



Feasibility Study of Using Porous Asphalt Pavements for Airfields

Request for Proposals (RFP)

Proposal Due Date and Time: August 29, 2025, 11:59 Eastern Time (GMT +13)

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ORGANIZATION OVERVIEW

The National Asphalt Pavement Association (NAPA) is the only trade association that exclusively represents the interests of the asphalt producer/contractor on the national level with Congress, government agencies, and other national trade and business organizations. NAPA supports an active research program designed to improve the quality of asphalt pavements and paving techniques used in the construction of roads, streets, highways, parking lots, airports, and environmental and recreational facilities. The association provides technical, educational, and marketing materials and information to its members; supplies product information to users and specifiers of paving materials; and offers educational opportunities. The association has 1,100 companies as members and was founded in 1955.

Our mission: To advance the asphalt pavement industry through leadership, stewardship, and member engagement.

Our vision: Sustainable transportation infrastructure that paves the way for thriving communities and commerce.

Project Panel

Co-Chairs: Amlan Mukherjee (NAPA Co-Chair), Jeff Crislip (FAA Co-Chair)

Panel Members: Margarita Ordaz, Dave Gent, Trenton Clark, Andrew Brooks, Tanya Nash, Tim Martin, Scott Quire, Phil Schuck, Shenghua Wu, Bob Kluttz.

BACKGROUND

NAPA and the Federal Aviation Administration (FAA) collaborate through the Airfield Asphalt Pavement Technology Program (AAPT). This Cooperative Agreement advances multiple focus areas involving asphalt pavements and associated asphalt materials.

PROJECT OBJECTIVE

The objective of this project is to assess the feasibility of incorporating porous asphalt pavements for use on the airside infrastructure such as taxiways, shoulders, and runways to provide stormwater management while supporting aircraft operations. The project will focus on their structural performance, resilience, and long-term durability. This study will provide guidance on whether porous pavements can be effectively incorporated into aviation infrastructure.

PROJECT SCOPE

Porous asphalt pavements have gained attention as a solution for managing stormwater runoff and for their applications in resilient low-impact development. Their ability to allow water to infiltrate through the pavement structure can reduce surface water accumulation and decrease the risk of hydroplaning. For runways and taxiways, this feature could enhance safety while addressing resilience goals.

Porous asphalt has been used in various applications, guided by established standards and best practices. Currently, there are few guidelines and design considerations for porous asphalt pavement applications in airport pavements. The first step is to assess the feasibility of using porous pavements in such critical infrastructure, especially considering load-bearing requirements and durability remain topics of investigation. Hence, a comprehensive study is needed to determine whether porous pavements can meet the functional and structural demands of airfield and runway applications.

This project is expected to be completed in two phases. Phase I will be limited to a review of current best practice assessing the feasibility of using porous pavements for airport pavement design and construction. A critical outcome of the Phase I study will be a feasibility report for further investigation. If found feasible, the second expected outcome will be a roadmap outlining research and experimentation for Phase II. Proposals should just address Phase I.

Phase I: Review and Feasibility Study

The objective of this phase is to survey current success of failure of porous pavement applications, identify gaps in literature, differences in design and construction methods, and any other areas requiring adaptation for airfield environments. Researchers should at least review the following

sources, publications and standards as a first step to glean insights and best practices for the design, construction, and maintenance of porous asphalt pavements:

- NAPA's publications on porous asphalt pavements, including but not limited to the structural design guidelines ^[1] for porous asphalt pavements. This document provides valuable information on the design and implementation of porous asphalt systems, focusing on structural design, materials, and construction practices.
- FAA's design guide Advisory Circular (AC) 150/5320-6^[2] and the construction specifications for airport pavements Advisory Circular 150/5370-10, which provides comprehensive guidelines for the design and construction of airport pavements. The specific section that covers asphalt pavements is often referred to as "Item P-401" for Plant Mix Bituminous Pavements.
- FHWA's technical brief FHWA-HIF-15-009^[3], for permeable pavements, emphasizing their use in stormwater management and urban planning. These standards highlight the importance of subgrade preparation, drainage layers, and durability testing, which are critical for adapting porous asphalt to airfields and runways.
- Review existing academic literature on porous asphalt pavements, including in allied fields of resilience, low impact development and energy management.
- Identify existing porous pavement technologies with potential applications for airfields and runways and identify the reasons that have contributed to the success or failure of the application. Researchers are expected to look at porous pavement applications outside of FAA where successful heavily loaded porous pavements have been used (e.g., consider work done by the US Army Corps of Engineers).

