

**SEATTLE 4-POST
DECISION and ORDER**

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DECISION AND ORDER

The Seattle Air Traffic Control Tower (ATCT) and the Seattle Air Route Traffic Control Center (ARTCC) jointly submitted an airspace study entitled "Seattle Arrival and Departure Routes; Simulation, Analysis, Recommendations" to me on November 3, 1989 for consideration. That study detailed problems regarding arrival capacity at Seattle-Tacoma International Airport (Sea-Tac) and safety and efficiency concerns created by congestion in the airspace controlled by both the Seattle ARTCC and the Seattle ATCT. It identified various procedural alternatives for solving these problems and recommended specific changes in existing air traffic procedures.

On December 22, 1989, the Northwest Mountain Region (the Region) issued a Draft Environmental Assessment of the proposed changes and announced its intention to hold a public hearing on January 24, 1990 and to accept public comments on that document. The Final Environmental Assessment, which contains the transcript of the public hearing and the written comments received, was presented to me and signed on March 27, 1990. After consideration of the information contained in the Final Environmental Assessment, I made a Finding of No Significant Impact on March 31, 1990.

At present, the route structure in the airspace over and east of the Cascade Mountains which serves the Sea-Tac Airport blends aircraft from widely dispersed points of origin and is required to change substantially each time the runway in use changes at the airport, which may occur several times in one day. This has several effects with adverse consequences which extend throughout the National Airspace System. These include:

1. When landing runways 16L and 16R, aircraft coming to Seattle from points to the southeast, such as Denver, Dallas, and Atlanta are required during their enroute descent to pass through a steady stream of Seattle departures climbing toward such destinations as Minneapolis, Chicago, Washington, and New York. At the same time, these arrivals from the Southeast are being merged into a single arrival stream of aircraft from the Northeast. Such crossing and merging of aircraft is less efficient and more difficult to accomplish at high altitude and high speed than if conducted in the latter phase of flight when aircraft are flying at lower altitudes and speeds. The type of RADAR and navigational equipment installed in the airspace within 50 miles of major airports facilitates this crossing and merging process because of its greater accuracy and more frequent information updates.
2. In periods of high demand, if weather or airport conditions improve, the present high altitude route structure and holding airspace used by the Seattle Air Route Traffic Control Center do not permit that facility to adjust the arrival rate in a timely fashion. In order to provide sufficient room for departure routes

and balance workload between control sectors, enroute holding and metering of arriving aircraft must be conducted approximately 130-150 flying miles from the airport in the existing structure. At present, it may take as much as thirty minutes to effect a substantial increase in the metered arrival rate at the airport. This can account for as many as 20 lost arrival opportunities per event.

3. Because of the fluid nature of these routes caused by the situation described above, the integration of Seattle air traffic into the national Preferred Route System has proved difficult. This causes unnecessary system complexity and controller workload by increasing the number of points of aircraft conflict for aircraft enroute to and from Seattle throughout the National Airspace System.

In addition, when adverse weather, such as low ceilings and visibilities, creates a need for instrument approaches to the airport, the arrival capacity of the airport is symmetrical. That is, approximately 36 aircraft per hour can arrive whether runways 16 or 34 are in use. Arrival delays are similar whether landings are conducted to the north or to the south. In contrast, during periods of peak demand and optimum weather conditions, south arrival rate is much lower (42/hour), than north (56/hour). Delays, when landing south, are significantly greater than when landing north. No reason for this disparity can be found in the layout of the airport; the inefficiencies are caused by the requirement of the existing procedures that turbojet aircraft landing to the south be routed through Elliott Bay, to the northwest of the airport, in a single arrival stream.

Further, the division of airspace along the Seattle Runway 16 localizer in the south flow means that in visual approach weather the East Arrival controller must route aircraft under his control through the West Controller's airspace for a significant distance to position the aircraft in Elliott Bay. By continuing this, the FAA is engaging in a practice which increases its exposure to the risk of error and cuts very close to the actions prohibited by provisions of the FAA Air Traffic Control Handbook which pertain to coordination between controllers and transfer of control of aircraft.

The problems identified above are the result of route restrictions developed in the 1970's, in particular the procedures established in 1974 for turbojets arriving and departing Sea-Tac. These procedures were not based on abating any specific measure of noise or on any coherent plan to mitigate overall airport noise or to distribute it equitably throughout the metropolitan area. Rather they most often were the result of moving overflight tracks away from particular complaining groups and/or communities. Nonetheless they were adopted as so-called "noise abatement" measures.

