FAA Office of Airport Safety and Standards

Airport and Runway Safety and Technology

Presented to: Pan American Regional Aviation Safety Team (PA-RAST)

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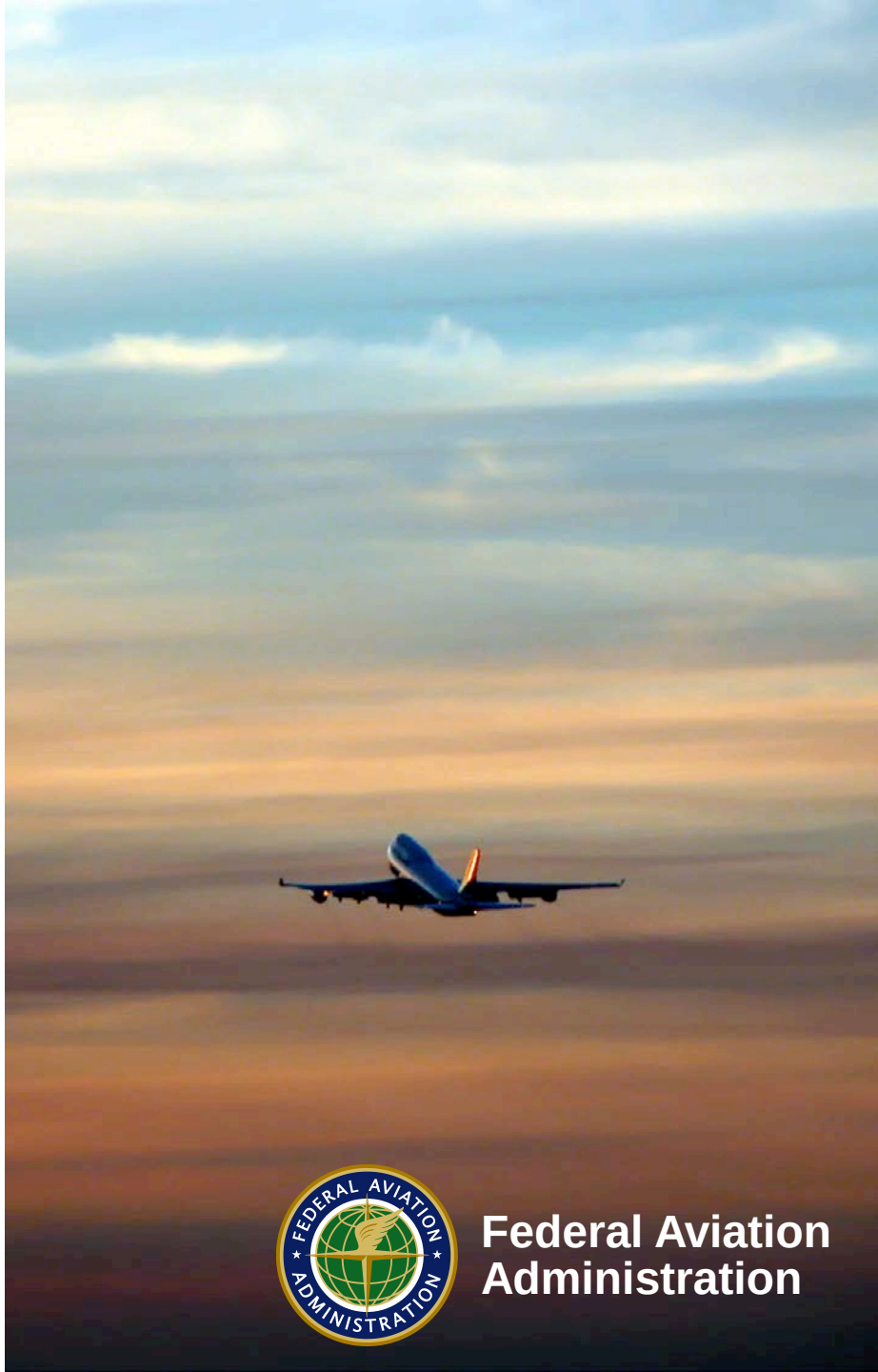
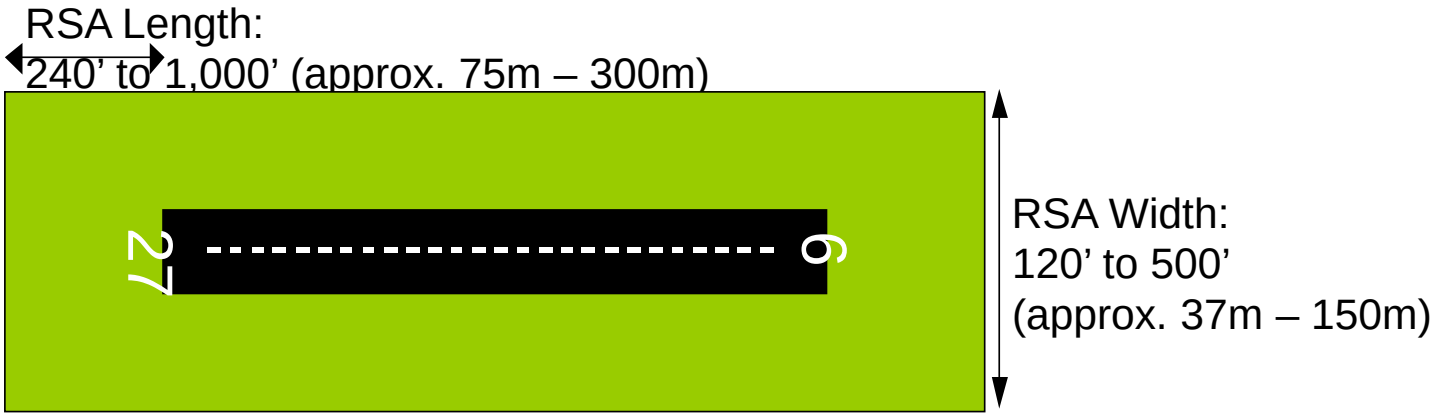
Airport Engineering Division

