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12. Performing Organization Name and Address NDDOT M+R <input type="checkbox"/> NDDOT OTHER* <input type="checkbox"/> NDSU <input type="checkbox"/> UND <input checked="" type="checkbox"/> UGPTI <input type="checkbox"/> OTHER* <input type="checkbox"/> *See supplementary notes		13. Sponsoring Agency Name and Address North Dakota DOT Materials and Research Division 300 Airport Road Bismarck ND 58504-6005	
14. Supplementary Notes			
15. Abstract Objective The main objectives of this research study are the following: <ul style="list-style-type: none"> Investigate the effect of reduced number of design gyrations (75, 65, 55, or 50) on the HMA performance of various pavement classes (high, intermediate, and low) in terms of rutting, low-temperature cracking (LTC), and fatigue cracking (FC) resistances. Develop an appropriate number of gyrations (N_{design}) that will produce balanced mix designs that will be recommended for various pavement classes based on their tested performances. Scope Blended aggregates that were used for the lab mixes were collected from North Dakota Department of Transportation. A total of four projects were selected for this research. Rutting, fatigue cracking and low-temperature cracking tests were done using Asphalt Pavement Analyzer (APA) Test, Semi-Circular Bending (SCB) Test, and Disc-Shaped Compact Tension (DCT) Test, respectively to develop the reduced N_{design} gyrations for the proposed project. Summary The mixtures were ran at the traditional 75 gyrations along with 65, 55, and 50 gyration variables. Mixtures were evaluated for rutting and cracking performance. Based on the results it was found there is potential to lower the gyration levels of the mix design without compromising rutting and cracking performance.			
16. Key Words Hot mix asphalt, pavement, mix design, performance testing	17. Distribution Statement No restrictions. This document is available to the public from: North Dakota Department of Transportation Materials and Research Division: 300 Airport Road Bismarck ND 58504-6005		18. No. of Pages 56 19. File type/Size PDF/2.5 MB