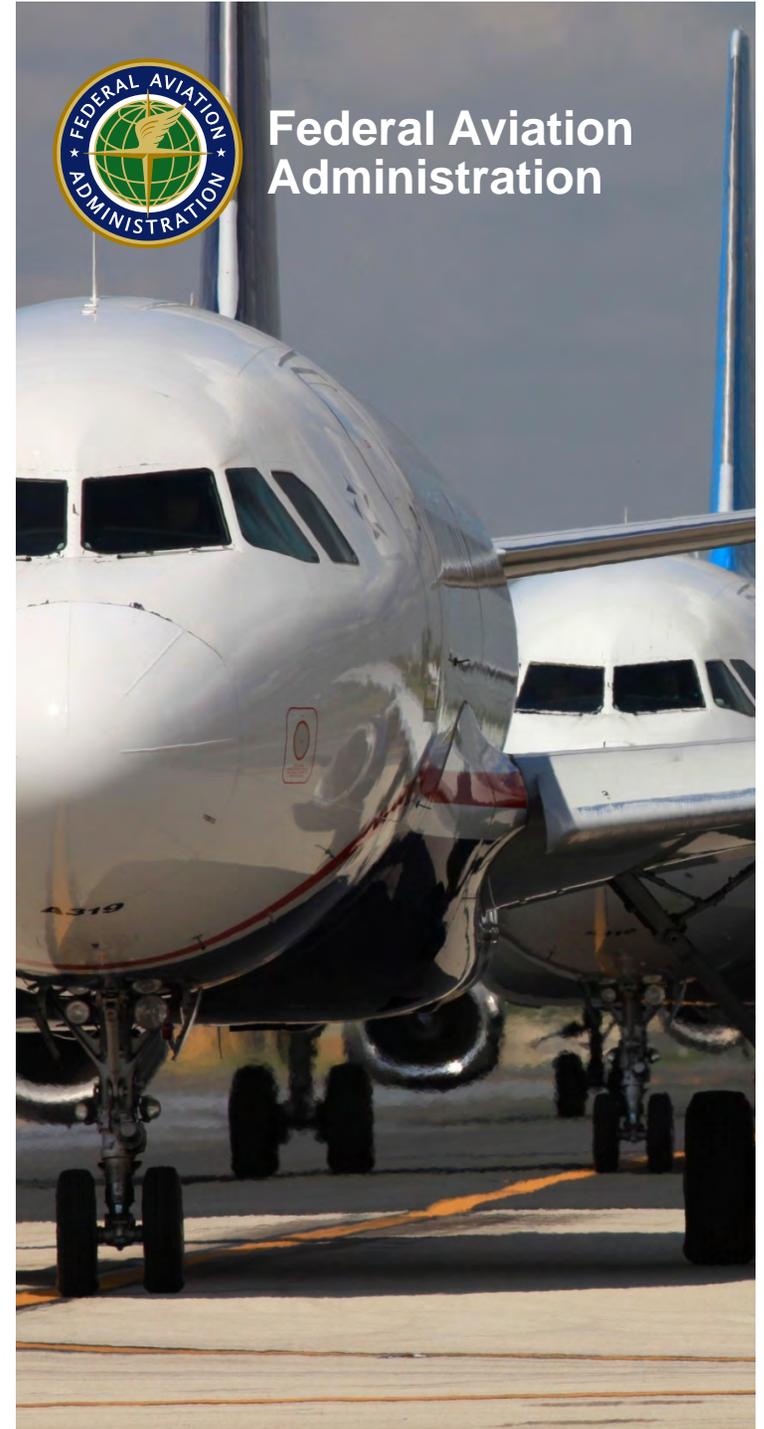


Aerodrome Inspectors Workshop

Movement Area Inspections (Safety Areas)

Location: Trinidad & Tobago, 9-13 JUN 2014

Presenter: Kelly J. Slusarski, FAA ACSI



Inspection Criteria – Runway Strip

Runway Strip is defined as the area surrounding the runway that is prepared or suitable for reducing damage to aircraft in the event of:

- Unintentional excursion from the runway surface



Inspection Criteria – Runway Strip

ICAO Annex 14 standards for maintaining the **runway strip**

Annex 14, 3.4.6 **Recommendation.** – *An object situated on a runway strip which may endanger aeroplanes should be regarded as an obstacle and should, as far as practicable, be removed.*

Annex 14, 3.4.7 – No fixed object, other than visual aids required for air navigational purposes and satisfying the relevant frangibility requirement in Chapter 5, shall be permitted on a runway strip.

