

FAA Aerodrome Safety Programs Update

Addressing critical safety needs...

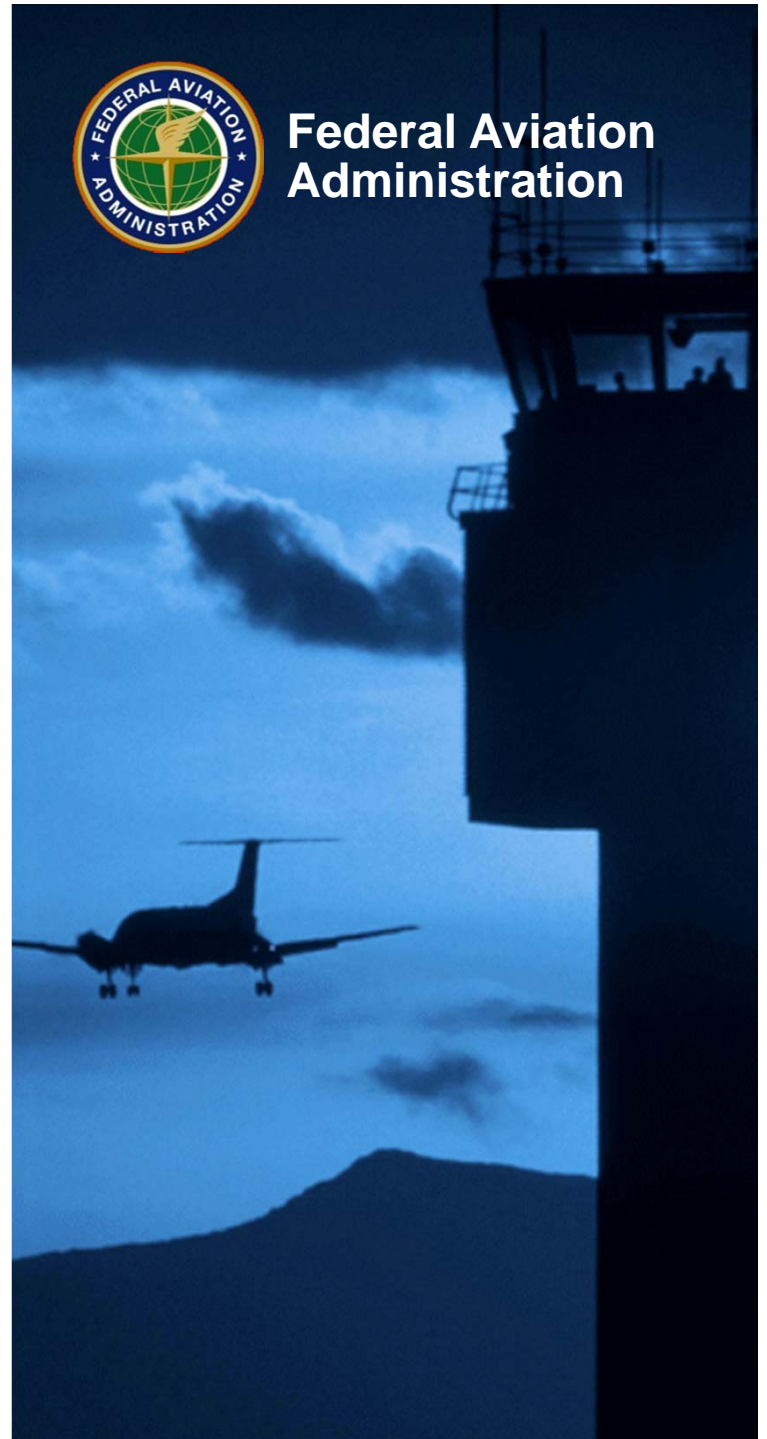
Presented to: ADCI/TF-2

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Date: 2013



**Federal Aviation
Administration**



FAA Airports Division

- Airport Safety & Standards
- Airport Engineering
- Planning & Programming
- Compliance and Operations
- Regional Offices (ADO)
- Research & Development

**546 Certificated
Airports**

**Certificate Program
Applicable Since 1974**



Certification Inspector Competencies

- **44 Credentialed inspectors**
- **Qualification Requirements**
 - Resident training (OKC, ARFF)
 - Non-resident training (OKC, eLMS)
 - OJT qualification
- **Program redesign ongoing using instructional systems design process**



Key West to Point Barrow

Runway Safety, and the provision of a safe runway environment, are some of the most safety significant challenges we face!



