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EVALUATION OF OPEN-GRADED "F" MIXTURES FOR WATER SENSITIVITY

The Oregon Department of Transportation (ODOT) has increased their use of open-graded paving mixtures. During the last five years, ODOT has constructed several hundred miles of highways with open-graded "F" asphalt concrete mixtures. These pavements have performed well, with no known failures attributable to moisture damage.

In 1992, many "F" mixtures failed the Index of Retained Strength (IRS) test used by ODOT to evaluate the water damage potential of asphalt concrete mixtures. Although "F" mixtures had difficulty passing the IRS test, ODOT engineers felt that the problem was not with the "F" mixtures, but with the test itself.

A recent research study investigated the suitability of implementing the Strategic Highway Research Program's Environmental Conditioning System (ECS) procedure for evaluating the water sensitivity of "F" mixtures. As a part of this study, test data was collected using the IRS test and the ECS test for several different "F" mixtures. The IRS procedure is more severe than the ECS procedure, indicating potential pavement failure problems where they don't exist and that are not predicted by the ECS. Results of the research reveal the IRS test may not be suitable for "F" mixtures. The ECS procedure shows promise as a test method for evaluating water sensitivity of "F" mixtures, but further evaluation and correlation with field performance is required.

Recently, a report for this research project was published. The title of the report is "Evaluation of Open-Graded "F" Mixtures for Water Sensitivity, Final Report." To obtain a copy of this report or any additional information regarding this project, please contact:

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SUMMARIES OF CURRENT TRANSPORTATION RESEARCH