ICAO Annex 14 prohibits objects in the runway other than visual aids that are frangibly mounted.

Inspection Criteria – Runway Strips

ICAO Annex 14 standards for maintaining the **runway strip**

Annex 14, 3.4.8 **Recommendation.**— *That portion of a strip of an instrument runway within a distance of at least:*

— *75 m where the code number is 3 or 4;*

from the centre line of the runway and its extended centre line should provide a graded area for aeroplanes which the runway is intended to serve in the event of an aeroplane running off the runway.

ICAO Annex 14 recommends that runway strips be graded to minimize hazards to aeroplanes that run off the runway.

Inspection Criteria – Runway Strip

Runway End Safety Area is defined as the area beyond the end of the runway that is prepared or suitable for reducing damage to aircraft in the event of:

- Undershoot
- Overshoot



Inspection Criteria – Runway End Safety Areas

ICAO Annex 14 standards for maintaining runway end safety areas

Annex 14, 3.5.6 **Recommendation.** - *An object situated on a runway end safety area which may endanger aeroplanes should be regarded as an obstacle and should, as far as practicable, be removed.*

Annex 14, 3.5.7 **Recommendation.** – *A runway end safety area should provide a cleared and graded area for aeroplanes which the runway is intended to serve in the event of an aeroplane undershooting or overrunning the runway.*

Annex 14, 3.5.11 **Recommendation.** – *A runway end safety area should be prepared or constructed as to reduce the risk of damage to an aeroplane undershooting or overrunning the runway, enhance aeroplane deceleration and facilitate the movement of rescue and fire fighting vehicles as required in 9.2.30 to 9.2.32.*

Annex 14 recommends that the runway end safety areas not have objects that may endanger an aeroplane and that they be constructed to minimize hazards to aeroplanes that undershoot or overrun the runway.

Inspection Criteria – Runway Strip/Runway End Safety Areas



The runway strip and runway end safety area enhances the safety of airplanes which undershoot, overrun, or veer off the runway, and it provides greater accessibility for firefighting and rescue equipment during such incidents.

Inspection Criteria – Taxiway Strips

ICAO Annex 14 standards for maintaining **taxiway strips**

Annex 14, 3.11.3 **Recommendation.** – *The taxiway strip should provide an area clear of objects which may endanger taxiing aeroplanes.*

Annex 14, 3.11.4 **Recommendation.** – *The centre portion of a taxiway strip should provide a graded area to a distance from the centre line of the taxiway of at least:*

- 12.5 m where the code letter is B or C; (B-737, A-320)
- 19 m where the code letter is D; (B-757, B-767, A-300, A-310)
- 22 m where the code letter is E; (B-777, B-747)
- 30 m where the code letter is F; A-380

