ORDER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

5200.8

SUBJ: RUNWAY SAFETY AREA PROGRAM

1. PURPOSE.
This order establishes

a. The Federal Aviation Administration's (FAA) Runway Safety Area (RSA) Program and

b. The procedures that FAA employees will follow in implementing that program.

2. DISTRIBUTION.
This order is distributed to the division level in the Office of Airport Safety and Standards and the Office of Airport Planning and Programming; to the division level in the regional Flight Standards, Airway Facilities, and Air Traffic Divisions; to the branch level in the regional Airports Divisions; and a standard distribution to all Airport District Offices.

3. EFFECTIVE DATE. October 1, 1999

4. BACKGROUND.
The RSA is an integral part of the runway environment. RSA dimensions are established in AC 150/5300-13, A*irport Design* and are based on the Airport Reference Code (ARC). The RSA is intended to provide a measure of safety in the event of an aircraft's excursion from the runway by significantly reducing the extent of personal injury and aircraft damage during overruns, undershoots and veer-offs.

5. OBJECTIVE
The objective of the Runway Safety Area Program is that all RSAs at federally obligated airports and all RSAs at airports certificated under 14 Code of Federal regulations (CFR) part 139 shall conform to the standards contained in AC 150/5300-13 *Airport Design*, to the extent practicable.

6. RESPONSIBILITY AND DELEGATION OF AUTHORITY.

a. The Regional Airports Division Manager ensures that the program is implemented in accordance with the procedures provided in this directive.

b. The Regional Airports Division Manager approves all RSA determinations required by Paragraph 8.0 of this order. This authority may be delegated to the ADO Manager, only when it is determined practicable to obtain the RSA.

7. RSA INVENTORY.

Each regional airports division shall collect and maintain data on the RSA for each runway at federally obligated airports and airports certificated under part 139 within their geographic purview. The data will include the current width of each RSA and the length that the RSA extends beyond each runway end. The data will also contain the standards that apply to each RSA at the airport. In addition, all objects within the area that comprises a standard RSA shall be documented. Appendix 1, Runway Safety Area Database, provides a format for this data collection.

8. RSA DETERMINATIONS.

a. Supporting Documentation. The region/ADO shall prepare documentation for each RSA. Appendix 2, Supporting Documentation for RSA Determinations, provides guidance that must be adhered to in preparing this documentation. The Regional Airports Division will decide the level of detail required for all planning, environmental, and engineering factors that are to be incorporated in analyzing the practicable alternatives. The objective is to assure that accurate and complete information supports the decision making process on RSA determinations.

(1) For an RSA that does not meet current standards, the Regional Airports Division Manager will make a determination as required in paragraph 8b, based on this documentation.

(2) Determinations are based on the best, current, available information. However, information that becomes available at a later date can effect changes or revisions to a determination and, as a result, updates the determination. For example, the final determination may depend on the outcome of an Environmental Assessment process. Until that outcome is known, a determination is made on the best, current, available information.

(3) Although for data collection purposes it is convenient to describe the RSA in terms of runway ends, the determination shall be made for the entire RSA, i.e., both runway ends as well as the full width.

b. Determination. The Regional Airports Division Manager shall review the data collected for each RSA in Paragraph 7, along with supporting documentation prepared by the region/ADO for that RSA, and make one of the following determinations:

(1) The existing RSA meets the current standards contained in AC 150/5300-13.

(2) The existing RSA does not meet standards but it is practicable to improve the RSA so that it will meet current standards.

(3) The existing RSA can be improved to enhance safety, but the RSA will still not meet current standards.

(4) The existing RSA does not meet current standards, and it is not practicable to improve the RSA.

c. Form of Determination. The RSA determination will be signed and dated by the Regional Airports Division Manager and kept on file along with the supporting documentation in the regional office or ADO. The determination and its date will also be included in the RSA database. See Appendix 1.

d. Revision to Determination. If new information becomes available, the Regional Airports Division Manager may issue a revised determination. The revised determination shall be in a form required by Paragraph 8(c) and supported by documentation required by Paragraph 8(a). The date of the revised determination shall be recorded in the RSA database.

9. TIMING OF DATA COLLECTION AND DETERMINATION.

The RSA inventory and RSA determinations specified in paragraph 7 and 8 will be completed in accordance with the following schedule:

a. For runways used by air carriers at airports certificated under 14 CFR Part 139, the RSA inventory and determination will be completed by June 30, 2000.

b. For all other runways at federally obligated airports, the RSA inventory and determination can be done at any time, but will normally be done during the master planning process. However, the inventory and determination must be completed prior to any project for runway construction, reconstruction, or significant expansion that involves Federal funds.

