the evaluation of structural capacity, performance, maintenance and rehabilitation strategies, analysis of pavement failure, bearing capacity surveys, management of load restrictions, fatigue tests and compaction control. On concrete pavements, deflection testing is also used to determine transverse joint load transfer efficiency and the potential for the presence of subsurface voids. PennDOT has been performing FWD tests since 1985. Our experience with FWD testing and its results have mainly been positive, which is why we are currently looking into RWD testing to gather continuous, rather than discrete, deflection data.

    MIT-2 Scan produced acceptable results, we did have some issues with interference in reinforced concrete.

    GPR is too early in the research study phase to draw any conclusions. Based on available literature, it appears promising, yet there are some drawbacks (i.e. the data can be quite complex to interpret).

    Although PennDOT has had mainly positive experience with NDT methods, we do not feel they can entirely replace the accuracy of traditional methods.