



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
National Policy

**ORDER
NUMBER
8400.9**

Effective Date:
xx/xx/2014

**SUBJ: NATIONAL SAFETY AND OPERATIONAL CRITERIA
FOR RUNWAY SELECTION PLANS AND NOISE
ABATEMENT RUNWAY USE PROGRAMS.**

1. **PURPOSE.** The purpose of this order is to provide a process for towered (Part 139) airports to identify operational parameters for the safe arrival and departure of aircraft at airports. Airports with formal or informal noise abatement programs are required to have a Runway Selection Plan as part of their Noise Abatement Runway Use Program. The Runway Use Plan defines noise-preferred runways and includes wind/weather/environmental limitations for operating in the preferred configuration.

Runway Selection guidance provided in Federal Aviation Administration (FAA) Orders 7210.3 *Facility Operations and Administration* and 7110.65 *Air Traffic Control*, is based on wind, operational advantage and pilot request. In addition to runway use, this Order will provide the process for determining the maximum crosswind and tailwind components for each runway at an airport. The derived values will provide the maximum wind component (direction and speed) by which the airport must be reconfigured, or use of a particular runway discontinued. Wind criteria for runway selection are addressed in Section 10 of this order.

2. **SCOPE.** This order encompasses primary issues to be addressed in the Runway Selection Plans and Noise Abatement Runway Use Programs at all towered (Part 139) airports.
3. **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, Flight Standards District Offices, Flight Inspection District Offices, Field Offices and Groups, Airport Safety and Standards, and interested aviation public.
4. **AUDIENCE.** Washington and Regional Headquarters, Mike Monroney Aeronautical Center, and FAA Technical Center; Air Traffic Field Offices and Facilities, Flight Standards District Offices, Flight Inspection District Offices, Field Offices and Groups, Airport Safety and Standards, and the interested aviation public.
5. **WHERE CAN I FIND THIS ORDER?** You can find this order on the Directives Management System (DMS) Web site:
https://employees.faa.gov/tools_resources/orders_notices/.

6. **BACKGROUND.**

- a. FAA has the responsibility to establish regulations and policies to ensure the safe operation of aircraft at our nation's airports. A primary function of this responsibility is determining what conditions constitute an acceptable level of risk for conducting flight operations.
- b. The intent of the Noise Abatement Runway Use Plan is to ensure that noise considerations do not override the safe operation of aircraft.
- c. Aircraft takeoff and landing operations generally use the runway most nearly aligned with the wind when the wind velocity is 5 knots (kts) or more, or the preferred runway, when the wind is less than 5 kts.
- d. Other considerations such as runway length, available approach aids, noise abatement, delay and capacity problems, and other factors may dictate aircraft operations on runways other than the preferred runway or one not most directly aligned into the wind.
 - i. The Aviation Noise Abatement Policy of 2000 and FAA Order 1050.11 Noise Control Plans, identify airport operators as being responsible for taking the lead in local aviation noise control plans. Accordingly, airport operators may propose specific noise abatement programs to the FAA. FAA Order 1050.11 assigns FAA responsibilities in relation to noise control plans. It requires the Air Traffic Organization (ATO) to, "Provide guidance and administer programs for aircraft noise abatement procedures." Further, it requires that Flight Standards evaluate and make decisions in conjunction with the Service Centers, as appropriate, concerning safety factors for flight operational procedures. The criteria in this order will be utilized by Flight Standards in evaluating the safety of proposed programs and by the ATO in administering Runway Use Programs. The Runway Use Program wind parameters are stated as limits that require airport runway configurations be adjusted before these limiting conditions are exceeded. As part of an airport's Runway Selection Plan, a Runway Selection Safety Team (RSST), defined in Appendix A, is established at the local level to develop the maximum tailwind/crosswind component for each runway at a specific airport.
 - ii. Runway Use Plans are airport and runway specific. Airports with multiple runways will specify the appropriate crosswind and tailwind limits for each runway impacted by a use plan. The limit that is safe for one runway may not be appropriate for another due to length, geography, and the primary users of that runway. Two runways of the same length at different airports may not have the same wind limits for a variety of reasons. Each airport and runway is unique and must be evaluated individually.
- e. Additional information and resources are provided in Advisory Circular 120-RWY Use (In draft).
- f. The order also fulfills the National Transportation Safety Board (NTSB) recommendation A-10-109, which references NTSB Aircraft Accident Report Number AAR-10-04. The recommendation states: "Require air traffic control towers to locally develop and implement written runway selection programs that proactively consider current and developing wind

conditions and include clearly defined crosswind components, including wind gusts, when considering operational advantage with respect to runway selection.”

