

Policy Number MR 23-02

POLICY FOR LONGITUDINAL JOINTS - LIMIT CONCRETE PANEL WIDTH

Nebraska Department of Transportation

Pavement Design – Policy Letter

Policy Number: MR 23-02

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Pavement Design Manual Chapter affected by this policy Letter: Section 6.4 Joints

POLICY FOR LONGITUDINAL JOINTS - LIMIT CONCRETE PANEL WIDTH

Background

Portland Cement Concrete (PCC) panel widths wider than 12' have many applications. NDOT has successfully built panels that are up to 16' wide. 16' widths have been very successful on I80 where the inside surfaced shoulder and passing lanes are built without a longitudinal joint between the passing lane and inside shoulder. 28' wide concrete roadways have also been successful across the state.

The risk of building a concrete panel too wide is that the wider the panel, the greater the risk for longitudinal cracking. 14' and 15' wide panels have been successful in reducing the stress that occurs at the outside edge by shifting the loading location away from the edge. However, as the thickness of PCC pavement decreases the risk of longitudinal cracking increases. Though we have built many 9" Concrete Pavements that are 15' wide without longitudinal cracking, there have been cases when the subgrade conditions are variable resulting in longitudinal cracks.

Purpose

The purpose of this policy is to establish a guideline for determining longitudinal joint spacing in portland cement concrete for mainline paving.

Policy

The Nebraska Department of Transportation (NDOT) has determined that PCC pavement that is wider than 12' shall be designed with the following guidelines:

- 28' wide roadways¹ with 14' wide panels will not have a longitudinal joint regardless of thickness.
- Outside lanes as part of an expressway or interstate will have a longitudinal joint between the 12' wide driving lane and outside shoulder regardless of thickness.
- Inside lanes as part of the interstate system will not have a longitudinal joint between the inside lane and the inside shoulder when the inside shoulder width is 4' or less.
- Inside lanes as part of an expressway system that have a 10" thickness or less will have a longitudinal joint between the inside lane and the inside shoulder.
- Lane width dimensions to the back of curb greater than 14' will have a longitudinal joint at the width of 12'.
- Roundabout transverse and longitudinal joint widths will not exceed 14'.

¹ 28' wide roadways are typically rural routes with moderate traffic volumes but volumes are not high enough for a full width shoulder or the crash history provides justification for additional width. 28' wide roadways typically have pavement thickness of 8" or 9". Additional thickness guidance is available in the PCC thickness policy guidance.