

**BY ORDER OF THE  
SECRETARY OF THE AIR FORCE**

**AIR FORCE INSTRUCTION 32-1041**

**30 OCTOBER 2019**

**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](http://www.e-Publishing.af.mil).

**RELEASABILITY:** There are no releasability restrictions on this publication.

---

OPR: AF/A4CF

Certified by: SAF/IE  
(Hon John Henderson)

Supersedes: AFI 32-1041, 17 February  
2017

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. It applies to individuals at all levels including Regular Air Force, Air Force Reserve (AFR), and Air National Guard (ANG) units except as noted otherwise. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force. Refer recommended changes and questions about this publication to the Office of Primary Responsibility listed above using the Air Force Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate chain of command. This publication may be supplemented at any level, but all supplements must be routed to the Office of Primary Responsibility (OPR) listed above for coordination prior to certification and approval. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor's commander for non-tiered compliance items.

***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 shall conduct airfield pavement evaluations in accordance with Unified Facility Criteria (UFCs) 3-260-03, *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 3-260-03. (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 MAJCOMs 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 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).

**1.2. Asset Management.** Manage pavement assets in accordance with UFC 3-270-08, *Pavement Maintenance Management*. (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. Each base will document all real property inventory on a pavement facility map that shows the geospatial extents of each pavement facility in its real property records. **(T-3)**. Create the pavement facility map to comply with Executive Order 13327, *Federal Real Property Asset Management*, if the base does not have one. **(T-0)**. Provide a copy of the updated map (in shape file format and/or geodatabase format) to AFCEC/COAP and AFCEC, Asset Visibility Division, Transportation Branch (AFCEC/COAT). **(T-1)**. Require contractors to provide all source files in Environmental Systems Research Institute (ESRI) or AutoCAD format in addition to the shape files. **(T-3)**. File may be sent to AFCEC via a CE-Dash reachback ticket (<https://cs2.eis.af.mil/sites/10159/Scripts/Homepage/Home.aspx>) or via email to AFCEC Workflow ([afcec.coa.workflow@us.af.mil](mailto:afcec.coa.workflow@us.af.mil)).

## 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 shall 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 shall:

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 the pavement management plans in accordance with UFC 3-270-08.

**2.3. The Air National Guard (ANG) Base Civil Engineering Technical Service Center (CETSC).** ANG CETSC shall:

2.3.1. Execute the pavement asset management program at Air National Guard (ANG) Installations as required by 10 USC Ch. 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. Advocate 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 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 shall:

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 shall:

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. **(T-0).**

2.5.2.2. Conduct road and parking comprehensive condition assessments at least every five years for main operating bases and auxiliary fields. **(T-0).**

2.5.3. Maintain a central file on PCI surveys, airfield structural pavement evaluations, runway friction characteristics evaluations, and power check pad anchor tests.

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). 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.

**2.7. The Base Civil Engineer (BCE).** BCEs shall:

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. **(T-1).**

2.7.2. Provide the support required for pavement evaluations. Detailed support requirements are outlined in the AFCEC base support requirements letter. **(T-3)**.

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. **(T-2)**. Remove excessive rubber buildup prior to runway friction evaluations. **(T-3)**.

2.7.4. Manage the base transportation network and airfield pavements asset management program. **(T-2)**. Develop and maintain a pavement management plan in accordance with UFC 3-270-08. **(T-0)**.

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. **(T-2)**. 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. **(T-3)**.

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, a pavements representative must complete the Air Force Institute of Technology's *Airfield Pavement Construction Inspection Course*, WENG 555. **(T-3)**. *Airfield Pavement Rehabilitative Design and Maintenance Course*, WENG 550, is highly recommended for base pavement engineers. [https://www.afit.edu/CE/Course\\_List.cfm?page=264&tabname=Tab1A#WTSS](https://www.afit.edu/CE/Course_List.cfm?page=264&tabname=Tab1A#WTSS)

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.

2.7.7.2. BCEs at AFRC 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 record discrepancies for the airfield identified during pavement evaluations within thirty days of report publication. **(T-3)**.

**2.8. The Airfield Manager.** Airfield managers shall:

- 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 Installation Engineering Division (IZB). **(T-3).**
- 2.8.2. Coordinate with BCE on required runway rubber removal frequency. **(T-2).**
- 2.8.3. Must obtain AFCEC approval prior to purchasing of any friction testing equipment. **(T-3).**
- 2.8.4. In conjunction with the BCE, perform visual airfield inspections at least annually, to identify M&R requirements. **(T-2).**

WARREN D. BERRY, Lieutenant General, USAF  
DCS/Logistics, Engineering & Force Protection



**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

Executive Order 13327, *Federal Real Property Asset Management*

10 USC § 1803, *Facilities for Reserve Components*

10 USC § 8038, *Director for Expeditionary Warfare*

31 USC § 1301, *Application*

AFI 65-601, *Volume 1, Budget Guidance and Procedures*

AFPD 32-10, *Installations and Facilities*, 4 March 2010

AFI 33-360, *Publications and Forms Management*, 15 February 2018

AFMAN 33-363, *Management of Records*, 30 May 2018

UFC 3-260-03, *Airfield Pavement Evaluation*, 15 April 2001

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

UFC 3-270-08, *Pavement Maintenance Management*, 16 January 2004

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

***Prescribed Forms***

None

***Adopted Forms***

AF Form 847, *Recommendation for Change of Publication*, 22 September 2009

***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

**AFCEC/COAT**—Air Force Civil Engineer Center, Asset Visibility Division, Transportation Branch

**AFIMSC**—Air Force Installation Mission Support Center

**AFIMSC/IZB**—AFIMSC Installation Engineering Division

**AFR**—Air Force Reserve

**AFPD**—Air Force Policy Document

**AFRC**—Air Force Reserve Command

**AFRC/A4CO**—AFRC Installation Operations & Environmental

**ANG**—Air National Guard

**BCE**—Base Civil Engineer

**CE**—Civil Engineer

**CETSC**—Civil Engineer Technical Service Center

**ESRI**—Environmental Systems Research Institute

**M&R**—Maintenance & Repairs

**PCI**—Pavement Condition Index

**TSPWG-M**—Tri-Service Pavements Working Group Manual

**UFC**—Unified Facilities Criteria