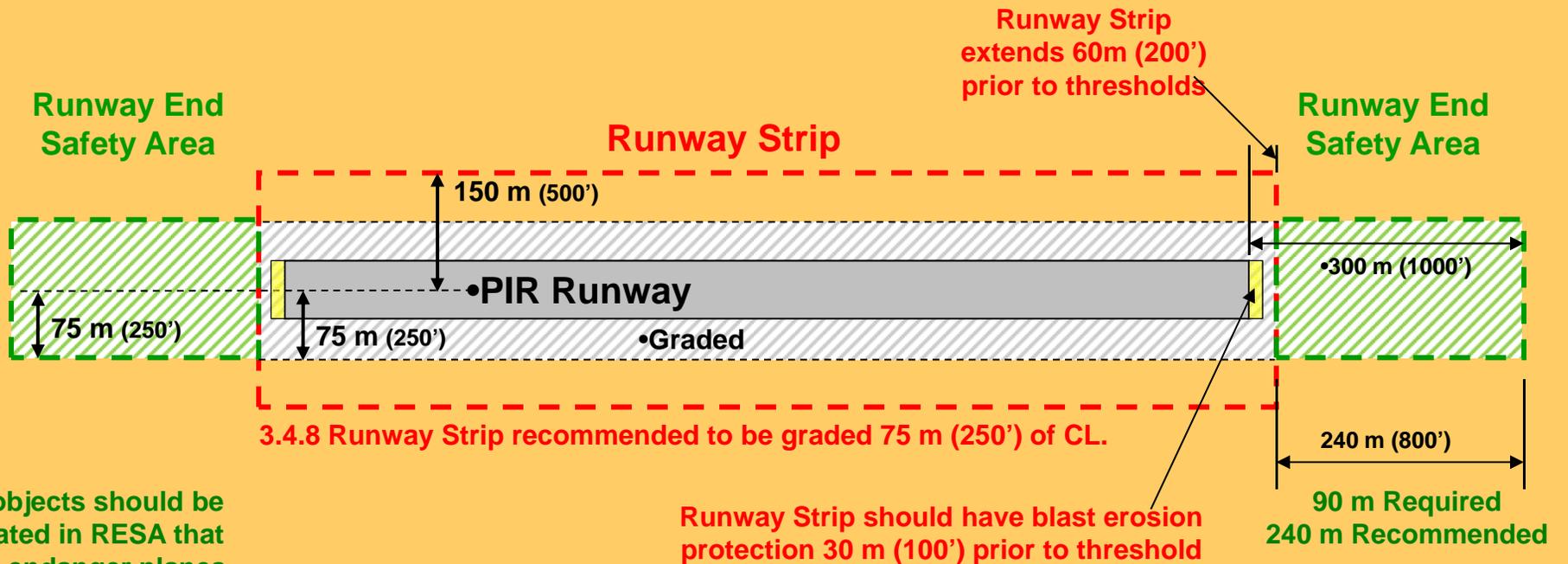
Annex 14, 3.11.5 **Recommendation.** – *The surface of the strip should be flush at the edge of the taxiway or shoulder, if provided, and the graded portion should not have an upward transverse slope exceeding:*

- 2.5 per cent for strips where the code letter is C, D, E or F;

ICAO Annex 14 recommends that taxiway strips be clear of objects, are graded, and are flush with the edge of the taxiway or shoulder.

Runway Strip/Runway End Safety Area

Code No. 4 PIR Runway 1800 m (5850') or longer



No objects should be situated in RESA that may endanger planes.

RESA recommended to be graded and cleared to reduce risk of damage to planes undershooting or overrunning the runway.

3.4.7 No Fixed Objects other than frangible visual aids permitted in Runway Strip within 60 m (200') of CL or 77.5 m (250') of CL for Code 4F runway. No mobile object shall be permitted on this part of the runway strip during the use of the runway for landing or take-off.

Width shall be at least twice runway width. Recommended width same as graded width of Runway Strip (75 m).

