

State	Date Last Reviewed	Agency Website	Contact
Alabama	IS-143 – 3/2022	www.dot.state.al.us/	Engineering@asphaltpavement.org

BMD Implementation Summary Table

BMD Approach	Applicable Mixture Type	Rutting Test	Cracking Test	Performance Testing for Production Acceptance
Approach D	Superpave Mixtures	HT-IDT	IDEAL-CT	Yes, “Pass/Fail”

STATE-OF-THE-PRACTICE

The Alabama Department of Transportation (ALDOT) developed *Balanced Asphalt Mix Design for Local Roads*, a special provision for BMD in 2020. The provision allows asphalt contractors to design Superpave mixtures following the Performance Design approach, where mix design approval is primarily based on mixture performance test results with minimal requirements on maximum aggregate size and carbonate stone content for surface mixtures. The mixture performance tests used are the Hot Indirect Tensile Strength (HT-IDT) per ALDOT 458 and the Alabama Cracking Test (AL-CT) per ALDOT 459 for the evaluation of rutting resistance and cracking resistance, respectively. Both tests are conducted on specimens that have been short-term conditioned for four hours at 135°C prior to compaction. Performance test criteria for mix design approval include a minimum HT-IDT strength of 20 psi and a minimum cracking tolerance index (CT_{index}) of 55, 83, and 110 for mixtures with various equivalent single axle load (ESAL) Range designations, as shown in Table 2. During production, the contractor is responsible for conducting both performance tests on plant produced mixes every 700 tons for quality control, while the agency is responsible for conducting the tests at a frequency of one test per day per LOT for verification. The performance test results are for informational purposes only. Production acceptance is purely based on asphalt binder content and voids in total mix at N_{design} . However, if two consecutive performance test results fall below the minimum HT-IDT strength of 20 psi or the minimum CT_{index} criteria in Table 2, production will not be accepted until the performance test criteria are satisfied. ALDOT completed one BMD pilot project in 2020.

Table 2. ALDOT CT_{index} Criteria for Mix Design Approval and Production Acceptance

Design Traffic (ESALs)	Mix Design Approval	Production Acceptance
< 1 million	≥ 55	≥ 50
1 to 10 million	≥ 83	≥ 75
10 to 30 million	≥ 110	≥ 100