CITY OF CHICAGO
DEPARTMENT OF PURCHASES,
CONTRACTS AND SUPPLIES
ROOM 403, CITY HALL, 121 N. LaSALLE ST.

JNCP Form Rev 9/97

JUSTIFICATION FOR NON-COMPETITIVE PROCUREMENT

COMPLETE THIS SECTION IF NEW CONTRACT(S)

For contract(s) in this request, answer applicable questions in each of the 4 major subject areas below in accordance with the Instructions for Preparation of Non-Competitive Procurement Form on the reverse side.

Request that negotiations be conducted only with Engineered Arresting System Corporation (ESCO) for the product and/or services described herein.
(Name of Person or Firm)

This is a request for:____ (One-Time Contract Per Requisition # 40283, copy attached) or __X__ Term Agreement or ____ Delegate Agency (Check one). If Delegate Agency, this request is for "blanket approval" of all contracts within the _____(Attach List) Pre-Assigned Specification No._____
(Program Name) Pre-Assigned Contract No._____

COMPLETE THIS SECTION IF AMENDMENT OR MODIFICATION TO CONTRACT

Describe in detail the change in terms of dollars, time period, scope of services, etc., is relationship to the original contract and the specific reasons for the change. Indicate both the original and the adjusted contract amount and/or expiration date with this change, as applicable. Attach copy of all supporting documents. Request approval for a contract amendment or modification to the following:

Contract #: _____ Company, or Agency Name: _____

Specification #: _____ Contract or Program Description: _____

Mod #: _____ (Attach List, if multiple)

Al Perez	773-894-1823		Aviation	10/1/08
Originator Name	Telephone	Signature	Department	Date

Indicate SEE ATTACHED in each box below if additional space needed:

( ) PROCUREMENT HISTORY

The Department of Aviation (DOA) executed two (2) Sole Source Contracts (PO12560 Midway and PO15283 O'Hare) over the past two years with Engineered Arresting Systems Corporation (ESCO) to procure the materials and on site supervision to install Arrestor Bed Systems (4 ends at Midway and 2 at O'Hare) pursuant to Federal Aviation Administration requirements. The actual installations were made via Competitive Bid Contracts under the supervision of ESCO. The supervision is necessary to ensure the beds are installed properly and in accordance with the products manufacturer's and FAA's approved standards. The FAA requires that runways that do not have a standard "Runway Safety Area" (RSA), defined as a clear area 1,000' beyond the end of the runway, be improved by the airport when practicable. The DOA and FAA found it practicable to improve the RSA by installing arrestor material arresting systems (EMAS) constructed of crushable concrete blocks at O'Hare and Midway. ESCO is the only company that currently has a FAA approved arrestor bed system. The systems we purchased come with a one year warranty after installation where ESCO provides repairs/maintenance and quarterly inspections to the beds. The beds at Midway will soon be out of warranty while the beds at O'Hare will be exiting warranty next year. In order to ensure that the beds are maintained properly and their effectiveness is not compromised, a maintenance contract with ESCO is necessary to provide the quarterly inspections, replacement/repairs blocks and materials and provide on site supervision when repairs are necessitated by airplane or vehicles running into or over the arrestor bed or for other damage that the beds may sustain. FAA advisory circular 150/5220-22A (attached) requiring that the airport implement a maintenance program for is arrestor beds.

( ) ESTIMATED COST

See attached proposal. This is a DUR contract and the total cost will vary greatly depending upon how many repairs are necessary during the contract given year term.

( ) SCHEDULE REQUIREMENTS

A contract is needed as soon as possible as the first Midway bed will be coming out of warranty in the fourth quarter of 2008 which means the quarterly inspection in January 2009 will be covered under the new agreement. Requested duration of contract is 3 years plus 2 one year extensions.

( ) EXCLUSIVE OR UNIQUE CAPABILITY

The FAA certified and approves systems and technologies that can be used at airports. ESCO's EMAS is the only arrestor bed system that is FAA approved, per the attached letter from the FAA. This Sole Source request is for the purchase of replacement blocks and repair materials as well as for on site supervision of repairs and periodic inspections to ensure the bed remains in accordance with ESCO's and the FAA's requirements for the EMAS. There are no other companies that manufacture blocks or can provide the on site supervision for repairs or inspections. The actual labor and equipment required to repair the beds will be provided through the DOA's own blanket contracts. Although ESCO intends to utilize a local contractor for a portion of the maintenance and inspection tasks, they do not train or certify third party contractors to maintain the EMAS by themselves. ESCO controls the supervision and review of all work performed and as such competitive bidding is not possible.

( ) OTHER

The contractor will be requesting a partial waiver from MBE/WBE requirements and is currently working on justifying its request and trying to identify opportunities for participation.

APPROVED BY: _____ 10·1·08 _____ 10/07/08

DEPARTMENT HEAD OR DESIGNEE — DATE — BOARD CHAIRPERSON — DATE

Chief Procurement Officer
Department of Procurement Services

10-28-08 nmo
Date

S. S. R. B.
DATE 10/07/08
APPROVED 4-0
CONDITIONALLY APPROVED
RETURN TO DEPT
DISAPPROVED

CITY OF CHICAGO
DEPARTMENT OF PURCHASES,
CONTRACTS AND SUPPLIES
ROOM 403, CITY HALL, 121 N. LaSALLE ST.

JNCP Form Rev 9/97

FILE COPY

JUSTIFICATION FOR NON-COMPETITIVE PROCUREMENT

COMPLETE THIS SECTION IF NEW CONTRACT(S)

For contract(s) in this request, answer applicable questions in each of the 4 major subject areas below in accordance with the Instructions for Preparation of Non-Competitive Procurement Form on the reverse side.

Request that negotiations be conducted only with Engineered Arresting System Corporation (ESCO) for the product and/or services described herein.
(Name of Person or Firm)

This is a request for:____ (One-Time Contract Per Requisition # 40283, copy attached) or __X__ Term Agreement or ____ Delegate Agency (Check one). If Delegate Agency, this request is for "blanket approval" of all contracts within the _____(Attach List) Pre-Assigned Specification No._____
(Program Name) Pre-Assigned Contract No._____

COMPLETE THIS SECTION IF AMENDMENT OR MODIFICATION TO CONTRACT

Describe in detail the change in terms of dollars, time period, scope of services, etc., is relationship to the original contract and the specific reasons for the change. Indicate both the original and the adjusted contract amount and/or expiration date with this change, as applicable. Attach copy of all supporting documents. Request approval for a contract amendment or modification to the following:

Contract #: _____ Company, or Agency Name: _____

Specification #: _____ Contract or Program Description: _____

Mod #: _____ (Attach List, if multiple)

Al Perez	773-894-1823		Aviation	10/1/08
Originator Name	Telephone	Signature	Department	Date

Indicate SEE ATTACHED in each box below if additional space needed:

( ) PROCUREMENT HISTORY

The Department of Aviation (DOA) executed two (2) Sole Source Contracts (PO12560 Midway and PO15283 O'Hare) over the past two years with Engineered Arresting Systems Corporation (ESCO) to procure the materials and on site supervision to install Arrestor Bed Systems (4 ends at Midway and 2 at O'Hare) pursuant to Federal Aviation Administration requirements. The actual installations were made via Competitive Bid Contracts under the supervision of ESCO. The supervision is necessary to ensure the beds are installed properly and in accordance with the products manufacturer's and FAA's approved standards. The FAA requires that runways that do not have a standard "Runway Safety Area" (RSA), defined as a clear area 1,000' beyond the end of the runway, be improved by the airport when practicable. The DOA and FAA found it practicable to improve the RSA by installing arrestor material arresting systems (EMAS) constructed of crushable concrete blocks at O'Hare and Midway. ESCO is the only company that currently has a FAA approved arrestor bed system. The systems we purchased come with a one year warranty after installation where ESCO provides repairs/maintenance and quarterly inspections to the beds. The beds at Midway will soon be out of warranty while the beds at O'Hare will be exiting warranty next year. In order to ensure that the beds are maintained properly and their effectiveness is not compromised, a maintenance contract with ESCO is necessary to provide the quarterly inspections, replacement/repairs blocks and materials and provide on site supervision when repairs are necessitated by airplane or vehicles running into or over the arrestor bed or for other damage that the beds may sustain. FAA advisory circular 150/5220-22A (attached) requiring that the airport implement a maintenance program for is arrestor beds.

( ) ESTIMATED COST

See attached proposal. This is a DUR contract and the total cost will vary greatly depending upon how many repairs are necessary during the contract given year term.

( ) SCHEDULE REQUIREMENTS

A contract is needed as soon as possible as the first Midway bed will be coming out of warranty in the fourth quarter of 2008 which means the quarterly inspection in January 2009 will be covered under the new agreement. Requested duration of contract is 3 years plus 2 one year extensions.

( ) EXCLUSIVE OR UNIQUE CAPABILITY

The FAA certified and approves systems and technologies that can be used at airports. ESCO's EMAS is the only arrestor bed system that is FAA approved, per the attached letter from the FAA. This Sole Source request is for the purchase of replacement blocks and repair materials as well as for on site supervision of repairs and periodic inspections to ensure the bed remains in accordance with ESCO's and the FAA's requirements for the EMAS. There are no other companies that manufacture blocks or can provide the on site supervision for repairs or inspections. The actual labor and equipment required to repair the beds will be provided through the DOA's own blanket contracts. Although ESCO intends to utilize a local contractor for a portion of the maintenance and inspection tasks, they do not train or certify third party contractors to maintain the EMAS by themselves. ESCO controls the supervision and review of all work performed and as such competitive bidding is not possible.

( ) OTHER

The contractor will be requesting a partial waiver from MBE/WBE requirements and is currently working on justifying its request and trying to identify opportunities for participation.

APPROVED BY: _____ 10.1.08 _____ _____

DEPARTMENT HEAD OR DESIGNEE — DATE — BOARD CHAIRPERSON — DATE

_____ _____

Chief Procurement Officer — Date

Department of Procurement Services

S. S. R. B.

DATE _____

APPROVED _____

CONDITIONALLY APPROVED _____

RETURN TO DEPT _____

DISAPPROVED _____

DEPARTMENT OF AVIATION

MEMORANDUM

Date: October 1, 2008

To: Montel M. Gayles
Chief Procurement Officer

Attention: Habib Rehman
Assistant Procurement Officer

From: Richard L. Rodriguez
Commissioner

Subject: Request for New Competitive Procurement Contract
Inspection, Maintenance and Repair of Engineered Material Arresting System (EMAS) Beds at Chicago Airport Systems
Vendor: Engineered Arresting System Corporation (ESCO)

The Department of Aviation (DOA) is requesting approval for a non competitive procurement contract in order to purchase the labor and materials necessary to inspect, maintain and repair the arrestor beds in operation at Midway (4) and O'Hare International Airports (2).