Runway Safety – Operational Risk Factors.

Why is Runway Safety such a challenge?



- Minimal separation and rapid pace of operations



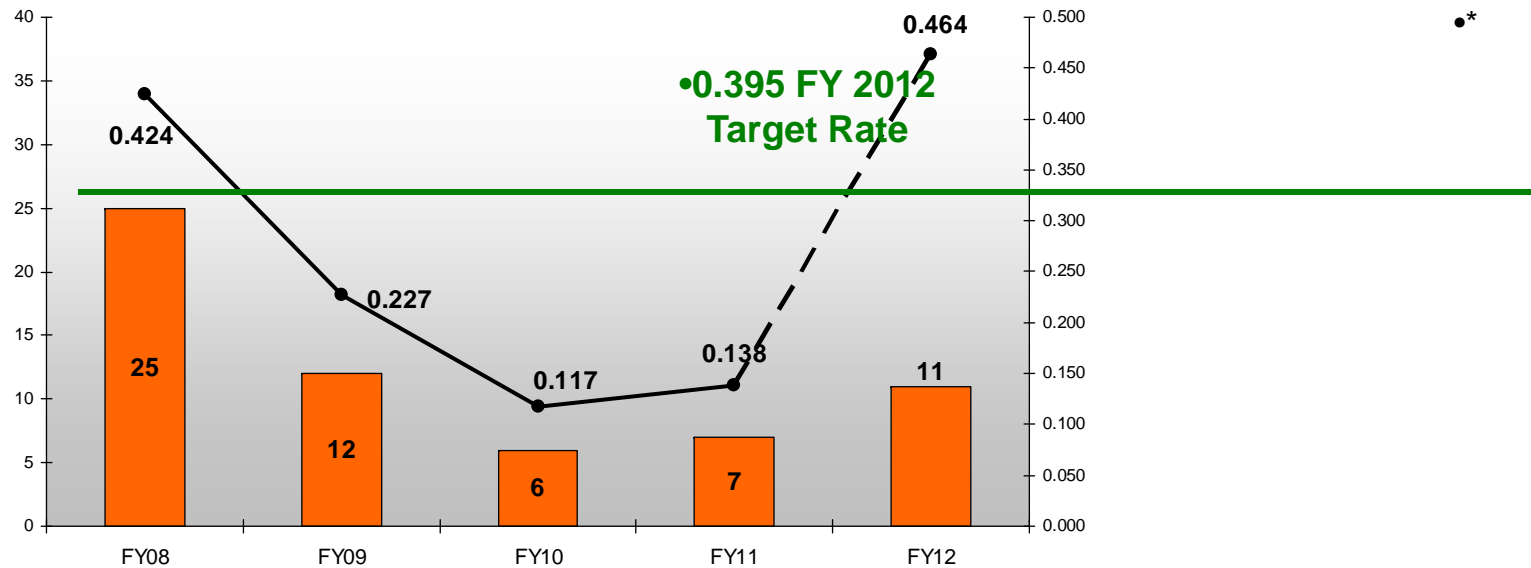
- Complex operating environment



- Visibility and weather challenges

National Runway Safety Program Established 2000

Category A&B Runway Incursions



•Category A&B Runway Incursion Rate
•Runway Incursions per 1,000,000 Airport Operations

April 19 Report: 98 VPDs (100 to date 2012)

