

# JOINT TRANSPORTATION RESEARCH PROGRAM

**Principal Investigator:** Dwayne Harris, Indiana Department of Transportation, [dwharris@indot.in.gov](mailto:dwharris@indot.in.gov), 765.463.1521, ext. 246

**Program Office:** [jtrp@purdue.edu](mailto:jtrp@purdue.edu), 765.494.6508, [www.purdue.edu/jtrp](http://www.purdue.edu/jtrp)

**Sponsor:** Indiana Department of Transportation, 765.463.1521

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## Extending the Life of Paint and Reflective Markers by Using Partial Rubber Plow Blades

### Introduction

Winter roadway maintenance in Indiana typically involves the removal of snow and ice from the roadway with metal plow blades. The interaction of the wearable metal portion of the plow and the roadway causes damage to raised pavement markers (RPMs) and painted line markings. Partial rubber snow plow blades (PRPBs) are currently available as an alternative to full metal blades.

INDOT maintenance would like to evaluate the effectiveness of PRPBs.

The hypothesis of this study is that the PRPB will cause less damage to the pavement markings and the raised pavement markers, but provide somewhat less effective snow removal than the steel carbide blade. The purpose of this project was to conduct a limited study to evaluate the decrease in damage to the RPMs and pavement markings, and rate the snow removal performance of the PRPB versus the traditional steel carbide blade.

### Findings

Overall, there was no solid evidence supporting the premise that the PRPB equipped with rubber wingtips removes less RPMs than a traditional plow with all steel cutting edges. Consequently, the results of the study do not support the hypothesis that plowing roads with PRPBs is significantly less damaging to RMPS than plowing roads with plows equipped with only steel cutting edges.

The analysis of the retroreflectivity data was inconclusive in supporting the premise that plowing roads with the traditional steel blade damages the paint striping more than plowing with a PRPB. There were instances

where the changes (after snow—before snow) in population means, medians, variances, and interquartile ranges suggested that there was more damage caused by the steel blade; however, this was inconsistent.

Overall, the PRPB did not perform nearly as well as the steel blade, based on the opinions of INDOT plow operators. The results of the survey conducted as part of this study showed that the performance of the PRPB was significantly to severely diminished when compared with the performance of a steel blade. Furthermore, many of the operators stated that the PRPB does not cut through the snow down to the pavement. There were also issues with slush coming over the plow, interfering with plow operation and driver vision. Utilizing the PRPB also introduced increased motion in the plow, which decreased the overall effectiveness of the plow, especially at Interstate plowing velocities.

### Implementation

The sample size was too small, and length evaluation was too short to provide a solid evaluation of the decrease in damage to RMPS or pavement striping by utilization of PRPBs. A solid evaluation would require many more testing sections with a much longer evaluation period. The possibility of extending this study, including studying a larger sample size for a longer period of time, was introduced at an SAC meeting. However, the SAC declined further study based on the lack of performance of the PRPB, and the increase plow motion introduced by the PRPB, especially at Interstate plowing velocities.

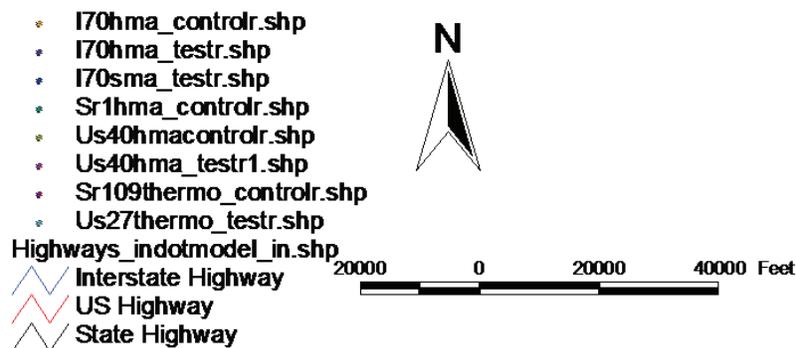
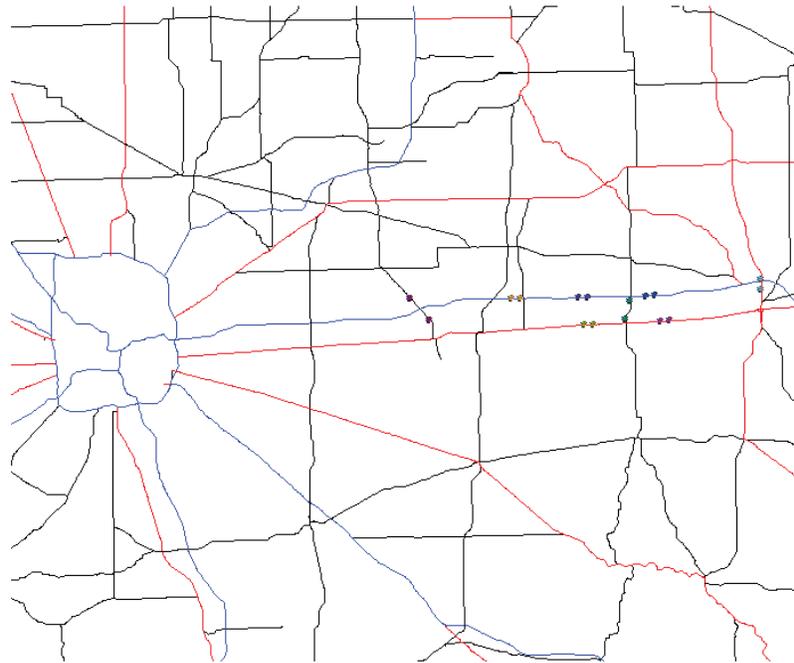
The consensus of the SAC members was that PRPB could be utilized on routes plowed at speeds less than 20 mph, but not on Interstate routes.

## Recommended Citation for Report

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*Location of the paint retroreflectivity tests; data collected between points.*



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