The material and supervisory labor to install the arrestor beds were procured via sole source contracts as only ESCO has an arrestor bed system approved by the Federal Aviation Administration (FAA). The actual installations of the beds were made via competitive bid with the work being supervised by ESCO personnel.

As the beds at Midway are going to be coming out of warranty soon and the beds at O'Hare will be out of warranty in the fourth quarter of 2009, a contract needs to be put in place that provides access to the materials and technical expertise that only ESCO can provide. Pursuant to FAA advisory circular 150/5220-22A (attached) the DOA must implement an inspection and maintenance program to ensure the beds stay in compliance with the advisory circular.

In the event that block removal and replacement necessary, the actual removal and installation will be performed by DOA term contractors under the supervision of ESCO personnel.

If you have any questions or need additional information regarding this request please contact David Bowman at 686-7089.

Thank you for your cooperation in processing this non competitive procurement.

Procurement Type:	**Non Competitive (Sole Source)**	
Duration:	**3 years plus 2 one year extensions**	
Estimated Annual Cost:	**O'Hare $1,500,000** **Midway $2,500,000** **Total $4,000,000**	
Funding:	**740 85 4005 0161 0161** **610 85 4305 0161 0161**	
User Contact:	**Kenneth Lee** **Matthew Marich**	**Phone: 686-3711** **Phone: 838-0627**
User Managing Deputy:	**Al Perez**	**Phone: 894-1823**

Attachments:
- **Non Competitive Procurement Form**
- **Vendor Proposal**
- **FAA AC 150/5220-22A**
- **FAA Letter Noting ESCO's Sole Source Status**
- **ESCO Letter regarding Subcontracted Labor**
- **ESCO Letter regarding MBE/WBE Compliance**

Reviewed by Angela Manning, Managing Deputy Commissioner

ESCO

EMAS

September 29, 2008

Mr. Dave Bowman
O'Hare International Airport
Terminal 2, PO Box 66142
Chicago, IL 60666

RE: ESCO Inspectors

Dear Mr. Bowman,

Engineered Arresting Systems Corporation ("ESCO") is the only company that has demonstrated and validated a design method acceptable to the FAA for Engineered Material Arresting Systems ("EMAS"). We are also the only manufacturer of material that satisfies the requirements of the FAA validated method. As such, we have a firm understanding of the material and the specialized nature of the work involved in the care required to maintain or repair an EMAS.

ESCO offers post installation inspection and maintenance services on a "for fee" basis. ESCO does not license or authorize contractors or other third parties to perform inspections or other services required to maintain an EMAS.

I hope this information is helpful. Please do not hesitate to contact me if you have any questions or if I can be of any further assistance.

Thank-you,

Daniel J. Edwards, P.E.
VP, IMRO Services
Engineered Arresting Systems Corporation

ENGINEERED ARRESTING SYSTEMS CORPORATION
3239 High Hill Road, Logan Township, NJ 08085 USA
Tel: +1 856 241 8620 Fax: +1 856 241 8621
http://www.esco-usa.com

U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of Airport Safety
and Standards

800 Independence Ave., SW.
Washington, DC 20591

May 14, 2007

To Whom It May Concern:

Federal Aviation Administration (FAA) Advisory Circular 150/5220-22, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns,* contains standards for arresting systems installed on U.S. civil airports. Paragraph 6.c.*Design Method,* requires a validated design method that can predict the performance of the system.

As of the date of this letter, Engineered Arresting Systems Company, Inc. (ESCO) is the only enterprise that has demonstrated and validated a design method to the satisfaction of the FAA.

Sincerely,

Rick Marinelli

Rick Marinelli, P.E.
Manager, Airport Engineering
Division

ESCO
EMAS

September 29, 2008

Development/Engineering
Department of Aviation
City of Chicago
10510 West Zemke RD
Chicago IIL 60666

Attention: Mr. Kenneth Lee P.E.

Subject: Letter of intent regarding MBE / WBE participation in the six EMAS bed maintenance agreement

Reference: BEMA 304

Dear Ken:

I am writing to inform the City of Chicago, Department of Aviation, of ESCO's intent to pursue MBE and WBE participation in the maintenance agreement for the six EMAS beds owned by the city. ESCO will go to the City of Chicago's website to obtain the list of eligible MBE and WBE vendors. We will then contact each of the vendors requesting their participation in the maintenance agreement.

If ESCO receives any responses allowing us to incorporate the MBE or WBE into our proposal we will requote the program at that point. If we do not received any responses conforming to the specifications outlined by ESCO we will submit a letter of good faith effort.

If you have any questions or comments feel free to contact me.

Sincerely,

Trip Thomas
Senior Technical Sales Specialist
ESCO – EMAS Division
Ph: (856) 241-8620
Fax: (856) 241-8621
Email: tthomas@esco.zodiac.com

DPS PROJECT CHECKLIST

[redacted]

IMPORTANT: PLEASE READ AND FOLLOW THE INSTRUCTIONS FOR COMPLETING THE PROJECT CHECKLIST AND CONTACT THE APPROPRIATE UNIT MANAGER IF YOU HAVE ANY FURTHER QUESTIONS. ALL INFORMATION SHOULD BE COMPLETED, ATTACH ALL REQUIRED MATERIALS AND SUBMIT FOR HANDLING TO THE DEPARTMENT OF PROCUREMENT SERVICES, ROOM 403, CITY HALL, 121 N. LASALLE STREET, CHICAGO, ILLINOIS 60602.

GENERAL INFORMATION:

Date: 9/30/08
REQ No.: 40283
Spec 69183
PO No.: (if known):

Contact Person: David Bowman
Tel: 686-7089 **Fax:** **E-mail:** @cityofchicago.org
Project Manager: Kenneth Lee
Tel: 686-3711 **Fax:** **E-mail:** @cityofchicago.org

Modification No.: (if known):
Previous PO No.: (if known):

Project Description: Inspection, Maintenance and Repair of the Engineered Material Arresting System at Chicago Airports System

FUNDING:

City:	☐	Corporate	☐	Bond	☒	Enterprise	☐	Grant*	☐	Other	
State:	☐	IDOT/Transit	☐	IDOT/Highway			☐	Grant*	☐	Other	
Federal :	☐	FHWA	☐	FTA	☐	FAA	☐	Grant*	☐	Other	

LINE	FY	FUND	DEPT	ORGN	APPR	ACTV	OBJT	PROJECT	RPTG	$ DOLLAR AMOUNT
	08	740	85	4005	0161		0161			1,500,000
	08	610	85	4505	0161		0161			2,500,000

Estimated Value $ 4,000,000

*IF GRANT FUNDED, A COPY OF THE APPROVED GRANT AND APPLICATION ARE REQUIRED and any other Terms and Conditions that may apply.

SCOPE STATEMENT:

☒ Attached is a Detailed Scope of Services and/or Specification Sole Source. Vendor proposal attached.

IMPORTANT: THIS IS A CRITICAL PORTION OF YOUR SUBMITTAL. IN ORDER FOR DPS TO ACCEPT YOUR SUBMITTALYOU MUST COMPLETE THE SPECIFIC SCOPE REQUIREMENTS AS SET FORTH IN THE SUPPLEMENTAL CHECKLIST FOR THAT UNIT.

The following is a general description of what should be included in a Scope of Services or Specification:
A clear description of all anticipated services and products, including: time frame for completion, special qualifications of prospective vendors, special requirements or needs of the project, locations, anticipated participating user departments, citation of any applicable City ordinance or state/federal regulation or statute.

TYPE OF PROCUREMENT REQUESTED (check all that apply):

NEW REQUEST
- ☐ Blanket Agreement
- ☐ Standard Agreement
- ☐ Small Orders

MOD/AMENDMENT
- ☐ Time Extension
- ☐ Vendor Limit Increase
- ☐ Scope Change/Price Increase/Additional Line Item(s)
- ☐ Other (specify):

FORMS: ☐ Requisition ☐ Special Approvals ☐ Non-Competitive Review Board (NCRB)

CONTRACT TERM: 5+3 **Requested Term (number of months):** 1/1/09 - 12/31/13 + Two year extensions

PRE BID/SUBMITTAL REQUIREMENTS:
Requesting Pre Bid/Submittal Conference? ☐ Yes ☐ No Requesting Site Visit? ☐ Yes ☐ No N/A

DPS PROJECT CHECKLIST

ARCHITECTURAL/ENGINEERING SUPPLEMENTAL CHECKLIST

Required Attachments: Scope of Services, including location, description of project, services required, deliverables, and other information as required

Risk Management

Will services be performed within 50 feet of CTA train or other railroad property? ☐Yes ☐No

Will services be performed on or near a waterway? ☐Yes ☐No

If applicable, Pre-Qualification Category No. Category Description:

For Pre-Qualification Program, attach list of suggested firms to be solicited

Other Agency Concurrence Required: ☐None ☐State ☐ Federal ☐ Other (fill in)

AVIATION CONSTRUCTION SUPPLEMENTAL CHECKLIST

DOA sign-off for final design documents: ☐Yes ☐ No

Required Attachments:

Copy of Draft Contract Documents and Detailed Specifications.

Risk Management:

Current Insurance Requirements prepared/approved by Risk Management: Yes ☐ No ☐

Will work be performed within 50 feet of CTA or ATS structure or property? Yes ☐ No ☐

Will work be performed airside? Yes ☐ No ☐

***NOTE:** Any non-construction Aviation request, complete the applicable section.

COMMODITIES SUPPLEMENTAL CHECKLIST

Required Attachments: Detailed Specifications (Scope of Services) including detailed description of the product, delivery location, user department contact, price escalation considerations, Bidder's qualification, contract term and extension options, Contractor's qualifications, citation of any applicable City/State/Federal statutes or regulations, citation of any applicable technical standards and Price Lists/Catalogs, technical drawings and other exhibits and attachments as appropriate.