Additional reports, research, and case studies should be considered. Beyond a desk review of literature, researchers are also encouraged to conduct surveys and engage stakeholders as appropriate and necessary. Based on the review, researchers should assess the feasibility of porous pavement applications to airports (including general aviation, cargo, commercial, and military) and develop a roadmap for Phase II of this project. Phase II will be expected to involve research and experimentation including but not limited to developing prototype porous pavements tailored for airfield and runway conditions and conducting field tests. While the scope of this project does not include Phase II, researchers are expected to develop a recommendation and roadmap for the second phase of funding.

¹ Schwartz, Charles W., Ph.D., & Hall, Kevin D., Ph.D., P.E. (2018). *Structural Design Guidelines for Porous Asphalt Pavements*. National Asphalt Pavement Association. IS 140.

² Federal Aviation Administration (FAA). (2009). *Airport Pavement Design and Evaluation*. Advisory Circular 150/5320-6E. U.S. Department of Transportation, Federal Aviation Administration.

³ Federal Highway Administration (FHWA). (2015). *Porous Asphalt Pavements with Stone Reservoirs*. FHWA-HIF-15-009. U.S. Department of Transportation, Federal Highway Administration.

Phase I Deliverables

The expected deliverables of this research are:

1. A detailed report of findings, including but not limited to the following differentiators between porous and conventional pavements:
 - a. Differences in load-bearing capabilities
 - b. Resistance to wear, freeze-thaw cycles, & other environmental stresses (excluding PFAS).
 - c. Performance data in terms of cost, maintenance, and life cycle analysis.
2. Recommendations for the next steps, including but not limited to:
 - a. Justification for a go/no-go decision for Phase II
 - b. If considered feasible, a roadmap for research for Phase II.

PROJECT REQUIREMENTS

The project must adhere to the proposed timeline and budget constraints. Selected researchers will be expected to attend scheduled meetings with the project panel and to incorporate their feedback and guidance into the effort. A final report detailing the findings and recommendations must be submitted on the provided template. NAPA will oversee the design and structure of the research report and 508-compliance.

PROJECT DETAILS

Contract Period: 12 Months

Budget: \$100,000

PROPOSAL SUBMISSION

Submissions should include the qualifications of the individual(s) involved in the project, proposed methods for achieving objectives, timeline, and summary of the project budget. Submissions must adhere to the following guidelines:

Submission Timeline:

RFQ Issued: July 23, 2025

Questions Due: July 31, 2025

Proposals Due: August 29, 2025

Project Kickoff: October 2025

Questions

Any questions should be submitted to Amlan Mukherjee at engineering@asphaltpavement.org prior to the questions due date.

Submission Instructions

All proposals should be submitted via email to engineering@asphaltpavement.org in PDF format. You will receive email confirmation upon submission. Please include the line “Re: Feasibility Study of Porous Pavements for Airfields and Runways” in the subject line of your email.

Proposal Format (10-page limit):

- Minimum 11pt font, single spaced, standard 1” margins, Adobe PDF file format.
- Maximum of 10 pages including cover letter or executive summary, but excluding title page, resumes, budgets, and project schedule.
- Cover Letter or Executive Summary: summarizing your qualifications and interest in the project.
- Company background and experience: your company’s experience, history, and examples similar to this project.
- Approach and Timeline: outline the proposed stages and timeline of this project. Key information includes project management, key milestones, and how you will address the requirements detailed in this RFQ. Include an estimated project completion date. This should comprise the bulk of your submission.
- Team structure: Outline who will be involved in the project, their roles, their tenure, and their relevant qualifications.
- Budget and Cost Breakdown: provide a detailed cost breakdown for each activity.
- Proposals, including the cover letter or executive summary, that exceed 10 pages will be rejected without review.

Confidentiality

All information provided by NAPA in this RFQ, including but not limited to business plans, marketing strategies, customer data, and financial information, should be considered confidential and may only be used by the responding agency for the sole purpose of evaluating and preparing a proposal. The agency agrees to not disclose any such confidential information to any third party without prior written consent from NAPA. NAPA reserves the right to reject all proposals, depending on the availability of funds and the quality of the proposals received. Proposers will not receive panel comments. However, reasonable requests for a summary may be considered upon request after the selection results are announced.