

LRRB
Local Operational Research Assistance Program (OPERA) for
Local Transportation Groups
Field Report

This report must include the underlined subject areas and supporting resources (i.e. photos, graphs, charts, etc.). The OPERA program will use this information in an annual report that will be shared with other local agencies within the state. We request that a short 5-10 minute demo or presentation be shared at the Spring Maintenance Training Expo.

Date: June 2010

Project Title: Evaluation of Grader Front Mounted Retriever Hitch

Project Number: 2009-06

Agency: Sibley County Public Works

Person Completing Report: Darin Mielke

Project Leader: Darin Mielke

Phone Number: 507-237-4092

Problem: We wanted to see if a front mounted retriever hitch would have better visibility for the grader operator during reclaiming operations on our gravel road edges.

For maintenance of gravel shoulders on paved bituminous highways, we currently use two motor graders, one with a retriever and the other to blade the gravel off of the paved bituminous surface back onto the gravel shoulder. Due to budget and personnel constraints, we were evaluating if the same motor grader could do the reclaiming and blading operation in a single pass, and thus eliminating the need for the second motor grader.

Solution: We purchased a front mount retriever hitch for a CAT 140H Motor Grader from TOPPS Manufacturing (Platte, SD) and mounted it our motor grader and equipped it with a gravel retriever that we already owned.

Procedure: We chose one of our experienced motor grader operators who frequently does gravel retrieval operations with our wing mount position gravel retriever. We had the operator try the front mount retriever on several gravel county roads and to give us his observations/comments on the process. We also had the operator try several bituminous county roads with gravel shoulders with a road broom and rubber tired roller following behind him to clean off the edge of the roadway and to compact the loose material. The operator used the front mount retriever to bring loose material towards the bituminous roadway surface to fill in drop off areas. On the same pass, the operator positioned the moldboard to direct any material on the bituminous surface back onto the gravel shoulder while also striking off the gravel shoulder to a uniform cross section.

Results: During gravel road retrieval operations, the operator commented that the visibility is better as compared to the wing mount position that we have always used. Another observation was that the front tire blocked a majority of the reclaimed material from being thrown too far onto the roadway gravel surface. However, this was not an

ideal situation if the operator was trying to spread a large amount of material over a larger area on the gravel roadway, but the operator can use the moldboard to spread the loose material on the same pass. By having the front mount position, the operator was able to use the moldboard to level off the loose material (including sod clumps) to keep the motor grader from bouncing and he was able to hold a uniform reclaiming pattern. With a wing mount, the operator can't level off the loose material (and clumps of sod) before he drives over it.

On the paved roadways with gravel shoulders, the front mount retriever again had better visibility for the operator as compared to the typical wing mount position. The operator positioned the motor grader so that the front tire was relatively close to the edge of the pavement surface (approx. 1 foot), since the front tire blocked a majority of the reclaimed material from being thrown onto the bituminous surface. On the same pass, the operator was able to direct any loose material on the bituminous surface back onto the gravel shoulder and was able to strike off the gravel shoulder, but only to the same cross slope as the bituminous driving lane. If the gravel shoulder drop off is more than 3 inches, the operator may have to repeat the same operation, since the rubber tired roller would compact the material and a small depression would still be adjacent to the bituminous surface.

Implementation: We plan to continue using the front mount on this motor grader and we will evaluate if we should purchase an additional front mount for another motor grader.

Status: We completed the evaluation of the front mounted retriever hitch over a one month timeframe.

Total Duration of Project: 1 month

Project End Date: June 30, 2010

Approximate Cost of Entire Project: \$9,233.55 (includes sales tax)

Total OPERA Funds used for project: \$5,000.00

Send and Email a completed report with pictures to: Mindy Carlson, CTS - 200 TSB, 511 Washington Ave. SE, Mpls. MN 55455, email carlson@umn.edu. For questions about this report please contact Mindy Carlson at 612-625-1813.