

**Chicago Executive Airport  
Runway Safety Area (RSA) Determination / Engineered Material Arresting System (EMAS)  
Proposal  
Frequently Asked Questions**

**1. What is EMAS?**

- EMAS stands for Engineered Materials Arresting System. EMAS is a customized cellular cement material (similar to heavy duty Styrofoam) that is designed to crush under the weight of an aircraft.

**2. How does EMAS work?**

- When an aircraft enters the EMAS, the arrestor bed deforms and crushes upon impact while slowing and eventually stopping the aircraft.

**3. What types of aircraft will EMAS stop?**

- The EMAS proposed for Chicago Executive Airport (CEA) is designed to allow a G-V, G-IV, G-II, Challenger 600, Hawker 600, Lear 35 and Citation 560 type aircraft over running a runway at 40 knots or less to come to a stop with minimal damage to aircraft and little risk to passengers.

**4. Why does CEA need EMAS?**

- If airports like CEA are not able to provide standard Runway Safety Areas (RSA), they are encouraged by the FAA to periodically review opportunities to improve their RSAs by completing an RSA Study. According to the RSA Study performed for Runway 16/34, EMAS is being recommended to the FAA as the preferred alternative for improving the RSA.

**5. Why is the added pavement needed at the ends of the runway?**

- The added pavement, along with the EMAS, will create a full safety system.
- The added pavement will enhance safety in the case of a runway undershoot (when an aircraft lands prior to the runway). EMAS enhances safety for aircraft overruns, but not for undershoots; the added pavement would accommodate undershoots.
- The added pavement will also be available to help stop or slow an aircraft before it enters the EMAS. If an aircraft can stop before the entering the EMAS, the EMAS would not have to be replaced, saving the aircraft operator a significant amount of money.
- In addition, the added pavement will serve as a buffer between the runway end and the EMAS to prevent snow removal equipment and other airfield service vehicles from traveling into, and damaging, the EMAS and is also required, to protect the EMAS from jet blast.
- This pavement will also be available for the start of takeoff roll for aircraft while landing distance will remain the same.

- 6. If the added pavement is mainly for safety, then why isn't EMAS installed from the end of the runway to the airport perimeter fence?**
  - By maximizing the amount of pavement in front of the arrestor beds, it will decrease the possibility of damage to the system from short overruns and undershoots. It also allows for an aircraft to decelerate before entering the bed.
  - As the costs of the EMAS bed is considerably higher than the lead-in pavement, FAA's design methodology balances the lead-in pavement length and EMAS bed size to provide a cost effective design to meet the specific design inputs for each airport.
  
- 7. With the additional pavement being available for takeoff, will newer types of aircraft begin using CEA?**
  - Newer types of aircraft are not expected to begin using CEA because of EMAS.
  
- 8. Will aircraft be louder when they fly over my house?**
  - Aircraft will continue to arrive and depart the airport at the same profiles because the departure and touchdown points will not change. The EMAS is not expected to affect the noise contours recently generated in the airport's Part 150 Study. Once FAA concurs with the design request, the airport will be required to complete an environmental review and evaluate noise and other issues in greater detail.
  
- 9. What are the next steps in the EMAS proposal process?**
  - The CEA Board will submit the RSA Study, with EMAS as the recommended alternative, to the FAA for review and approval.
  - After the FAA approves the proposal, the Airport Layout Plan (ALP), which requires concurrence from the Village of Wheeling and the City of Prospect Heights, will be updated and submitted to the FAA for approval.
  - After approval of the updated ALP, environmental clearance will be required under the National Environmental Policy Act (NEPA).
  - Funding, design, bidding and construction would follow the NEPA clearance.
  
- 10. How will the EMAS be funded?**
  - EMAS is eligible for funding under the FAA Airport Improvement Program (AIP). Per the current AIP formula, the FAA would fund 95% of the project while CEA and the State of Illinois would each fund 2.5% of the project. The Village of Wheeling and the City of Prospect Heights will not fund this project.
  
- 11. If the EMAS is damaged during an aircraft overrun, how is its repair and/or replacement funded?**
  - It is expected replacement funding for EMAS would come from the aircraft owners insurance. Only the damaged portions of the EMAS system would need to be replaced; the entire system does not need to

be replaced after an overrun. Because of this, the reconstruction costs would be lower than the original construction costs.

**12. The exhibits that I have seen show pavement being added to each end of Runway 16/34 – is this just a disguised runway extension?**

- o No, according to Chapter 3, Paragraphs 308 and 309, of FAA Advisory Circular 150/5300-13 (Change 13), Airport Design, the FAA does not consider the addition of paved clearway/stopway beyond a runway end as a runway extension.
- o There will be pavement added between the existing runway ends and the EMAS arrestor beds. This pavement will be installed as a lead-in to the EMAS arrestor beds.
- o With FAA concurrence this pavement may be available for the start of takeoff roll for aircraft while landing distance will remain the same.
- o The FAA published runway length will remain the same.

**13. Will EMAS accommodate heavier aircraft?**

- o The EMAS bed has been designed to accommodate the current and forecast fleet mix at Chicago Executive Airport. If there is a significant change in the fleet mix, the EMAS bed will need to be reevaluated.