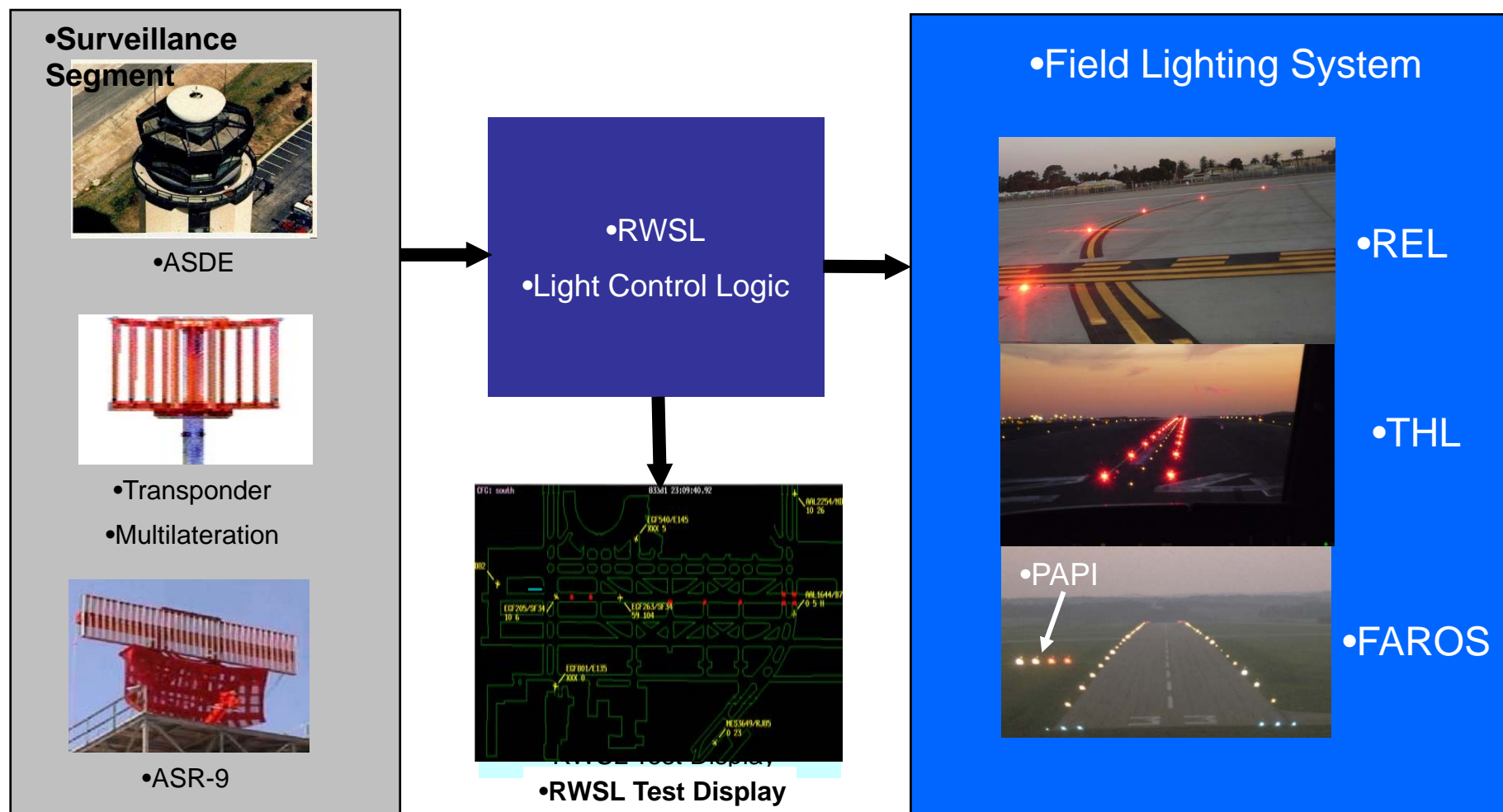
70 at Part 139 airports

VPD Rate/million operations: 3.756, (3.758 2012)