Each of these measures, considered individually, has caused minor operational inefficiencies which, at the time of adoption, was regarded as acceptable to the FAA. Since 1974, however, air traffic in the region has grown steadily; the number of aircraft operations handled by the Seattle ATCT rose dramatically in 1989. Airline scheduling practices following deregulation in 1978 have compounded the operational effects of these increases in aircraft operations. Yet in the intervening years, there has been virtually no change in the procedures under which turbojet aircraft arrive and depart Sea-Tac. The cumulative effect of the existing restrictions on the FAA's use of Seattle airspace has been to create serious efficiency problems and an undesirable risk of error within the air traffic system.

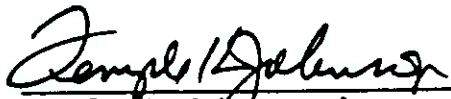
Attempts have been made by the TRACON and the ARTCC to alleviate these problems, but they have been unsuccessful because of the current geographical and operational constraints.

Given the infeasibility of non-procedural changes within the foreseeable future, such as alteration of airline scheduling and establishment of a new airport, and the limited success of personnel and equipment improvements to overcome the safety and efficiency problems inherent in the existing procedures, the FAA proposed action that would alter existing air traffic control procedures and routings for turbojet and turboprop aircraft so as to improve efficiency and decrease the potential for error in the handling of air traffic.

I have considered the analyses and recommendations presented in the airspace study entitled "Seattle Arrival and Departure Routes; Simulation, Analysis, Recommendations" as well as the relative environmental consequences of various operational alternatives. I recognize that while the overall amount of noise generated by Sea-Tac operations will not change, there will be a redistribution of overflight noise from certain residential areas to others. I have reviewed the transcript of the public hearing held January 24, 1990, listened to the concerns of citizens expressed at the ninety-one Noise Mediation Committee meetings and public forums I have attended during the past eighteen months, and read the written comments received by the FAA. As a consequence of public comment on this issue, I have decided that implementation of the proposed procedures should include retention of the "Elliott Bay procedures" for north flow departures during those nighttime hours when air traffic is light enough to allow for their safe use.

Given the lack of significant environmental impacts anticipated to occur from implementation of the proposed air traffic procedures and the FAA's obligation under the Federal Aviation Act to insure the safety of aircraft and the efficient utilization of the navigable airspace, I have decided to adopt the procedures set forth in the Preferred Alternative section of the Final Environmental Assessment (Proposed Changes to Air Traffic Arrival and Departure Routes at Seattle-Tacoma International Airport -- Seattle, Washington), dated March 27, 1990. Under my delegated authority, I therefore direct the Air Traffic Managers of the Seattle Tower and Seattle ARTCC to take the steps necessary to implement the procedural and operational changes detailed within the appendices of this order as soon as is feasible.

The implementation of the procedures contained in this order cancels all previous facility directives and practices regarding noise abatement. Should unforeseen operational consequences require modification of these procedures or the Sea-Tac noise mediation process sponsored by the Port of Seattle develop operationally acceptable alternatives to the routings and procedures therein, appropriate changes will be made at the earliest available opportunity.



Temple H. Johnson, Jr.

Manager, Air Traffic Division, Northwest Mountain Region

Issued in Seattle, Washington, on the 2nd day of April, 1990.

This decision, including any subsequent actions taken to implement it, is made pursuant to 49 U.S.C. 1301 et seq., and constitutes an order of the Administrator which is subject to review by the courts of appeals of the United States in accordance with the provisions of Section 1006 of the Federal Aviation Act of 1958, as amended, 49 U.S.C. 1486.

Agency Decision and Order, dated April 2, 1990

APPENDIX A

SUBJECT: Seattle Air Route Traffic Control Center (ARTCC) Actions

1. ACTION: Seattle ARTCC shall make route and sector changes needed to eliminate high altitude crossings east of Ephrata, Washington, effecting Seattle arrivals and departures. As a minimum, these changes shall include:

a. Turbojet Arrival Flows: Fixed non-runway sensitive arrival flows will be over the Olympia VORTAC, the JAKSN Intersection (Seattle VORTAC 020 radial/35-mile DME fix), the RADDY Intersection (Seattle VORTAC 101 radial/39-mile DME fix), and JAWBN Intersection (Seattle VORTAC 307 radial/42-mile DME fix).

b. Turbojet Departure Flows: Fixed non-runway sensitive departure flows will be over the Paine VOR, the Tatoosh VORTAC, and along the Seattle VORTAC 069, 143, 158, and 227 radials.

2. EFFECTIVE DATE: All actions needed to accomplish these actions shall be completed at the earliest possible date agreed to between Seattle ARTCC and Seattle Tower and approved by the Air Traffic Division.