10. IMPLEMENTATION OF RSA IMPROVEMENTS.

a. A project to improve an RSA in accordance with the determination made in Paragraph 8 may be initiated at any time.

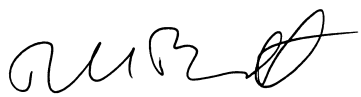
b. Whenever a project for a runway involves construction, reconstruction (includes overlays), or significant expansion, the project shall also provide for improving the RSA in accordance with the determination made in Paragraph 8. Reconstruction and significant expansion are construed as any project that results in changing the capability of the airport or the load-bearing strength of the pavement, restores the original design life of the pavement, or changes the actual or potential design aircraft use**.**

(1) The requirement to upgrade RSA under Paragraph 10b is applicable at part 139 airports regardless of the funding source for the runway project.

(2) The requirement to upgrade RSA under Paragraph 10b is applicable at federally obligated airport, if Federal or Passenger Facility Charge (PFC) funds are used for the project.

11. OVERSIGHT.

The Airport Office of Safety and Standards (AAS) is the office of primary interest. This office may selectively review RSA analyses or the entire program on a periodic basis to assure consistency. The office also provides consulting and guidance in judging the merits of a specific alternative.



David L. Bennett
Director of Airport Safety and Standards

Appendix 1. RUNWAY SAFETY AREA DATA BASE

A national data base that is accessible on the Intranet is being developed as part of this program. The following pages provide sample copies of the formats to be used for entering RSA information into this data base. The electronic version of this Appendix, along with accompanying instructions, is available on the FAA intranet and is to be used for transmitting the above information. As AAS-100 and AAS-300 gain experience in using the data that are collected through these forms, modifications and/or clarifications may be necessary. The latest version of this Appendix will always be found on the Intranet.

Appendix 1
Runway Form

Locid: Airport: Region:

City/State: ADO:

Runway: Runway Ends:

Length: Actual RSA Length:
Width: Actual RSA Width:
Part 139: ☐ RSA Grade (+/- 5%): ☐ ☐
Dimensional Uniformity: ☐ ☐

CRITICAL AIRCRAFT:
Approach Category:
Design Group:

Visibility Minimums:

RSA Determination

Currently Meets Standards	○	○
Practicable to Meet Standards	○	○
Can be Improved But Will Not Meet Standards	○	○
Not Practicable to Improve	○	○

Date of Determination (month/year):

PUBLISHED RUNWAY SAFETY AREA STANDARDS:
Length:
Width:

Planned Improvements

RSA to Design Standards Obtainable:	☐	☐
Runway Realignment or Relocation:	☐	☐
Shift Runway From Present Alignment:	☐	☐
Use Declared Distances:	☐	☐
Use EMAS:	☐	☐
Other:	☐	☐

Scheduled Completion (year):
Remaining Costs:

Uniformity Comments:

Improvement Comments:

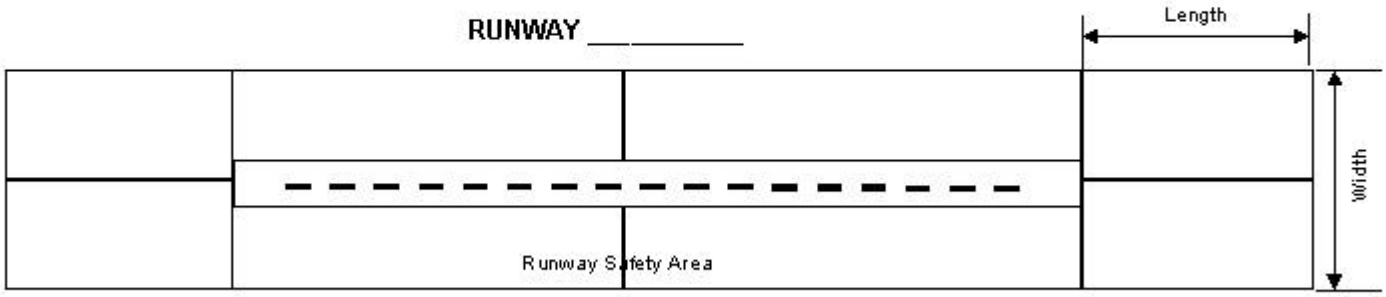
Object Form

Runway Safety Area Data Sheet

Locid: Airport: Region:

