MnROAD Portland Cement Concrete Lessons Learned

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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.

The portland cement concrete (PCC) test cells at the MnROAD project have now been subject to over 10 years of traffic and environmental exposure. Despite the overall good appearance of the PCC test cells, much knowledge has been gained. This presentation will describe some of the lessons learned and give ideas about what may be studied in the future. Highlights of the presentation include the following:

- A review of the variables incorporated into the MnROAD concrete test cells
- The current surface conditions of the PCC test cells
- A review of the initial research objectives for the MnROAD PCC test cells
- A summary of significant MnROAD PCC research studies completed over the past 10 years (and how they related to the initial research objectives)
- A description of the newer PCC cells at MnROAD
- Lessons learned over the past 10 years of PCC research at MnROAD
- Future PCC test cells

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

Key words: MnROAD—pavement research facility—PCC test cells

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