APPENDIX G FAA ORDER 8400.9, NATIONAL SAFETY AND OPERATIONAL CRITERIA FOR RUNWAY USE PROGRAMS

Page intentionally left blank.

ORDER DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

8400.9

11/9/81

SUBJ: NATIONAL SAFETY AND OPERATIONAL CRITERIA FOR RUNWAY USE PROGRAMS

1. PURPOSE. The purpose of this order is to provide safety and operational criteria for runway use programs. These criteria are applicable to all runway use programs developed for turbojet aircraft. This order provides parameters in the form of safety and operational criteria which must be used in the evaluation and/or approval of runway use programs.

2. DISTRIBUTION. This Order is distributed to selected offices in Washington and Regional Headquarters, Mike Monroney Aeronautical Center, and FAA Technical Center; Air Traffic Field Offices and Facilities; General Aviation and Air Carrier District Offices, Flight Standards District Offices, Flight Inspection District Offices, Field Offices and Groups, Airports District Offices, and interested aviation public.

3. BACKGROUND.

a. FAA has responsibility to provide the public right of freedom of transit through the navigable airspace of the United States and to regulate air commerce in such a manner as to best promote its development. FAA also has the responsibility for, and must maintain a detailed knowledge of, the safe operation of aircraft at our nation's airports. A primary function of this responsibility is determining under what conditions flight operations may be conducted without causing a degradation of safety.

b. Under ideal conditions aircraft takeoffs and landings should be conducted into the wind. However, other considerations such as delay and capacity problems, runway length, available approach aids, noise abatement, and other factors may require aircraft operations to be conducted on runways not directly aligned into the wind.

c. The Aviation Noise Abatement Policy of 1976 and Order 1050.11, Noise Control Plans, identify airport proprietors as responsible for taking the lead in local aviation noise control plans. Accordingly, airport proprietors may propose specific noise abatement programs to the FAA. Order 1050.11 assigns FAA responsibilities in relation to noise control plans. It requires the Air Traffic Service to "Provide guidance and administer programs for aircraft noise abatement procedures. . . ." Further, it requires that the Office of Flight Operations "Evaluate and make decisions in conjunction with the regional offices, as appropriate, concerning safety factors for flight operational procedures. . . ." The criteria in this order

Distribution: ZFS-840; ZAT-710 (minus field facilities); A-FAT-2,3,4,5,6,8 (STD); A-FFS-1,2,4,7 (STD); A-FAS-1 (STD)
Initiated By: AFO-210/AAT-320

8400.9 11/9/81

will be utilized by Flight Standards personnel in evaluating the safety of proposed programs and by Air Traffic personnel in administering Formal and Informal Runway Use Programs.

d. This order is not intended to restrict a pilot's use of the full certificated capability of an aircraft. This order also does not limit a pilot in the use of instrument approach procedures or any other such factors. Applicable FAR's, flight and operations manuals and advisory material address the necessary safety aspects of aircraft operations for pilots and aircraft operators.

4. EFFECTIVE DATE. January 1, 1982.

5. DEFINITIONS.

a. Runway Use Programs. A noise abatement runway selection plan designed to enhance noise abatement efforts with regard to airport communities for arriving and departing aircraft. These plans are developed into runway use programs and apply to all turbojet aircraft 12,500 pounds or heavier; turbojet aircraft less than 12,500 pounds are included only if the airport proprietor determines that the aircraft creates a noise problem. Runway use programs are coordinated with FAA offices as outlined in Order 1050.11. Safety criteria used in these programs are developed by the Office of Flight Operations. Runway use programs are administered by the Air Traffic Service as "Formal" or "Informal" programs.

b. Formal Runway Use Program. An approved noise abatement program which is defined and acknowledged in a Letter of Understanding between Flight Standards, Air Traffic Service, the airport proprietor and the users. Once established, participation in the program is mandatory for aircraft operators and pilots as provided for in FAR Section 91.87.

c. Informal Runway Use Program. An approved noise abatement program which does not require a Letter of Understanding and participation in the program is voluntary for aircraft operators/pilots.

6. RESPONSIBILITIES.

a. Terminal Facility Chiefs.

(1) Provide technical assistance upon request of the airport proprietor in developing a runway use program.

(2) Before any runway use program is implemented, ensure coordination with, and encourage participation in the development of the program by the airport proprietor, the local community, and aircraft operators who regularly use the airport.

(3) Forward the completed runway use program to the Regional Air Traffic Division for review, further intra-agency coordination, and approval.

Page 2 Par 3

b. Regional Air Traffic Division.

(1) Review and coordinate all runway use programs with the regional Flight Standards and Airports Divisions, and the appropriate office for environmental/noise matters. When necessary as outlined in paragraph 8 of this order, or if concurrence cannot be reached within the region, forward the program with comments to the Air Traffic Service, AAT-1, for final approval.

(2) Upon completing proper coordination, return the runway use program to the facility with approval or disapproval and rationale.

(3) Maintain a current status of all runway use programs and periodically review for accuracy and completeness in accordance with this directive.

c. Regional Flight Standards Division. Coordinate with the regional Air Traffic Division on all runway use programs and review them for compliance with the criteria in this order. If the program is within the criteria of this order, return it to the Air Traffic Division with concurrence and supporting rationale. If it is not within the criteria in this order, return it to the Air Traffic Division with nonconcurrence and rationale. If a waiver is requested in accordance with paragraph 8, perform a safety analysis to evaluate the proposed alternate criteria and return the program to the Air Traffic Division with concurrence or nonconcurrence, recommendations, and supporting rationale (see Appendix 2).