City/State: ADO:

RUNWAY ___ _____



Object Identification			Object Location				Object Status						
No.	Type	Name	Rwy End	Rwy End Dist	L/R	L/R Dist	Fixed By Function	Can Be Relocated	Frangible	Frangible to 3 inches	High Mass	Owner	Connecting Object

Appendix 2. Supporting Documentation for RSA Determinations

1. GENERAL.

RSA determinations must be supported by documentation that provides the rationale upon which the determination was based. The extent of the documentation will vary, depending upon the circumstances. For example, in cases where the RSA already meets the current standards through a traditional graded area surrounding the runway a simple statement to this effect will suffice. Where declared distances have been implemented to obtain the RSA, the documentation would contain a statement to this effect and also identify the graded area that exists beyond each runway end. In contrast, in cases where it is not practicable to improve a safety area to meet current standards, the documentation must address the alternatives that were considered and explain the reasons why one was selected over the others.

2. CONSIDERATIONS IN EVALUATING ALTERNATIVES.

In evaluating alternatives for obtaining or improving RSAs, there are many factors that could affect the viability of the alternative. What may be viable at one airport may not be viable at another. Factors to be considered include:

a. Historical records of airport accidents/incidents.

b. The airport plans as reflected in current and forecast volume of passengers, number of operations, design aircraft and percent runway use, both for all weather and IFR operations,

c. The extent to which the existing RSA complies with the standard. High performance aircraft, operating at higher loads and speeds have greater requirements than small, low performance aircraft.

d. Site constraints. These include, for example, precipitous terrain drop-off, the existence of bodies of water, wetlands, a major highway, a railroad at a runway end, etc.

e. Weather and climatic conditions. These include conditions such as low visibility, rain, snow, and ice and the frequency of these conditions. Overruns on contaminated runways constitute a significant percentage of runway excursions.

f. Availability of visual and electronic aids for landing.

3. ALTERNATIVES TO BE CONSIDERED.

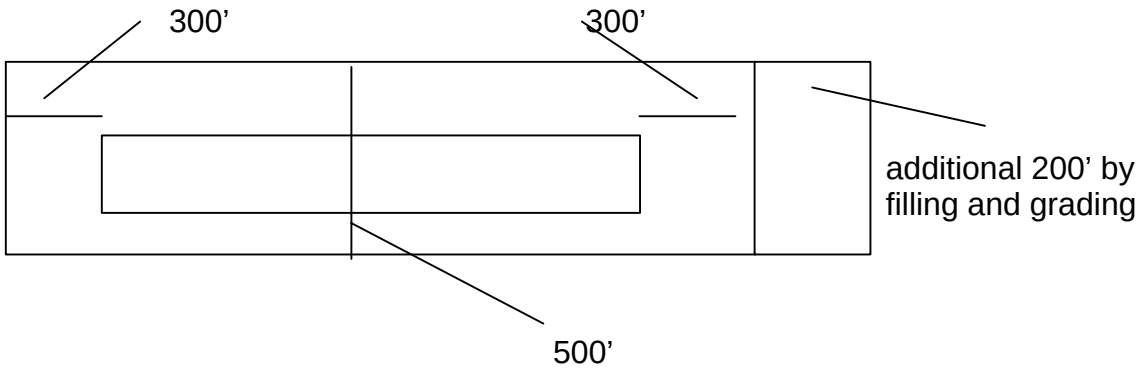
The first alternative to be considered in every case is constructing the traditional graded area surrounding the runway. Where it is not practicable to obtain the entire safety area in this manner, as much as possible should be obtained. Then, the following alternatives shall be addressed in the supporting documentation. The applicability of these alternatives will vary, depending on the location.

a. Relocation, shifting, or realignment of the runway.

b. Reduction in runway length where the existing runway length exceeds that which is required for the existing or projected design aircraft,

c. A combination of runway relocation, shifting, grading, realignment, or reduction
d. Declared distances.
e. Engineered Materials Arresting Systems (EMAS).

