

Flame Hardened Snow Plow Blades

Final Report

For

RB13-012

April 2013

Sponsored by:

Iowa Department of Transportation

And

The Federal Highway Administration

SP & R Project # RB13-012

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1. Report No. RB13-012		2. Government Accession No. Optional		3. Recipient Catalog No. Optional	
4 Title and Subtitle Flame Hardened Underbody Plow Blades				5 Report Date April 15, 2013	
				6 Performing Organization Code Optional	
7. Author(s) Jennifer Rehbein				8 Performing Organization Report No. Optional	
9 Performing Organization Name and Address Iowa Department of Transportation Office of Maintenance 800 Lincoln Way Ames, Iowa 5001				10 Work Unit No. (TRAIS) Not Required	
				11 Contract or Grant No. Optional	
12 Sponsoring Organization Name and Address Iowa Department of Transportation 800 Lincoln Way Ames, Iowa 50010 Federal Highway Administration				13 Type of Report and Period Covered Final Report	
				14 Sponsoring Agency Code RB13-012	
15 Supplementary Notes Optional					
16 Abstract Underbody plows and High Speed Ice Blades are an integral part of clearing Iowa roads of snow and ice during winter operations. Changing these blades requires crews to suspend plowing operations and return to the garage decreasing time spent clearing roads and increasing workplace hazards. A blade with a longer lifespan is desired. The Department is determining if using plow blades that have been flame hardened increase longevity of use over the Departments current underbody plow blades that are oven baked. This would reduce downtime and employee exposure to workplace hazards and increase productivity per dollar spent.					
17 Key Words Flame hardened Through hardened Mileage Lifespan			18 Distribution Statement No restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161		
19 Security Classification (of this report) Unclassified		20 Security Classification (of this page) Unclassified		21 No. of pages 4	22 Price N/A

SPR Equipment Purchase Final Report Flame Hardened Underbody Plow Blades

Objective

To determine if using plow blades that have been flame hardened increase longevity of use over the Departments current underbody plow blades that are oven baked. This would reduce downtime, reduce employee exposure to workplace hazards and increase productivity per dollar spent.

Process

Ten eight foot flame hardened blades were purchased at a cost of \$170 each. Each through hardened blade costs \$94.13 at the DOT warehouse. Ten flame-hardened eight foot test blades and ten through-hardened eight foot control blades were distributed to Ames, Fort Dodge, Elkader, West Union, Storm Lake, De Soto, Sidney, Muscatine, Dubuque, and Manchester. These blades were field tested during the 2012-2013 winter season.



Findings

The average mileage obtained from the flame hardened blades was 335 miles, while the average mileage from the through hardened blades was 273 miles. However the cost of the flame hardened blade is nearly double that of the current stock blade, the cost per mile of the flame hardened blade is \$0.51/mile while the through hardened blade costs \$0.34/mile.

Seventy-five percent of the flame hardened blades were found to have vertically broken into two or more pieces causing one garage to remove the blade with usable life remaining due to safety concerns. The testing garages indicated that this is not typical with our current blades.

Of the garages that reported the type of road surface the blades were used on, an equal amount reported plowing on Portland cement and Asphaltic concrete, with the remaining reporting they plowed on Portland cement that has been resurfaced with Asphaltic Cement concrete. Cracked or broken flame-hardened blades were reported on all three surfaces.

It is not recommended that the DOT pursue the purchase of these blades at this time due to the increased cost without seeing significantly increased lifespan and the safety concerns associated with broken blades.