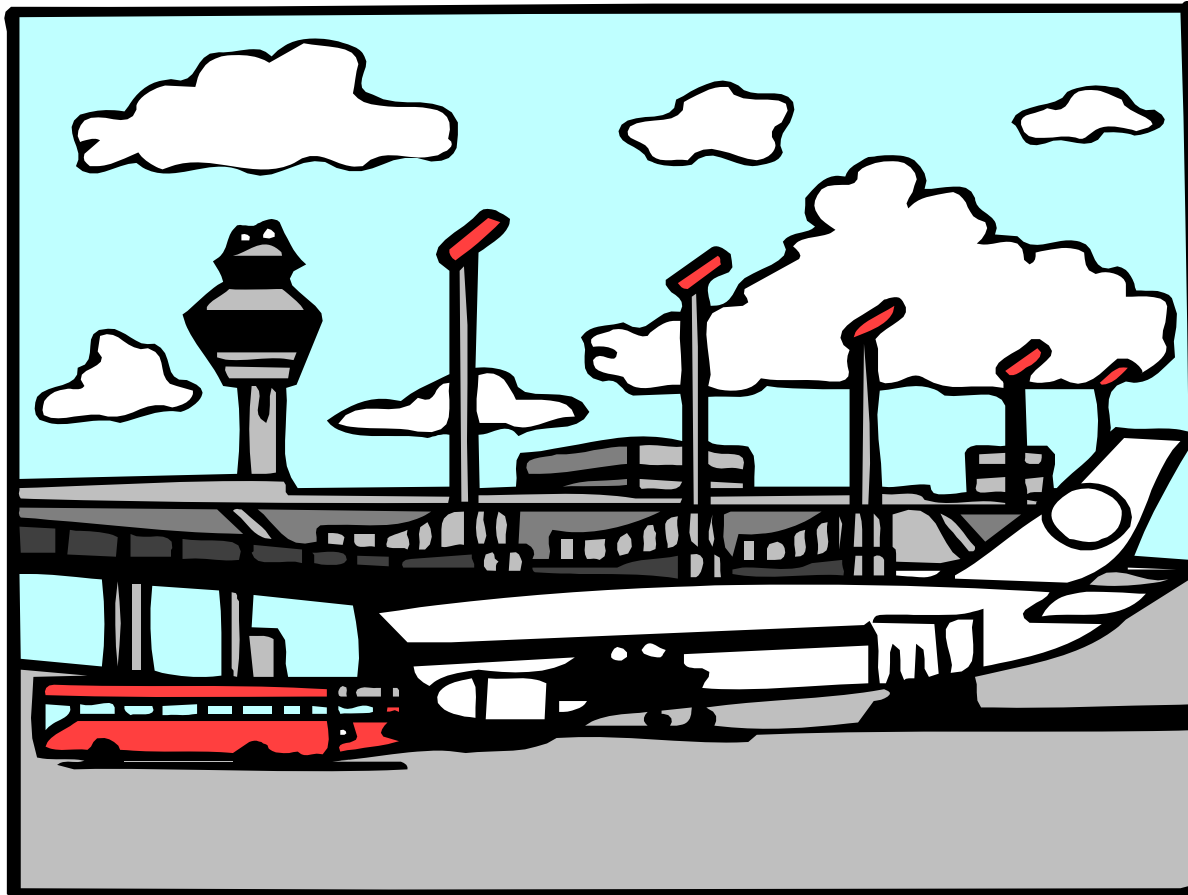
•Airport Operations (millions)

•* Rates are based on Estimated Airport Operations

RWSL System Components



However, training and awareness as part of a certification program is our best overall defense.





Local Runway Safety Action Team Toolkit (LRSAT)

Air Traffic Managers guide to best practices for conducting an effective local runway safety action team meeting.

http://faa.gov.airports/runway_safety/resources/lrsat

Wildlife Hazard Mitigation

- The need is great.
- Mitigation strategies include:
 - Habitat modification
 - Wildlife alerting system
 - Portable radar
 - Airport GIS overlay
 - DNA analysis at Smithsonian
 - Strike database



**Cessna 550, Greenwood,
SC, GRD, November 2012**

Wildlife Hazard Control

- **Hazard Assessment and Mitigation Plan – are the essential keys to adequately mitigating risk**



New Site

wildlife.faa.gov

FAA Wildlife Strike Database

- About the Database
- Frequently Asked Questions
- Search the Database
- Wildlife Strike Photo Gallery

