

RECORD OF APPROVAL

FEDERAL AVIATION REGULATION PART 150
NOISE COMPATIBILITY PROGRAM

SEATTLE-TACOMA INTERNATIONAL AIRPORT
SEATTLE, WASHINGTON

INTRODUCTION

The Seattle-Tacoma International Airport (Sea-Tac) Noise Compatibility Program (NCP) includes measures to abate aircraft noise, control land development, mitigate the impact of noise on non-compatible land uses, and implement and update the program. Title 14 Code of Federal Regulations (CFR) Part 150 requires that the plan apply to a period of no less than five years into the future, although it may apply to a longer period if the sponsor so desires. The airport sponsor has requested that the program measures be applied to the Future 2018 Noise Exposure Map/Noise Compatibility Program (Exhibit 6-2).

The objective of the noise compatibility planning process has been to improve the compatibility between aircraft operations and noise-sensitive land uses in the area, while allowing the airport to continue to serve its role in the community, state, and nation. This NCP is an update to Sea-Tac's existing program, which the FAA most recently approved in the 2002 Record of Approval (ROA). The recommendations consist of a continuation or modification of some currently approved measures from the 1985, 1994, and 2002 NCP ROAs. It also includes new measures. As outlined in Section 5.1.1 of the NCP, the currently approved Abatement Measures A-2, A-4, A-5, A-6, and A-9 have been completed and are therefore not carried forward in this NCP. Abatement Measures A-7, A-8, A-13, A-14 and A-17 have been withdrawn. Section 5.2.1 provides a review of the currently approved mitigation measures that were included in the 2002 ROA. Mitigation Measures M-1 and M-13 have been completed so are no longer recommended. Mitigation Measures M-2C, M-3a, M-3b, M-4, M-9 and M-10 have been withdrawn. It should be noted that the approvals indicate only that the actions would, if implemented, be consistent with the Part 150 regulation. Measure approvals do not constitute decisions to fund or otherwise implement the actions. Subsequent decisions concerning possible implementation of these actions may be subject to the applicable environmental and/or aeronautical requirements.

*4th
Part 150
since 1985*

The program elements below summarize as closely as possible the airport operator's recommendation in the noise compatibility program and are cross-referenced to the program. The statements contained with the summarized program elements and before the indicated FAA approval, disapproval, or other determination, do not represent the opinions or decisions of the FAA.

PROGRAM ELEMENTS

1. **Measure A-1: Explore Limited Rescheduling of Nighttime Flights – Page 5-4, Page 6-13 and Table 6-1**

This measure involves the voluntary rescheduling of aircraft flight times (earlier or later) of nighttime short-haul flights by jet aircraft. This measure primarily addresses those short-haul

flights that currently are scheduled to operate between 10:00 p.m. and 12:00 a.m. or between 5:00 a.m. and 7:00 a.m.

The Airport Noise and Capacity Act of 1990 limits the ability of public airports to enact involuntary use restrictions such as nighttime curfews. Proposed mandatory restrictions must be reviewed by the FAA under the provisions of 14 CFR Part 161. The result of this voluntary measure is the reduction of aircraft noise and overflights during nighttime hours

This measure was included in the 1985 NCP and has been implemented and is on-going. It is not expected to impact other measures or existing programs.

FAA Determination: Approved as this is a continuation of a measure that was previously approved in the 1985 ROA. The Port should periodically communicate this voluntary measure to the airlines operating at Sea-Tac Airport and any new airlines that introduce service at Sea-Tac Airport.

2. Measure A-3: Use VOR Radials to Curb Aircraft Drifting from Noise Abatement Track – Page 5-4, Page 6-14 and Table 6-1

This measure uses very high frequency (VHF) omnidirectional range (VOR) radials to curb departing aircraft from drifting off the runway heading tracks as specified in the Tower Order. Aircraft noise and overflights are reduced for areas that are not beneath the existing departure corridors.

This measure was included in the 1985 NCP and has been implemented. Adherence to this measure is voluntary. It is not expected to impact other measures or existing programs.

FAA Determination: Approved as it is a continuation of a voluntary measure that was previously approved in the 1985 ROA.

