

# Runway Safety Area Determinations

FAA Order 5200.8, Runway Safety Area Program

**Presented to:** ICAO Webinar – Bogota Colombia

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**Federal Aviation  
Administration**

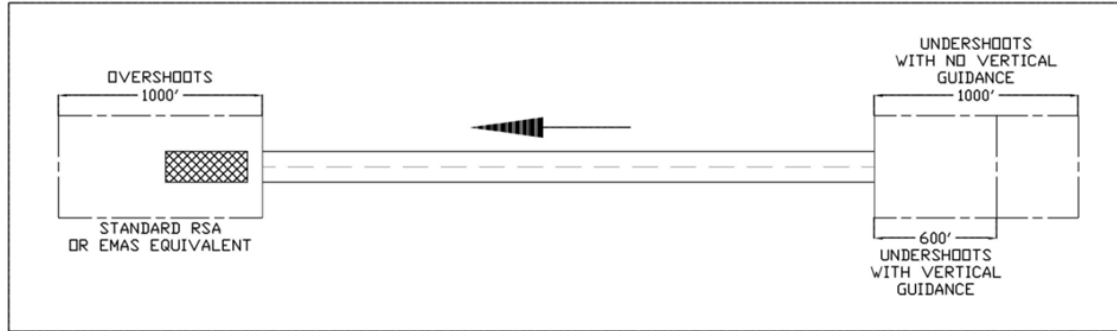
We are  
**Airports**

# Topics for Discussion

- What is a Runway Safety Area?
- FAA RSA Standards & Policy
- RSAD Update Triggers and Mitigations
- RSAD Categories & Supporting Documentation
- Typical RSA Violations
- RSA Accomplishments in the Southern Region
- ~~Case Study Omitted~~



# What is a Runway Safety Area?



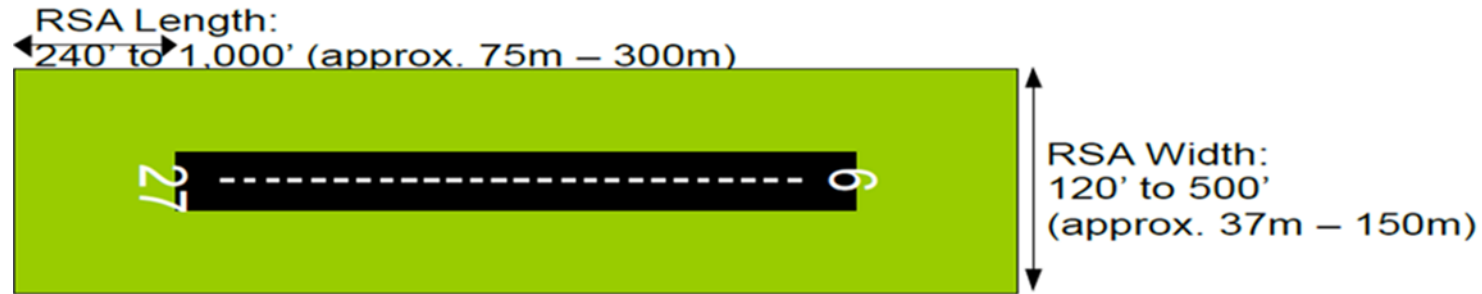
Standard Runway End Safety Area Requirements

**A Runway Safety Area (RSA) or runway end safety area (RESA):**  
“The surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or veer-off from the runway.”