Reporting

- Report a Strike
- Edit a Strike Report

General Information

- The Wildlife Strike Problem
- Wildlife Management
- Current Hazard Assessment Systems
- Bird Identification Techniques
- FAA's Approach on Reporting
- International Programs

Research and Development

- Main Components

Resources

- FAA Certificates and Advisory Circulars
- Conferences

FAA Wildlife Strike Database

Search the Database Report a Strike Edit a Strike Report

About the FAA Wildlife Strike Database

The FAA Wildlife Strike Database contains records of reported wildlife strikes since 1990. Strike reporting is voluntary. Therefore, this database only represents the information we have received from airlines, airports, pilots, and other sources.

There are two ways to view information in the database:

1. Do a quick search from the [Search the Database](#) page. You can export the results to Microsoft Excel.
2. Download the complete FAA Wildlife Strike Database in Microsoft Access format, and create your own queries.

Our search tool shows key information for each wildlife strike, including Date, Airport, Airline, Aircraft, and Species. To view all 94 fields of information for one or more reports, you must open the complete database. You can also visit the [FAQ](#) page for Frequently Asked Questions about wildlife strikes.

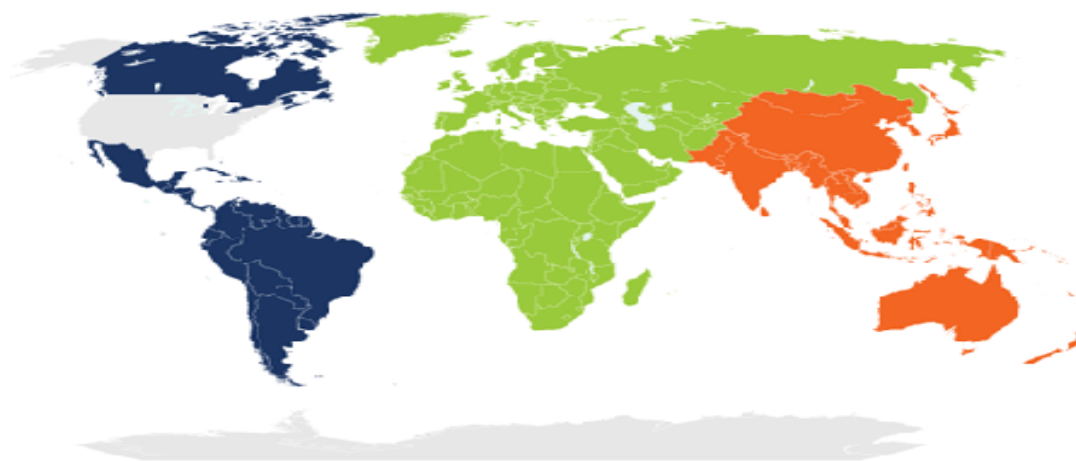
Quick Facts

- The FAA has maintained a wildlife strike database since 1990.
- The FAA wildlife strike database has recorded over 108,000 (Civil and USAF) wildlife strikes between 1990 and 2009.

Or use [Faa.gov/airports/airport_safety/wildlife](https://faa.gov/airports/airport_safety/wildlife)

Industry-Government Wildlife Collaboration Initiative - IGWCI

How does an airport with limited resources conduct a professional wildlife hazard assessment and develop a proper mitigation plan?



The most effective idea is that industry and government should work together to address hazardous wildlife issues in a regional, cooperative and prioritized manner.

Collaborative Partners in Hazardous Wildlife Management



**Airport
& CAA**



The idea of this partnership is that each partner would bring a piece of the puzzle to the table to assist nations/airports. Each partner would share their expertise and resources so that a synergy could be developed allowing for an effective, flexible hazardous wildlife response at prioritized locations.

