CITY OF NAPLES AIRPORT AUTHORITY (NAA)
Noise Compatibility Committee (NCC)
Notice of Regular Meeting

FINAL AGENDA

Airport Office Building
200 Aviation Drive North, 2nd Floor
Naples, FL 34102

Thursday, January 30, 2020
9:00 a.m.

Commissioner Donna M. Messer – NAA Commissioner and Noise Compatibility Committee Liaison
Cliff Holland – Chair, Noise Compatibility Committee and City at Large
Chris Auron – Vice Chair, Noise Compatibility Committee and Northwest Quadrant
Noise Compatibility Committee Members – R. Bruce Byerly (Active Pilot), Harvey Cohen (County at Large), Ernest W. Linneman (Southwest Quadrant), Justin E. Lobb (Collier County), John Mastrocinque (Southeast Quadrant), Vice Mayor Gary Price (City Council), Russell Tuff (Northeast Quadrant)
Executive Director: Christopher A. Rozansky
Authority Attorney: William L. Owens, Esq. of Bond, Schoeneck & King, PLLC

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Two or more Airport Authority Commissioners may be in attendance. Florida Statute 286.011 states, “any gathering, whether formal or casual, of two or more members of the same Board or commission to discuss some matter on which foreseeable action will be taken by the public Board or Commission must be conducted in accordance with the Sunshine Law.”
A. **ROLL CALL - Chair**

B. **PLEDGE OF ALLEGIANCE - Chair**

C. **AGENDA (Add, delete or re-sequence items)**

D. **MINUTES**
   1. Approve October 31, 2019 Committee Minutes

E. **PRESENTATIONS AND TIME CERTAIN ITEMS**
   1. Part 150 Noise Study Overview - Environmental Science Associates
   2. 2019 Aircraft Operations Analysis - Environmental Science Associates
   3. Update from Noise Compatibility Committee Liaison – Donna M. Messer

F. **PUBLIC COMMENTS**

G. **ACTION ITEMS**
   1. Approval of 2019 Annual Report

H. **OLD BUSINESS**

I. **NEW BUSINESS**
   1. Next Meeting Date

J. **PUBLIC COMMENTS**

K. **CORRESPONDENCE/COMMITTEE MEMBER COMMENTS - Committee Members**

L. **ADJOURNMENT**
Minutes of the
October 31, 2019 Regular Meeting of the
City of Naples Airport Authority Noise Compatibility Committee (NCC)
City Hall Council Chambers

A. ROLL CALL - Chairman

Meeting was called to order by Chair Byerly at 8:30 a.m. in City Hall Council Chambers.

Other committee members present were Mr. Linneman, Vice Mayor Price, Mr. Auron, Mr. Holland, Mr. Tuff, Mr. Cohen and Mr. Lobb. Vice Chair Mastrocinque had an excused absence.

NAA Board members present were Chair Messer, Vice Chair Lenhard, Commissioner Rideoutte, Commissioner Dustin and Commissioner Brousseau.

Staff and Authority Counsel present were Mr. Rozansky, Ms. Terrill, Mr. Owens, Mr. Keith, Mr. Frost, Mr. Warriner, Ms. Conner and Ms. Menard.

B. PLEDGE - Chairman

Chair Byerly led the Pledge of Allegiance.

C. ELECTION OF OFFICERS

1. Election of Chair and Vice Chair for Fiscal Year 2020

Chair Byerly announced that he and Vice Chair Mastrocinque are ineligible to serve in today's elections. He instructed Committee members on the protocol for the election of the Chair and Vice Chair positions for Fiscal Year 2020 (October 2019 – September 2020).

Chair Byerly nominated Mr. Cliff Holland to serve as Chair of the Committee for the next year, and Mr. Holland accepted the nomination. There were no other nominations. The Chair called for a vote to elect Mr. Holland as Committee Chair. Mr. Holland was elected 8 – 0 with Vice Chair Mastrocinque absent.

Outgoing Chair Byerly thanked Mr. Rozansky, Ms. Terrill, other staff members, the NAA Board and NCC members for the opportunity to serve as Chair. He said that it has been a pleasure, and it made him proud to be part of the community.

Chair Holland thanked Mr. Byerly for his leadership over the last two years, and he thanked the group for placing their confidence in electing him as Chair. He stated that his commitment to the NCC is to make sure that all voices are heard and to make sure that we never lose sight of our responsibility to those that utilize and operate the airport and most importantly, the communities around us.
Chair Holland opened the floor for nominations for Vice Chair. Mr. Byerly nominated Mr. Auron to serve as Vice Chair of the Committee for the next year, and Mr. Auron accepted the nomination. There were no other nominations. The Chair called for a vote to elect Mr. Auron as Vice Chair. Mr. Auron was elected 8 – 0 with Mr. Mastrocinque absent.

The newly elected officers assumed their positions immediately following the elections.

D. AGENDA (Add, delete or re-sequence items)

There were no changes to the agenda.

E. MINUTES

1. Approve June 27, 2019 Committee Minutes

Mr. Tuff moved approval of the June 27, 2019 Noise Compatibility Committee Regular Meeting minutes. Mr. Cohen seconded the motion. The motion passed 8 – 0 with Mr. Mastrocinque absent.

F. PRESENTATIONS AND TIME CERTAIN ITEMS

1. Update from Noise Compatibility Committee Liaison – Donna M. Messer

Chair Messer provided an update of the August 15th, September 19th and October 17th NAA Board Meetings and announced that immediately following today’s NCC meeting, the NCC and the NAA Board will hold a Master Plan Joint Workshop Meeting. She announced the schedule for the two Master Plan public outreach events to be held on November 18th and 19th and encouraged the public to attend.

Mr. Rozansky stated that an internal kick-off with the consultant for the Part 150 Noise Study has been scheduled for the middle of November at which time the kick-off meetings and establishment of the Technical Advisory Committee will be discussed.

G. PUBLIC COMMENTS

There were no public comments.

H. ACTION ITEMS

1. Approval of 2020 Meeting Dates

Ms. Terrill provided a brief overview of the NCC Bylaws which require three regular meetings per year. She said that a proposed 2020 Committee meeting schedule was provided in the NCC meeting packet and requested discussion and action regarding the dates.

Chair Holland asked Committee members if the April 30th date posed a challenge for anyone who may be departing following the end of season. There were none.
Mr. Tuff moved approval of the following FY 2020 Meeting dates:

- Thursday, January 30
- Thursday, April 30
- Thursday, October 29

Vice Chair Auron seconded. Motion passed 8-0 with Mr. Mastrocinque absent.

I. OLD BUSINESS

There was no old business to discuss.

J. NEW BUSINESS

1. Next Meeting Date

Chair Holland reminded Committee members that the next NCC Regular Meeting will be held on January 30th at 9 a.m.

K. PUBLIC COMMENTS

There were no public comments.

L. CORRESPONDENCE/COMMITTEE MEMBER COMMENTS – COMMITTEE MEMBERS

There were no additional comments.

M. ADJOURNMENT

With no further business, the meeting adjourned at 8:45 a.m.

_Diane J. Tefrill_
Secretary

**NOTE:** Printed copies of all visual presentations and handouts are on file in the Executive Assistant’s Office.
CITY OF NAPLES AIRPORT AUTHORITY (NAA)
Noise Compatibility Committee (NCC)
Notice of Regular Meeting

Naples AIRPORT AUTHORITY

FINAL AGENDA
City Hall Council Chambers
735 Eighth Street South
Naples, FL 34102

Thursday, October 31, 2019
8:30 a.m.