Date: November 14, 2017



RUNWAY SAFETY AREA (RSA) REQUIREMENTS

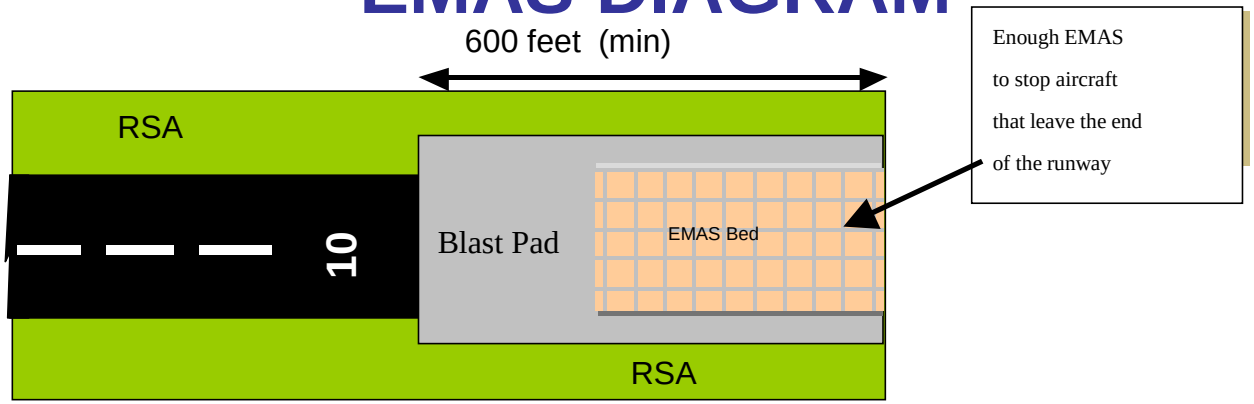
RSA LAYOUT AND DIMENSIONS



- **RSAs for runways that accommodate large aircraft are typically 1000’ x 500’ (75m – 300m)**
  - Must be clear of objects, structures, highways, bodies of water, drainage swales and navigational aides that are **not** fixed-by-function

