

Ultra Guard Cart Test

Washington County Public Work

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December 9, 2010
Project #2009-10

Washington County Traffic Operations staff applied for and was awarded a grant from the Local Operational Research Assistance Program (OPERA) in the amount of \$5,000 for the purchase of an Ultra Guard cart. The Ultra Guard cart is a hand held device that can paint a 6" retro-reflective line on vertical surfaces.

Problem:

Agencies are frequently looking to provide better delineation to guard rails, jersey barriers and concrete bridges. Standard forms of delineation need regular maintenance and replacement and provide only partial delineation.

Solution:

One solution to provide more durable and continuous delineation to guard rails, jersey barriers and concrete bridges is to use the Ultra Guard Cart to delineate horizontal curves. The added reflectivity can assist drivers through curves and help prevent automotive collisions with barriers.



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Procedure:

The first decision that needed to be made was where to use the ultra guard cart. By testing this product in locations with different speeds, different approach angles, and possibly with different ambient lighting, we could see where this type of delineation will work best. Once the test locations had been determined, we determined what staff and equipment would be required for traffic control, guard rail preparation and operation of the Ultra Guard cart. A minimum of two people are required to use the Ultra Guard cart. One person needs to position the cart on the railing and walk slowly forward while triggering the paint and bead gun. The thickness of paint is controlled by the walking speed of the operator. A second person is needed to move the paint equipment, whether it is a walk-behind or truck mounted unit. More personnel may be necessary depending on the location and the traffic control required. The application was then evaluated on ease of application, number of staff required, and durability.

Implementation:

After receiving the Ultra Guard Cart our mechanic spent 3 hours hooking it up to our pavement message unit. It was a reasonably simple job because we have an EZ-Liner AL 110 palletized message unit, which has the



paint, beads and compressed air needed to operate the Ultra Guard cart unit. Only

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minor modification was needed to make the unit attach and remove easily to make the message unit usable again.

Guardrails on several different types of curves were painted as part of the evaluation. We painted guard rail in an area where the curve is very gradual and also painted guard rail in several areas where the road makes a much more severe turn. The Ultra Guard cart works best on guard rail that is in good condition. If the guard rail has any bends or other defects, the guard rail cart does not travel evenly along it. This leaves an uneven paint line on your barrier, slows the process and makes the final product look less than desirable. To prepare the guard rail for painting, we removed existing delineators and wiped off any debris in the area to be painted. If the guard rail is extremely dirty it may need to be pressure washed.

Once the Ultra Guard cart is adjusted to the type of barrier being painted, the operator triggers the paint and beads and begins to walk. Our experience was that if the guard rail is in good condition the operation went very smoothly.

Results:

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The Ultra Guard Cart unit is easy to use. Once the Ultra Guard cart is hooked up, it is

simple to adjust for different types of barriers. We painted our guard rail with white Diamond Vogel latex paint using AASTO Type 1 MR 80% MIN beads. We have done numerous night surveys at each of the locations. What we have noticed is the stripes applied to locations



with gradual curves are not as noticeable as the locations with the more severe turns.

The paint applied to the guard rail using the Ultra Guard cart does not reflect as brightly as the delineators; however the Ultra Guard line is continuous and is not as vulnerable to snow plow damage like the road paint.



Status:

We painted locations that had been identified for the purpose of this test. Several of the locations have been struck before, but we are not sure if it was due to excessive speed, poor lighting, or bad weather. We have not had any of these guard rails struck since they have

been painted. We will continue to monitor the guard rails and if they are struck, determine what the cause of the crash was. So far the paint is holding up well and has

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not flaked or peeled.

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Total Duration of Project:

Application Period: One Week

Review Period: Ongoing

Project End Date:

We completed the painting in August and have done night surveys through the following months. We will continue to evaluate how the paint holds up to snow plows and the cold weather through this winter.



Approximate Cost of Entire Project:

Cost of Ultra Guard Cart: \$5,866.37

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Mechanics Labor: \$140.00

Additional Parts: \$100.00

Pant and Beads: \$100.00

Additional Equipment Costs: \$900.00

Labor Cost: \$1,110

Total Estimated Cost: \$8,216.37

Total OPERA Funds used for project:

\$5000.00