BY ORDER OF THE SECRETARY OF THE AIR FORCE

DEPARMENT OF THE AIR FORCE INSTRUCTION 32-1041

17 JUNE 2024

CIVIL ENGINEERING

PAVEMENT EVALUATION PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available for download on the e-Publishing website at www.e-Publishing.af.mil.

RELEASABILITY: There are no releasability restrictions on this publication.

OPR: AF/A4CF

Certified by: SAF/IE (Dr. Ravi I. Chaudhary)

Supersedes: AFI 32-1041, 30 October 2019

Pages: 10

This instruction implements Air Force Policy Directive (AFPD) 32-10, *Installations and Facilities*. It provides standards and procedures for managing the Civil Engineer (CE) Pavement and Evaluation Programs. This instruction provides standards and procedures for managing the Civil Engineer (CE) Pavement and Evaluation Programs on Department of the Air Force (DAF) installations. This publication applies to all DAF civilian employees and uniformed members of the Regular Air Force, the Air Force Reserve (AFR), the Air National Guard (ANG), the United States Space Force (USSF), the Civil Air Patrol when conducting missions as the official Air Force Auxiliary, and those with a contractual obligation to abide by the terms of DAF issuances. Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with (IAW) the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional chain of command. The authorities to waive wing, unit, or delta level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the publication OPR for non-tiered compliance items. See DAFMAN 90-161, *Publishing Processes and Procedures*, for a description of the authorities associated with the tier numbers.

SUMMARY OF CHANGES

This document has been substantially revised and should be completely reviewed. Many requirements that have been incorporated into applicable Unified Facility Criteria have been removed and roles and responsibilities have been updated.

Chapter 1

OVERVIEW

1.1. Types of Evaluations, Surveys, and Tests

1.1.1. Airfield Pavement Structural Evaluation. Airfield pavement structural evaluations determine the load-carrying capability of a pavement for various aircraft by testing the physical and mechanical properties of the pavement system in its current condition. A pavement classification number and a table of allowable gross loads at various pass levels for specific aircraft groups is generated and reported. Personnel will conduct airfield pavement evaluations in accordance with Unified Facility Criteria (UFC) 3-260-03, *Standard Practice for Airfield Pavement Evaluation.* **(T-0)**

1.1.2. Runway Friction Characteristics Evaluation. Runway friction characteristic evaluations assess a runway's skid resistance and its potential to contribute to a hydroplaning incident. Since these properties are subject to change with time and traffic, an evaluation determines what, if any, maintenance may be required in order to restore pavement surface friction to acceptable levels.

1.1.2.1. Installations must consult with Air Force Civil Engineer Center, Asset Visibility Division, Airfield Pavement Evaluation Branch (AFCEC/COAP) prior to purchasing any friction testing equipment. **(T-1)**

1.1.2.2. Conduct runway friction characteristics evaluations in accordance with UFC 3-270-08, *Pavement Management*. **(T-0)**

1.1.3. Pavement Condition Index (PCI) Survey. PCI surveys identify and document pavement surface distresses. Conduct PCI surveys in accordance with UFC 3-260-16, *O&M Manual: Standard Practice for Airfield Pavement Condition Surveys*. **(T-0)**

1.1.4. Power Check Pad Anchor Test. Proof load and visually inspect the anchors that support aircraft engine tests. When requested by the Major Commands (MAJCOMs), Field Commands (FLDCOM) or Air Force Installation and Mission Support Center (AFIMSC) detachments, AFCEC tests anchors to determine their capability to safely support the loads imposed by these aircraft. If new high-capacity trim-pad anchors are constructed as specified in applicable UFCs and Unified Facility Guide Specifications, testing is not required; however, if there are quality concerns, installations may include proof loading by an independent testing organization in the project and contract documents to ensure that new anchors meet operational requirements. Requests for testing of new anchors must be approved by the AFCEC Director and requires funding by the requesting MAJCOM/FLDCOM or base. Conduct power check pad anchor test in accordance with Tri-Service Pavements Working Group (TSPWG) Manual 3-260-03.00-2, *Inspection of Trim Pad Anchor Systems*, Appendix B. **(T-1)**