RUNWAY SAFETY AREA (RSA) IMPROVEMENT PROGRAM

EMAS DIAGRAM



* Applies only to runway safety areas with vertical guidance for approaches from the opposite end

- **There is typically a "setback" distance from the threshold to the EMAS bed to protect the bed from jet blast**
- **A proposed EMAS that does not have a sufficient amount of safety area may, if approved, be installed as a non-standard EMAS (must stop design aircraft traveling at a minimum of 40 knots)**

Successful EMAS Capture

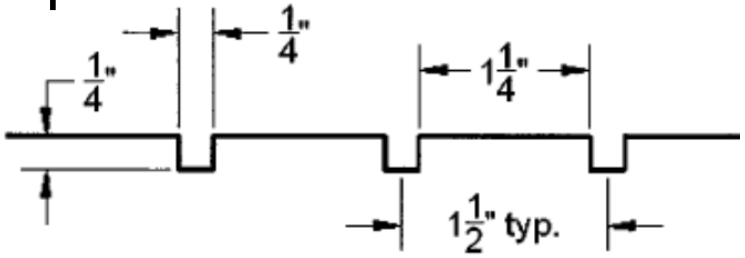
Charleston Yeager Airport

Successful EMAS Capture

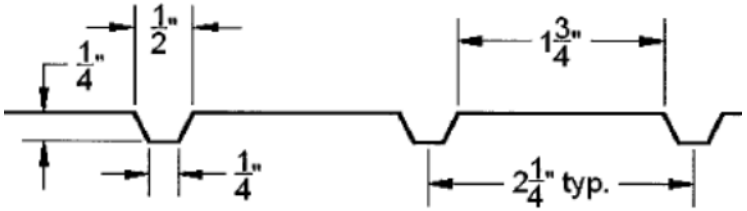
January 19, 2010 – Charleston Yeager Airport

Pavement Grooving

•Per FAA Specification:



•Now Testing Trapezoidal Grooves:



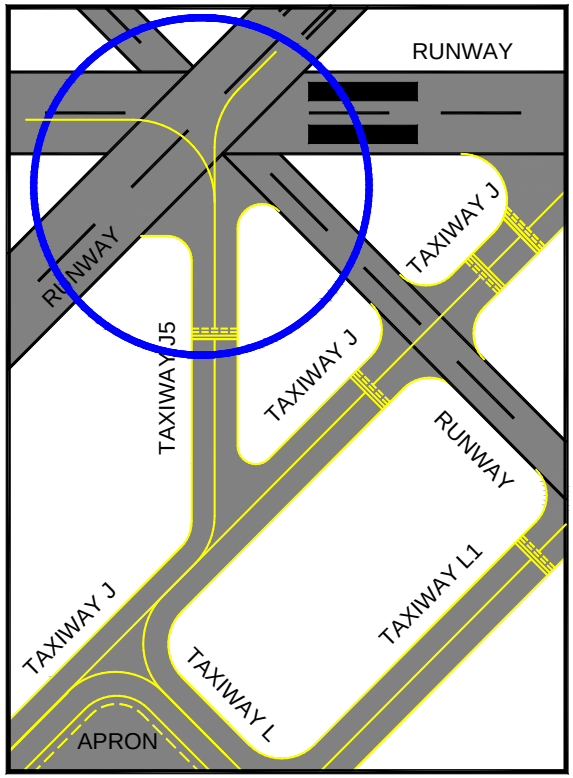
•Grooves provide channels for water to escape.

