


<p>Name of Test Overlay Test</p>	<p>Developer(s) Lytton and co-workers (Texas A&M University) Analysis modified by researchers at the University of Texas at El Paso</p>										
<p>Test Method(s) NJDOT B-10 / Tex-248-F</p>	<p>Adoption by Agencies New Jersey, Texas</p>										
<p>Description Test specimens are cut from SGC samples or field cores. Trimmed specimens are glued on a set of two steel base plates with one plate fixed and the other moves horizontally back and forth at a specific frequency (0.1 Hz). The maximum opening displacement of 0.025 inch is controlled during the test. The test is stopped when a 93% reduction of the maximum load occurs or after 1,000 cycles.</p>	<p>Photographs/Illustrations</p> 										
<p>Test Results Number of cycles to failure (NJ) Critical Fracture Energy (G_c) (TX) Crack Resistance Index (Beta) (TX)</p>	<p>Test Temperature(s) 25 ± 0.5°C</p>										
<p>Equipment & Cost</p> <table border="0"> <tr> <td>Texas overlay tester</td> <td>\$45,000</td> </tr> <tr> <td>or Asphalt Mixture Performance Tester</td> <td>\$100,000</td> </tr> <tr> <td>Platens and Jigs</td> <td>\$10,000</td> </tr> <tr> <td>Environmental chamber</td> <td>\$4,000</td> </tr> <tr> <td>Saw for cutting specimens</td> <td>\$6,000</td> </tr> </table>		Texas overlay tester	\$45,000	or Asphalt Mixture Performance Tester	\$100,000	Platens and Jigs	\$10,000	Environmental chamber	\$4,000	Saw for cutting specimens	\$6,000
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<p>Specimen Fabrication Gyratory specimens, 4 cuts, gluing to plates (4 hrs.)</p>	<p>Number of Replicate Specimens 3 specimens</p>										
<p>Specimen Conditioning Conditioning for a minimum of 1 hour at 25°C</p>	<p>Testing Time Up to 3 hrs. per specimen depending on mix</p>										
<p>Data Analysis Complexity Simple (by software)</p>	<p>Test Variability Cycles to Failure: High (30-50% COV) Critical Fracture Energy: Medium (10-25% COV) Crack Resistance Index: Medium (10-25% COV)</p>										
<p>Field Validations Good (pavement sections in Texas, New Jersey, Nevada, FHWA-ALF and NCAT test track)</p>	<p>Overall Practicality for Mix Design and QA Good for mix design Poor for QA</p>										
<p>Key References</p> <ul style="list-style-type: none"> Zhou, F., and T. Scullion (2005). Overlay Tester: A Rapid Performance Related Crack Resistance Test, No. FHWA/TX-05/0-4467-2, Texas Transportation Institute, Texas A&M University System. Zhou, F., S. Hu, H. Chen, and T. Scullion (2007). Overlay Tester: Simple Performance Test for Fatigue Cracking, Transportation Research Record Vol. 2001, pp.1-8. Walubita, L., A. Faruk, G. Das, H. Tanvir, J. Zhang, and T. Scullion (2012). The Overlay Tester: A Sensitivity Study to Improve Repeatability and Minimize Variability in the Test Results, No. FHWA/TX-12/0-6607-1, Texas Transportation Institute, Texas A&M University System. Garcia, V. M., Miramontes, A., Garibay, J., Abdallah, I., Carrasco, G., Lee, R., & Nazarian, S. (2017). Alternative Methodology for Assessing Cracking Resistance of Hot Mix Asphalt Mixtures with Overlay Tester. Journal of the Association of Asphalt Paving Technologists, 527-548. 											