Federal Aviation Administration

National Part 139 CertAlert

AdvisoryCautionary**Non-Directive**Advisory**Cautionary**Non-Directive**Advisory**Cautionary**Non-Directive**

Date: **October 12, 2022** **No. 22-05**

To: **All Title 14 CFR Part 139 Airport Operators**

Subject: **Inspection and Maintenance of In-Pavement Equipment**

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1. **Purpose.** This CertAlert serves as a reminder to airport operators to ensure lighting systems are properly inspected and maintained as required by 14 Code of Federal Regulations (CFR) part 139.311(d). This section provides: "Each certificate holder must properly maintain each marking, sign, or lighting system installed and operated on the airport." Components of these systems may include manhole covers, hand-hole covers, drainage grates, maintenance access covers, and any other bolted-down equipment in the runway, taxiway, and safety area environments. Airports should comply with this requirement through routine inspections and by applying a detailed periodic preventive maintenance program. An emphasis should be placed on supplemental inspections following surface maintenance activities, clearing of snow and ice, or Foreign Objects of Debris (FOD).

2. **Background.** In recent incidents, physical damage to an aircraft resulted from the failure of in-pavement runway light fixtures. These incidents highlight the importance of preventive maintenance programs, associated checks, and inspection procedures. Such surveillance is particularly important for in-pavement lighting systems, inspection covers, and other fixtures in the runway and taxiway safety areas. Fixtures that are subjected to physical stress caused by tire movement, engine ingestion, jet blast, water pressure, flooding, and/or maintenance activities, such as snow and ice removal, grass cutting, etc., require additional maintenance and inspection monitoring, especially in touchdown zones and on busier runways.

3. **Related FAA Standards Information.**

   a. **Advisory Circular (AC) 150/5340-26, *Maintenance of Airport Visual Aid Facilities*:** Provides specific guidelines for maintenance of airport visual aid systems, discusses maintenance procedures for in-pavement lighting systems, and provides guidelines and a schedule of periodic checks. It is important that maintenance personnel and persons assigned to perform daily inspections review the schedule of periodic checks, including the need to periodically check bolts used to install in-pavement lights, panels, and covers.

   b. **AC 150/5340-30*, Design and Installation Details for Airport Visual Aids*:** Outlines maintenance criteria in Chapter 12, which discusses the unique requirements associated with the maintenance of 'load-bearing lighting fixtures", such as in-pavement centerline or touchdown-zone lighting.

c. **Engineering Brief (EB) 83*, In-Pavement Light Fixture Bolts*:** Provides information and guidance for standard methods to be employed when using stainless steel or coated carbon steel bolts to secure light fixtures to L-868 light bases. Stainless steel and coated carbon steel bolts can be used for connecting extension rings or light bases to light fixtures. Bolt tension and clamping force are discussed to properly determine bolt torque values.

d. **AC 150/5200-18*, Airport Safety Self-Inspection*:** Discusses airport safety self-inspection procedures for airport fixtures in the airport movement areas.

e. **AC 150/5320-5, *Airport Drainage Design*:** Provides guidance that special consideration must be given to the design of the manhole frame and cover. The cover must be secured so that it remains in place during peak flooding periods, avoiding a manhole "blowout." A blowout is caused when the hydraulic grade line rises in elevation higher than the manhole cover and forces the lid to explode off. Manhole covers should be bolted or secured in place with a locking mechanism if blowout conditions are possible.

f. **AC 150/5370-10, *Standard Specifications for Construction of Airports*:** States all castings or structural steel units must conform to the dimensions shown on the plans and be designed to support the loadings, aircraft gear configuration, and/or direct loading specified. Each frame and cover or grate unit must be provided with fastening members to prevent it from being dislodged by traffic but which will allow easy removal for access to the structure. Operators must ensure that all non-light fixtures are properly inspected and maintained to ensure they are properly secured with their designed locking mechanism (bolts and/or other fasteners).

4. **Action.** Airport operators should establish rigorous inspection and maintenance programs (daily, weekly, monthly, quarterly, etc.) for in-pavement light and non-light fixtures to ensure they are properly secured with their designed locking mechanism (bolts and/or fasteners). Unsecured fixtures on pavement and the safety areas of runways and taxiways could become dislodged due to tire movement, engine ingestion, jet blast, water pressure, flooding, snow and ice removal activities, grass cutting, etc.

   Airport operators should follow FAA and equipment manufacturer guidelines. While airport operators must be inspecting these fixtures during their daily self-inspections, it may be necessary for the airport operator to institute an in-depth inspection maintenance program on an established periodic basis to evaluate the maintenance and condition of fixtures that are on runways and taxiways and safety areas.

   In addition to conducting the required maintenance, airport operators should ensure these maintenance activities are properly documented. If you have any questions about documentation requirements, contact your assigned Airport Certification Safety Inspector.

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