3. Measure A-10: Maintenance Run-up Regulations – Page 5-7, Page 6-17 and Table 6-1

This measure was included in the 2002 NCP update to address maintenance run-ups. There were six individual items labeled a-f. The Port of Seattle implemented restrictions to engine maintenance run-ups at Sea-Tac Airport. This measure is recommended to be modified to reflect the currently implemented run-up restrictions as outlined below:

All engine run-ups require approval of Airport Operations. No aircraft engine run-ups shall be conducted during the nighttime quiet hours of 2200 and 0700.

Engine run-ups necessary for maintenance checks above idle power not to exceed a total of two (2) minutes durations per aircraft.

Operations not in accordance with the run-up regulations are subject to public disclosure and fees as stated in the Sea-Tac International Airport Tariff #1. No aircraft shall conduct engine run-ups for maintenance purposes except at locations specified by the Director. This measure can potentially reduce noise annoyance issues with run-up activity.

FAA Determination: This measure was disapproved in the 2002 ROA and continues to be disapproved.

4. Measure A-11: Preferential Runway Use-Page 5-8, Page 6-18, Table 6-1

This measure implemented a preferential runway system, during the nighttime hours, for operations through the North Flow Nighttime Noise Abatement Corridor. This would be operational when traffic and other conditions permit as determined by the FAA. When conditions permit, during nighttime hours, departures can be shifted from south to north, thus utilizing the established noise abatement corridor.

This measure directs aircraft to follow the established noise abatement corridor during nighttime, thus reducing noise and overflights of areas outside the corridor.

FAA Determination: Approved as it is a continuation of a measure that was approved as voluntary in the 2002 ROA.

5. Measure A-12: Development/Implementation of a Fly Quiet Program – Page 5-8, Page 6-19 and Table 6-1

This measure is intended to encourage greater compliance with the noise abatement procedures, work with operators to reduce single event noise levels, and continue to raise awareness of citizens' noise concerns with the FAA and aircraft operators. The Fly Quiet Program was recommended to:

- Monitor adherence to ideal noise abatement flight tracks
- Evaluate success of airlines, aircraft types, and other variables
- Establish goals and track level of improvement over time
- Offer incentives for improvement

The Fly Quiet Program was recommended to include the following elements:

- Aircraft noise should be related to its effects on people including such factors as annoyance, speech interference and sleep disturbance;
- Comparative fleet quality between airlines should also be included;
- The program should utilize measured data from the Airport's noise monitoring system;
- A method of normalizing data to account for airlines that most efficiently serve the region's air transportation needs should be developed;
- Incentives of sufficient importance that airlines will take notice of the results; and
- Pilots and air traffic controllers should be included, if possible.

This measure has been implemented and encourages adherence to other measures or existing programs.

FAA Determination: Approved as it is a continuation of a measure that was approved as voluntary in the 2002 ROA. The following language was included in that approval and still applies.

“None of the measures in the NCP would affect the DNL noise contour because Sea-Tac has in place a mitigation program that has provided a significant noise benefit over the last 10+ years. The NCP proposes to analyze the effectiveness of a Fly Quiet Program using supplemental metrics to compare benefits of alternative corridors, altitudes, etc. It should be understood that compliance with this program can occur only to the extent that safe, efficient aircraft operation and airspace management is not jeopardized; the pilot in command has final authority regarding safe operation of his/her aircraft. For reasons of aviation safety, this approval does not extend to use of the monitoring equipment for enforcement purposes of aircraft in flight by in situ measurement of any present noise thresholds.”

6. Measure A-15: Use of FMS Procedures – Page 5-9, Page 6-22 and Table 6-1

This measure is designed to encourage the use of FMS procedures over non-populated areas, to discourage the development of new FMS procedures over populated areas, and to support development of FMS procedures for all north flow departures turning west to improve compliance with the identified noise abatement corridor. FMS flight tracks have the potential to become very narrow on straight portions of the flight tracks. When turning, however, the differing operating characteristics of the aircraft will cause dispersion. This measure improves the ability of aircraft to fly the established flight corridors, thus reducing noise and overflights of areas outside the flight corridors. This measure has been included in the 2002 NCP and has been implemented.

FAA Determination: Approved as it is a continuation of a measure that was approved in the 2002 ROA and no new FMS procedures are recommended in this NCP Update. The 2002 ROA included the following language which is still pertinent.