Distance Remaining Signs
(1000-Foot Increments)

Design

- **Taxiway / Runway – Interface:**
- **Optimum design is right-angle**
  - No less than 45 degrees
  - Exception for High Speed Exits
- **Not Recommended:**
  - Y-shaped taxiway crossing
  - Taxiway crossing a High Speed exit
  - Taxiway connecting to V-shaped runways
  - Aligned taxiway (Prohibited)
  - Direct access from a ramp/ terminal to the runway
  - High-speed exits leading directly onto another runway

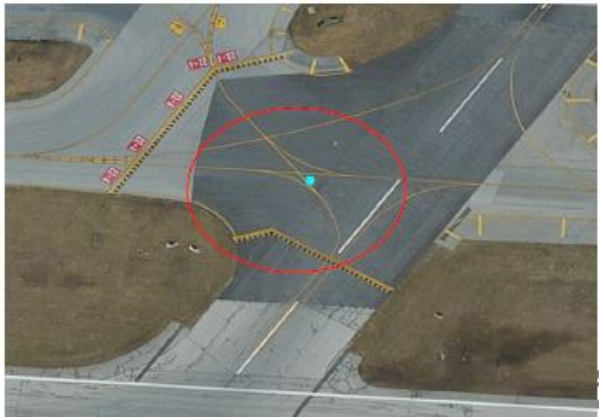
Avoid This!