Commissioner Donna M. Messer – Chair and Noise Compatibility Committee Liaison
Commissioner Michael Lenhard – Vice Chair and Consultant Selection Committee Chair
Commissioner James Rideoutte – Audit Committee Chair, Consultant Selection Committee Member
Commissioner Ted Brousseau – Legal Liaison
Commissioner Kerry C. Dustin, Audit Committee Member
Executive Director: Christopher A. Rozansky
Authority Attorney: William L. Owens, Esq. of Bond, Schoeneck & King, PLLC

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F. PRESENTATIONS AND TIME CERTAIN ITEMS
   1. Update from Noise Compatibility Committee Liaison – Donna M. Messer

G. PUBLIC COMMENTS

H. ACTION ITEMS
   1. Approval of 2020 Meeting Dates

I. OLD BUSINESS

J. NEW BUSINESS
   1. Next Meeting Date

K. PUBLIC COMMENTS

L. CORRESPONDENCE/COMMITTEE MEMBER COMMENTS - Committee Members

M. ADJOURNMENT
To: Honorable Chair and Members of the Noise Compatibility Committee

By: Diane Terrill, Deputy Executive Director

Meeting Date: January 30, 2020

Re: PRESENTATIONS AND TIME CERTAIN ITEMS

1. Part 150 Noise Study Overview

**SUMMARY:** Presentation by Environmental Science Associates (ESA) to provide an overview of the Part 150 Noise Study process.

**BACKGROUND:** The last Part 150 Noise Study was completed in 1997 and resulted in significant reductions in aircraft noise due primarily through the eventual prohibition of Stage I and II aircraft. An update to the study was last conducted in 2010. The Noise Exposure Maps (NEMs) were completed in 2010, but the Noise Compatibility Plan (NCP) was not submitted to the Federal Aviation Administration (FAA) because it would not have resulted in any further reduction in aircraft noise exposure or enhancements to land use compatibility planning. Since that time, jet operations at the Naples Airport have increased significantly.

The Part 150 Noise Study project kicked off in December 2019. At the January 16, 2020 Board of Commissioner Regular Meeting, the Technical Advisory Committee (TAC) was established. The attached presentation will also be provided to the TAC at its kickoff meeting on January 30, 2020.

**COMMUNICATIONS PLAN:** Not applicable at this time.

**FINANCIAL IMPACT:** The Noise Consultant Services for a Part 150 Noise Study have been anticipated in the FY2020 and FY2021 Budgets.
Agenda

- Master Plan Status and Key Considerations
- Part 150 Study Overview
- FAQs
- Preliminary Study Schedule
- Questions
Airport Master Planning Process

**Project Initiation**
- Customer and Public Outreach
- Airport Mapping and AGIS

**Existing Conditions**
- Facilities, Operational, and Environmental Data
- Conduct Tenant and Customer Interviews

**Aviation Forecast**
- Passengers, Operations, and Based Aircraft
- FAA and FDOT Approval

**Facility Requirements**
- Capacity Assessment and Design Standards
- Airside, Terminal, and Landside Needs

**Environmental**
- Natural Resources, Noise Analyses, and Waste Audit
- Sustainability, Resiliency, and Stormwater

**Alternatives Analysis**
- Develop Concepts and Evaluate Options
- Recommended Alternatives

**Airport Layout Plan (ALP)**
- ALP Drawing Set and Exhibit “A” Property Map
- FAA and FDOT Approval

**Development Program**
- Financial Analyses, Costs Estimating, and Funding Options
- Capital Improvement Program
INTERMEDIATE-TERM (2025-2029) CAPITAL IMPROVEMENT PROJECTS
Aviation Forecasts based on unconstrained conditions (i.e. projected demand with no facility limitations)

FAA Approval – May 9, 2018
Key Noise Considerations Relative to Master Plan

- There are no planned runway improvements that will affect aircraft climb performance or departure profiles.
- There are no planned modifications to threshold locations that will affect approach profiles.
- The master plan activity forecast is outdated and not appropriate for use in evaluating future noise conditions.
Part 150 Study Overview
Part 150 Study Overview


• Issued in response to provisions contained in the Aviation Safety and Noise Abatement Act of 1979

• Establishes the methodology to be followed when preparing aircraft noise exposure maps and developing airport/airport environs land use compatibility programs

• Part 150 studies are voluntary, but…

• Part 150 studies must adhere to 14 CFR Part 150 guidelines to be considered and accepted and approved by FAA
The 14 CFR Part 150 process is the Airport Sponsor’s mechanism to improve the compatibility between the Airport and surrounding communities.

1978 - First documented publication of noise abatement procedures
1987 - NAA completes first formal noise study
1997 - NAA submits Part 150 NEM and NCP updates to FAA
2000 - NAA submits 2000 and 2005 NEM update to FAA
2010 - NAA Submits 2010 and 2015 NEM update to FAA
Goals and Objectives

Key Issues:

• NAA has strong history of industry noise leadership but a desire to examine whether any additional reasonable noise mitigation strategies can be implemented
• Jet activity has increased and will continue to grow
• Training activity is on rebound
• Seasonal variations are masked by DNL
• Quiet Hours voluntary curfew compliance remains above 98%
• APF noise exposure has generally decreased over time according to federal guidelines (14 CFR Part 150), but community concerns about aircraft noise continue
Goals and Objectives

Opportunities
• Brings stakeholders to the table
• Education
• Provides decision making structure
• Can strengthen community relationships

Challenges
• Seasonal variations in noise exposure are often not reflected in the DNL contours
• Regulatory process limits what can be approved
Part 150 Study Overview

Regulatory Framework

- **Federal law** sets aircraft noise standards, prescribes operating rules, establishes the compatibility planning process, and limits airport proprietor’s ability to restrict aircraft operations.
- **State law** sets forth compatibility planning guidelines and noise standards but aircraft are exempt.
- **Local noise ordinances** set noise standards and provide for compatible land use planning but aircraft are exempt.
Part 150 Study Overview

Who Can Regulate Airport Noise?

- Federal Aviation Administration:
  1. Controls aircraft while in flight
  2. Responsible for controlling noise at its source (i.e., aircraft engines)
  3. Certifies aircraft and pilots

- Airport Proprietors/NAA:
  1. Very limited authority to adopt local restrictions
  2. Responsible for capital improvement projects and infrastructure

- Local Governments and States:
  1. Promote compatible land use through zoning
  2. Require real estate disclosure
  3. Mandate sound-insulating building materials
Part 150 Study Overview

Analyze, Evaluate, Educate

• Determine existing and future noise conditions in the vicinity of an airport
• Identify incompatible uses
• Identify measures to improve compatibility
  – Evaluate the feasibility of possible flight procedure/land use changes
  – Submit locally-endorsed recommendations to the FAA regarding noise reduction measures
  – Approved measures may be eligible for Federal grant funding
• Educate communities on the Federal process and what can and cannot be done to address aircraft noise concerns
Part 150 Study Overview

**Noise Exposure Map Report (NEM)**
- Develop a comprehensive database of current conditions
- Noise contour development and impact analysis
- Prepare and submit Noise Exposure Map (NEM) Report

**Noise Compatibility Program (NCP)**
- Identify and evaluate noise abatement alternatives
- Identify and evaluate compatible land use alternatives
- Identify and evaluate administrative measures
- Prepare and submit Noise Compatibility Program (NCP) Report

**Stakeholder Outreach Program**
- Local Jurisdictions/Agencies
- FAA
- Public
Part 150 Study Overview

**PHASE I: NOISE EXPOSURE MAPS (NEMs)**

1. PROJECT KICKOFF
2. INVENTORY
3. NOISE EXPOSURE
   - Technical Advisory Committee Meetings
   - Public Workshop

**PHASE II: NOISE COMPATIBILITY PROGRAM (NCP)**

4. NOISE ABATEMENT ALTERNATIVES
5. LAND USE ALTERNATIVES
6. PROGRAMMATIC ALTERNATIVES
   - Technical Advisory Committee Meetings
   - Public Workshop
   - Public Hearing

7. NOISE COMPATIBILITY PROGRAM
   - NEM Submittal to FAA
   - FAA Approval

**Processes and Events**

- Define Key Issues
- Detailed Study Design
- NEM Submittal to FAA
- NEM Acceptance by FAA
- NCP Submittal to FAA
FAQs

Frequently Asked Questions

• Will the study “fix” all the noise issues around the airport?
  - No, overflights of residential areas are unavoidable and sensitivity to noise varies by person

• What type of noise monitoring will be conducted?
  - None, all analysis is modeling based which allows consistency and evaluation of future conditions

• Will the Study address concerns about safety, soot, or other concerns related to aircraft operation?
  - The Part 150 process focuses exclusively on noise and land use compatibility
Kickoff Public Workshops