If Modification request, please verify and provide the following:

Contractor's Name:

Contractor's Address:

Contractor's e-mail Address:

Contractor's Phone Number:

Contractor's Contact Person:

CONSTRUCTION SUPPLEMENTAL CHECKLIST

Required attachments:

Copy of Draft (80% Completion), Contract Documents and Detailed Specifications

Risk Management

Will services be performed within 50 feet of CTA train or other railroad property? ☐ Yes ☐ No

Will services be performed on or near a waterway? ☐ Yes ☐ No

DPS PROJECT CHECKLIST

VEHICLES/HEAVY EQUIPMENT SUPPLEMENTAL CHECKLIST

Required Attachments:

- ☐ Detailed Specifications including detailed description of the vehicle(s) or equipment, mounted equipment, if any, and options/accessories.
- ☐ Special Provisions (Delivery, Warranty, Manuals, Training, Additional Unit Purchase Options, Bid Submittal Information, etc.)
- ☐ Delivery Location(s)
- ☐ Technical Literature
- ☐ Drawings, if any
- ☐ Part Number List (Manufacturer; or Dealer; or Other Source:)
- ☐ Current Price List(s)/Catalog(s)
- ☐ Special Approval Form
- ☐ Exhibits and Attachments

If Modification request, please verify and provide the following:

Contractor's Name:

Contractor's Address:

Contractor's e-mail Address:

Contractor's Phone Number:

Contractor's Contact Person:

PROFESSIONAL SERVICES SUPPLEMENTAL CHECKLIST

- ☐ Detailed description of project listing obligations of each party.
- ☐ The Schedule of Compensation
- ☐ Deliverables
- ☐ Request for individual contract services (if applicable)
- ☐ The appropriate EPS form
- ☐ ITSC (approved by BIS)
- ☐ OBM (approved by Budget form/memo)
- ☐ Grant document attached

Attach any documentation indicating any previous purchase activity to assist in the procurement process

TELECOMMUNICATIONS AND UTILITIES SUPPLEMENTAL CHECKLIST

Required Attachments: Detailed Scope of Services/Specification which sets forth all of the anticipated services and products the user department wants provided, including time frame for completion, special qualifications of prospective vendors, special requirements or needs of the project, locations, anticipated participating user departments, citation of any applicable City ordinance or state/federal regulation or statute.

Has the project been reviewed by DGS? ☐Yes ☐No

Attach copy of DGS Recommendation; Reservation(s); or participate under current contract.

Does the project include software? ☐Yes ☐No

If yes, is signed ITSC form attached? ☐Yes ☐No

Does the location involve:

A public way? ☐Yes ☐No

Any concession in the City's facilities? ☐Yes ☐No

Is it anticipated City Council approval of the project or contract will be required? ☐Yes ☐No

---

DPS PROJECT CHECKLIST

WORK SERVICES/FACILITY MAINTENANCE SUPPLEMENTAL CHECKLIST

Required Attachments: Detailed Specifications (Scope of Services) including detailed description of the work, locations (with supporting detail), user department contacts, work hours/days, laborer/supervisor mix, compensation and price escalation considerations, Bidder's qualification, contract term and extension options, Contractor's qualifications, citation of any applicable City/State/Federal statutes or regulations, citation of any applicable technical standards and Price Lists/Catalogs, technical drawings and other exhibits and attachments as appropriate.

Risk Management:

Will services be performed within 50 feet (50') of CTA train or other railroad property? ☐Yes ☑No

Will services be performed on or near a waterway? ☐Yes ☑No

Will services require the handling of hazardous/bio-waste material? ☐Yes ☑No

Will services require the blocking of streets or sidewalks which may affect public safety? ☐Yes ☑No

If Modification or Amendment request, please verify and provide the following:

Contractor's Name: Engineered Arresting Systems Corp. 50119078

Contractor's Address: 2250 Market Street
Aston, PA 19014

Contractor's e-mail Address:

Contractor's Phone Number: 856-241-8620

Contractor's Contact Person: Kevin Quan

U.S. Department of Transportation

Federal Aviation Administration

Advisory Circular

Subject: Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns

Date: 9/30/2005 **AC No:** 150/5220-22A
Initiated by: AAS-100 **Change:**

1. PURPOSE. This advisory circular (AC) contains standards for the planning, design, installation, and maintenance of Engineered Materials Arresting Systems (EMAS) in runway safety areas (RSA). Engineered Materials means high energy absorbing materials of selected strength, which will reliably and predictably crush under the weight of an aircraft.

2. CANCELLATION. This AC cancels AC 150/5220-22, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*, dated August 28, 1998.

3. BACKGROUND. Aircraft can and do overrun the ends of runways, sometimes with devastating results. An overrun occurs when an aircraft passes beyond the end of a runway during an aborted takeoff or while landing. Data on aircraft overruns over a 12-year period (1975 to 1987) indicate that approximately 90% of all overruns occur at exit speeds of 70 knots or less (Reference 7, Appendix 4) and most come to rest between the extended runway edges within 1000 feet of the runway end (Reference 6, Appendix 4).

To minimize the hazards of overruns, the Federal Aviation Administration (FAA) incorporated the concept of a safety area beyond the runway end into airport design standards. To meet the standards, the safety area must be capable, under normal (dry) conditions, of supporting the occasional passage of aircraft that overrun the runway without causing structural damage to the aircraft or injury to its occupants. The safety area also provides greater accessibility for emergency equipment after an overrun incident. There are many runways, particularly those constructed prior to the adoption of the safety area standards, where natural obstacles, local development, and/or environmental constraints, make the construction of a standard safety area impracticable. There have been accidents at some of these airports where the ability to stop an overrunning aircraft within the runway safety area would have prevented major damage to aircraft and/or injuries to passengers.

Recognizing the difficulties associated with achieving a standard safety area at all airports, the FAA undertook research programs on the use of various materials for arresting systems. These research programs, as well as, evaluation of actual aircraft overruns into an EMAS have demonstrated its effectiveness in arresting aircraft overruns.

4. APPLICATION. Runway safety area standards cannot be modified or waived. The standards remain in effect regardless of the presence of natural or man-made objects or surface conditions that might create a hazard to aircraft that overrun the end of a runway. A continuous evaluation of all practicable alternatives for improving each sub-standard RSA is required. FAA Order 5200.8, *Runway Safety Area Program*, explains the evaluation process.

FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, is used in connection with FAA Order 5200.8 to determine the best practicable and financially feasible alternative for an RSA improvement.

The FAA does not require an airport sponsor to reduce the length of a runway or declare its length to be less than the actual pavement length to meet runway safety area standards if there is an operational impact to the airport. An example of an operational impact would be an airport's inability to accommodate its current or planned aircraft fleet. Under these circumstances, installing an EMAS is another way of enhancing safety.

A standard EMAS provides a level of safety that is generally equivalent to a full RSA built to the dimensional standards in AC 150/5300-13, *Airport Design*. It also provides an acceptable level of safety for undershoots.

The FAA recommends the guidelines and standards in this AC for the design of EMAS. In general, this AC is not mandatory and does not constitute a regulation. It is issued for guidance purposes and to outline a method of compliance. However, use of these guidelines is mandatory for an airport sponsor installing an EMAS funded under Federal grant assistance programs or on an airport certificated under Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. Mandatory terms such as "shall" or "must" used herein apply only to those who seek to demonstrate compliance by use of the specific method described by this AC.

If an airport sponsor elects to follow an alternate method, the alternate method must have been determined by the FAA to be an acceptable means of complying with this AC, the runway safety area standards in AC 150/5300-13, and 14 CFR Part 139.

5. RELATED READING MATERIAL. Appendix 4, Related Reading Material, contains a list of documents with supplemental material relating to EMAS. These documents contain information on materials evaluated, as well as design, construction, and testing procedures utilized. Testing and data generated under these FAA studies may be used as input to an EMAS design without additional justification.

6. PLANNING CHARTS. The figures included in Appendix 2, Planning Charts, are for planning purposes only. They are intended as a preliminary screening tool and are not sufficient for final design. Final design must be customized for each installation. The figures illustrate estimated EMAS stopping distance capabilities for various aircraft types. The design used in each chart is optimized specifically for the aircraft noted on the chart. Charts are based on standard design conditions, i.e. 75-foot set-back, no reverse thrust, and poor braking (0.25 braking friction coefficient).

a. Example 1. Assume a runway with a DC-9 (or similar) as the design aircraft. Figure A2-1 shows that an EMAS 400 feet in length (including a 75-foot set-back) is capable of stopping a DC-9 within the confines of the system at runway exit speeds of up to 75 knots.

b. Example 2. Assume the same runway, but assume the design aircraft is a DC-10 (or similar). Figure A2-2 shows an EMAS of the same length, but designed for larger aircraft, can stop the DC-10 within the confines of the system at runway exit speeds of up to 62 knots.

7. PRELIMINARY PLANNING. Follow the guidance in FAA Orders 5200.8 and 5200.9 to determine practicable, financially feasible alternatives for RSA improvements. Additional cost and performance information for EMAS options to consider in the analysis can be obtained from the EMAS manufacturer.

8. SYSTEM DESIGN REQUIREMENTS. For purposes of design, the EMAS can be considered fixed by its function and frangible since it is designed to fail at a specified impact load. An aircraft arresting system such as EMAS is exempt from the requirements of 14 CFR Part 77, *Objects Affecting Navigable Airspace.* When EMAS is the selected option to upgrade a runway safety area, it is considered to meet the safety area requirements of 14 CFR Part 139. The following system design requirements must prevail for all EMAS installations:

a. Concept. An EMAS is designed to stop an overrunning aircraft by exerting predictable deceleration forces on its landing gear as the EMAS material crushes. It must be designed to minimize the potential for structural damage to aircraft, since such damage could result in injuries to passengers and/or affect the predictability of deceleration forces. An EMAS should be design for a 20-year service life.

b. Location. An EMAS is located beyond the end of the runway and centered on the extended runway centerline. It will usually begin at some setback distance from the end of the runway to avoid damage due to jet blast and undershoots (Figure A1-2, Appendix 1). This distance will vary depending on the available area and the EMAS materials. Where the area available is longer than required for installation of a standard EMAS designed to stop the design aircraft at an exit speed of 70 knots, the EMAS should be placed as far from the runway end as practicable. Such placement decreases the possibility of damage to the system from short overruns or undershoots and results in a more economical system by considering the deceleration capabilities of the existing runway safety area.

