

DRAFT  
ENVIRONMENTAL ASSESSMENT  
FOR  
PROPOSED CHANGES TO AIR TRAFFIC  
ARRIVAL AND DEPARTURE ROUTES AT  
SEATTLE-TACOMA INTERNATIONAL  
AIRPORT

Seattle, Washington

Prepared by  
Federal Aviation Administration  
Air Traffic Division  
Seattle, Washington

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This environmental assessment becomes a Federal document  
when evaluated and signed by the responsible FAA official.

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Responsible FAA Official

Date

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## Summary

### I. Purpose and Need

This is an assessment of the environmental effects of proposed alterations to arrival traffic patterns at the Seattle-Tacoma International Airport in order to reduce congestion and improve efficiency in airspace surrounding that facility.

When adverse weather, such as low ceilings and visibilities require 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 capacity is much lower (42/hour), than north arrival capacity (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. Therefore, the inefficiencies are caused by the use of the airspace, and more particularly, the requirement that turbojet aircraft landing to the south be routed through Elliott Bay, to the northwest of the airport.

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 (ARTCC) does not permit that facility to adjust the arrival rate in a timely fashion. 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 arrival opportunities per event.

#### a. Background

Since 1970, the FAA has worked with local governments and the Port of Seattle to establish local air traffic control procedures which, in many cases subordinated air traffic efficiency to noise abatement procedures which limited turbojet aircraft overflights to certain areas of the Seattle Metropolitan Area.

Prior to 1980, these procedures were used with few delays because the demand for air traffic service seldom approached capacity. In 1980, the FAA's Approach Control Facility (TRACON) handled approximately 255,000 instrument operations per year.



By the summer of 1989, the TRACON was handling as many as 326,125 airport operations and 524,072 total instrument operations per year using the noise abatement procedures which had not changed substantially since the early 1970's. Substantial delays are being incurred. During June, July and August of 1989, 5,409 aircraft experienced 1,303 flight hours of arrival delay.

b. Recent Air Traffic System Improvements

Airspace has been realigned by addition of ARTCC sectors in the Seattle Area and the incorporation of the Tacoma/McChord Air Force Base area into the Seattle TRACON.

Equipment has been improved in both TRACON and ARTCC and substantial numbers of personnel have been added to the complement of both facilities. It is believed that any further improvement in system efficiency will have to come from more complete and efficient use of available airspace.

II. Alternatives Considered

During the past decade, a number of airspace configurations and revised procedures have been proposed to improve the efficiency of the Sea-Tac Airport. Most of these have not been implemented because they were incompatible with the noise abatement procedures agreed to in the early 1970's.

In September 1989, a work group formed by the Seattle TRACON and the Seattle ARTCC simulated each of thirteen alternative airspace and procedure plans to evaluate the relative efficiency and safety of each. They were able to eliminate six of the alternatives as unworkable or unsafe. The remaining seven were ranked as to efficiency; ranging from a static flow arrangement in which arrival streams are presented at the corners of the terminal airspace irrespective of direction of landing, through the "do nothing" option.

Preferred Alternative

The Alternative presented in Demonstration #3 showed clear advantages in safety, simplicity, efficiency, and may actually generate less aircraft noise, though patterns of distribution will change outside the 65 DNL contour. It provides for as many as 56-60 aircraft arrivals per hour in good weather conditions in either north or south traffic operations.

III. Affected Environment

The environment affected by the present and proposed air

traffic routings to and from Seattle-Tacoma International Airport encompasses the entire Puget Sound basin.

V Environmental Consequences

The noise impacts of aircraft operations at Seattle-Tacoma International Airport in both north and south flow conditions have been assessed for the current and proposed operational scenarios. The standard Federal noise measurement methodology was used which is the Day-Night Sound Level DNL (a 24 hour cumulative measure of noise exposure). Proposed changes associated with any of the alternatives occur beyond the ends of the current DNL 65 and greater noise exposure contours and at altitudes above 3000 feet above ground, therefore the DNL 65 and greater noise exposure contours will not change. Given that the DNL 65 and greater noise contours do not change as a result of the implementation of the proposed action, all locations outside of the DNL 65 contour remain compatible with the airport.

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