



## Florida Department of Transportation Research Roadway Sampling Evaluation PR6535008

Asphalt used on Florida roads must meet very specific standards. Beginning in 1998, the Florida Department of Transportation (FDOT) moved from a system in which the department tested asphalt mixtures for use in road construction to one in which the sampling and testing was conducted by the contractor at the production facility. This system was accepted by the Federal Highway Administration (FHWA) on the condition that FDOT verify contractor methods. With recent staffing cuts and budget reductions, FDOT has considered alternative sampling programs that would provide greater staffing flexibility while assuring that a quality product is placed on Florida roadways.

One method being considered is sampling the asphalt mixture at the work site rather than the production facility. In this project, Auburn University researchers compared asphalt testing at contractor plants with roadway testing.

The researchers surveyed the practices of 50 states, the District of Columbia, and Puerto Rico. The survey included interviews with transportation engineers to determine which agencies require, or allow, field sampling for acceptance and whether those efforts have been successful. They found 22 states that sample from the truck at the plant, 22 that sample at the roadway, and 8 that allow both locations. The survey revealed many details about sampling practices. For example, the researchers found that contractors often prefer sampling from loaded trucks at the plant because it is closer to testing facilities and allows more timely results while agencies often prefer sampling from the roadway, often because they consider it safer for technicians than climbing around trucks full of hot asphalt. Some agencies had encountered contractor concerns about having to patch freshly-laid asphalt after sample removal; this can affect the smoothness of the road surface.

The project also included field work to evaluate the sampling and testing variability of samples taken at the plant compared to those taken at



*Asphalt used on roadways in Florida must meet strict specifications.*

the roadway either from the roadway mat or the paver auger. A statistical evaluation was performed to compare results from this study to the specification limits currently being used. Superpave 9.5-mm and 12.5-mm mixes were sampled on 11 dense-graded projects, and two FC-5 projects (open-graded mix) were sampled and tested.

For dense-graded mixes, individual test tolerances for air voids and specific gravity values of limestone mixes will need to be increased if roadway samples are to be used for acceptance or comparison with contractor results. The differences for percent passing the No. 200 sieve were statistically significant for auger samples, but deviations were within current tolerances. Asphalt content values for roadway mat samples trended low, but deviations were within current tolerances. Roadway samples of FC-5 mix from both the mat and auger were statistically different than the contractor and FDOT samples taken at the plant. Roadway sampling is not recommended for FC-5 mixes.

The procedures described in this project can lead to savings in costs and staff time when verifying contractor procedures for asphalt testing.

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