The resulting runway safety area must provide adequate protection for aircraft that touch down prior to the runway threshold (undershoot). Adequate protection is provided by either: (1) providing at least 600 feet (or the length of the standard runway safety area, whichever is less) between the runway threshold and the far end of the EMAS bed if the approach end of the runway has vertical guidance or (2) providing the full length standard runway safety area when no vertical guidance is provided.

An EMAS is not intended to meet the definition of a stopway as provided in AC 150/5300-13. The runway

safety area and runway object free area lengths begin at a runway end when a stopway is not provided. When a stopway is provided, these lengths begin at the stopway end (AC 150/5300-13).

The airport sponsor, EMAS manufacturer, and the appropriate FAA Regional Airports Division/Airport District Office (ADO) should consult regarding the EMAS location to determine the appropriate location beyond the end of the runway for the EMAS installation for a specific runway.

c. Design Method. An EMAS design must be supported by a validated design method that can predict the performance of the system. The design (or critical) aircraft is defined as that aircraft using the associated runway that imposes the greatest demand upon the EMAS. This is usually, but not always, the heaviest/largest aircraft that regularly uses the runway. EMAS performance is dependent not only on aircraft weight, but landing gear configuration and tire pressure. In general, use the maximum take-off weight (MTOW) for the design aircraft. However, there may be instances where less than the MTOW will require a longer EMAS. All configurations should be considered in optimizing the EMAS design. To the extent practicable, however, the EMAS design should consider both the aircraft that imposes the greatest demand upon the EMAS and the range of aircraft expected to operate on the runway. In some instances, this composite design aircraft may be preferable to optimizing the EMAS for a single design aircraft. Other factors unique to a particular airport, such as available RSA and air cargo operations, should also be considered in the final design. The airport sponsor, EMAS manufacturer, and the appropriate FAA Regional Airports Division/ADO should consult regarding the selection of the design aircraft that will optimize the EMAS for a specific airport.

The design method must be derived from field or laboratory tests. Testing may be based either on passage of an actual aircraft or an equivalent single wheel load through a test bed. The design must consider multiple aircraft parameters, including but not limited to allowable aircraft gear loads, gear configuration, tire contact pressure, aircraft center of gravity, and aircraft speed. The model must calculate imposed aircraft gear loads, g-forces on aircraft occupants, deceleration rates, and stopping distances within the arresting system. Any rebound of the crushed material that may lessen its effectiveness must also be considered.

d. Operation. The EMAS must be a passive system.

e. Width. The minimum width of the EMAS must be the width of the runway (plus any sloped area as necessary—see 8 (h) below).

f. Base. The EMAS must be constructed on a paved surface capable of supporting the occasional passage of the critical design aircraft using the runway and fully loaded Aircraft Rescue and Fire Fighting (ARFF) vehicles without deformation of the base surface or structural damage to the aircraft or vehicles. It must be designed to perform satisfactorily under all local weather, temperature, and soil conditions. It must provide sufficient support to facilitate removal of the aircraft from the EMAS. Full strength runway pavement is not required. Pavement suitable for shoulders and blast pads is suitable as an EMAS base. AC 150/5300-13 provides recommendations on pavement for shoulders and blast pads. State highway specifications may also be used.

g. Entrance Speed. To the maximum extent possible, the EMAS must be designed to decelerate the design aircraft expected to use the runway at exit speeds of 70 knots (approach category C and D aircraft) without imposing loads that exceed the aircraft's design limits, causing major structural damage to the aircraft or imposing excessive forces on its occupants. Contact the FAA's Airport Engineering Division (AAS-100) at 202-267-7669 for guidance when other than approach category C and D aircraft is proposed for the EMAS design. Standard design conditions are no reverse thrust and poor braking (0.25 braking friction coefficient).

Generally, when there is insufficient RSA available for a standard EMAS, the EMAS must be designed to achieve the maximum deceleration of the design aircraft within the available runway safety area. However, a 40-knot minimum exit speed should be used for the design of a non-standard EMAS. For design purposes, assume the aircraft has all of its landing gear in full contact with the runway and is traveling within the confines of the runway and parallel to the runway centerline upon overrunning the runway end.

The airport sponsor, EMAS manufacturer, and the appropriate FAA Regional Airports Division/ADO should consult regarding the selection of the appropriate design entrance speed for the EMAS installation.

Note that current EMAS models are not as accurate for aircraft with a maximum take-off weight less than 25,000 pounds.

h. Aircraft Evacuation. The EMAS must be designed to enable safe ingress and egress as well as movement of ARFF equipment (not necessarily without

damage to the EMAS) operating during an emergency. If the EMAS is to be built above existing grade, sloped areas sufficient to allow the entrance of ARFF vehicles from the front and sides must be provided. Provision for access from the back of the EMAS may be provided if desirable. Maximum slopes must be based on the EMAS material and performance characteristics of the airport's ARFF equipment.

i. Maintenance Access. The EMAS must be capable of supporting regular pedestrian traffic for the purposes of maintenance of the arresting material and co-located navigation aids without damage to the surface of the EMAS bed. An EMAS is not intended to support vehicular traffic for maintenance purposes.

j. Undershoots. The EMAS must not cause control problems for aircraft undershoots which touch down in the EMAS bed. Fulfillment of this requirement may be based exclusively on flight simulator tests. The tests will establish the minimum material strength and density that does not cause aircraft control problems during an undershoot. Materials whose density and strength exceeds these minimums will be deemed acceptable.

k. Navigation Aids. The EMAS must be constructed to accommodate approach lighting structures and other approved facilities within its boundaries. It must not cause visual or electronic interference with any air navigation aids. All navigation aids within the EMAS must be frangible as required by 14 CFR Part 139. To meet the intent of this regulation, approach light standards must be designed to fail at two points. The first point of frangibility must be three inches or less above the top of the EMAS bed. The second point of frangibility must be three inches or less above the expected residual depth of the EMAS bed after passage of the design aircraft. As a part of the EMAS design, the EMAS manufacturer must provide the expected residual depth to allow the determination of this second frangibility point.

l. Drainage. The EMAS must be designed to prevent water from accumulating on the surface of the EMAS bed, the runway or the runway safety area. The removal and disposal of water, which may hinder any activity necessary for the safe and efficient operation of the airport, must be in accordance with AC 150/5320-5, *Airport Drainage*.

The EMAS design must consider ice accumulation and/or snow removal limitations/requirements dictated by the project locale. Requirements/limitations must be addressed in the approved inspection and maintenance program discussed in paragraph 14 and Appendix 3.

m. Jet Blast. The EMAS must be designed and constructed so that it will not be damaged by expected jet blast.

n. Repair. The EMAS must be designed for repair to a usable condition within 45 days of an overrun by the design aircraft at the design entrance speed. Note that this is a design requirement only.

An EMAS bed damaged due to an incident (overrun/undershoot, etc.) must be repaired in a timely manner. The undamaged areas of the EMAS bed must be protected from further damage until the bed is repaired.

9. MATERIAL QUALIFICATION. The material comprising the EMAS must have the following requirements and characteristics:

a. Material Strength and Deformation Requirements. Materials must meet a force vs. deformation profile within limits having been shown to assure uniform crushing characteristics, and therefore, predictable response to an aircraft entering the arresting system.

b. Material Characteristics. The materials comprising the EMAS must:

(1) Be water-resistant to the extent that the presence of water does not affect system performance.

(2) Not attract vermin, birds, wildlife or other creatures.

(3) Be non-sparking.

(4) Be non-flammable.

(5) Not promote combustion.

(6) Not emit toxic or malodorous fumes in a fire environment after installation.

(7) Not support unintended plant growth with proper application of herbicides.

(8) Exhibit constant strength and density characteristics during all climatic conditions within a temperature range appropriate for the locale.

(9) Be resistant to deterioration due to:

(a) Salt.

(b) Approved aircraft and runway deicing fluids.

(c) Aircraft fuels, hydraulic fluids, and lubricating oils.

(d) UV resistant.

(e) Water.

(f) Freeze/thaw.

(g) Blowing sand and snow.

(h) Paint.

10. Material Conformance Requirements. An EMAS manufacturer must establish a material sampling and testing program to verify that all materials are in conformance with the initial approved material force versus deformation profile established under paragraph 9.a. Materials failing to meet these requirements must not be used.

The initial sampling and testing program must be submitted to and approved by the FAA, Office of Airport Safety and Standards for each design method found by the FAA to be an acceptable means of complying with this AC. Once approved, the program may be used for subsequent projects.

11. DESIGN PROPOSAL SUBMITTAL. The EMAS design must be prepared by the design engineer and the EMAS manufacturer for the airport sponsor. The airport sponsor must submit the EMAS design through the responsible FAA Airports Region/District Office, to the FAA, Office of Airport Safety and Standards, for review and approval. The EMAS design must be certified as meeting all the requirements of this AC and the submittal must include all design assumptions and data utilized in its development as well as proposed construction procedures and techniques. The EMAS design must be submitted at least 45 days prior to the bid opening date for the project.

12. QUALITY ASSURANCE (QA) PROGRAM. A construction quality assurance program must be implemented to ensure that installation/construction is in accordance with the approved EMAS design. The construction contractor and EMAS manufacturer prepare the construction QA program for the airport sponsor. The airport sponsor must submit the construction QA program to the responsible FAA Airports Region/District Office for approval 14 days prior to the project notice to proceed.

13. MARKING. An EMAS must be marked with yellow chevrons as an area unusable for landing, takeoff, and taxiing in accordance with AC 150/5340-1, *Standards for Airport Markings*. Paint application should be in accordance with the EMAS manufacturers' recommendations for the EMAS system.

14. INSPECTION AND MAINTENANCE. The EMAS manufacturer must prepare an inspection and maintenance program for the airport sponsor for each EMAS installation. The airport sponsor must submit the program to the responsible FAA Airports Region/District Office for approval prior to final project acceptance. The airport sponsor must implement the approved inspection and maintenance program. The program must include any necessary procedures for inspection, preventive maintenance and unscheduled repairs, particularly to weatherproofing layers. Procedures must be sufficiently detailed to allow maintenance/repair of the EMAS bed with the airport sponsor's staff. The program must include appropriate records to verify that all required inspections and maintenance have been performed by the airport sponsor and/or EMAS manufacturer. These records must be made available to the FAA upon request. Appendix 3, Inspection and Maintenance Program, outlines the basic requirements of an EMAS inspection and maintenance program.

