



## Ultra Guard Cart Test

**Project Title** Ultra Guard Cart Test

**Project Number** 2009-10

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**Problem** Agencies frequently look to provide better delineation to guardrails, jersey barriers, and concrete bridges. Standard forms of delineation need regular maintenance and replacement and provide only partial delineation.

**Solution** Washington County used an Ultra Guard Cart to delineate horizontal curves at locations that had experienced automotive collisions with roadway barriers. The cart is a handheld device that can paint a 6-inch retro-reflective stripe on vertical surfaces. The added reflectivity provided by the delineation can assist drivers through the curves and help prevent crashes.

**Procedure** The Ultra Guard Cart was attached to Washington County's pavement message unit, which had the paint, beads, and compressed air needed to operate the cart. Guardrails on several types of curves were painted—including locations with different speeds, approach angles, and ambient lighting—to determine where the type of delineation offered by the cart would work best. Two people were required to operate the cart, with one person positioning it on the guardrail and walking forward while triggering the paint and bead gun. Paint thickness was controlled by the walking speed of the operator. A second person was needed to move the paint equipment.

**Results** The cart was easy to use and adjust for different types of barriers, but it worked best on guardrails in good condition. Paint stripes applied by the cart were continuous, and they have shown less vulnerability to snow plow damage than traditional road paint. However, the cart had difficulty traveling evenly on barriers with bends or other defects, leading to uneven paint lines and a slower application process. Paint applied to guardrails using the Ultra Guard Cart did not reflect as brightly as other delineators, and stripes applied to locations with gradual curves were found to be less noticeable than locations with sharper turns.

**Approximate Cost** \$8,216 (\$5,000 approved for project)

**Implementation** Painting was completed in August 2010, and no crashes have occurred at any of the Ultra Guard Cart paint sites. Evaluation of the stripes' susceptibility to snow plow damage and cold weather will continue until the spring of 2011.

**Status** Complete

**Prepared by:**

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