



## Evaluation of Grader Front-Mounted Retriever Hitch

**Project Title** Evaluation of Grader Front-Mounted Retriever Hitch

**Project Number** 2009-06

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**Problem** The gravel from gravel roads or shoulders is often pushed out and down the slopes of Sibley County roads, causing rough conditions and pavement edge drop-offs. For gravel shoulders on paved bituminous highways, two motor graders were used in reclaiming operations, one with a retriever and the other to blade the gravel back onto the shoulder. This process was expensive in terms of budget and personnel, as it required two graders and operators.

**Solution** A front-mounted retriever hitch for a Caterpillar 140H Motor Grader was purchased and mounted, allowing the same motor grader to do the reclaiming and blading operation in a single pass.

**Procedure** The front-mounted retriever was used on gravel roads and bituminous roads with gravel shoulders to bring loose material toward the road surface to fill drop-off areas. On the same pass, the moldboard was positioned to spread out any loose material on gravel roads or direct any material on bituminous road surfaces back to the gravel shoulders. On bituminous roads, a road broom and a rubber-tired roller followed behind the grader to clean off the roadway edge and compact the loose material.

**Results** The front-mounted retriever offered better visibility on both road types than the wing-mount position gravel retriever previously used. The front tire also blocked most of the reclaimed material from being thrown too far onto the roadway surface. On paved roads with gravel shoulders this was beneficial, but it was not ideal if the operator was trying to spread a material over a large area on a gravel roadway.

The operator was able to direct loose material back onto the shoulder of paved roads and strike off the gravel shoulder, but only to the same cross slope as the bituminous driving lane. If the shoulder drop-off was more than three inches, an additional pass may have been necessary since the rubber-tired roller compacted the material and left a small depression.

**Approximate Cost** \$9,234 (\$5,000 approved for project)

**Implementation** The front-mounted retriever hitch remains in use on the motor grader, and evaluations were planned to determine if a second unit would be purchased.

**Status** Complete

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