Airport personnel must be notified that the EMAS is designed to fail under load and that precautions should be taken when activities require personnel to be on, or vehicles and personnel to be near, the EMAS.

15. AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF).

a. Access. As required by paragraph 8 (h), an EMAS is designed to allow movement of typical ARFF equipment operating during an emergency. However, as the sides of the system are typically steeply sloped, and the system will be severely rutted after an aircraft arrestment, ARFF vehicles so equipped should be shifted into all-wheel-drive prior to entering and maneuvering upon an EMAS.

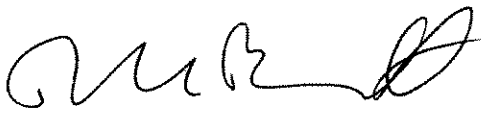
b. Tactics. Any fire present after the arrestment of an aircraft will be three-dimensional due to the rutting and breakup of the EMAS material. A dual-agent attack and/or other tactics appropriate to this type of fire should be employed.

16. NOTIFICATION. Upon installation of an EMAS, its length, width, and location must be included as a remark in the Airport/Facility Directory (AFD). To assure timely publication, the airport sponsor must forward the required information to the FAA Aeronautical Information Services (AIS) as soon as possible, but not later than the "cut-off" dates listed in the AFD, for publication on the desired effective date. (The AIS address and cut-off dates are listed on the

inside front cover of the AFD.) The airport sponsor must also notify the appropriate FAA Regional Airports Division/ADO.

The following is an example of a typical entry:

- "Engineered Materials Arresting System, 400'L x 150'W, located at departure end of runway 16."



DAVID L. BENNETT
Director of Airport Safety and Standards

When an EMAS is damaged due to an overrun or determined to be less than fully serviceable, a Notice to Airmen (NOTAM) must be issued to alert airport users of the reduced performance of the EMAS.

APPENDIX 1. STANDARD EMAS AND TYPICAL SECTIONS.

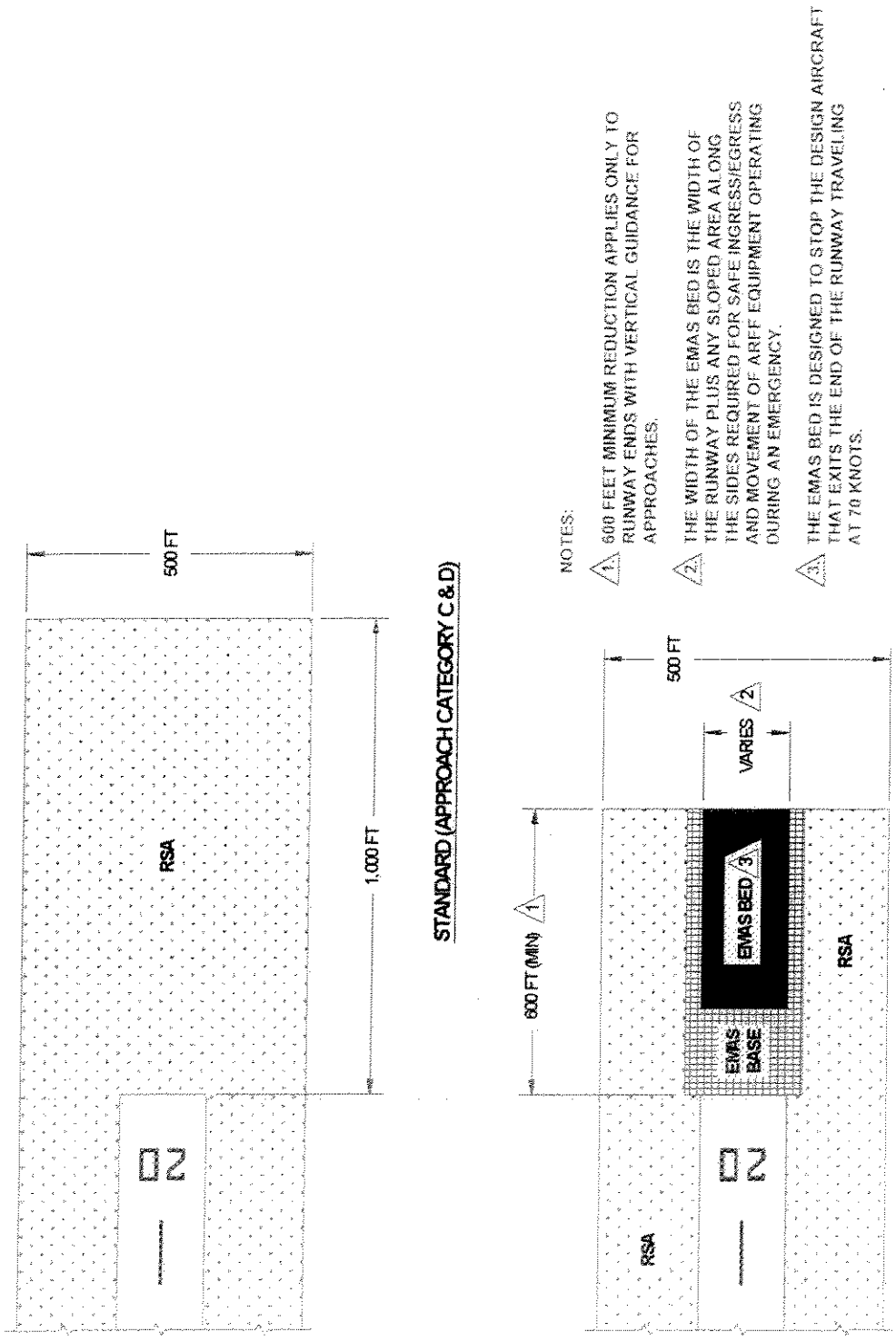


FIGURE A1-1. STANDARD EMAS INSTALLATION PROVIDES A LEVEL OF SAFETY THAT IS GENERALLY EQUIVALENT TO A STANDARD RUNWAY SAFETY AREA (RSA).

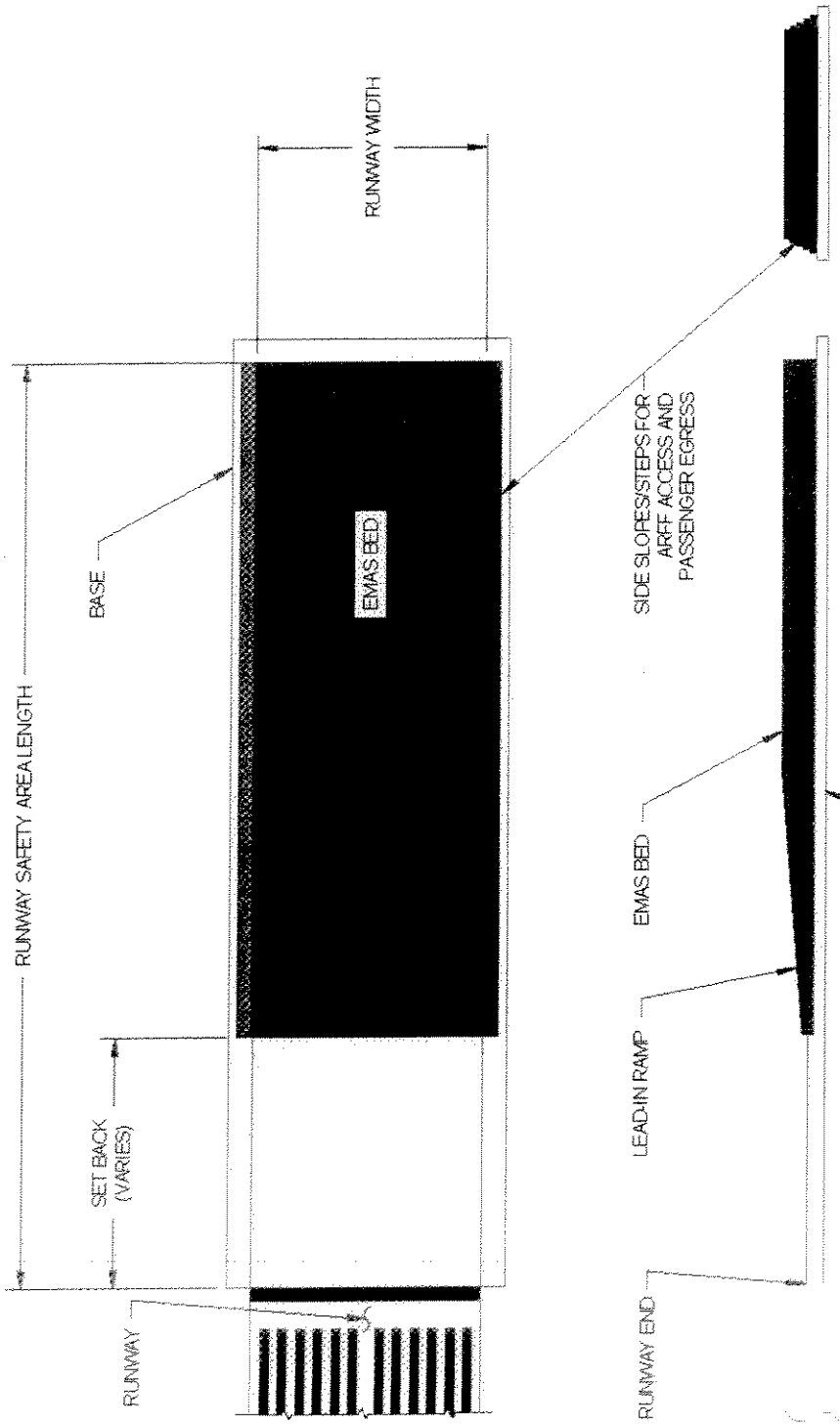
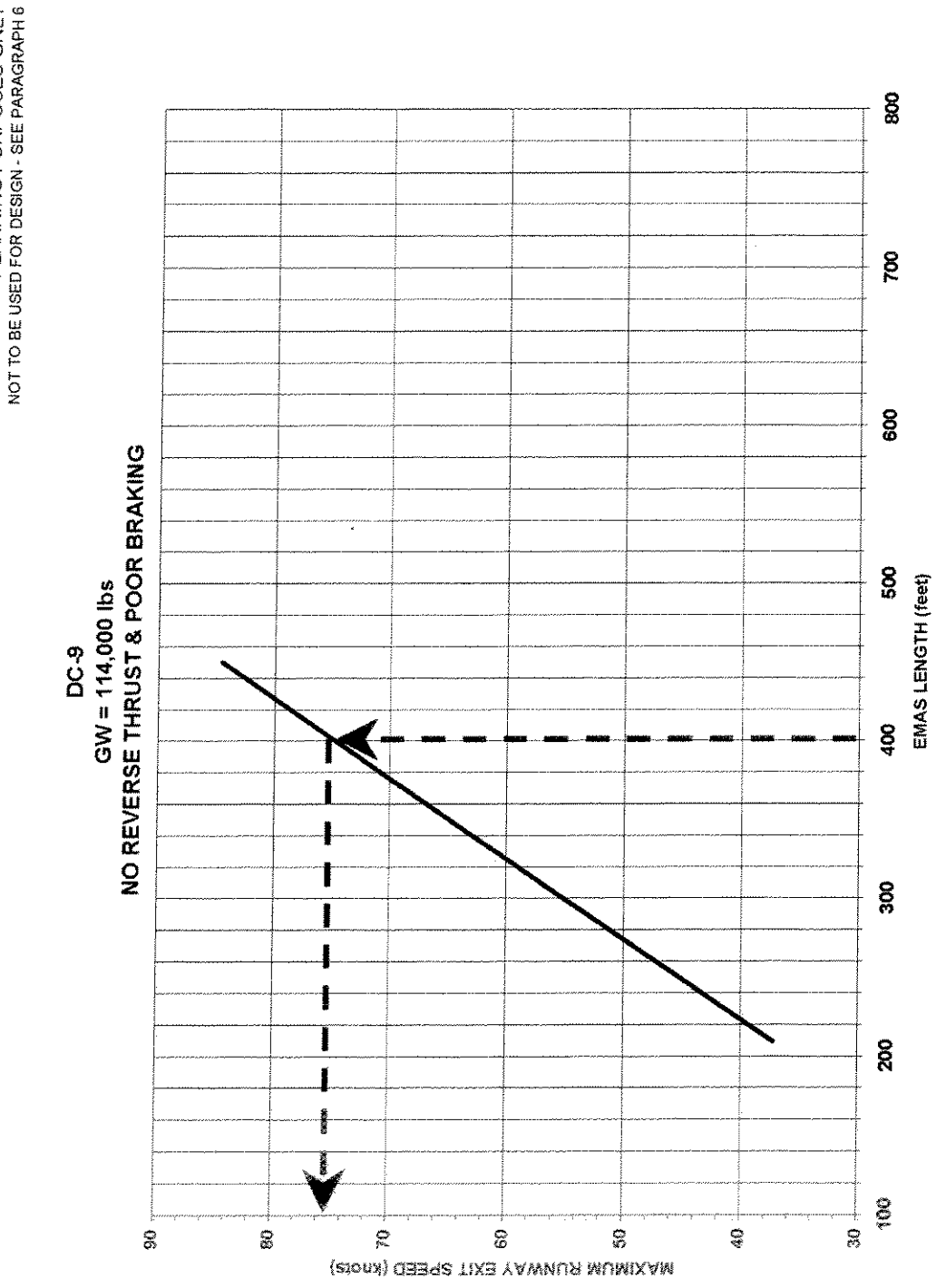


