AAPTP

Airport Asphalt Pavement Technology Program

Built for Runways... Backed by Research

NAPA
NATIONAL ASPHALT PAVEMENT ASSOCIATION

Inside the Airport Asphalt Pavement Technology Program

The AAPTP drives innovation in asphalt pavement design, materials, and construction to help build safer, more reliable, and efficient airfield surfaces. The program brings together the Federal Aviation Administration (FAA), the National Asphalt Pavement Association (NAPA), industry leaders, and research institutions to:

- Reduce premature pavement distress
- Improve construction consistency and quality
- Modernize specifications

By focusing on real-world needs and field-tested practices, AAPTP equips airfield pavement designers and engineers with durable, cost-effective asphalt technologies that extend runway life, reduce maintenance requirements, and support safe airfield operations.

Credit: Arizona State University

AirportAsphalt.com

2025 AAPTP Projects

REPORTS

To access these AAPTP reports, scan the code.

Simplifying Asphalt Binder Choices for Airfields

This project transforms complex FAA and Department of Defense binder requirements into a standardized selection process and online tool. It simplifies decisions, reduces design errors, streamlines design reviews, and improves specification consistency across regions.

Updating and Expanding the Asphalt Paving Handbook

The 2025 Asphalt Paving Handbook unifies best practices across the FAA, the U.S. Army Corps of Engineers, the Federal Highway Administration, and industry experts into a modern reference. It helps inspectors, designers, and contractors enhance asphalt quality, consistency, and durability on both airfield and roadway projects. This edition expands guidance for airfield-specific challenges and introduces new video training resources.

Improving Longitudinal Joint Performance

Researchers created the first manual for longitudinal joint maintenance, clarifying FAA requirements and offering practical guidance. It supports more consistent planning and introduces innovative materials, such as void-reducing asphalt membranes and rapid-penetrating emulsions, reinforced by long-term test sections to help refine treatments and inform future FAA adoption.

Enhancing Balanced Mix Design with Laboratory Rutting Tests

This study identified reliable rutting performance tests that more accurately predict mixture behavior under heavy aircraft loading and high temperatures. A four-test framework, centered on Hamburg Wheel-Tracking and APA testing, supports design verification and acceptance. Results inform updates to FAA P-401 and P-403 specifications and advance performance-focused asphalt design approaches to reduce early deformation and improve long-term reliability.

Validating Gyrations for Superpave Gyratory Compactor

Findings confirmed that FAA's current Superpave Gyratory Compactor (SGC) levels are equivalent to Marshall hammer compaction. This validation builds confidence in modernized laboratory practices and supports broader adoption of SGC, which offers lower variability between facilities and aligns with performance-based design approaches.

Mitigating Plastic Flow and Delamination at High-Speed Exits

Researchers determined that interface delamination is the primary cause of slippage failures at high-speed exit taxiways. They established performance thresholds to help airfield pavement designers select materials and layer configurations that resist shear flow and delamination. The study provides guidance on overlay thickness and considers aircraft braking, turning, and temperature conditions to enhance safety and extend pavement life.

2026-2027 AAPTP Projects

Feasibility of Cold Central Plant Recycling (CCPR)

Evaluates whether CCPR can meet airfield performance needs while reducing energy use and emissions.

P-401 Mixtures: Aggregate Gradation Bands

Develops improved gradation limits that enhance mixture constructability and performance.

Use of RAP in P-401 Mixtures

Assesses how reclaimed asphalt affects performance and environmental impacts in airfield mixes.

Balanced Mix Design: Cracking Tests

Identifies laboratory cracking tests that reliably predict field performance.

Airfield Asphalt Pavement Resilience

Creates a resilience framework to help pavements better withstand climate and operational stresses.

Advanced Technologies for Airfield Pavement Projects

Synthesizes global research to recommend AI- and data-driven improvements to materials, modeling, and construction.

PFAS in Airfield Pavements

Studies how pavement recycling interacts with PFAS and its implications for airfield environments.

Porous Asphalt Pavements Feasibility Study

Evaluates potential airfield applications for porous asphalt to support stormwater management.

About AAPTP

LEARN MORE

The Airport Asphalt Pavement Technology Program (AAPTP) is a cooperative agreement effort between the National Asphalt Pavement Association (NAPA) and the Federal Aviation Administration (FAA) to advance asphalt pavements and pavement materials. The AAPTP advances solutions for asphalt pavement design, construction, and materials deemed important to airfield reliability, efficiency, and safety. The program leverages NAPA's unique technology implementation capabilities with assistance from the FAA and industry to advance deployment and adoption of innovative asphalt material technologies.

Video Series

VIEW

The Asphalt Airfield Video Series showcases content from the Asphalt Paving Handbook to help practitioners designing, producing, and constructing airfields for the FAA.

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