# What is a Runway Safety Area? (cont'd)

## RSA Dimensions depend on (FAA AC 150/5300-13A):

- Airplane Design Group (ADG) (Group I – VI)
  - Aircraft wingspan
  - Aircraft tail height
  - Aircraft Approach Category (A-D)
  - Aircraft stall speed
- Cannot use MOS!**



# FAA RSA Regulatory & Policy - 1

- **FAA Regulatory Change in 1988 – New construction or expansion**
- **FAA Order 5100.8, “Runway Safety Area Program” issued on Oct 1, 1999**
- **Congressional mandate in 2000 to complete all RSA work by Dec 31, 2015**
- **FAA Order 5200.9 - Financial Feasibility and Equivalency of Runway Safety Area Improvements and EMAS systems issued on March 15, 2004**



# FAA RSA Regulatory & Policy - 2

- **Joint Memo of Agreement between APR and ATO (complete all RSA NAVAID work by December 31, 2018) signed in 2012**
- **FAA AC 150/5220-22B - Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns issued on September 27, 2012**
- **FAA Office of Airports SOP Number 8 issued on January 1, 2016**
- **FAA Engineering Brief 79A issued on January 21, 2016**

# How does it all work?



# RSA Determination Categories

- **Category 1** - Existing RSA meets the current standards contained in AC 150/5300-13A, *Airport Design*
- **Category 2** - Existing RSA does not meet standards, *but* it is practicable to improve the RSA to meet current standards
- **Category 3** - Existing RSA can be improved to enhance safety, *but* the RSA still will not meet current standards
- **Category 4** - Existing RSA does not meet current standards, *and* is not practicable to improve the RSA



# Supporting Documentation for RSADs - 1

- **Runway Safety Area Inventory completed by ASCI, ADO, Airport Sponsor or State Inspector (survey data is great!)**
- **RSA Study completed by Airport Sponsor**
- **RSA Determination Document completed and signed by FAA**
- **Accepted Airport Layout Plan Update**



# Supporting Documentation for RSADs - 2

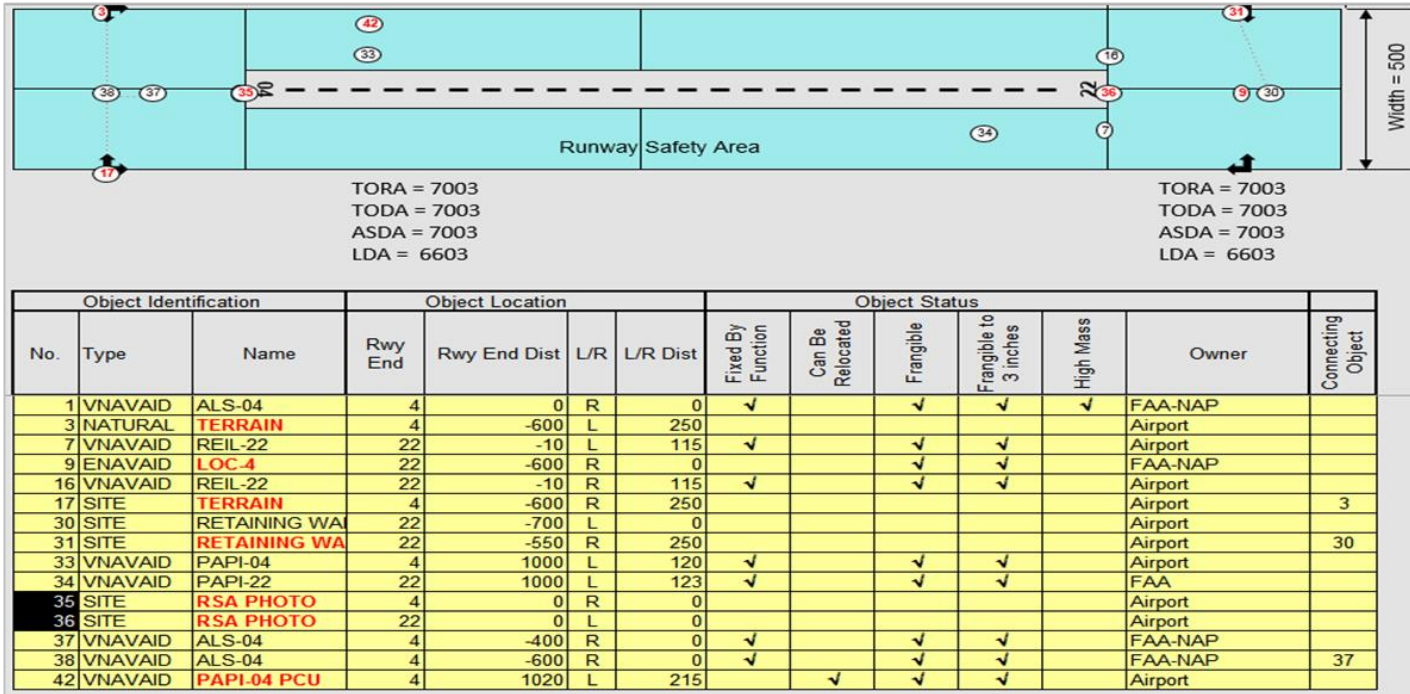
- **Documented aircraft operational requirements from Airline Operators**
- **Approved Airport Certification Manual**
- **Updated Airport Master Record (5010) and Airport Facility Directory**
- **Correspondence from the Airport**

