ARDOT TRC TRANSPORTATION RESEARCH COMMITTEE

PROBLEM STATEMENT No. 8

RESEARCH PROBLEM STATEMENT

DATE: 09/25/2020 **PROJECT AREA:** Maintenance

TITLE: How Dirty can Chips be for Surface Treatments (chip seals and scrub seals)

PROBLEM STATEMENT:

The performance of chip seals and scrub seals is dependent on the adhesion between the chips and the asphalt emulsion. In theory, the higher the P200 content (the dirtier the aggregate), the lower the adhesion between the chips and the asphalt emulsion and the increase of shelling when traffic is returned. Currently, Section 403.02 sets a maximum of 1.5% decantation loss from AASHTO T11, also known as no more than 1.5% P200. However, this generally requires a significant amount of washing at the aggregate production facility, thus increasing the cost of the aggregate This research will look at surface treatment performance using the sweep test and Vialit test in order to explore the adhesion of the aggregate to asphalt emulsion residue for varying levels of P200. Gradations will be modified so that P200 ranges from 0 - 5%, in 0.5% increments, with four different sources of aggregate and four different types of asphalt emulsion. This will allow for an understanding of the influence of dust on the performance of surface treatments in the lab. If a number greater than 1.5% is found acceptable in the lab, four projects will be identified to verify performance in the field.

OBJECTIVES:

There will be three objectives to this research. First, a review of state and local agency specifications around the United States will be executed to determine the range of acceptable P200 material. Second, four aggregate sources and four asphalt emulsions (two for chip seals and two for scrub seals) will be tested in the lab using the sweep test and Vialit test at varying levels of P200 to determine if the minimum of 1.5% can be increased. Third, if a higher number is recommended, four projects will be identified to verify performance of the chip seals in the field.

FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:

If a higher level of dust can be accommodated in chip seals and scrub seals without compromising performance, recommendations will be made to adjust Section 403.02 to accommodate such changes. In addition, during the entire project, special attention will be paid to the similarities and differences between chip seals and scrub seals to identify any other recommendations should be made to Section 403.02 to accommodate scrub seals. This continued movement toward proactive pavement preservation and maintenance will increase the number of lane-miles that ARDOT can address every year.

Estimated Project Duration: 24 **Months**

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Standing Subcommittee Ranking	Advisory Council Ranking	Statement Combined with Statement Number(s)
1/8	6	