(d) Taxiway intersecting two or more runways

Background - PTG History

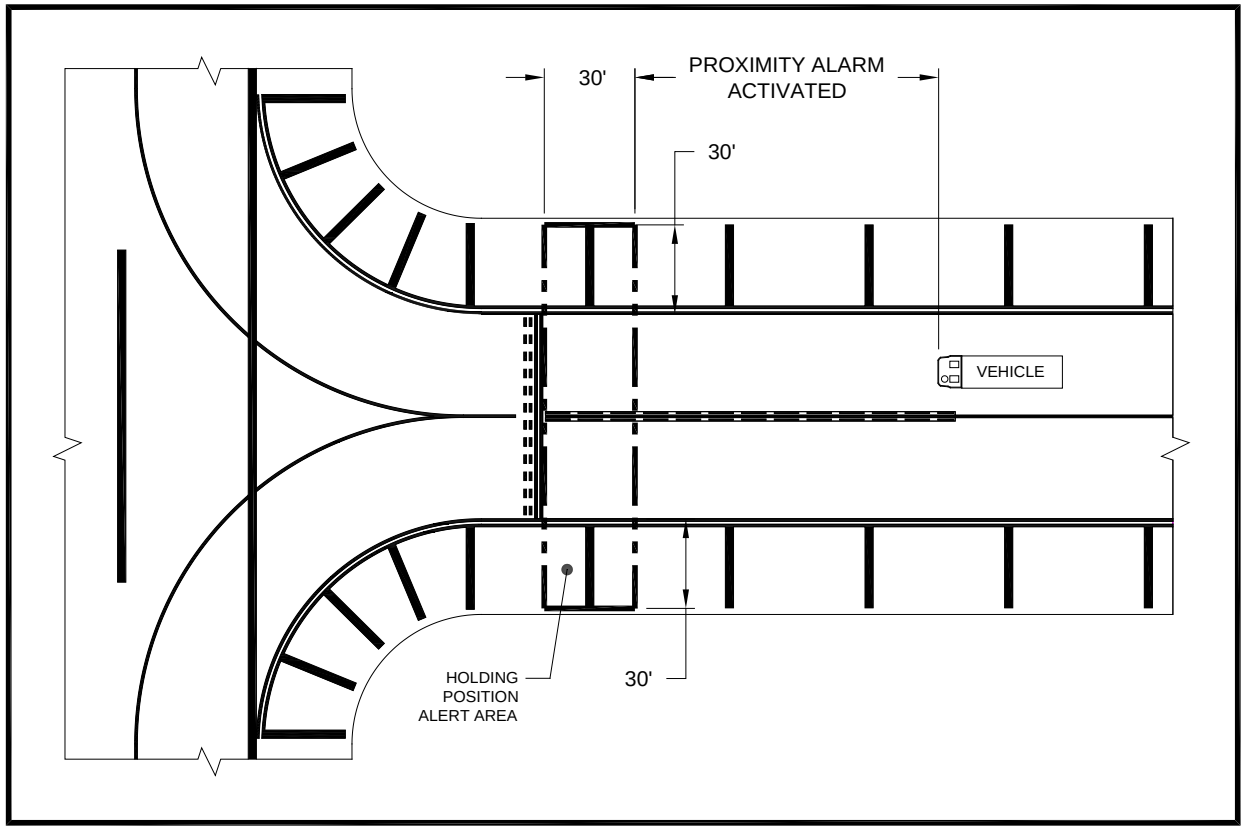
- **Examples of PTG:**



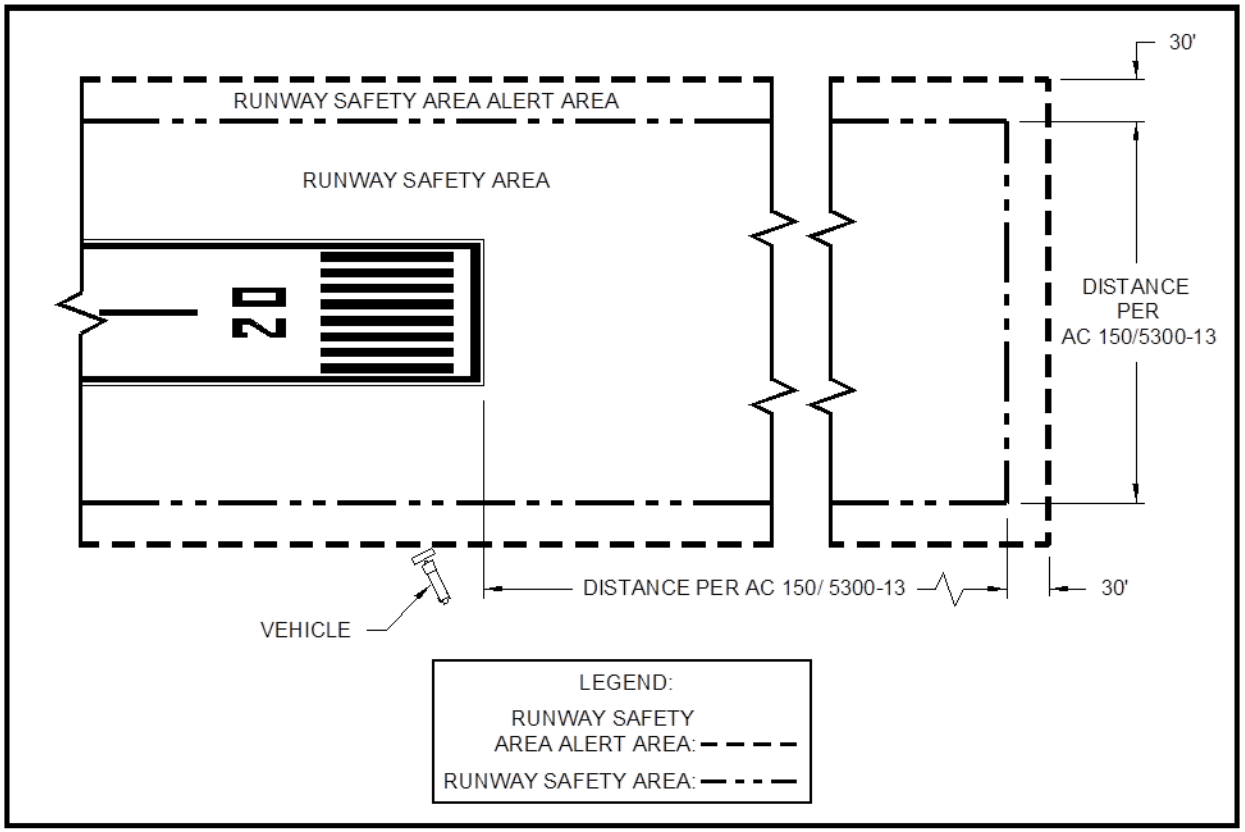
RIWS

- **Runway Incursion Warning System (RIWS) provides an alarm to vehicle drivers when the vehicle is near or is inside the protected area of a surface that is designated for the aircraft landing and takeoff operations.**
- **The alarms will help the vehicle driver to avoid a potential the runway incursion.**
- **The RIWS must be used as a situational awareness tool to help to reduce the possibility of a runway incursion event.**
- **The presence of RIWS does not replace the vehicle operator's required airport familiarity, situational awareness and ATCT instructions when driving on AOA.**

Alert Area: Runway Holding Position Marking



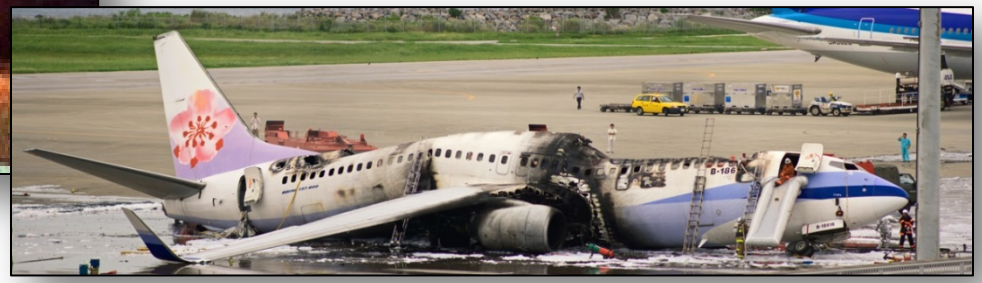
Alert Area: Runway Safety Area



Why Automated FOD Detection?

- *"It has become clearer that this was a unique accident caused by a one-off chance of a piece of metal lying on the runway".*

-Concorde crash preliminary report



Aug 20, 2007 China Air 737-800 – Fuel tank punctured by bolt from slat.

Examples of FOD

Systems Evaluated During R&D Phase

•QinetiQ Tarsier Radar
Providence, RI (PVD)

•Xsight FODetect (Hybrid)
Boston, MA (BOS)

•TREX FOD Finder (Radar-Mobile)
Chicago, IL (ORD)

•Stratech iFerret (Electro-Optical)
Chicago, IL (ORD)

Wildlife Hazard Mitigation

EVERYTHING is pre / post US Airways Flight 1549 (January 15, 2009)

