



RESEARCH PROJECT CAPSULE [21-5B]

February 2021

TECHNOLOGY TRANSFER PROGRAM

Improvement of Open-Graded Friction Course (OGFC) Performance and Durability through Materials, Design, and Maintenance

JUST THE FACTS:

Start Date:
September 1, 2020

Duration:
27 months

End Date:
November 30, 2022

Funding:
SPR: TT-Fed/TT-Reg - 6

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Sponsored jointly by the Louisiana
Department of Transportation and
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University

POINTS OF INTEREST:

*Problem Addressed / Objective of
Research / Methodology Used /
Implementation Potential*

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PROBLEM

The most critical shortcomings of open-graded friction course (OGFC) mixtures include durability problems (raveling and stripping due to aging) and clogging of voids by dirt. These issues result in a shorter service life and higher costs to maintain the OGFC mixtures. The high porosity raises concern on the durability of OGFC as it reduces the structural integrity of pavement. The polymer-modified OGFC mixtures are expected to have a typical service life of only 8 to 10 years. In this study, OGFC durability, resistance to fatigue cracking, and raveling will be evaluated together with advanced modifiers and maintenance methods.

OBJECTIVE

The objective of this research is to provide an implementable guideline on the design, performance, and maintenance of OGFC with extended service life to improve driving safety and cost-effectiveness.

METHODOLOGY

To achieve the objectives of the study, the following tasks will be completed. A literature review involving all published materials that focus on current and proposed methods of maintenance for OGFC mixtures will be completed. Next, a multi-state survey will be conducted to inquire about OGFC maintenance practices and durability issues dealt with most often. Third, an interim report of all findings from the previous two tasks will be prepared. The research team will then conduct a support study to evaluate alternative materials, followed by a support study to conceive, design, evaluate, and implement a new generation of OGFC. A standard practice will be developed using the AASHTO format and recommendations will be provided for Louisiana Department of Transportation and Development (DOTD) specifications. Last, a final report and technical summary will be prepared.

IMPLEMENTATION POTENTIAL

Once this research is completed, LTRC will provide guidelines and/or specifications on existing OGFC mixtures, the use of epoxy modified asphalt in OGFC mixtures, and performance engineered mixture design procedures to be used in OGFC pavements in Louisiana.