Request for Proposal (RFP) – Balanced Mix Design: Cracking Performance Tests

Re: BMD CRACKING RFP – AIRPORT ASPHALT PAVEMENT TECHNOLOGY PROGRAM (AAPTP)

I. BACKGROUND

Asphalt pavements represent a considerable investment in the infrastructure of airfields. Advancing asphalt mixture design through performance testing will help ensure performance and make certain pavement investments provide the expected service life and the lowest life cycle costs. Asphalt mixture cracking resistance is a critical component of pavement performance and crack performance testing is core to the Balanced Mix Design (BMD) approach. The number of cracking tests developed over the last 20 years is significant, so evaluating and selecting the performance tests for characterizing mixture cracking susceptibility for airport pavements is arduous. In addition to the number of tests, cracking performance also has an expanse of cause such as thermal cracking, fatigue cracking, and reflective cracking which need to be accounted for within the asphalt mixture design process. While the BMD approach also includes measures of rutting susceptibility and other durability measures, this study will focus on cracking and parallel with other research efforts to develop and frame a BMD system for use on airport mixtures.

II. OBJECTIVE

The outcome of this project will be to ensure that the Federal Aviation Administration (FAA) has cracking mixture performance tests that correlate to field performance and test criteria that protect against premature asphalt mixture cracking failures on airport facilities. It is expected that this project will not select one performance test but rather provide specifications for multiple tests and/or testing parameters that provide equivalent performance. The project will also provide draft specifications for implementing the test criteria in a BMD system which will include performance testing both at mixture design and construction acceptance stages of the project. The work will also ensure that factors affecting implementation are accounted for, with examples being test equipment availability, test repeatability, ease of testing, analysis of results, speed of testing, and any other factors that may hamper or slow field application. While the project is focused on cracking, a parallel project will focus on rutting and coordination between the projects is expected to ensure the BMD system is uniformly addressed by both performance testing requirements.

III. PROJECT SCOPE

The project will establish which performance tests will be used to identify asphalt mixtures with susceptibility to cracking in the field. Criteria for the cracking tests will be established to ensure asphalt pavements perform under airfield traffic for the expected design life. The project will develop an experimental plan which will include a sufficient number of mixtures to cover all regions of the United States as well as the traffic and size range of airfield facilities that utilize the FAA P-401 specified pavements. The project could include testing materials from newly constructed test sections at the FAA's accelerated loading facility to collect field performance data on specific mixtures. Coordination with a parallel study investigating rutting performance tests will be required. The coordination will include activities such as which mixes are studied as well as how the BMD system is structured. The project budget will include shipping of materials in coordination with this study.

IV. PROJECT REQUIREMENTS

The proposal will include a project schedule which identifies completion of all key activities as well as completion of the following project deliverables:

- Virtual Project Kick-Off Meeting
- Quarterly Progress Reports & Virtual Meetings
- Technical Report
- Draft Specification(s)
- Webinar Detailing Project Findings

Project final products must be 508 compliant. The proposal will provide details of any activities reliant on the FAA or others outside of the project team for completion of the project (examples include finding or securing project mixture samples, constructing test sections at the FAA's accelerated loading facility, or other activities).

AVAILABLE FUNDS: $1,000,000

CONTRACT PERIOD: 36 Months

V. PROPOSAL SUBMISSION

Submissions should include the project team, budget, and project schedule in the proposal. Proposals should be a maximum of 10 pages (not including the title page, budget, project team CVs, and project schedule), with minimum 11pt font, standard margins, and in adobe PDF file format. Proposals should be sent via email to Brett Williams, Director of Engineering & Technical Support, at Engineering@asphaltpavement.org by June 9, 2021. Please include the Re: BMD CRACKING RFP – AIRPORT ASPHALT PAVEMENT TECHNOLOGY PROGRAM (AAPTP) in the subject line of your email.