1. Baker Park Sugden-Gomez Center
   100 Riverside Circle
   Naples FL 34102
   5:00 – 7:00 pm
   February 11, 2020

2. Moorings Presbyterian Church
   791 Harbour Drive
   Naples, FL 34103
   9:30 – 11:30 am
   February 12, 2020

3. Lorenzo Walker Technical School
   3702 Estey Avenue
   Naples, FL 34104
   6:00 - 8:00 pm
   February 12, 2020
Public Website

Project Website (flynaples.com):
- Project Information
- Process
- Study Elements
- FAQ’s
- Noise History PowerPoint
- Public Draft and Final reports
- Schedule
- Newsletters (4)

Communication and Feedback:
- Upcoming meetings including location/dates/times
- Receipt of comments specific to Part 150 Study
- Links to other websites/resources
# DRAFT Project Schedule Summary - Noise Exposure Map Report

14 CFR Part 150 Study for Naples Airport

<table>
<thead>
<tr>
<th>TASK</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
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<tr>
<td>NOISE EXPOSURE MAP (NEM) REPORT</td>
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<td>Project Initiation</td>
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<td>Develop Database of Current Conditions</td>
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<td>Prepare Airspace Activity Forecasts</td>
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<td>Collect Land Use and Operational Data</td>
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<td>Develop Noise Contours and Impact Analysis</td>
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<td>Conduct Noise Modeling</td>
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<td>Conduct Initial Impact Analysis</td>
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<td>Prepare Draft NEM Report</td>
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<td>Prepare Responses to Comments</td>
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<td>Prepare Final Draft NEM Report</td>
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<td>FAA Review</td>
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<td>Prepare Final NEM Report</td>
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<td>Address FAA Comments</td>
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<td>FAA Acceptance of NEMs and Final Report Publication</td>
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**PROJECT MANAGEMENT AND PUBLIC OUTREACH**

- Project Management and Team Meetings
- Technical Advisory Committee Meetings
- Public Meetings and Part 150 Information Sessions

Updated January 13, 2020
Questions?
All Jet Arrivals
Runway 05 Jet Arrivals
Runway 05 Jet Departures
Runway 14 Jet Arrivals

Legend:
- 14 Arrival Tracks 770 Tracks per Acre

- ≤ 24
- ≤ 28
- ≤ 37
- ≤ 54
- ≤ 90
- ≤ 160
- ≤ 300
- ≤ 570
- ≤ 1,100
- ≤ 2,300
- ≤ 5,000
Runway 23 Jet Departures
Runway 32 Jet Arrivals
Runway 32 Jet Departures
To: Honorable Chair and Members of the Noise Compatibility Committee

From: Diane Terrill, Deputy Executive Director

Meeting Date: January 30, 2020

Re: ACTION ITEM

1. Approval of the Noise Compatibility Committee 2019 Annual Report

**ACTION REQUESTED:** Committee approval of the FY 2019 Noise Compatibility Committee Annual Report.

**BACKGROUND:** Staff, with the assistance of Jennifer Hamilton of Gravina, Smith, Matte and Arnold, prepared the Annual Report highlighting the Noise Compatibility Committee’s initiatives and accomplishments over the last year.

**COMMUNICATION PLAN:** Upon approval, the report will be brought to the Naples Airport Authority to request adoption of the Noise Compatibility Committee Annual Report at its Regular meeting on February 20, 2020.

**FINANCIAL IMPACT:** None.
Cliff Holland  NCC Chair

On behalf of the Noise Compatibility Committee, I am pleased to present the 2019 Annual Report. This year’s report reflects an updated “Please Fly Safe Fly Quiet” campaign tagline: “Quiet Hours 10 pm – 7 am.” This new tagline offers a better opportunity to connect with airport users to discuss the importance of our curfew hours and its impact on our community.

In addition to robust general aviation activity, Naples Airport is home to numerous public services, such as Collier County Sheriff’s Office Aviation Unit and Collier Mosquito Control District. I’m proud to report that even factoring in these essential public services, which sometimes require “off hours” flights, the voluntary nighttime curfew compliance remains above 98%.

During 2019, groundwork was laid for the Part 150 Noise and Land Use Compatibility Study that kicks off in 2020. The Part 150 Noise Study will give us a fresh look at how we might mitigate aircraft noise impacts while maintaining the Naples quality of life.

With this study, it’s essential to get the input of the community. We are committed to ensuring all voices are heard and that we’re being a good neighbor and community partner.

There are two important outcomes for the Part 150 Noise Study. One is to develop a noise exposure map that identifies existing and future aircraft sound exposure, and the second is to develop a noise compatibility program that will recommend measures to address aircraft noise. Our ultimate goal is for everyone to fly safe and fly quiet.

On behalf of the entire NCC, thank you for your interest and attention regarding noise abatement efforts at Naples Airport. Collectively, we will continue to ensure the Naples quality of life we all know and love is maintained, while carefully managing airport noise exposure.
PART 150 NOISE AND LAND USE COMPATIBILITY STUDY UPDATE

The NAA continued planning for the upcoming Part 150 Noise Study - a voluntary process to address airport noise and land use - which will kick off in FY 2020.

The Noise and Land Use Compatibility Update provides a structured approach for airport operators, pilots, neighboring communities, and the FAA to evaluate opportunities to address community concerns regarding noise exposure while preserving safety and operational capabilities of the airport. The last FAA-approved Part 150 Noise Study was completed more than 20 years ago (1997). An update was prepared in 2010, but it was not submitted to the FAA for approval since it would not have resulted in meaningful reductions in noise exposure.

This includes creating Noise Exposure Maps (NEMs) and a Noise Compatibility Program (NCP). The NEMs show community exposure to certain levels of existing and future noise and identify uses that are noncompatible with those levels. The NCP recommends ways to address or reduce those noncompatible uses while preserving aviation safety and airport operational abilities.

The NAA and NCC are committed to including extensive public involvement throughout this two-and-a-half-year study.

NCC Highlights

98% COMPLIANCE
Compliance with the voluntary nighttime curfew remains above 98%.

COMMUNITY OUTREACH
The NAA is committed to meeting the community to understand concerns and provide airport information, including ongoing noise abatement efforts. In 2019, the NAA staff met with five community organizations and homeowners associations and gave 37 tours that included 841 people. The NAA also participated in community events with numerous organizations.

AIRCRAFT OPS DATA
An aircraft operations data collection and reporting system was installed for staff use to capture flight track information. With this data, the NAA can conduct more robust reporting on nighttime operations and other flight data.

NEW FLY SAFE FLY QUIET TAGLINE
In an effort to better communicate and connect with visiting pilots regarding the voluntary nighttime curfew, the NCC saw an opportunity to update the Fly Safe Fly Quiet logo tagline. After industry research and input, “Quiet Hours 10 pm to 7 am” was adopted as the new tagline.

Noise Comment Hotline: 239-643-1879
# Acronyms

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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAD</td>
<td>Average Annual Day</td>
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<tr>
<td>AC</td>
<td>Advisory Circular</td>
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<td>AEDT</td>
<td>Aviation Environmental Design Tool</td>
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<td>AFL</td>
<td>Above Field Level</td>
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<td>AGL</td>
<td>Above Ground Level</td>
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<td>ANCA</td>
<td>Airport Noise and Capacity Act of 1990</td>
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<td>APF</td>
<td>Naples Airport</td>
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<td>Day-Night Average Sound Level</td>
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<td>Departure Procedure</td>
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<td>LDA</td>
<td>Landing Distance Available</td>
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<td>Leq</td>
<td>Equivalent Noise Level</td>
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<td>Lmax</td>
<td>Maximum Sound Level</td>
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<td>MSL</td>
<td>Mean Sea Level</td>
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<td>Naples Airport Authority</td>
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<td>National Airspace System</td>
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<td>TODA</td>
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Naples Airport
Title 14 Code of Federal Regulations (CFR) Part 150
Airport Noise Compatibility Planning Study

Background
The City of Naples Airport Authority (NAA) is undertaking a 14 CFR Part 150 Airport Noise Compatibility Planning Study Update (Part 150 Study) to evaluate opportunities to improve the compatibility of Naples Airport (APF) with the surrounding communities. 14 CFR Part 150 is a process that includes the development of Noise Exposure Maps (NEMs) and preparation of a Noise Compatibility Program (NCP) with the overall goal of improving compatibility between airports and their surrounding communities. The first Part 150 at APF was completed in 1987 (approved by the FAA in 1989). The most recent approved Part 150 Study for APF was completed in 1997. The 1997 NCP included six operational, four land use measures, and five program measures for improving compatibility. An update was initiated in 2010; however, the study findings determined that there was no basis for modifying the 1997 NCP, as no new measures were identified that would offer improved noise compatibility.