# Examples of RSAD Update Triggers

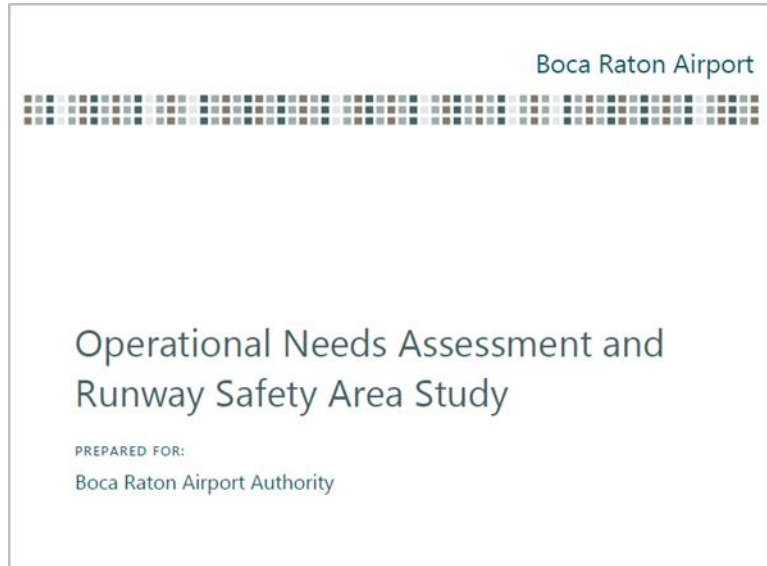
- Runway construction (rehabilitations, etc...)
- Runway modification or reconstruction
- Runway extension
- Runway threshold relocation
- Master Plan update or other Airport Layout Plan (ALP) revision affecting land available for RSAs
- Implementation/change of Declared Distances

**See FAA SOP Number 8**

# RSA Inventory



# RSA Practicability Study



*Boca Raton Airport*

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# Example Mitigations

- **RSA Improvement Construction (such as airfield grading, retaining walls, airfield drainage projects, etc.)**
- **Road Realignment or Relocation**
- **Use of Declared Distances (modifications to the ASDA & LDA)**
- **Threshold Displacement**
- **Land Acquisition**
- **EMAS (per FAA Order 5100.9)**

# Status of EMAS Installations

- **“Runway Safe”- sole EMAS manufacturer accepted by FAA**
- **Two systems: cellular concrete block; and silica foam**
- **EMAS beds still viable option for improving your RSA**
  - To date, safely stopped 15 aircraft; 406 crew and passengers



