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## Fact Sheet – Engineered Material Arresting System (EMAS)



Print

### For Immediate Release

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### Background

The Federal Aviation Administration (FAA) requires that commercial service airports, regulated under Part 139 safety rules and federally obligated, have a standard Runway Safety Area (RSA) where possible. The RSA is typically 500 feet wide and extends 1,000 feet beyond each end of the runway. The FAA has this requirement in the event that an aircraft overruns, undershoots, or veers off the side of the runway. Many airports were built before the 1,000-foot RSA length was adopted some 20 years ago, and it is not practicable to achieve the full standard RSA. This is due to obstacles such as bodies of water, highways, railroads, and populated areas or severe drop-off of terrain.

The FAA began conducting research in the 1990s to determine how to ensure maximum safety at airports where the full RSA cannot be obtained. Working in concert with the University of Dayton, the Port Authority of New York and New Jersey, and the Engineered Arresting Systems Corporation (ESCO) of Logan Township, NJ, a new technology emerged to safely arrest overrunning aircraft. EMAS uses crushable concrete placed at the end of a runway to stop an aircraft that overruns the runway. The tires of the aircraft sink into the lightweight concrete and the aircraft is decelerated as it rolls through the material.

### Benefits of the EMAS Technology

The EMAS technology improves safety benefits in cases where land is not available, or not possible to have the standard 1,000-foot overrun. A standard EMAS installation extends 600 feet from the end of the runway. An EMAS arrestor bed can be installed to help slow or stop an aircraft that overruns the runway, even if less than 600 feet of land is available.

### Current FAA Initiatives

The Office of Airports prepared an RSA improvement plan for the runways at approximately 575 commercial airports in 2005. This plan allows the agency to track the progress and to direct federal funds for making all practicable improvements, including the use of EMAS technology. Of the approximately 1,000 RSAs at these airports, an estimated 65 percent have been improved to full standards, and an estimated 90 percent have been improved to the extent practicable, not including the relocation of FAA-owned navigational equipment.

Presently, the EMAS system developed by ESCO using crushable concrete is the only system that meets the FAA standard. The FAA has conducted research through the Airport Cooperative Research Program (ACRP) that examined a number of alternatives to the existing approved system. ACRP Report 29, *Developing Improved Civil Aircraft Arresting Systems*, is available at the Transportation Research Board web site at <http://www.trb.org/ACRP/>.

Many of the EMAS beds installed prior to 2006 need periodic re-painting to maintain the integrity and functionality of the bed. The EMAS manufacturer has developed improved plastic seal coating for EMAS beds. This new coating should eliminate the need for the periodic re-painting.

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Pilots: \*Short Notice\* There is a TFR today (Jan. 11) in Wilmington, DE. Please check NOTAMS.

<http://t.co/Z7zWM8Ep>

[11 Jan](#)

Welcome! RT [@RayLaHood](#)  
Michael Huerta sworn in as 17th  
FAA Administrator

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## EMAS Arrestments

To date, there have been eight incidents where EMAS has safely stopped overrunning aircraft with a total of 235 crew and passengers aboard those flights.

Date	Crew and Passengers	Incident
May 1999	30	A Saab 340 commuter aircraft overran the runway at JFK
May 2003	3	A Gemini Cargo MD-11 overran the runway at JFK
January 2005	3	A Boeing 747 overran the runway at JFK
July 2006	5	A Mystere Falcon 900 overran the runway at Greenville Downtown Airport in South Carolina
July 2008	145	An Airbus A320 overran the runway at ORD
January 2010	34	A Bombardier CRJ-200 regional jet overran the runway at Yeager Airport in Charleston, WVA
October 2010	10	A G-4 Gulfstream overran the runway at Teterboro Airport in Teterboro, NJ
November 2011	5	A Cessna Citation II overran the runway at Key West International Airport in Key West, FL

## EMAS Installations

Currently, EMAS is installed at 64 runway ends at 43 airports in the United States, with plans to install six EMAS systems at five additional U.S. airports.

Airport	Location	# of Systems	Installation Date(s)
JFK International	Jamaica, NY	2	1996(1999)/2007
Minneapolis St. Paul	Minneapolis, MN	1	1999(2008)
Little Rock	Little Rock, AR	2	2000/2003
Rochester International	Rochester, NY	1	2001
Burbank	Burbank, CA	1	2002*
Baton Rouge Metropolitan	Baton Rouge, LA	1	2002
Greater Binghamton	Binghamton, NY	2	2002/2009***
Greenville Downtown	Greenville, SC	1	2003**/2010***
Barnstable Municipal	Hyannis, MA	1	2003
Roanoke Regional	Roanoke, VA	1	2004
Fort Lauderdale International	Fort Lauderdale, FL	2	2004
Dutchess County	Poughkeepsie, NY	1	2004**
LaGuardia	Flushing, NY	2	2005
Boston Logan	Boston, MA	2	2005/2006
Laredo International	Laredo, TX	1	2006/2012***
San Diego International	San Diego, CA	1	2006
Teterboro	Teterboro, NJ	2	2006+/2011
Chicago Midway	Chicago, IL	4	2006/2007
Merle K (Mudhole) Smith	Cordova, AK	1	2007
Charleston Yeager	Charleston, WV	1	2007
Manchester	Manchester, NH	1	2007
Wilkes-Barre/Scranton Intl.	Wilkes-Barre, PA	2	2008
San Luis Obispo	San Luis Obispo, CA	2	2008
Chicago-O'Hare	Chicago, IL	2	2008
Newark Liberty International	Newark, NJ	1	2008
Charlotte Douglas International	Charlotte, NC	1	2008
St. Paul Downtown	St. Paul, MN	2	2008+
Worcester Regional	Worcester, MA	2	2008/2009**

Reading, Regional	Reading, PA	1	2009**
Kansas City Downtown	Kansas City, MO	2	2009+/2010
Smith Reynolds	Winston-Salem, NC	1	2010
New Castle County	Wilmington, DE	1	2010
Key West International	Key West, FL	1	2010
Arcata-Eureka	Arcata, CA	1	2010
Telluride Regional	Telluride, CO	2	2010
Palm Beach	Palm Beach, FL	1	2011
Republic	Farmingdale, NY	1	2011
Martin County	Stuart, FL	2	2011
Lafayette	Lafayette, LA	1	summer 2011
Cleveland Hopkins	Cleveland, OH	2	fall 2011
Groton	Groton-New	2	fall 2011
	London, CT		
Augusta State	Augusta, ME	2	fall 2011
Elmira-Corning	Elmira, NY	1	summer 2012
() Bed replaced			
* Widened in 2008			
** General aviation airport			
*** retrofitted bed			
+ Reliever airport			

Additional projects currently under contract

Airport	Location	# of Systems	Expected Installation Date
Binghamton	Binghamton, NY	1	summer 2012 (replacement bed)
Boston Logan	Boston, MA	1	fall 2012 (replacement bed)
Trenton-Mercer	Trenton, NJ	2	summer/fall 2012
Teterboro	Teterboro, NJ	1	summer 2013
Lafayette	Lafayette, LA	1	fall 2012

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