3. FUTURE CHANGES: Any procedural changes impacting areas addressed in this order and decision which would alter any Seattle Tower/TRACON routes and/or procedures shall be approved by the Air Traffic Division prior to implementation.

Agency Decision and Order, dated April 2, 1990

APPENDIX B

SUBJECT: Seattle Airport Traffic Control Tower (ATCT) Actions -
Departure Procedures.

1. ACTION: Seattle ATCT shall establish turbojet departure flows to join Seattle ARTCC departure flows over the Paine VOR, the Tatoosh VORTAC, and along the Seattle VORTAC 069, 143, 158, and 227 radials. Departure procedures shall include, as a minimum:

a. SOUTH FLOW: Traffic permitting, turbojet aircraft departing Runways 16, shall not be turned (radar vectored) until the aircraft is at or above 3,000 feet MSL and is at least 5 nautical miles south of the airport.

b. NORTH FLOW: Traffic permitting:

1). Turbojet aircraft departing runway 34 and making a right turn east or southeast bound shall be turned off the initial departure course, only after the aircraft is at or above 4,000 feet MSL and has reached the Seattle VORTAC 8-mile DME arc.

2). Turbojet aircraft departing runway 34 and making a left turn northwest or southwest bound shall be turned off the initial departure course at Boeing Field/King County Airport and radar-vectored over Elliott Bay then to join the appropriate departure route.

3.) Retain the provisions of Seattle TRACON Order 7200.1, Chapter 2, Section 6, para. c (1) and (2), which describe the rerouting of eastbound departures through Elliott Bay during those late night hours when traffic is light enough to permit safe use.

2. EFFECTIVE DATE: All actions needed to accomplish these actions shall be completed at the earliest possible date agreed to between Seattle Tower and Seattle ARTCC and approved by the Air Traffic Division.

3. FUTURE CHANGES: Any changes in the procedures detailed above shall be approved by the Air Traffic Division prior to implementation.

Agency Decision and Order, dated April 2, 1990

APPENDIX C

SUBJECT: Seattle Airport Traffic Control Tower (ATCT) Actions -
Arrival Procedures.

1. ACTION: Seattle ATCT shall implement arrival flows in accordance with procedures defined in the Preferred Alternative section of the FAA's Final Environmental Assessment (Proposed Changes to Air Traffic Arrival and Departure Routes at Seattle-Tacoma International Airport -- Seattle, Washington) dated March 27, 1990. Turbojet Arrival Flows will be from over the Olympia VORTAC, the JAKSN Intersection (Seattle VORTAC 020 radial/35-mile DME fix), the RADDY Intersection (Seattle VORTAC 101 radial/39-mile DME fix), and the JAWBN Intersection (Seattle VORTAC 307 radial/42-mile DME fix). As a minimum, arrival procedures will include:

a. North and South Flows:

1). Arriving aircraft will be kept as high as possible consistent with optimum descent profiles and operational dictates.

2). To the extent possible, turboprop aircraft will follow the same approximate flight tracks as turbojet aircraft.

b. South Flow:

1). During visual approach conditions, when there is no conflicting traffic or sequencing demand, turbojet arrivals from the Northwest and Southwest arrival fixes will be placed on a right-base leg over Elliott Bay.

2). Turbojet arrivals from the Northeast and Southeast arrival fixes will be positioned so as to be established on the Runway 16 final approach course, no closer to the airport than State Route 520 (11.0 nautical miles north) and no lower than 5,000 feet MSL.

3). Traffic permitting, turbojet aircraft on the "Long Leg" tracks, will be turned to a downwind leg at the Seattle VORTAC 101 radial/8-mile DME fix or the 10-mile DME fix on a direct course from the Olympia VORTAC to the Seattle VORTAC, at or above 11,000 feet MSL, as appropriate.

c. North Flow: Traffic permitting, turbojet aircraft on the "Long Leg" tracks, will be turned to a downwind leg at the Seattle VORTAC 020 radial/10-mile DME fix or the Seattle VORTAC 307 radial/12-mile DME fix, at or above 11,000 feet MSL, as appropriate.

Agency Order and Decision, dated April 2, 1990

Appendix C (Arrival Procedures continued)

2. EFFECTIVE DATE: All actions needed to accomplish these actions shall be completed at the earliest possible date agreed to between Seattle Tower and Seattle ARTCC and approved by the Air Traffic Division.

3. FUTURE CHANGES: Any changes in the procedures detailed above shall be approved by the Air Traffic Division prior to implementation.