Safety Area Improvements



- Safety areas have proven their effectiveness
- EMAS can be used as an equivalent measure
- ICAO Annex 14 Amendment

EMAS Installations



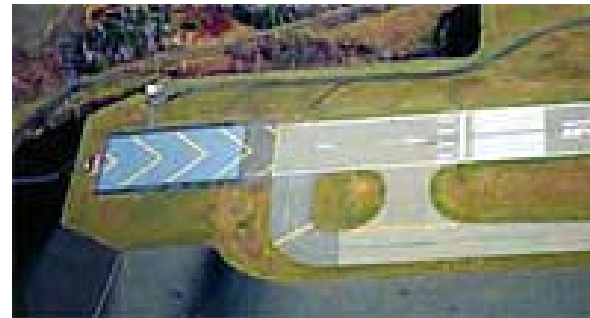
Roanoke, WV



Baton Rouge, LA



Little Rock, AR



Binghamton, NY

Successful EMAS Capture

*US Airways Flight 2495, Charleston Yeager Airport,
January 19, 2010*



EMAS Works

- Installed at 66 runway ends at 44 airports
- Additional installations planned 2013
- 8 successful captures to date
- ACRP29, cellular glass, engineered aggregate, main-gear systems – GLASOPHOR (Norsk)
- AC150/5220-22A update



Airport Technology Research Plan

...for the NextGen Decade



Research Examples



Previous TWY Markings



Enhanced TWY Markings



1986 ARFF Nozzle



HRET- Penetrating Nozzle

Rescue Firefighting Initiatives

- **Fire Safety Branch of the Aviation Research Division (William J. Hughes - Technical Center)**
 - Fire and cabin safety
 - Materials and Systems
 - Fire research
- **Projects**
 - Tactics
 - Fuselage burn through
 - Cabin safety
 - New Large transport aircraft
 - Fighting cargo aircraft fires



Tech Center Fire Test Facility



Rescue Firefighting: Cargo Aircraft

- Cargo aircraft face unique challenges
- Dramatic increase in transport of batteries
- Current efforts
 - Cargo fire behavior
 - Detection systems
 - Fuselage piercing technologies
 - Suppression systems
 - A310 test aircraft at Fire Test Facility

PAST



Memphis, 2003



Cargo Cover



Rescue Firefighting Initiatives

- **Updated Firefighting DVD**
 - Current standards and best practices
 - Cargo
 - HRET
 - Extrication
 - Explosive devices on aircraft
- **Projects**
 - Web update
 - AC150/5210-23 HRET update
 - AC150/5210-17, ARFF Training update (update this year with new NFPA PPE requirements)
 - A310, Southern California Logistics Airport, Victorville, CA



Operation of New Large Aircraft

**Tech Center Report:
Tactical Strategies for
NLA, 4/25/13**



**Revised TCA/PCA
Determinations and attack
methods.**

Penetrating Nozzle Testing



**Tech Center,
Carbon fiber
tests ongoing**

**Tech Center
Report: Prototype
Nozzles for
Freighter Aircraft
4/25/13**



FOD Detection

- Research and development led to system specifications
- AC150/5220-24, *FOD Detection Equipment*
- Four systems
 - Mobile radar (ORD, HNL)
 - Fixed radar (PVD)
 - Electro-optical (ORD)
 - Hybrid (radar/optical)(BOS)



Foreign Object Debris - FOD

- **June 15, 2012: FAA FOD Program webpage available**
- **AC150/5210-24, *FOD Management Programs***
 - Risk assessment
 - Programs (inspections, operations, methods, and techniques)
 - Training
 - Equipment
 - FOD evaluation techniques



http://www.faa.gov/airports/airport_safety/fod

National Airport Pavement Test Facility



Instrumented Test Track at the NAPTF, FAA Technical Center

http://www.faa.gov/airports/engineering/pavement_design/

Pavement Initiatives and Testing

- PACER (Pavement Surface Evaluation & Rating) system. AC150/5320-17.
- Airport pavement management system. AC150/5380-6/7 (PMS)
- FAA PAVEAIR (Airport Pavement Database Management System)
 - Historic & current information
 - Surface & subsurface degradation analysis
 - Scheduling & maintenance planning
- <http://faapaveair.faa.gov>



Safety Management System (SMS)

- FAA Office of Airports has two SMS initiatives: Internal and External SMS
- Internal SMS remains focused on Large Hub airports only. FAA Order 5200.11 (8/30/10) defines SMS process internally and in the application of SRM at large hub airport projects.
- External SMS is an ongoing rulemaking effort.

