

MnROAD Hot Mix Asphalt Observations

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ABSTRACT

The Minnesota Department of Transportation (Mn/DOT) constructed the Minnesota Road Research Project (MnROAD) between 1990 and 1994. The MnROAD site is located 40 miles northwest of Minneapolis/St. Paul and is an extensive pavement research facility consisting of two separate roadway segments containing 50 500-foot-long test cells. The 3.5-mile mainline test roadway, containing 31 test cells, is part of westbound interstate 94 and carries an average of 24,000 vehicles daily (14% trucks). Parallel and adjacent to the mainline is a low-volume roadway that is a 2.5-mile closed loop containing the remaining 19 test cells. LVR traffic is restricted to a MnROAD-operated 18-wheel, 5-axle tractor/trailer with two different loading configurations of 102 kips and 80 kips. Subgrade, aggregate base, and surface materials, as well as geometric design methods, vary from cell to cell. Daily information is gathered via a computerized data collection system that monitors over 4,500 mechanical and environmental sensors. All data collected is entered into the MnROAD database available to Mn/DOT and other researchers free of charge. More information can be obtained from the MnROAD web page: <http://mnroad.dot.state.mn.us/research/mnresearch.asp>.

This presentation will review the performance of MnROAD's 14 original hot mix asphalt (HMA) test cells over the first 10 years of traffic. The presentation will concentrate on rutting, cracking (top-down and transverse), and resulting ride impacts relating to the designs developed for this initial experiment. The mainline HMA test cell design variables include binder PG grade, design method (number of blows, gyratory), HMA and base thickness, and drainage.

Note: Contact the presenter above for more information on this topic.

Key words: hot mix asphalt test cells—MnROAD—pavement research facility