“The Port is responsible for initiating coordination with the FAA and airlines on evaluating potential new FMS procedures. The FAA will work with the Port and airlines to determine if any other FMS procedures are feasible and would provide noise mitigation. The NCP analysis and preliminary FAA evaluation determined that FMS procedures and corridors recommended in the NCP were not feasible and could severely impact on airspace capacity in the area. Approval of this measure does not commit the FAA to implementing new procedures.”

7. Measure A-16: Use of Ground Equipment – Page 5-10, Page 6-23 and Table 6-1

This measure recommended the installation of power and pre-conditioned air in existing and newly constructed gates to minimize the use of auxiliary power units APUs/GPUs. This measure was included in the 2002 NCP but was disapproved by the FAA. The Port of Seattle implemented the project through the use of Voluntary Airport Low Emissions (VALE) funding. Because the project has been completed under VALE and all passenger loading gates at SEA have electric power and pre-conditioned air, The Port of Seattle, via letter to FAA on January 30, 2014, withdrew this measure from consideration.

FAA Determination: No action by the FAA is required as the Port has withdrawn this measure.

8. Measure A-18: Construct a Ground Run-Up Enclosure (GRE) on the airport to minimize run-up noise - Table 5-1, Pages 5-19-5-23, Page 6-25 and Table 6-1

The 1985 Part 150 recommended the use of airport facilities for buffering ground noise. The 2002 NCP update recommend the construction of a noise barrier in the North Cargo Area and a siting/feasibility study for a GRE, commonly referred to as a "hush house". The Port completed a feasibility study in 2001, but since then a recommended site could not be finalized because of some serious airfield planning issues adjacent to the area that was designated for a future GRE.

Currently engine run-ups are conducted in two locations on the airfield, on Taxiway B between Taxiways D and E, and on the hold pad east of the end of Runway 34. Neither of these locations provide for any significant buffering of noise.

Concurrent with this Part 150 Study update, an updated GRE Siting Study was undertaken and is summarized in Chapter Five as well as included in Appendix K of the NCP. This study assessed multiple GRE alternatives, including several locations on the airfield along with the anticipated noise reduction for the nearest residences at each site. The anticipated noise reduction all around each site was estimated 15-20dB. This measure recommends the construction of a GRE based on the recommendation of the ongoing GRE Siting Study and a future GRE Design Study. This measure replaces measure A-7 in the 2002 NCP.

FAA Determination: This measure is approved. This measure updates/replaces Measure A-7 which recommended establishing noise barriers/ground run-up enclosure. The FAA approved Measure A-7 in part for a siting/feasibility study for a ground run up enclosure in the 2002 ROA and determined that the placement of any GRE was subject to additional FAA review determined by the results of the study. As a part of the 2002 ROA, the FAA also disapproved the construction of a noise barrier pending submission of additional information regarding non-compatible land uses impacted and the benefits to those non-compatible land uses from construction of the noise barrier. This Measure (A-18) identified three sites that could accommodate a GRE at SEA. The Part 150 presented information that quantified noise reduction benefits at each of the three sites. Therefore, for Part 150 purposes, either of the sites would reduce noise. This measure recommends a GRE to be built at one of the three sites. The Port is currently undertaking a Sustainable Master Plan Study, which will identify the specific location for the GRE. Note that Part 150 approval does not constitute approval under NEPA or the requirements under FAA Advisory Circular 150/5200-37, Introduction to Safety Management Systems (SMS) for Airport Operators. Additionally, a GRE use plan will need to be coordinated with the FAA to ensure compliance with Airport Improvement Program grant assurances.

9. Measure A-19: Expand the Fly Quiet Program – Table 5-1, Page 5-25, Page 6-26 and Table 6-1

The Port established a Fly Quiet program following the recommendation for the 2002 NCP. This measure would identify opportunities to expand the program with new elements, including:

- Use of Airport Traffic Control Tower (ATCT) reporting of operational modes for comparison to runway use goals.
- Include provisions for the use of the ground run-up enclosure recommended in Measure A-18.
- Adding different categories of airline operations.

This is a new measure that updates measure A-12. This measure can potentially improve compliance with the established voluntary noise abatement procedures in place at Sea-Tac Airport, those reducing noise and overflights.