1.1.5. Tabletop Structural Evaluations. AFCEC/COAP may be able to perform projected Pavement Classification Numbers (PCNs)/Pavement Classification Ratings using as-built design drawings and strength data provided by base personnel, USACE, NAVFAC, or Architect-Engineer firms performing work on DoD projects. **Note:** To avoid any potential delays in opening up new or reconstructed pavements to aircraft, the designer of record (DOR) will provide projected PCNs/PCRs in the design analysis (DA) document. The DOR is required to use the DoD PCASE (Pavement Computer Assisted Structural Engineering)

software for the design. **(T-2)** The DOR should also provide the projected PCN/PCR based upon 50,000 passes of a C-17 in the DA. **(T-2)** This data can then be used by airfield management for operational pavement strength reporting when needing to open new or reconstructed pavements to aircraft traffic.

1.2. Asset Management. Manage pavement assets in accordance with UFC 3-270-08. **(T-0)**

1.2.1. Pavement management plans include funding, timing and prioritization required to sustain infrastructure to meet mission requirements.

1.2.2. Engineering Assessments are used to categorize risks and prioritize projects by combining the PCI survey, structural evaluation, friction evaluation and foreign object damage index data.

1.2.3. At the conclusion of each pavement evaluation, the installation will make corrections and update the pavement inventory real property and associated GeoBase records in accordance with recommendations from the pavement evaluation report. **(T-1)** (This includes changes in the Unit of Measure (UM) quantity, which require a DD Form 1354, *Transfer and Acceptance of DoD Real Property*, signed by the Base Civil Engineer (BCE) or designated authority. Category code changes require an AF Form 123, *Request for Changed Use of Real Property*.

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Deputy Chief of Staff for Logistics, Engineering and Force Protection, Directorate of Civil Engineers (AF/A4C). AF/A4C will establish Air Force policy, directive guidance, and resource advocacy related to airfield infrastructure.

2.2. Air Force Reserve Command, Directorate of Civil Engineers (AFRC/A4C). AFRC/A4C will:

2.2.1. Execute the pavement asset management program at Air Force Reserve installations as required by Title 10 United States Code (USC) Chapter 1803, *Facilities for Reserve Components*; 10 USC Section 8038, *Director for Expeditionary Warfare*; Title 31 USC Section 1301, *Application*; and AFI 65-601, Volume 1, *Budget Guidance and Procedures,* and in accordance with Unified Facilities Criteria (UFC) (except as prohibited by these legal and regulatory authorities).

2.2.2. Advocate for pavement evaluation requirements and align resources to execute the pavement evaluation program at AFRC owned installations.

2.2.3. Coordinate with AFCEC to incorporate Air Force Reserve requirements into the master schedule for pavement structural evaluations, runway friction characteristics evaluations, Pavement Condition Index surveys, and power check pad anchor tests.

2.2.4. Support AFRC owned installations to develop, execute and update pavement management plans in accordance with UFC 3-270-08.

2.3. The Air National Guard (ANG) Civil Engineering Technical Branch (CETB). ANG CETB will:

2.3.1. Execute the pavement asset management program at Air National Guard (ANG) installations as required by 10 USC Chapter 1803, 10 USC § 8038, 31 USC § 1301, and AFI 65-601V1, and in accordance with Unified Facilities Criteria (UFC) (except as prohibited by these legal and regulatory authorities).

2.3.2. Coordinate with AFCEC & NGB/A4A for pavement evaluation requirements and align resources to execute the pavement evaluation program at ANG owned installations.

2.3.3. Coordinate with AFCEC to incorporate ANG requirements as well as out-of-cycle requests into the master schedule for pavement structural evaluations, runway friction characteristics evaluations, and power check pad anchor tests.

2.3.4. Manage and monitor the airfield and road PCI survey program at ANG installations.

2.3.5. Support ANG installations to develop, execute and update pavement management plans in accordance with UFC 3-270-08.

2.4. Air Force Installation and Mission Support Center (AFIMSC). AFIMSC will:

2.4.1. Advocate for pavement evaluation requirements and align resources to execute the pavement evaluation program.

2.4.2. Integrate pavement evaluation data into investment strategies.

2.4.3. Issue waivers and exemptions from PCI survey requirements.

2.5. The Air Force Civil Engineer Center (AFCEC). AFCEC will:

2.5.1. Manage the pavement structural evaluation, runway friction characteristics evaluation, PCI survey, and power check pad anchor testing programs.