FIGURE A1-2. EMAS TYPICAL SECTION.

APPENDIX 2. PLANNING CHARTS.

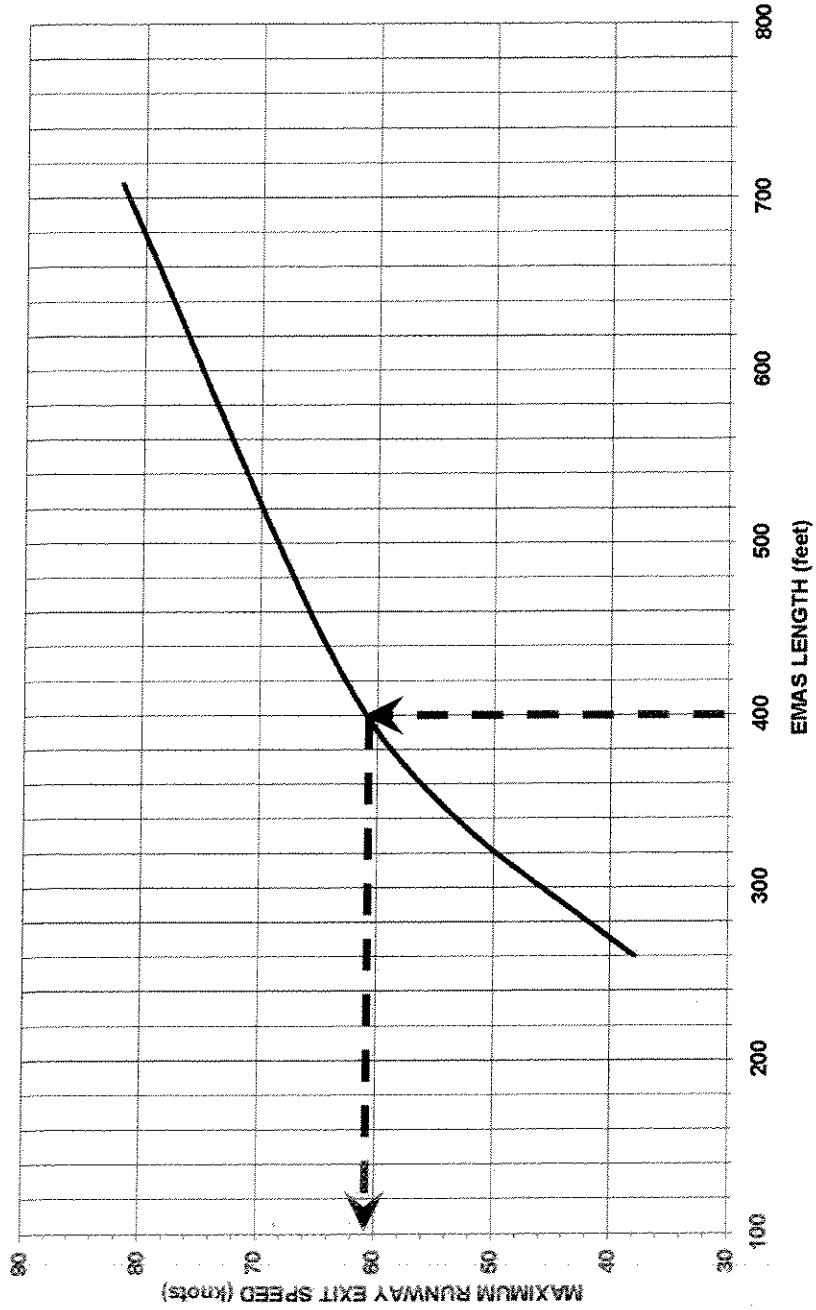


Notes:
1. Arrestor includes a 75 ft paved lead-in rigid ramp. A 35 ft setback can be used to improve performance for short safety areas.
2. Poor braking simulated using 0.25 braking friction coefficient.

FIGURE A2-1.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 6

DC-10
GW = 455,000 lbs.
NO REVERSE THRUST & POOR BRAKING

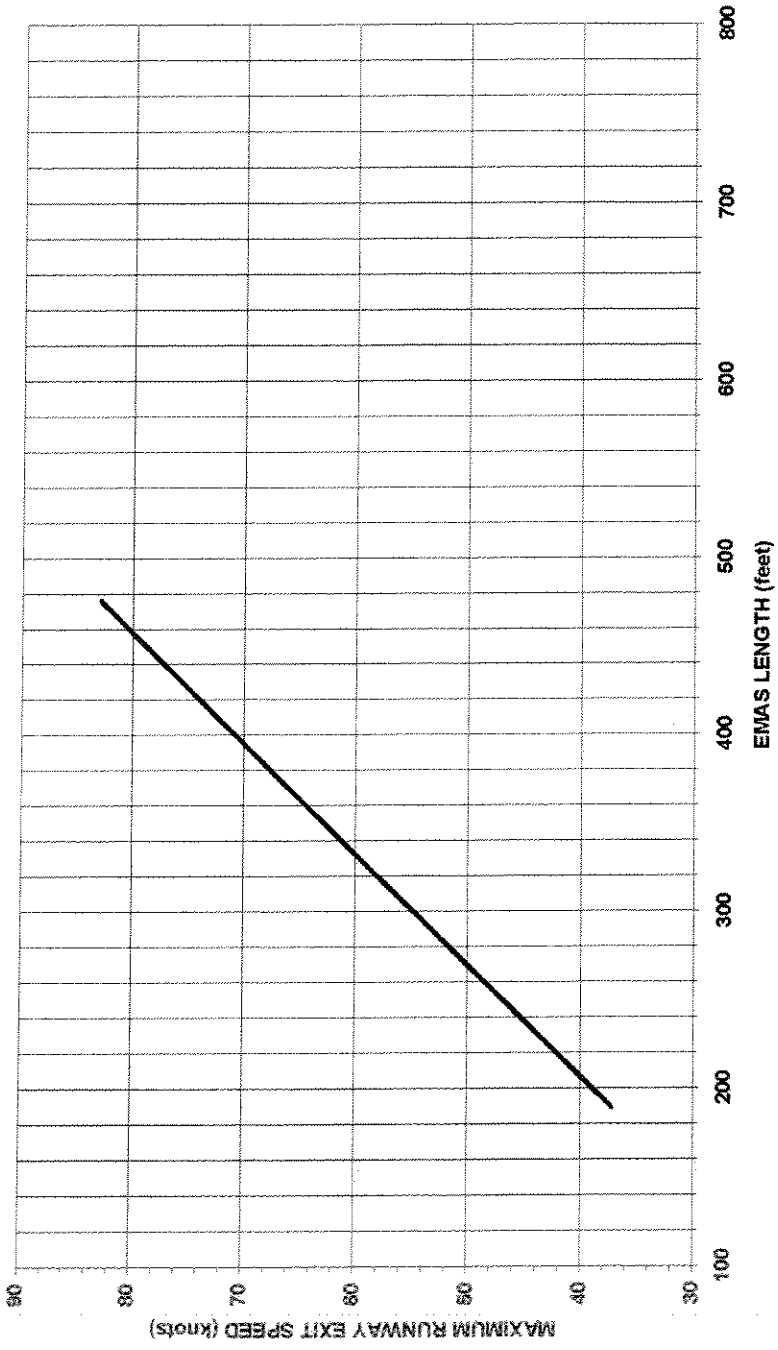


Notes:
1. Arrestor includes a 75 ft paved lead-in rigid ramp. A 35 ft setback can be used to improve performance for short safety areas.
2. Poor braking simulated using 0.25 braking friction coefficient.