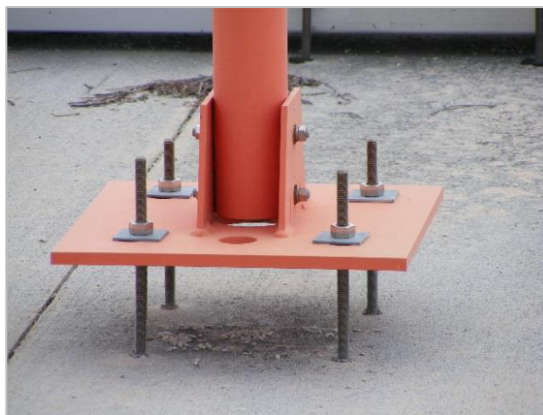
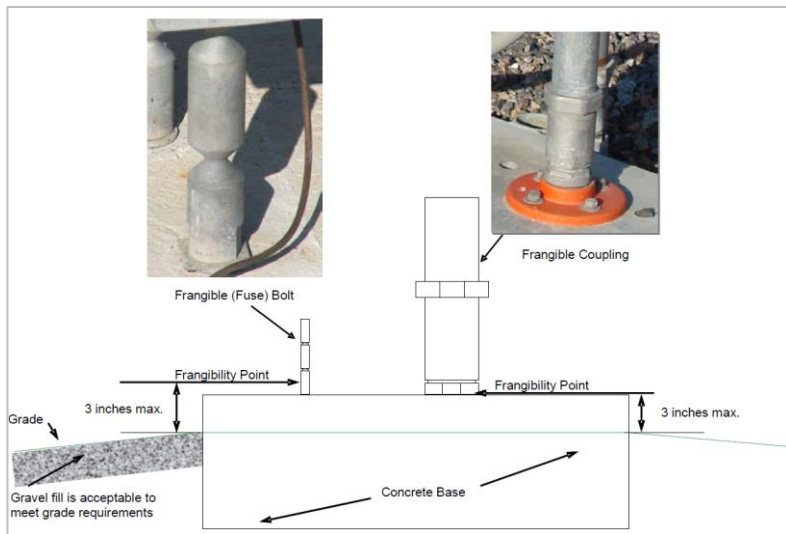
# Typical RSA Components – Fixed-By-Function



**See FAA Engineering Brief 79A**



# Typical RSA Violations – Frangibility Standards



See FAA Engineering Brief 79A

# Typical RSA Violations – Others



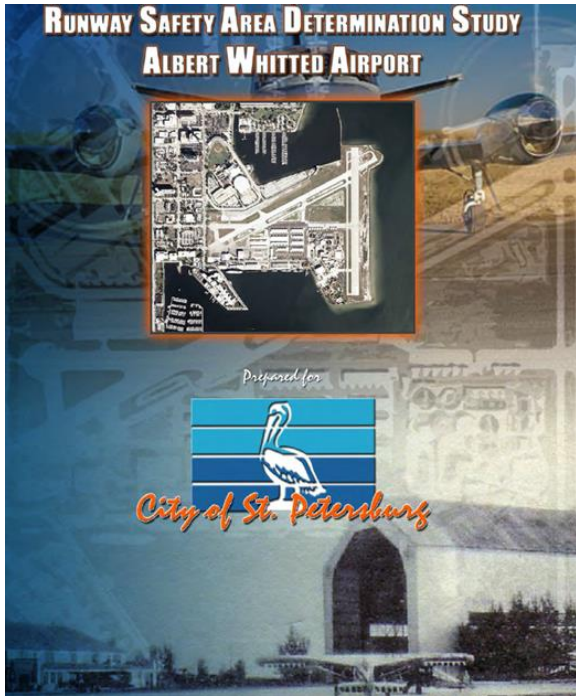
See FAA Engineering Brief 79A & 14 CFR Part 139.309,  
“Safety Areas”

# RSA Accomplishments in Southern Region

- FAA AIP & PFC ASO funding spent since FY 2000 - \$279,886,458
- FAA Engineering Services ASO funding spent since FY 2012 ~\$72M



# Things to Remember - 1



- No Modifications to Standards for RSA Standards
- RSA Study (Practicability Determination with Alternative(s) Analysis per FAA Order 5100.8) is completed by the Airport Sponsor

# Things to Remember - 2

- **FAA Airports District Office (ADO) completes the RSA Determination Form**
- **FAA Policy does not allow reducing runway length or the use of declared distances if it creates operational impact to aircraft currently using the airport**
- **Formal analysis of operational impacts must be included in the RSA Study; document reduced performance of affected aircraft**

# Questions?



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