1. Strike reports increased 25% in 2009 and have remained high.
2. Part 139.337 reviewed, ACs updated and Certalerts developed.
3. NTSB and OIG provided recommendations to FAA re: wildlife hazards (all have been closed out successfully).
4. Research increased and included on-aircraft options to mitigate wildlife strikes (pulse lighting research has proven effective allowing birds early detection of oncoming aircraft).
5. Outreach improved (new web site, strike reporting with smart phones, 36,000 wildlife strike posters & 2 ACRP documents mailed to all NPIAS airports, etc.).
6. AIP funding available for all WHAs/ WHMPs, avian radar, fencing, etc.
7. ALL CERTIFICATED AIRPORTS HAVE CONDUCTED A WHA/ WHMP = SAFER AIRPORTS

Wildlife Hazard Management Plan

- **Provide measures to alleviate or eliminate wildlife hazards.**
- **Identify persons who have authority for implementing the plan.**
- **Priorities for needed habitat modification.**
- **Identification of resources for the plan.**
- **Procedures to be followed during air carrier operations.**
- **Implement wildlife control measures.**
- **Plan reviewed and approved by FAA**

Bird Cannons

Aircraft Rescue and Fire Fighting (ARFF)

Aircraft Rescue and Fire Fighting (ARFF)

- **Airports must meet ARFF training requirements.**
- **FAA findings - firefighters not fully trained on shifts.**
- **FAA is conducting 100% review of all ARFF training records during annual inspections.**

ARFF Response

Questions?