The Four SMS Components

Safety Policy

Establishes senior management's commitment to continually improve safety; defines the methods, processes, and organizational structure needed to meet safety goals

Safety Assurance

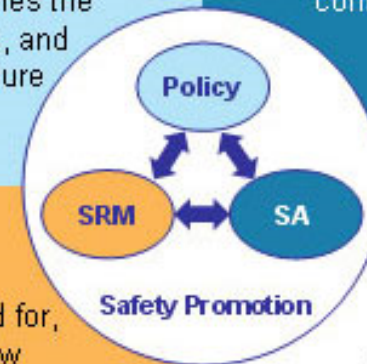
Evaluates the continued effectiveness of implemented risk control strategies; supports the identification of new hazards

Safety Risk Management

Determines the need for, and adequacy of, new or revised risk controls based on the assessment of acceptable risk

Safety Promotion

Includes training, communication, and other actions to create a positive safety culture within all levels of the workforce



FAA Aerodromes SMS Effort

- **AC150/5200-37, SMS for Airport Operators**
- **First pilot study (Feasibility and need: 26 airports)**
- **Second pilot study (Scalability: 9 airports)**
- **Implementation study (14 airports)**
- **ACRP studies and guidebooks**
- **Notice of proposed rulemaking**



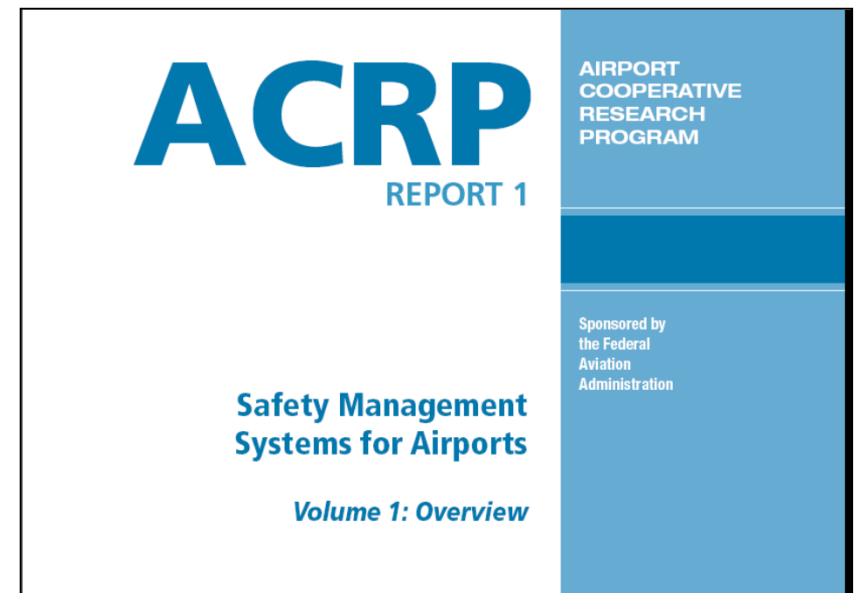
Steps Toward SMS Regulation

- **Advisory Circular 150/5200-37 Draft update completed**
- **Supplemental Notice of Proposed Rulemaking (SNPRM)**
 - Changes made based on initial NPRM input
 - Publish 9Dec13
 - 60 day comment period.
 - Agency action within 16 month by statute



