Field and laboratory tests were conducted on 10 projects during base course layer construction to evaluate the quality of the constructed base layers. Base aggregates were also collected from these sites for laboratory testing. The field testing program consisted of the in place density by the sand cone method, the dynamic cone penetration (DCP) test, the light weight deflectometer (LWD) test, and the GeoGauge test. Laboratory tests conducted are the particle size analysis, the standard compaction test (AASHTO T 99), and the repeated load triaxial test (AASHTO T 307) for determining the resilient modulus.

Analyses were conducted on field and laboratory test results. High spatial variability in field density and moisture content exists in base course layers under construction, as demonstrated by the relative compaction test results. High variability exists along the depth of base course layers, as demonstrated by the dynamic cone penetrometer test results and the estimated profile of California Bearing Ratio (CBR) along the depth of the investigated base layers. Spatial variability and non-uniformity were also demonstrated by the results of the light weight deflectometer and GeoGauge, in which the layer modulus varies within a large range of values.