FIGURE A2-2.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 6

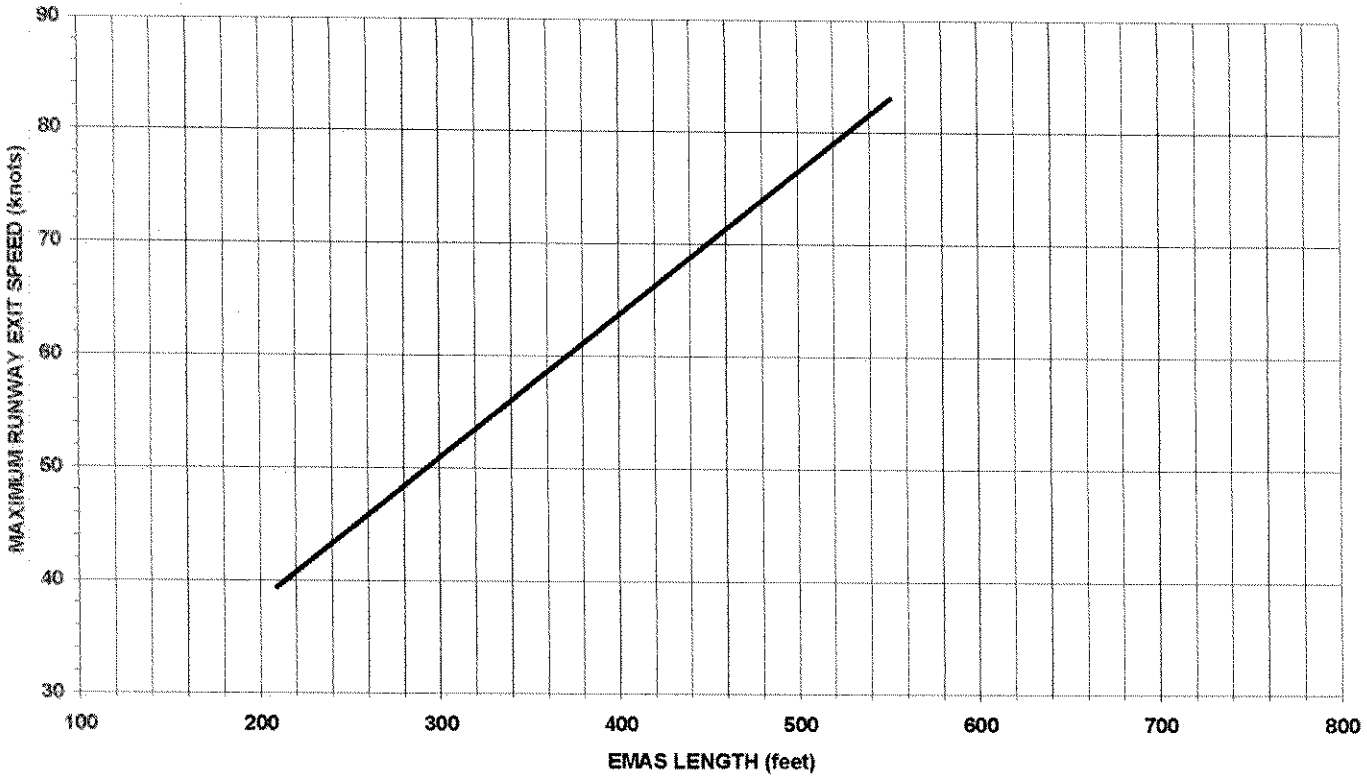
B-737-400
GW = 150,000 lbs.
NO REVERSE THRUST & POOR BRAKING



Notes:
1. Arrestor includes a 75 ft paved lead-in rigid ramp. A 35 ft setback can be used to improve performance for short safety areas.
2. Poor braking simulated using 0.25 braking friction coefficient.

FIGURE A2-3.

B-757
GW = 255,000 lbs.
NO REVERSE THRUST & POOR BRAKING

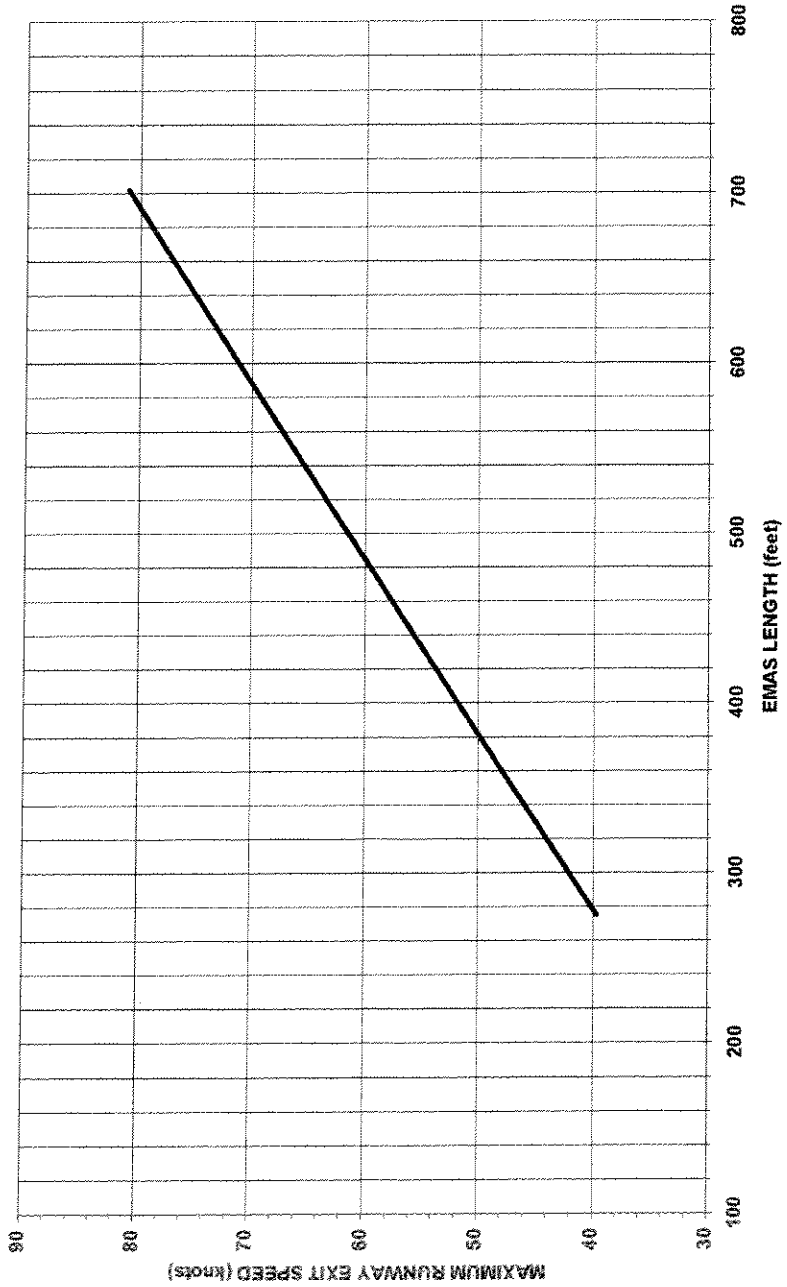


Notes:
1. Arrestor includes a 75 ft paved lead-in rigid ramp. A 35 ft setback can be used to improve performance for short safety areas.
2. Poor braking simulated using 0.25 braking friction coefficient.