7. EFFECTIVE DATE. MO/DD/2014

8. DEFINITIONS.

- a. Noise Abatement Runway Use Plan. A formal or informal program approved by the FAA designed to enhance noise abatement efforts with regard to airport communities relative to arriving and departing aircraft. These plans are developed into Runway Use Programs and apply to all turbojet aircraft with a certified takeoff weight of 12,500 pounds or heavier; turbojet aircraft with a certified takeoff weight of less than 12,500 pounds are included only if the airport authority determines that the aircraft create a noise problem. Noise Abatement Runway Use Plans are coordinated with FAA offices as outlined in FAA Order 1050.11(A). Runway Use Programs are administered by the Air Traffic Organization as “Formal” or “Informal” programs.
 - i. Formal Noise Abatement Runway Use Plan. An approved noise abatement program that is defined and acknowledged in a Letter of Understanding among Flight Standards, Air Traffic Service, the airport proprietor and the users. Once established, participation in the program is mandatory for aircraft operators and pilots in accordance with 14CFR part 91.129(h).
 - ii. Informal Noise Abatement Runway Use Plan. An approved Noise Abatement Runway Use program that does not require a Letter of Understanding and participation in the program is voluntary for aircraft operators/pilots.
- b. Dry Runway. Any runway that is not contaminated or wet is considered dry.
- c. Wet Runway. A surface that is neither dry nor contaminated but has visible dampness, moisture, and/or water less than 1/8-inch in depth.
- d. Contaminated Runway. For the purpose of this order, a runway is considered contaminated whenever standing water (greater than 1/8 inch), ice, snow, slush, frost in any form, heavy rubber deposits, or other substances are present. A runway is contaminated with respect to rubber deposits or other friction degrading substances when the average friction value for any 500-foot segment of the runway within the Available Landing Distance (ALD) falls below the recommended minimum friction level, and the average friction value in the adjacent 500-foot segment falls below the maintenance planning friction level.
- e. Calm wind. The wind may be described as calm when the wind velocity is less than 3 kts.
- f. Runway Safety Action Team (RSAT). As defined in FAAO 7050.1, a Runway Safety Action Team (RSAT) convenes to discuss surface movement issues and concerns at a particular airport and formulate a Runway Safety Action Plan (RSAP) to address those concerns.

- g. Runway Selection Safety Team (RSST). The team that initially determines maximum wind components for the airport's runways (See appendix A for composition).

9. RESPONSIBILITIES.

a. Air Traffic Managers.

- i. Upon request of the airport operator, develop Noise Abatement Runway Use Plans with technical assistance from Flight Standards.
- ii. Prior to implementing any Noise Abatement Runway Use Plan, ensure the plan is developed in accordance with the wind limits established by the RSST. Ensure the invitation and participation of the airport proprietor, the local community and operators who regularly use the airport.
- iii. Due to the importance of establishing unique airport wind limits, the team is comprised of representatives of the local user community (air carriers, general aviation, military, labor organizations, as appropriate), airport operator, the local Airway Facilities office, Flight Standards (The Regional NextGen Branch Manager will determine the Flight Standards representative), ATO Management and the National Air Traffic Controllers Association (NATCA) from both the Airport Traffic Control Tower and the Approach Control Facility.
- iv. Prior to conducting the RSST meeting, coordinate with the Regional Flight Standards NextGen Branch (Axx-220) and Air Traffic Service Center to confirm that the appropriate participants have committed to attend. If either non-concurs with the list of attendees and the ATM is unable to resolve the deficiency, reschedule the RSST.
- v. Advise aircraft operators to be prepared to comment on aircraft performance and limitations (see Advisory Circular 90-xxx).
- vi. Complete and forward the Runway Selection Safety Team Worksheet, to the Service Center for Air Traffic and Flight Standards review, and concurrence/non-concurrence.
- vii. Scheduling of Team Meetings: A local RSST meeting will be held no later than 12 months after the effective date of this order. This RSST may be reconvened after an RSAT review when necessary.
- viii. Biannually or in conjunction with a RSAT meeting, each towered Part 139 facility must assess their airport's active runway configuration decision with respect to tailwind/crosswind operations. The purpose of this assessment will be to review the maximum tailwind/crosswind component established by the RSST for each runway.

NOTE: Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations that are not covered by it.