The Part 150 Study now being initiated will be based on actual real-world operational data and will reflect the current operational characteristics at APF. The NAA’s goals are to receive Federal Aviation Administration (FAA) acceptance of the NEMs and approval of the NCP, which will include noise mitigation and abatement measures that address noncompatible land uses, while preserving safety and the operational capabilities of the Airport. NAA is also committed to conducting a public outreach process that not only meets 14 CFR Part 150 requirements, but achieves its objective of conducting an open and transparent study process.

Airport information
Owned/Operated By: City of Naples Airport Authority (NAA)
FAA Three Letter Identifier: APF
Airport Role: APF is classified as a National General Aviation Airport
Annual Operations (2019): 112,800 aircraft operations
Runways: Runway 05/23 – 6,600’ long by 150’ wide and Runway 14/32 - 5,000’ long by 100’ wide
History: APF began operating as Naples Army Airfield in 1943. The City of Naples and Collier County assumed control of the facility in 1947. The Airport was jointly operated by the City and County until 1958, when the County sold its interest in the Airport to the City of Naples. In 1969, the City of Naples asked the Florida State Legislature to create the City of Naples Airport Authority as an independent government agency charged with the operation, development and improvement of the Airport.
Frequently Asked Questions

What is a 14 CFR Part 150 Study?
Title 14 Code of Federal Regulations (CFR) Part 150, Airport Noise Compatibility Planning, was issued by the FAA as a final rule in January 1985. 14 CFR Part 150 provides a mechanism for airport operators to undertake studies of aircraft noise that provide the public with information about existing and future non-compatible land uses around airports and to create measures that reduce, and prevent the introduction of new, non-compatible land uses. A non-compatible land use is a land use exposed to aircraft noise in excess of the thresholds established in 14 CFR Part 150 (see Section A150.101 in Appendix A to 14 CFR Part 150). Airports that choose to conduct a Part 150 Study do so voluntarily with the goal of improving compatibility between the airport and the surrounding communities.

Part 150 studies typically consist of two primary components: (1) the Noise Exposure Map (NEM) report, which contains detailed information regarding existing and 5-year future airport/aircraft noise exposure patterns, and (2) the Noise Compatibility Program (NCP), which includes descriptions and an evaluation of noise abatement and noise mitigation options/programs applicable to an airport. FAA-approved NCP measures can be eligible for federal funding.

Why is the NAA undertaking a Part 150 Study for APF?
Naples Airport Authority is initiating a Part 150 Study to assess its noise compatibility planning. The Part 150 Study provides a structured approach for airport operators, pilots, neighboring communities, and the FAA to evaluate opportunities to address community concerns regarding noise exposure while preserving safety and operational capabilities of the airport. The last FAA-approved Part 150 Noise Study was completed more than 20 years ago (1997). The operational environment has changed since completion of the last Part 150 Study. Changes in aircraft fleet mix and operational levels warrant an updated evaluation of the airport noise environment and evaluation of measures for addressing aircraft noise impacts. Measures approved by the FAA will be incorporated into APF’s overall noise program.

Has a Part 150 Study been prepared for APF in the past?
This is the fourth Part 150 Study Update for APF. The original Part 150 Study was completed in 1987 (approved by the FAA in 1989). The most recent approved Part 150 Study for APF was completed in 1997. An update was initiated in 2010; however, the study findings determined that there was no basis for modifying the 1997 NCP, as no new measures were identified that would offer improved noise compatibility. Subsequently, the 2010 update was not submitted to the FAA for approval.
What will the Study include?
The Part 150 Study will identify existing and future flight corridors; develop aircraft noise exposure maps for current and future conditions; evaluate air traffic control procedures that could be implemented to reduce noise exposure over residentially developed areas; consider land use controls that could be established to reduce future incompatible land uses from being developed within high noise areas; and evaluate means to mitigate noise impacts within high noise exposure areas.

What will be produced during the APF Part 150 Study?
The Part 150 Study must be prepared in accordance with guidance provided in the 14 CFR Part 150 regulations. The FAA has prepared checklists for the NEM and NCP which must be followed to ensure compliance with 14 CFR Part 150. As part of the APF Part 150 Study, the NAA and its consultant will quantify existing (2020) and future (2025) aircraft noise exposure levels in the vicinity of APF. The Project Team will also develop supporting documentation explaining the process used to calculate existing and future aircraft noise exposure levels. The APF NEM Report will provide a set of NEMs that identify areas exposed to aircraft noise of day-night average sound level (DNL) 65 decibels (dB) and higher. The NEMs will be submitted to the FAA for review and acceptance.

After the APF NEMs are complete, the NAA and its consultants will begin the NCP process to examine potential measures for improving APF’s compatibility with the surrounding communities. A range of feasible mitigation measures will be considered, including operational, remedial, preventative, and administrative measures. The NCP measures providing the greatest potential to improve compatibility will be forwarded to the FAA for review and approval. Certain measures may require FAA funding to be implemented. The NCP must include an agreed upon schedule for implementation of the program, including: the period covered by the program; identification of the entity responsible for implementing each of its proposed noise compatibility actions; plus identification and sources of the necessary funds. Only those measures approved by the FAA will be eligible for federal funding.

What are Voluntary Measures?
While the FAA only approves recommendations in the NCP that would reduce noncompatible land use; voluntary measures identified during the course of the study may be recommended for implementation, but are not recognized by the FAA as part of the Part 150 Study process. Voluntary measures can be effective in reducing annoyance, and can be encouraged and promoted, but not enforced. Their success is ultimately dependent on cooperation of the aircraft operators. These recommendations would not be eligible for federal funding and would remain up to the discretion of the aircraft operator.

What is DNL?
DNL, or day-night average sound level, is a function of equivalent sound level or \( L_{eq} \). \( L_{eq} \) is the logarithmic average of all the individual sound events occurring over a specified unit of time, expressed in A-weighted decibels. DNL is also sometimes referred to as \( L_{dn} \). DNL is \( L_{eq} \) measured over a 24-hour period with a 10 dB penalty applied to nighttime sound levels to account for the greater annoyance that nighttime noise is presumed to cause for most people.
The nighttime hours are from 10 p.m. to 7 a.m. This extra weight treats one nighttime noise event as equivalent to 10 daytime events of the same magnitude. The average annual day is used for the quantification and evaluation of airport noise. The average annual day is determined by averaging operations over a 24-hour period for 365 days. DNL applied on the basis of an average annual day (yearly day-night average sound level or YDNL) is the required metric specified in 14 CFR Part 150 to be used for noise compatibility planning and provides the basis for land use compatibility guidelines.

How is Noise Exposure Determined?
The FAA has developed the Aviation Environmental Design Tool (AEDT) for evaluating aircraft noise exposure in the vicinity of airports. AEDT is a computer model which produces DNL contours that are used to develop aircraft noise exposure maps. AEDT uses a database of aircraft noise characteristics to predict DNL based on user input on the types and number of aircraft operations (aircraft fleet mix), annual average airport operating conditions, average aircraft performance, and aircraft flight patterns while also considering local terrain. The AEDT calculates the noise levels at thousands of points and then develops contours that represent areas of similar sound exposure. Use of AEDT also allows the prediction of future noise conditions resulting from changes in aircraft activity levels, aircraft types, flight procedures or other operational factors.

