

The 2025 *Asphalt Paving Handbook* provides practical guidance and best practices for paving asphalt mixtures on roadway and airfield projects. It focuses on the factors that most affect pavement quality and long-term performance. Earlier editions (1991, 2000) centered on roadway paving. The 2025 edition expands its scope to airfields, citing Federal Aviation Administration (FAA) P-401 and U.S. Army Corps of Engineers (USACE) Unified Facilities Guide Specification 32 12 15.13. These standards guide work on key airfield challenges such as segregation, joint construction, and compaction.

Developed by the Asphalt Institute, in coordination with the FAA, National Asphalt Pavement Association (NAPA), Federal Highway Administration (FHWA), and USACE, the Handbook serves inspectors, engineers, designers, superintendents, paving crews, plant operators, and laboratory technicians.

Features

- Aligns FAA, USACE, and FHWA specifications.
- Provides checklists to simplify procedures.
- Integrates 30 training videos.
- Explains unique challenges related to airfield paving.

Chapter Summaries

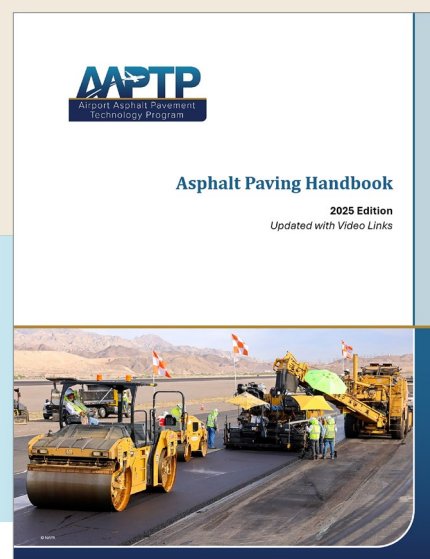
1. Purpose and Organization: Chapter 1 explains why best practices in materials selection, mix design, plant production, surface preparation, paving, and quality assurance are critical to long-lasting asphalt pavements.

2. Project Organization: Communication is key to successful projects. Chapter 2 explains how clear contract documents, effective preconstruction meetings, and regular updates keep work aligned, and how strong recordkeeping helps prevent disputes and maintain quality.

3. Asphalt Materials and Mix Design: Chapter 3 reviews the properties of materials used to produce an asphalt mix and the mix design process. Also discussed are some of the differences that can exist between laboratory- and plant-produced mixes and between job mix formula values and plant test results.

4. Mix Production: Chapter 4 focuses on how batch and drum plants make specification-compliant mix using properly handled materials, accurate cold-feed calibration, appropriate binder and aggregate temperatures, uniform drying, and tight controls to preserve gradation and coating.

5. Surface Preparation: Preparing a stable, clean surface for paving is essential to pavement performance. Chapter 5 explains how to prepare the subgrade, base, and existing pavement by sealing cracks, leveling, milling, cleaning, and applying a tack coat.



6. Mixture Delivery: Crews must maintain a steady flow of hot mix to the paver for smooth, continuous paving. Chapter 6 covers how to load trucks to prevent segregation, temperature control during transport, the role of material transfer vehicles, and the benefits of e-ticketing.

7. Mix Placement: Proper paver setup and operation—steady paving speed, a constant head of material, and correct screed settings—produce a smooth, uniform mat. Chapter 7 covers hopper management, automatic grade/slope control, yield and rolldown checks, and best practices for windrows, widening, superelevation, and handwork.

8. Compaction: Compaction is the key to long-lasting pavements. Chapter 8 explains how roller selection, temperatures, mix and weather factors, intelligent compaction, and controlled speeds and patterns work together to reduce air voids and improve durability.

9. Joint Construction: Joint construction is critical to smoothness and durability. Chapter 9 explains how proper edge prep, overlap, rolldown, and staged rolling create tight, dense joints that block air and water. It covers transverse and longitudinal joints, hot joints from echelon paving, and treatments like heaters, adhesives, and void-reducing asphalt membrane.

10. Segregation: Segregation is a construction defect that creates weak, permeable pavements. Chapter 10 explains how physical and thermal segregation develop during handling, production, trucking, and laydown, and how they can lead to nonuniform texture, low density, and early failure. It outlines common segregation patterns, detection methods, and practical steps for prevention.

11. Quality Assurance: Quality is planned, measured, and paid for. This chapter ties method, end-result, and performance specifications to quality control plans, stratified random sampling, and statistical acceptance, with dispute resolution and pay adjustments. It explains how to control mix at the plant and in the field—including temperatures, test strips, and mat density and smoothness checks—and how acceptance, incentives, and repairs link production to performance outcomes.

12. Mat Problems: Defects caught early can prevent roughness, low density, and premature failure. Chapter 12 covers how to identify and fix issues like waves, tearing, texture marks, joint defects, rutting, and low density through proper material flow, screed setup, temperature control, and good rolling practices.

By unifying best practices and standards, the 2025 *Asphalt Paving Handbook* strengthens quality, consistency, and collaboration across the asphalt industry.

The *Asphalt Paving Handbook* is free to download at: go.asphaltpavement.org/air-003.

Additional Resources

The Handbook's training video playlist is available at: bit.ly/AirfieldAsphaltVideos

Watch the Asphalt Paving Handbook webinar at: go.asphaltpavement.org/web-182

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About AAPTP

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.



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