FAA Determination: Approved as voluntary. This is a new measure that updates Measure A-12 by adding additional elements to the Port's Fly Quiet Program. Measure A-12 was approved as voluntary in the 2002 ROA. Similar to the original Measure A-12, none of the elements in this measure would affect the DNL noise contour because Sea-Tac has in place a mitigation program that has provided significant noise benefit over the last 10+years. The NCP proposes to analyze the effectiveness of a Fly Quiet Program using supplemental metrics to compare benefits of alternative corridors, altitudes, etc. It should be understood that compliance with this program can occur only to the extent that safe, efficient aircraft operation and airspace management is not jeopardized; the pilot in command has final authority regarding safe operation of his/her aircraft. For reasons of aviation safety, this approval does not extend to use of the monitoring equipment for enforcement purposes of aircraft in flight by in situ measurement of any present noise thresholds.

10. Measure M-2A: Standard Insulation – Pages 5-26 and 5-27, Pages 6-27 and 6-28 and Table 6-1

This measure includes the sound insulation for eligible single-family residences within the revised Noise Remedy Boundary as depicted on Exhibit 6-1 in the NCP. The Port has an ongoing program to sound insulate eligible single-family residences within the currently Noise Remedy Boundary that was established in the 1985 NCP. Completion of the single family sound insulation program was also an element of the July 3, 1997 Record of Decision for the Master Plan Update for the inclusion of the new third runway. Since that time, noise exposure has decreased at Sea-Tac Airport due to ongoing noise abatement efforts and the phase-out of older, louder aircraft and the lower number of operations. As a result, the noise exposure contours development for this Part 150 Study are much smaller than the noise exposure contours developed for the 1985 Part 150 Study upon which the Noise Remedy Boundary was based. It is recommended that the Noise Remedy Boundary be modified to be more consistent with the Future (2018) NEM/NCP noise exposure contour developed for this 2013 Part 150 Update.

Measure M-2a is recommended to be modified to consider, on a case-by-case basis, the applicability of including installation of central air conditioning for sound insulation of eligible homes that have not previously been sound insulated.

This measure was included in the 2002 NCP. This measure is ongoing. As of August 2012, over 9,300 single-family homes have been sound insulated.

FAA Determination: Approved as a continuation of a measure previously approved in the 2002 ROA. Note that funding for sound insulation will need to be in compliance with the Airport Improvement Program handbook of which a requirement.

11. Measure M-2B: Insulation of Schools – Page 5-27, Page 6-29 and Table 6-1

This measure includes a sound insulation program for eligible schools. A pilot program was initiated according to the original measure from the 1993 NCP update to determine the

feasibility, procedures requirements, and costs, for sound insulating four public buildings based on the Building Committee recommendations. Following the pilot program, several private schools and classrooms at Highline Community College were insulated within the noise contour. This measure was amended in the 2002 NCP update to develop a program to insulate schools within the Highline School District that fall within the DNL 65 dBA.

This measure is ongoing. As of August 2012, sound insulation has been installed in seven schools within the Highline School District, with eight schools remaining. Fourteen of the 22 eligible buildings at the Highline Community College have also been sound insulated.

FAA Determination: Approved in part and disapproved in part. The 2002 ROA approved the measure stating that insulation of schools within the 65 DNL will be based upon negotiated agreements between the Port, school districts/education facilities and FAA. The Port, FAA, and the State signed an MOA with the Highline School District on June 4, 2002 agreeing to fund eligible sound reduction elements of reconstruction of 15 schools. This agreement is still in place and allows the sound insulation of the schools outlined in the MOA using FAA AIP, Port, and State funding; therefore, this measure remains approved. However, the FAA notified the Port on November 4, 2013 that the Highline Community College will no longer be eligible for AIP funding due to the campus location being outside of the newly revised noise remedy boundary. Therefore, sound insulation of the Highline Community College is disapproved.

12. Measure M-5: Property Advisory Service - Page 5-29, 6-23 and Table 6-1

This measure provides residents and property owners within the Airport Environs with access to timely and factual information concerning 1) what noise remedies they may be eligible for, 2) assistance with making decisions when they are eligible for multiple options, 3) information regarding rumors about the mitigation program (either good or bad), and 4) assurances that the various programs are indeed aimed at improving the living, working and leisure-time environment. This two-way communication can also provide the Port with information about the concerns of the residents/property owners and can provide a means by which the success or failure of programs can be monitored.

