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MaineDOT

Transportation Research Division

Technical Brief (09 – 4)

Evaluation of the Viking - Cives Tow Plow

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Introduction

In early February, 2009, the Maine Department of Transportation (MaineDOT) entered into an agreement with Viking-Cives USA to evaluate the Viking-Cives Tow Plow. MaineDOT agreed to evaluate the Tow Plow for the remainder of the 2008-2009 winter season and in turn provide information and feedback to Viking-Cives relative to the Department's experience with the Tow Plow.

Fleet Services, Bureau of Maintenance and Operations retrofitted a 2009 Volvo Wheeler to accommodate the towing of the plow. Changes to the truck were relatively minimal and included installation of a 45 ton pintel hook and the installation of hydraulic hoses from the trucks wing tower to the tongue of the Tow Plow trailer. Hydraulic fluid from the wing up/down function operated the lifting and lowering motion of the tow plow and fluid from the D/A slide operated the two steering axles of the trailer. These axles articulate to a maximum of 30 degrees (see Photos 1 and 2). The standard wing is not needed when using the Tow Plow. The 8 yard hopper mounted on the tow trailer was operated by utilizing the trucks existing spreader controls.

The retrofit of the truck took about 2 days to complete at a cost of approximately $1,000 including materials.

Photo 1: Tandem Plowing – I-395, Brewer

Photo 2: Fully Articulated Into Plowing Position

Results

The Tow Plow was put in service on February 19th, 2009, and was used for approximately 5 storm events in late February and early March. The plow was used primarily on State Route #9 from Baileyville to

Brewer and focused on clearing the truck lanes along this route. The plow was also used briefly during two events on I-95 and I-395 in Bangor and Brewer. It was used as part of a tandem plowing application in both the passing and travel lanes (see Photo 1, above).

When the 26 foot Tow Plow blade is used in combination with MaineDOT's conventional 13 foot front plow, the resulting clearing path is approximately 25 feet, or two lane widths.

For the first storm event, Viking-Cives provided a driver trainer to ride with the Department's operator and train him on the proper use of the unit. After some initial trepidation, the driver quickly became comfortable with operating the Tow Plow.

Steep hills along the Route #9 corridor, and if the truck could pull the fully deployed plow up over those hills, were a concern to several DOT personnel. With very little exception, this was not an issue. The operator indicated that on the rare occasion he did have an issue, he simply "pulled the plow in a foot or two, regained his momentum and continued to the crest of the hill".

The truck used for the evaluation produced a maximum of 375 horsepower. The operator indicated that an additional 50 to100 horsepower would have allowed him to keep the plow fully deployed and easily crest any of the hills along this route.

Conclusions/Recommendations

Overall, the Viking-Cives Tow Plow performed very well during the abbreviated evaluation period. The initial skepticism surrounding the Tow Plow was quickly eliminated after the first storm event. Tony Ramsdell, MaineDOT's operator was extremely enthusiastic and embraced the opportunity to successfully operate the equipment in challenging conditions.

Several of the DOT staff associated with the evaluation commented that the Tow Plow appeared to clean the road better than the front plow attached to the truck. Many agreed the Tow Plow could potentially "free-up" or replace a truck and enable the Department to improve its level of service.

Applications on both the interstate and Route #9 were considered successes. Whereas MaineDOT's interstate system is almost exclusively a travel and passing lane in each direction, the need for tandem plowing is perhaps not as critical as some multi-lane systems in larger metropolitan areas. Nonetheless, Department personnel agreed the Tow Plow has the potential of being a valuable addition to its snow fighting fleet.

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