What is a Noncompatible Land Use?
A noncompatible land use means that the sound exposure that a given use receives is normally not compatible because the DNL is above the thresholds identified in Part 150, Appendix A, Table 1. The thresholds for determining the compatibility of land use vary depending on the current use of the land. For example, for residential land uses the noncompatibility threshold is 65 DNL but for commercial land use (offices, business and professional) the noncompatibility threshold is 70 DNL where the design and construction of the structures do not attenuate outside noise by 25 decibels or more. The City of Naples and Collier County have both adopted the DNL 60 contour as their threshold for noncompatibility. As a result, the non-compatibility threshold for residential noise sensitive uses near APF is the DNL 60.

How long will the APF Part 150 Study take to complete?
Part 150 Studies vary in duration depending on a number of factors including, but not limited to, the complexity of the airport operations and local airspace, availability of data, the public outreach process, and agency review periods. The estimated duration of the APF Part 150 Study is approximately 2-3 years. The NAA and its Consultants are committed to taking the time required to provide the FAA with NEMs and an NCP for APF that meet requirements of 14 CFR Part 150.

Who provides input into the Study?
The 14 CFR Part 150 Study being conducted at APF will receive input from the major stakeholders of the Airport, which includes the NAA, the FAA, local governments, pilots, air traffic controllers, and citizens. Throughout this Study, workshops and public meetings/hearings will be held, and Study information will be shared during these sessions. A Technical Advisory Committee has also been formed to provide technical input throughout the study process. The
TAC is made up of members of various stakeholders including the community. The public is encouraged to provide input at these forums.

How can I get involved?
14 CFR Part 150 encourages the participation of citizens and public agencies. There will be several public information workshops during the Part 150 Study process. Three public open houses will be held on February 11 and 12, 2020 to introduce the APF Part 150 Study. Additional workshops will be held throughout the course of the study. The Project Website will be updated with this information when it becomes available and periodic newsletters will be posted summarizing project progress (https://flynaples.com/part-150-noise-study/).

Comments regarding the APF Part 150 Study can be submitted in person at the public open houses or via mail by mailing them to the address below. The comments should focus on the Part 150 Study process, community concerns, and potential recommendations. Noise complaints should be submitted directly to the airport (see next FAQ).

Naples Airport Authority
C/O APF Part 150 Study
160 Aviation Drive North
Naples, FL 34104

How do I submit Noise Comments?
The Noise Comment Hotline is (239) 643-1879 or comments can be submitted online at: https://www.planenoise.com/kapf/

What Are the Stakeholders’ Roles and Responsibilities?
Airport Administration
The NAA is the Sponsor of this Part 150 Study and in that role is responsible for planning and assisting with the implementation of actions designed to reduce the effect of noise on residents of the surrounding area. Such actions may include noise abatement procedures, sound insulation, and other measures that do not discriminate among aircraft operators, create an unsafe situation, impede the management of the air navigation system, or interfere with interstate or foreign commerce. Any operational procedure recommended by NAA must first be approved by the FAA. To be approved, a measure must demonstrate that it provides a noise benefit for noncompatible land uses.

Federal Aviation Administration
The FAA has the primary role to ensure safe and efficient use of the National Airspace System. FAA Air Traffic Control (ATC) is responsible for the movement of aircraft on the airfield and in the air, and the FAA has the authority to implement noise abatement operational procedures. Any noise abatement procedures considered by the FAA must be consistent with air safety and all legal requirements and demonstrate a reduction in noise for non-compatible uses. The FAA makes the final determination on the feasibility of any new procedures resulting from a Part 150 Study.
**Local Governments**
The local governments (Collier County and the City of Naples) have the responsibility to provide for land use planning, zoning, and housing regulations that limit land use near airports to those compatible with airport operations.

**Pilots**
In both commercial and general aviation, the pilot has the ultimate responsibility for the operation of the aircraft. Although certain noise abatement procedures are set by the airlines, and ATC assigns the flight track and altitude, the pilot still maintains the authority to make the final judgment due to safety. In general, it is up to the pilot to adhere to noise abatement procedures.

**Residents and Prospective Residents**
The residents in areas surrounding an airport are asked to attend meetings, provide input regarding noise concerns and strive to understand actions that can and cannot be taken to minimize the effect of aircraft noise.

Future residents are encouraged to acquaint themselves with noise and flight corridors in the vicinity of a prospective home by visiting the property several times during peak seasonal activity (between January – April on Thursdays, Sundays and during holiday weekends such as Presidents Day).

The NAA invites current and prospective residents to inquire about aircraft operations and meet with airport staff before making a home purchasing decision. Call (239) 643-0733 for more information.
### Glossary