- b. Service Centers.
- i. When requested by the ATM (prior to the RSST), verify the list of attendees is appropriate for the airport. Per paragraph 9.c.ii below, Regional NextGen Branch is responsible for concurrence of the list of operator attendees.
 - ii. Review and coordinate all Runway Selection Plans/Noise Abatement Runway Use Programs with the Regional Flight Standards NextGen Branch to ensure appropriate participation or representation. If concurrence cannot be reached, forward the Plan with comments to the Director, Operations Headquarters, AJT-2, for headquarters review with Flight Standards (AFS-200/400).
 - iii. Upon completing proper coordination, return the Runway Selection Plan(s)/Noise Abatement Runway Use Plan to the facility with concurrence/non-concurrence and rationale. If the process was followed and the program is deemed safe, return it to the Air Traffic Manager with concurrence. If it does not comply with this order or is viewed as unsafe, return it to the Air Traffic Manager with non-concurrence and rationale within 30 days.
 - iv. Ensure the RSST meeting is held within 12 months of the effective date of this order. Maintain a current status of all Noise Abatement Runway Use Plans and annually review for accuracy and completeness in accordance with this directive.
- c. Regional Flight Standards NextGen Branch (Axx-220).
- i. Appoint the Flight Standards representative to the Runway Safety Selection Team. The representative must be an Operations Aviation Safety Inspector (ASI). The appointment should pair the representative's responsibility/experience by ensuring that it encompasses the majority of operators that use the airport.
 - ii. When requested by the ATM (prior to the RSST), verify the list of operator attendees is appropriate for the airport. If all of the appropriate parties were not represented, return the document to the ATM with the recommended list of participants.
 - iii. Coordinate with the Service Center on all Noise Abatement Runway Use Plans and review them for compliance with the process. Ensure that the wind parameters are justified and have been substantiated with documentation.
 - iv. If the process was followed and the program is deemed safe, return it to the Service Center with concurrence. If it does not comply with this order or is viewed as unsafe, return it to the Service Center with non-concurrence and rationale within 30 days.

10. OPERATIONAL SAFETY CRITERIA FOR RUNWAY USE

Note: *This order is not intended to infringe upon Pilot in Command (PIC) responsibilities for the safety of flight, nor limit the certificated performance capability of an aircraft. Applicable CFR's, flight and operations manuals, and*

*advisory material address the necessary safety aspects of aircraft operations for pilots and aircraft operators. **The ultimate responsibility for accepting a takeoff or landing clearance lies with the (PIC).***

- a. Noise abatement shall not be a determining factor in runway selection under the following conditions:
 - i. Windshear or Thunderstorms. When windshear/adverse weather has been reported or is expected to affect the approach or departure corridor.
 - ii. Runway Braking Effectiveness. Braking action should be reported as good. If it is other than good, the runway that provides the greatest headwind component should be used. Other safety factors such as the availability of vertically guided approaches, Visual Glide Slope Indicator (VGSI), and runway length must be taken into consideration so that the best runway for aircraft performance is selected. In no case should a contaminated runway be used with a tailwind when the braking action is other than good.
- b. The crosswind/tailwind limits in this document are maximum limits, and should not be used as a starting point in the RSST process. The maximum may not be appropriate for all runways or all aircraft. The limits derived by the RSST are maximum limits to aid ATC decision making in the selection of a runway and not to limit aircraft operations. The RSST must document justification for the limits established for its Runway Selection Plan. Each airport has its unique operational environment that must be taken into consideration as stated in Appendix A.
- c. Maximum crosswind component (including gust)
 - i. Dry Runway: 25 kts
 - ii. Wet Runway: 15 kts
 - iii. Contaminated Runway: 15 kts
- d. Maximum tailwind component (including gust)
 - i. Dry Runway: 10 kts
 - ii. Wet Runway: 10 kts
 - iii. Contaminated Runway (< 8000 ft) < 3 kts (reported as calm)
 - iv. Contaminated Runway (\geq 8000 ft) 5 kts
- e. Winds.
 - i. Use the wind source as designated by the ATM in accordance with FAA Order 7210.3 for operational purposes.

- ii. Crosswind/Tailwind Component Criteria (see Appendix A).
- f. Other Safety Considerations.
- i. When considering operational advantage with respect to runway use, the air traffic control facility must develop and implement written Runway Use Plans that proactively consider current and developing wind conditions and include clearly defined crosswind/tailwind criteria, including wind gusts. (See Appendix A).
 - ii. Considerations peculiar to a specific aircraft regularly utilizing the airport must also be considered to the extent that they can be identified. Safety considerations must be applied in developing a runway use program are listed in Appendix A.
- g. Appendix A provides a list of safety considerations that must be evaluated when developing crosswind and tailwind limits. There may be other considerations peculiar to the airport, a specific runway, or an aircraft that regularly uses the airport that are not listed. It is the responsibility of the RSST to identify and evaluate any additional considerations it considers appropriate.
- h. Requests for Waivers
- i. Should include documentation of all considerations contained within this order.
 - ii. Must include participants to the RSST.
 - iii. Shall be submitted to Service Area Operations Support Group (OSG) and regional All Weather Operations Program Manager (AWOPM).
 - iv. Shall be jointly approved/disapproved by headquarters Air Traffic and Flight Standards.