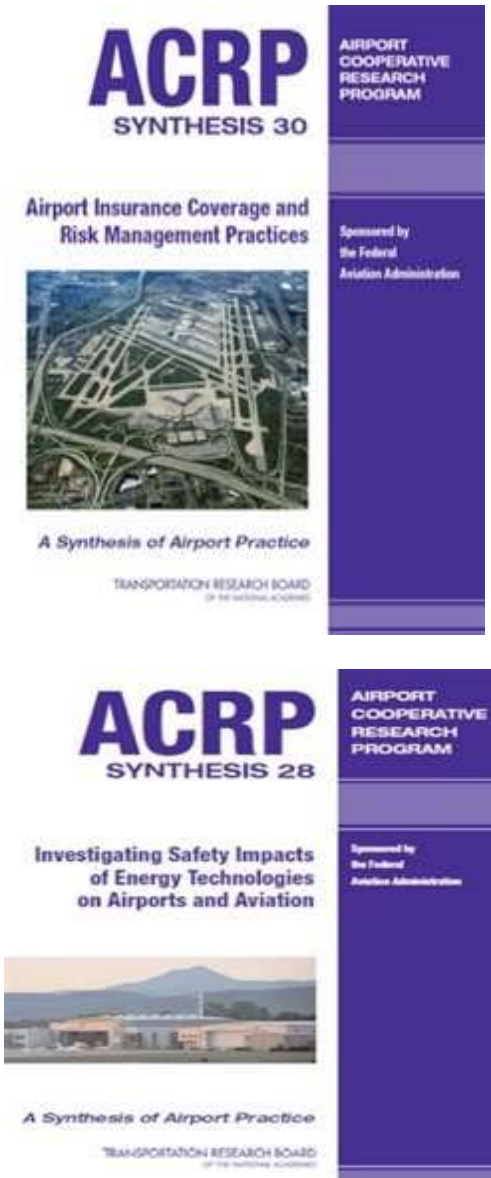
FAA Airport Cooperative Research Program - ACRP

- Unique research initiatives and synthesis studies
- Topics related to airport management, safety, design and operations
- <http://www.trb.org/ACRP/Public/ACRP.aspx>



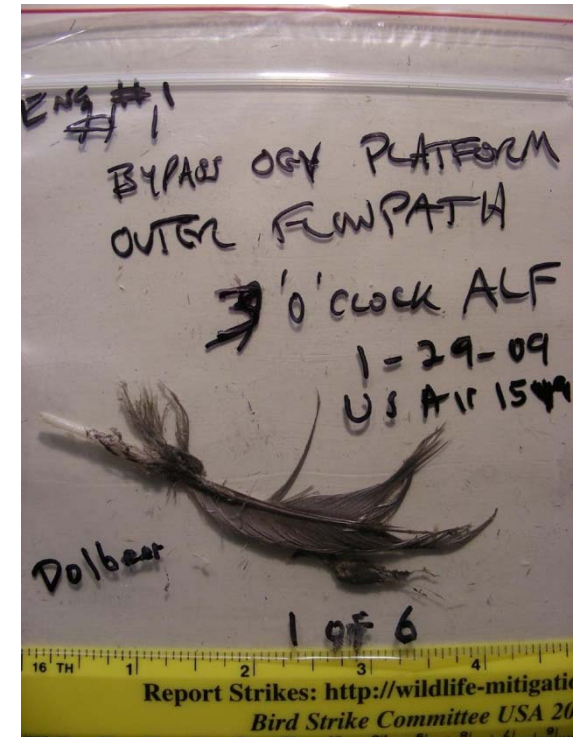
ACRP Purpose & Goals

- **Purpose:**
 - To carry out applied research on problems that are shared by airport operating agencies and that are not being adequately addressed by existing federal research programs.
- **Focus on Solving Current Problems**
- **Industry/Government Board Drives Research Priorities**
- **Typical Project: 18mo / \$300k**



Issues - Challenges

- Inspector qualifications & competencies
- Airport staffing
- Drivers training
- Repeat discrepancies
- Time limited discrepancies
- Complying with WHA/WHMP requirements



Issues - Challenges

- Integration of mutual aid agencies into overall airport emergency plan
- Water rescue programs (AC150/5210-13)
- Complying with ARFF training requirements and tracking ARFF training.



We covered:

- **Aerodrome Certification**
- **Runway Safety Programs and Initiatives**
- **Engineered Materials Arresting Systems**
- **Wildlife Hazard Control Programs**
- **IGWCI Program**
- **Rescue Firefighting Research**
- **Safety Management Systems**
- **Advanced FOD Detection Systems**
- **Pavement Research and Programs**
- **ACRP**

[Faa.gov/airports/airport_safety](https://www.faa.gov/airports/airport_safety)



Questions?????

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