7. OPERATIONAL SAFETY CRITERIA FOR RUNWAY USE PROGRAMS. Except as provided for in paragraph 8, the following criteria shall be applied to all runway use programs:

a. Wind Shear or Thunderstorms. There should be no significant wind shear or thunderstorms which affect the use of the selected runway(s) such as:

(1) That reported by an operating Low Level Wind Shear Alert System (LLWSAS), or

(2) Pilot report (PIREP) of wind shear, or

(3) No thunderstorms on the initial takeoff departure path or final approach path (within 5 nm) of the selected runway(s).

b. Visibility. In order to utilize landing runways associated with a runway use program, the reported visibility shall not be less than one statute mile (runway visual range [RVR] 5000).

c. Runway Braking Effectiveness. There should be no snow, slush, ice or standing water present or reported (other than isolated patches which do not impact braking effectiveness) on that width of the applicable runway or stopway (overrun) to be used. Braking effectiveness must be "good" (e.g., not "fair," "poor," or "nil") and no reports of hydroplaning or unusual slippery runway surfaces (e.g., as may occur on ungrooved new pavement or contaminated surfaces).

d. Winds.

(1) Clear and Dry Runways.

(a) Unless a greater crosswind component is approved by the applicable Flight Standards office considering local weather factors, facilities and characteristics of aircraft normally using the facility, the crosswind component for the selected runway (including gust values) must not be greater than 20 knots (Appendix 1, Table 1).

(b) Except for (c) below, the tailwind component must not be greater than 5 knots (Appendix 1, Table 4).

(c) Where anemometers are installed near the touchdown zone of the candidate runway for landings, or near the departure end for takeoffs, any tailwind component must not be greater than 7 knots (Appendix 1, Table 3).

(2) Runways Not Clear or Not Dry.

(a) The crosswind component (including gust values) must not exceed 15 knots (Appendix 1, Table 2), and

(b) No tailwind component may be present except the nominal range of winds reported as calm (0-3 knots) may be considered to have no tailwind component.

(c) Unless otherwise approved by the applicable FAA Flight Standards office based on runway available and field lengths required for aircraft normally using the runway, the runway must be grooved or have a porous friction course surface.

e. Other Safety Factors. Factors peculiar to a specific airport must also be considered to the extent that they have been identified. These factors may include: runway length, runway gradient, aircraft type and performance characteristics, approach aids, etc.

8. WAIVERS. When necessary to accommodate unique site-specific situations, requests for waivers to the criteria contained in this order shall be submitted with justification, a safety analysis, and supporting data to AAT-1 who shall coordinate with AFO-1 for concurrence before granting final approval.

11/9/81 8400.9

9. APPLICABILITY.

a. This order applies to FAA personnel who may be called upon to advise, evaluate, or coordinate on specific noise abatement plans for runway use programs for particular airports.

b. This order does not require development or use of a runway use program where such a program has not been used or is not needed.

J. Lynn Helms
Administrator

Par 9 Page 5 (and 6)

11/9/81

8400.9
Appendix 1

APPENDIX 1. TABLE OF MAXIMUM WIND VALUES

The following table illustrates the maximum components for wind directions in 10-degree increments relative to a runway. No headwind component limitation is stated because strong headwinds would dictate use of a runway aligned into the wind due to the crosswind limitation. Velocity values are rounded down to the nearest whole number.

CROSSWIND COMPONENT TABLE 1
(DRY RUNWAY)

Wind Angle (Degrees) From Runway Heading	Wind Velocity (Knots)
10	114
20	58
30	40
40	31
45	28
50	26
60	23
70	21
80	20
90	20

CROSSWIND COMPONENT TABLE 2
(RUNWAY NOT DRY)

Wind Angle (Degrees) From Runway Heading	Wind Velocity (Knots)
10	86
20	44
30	30
40	23
45	21
50	19
60	17
70	16
80	15
90	15

Page 1

8400.9 11/9/81
Appendix 1

TAILWIND COMPONENT TABLE 3
(WITH ANEMOMETERS)
DRY RUNWAY

Wind Angle (Degrees) From Runway Heading	Wind Velocity (Knots)
100	20
110	20
120	14
130	10
135	9
140	9
150	8
160	7
170	7
180	7

TAILWIND COMPONENT TABLE 4
(WITHOUT ANEMOMETERS)
DRY RUNWAY

Wind Angle (Degrees) From Runway Heading	Wind Velocity (Knots)
100	20
110	14
120	10
130	7
135	7
140	6
150	5
160	5
170	5
180	5

Page 2

11/9/81

8400.9
Appendix 2

APPENDIX 2. EVALUATION OF REQUESTS FOR WAIVERS

When reviewing waiver requests in accordance with paragraph 8 of the order, Flight Standards personnel must consider the operational impact of the following factors when providing a safety analysis to support alternate criteria:

a. Are there significant occurrences of wind shear or thunderstorms?

b. Is a low level wind shear alert system (LLWSAS) installed?

c. Do runways significantly exceed critical field length for aircraft commonly using the airport?

d. Are runways grooved or do they have a porous friction course surface?

e. Are precision approach aids available to these runways?

f. Is a VASI present if these runways require a nonprecision approach?

g. Are 2 transmissometers installed?

h. Is runway slope a factor? If so, does it impact aircraft performance?

i. Is Maximum Brake Energy V_{MBE} a factor? If so, does it impact aircraft performance?

Page 1 (and 2)