2.5.1.1. Develop and maintain the installation master schedule for pavement structural evaluations, runway friction characteristics evaluations, PCI surveys, and power check pad anchor tests.

2.5.1.2. Publish an annual schedule and perform evaluations based on the schedule, resource availability, contingency requirements, and other factors.

2.5.2. Manage and monitor the Air Force PCI Survey Program.

2.5.2.1. Conduct airfield PCI surveys at least every five years for main operating bases and auxiliary fields.

2.5.2.2. Conduct road and parking comprehensive condition assessments at least every five years for main operating bases and auxiliary fields.

2.5.3. Maintain a central file on PCI surveys, airfield structural pavement evaluations, runway friction characteristics evaluations, and power check pad anchor tests in accordance with the Air Force Records Disposition Schedule.

2.5.4. Consult on pavement evaluations and perform special pavement and soil studies as needed.

2.5.5. Develop criteria and guidance for pavements engineering assessments and asset management.

2.5.6. Obtain and maintain Air Force certificate of Net Worthiness for PAVER™ Sustainment Management System (SMS) and Pavement-Transportation Computer Assisted Structural Engineering (PCASE) design and evaluation software. PAVER™ SMS applications are utilized for calculating and validating condition assessment scores and asset inventory.

2.5.7. Provide fund cite for shipping soil and core samples during pavement evaluations.

2.6. MAJCOMs. MAJCOM civil engineers, including ANG, AFRC, Combatant Commands, and training centers may submit out-of-cycle requests for evaluations at any time if required to ensure safe operations in support of exercises and contingency operations (e.g., an austere airfield without a current evaluation required for an exercise). These requests will be considered by AFCEC who has the ability to alter the standard, 16-year schedule if requirements necessitate. Evaluations for exercises or limited contingency operations are typically performed by Contingency Response Groups, Special Tactics Teams (STS), or Rapid Engineer Deployable Heavy Operational Repair Squadron Engineer (RED HORSE) units.

2.7. The Base Civil Engineer (BCE). BCEs will:

2.7.1. Accumulate and maintain information for PCI surveys, pavement evaluations, and friction characteristics evaluations and update the work history and condition in the PAVER™ Sustainment Management System database as work is performed on pavements. For ANG, BCEs will provide the updated work history for work performed to ANG Base Civil Engineering Technical Services Center for incorporation into PAVER™ SMS. Contracted functions will provide the same level of service, utilize the same Air Force mandated information technology systems, and implement the same asset and activity management principles and processes as government operated operations flights.

2.7.2. Provide the support required for pavement evaluations. Detailed support requirements are outlined in the AFCEC base support requirements letter.

2.7.3. Provide technical assistance for runway rubber removal determinations and manage the rubber removal contract or conduct rubber removal with in-house resources. Remove excessive rubber buildup prior to runway friction evaluations.

2.7.4. Manage the base transportation network and airfield pavements asset management program. Develop and maintain a pavement management plan in accordance with UFC 3-270-08.

2.7.5. In conjunction with the airfield manager, perform visual airfield inspections at least annually to identify maintenance and repair requirements, including runway rubber removal. Coordinate with Contracting to establish appropriate maintenance & repairs (M&R) contracts. **Note:** Installations that experience a high rate of rubber accumulation or have extensive snow removal operations must establish a friction monitoring and maintenance program to capture requirements.

2.7.6. In order to ensure that base pavement engineers have adequate knowledge on Air Force pavements, design and repair techniques, allow base pavements experts to receive and maintain adequate professional continuing education. For Air Force controlled installations with an active airfield, project managers and construction inspectors assigned to airfield pavement projects must complete the Air Force Institute of Technology's *Airfield Pavement Construction Inspection Course*, WENG 555. **https://www.afit.edu/CE/course_desc.cfm?p=WENG%20555**. The *Airfield Pavement Rehabilitative Design and Maintenance Course*, WENG 550, is highly recommended for base pavement engineers. **https://www.afit.edu/CE/course_desc.cfm?p=WENG%20550**

2.7.7. Formally request out-of-cycle airfield pavement structural evaluations, runway friction characteristics evaluations, and/or anchor tests from AFCEC when required.