FAA Determination: Approved as it is a continuation of a previously approved measure.

13. Measure M-6: Local Government Remedy Support – Page 5-30, 6-34 and Table 6-1

By insulating homes and assisting with real estate transactions, the Port can participate in making the Airport and surrounding residents better neighbors. However, the Port alone cannot accomplish all program goals. Local governments, with land use jurisdiction must also participate if the program is to be a success, especially in the long term. Under this measure, the Port encourages local jurisdictions to undertake projects, provide services, and adopt laws that reinforce neighborhoods and make them compatible with the Airport. The Port also works with jurisdictions in coordinating activities and exchanging information.

FAA Determination: Approved as it is a continuation of a previously approved measure.

14. Measure M-7: Funding for Land Use/Noise Compatibility Planning – Page 5-30, 6-35 and Table 6-1

This measure enables public agencies (defined as a state, municipality or other political subdivision, or Native American Tribe) having planning authority within the DNL 65 dBA noise contour to be able to apply for reimbursable funding of specific off-airport land use/noise compatibility planning efforts which are consistent with the principles and guidelines of 14 CFR Part 150 and the Port noise compatibility goals.

FAA Determination: Approved as it is a continuation of a previously approved measure.

15. Measure M-11: Approach Transition Zone Acquisition – Page 5-31, 6-38 and Table 6-1

This measure recommended that the Port purchase residential properties experiencing noise levels of DNL 65 dBA or greater, and located within the Approach Transition Zones (ATZ) of Runway 16R/34L.

This measure is ongoing as voluntary acquisition program. A total of 69 residential parcels and 2 mobile home parks within the North ATZ have been purchased and residents relocated and the program is complete in this area. There are approximately 12 single-family residences and 6 apartment buildings remaining in the south ATZ (a total of 77 residential units).

In accordance with the FAA Order 5100.38C, projects that involve acquisition must conform to the provisions of the Uniform Relocation Assistance and Real Properties Acquisition Policies Act in effect at the time the land was acquired.

FAA Determination: Approved as it is a continuation of a previously approved measure in the 2002 ROA. The 2002 ROA approval was for Part 150 purposes with respect to those areas located within the most recent official Part 150 NEMs. The FAA requires that the land use must be changed to and remain compatible, once it is purchased for airport compatibility purposes. When using Federal financial assistance, the requirements of the 49 CFR Part 24 must be met.

16. Measure M-12: Prepare Cooperative Development Agreements – Table 5-32, 6-39 and Table 6-1

The Port and the surrounding jurisdictions should work towards development of cooperative development agreements concerning land use, redevelopment and infrastructure of the Approach Transition Zones (ATZ), as well as other redevelopment areas as necessary.

FAA Determination: Approved as it is a continuation of a measure that was approved in the 2002 ROA.

17. Measure M-15: Sound insulate eligible tenant-occupied multi-family units (apartments) within the modified Noise Remedy Boundary – Page 5-37, 6-41 and Table 6-1

Measure M-2c offered sound insulation to owner-occupied multi-family units within the 70 DNL of the 1998 Noise Exposure Contour. This measure would expand the program to include eligible tenant-occupied units (apartments) within the revised Noise Remedy Boundary as depicted on Exhibit 6-1 of the NCP. The Port should consider a Pilot Project to determine feasibility of future tenant-occupied buildings.

FAA Determination: Approved.

18. Measure M-16: Offer avigation easements to owners of individual lots on which mobile homes are located within the modified Noise Remedy Boundary – Page 5-38, 6-42-43 and Table 6-1

Per 14 CFR Part 150 land use compatibility guidelines, mobile homes are incompatible with aircraft noise levels at DNL 65 dBA or higher. However, most mobile homes cannot be effectively sound insulated.

Measure M-2d offered sales and relocation assistance to residents of mobile home parks that were acquired by the Port in an effort to remove incompatible structures within mobile home parks. Most mobile homes cannot be effectively sound insulated. This measure would provide avigation easements to owners of individual lots in return for removing the mobile home from the lot and/or providing air rights. There are approximately 62 mobile homes located on individual lots within the proposed noise remedy boundary.

In accordance with FAA Order 5100.38C, projects that involve acquisition must conform to the provisions of the Uniform Relocation Assistance and Real Properties Acquisition Policies Act in effect at the time the land was acquired.