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<tr>
<td>14 CFR PART 77</td>
<td>This regulation, titled &quot;Safe, Efficient Use and Preservation of the Navigable Airspace,&quot; establishes standards for determining obstructions and their potential effects on aircraft operations. Objects are considered to be obstructions to air navigation according to 14 CFR Part 77 if they exceed certain heights or penetrate certain imaginary surfaces established in relation to airport operations. Objects classified as obstructions are subject to an FAA aeronautical analysis to determine their potential effects on aircraft operations.</td>
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<tr>
<td>14 CFR PART 91</td>
<td>This regulation, titled &quot;General Operating and Flight Rules,&quot; includes an amendment issued by the FAA on September 25, 1991 (to 14 CFR 91) in conformance with requirements of the Airport Noise and Capacity Act of 1990. The amendment to the aircraft operating rules required a phased transition to an all Stage 3 aircraft fleet operating in the 48 contiguous United States and the District of Columbia by December 31, 1999.</td>
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<tr>
<td>14 CFR PART 150</td>
<td>This regulation, titled &quot;Airport Noise Compatibility Planning,&quot; sets forth criteria for developing a 14 CFR Part 150 Noise Compatibility Program, an FAA-assisted program designed to increase the compatibility of land and land uses in the areas surrounding an airport that are most directly affected by operation of the airport. The specific purpose is to reduce the adverse effects of noise as much as possible by implementing both on-airport noise abatement measures and off-airport noise mitigation measures. The basic products of an 14 CFR Part 150 program typically include (1) noise exposure maps for the existing condition and for 5 years in the future; (2) workable on-airport noise abatement measures (preferential runway use programs, new or preferential flight tracks), (3) off-airport noise mitigation measures (land acquisition, soundproofing, or special zoning); (4) an analysis of the costs and the financial feasibility of the recommended measures; and (5) policies and procedures related to the implementation of on- and off-airport programs. Community involvement opportunities are provided throughout all phases of noise compatibility program development.</td>
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<tr>
<td>14 CFR PART 161</td>
<td>This regulation, titled &quot;Notice and Approval of Airport Noise and Access Restrictions,&quot; establishes a program for reviewing airport noise and access restrictions on the operations of Stage 2 and Stage 3 aircraft. This regulation is in response to specific provisions in the Airport Noise and Capacity Act of 1990 and is a major element of the national aviation noise policy required by that Act. Even if such an airport noise and access restriction is proposed as an element of a 14</td>
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<td>A-WEIGHTED SOUND LEVEL (dBA)</td>
<td>The ear does not respond equally to different frequencies of sound. It is less efficient at low and high frequencies than it is at medium or speech-range frequencies. Thus, to obtain a single number representing the sound level of a noise having a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are decibels (dB); hence, the abbreviation is dBA. The A-weighted sound level is also referred to as the noise level. Sound level meters have an A-weighting network for measuring noise in A-weighted decibels.</td>
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<td>ABSORPTION</td>
<td>Absorption is a property of materials that reduces the amount of sound energy reflected. Thus, introduction of an “absorbent” into the surfaces of a room will reduce the sound pressure level in that room because sound energy striking the room’s surfaces will be partially absorbed rather than totally reflected. The process of absorption is different from that of transmission loss through a material, which determines how much sound enters a room via the walls, ceiling, and floor. Absorption reduces the resultant sound level in the room produced by energy that has already entered the room.</td>
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<tr>
<td>ACCEPTABLE</td>
<td>Relating to noise Day-Night Average Sound Level (DNL) not exceeding 65 decibels. Noise exposure may be of some concern, but common building construction will make the indoor environment acceptable, and the outdoor environment will be reasonably pleasant for recreation and play. As defined by 14 CFR Part 150, Airport Noise Compatibility Planning.</td>
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<tr>
<td>ACOUSTICS</td>
<td>(1) The science of sound, including the generation, transmission, and effects of audible and inaudible sound waves. (2) The physical qualities (such as size and shape) of a room or other enclosure that determine the audibility and perception of speech and music.</td>
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<tr>
<td>ADVISORY CIRCULAR (AC)</td>
<td>An external Federal Aviation Administration (FAA) publication consisting of non-regulatory material of a policy, guidance, or informational nature.</td>
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<td>AIRCRAFT DELAY</td>
<td>The additional travel time, caused by airfield or airspace congestion, needed by an aircraft to move from point A to point B.</td>
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<td>AIRCRAFT OPERATION</td>
<td>An aircraft arrival (landing) or an aircraft departure (takeoff) each represent one aircraft operation; therefore, an arrival and departure is counted as two operations. A low approach, below traffic pattern or a touch-and-go operation is counted as both a landing and a takeoff, i.e., two operations. The FAA records aircraft operations in four categories: air carrier, air taxi, general aviation, and military.</td>
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<tr>
<td>AIR CARRIER</td>
<td>Operations performed in revenue service by certificated route air carriers.</td>
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<td>AIR TAXI/COMMUTER</td>
<td>Operations performed by operators of aircraft holding an air taxi certificate. This category includes commuter airline operations (excluding certificated commuter airlines), mail carriers under contract with the U.S. Postal Service, and operators of nonscheduled air taxi service.</td>
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<tr>
<td>GENERAL AVIATION</td>
<td>All civil aircraft operations not classified as air carrier or air taxi operations.</td>
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<td>MILITARY</td>
<td>Operations performed by military groups, such as the Air National Guard, the U.S. Air Force, or the U.S. Marine Corps. Aircraft operations may also be described as local or itinerant:</td>
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<tr>
<td>LOCAL</td>
<td>Local operations are performed by aircraft that (1) operate in the local traffic pattern or within sight of the airport, (2) are known to be departing for, or arriving from, local practice areas within a 20-mile radius of the airport, or (3) execute simulated or practice instrument approaches or low passes at the airport. Touch-and-go operations are counted as two local operations.</td>
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<td>ITINERANT</td>
<td>All aircraft operations other than local operations.</td>
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<td>AIR NAVIGATION FACILITY (NAVAID)</td>
<td>A facility designed for use as an aid to air navigation, including landing aids, lights, any apparatus or equipment for disseminating weather information; for signaling for radio direction-finding or for radio or other electronic communication; and any other structure or mechanism having a similar purpose for guiding and controlling flight in the air or the landing or takeoff of aircraft.</td>
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<td>AIRPORT ENVIRONS</td>
<td>The area surrounding an airport that is considered to be directly affected by the presence and operation of the airport.</td>
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<td>AIRPORT IMPROVEMENT PROGRAM (AIP)</td>
<td>A program administered by the FAA to provide financial grants-in-aid for airport planning, airport development projects, and noise compatibility programs. The AIP was established through the Airport and Airway Improvement Act of 1982, which was incorporated as Title V of the Tax Equity and Fiscal Responsibility Act of 1982 (Public Law 97-248). Funds are appropriated by the U.S. Congress for the AIP annually.</td>
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<tr>
<td>AIRPORT NOISE AND CAPACITY ACT OF 1990</td>
<td>Commonly referred to as the national noise policy; the Act was enacted on November 5, 1990 (Public Law 101-508). Two important provisions of the Act were the establishment of a national aviation noise policy (Sections 9308 and 9309) and the creation of a passenger facility charge (Sections 9110 and 9111), which enables airport sponsors to impose fees on the tickets issued to eligible enplaning passengers. An amendment to 14 CFR Part 91, &quot;Transition to an All Stage 3 Fleet Operating in the 48 Contiguous United States and the District of Columbia,&quot; and new 14 CFR Part 161, &quot;Notice and Approval of Airport Noise and Access Restrictions&quot;, implement the national noise policy. 14 CFR Part 158, &quot;Passenger Facility Charges,&quot; implements that portion of the Act authorizing the imposition of such a charge.</td>
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<td>AIRPORT SURVEILLANCE RADAR (ASR)</td>
<td>Radar providing aircraft position data in terms of azimuth and range. ASR does not provide altitude data. It is designed for range coverage up to 60 nautical miles and is used by terminal area air traffic control.</td>
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<td>AIRPORT TRAFFIC CONTROL TOWER (ATCT)</td>
<td>A central operations facility in the terminal area air traffic control system, consisting of a tower cab structure and an associated instrument flight rule (IFR) room if radar equipped, using air/ground communications and/or radar, visual signaling, and other devices, to provide safe and expeditious movement of terminal area air traffic.</td>
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<td>AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)</td>
<td>A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the en route phase of flight.</td>
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<td>AIRSPACE</td>