2.7.7.1. BCEs at ANG owned installations coordinate requests for out-of-cycle airfield pavement structural evaluations, runway friction characteristics evaluations, and/or anchor tests through Civil Engineer Technical Services Center. BCEs will coordinate with Civil Engineer Technical Branch to ensure airfield PCI surveys are completed at least every five years for ANG installations with established flying missions.

2.7.7.2. BCEs at AFRC/A4CO owned installations coordinate requests for out-of-cycle airfield pavement structural evaluations, runway friction characteristics evaluations, and/or anchor tests through AFRC Installation Operations & Environmental (A4CO).

2.7.8. Correct real property and GeoBase record discrepancies for the airfield identified during pavement evaluations within thirty days of report publication.

2.8. The Airfield Manager. Airfield managers will:

2.8.1. Obtain the annual number of operations from the agency responsible for air traffic control and provide to the BCE, AFCEC/COAP and AFIMSC/A58I division.

2.8.2. Coordinate with BCE on required runway rubber removal frequency.

2.8.3. Must obtain AFCEC approval prior to purchasing of any friction testing equipment.

2.8.4. In conjunction with the BCE, perform visual airfield inspections as defined in UFC 3-260-16 at least annually, to identify M&R requirements.

TOM D. MILLER, Lieutenant General, USAF
DCS/Logistics, Engineering & Force Protection

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

10 USC § 1803, *Facilities for Reserve Components*

10 USC § 8038, *Director for Expeditionary Warfare*

31 USC § 1301, *Application*

DAFI 65-601, Volume 1, *Budget Guidance and Procedures,* 22 June 2022

AFI 33-322, Records Management and Information Governance Program, 23 March 2020

AFPD 32-10, *Installations and Facilities,* 20 July 2020

DAFMAN 90-161, *Publishing Processes and Procedures*, 15 April 2022

UFC 3-260-03, *Standard Practice for Airfield Pavement Evaluation*, 21 August 2023

UFC 3-260-16, *O&M Manual: Standard Practice for Airfield Pavement Condition Surveys*, 3 February 2019

UFC 3-270-08, *Pavement Management*, 19 January 2024

TSPWG M 3-260-03.00-2, *Inspection of Trim Pad Anchor Systems,* 30 October 2017

Prescribed Forms

None

Adopted Forms

AF Form 123, *Request for Changed Use of Real Property*

DAF Form 847, *Recommendation for Change of Publication*

DD Form 1354, *Transfer and Acceptance of DoD Real Property*

Abbreviations and Acronyms

AF/A4C—HQ USAF Deputy Chief of Staff for Logistics, Engineering and Force Protection, Directorate of Civil Engineers

AFCEC—Air Force Civil Engineer Center

AFCEC/COAP—Air Force Civil Engineer Center, Asset Visibility Division, Airfield Pavement Evaluation Branch

AFIMSC—Air Force Installation Mission Support Center

AFIMSC/A58—AFIMSC Facilities Sustainment Recapitalization

AFR—Air Force Reserve

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFRC/A4CO—AFRC Installation Operations & Environmental

ANG—Air National Guard

BCE—Base Civil Engineer

CE—Civil Engineer

CETB—Civil Engineering Technical Branch

DA—Design Analysis

DoD—Department of Defense

DOR—Designer of Record

M&R—Maintenance & Repairs

MAJCOM—Major Command

NAVFAC—Naval Facilities Engineering Systems Command

PCASE—Pavement-Transportation Computer Assisted Structural Engineering

PCI—Pavement Condition Index

PCN—Pavement Classification Number

PCR—Pavement Classification Rating

SMS—Sustainment Management System

TSPWG—Tri-Service Pavements Working Group

UFC—Unified Facilities Criteria

UM—Unit of Measure

Office Symbols

AF/A4C—Air Force Deputy Chief of Staff for Logistics, Engineering and Force Protection, Directorate of Civil Engineers

AF/A4CF—DCS Logistics, Engineering & Force Protection, Facilities Division

AFCEC/COAP—Air Force Civil Engineer Center, Asset Visibility Division, Airfield Pavement Evaluation Branch

AFIMSC/A58—AFIMSC Facilities Sustainment Recapitalization

AFRC/A4C—AFRC, Civil Engineer Division

SAF/IE—Air Force, Installations, Environment and Energy