FAA Determination: Approved.

19. Measure M-17: Initiate a formal study to evaluate the noise levels at churches/places of worship located within the modified Noise Remedy Boundary for eligibility for sound insulation – Page 5-39, 6-44-45 and Table 6-1

This measure is intended to address potential noise impacts resulting from daytime (in particular Sunday morning) aircraft operations. There are twelve churches located within the recommended Noise Remedy Boundary. Under this measure, a formal study would be conducted to evaluate noise levels to determine eligible churches.

In order to more accurately assess the impact of aircraft noise on churches, this study would focus on the aircraft events occurring during typical service hours. The results of the analysis could lead to recommendation for the sound insulation of Grace Lutheran Church. The AIP Handbook (FAA Order 5100-38C, Chapter 812(d)) states that churches, when recommended for sound insulation by an airport sponsor in an FAA-approved NCP are eligible for sound insulation. The AIP Handbook further states that the sound insulation of churches should be evaluated on a case-by-case basis involving consultation with the FAA Airports Financial Division (APP-520) and the FAA Community and Environmental Needs Division (APP-600). This consultation process and evaluation will take place prior to implementing sound insulation at a church/place of worship.

Sound insulation consists of increasing the exterior-to-interior sound attenuation characteristics of a structure, i.e. reducing the level of noise intrusion from aircraft overflights and ground operations. There are several basic ways in which this can be accomplished (e.g. acoustical windows, acoustical doors, ventilation systems, additional roof/wall insulation, etc.), and variations of each would occur on a structure-to- structure basis.

FAA Determination: Approved.

20. Measure P-1: Evaluate and Upgrade Noise Monitoring and Flight Tracking System – Page 5-42, 6-42 and Table 6-1

The Port has installed a noise and operations monitoring system that collects and stores flight data from the FAA's automated radar terminal system, which enables staff to regularly monitor abatement procedures and investigate citizen inquiries. In addition to this system, the Port also provides WebTrak, which allows the public to investigate flights via the Web. The system includes 25 existing permanent noise monitors. This alternative includes evaluating these permanent noise monitors and the central system hardware/software for potential replacement with newer equipment.

FAA Determination: Approved.

21. Measure P-2: Periodically review and, if necessary, update the Noise Exposure Maps (NEMs) and the Noise Compatibility Program (NCP) – Page 6-47 and Table 6-1

The NEMs should be updated every five years or when there are significant changes in operating levels and patterns in accordance with the FAA's guidelines for determining what constitutes a potentially significant increase in operations (1.5 dB DNL increase in the area impacted by 65+ DNL).

The NCP should be updated every five years, or as necessary, to reflect any broader changes in the nature of aircraft noise surrounding the Airport. Should any on-airport development, such as runway extensions or significant modifications to ground facilities, enlarge the area of incompatible use exposed to aircraft noise above 65 Day-Night Average Sound Level (DNL), the NCP should be updated prior to the implementation of those improvements. A full update may not be required, but rather, a targeted assessment of the changes occasioned by specific development projects may suffice to bring the NCP to conformity and to qualify additional areas for NCP programs, if appropriate.

FAA Determination: Approved.

22. Measure P-3: Continue to operate the Noise Office – Page 5-43, 6-48 and Table 6-1

Measure A-5, which was adopted in the 1985 Part 150 Study, recommended establishing a noise abatement office to initiate, implement, and monitor the various abatement actions included in the NCP. This measure recommends the continued operation of the Noise Office.

FAA Determination: Approved.

Errata Sheet

For the document titled:

Record of Approval
Federal Aviation Regulation Part 150
Noise Compatibility Program
Seattle-Tacoma International Airport
Seattle, Washington

The following measure was inadvertently omitted from the aforementioned document that was published in the Federal Register Notice on June 12, 2014.

Measure M-14: Sound insulate eligible owner-occupied multi-family units (condominiums) with the modified noise remedy boundary

Measure M-2c (approved in the 2002 ROA) offered sound insulation to owner-occupied multi-family units within the 70 DNL of the 1998 Noise Exposure Contour. This measure would expand the program to eligible units within the revised Noise Remedy Boundary that were not previously mitigated.

This measure was included in the Noise Compatibility Program that was vetted with the public through the Part 150 process. Accordingly, no further public process is required.

FAA Determination: Approved