FIGURE A2-4.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 6

B-747
GW = 875,000 lbs.
NO REVERSE THRUST & POOR BRAKING

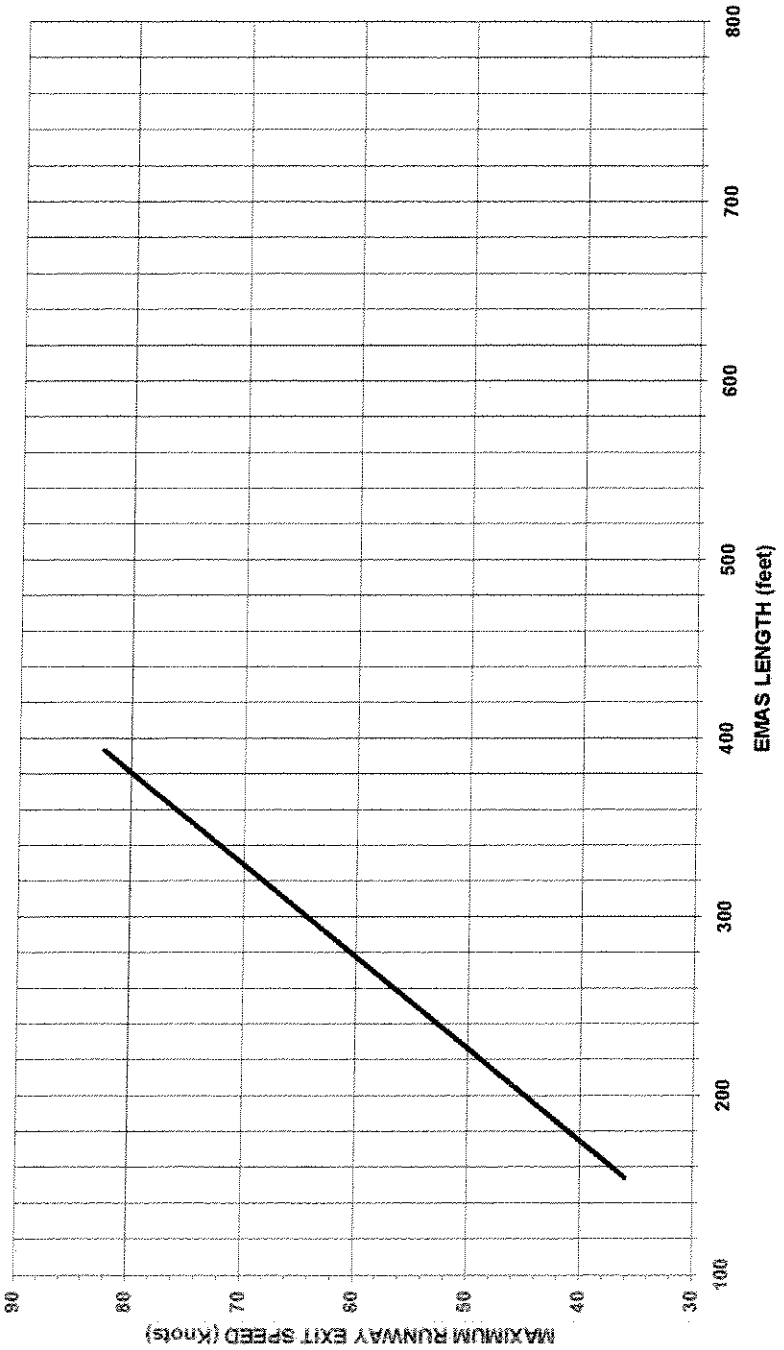


Notes:
1. Arrestor includes a 75 ft paved lead-in rigid ramp. A 35 ft setback can be used to improve performance for short safety areas.
2. Poor braking simulated using 0.25 braking friction coefficient.

FIGURE A2-5.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 6

CRJ-200
GW = 53,000 lbs.
NO REVERSE THRUST & POOR BRAKING

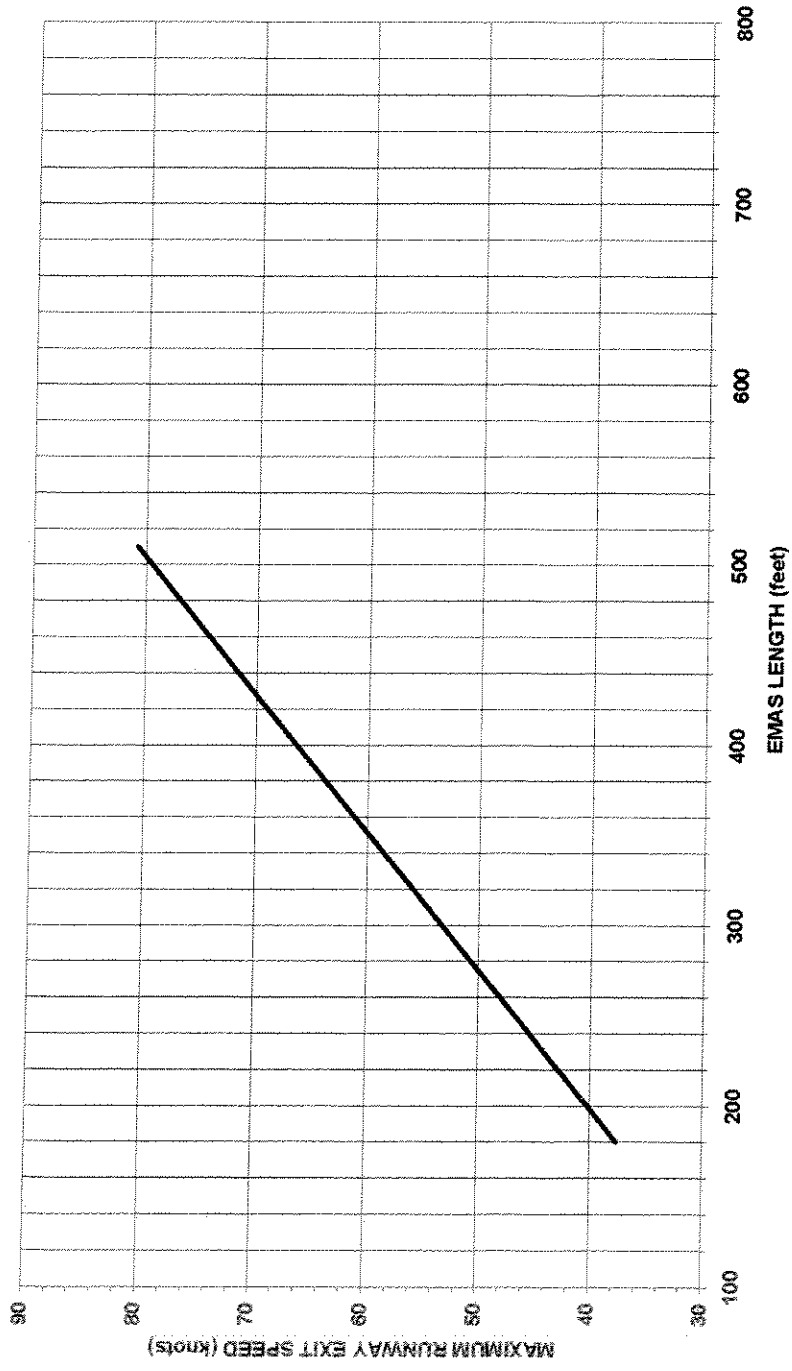


Notes:
1. Arrestor includes a 75 ft paved lead-in rigid ramp. A 35 ft setback can be used to improve performance for short safety areas.
2. Poor braking simulated using 0.25 braking friction coefficient.

FIGURE A2-6.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 6

G-III
GW = 69,700 lbs.
NO REVERSE THRUST & POOR BRAKING



Notes:
1. Arrestor includes a 75 ft paved lead-in rigid ramp. A 35 ft setback can be used to improve performance for short safety areas.
2. Poor braking simulated using 0.25 braking friction coefficient.

FIGURE A2-7.

Page intentionally left blank.

APPENDIX 3. INSPECTION AND MAINTENACE PROGRAM.

An inspection and maintenance program, prepared by the EMAS manufacturer, will be submitted to and approved by the FAA Regional/Airports District Office. The Airport sponsor must implement the approved inspection and maintenance program. As a minimum, a basic EMAS inspection and maintenance program must address the following areas:

1. General information on the EMAS bed including
    - A description of the EMAS bed
    - Material description
    - Contact information for the EMAS manufacturer
2. Inspection requirements including:
    - Type and frequency of required inspections
    - Training of personnel
    - Instructions on how to conduct each inspection
    - List of typical problems and possible solutions
    - Required documentation for inspections
    - Inspection forms
3. Maintenance and repair procedures including:
    - List of approved materials and tools
    - Description of repair procedures for typical damage to an EMAS bed such as repairing depressions/holes, abrasion damage, replacing a damaged block, repairing coatings, caulking/joint repair, etc.
4. Any unique requirements due to location such as snow removal requirements and methods. Identify compatible deicing agents. Specify snow removal equipment that is compatible with the EMAS bed and recommended clearing procedures and/or limitations.
5. Warranty information

Page intentionally left blank.

APPENDIX 4. RELATED READING MATERIAL.

This appendix contains a listing of documents with supplemental material relating to the subject of EMAS. These documents contain certain information on materials evaluated as well as design, construction, and testing procedures utilized to date. These publications may be obtained from the National Technical Information Service (NTIS), Springfield, VA 22151.

1. DOT/FAA/PM-87/27, *Soft Ground Arresting Systems*, Final Report, Sept. 1986–Aug. 1987, published Aug. 1987 by R.F. Cook, Universal Energy Systems, Inc., Dayton, OH.

2. 2. DOT/FAA/CT-93/4, *Soft Ground Arresting Systems for Commercial Aircraft,* Interim Report, Feb. 1993 by Robert Cook.

3. DOT/FAA/CT-93/80, *Soft Ground Arresting Systems for Airports*, Final Report, Dec. 1993 by Jim White, Satish K. Agrawal, and Robert Cook.

4. DOT/FAA/AOV 90-1, *Location of Commercial Aircraft Accidents/Incidents Relative to Runways*, July 1990.

5. UDR-TR-88-07, *Evaluation of a Foam Arrestor Bed for Aircraft Safety Overrun Areas*, 1988 by Cook, R.F., University of Dayton Research Institute, Dayton, OH.

Page intentionally left blank.

PU079G_Pre-Appd_Req_DPS_Schedul
ed_Dept_Burst_APSRPT.rep
Page 1 of 1
Run 10/01/2008 06:32

CITY OF CHICAGO
PURCHASE REQUISITION

Copy (Department)

DELIVER TO:	REQUISITION: 40283
221 FACILITIES DIVISION P.O. BOX 66142 CHICAGO, IL 60666	PAGE: 1 DEPARTMENT: 85 - DEPT OF AVIATION PREPARER: David A Bowman NEEDED: APPROVED: 9/30/2008

REQUISITION DESCRIPTION

REQUEST NEW SOLE SOURCE BLANKET CONTRACT FOR THE REPAIR INSPECTION, MAINTENANCE AND REPAIR OF THE ENGINEERED MATERIAL ARRESTING SYSTEM BEDS AT CHICAGO AIRPORT SYSTEM. 5 YEARS PLUS 3 ONE YEAR EXTENSIONS
SPECIFICATION NUMBER: 69183

COMMODITY INFORMATION

LINE	ITEM		QUANTITY	UOM	UNIT COST	TOTAL COST
1	91310.10	4,000,00	#########	USD	0.00	0.00

INSPECTION, MAINTENANCE AND REPAIR OF ENGINEERED MATERIAL ARRESTING SYSTEMS AT CHICAGO AIRPORT SYSTEM

SUGGESTED VENDOR: ENGINEERED ARRESTING SYSTEMS **REQUESTED BY:** David A Bowman

DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	008	0740	0854005	0161	220161	0000	00000000	000000	00000	0000	0.00
2	008	0610	0854305	0161	220161	0000	00000000	000000	00000	0000	0.00

LINE TOTAL: **0.00**

REQUISITION TOTAL: **0.00**

CONTRACTS
2008 OCT -1 AM 8:26
RECEIVED

Where a commodity is for a particular or unique use other than standard quality, grades, color, size or other characteristics, give details of how it will be and for what purpose.
Requisitions prepared incorrectly will be returned to the using department.