<td>Space in the air above the surface of the earth or a particular portion of such space, usually defined by the boundaries of an area on the surface projected upward.</td>
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<tr>
<td>AIR TRAFFIC CONTROL (ATC)</td>
<td>A service operated by appropriate authority (the FAA) to promote the safe, orderly, and expeditious flow of air traffic.</td>
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<td>ATTENUATION</td>
<td>Acoustical phenomenon whereby a reduction of sound energy is experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, man-made features, and natural features.</td>
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<tr>
<td>AVIATION ENVIRONMENTAL DESIGN TOOL (AEDT)</td>
<td>A computer model developed by the FAA and required by the FAA for use in 14 CFR Part 150 studies, environmental assessments, and environmental impact statements for developing existing and future aircraft noise exposure maps.</td>
</tr>
<tr>
<td>AVIATION SAFETY AND NOISE ABATEMENT ACT OF 1979</td>
<td>The purpose of the Act is to assist airport sponsors in preparing and carrying out noise compatibility programs and in assuring continued safety for aviation. The Act also contains provisions extending to January 1, 1988, the requirement for certain types of aircraft to comply with 14 CFR Part 36.</td>
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<tr>
<td>AVIGATION EASEMENT</td>
<td>A type of land acquisition that involves less-than-fee purchase. One form of avigation easement grants the right to perform aircraft operations over the designated property, including operations that might cause noise, vibration, and other effects. A stronger form of easement is a deed restriction that may include (1) the right to perform aircraft operations over the property, and (2) public acquisition of a landowner’s rights restricting future development of the property in any use more intensive than that existing at the time of the transaction. This easement may also include specific prohibitions as to the uses for which the property may be developed. Maximum heights of structures and other objects may also be specified.</td>
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<tr>
<td>BACKBLAST</td>
<td>Noise generated by jet exhaust on takeoff characterized by high acoustic energy, low frequency, and high velocity air behind the aircraft engine.</td>
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<tr>
<td>CONTROLLED AIRSPACE</td>
<td>Airspace of defined dimensions within which air traffic control service is provided to IFR and to Visual Flight Rule (VFR) flights in accordance with the airspace classification.</td>
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<tr>
<td>DAY-NIGHT AVERAGE SOUND LEVEL (DNL)</td>
<td>A measure used to predict, by a single number rating, cumulative aircraft noise that affects communities in airport environs. DNL represents decibels of noise as measured by an A-weighted sound-level meter. In the DNL procedure, the noise exposure from each aircraft takeoff or landing is calculated at ground level around an airport, and these noise exposure levels are accumulated for a typical 24-hour period. (The 24-hour period often used is the average day of the peak month for aircraft operations during the year being analyzed.) Daytime and nighttime noise exposure is considered separately. A weighting factor equivalent to a penalty of 10 decibels is applied to operations between 10:00 p.m. and 7:00 a.m. to account for the increased sensitivity of people to nighttime noise. DNLs can be expressed graphically on maps using either contours or grid cells.</td>
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<tr>
<td>DECIBEL (dB)</td>
<td>A unit for measuring the volume of a sound, equal to the logarithm of the ratio of the intensity of the sound to the intensity of an arbitrarily chosen standard sound.</td>
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<tr>
<td>DISTANCE MEASURING EQUIPMENT (DME)</td>
<td>Equipment (ground and airborne) used to measure and report to the pilot the slant range distance, in nautical miles, of an aircraft from the DME navigational aid.</td>
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<tr>
<td>DURATION</td>
<td>The length of time that a noise event, such as an aircraft flyover, is experienced (typically reported in seconds). “Duration” may also refer to the length of time that the noise event exceeds a specified threshold noise level.</td>
</tr>
<tr>
<td>EQUIVALENT CONTINUOUS SOUND LEVEL (LEQ)</td>
<td>Leq is the sound level, expressed in dBA, of a steady sound which has the same A-weighted sound energy as the time-varying sound over the averaging period. Unlike Sound Exposure Level (SEL), Leq is the average sound level for a specified time period (e.g., 24 hours, 8 hours, 1 hour, etc.). Leq is calculated by integrating the sound energy from all noise events over a given time period and applying a factor for the number of events.</td>
</tr>
<tr>
<td>FEDERAL AVIATION ADMINISTRATION (FAA)</td>
<td>The FAA, an agency of the U.S. Department of Transportation, is charged with (1) regulating air commerce to promote its safety and development; (2) achieving the efficient use of navigable airspace of the United States; (3) promoting, encouraging, and developing civil aviation; (4) developing and operating a common system of air traffic control and air navigation for both civilian and military aircraft; and (5) promoting the development of a national system of airports.</td>
</tr>
<tr>
<td>FEE SIMPLE LAND ACQUISITION</td>
<td>The full purchase of land and improvements by an airport sponsor. The land is usually maintained or leased for uses that are compatible with airport operations. Alternatively, the airport sponsor can resell the land with an aviation easement (see also) and deed restrictions that specify the compatible land uses that are permitted. One benefit of the resale option is that the land is returned to the local tax rolls.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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</tr>
<tr>
<td>FLIGHT TRACK</td>
<td>The average flight path flown by aircraft within specific corridors. Deviation from these tracks occurs because of weather, pilot technique, air traffic control, and aircraft weight. Individual flight tracks within a corridor are &quot;averaged&quot; for purposes of modeling noise exposure using the FAA's Integrated Noise Model.</td>
</tr>
<tr>
<td>GENERAL PLAN</td>
<td>An overall plan of a political jurisdiction setting forth the goals and objectives of the jurisdiction, policies for development and redevelopment, and maps showing the spatial arrangement of land uses, circulation routes, and community facilities. This is sometimes referred to as a comprehensive plan or community plan.</td>
</tr>
<tr>
<td>GLIDE SLOPE</td>
<td>A FAA navigational system that: (1) provides the vertical (or altitude) profile followed by an aircraft during the approach and landing; (2) is an electronic vertical guidance provided by airborne and ground instruments for instrument approaches using equipment such as an instrument landing system (ILS) as well as visual ground aids, such as a visual approach slope indicator (VASI), for a visual flight rule (VFR) approach or for the visual portion of an instrument approach and landing.</td>
</tr>
<tr>
<td>GLOBAL POSITIONING SYSTEM (GPS)</td>
<td>A navigational system that uses a series of satellites orbiting the earth to provide non-precision guidance in azimuth, elevation, and distance measurement.</td>
</tr>
<tr>
<td>GROUND EFFECT</td>
<td>The excess attenuation of sound associated with absorption or reflection of noise by manmade and physical features on the ground surface.</td>
</tr>
<tr>
<td>GROUND TRACK</td>
<td>The trajectory of an aircraft flight path projected onto the ground surface.</td>
</tr>
<tr>
<td>HELIPAD</td>
<td>A small area designated for takeoff, landing, or parking of helicopters.</td>
</tr>
<tr>
<td>INCOMPATIBLE LAND USE</td>
<td>Residential, public, recreational, and certain other noise-sensitive land uses that are designated as unacceptable within specific ranges of cumulative (DNL) noise exposure as set forth in 14 CFR Part 150, Appendix A, Table 1.</td>
</tr>
<tr>
<td>INSTRUMENT APPROACH</td>
<td>An aircraft approach to an airport, with intent to land, by a pilot flying in accordance with an IFR flight plan, when the visibility is less than 3 miles and/or when the ceiling is at or below the minimum initial approach altitude.</td>
</tr>
<tr>
<td>INSTRUMENT APPROACH RUNWAY</td>
<td>A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.</td>
</tr>
<tr>
<td>INSTRUMENT FLIGHT RULES (IFR)</td>
<td>Rules specified by the FAA for flight under weather conditions that do not meet the minimum requirements for VFR (see also). Under these conditions the pilot must rely on instruments to fly and navigate.</td>
</tr>
<tr>
<td>INSTRUMENT LANDING SYSTEM (ILS)</td>
<td>A system that provides, in the aircraft, the lateral and longitudinal (localizer), and vertical (guidance) electronic guidance necessary for an instrument landing.</td>
</tr>
<tr>
<td>INSTRUMENT OPERATION</td>
<td>An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility or air route traffic control center.</td>
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</tr>
<tr>
<td>LAND USE COMPATIBILITY</td>
<td>The compatibility of land uses surrounding an airport with airport activities and particularly with the noise from aircraft operations.</td>
</tr>
<tr>
<td>LAND USE CONTROLS</td>
<td>Controls established by local or state governments to implement land use planning. The controls include zoning, subdivision regulations, land acquisition (in fee simple, lease-back, or easements), building codes, building permits, and capital improvement programs (to provide sewer, water, utilities, or other service facilities).</td>
</tr>
<tr>
<td>LAND USE PLANNING</td>
<td>Comprehensive planning carried out by units of local government, for all areas under their jurisdiction, to identify the optimum uses of land and to serve as a basis for the adoption of zoning or other land use controls.</td>
</tr>
<tr>
<td>LESS-THAN-FEE ACQUISITION</td>
<td>The purchase of development rights from landowners by airport sponsors in areas that should remain at very low densities or in open space uses. The airport sponsor negotiates with the landowner to determine the fair market value of the unused development rights. Once sold, the land cannot be developed except in specified uses.</td>
</tr>
<tr>
<td>LOCALIZER (LOC)</td>
<td>Navigational equipment that provides electronic course guidance. The ground-based equipment sends two signals, which, when received and receded by airborne equipment with equal intensity, indicate that the aircraft is on course. If the received and receded signals have unequal intensity, then the aircraft is off course. A localizer is the part of an ILS that provides lateral and longitudinal course guidance to the runway.</td>