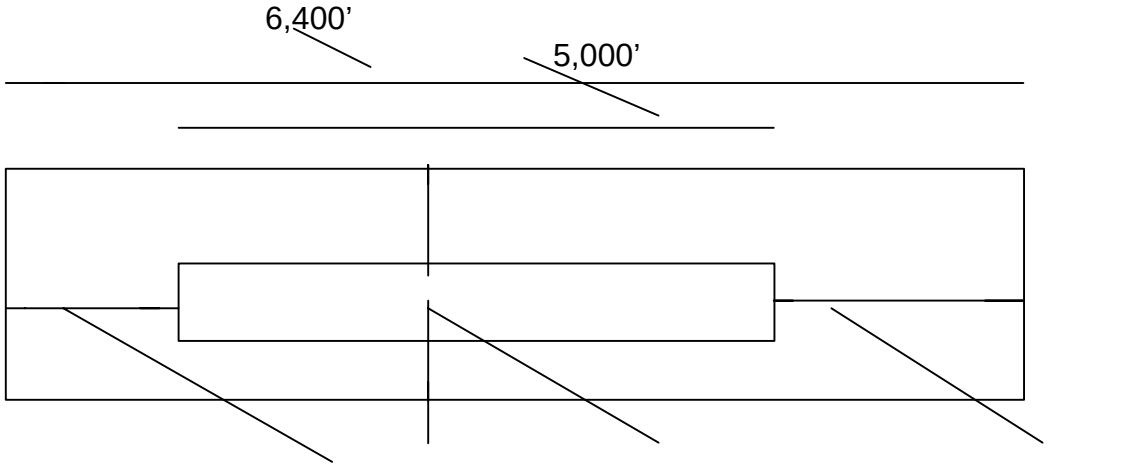
4. CONSIDERATIONS IN ASSESSING ALTERNATIVES.
When making determinations about the practicability of obtaining the RSA, the first attempt shall consist of investigating fully the possibility of obtaining RSA that meets the current standards through a traditional graded area surrounding the runway. Land acquisition, grading requirements as well as environmental conditions must be examined. Any portion of land that will increase the RSA, even if it is but an incremental increase (see Paragraph 4a below) and will not result in meeting the standard fully, is preferable and will serve as a starting point for the consideration of additional alternatives (see paragraphs 4b through 4f below).
a. Incremental gains must be obtained whenever possible. The gain may be relatively very little, but any gain is valuable. The following example illustrates this.
The design standard for an RSA beyond the runway end, 1,000' by 500', is not met. The dimensions are 300' by 500' on each of the ends. By filling and grading, another 200' could be gained on one end. This should be accomplished as an incremental gain, even though it will not provide the design standard. Other alternatives (see Paragraphs 4b through 4f below) would then be considered for obtaining the remainder of the safety area.



b. When obtaining a standard RSA is not practicable through traditional means (*e.g*. land acquisition, grading, fill, etc.), alternatives must be explored. During some types of projects, it may be feasible to relocate, realign, shift, or change a runway in such a way that the RSA may be obtained. It is recognized that the costs of this kind of adjustment may be justified only in an extensive project, but the concept should be evaluated to determine if it is a practicable alternative.

c. Another alternative to be addressed is a reduction in runway length. This is a viable option if the current critical aircraft requires less than what is presently available, or the use of other runways, if available, will accommodate the larger aircraft.

d. When considering the configuration of RSA, if the total RSA area available is less that the total required to meet the design standard, an appropriate balance may be achieved by allocating a greater portion of RSA to one runway end. The factors to consider in this allocation are: navaids (ILS, PAPI, PLASI, VASIs), which provide vertical guidance and lessen the likelihood of an undershoot; predominant direction of runway use by air carrier aircraft, and historical data on overruns on the runway. For example, the total available RSA below is 1400'. Because there is an ILS for air carrier use, a determination is made to allocate 900' to the departure end of this runway and 500' to the approach end of the runway



ILS is located on this end of the runway

e. Declared distances present another alternative that may provide an acceptable means of providing RSA. This requires a thorough understanding of user needs and views, since their cooperation is an integral factor in selecting this alternative. However, the airport, in conjunction with FAA, will determine the final disposition of this type of situation.

f. At any time, when it is not practicable to obtain a safety area that meets current standards, consideration should be given to enhancing the safety of the area beyond the runway end with the installation of EMAS. The AC 150/5220-22, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns,* pertaining to the installation and use of EMAS, provides details on design to be considered in determining feasibility of this alternative.

g. When it is not practicable to obtain an RSA that meets current standards through the measures identified in Paragraphs 4a through 4e, the feasibility of increasing the size of the RSA by including additional land parcels should be considered, even if their inclusion will result in an RSA with an irregular shape. This alternative should be explored, irrespective of a decision to install EMAS in the RSA. For example, the design standard for an RSA beyond the runway end is not met. However, a parcel of land is available and would lengthen the RSA on one side only. This should be accomplished and noted in the comment section provided in the database. The following example illustrates this.