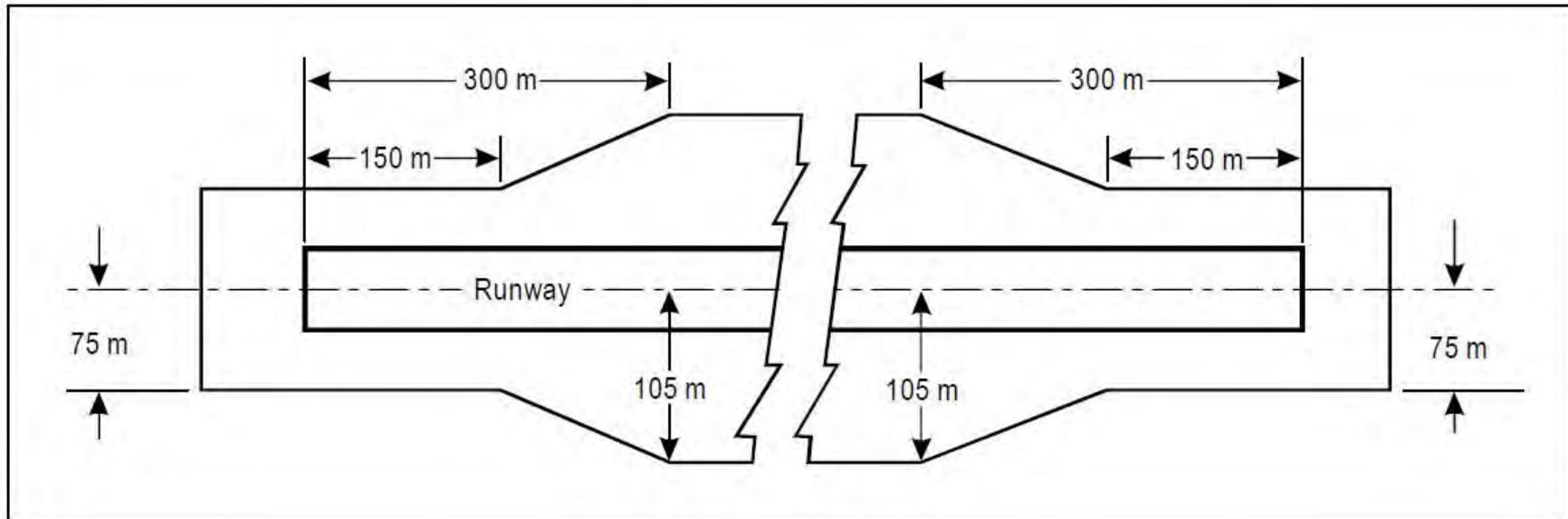


Figure A-4. Graded portion of a strip including a precision approach runway where the code number is 3 or 4

Supplemental guidance in Annex 14, Attachment A, Figure A-4, shows the graded portion of the runway strip for precision approach runways, flaring out from 75 m to 105 m from centre line, beginning 150 m from each end. Attachment A, Par 8.3 states that this may be desirable to adopt a greater width, based on information on aircraft running off runways.

Example of Problem – Runway Strip



Objects, such as this large hay bale located in the runway strip, could be a hazard if hit by an aircraft.

Example of Problem – Runway Strip

Annex 14, 3.4.6 **Recommendation.** – *An object situated on a runway strip which may endanger aeroplanes should be regarded as an obstacle and should, as far as practicable, be removed.*

Annex 14, 3.4.7 – No fixed object, other than visual aids required for air navigational purposes and satisfying the relevant frangibility requirement in Chapter 5, shall be permitted on a runway strip.



These concrete pipes are a significant hazard if hit by an aircraft and are located at the runway threshold where there is a higher risk of them being struck.

Example of Problem – Runway Strip



Annex 14, 3.4.8 Recommendation.— *That portion of a strip of an instrument runway within a distance of at least:*

— 75 m where the code number is 3 or 4;

from the centre line of the runway and its extended centre line should provide a graded area for aeroplanes which the runway is intended to serve in the event of an aeroplane running off the runway.

Example of Problem – Runway Strip



Annex 14, 3.4.16 **Recommendation.** – *That portion of a strip of an instrument runway with a distance of at least:*

*75 m where the code number is 3 or 4;
from the centre line of the runway and its extended centre line should be so prepared or constructed as to minimize hazards arising from differences in load bearing capacity to aeroplanes which the runway is intended to serve in the event of an aeroplane running off the runway.*

Example of Problem – Runway Strip

Annex 14, 3.4.7 – No fixed object, other than visual aids required for air navigational purposes and satisfying the relevant frangibility requirement in Chapter 5, shall be permitted on a runway strip.

- b) within 60 m of the runway centre line of a precision approach runway category I, II or III where the code number is 3 or 4; or



This large concrete structure provides a potentially hazardous situation in the event of an aircraft running off the runway.

Example of Problem – Runway Strip



This REIL can be located in the runway safety area because of its function, however, it must be frangibly mounted.

Example of Problem – Runway Strip



This incident occurred when a pilot lost control of the aircraft during takeoff and hit a grain trailer parked in the runway strip. 17

Example of Problem – Runway Strip



This open vault along the side of the runway is a significant safety hazard in the event of an aircraft running off the runway.



An aircraft landing gear falling into one of these open pits will likely result in fire from ruptured fuel lines and fuel tanks. Post crash fires are a common cause of fatalities in airline accidents during landing and takeoff operations.



In addition, these open vaults are hazardous for fire fighting vehicles maneuvering around an accident scene during emergencies. A rescue fire fighting vehicle hitting one of these open vaults could cause injury to fire fighters and disable the vehicle at a critical time.