

CONSTRUCTION INSPECTION REPORT

FHWA Form 1446A

DIVISION Washington	REPORT NO. 1	DATE OF INSPECTION 5/24/07	DATE OF REPORT 5/30/07	PROJECT NO. (Federal-Aid and WSDOT Contract No.) #7030	
INSPECTION MADE BY Cathy Nicholas, Construction & Materials Engineer		QUALITY OF WORK <input type="checkbox"/> Unsatisfactory <input checked="" type="checkbox"/> Satisfactory	PROGRESS OF WORK <input type="checkbox"/> Unsatisfactory <input checked="" type="checkbox"/> Satisfactory	TIME ELAPSED N/A	WORK COMPLETED N/A
IN COMPANY WITH Mike Coleman, WSDOT Chief Inspector; Dale Daniels, Inspector; Frank Newboles, WSDOT Work Zone Safety Engineer; Marty Weed, WSDOT Work Zone Safety Engineer; and Larry Nathan, 3M Company					
(Check appropriate box) <input checked="" type="checkbox"/> Process Review/Product Evaluation <input type="checkbox"/> Inspection-In-Depth <input type="checkbox"/> Project <input type="checkbox"/> Final					

SR 202: SR 520 to Sahalee Way Widening 3M Temporary Tape Field Performance Review

Project Background

This project widens SR 502 to four lanes. It is a multi-staged project and a multi-year project. There are several traffic switches that take place throughout the life of the contract, as the traffic moves back and forth between the old and new alignment. The contract provided for traffic paint to be the temporary pavement marking. To provide WSDOT more experience with removable tape, 3M donated 1000 linear feet of removable tape to WSDOT in the Fall of 2006. (As part of an earlier FHWA/WSDOT review, temporary removable striping has been proposed to alleviate some of the ghost striping that accompanies removing paint markings.) Additionally, it is believed that temporary removable striping can provide a more satisfactory marking over time, up to about one year.

3M Product

The 3M product, 3M™ Stamark™ Wet Reflective Removable Pavement Marking Tape Series 780, was both white and yellow stripe. The 780 tape is a removable wet reflective tape. 3M also makes a permanent wet reflective tape, the 380WR series that has been installed on Snoqualmie Pass. The tape has a series of waffles on the surface that serve to reflect the light back to the driver; it is made to be used in wet weather. The tape is 4 inches wide and was applied on this project in several locations. 3M donated this product to the project office and it was installed by WSDOT inspectors, not the striping subcontractor.



Photo 1. Waffle-like pattern of the 3M removable tape.

Application

The tape was installed at a three-way intersection, SR 202/192nd intersection, on a slight downgrade on this project. A stop bar, 13 feet wide, consisting of four 4" pieces laid side by side was placed for the downhill traveling traffic. Also, approximately 200 feet of yellow tape was placed adjacent to this to act as a gore. See Photos 2 and 3. Further east on the project, at the Sahalee Way NE intersection, another stop bar was placed and several yellow skip stripes were placed.

The tape was applied in appropriate weather, a dry surface and temperatures in the mid 70s. The surface was cleaned prior to application. For this application the tape was taken off the roll by hand and then laid out. It

had to be rolled afterwards to ensure it stays down. For larger applications, there is a cart type set-up that applies it and rolls it in one pass.

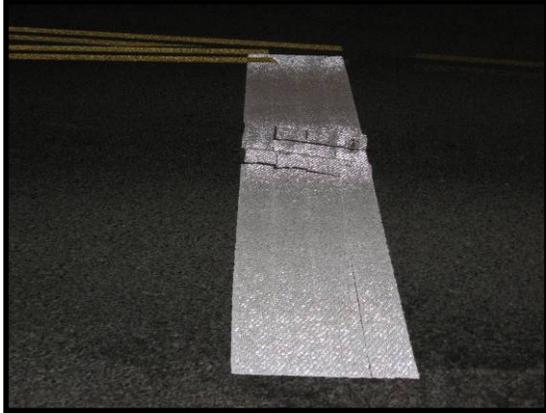


Photo 2. Night photo of stop bar.



Photo 3. Nighttime photo at the SR 202/192nd intersection.

There is temporary traffic paint right against the removable tape. This traffic paint was applied initially to the leveling course and was reapplied on March 9, 2006. It is anticipated that this traffic paint will be reapplied one more time throughout the project, before the roadway has the final lift of hot mix applied. A total of three applications of traffic paint are anticipated.

Tape Performance

The removable tape was holding up well. It still looks good; nearly the same color and much brighter than the traffic paint. The inspectors indicated that the night time visibility of this tape is still very good; although neither the tape nor the paint had been tested with a retroreflectivity test.

Costs

The temporary traffic paint on this project was bid at \$0.50/L.F. This did not include maintenance of the paint stripe, so WSDOT has had to pay another \$0.50/L.F. for the March 2007 application. It is anticipated that another application of traffic paint will be applied later this summer for another \$0.50/L.F., totaling, \$1.50/L.F. for the traffic paint. This cost does not include the traffic control to repaint.

The 3M product costs about \$0.60/L.F. to purchase. The installation labor and equipment costs are another \$0.40 to 0.50/L.F.; a total of about \$1.00 to 1.10/L.F. for the installed product. These costs also do not include traffic control costs. It is anticipated that traffic control costs for this removable tape would be higher than for painting, due to the slower production of tape installation.

Other observations

Several other details were noted while performing this site visit.

- There was a short section of aluminum tape that was applied on the project, due to paving going overtime and the striping subcontractor being double-booked. This aluminum foil backed tape was not holding up satisfactory.
- Maintenance of the temporary striping can be an administrative burden. To get the striping subcontractor to come back for maintenance during the summer months can be difficult. The subcontractor is booked



Photo 4. Nighttime comparison of paint versus removable tape.

up with contract work and it can be difficult to get them to come back for maintenance work, even if paid for it. Additionally, during the wet winter months, it is difficult to get good weather for another paint application. With temporary removable tape, there is less reliant on the weather and the subcontractor schedule.

- It is not known how well this material will perform under regular studded tire use.

Conclusion

This 3M removable tape appears to have beneficial use on this project. To date it is a good pavement marking for this project, it has remained retroreflective. A follow-up review will look at how well the material was removed as well as more performance data. This tape may have good application on WSDOT projects where there are temporary pavement markings that have to stay for long periods of time, for example, over six months.



Photo 5. Another comparison of the tape vs paint.



Photo 6. Removable tape on top, aluminum foil tape to the left, and paint on the lower half of photo.