

Durable Pavement Marking and Grooving

tech transfer summary

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RESEARCH PROJECT TITLE

Durable Pavement Marking and Grooving

SPONSORS

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An evaluation of other state department of transportation (DOT) durable pavement marking programs is aiding the Iowa DOT's Pavement Marking Task Force in making decisions about how to move forward with its own durable pavement marking program.

Objective

The objective of this project was to support the Iowa Department of Transportation (DOT) Pavement Marking Task Force (PMT) in achieving better pavement markings statewide.

Problem Statement

Maintaining effective pavement markings year-round is a challenge in Iowa given a limited painting season and harsh winter exposure from snow plow blades, sand, and salt brine.

Project Description

While the initial scope of this project was to evaluate different durable markings and pavement grooving configurations in an effort to make better choices for year-round markings, limited funding, difficulty in finding a contractor for a small test site, and adverse weather conditions caused the project to be revised to omit the field evaluation.

Instead, the project focused on supporting PMT decision making in light of challenging financial conditions, and particularly supporting efforts to determine paint truck and material choices by looking at peer states, and also by looking at contracting options for installation on the state system.

The research team sought to help the PMT understand the pavement marking practices in other states. That meant looking at the practices at DOTs in Illinois, Kansas, Minnesota, and Wisconsin, as well as preliminary details of practices in California, Colorado, Indiana, Oklahoma, Oregon, and Texas.



Rear view of pavement marking operation on interstate highway in Iowa

The research focused most heavily on the practices at the Minnesota DOT (MnDOT), due to the state's similar harsh winter conditions and shorter annual painting season. The team prepared questions in advance and worked to organize a conference call with MnDOT staff, PMT members, and all of the Iowa DOT maintenance managers.

The team evaluated Minnesota's statewide pavement marking equipment, its contracting practices, materials use and performance, equipment procurement and life, traffic control, paint operations and costs, painting of rumble stripes, and issues associated with Minnesota's practices.

Similar evaluations were conducted in the other states.

Key Findings

- Based on the evaluations from other states, the Iowa DOT has an interest in considering its options toward more durable markings, particularly on higher volume multi-lane roadways.
- The team understood that a statewide approach is desirable but that a durable program would need to be phased in given an initial projection for all interstates that totaled over \$12 million.
- The costs would vary considerably based on quantities and actual bid prices.

Implementation Readiness and Benefits

The Iowa DOT has begun to assess locations, pavement marking line types to stripe, materials options, retroreflectivity levels, and installation methods. The identification and use of more durable pavement markings may be the key toward improving visibility, operations, and most importantly, safety.

A demonstration project will be established on I-35 in one direction only, roughly just north of Ames to just north of US 20.

If the demonstration is deemed a success, the Iowa DOT can establish a long-term contractor applied durable marking program. This would allow Iowa DOT paint crews to provide a much higher level of pavement marking guidance on the rest of the roadway network.

The program could also minimize disruptions to travel on the interstates by requiring much less frequency of painting, which would benefit both mobility and safety.

A draft specification was also developed for consideration by the PMT for the purchasing specification for contractors.