11. RESOURCES

TBD – e.g.

- website repository
- RSST Forum:
 - Team worksheets and records
 - Airport Runway Wind Limits templates
- Advisory Circulars,
- Pilots Handbook of Aeronautical Knowledge

Signed

Administrator

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Appendix A

Runway Selection Safety Team:

Every airport is unique in runway design, how the airport is used, wind-reporting equipment, and prevailing weather conditions. The Runway Selection Safety Team (RSST) must consider all the factors specific to their airport. To effectively identify airport-specific considerations, the RSST must be comprised of representatives from the user community, the airport operator, and air traffic control, as discussed in paragraph 9.a.iii of this Order. The failure to include key members from each line of business will likely result in a flawed analysis. Operational limitations will be provided by the operators. At air carrier airports, this would include, but not be limited to, the largest major air carrier and regional air carrier.

The major factors to consider during the development process will include: Runway Design Considerations, Aircraft Performance Considerations, Approach Guidance Considerations, ATO Considerations, and Low Visibility Operations. Special attention and caution must be used when considering crosswind/tailwind criteria and low-visibility operations for a wet and contaminated runway. Runway length and the availability to obtain accurate runway braking reports and the ability to disseminate this information must be considered in determining runway selection criteria. Use the following considerations as a checklist for RSST evaluation.

The RSST will consider these factors for normal operations. It is understood that abnormal/emergency situations may dictate use of another runway.

A. Runway Design Considerations:

1. Runway Length/ Available Landing Length
2. Runway width
3. Runway crowning
4. Runway grooving
5. Runway material composition
6. Runway rubber deposits
7. Runway safety area length beyond runway end Runway overrun length
8. Adequate over run/threshold
9. Runway slope
10. Runway wind obstructions (e.g., false/inaccurate wind readings)
11. Runway lighting configuration (e.g., center line lights, RWSL)
12. Runway marking (precision, non-precision, visual, distance remaining signage)
13. Surrounding terrain
14. Runway configuration

B. Aircraft Performance Considerations:

1. Aircraft crosswind/tailwind limits vs. maximum wind limits contained in Section 10 d & e of this Order.
2. Operational parameters (Pilot Handbook or Flight Operations Manual guidance)
3. Critical Field Length
4. Aircraft equipment, for example, predominately complex aircraft with anti-skid, speed brakes vs. predominately recreational GA aircraft.
5. Flight Operations Quality Assurance (FOQA) data supplied by operator
6. Multi-crew Air Carrier aircraft vs. single pilot General Aviation
7. Fleet mix for each runway
8. Availability of advanced performance data, e.g., onboard computers/datalink performance vs. use of tables/graphs
9. Anti-ice power settings

C. Approach Guidance

1. ILS, RNAV, LPV with vertical guidance vs. LOC or LNAV only or circle to land
2. Approach lighting
3. VGSI e.g., (Precision Approach Path Indicator (PAPI)/Visual Approach Slope Indicator (VASI)
4. Glide Slope (GS) angle greater than standard/non standard
5. Land and Hold Short
6. Environmental considerations
7. Circle to Land

D. ATO Considerations

1. Wind-reporting equipment (calibration error factored in)
2. Prevailing weather and frequency
3. Prevailing winds.
4. Windshear prevalence
5. Local weather anomalies to include tailwind aloft/mountain wave, runway obstruction that would affect wind
6. Anomalies with arrival traffic and flow
7. Approach and departure Volume Peak vs. non-Peak
8. Taxi efficiency
9. Frequency and number of arrivals and departures
10. Missed approach considerations
11. Construction projects
12. Types of runway exits high speed versus non high speed
13. Training Operations e.g., touch and go, etc.
14. Multiple departure runway interactions.
15. Number of runway crossings required.
16. Environmental considerations, (FAA Order 1050.1)

E. Contaminated Runway Considerations

Landing on contaminated runways involves increased levels of risk related to deceleration and directional control. Airplane Flight Manuals (AFM) specify aircraft limitations that can be expected to impose reduced cross and tail wind limitations. Operators may further restrict all such operations, or impose flightcrew-specific restrictions or requirements. Total wind velocity, and gusts should be considered when determining acceptable tailwind component. Wind additives to approach speed can be as much as 20 knots, which could increase landing distance. Airports with historic variable wind conditions (generally associated with geographic features) should account for rapid changes in wind velocity and direction that could complicate directional control or increase landing distance. Braking action should be reported as good. If it is other than good, the runway that provides the greatest headwind component should be assigned. In this situation, other safety factors such as vertically guided approaches, VGSI, and runway length must be taken into consideration so that the best runway for aircraft performance is selected. In no case should a contaminated runway be used with a tailwind when the braking action is other than good.

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Appendix B

