

# FY 2009 RESEARCH PROBLEM STATEMENT

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## TITLE

CM-09-06 Evaluation of Wet-Weather Reflectivity

## PROBLEM (Description of need)

Pavement marking materials are vital to traffic operations and the safe negotiation of drivers through the transportation system. During wet weather conditions a minimum level of reflectivity is necessary to ensure adequate performance and to meet the needs of older drivers that would require higher levels of reflectivity. Having pavement marking materials that perform well in wet weather is particularly important in Oregon. Weather data for the Willamette Valley indicates that approximately 40% of the days have some rain.

At the time of application ODOT requires testing by the test deck and the application is tested every quarter thereafter until a determination can be made regarding the suitability for use of the pavement marking materials on ODOT roadways. If it is determined that the material is suitable, it is included on the Qualified Products List (QPL). (All pavement marking materials used on ODOT facilities must be on the QPL.) The tests performed for the ODOT test desk are limited to the measuring of the thickness of marking and retroreflectivity and subjective evaluations of quality and durability. These tests do not include assessment of wet-weather reflectivity and in particular nighttime wet-weather reflectivity. Tests are also not carried out in the field unless particular concerns are raised for further investigation.

Research indicates that there is significant variation on the performance of different types of materials under wet weather conditions but is inconclusive as to whether initial retroreflectivity is a good indicator of long term performance.

Because of the increasing older driver population and the impact of wet-weather reflectivity on safety, ODOT will benefit from considering the incorporation of the evaluation of wet-weather reflectivity as part of the testing procedures of the ODOT paint test deck or quality control processes.

## PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY

Document current ODOT pavement marking testing practices. This will include an assessment of test equipment used.

Complete a literature review and survey of other jurisdictions to determine pavement test deck procedures that include evaluation of wet weather reflectivity. This will include review of: a) equipment used in wet weather testing and other equipment that is available for performing wet weather retroreflectivity tests; b) the ASTM wet weather retroreflectivity testing procedures; c) the National Transportation Product Evaluation Program (NTPEP); d) ongoing federal research in this area; and e) considerations for an in-service evaluation program of wet-weather reflectivity of pavement markings (with specific consideration of nighttime wet-weather reflectivity).

Identify alternative testing procedures that offer opportunities to enhance the process used in Oregon to include evaluation of wet weather reflectivity of pavement marking materials.

Implement and evaluate the alternative testing procedures by using field trials. Interview ODOT

personnel to ensure that their input and feedback is considered in terms of recommendations from the project.

Prepare a final report to document the literature review, findings from the evaluation, and recommendations. Recommendations will include ways to include testing of wet-weather reflectivity of pavement marking materials to meet ODOT specific testing needs.

### **BENEFITS**

Being able to select pavement marking materials that offer better wet weather visibility will have significant safety and cost saving benefits for ODOT.

### **CONTACT PERSON:**

### **FOR RESEARCH UNIT USE ONLY**

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