</tr>
<tr>
<td>LOUDNESS</td>
<td>The judgment of the intensity of a sound by a person, loudness depends primarily on the sound pressure of the stimulus. Over much of the loudness range, it takes about a threefold increase in sound pressure (approximately 10 decibels) to produce a doubling of loudness.</td>
</tr>
<tr>
<td>MAXIMUM SOUND LEVEL (Lmax)</td>
<td>The maximum A-weighted sound level, in dBA, for a given noise event. The peak noise level reached by a single aircraft event.</td>
</tr>
<tr>
<td>NOISE</td>
<td>Noise is any sound that is considered to be undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying.</td>
</tr>
<tr>
<td>NOISE ABATEMENT PROCEDURES</td>
<td>Changes in runway use, flight approach and departure routes and procedures, and other air traffic procedures that are intended to shift adverse aviation effects away from noise-sensitive areas (such as residential neighborhoods).</td>
</tr>
<tr>
<td>NOISE ATTENUATION OF BUILDINGS</td>
<td>The use of building materials to reduce noise through absorption, transmission loss, and reflection of sound energy.</td>
</tr>
<tr>
<td>NOISE CONTOURS</td>
<td>Lines drawn on a map that connect points of equivalent noise exposure levels. For aircraft noise analyses conducted using DNL, noise contours are usually drawn in 5-DNL intervals, such as connections of DNL 75 exposure, DNL 70 exposure, DNL 65 exposure, and so forth.</td>
</tr>
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<tr>
<td>NOISE COMPATIBILITY PROGRAM (NCP)</td>
<td>The NCP can consist of a combination of preferred noise abatement procedures, land use controls, and administrative measures; as well as a plan for the implementation. For planning purposes, the implementation plan also includes the estimated cost for each of the recommended measures to the airport sponsor, the FAA, airport users, and the local units of government.</td>
</tr>
<tr>
<td>NOISE EXPOSURE MAP (NEM)</td>
<td>A map prepared in accordance with 14 CFR Part 150 or other FAA environmental regulation that depicts actual (existing or historical conditions) or anticipated (future conditions) aircraft noise exposure and the affected land uses. NEMs for future conditions may take into account anticipated land use changes around the airport.</td>
</tr>
<tr>
<td>NOISE LEVEL REDUCTION (NLR)</td>
<td>The noise reduction between two areas or rooms is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. Noise reduction is measured by combining the effect of the transmission loss performance of structures separating the two areas or rooms and the effect of acoustic absorption in the receiving room.</td>
</tr>
<tr>
<td>NOISE-SENSITIVE LAND USE</td>
<td>A land use that can be adversely affected by high levels of aircraft noise. Residences, schools, hospitals, religious facilities, libraries, and other similar uses are typically considered to be noise-sensitive.</td>
</tr>
<tr>
<td>NONDIRECTIONAL RADIO BEACON (NDB)</td>
<td>A low/medium frequency radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction-finding equipment can determine the aircraft's bearing to or from the radio beacon and track to or from the station.</td>
</tr>
<tr>
<td>NON-PRECISION INSTRUMENT APPROACH PROCEDURE</td>
<td>A standard instrument approach procedure for which no glide slope guidance is provided. Typical non-precision instrument approach procedures include VOR (see Very High Frequency Omnidirectional Range), GPS (see Global Positioning System), NDB (see Nondirectional Radio Beacon), and LOC (see Localizer) approach procedures.</td>
</tr>
<tr>
<td>NORMALLY UNACCEPTABLE</td>
<td>DNL higher than 65 but not higher than 75 decibels (see Unacceptable) - the noise exposure is significantly more severe; barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable; special building construction may be necessary to ensure that people indoors are sufficiently protected from outdoor noise.</td>
</tr>
<tr>
<td>PATTERN</td>
<td>The configuration or form of a flight path flown by an aircraft, or prescribed to be flown, as in making an approach for landing.</td>
</tr>
<tr>
<td>PRECISION INSTRUMENT APPROACH PROCEDURE</td>
<td>A standard instrument procedure for a pilot to approach an airport, in which both electronic course guidance and an electronic glide scope are provided. For example, an approach using an ILS is considered a precision instrument approach.</td>
</tr>
<tr>
<td>PREFERENTIAL RUNWAY USE (PROGRAM)</td>
<td>A noise abatement action whereby the FAA Air Traffic Division, in conjunction with the FAA Airports Division and Aviation System Standards Division, assists</td>
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<tr>
<td>the airport sponsor in developing a program that gives preference to the use of a specific runway(s), unless weather or other conditions prevail, to reduce overflights of noise-sensitive areas.</td>
<td>RETROFIT The retroactive modification of existing jet aircraft engines for noise reduction purposes.</td>
</tr>
<tr>
<td>A defined rectangular area on an airport for the purpose of landing and taking off of aircraft. Runways are numbered in relation to their magnetic direction, rounded to the nearest 10 degrees (i.e., Runway 14, Runway 32).</td>
<td>RUNWAY</td>
</tr>
<tr>
<td>The attenuation of a sound by placing walls, buildings, plants, or other barriers between a sound source and the receiver. Also used with light to minimize impacts by introducing manmade or natural elements to reduce or eliminate glare.</td>
<td>SHIELDING</td>
</tr>
<tr>
<td>Noise generated by a single event, such as a single aircraft flyover.</td>
<td>SINGLE EVENT</td>
</tr>
<tr>
<td>SEL is a time-integrated measure, expressed in decibels, of the sound energy of a single noise event. The sound level is integrated over the period that the level exceeds a threshold (normally 65 dBA for aircraft noise events). Therefore, SEL accounts for the duration of the sound. SELs for aircraft noise events depend on the location of the aircraft, the type of operation (landing, takeoff, or overflight), and the type of aircraft.</td>
<td>SOUND EXPOSURE LEVEL (SEL)</td>
</tr>
<tr>
<td>(1) The use of structures and materials designed to reduce the transmission of sound from one room or area to another, or from the exterior to the interior of a building. (2) The degree of reduction in sound transmission, or noise level reduction, by means of sound insulating structures and materials.</td>
<td>SOUND INSULATION</td>
</tr>
<tr>
<td>The weighted sound pressure level obtained by the use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.</td>
<td>SOUND LEVEL (NOISE LEVEL)</td>
</tr>
<tr>
<td>An instrument consisting of a microphone, an amplifier, an output meter, and frequency-weighting networks used to measure noise and sound levels in a specified manner.</td>
<td>SOUND LEVEL METER</td>
</tr>
<tr>
<td>A preplanned and published instrument departure route.</td>
<td>STANDARD INSTRUMENT DEPARTURE (SID)</td>
</tr>
<tr>
<td>A preplanned and published instrument arrival route.</td>
<td>STANDARD TERMINAL ARRIVAL ROUTE (STAR)</td>
</tr>
<tr>
<td>The Terminal Area Forecast (TAF) is the official FAA forecast of aviation activity for U.S. airports. Forecasts are prepared for major users of the National Airspace System including air carrier, air taxi/commuter, general aviation, and military.</td>
<td>TERMINAL AREA FORECAST (TAF)</td>
</tr>
<tr>
<td>Radar approach facility generally serving more than one airport, providing separation; safety alerts; and sequencing of arrival, departure, and transitioning air traffic.</td>
<td>TERMINAL RADAR APPROACH CONTROL (TRACON)</td>
</tr>
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</tr>
<tr>
<td>TRANSFER OF DEVELOPMENT RIGHTS (TDR)</td>
<td>TDR involves separate ownership and use of the various rights associated with a parcel of real estate. Under TDR, some of the property’s development rights are transferred to another location, where they may be used to intensify allowable development. For example, lands within an area affected by aircraft noise could be kept in open space or agricultural uses, and development rights for residential or other uses could be transferred to locations outside the area. Landowners could be compensated for the transferred rights by their sale at the new locations, or the airport sponsor could purchase the rights. Depending on market conditions and legal requirements, the airport sponsor could either hold or resell the rights.</td>
</tr>
<tr>
<td>UNACCEPTABLE</td>
<td>DNL above 75 decibels-Noise exposure at the site is so severe that the construction cost to make the indoor noise environment acceptable may be prohibitive and the outdoor environment would still be unacceptable.</td>
</tr>
<tr>
<td>VERY HIGH FREQUENCY (VHF) OMNIDIRECTIONAL RANGE (VOR)</td>
<td>A radio transmitter facility in the navigation system radiating a VHF radio wave modulated by two signals, the relative phases of which are compared, resolved, and displayed by a compatible airborne receiver to give the pilot a direct indication of bearing relative to the facility.</td>
</tr>
<tr>
<td>VFR AIRPORT</td>
<td>An airport without an authorized or planned instrument approach procedure.</td>
</tr>
<tr>
<td>VISUAL APPROACH</td>
<td>An approach to an airport wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of a radar facility and having air traffic control authorization, may deviate from the prescribed instrument approach procedure and proceed to and land at the airport of destination, served by an operational ATCT, by visual reference to the surface.</td>
</tr>
<tr>
<td>VISUAL FLIGHT RULES (VFR)</td>
<td>A set of regulations that a pilot may operate under when weather conditions meet certain minimum requirements. The requirements are designed to provide sufficient visibility so that other aircraft can be seen and avoided. Under VFR, the pilot generally controls the attitude of the aircraft by relying on what can be seen out the window, although this may be supplemented by referring to the instrument panel.</td>
</tr>
<tr>
<td>ZONING AND ZONING ORDINANCES</td>
<td>Ordinances that divide a community into zones or districts according to the current and potential use of properties for the purpose of controlling and directing the use and development of those properties. Zoning is concerned primarily with the use of land and buildings, the height and bulk of buildings, the proportion of a lot that buildings may cover, and the density of population of a given area. As an instrument for noise compatibility plan implementation, zoning deals principally with the use and development of privately owned land and buildings. The objectives of zoning are to establish regulations that provide locations for all essential uses of land and buildings and ensure that each use is located in the most appropriate place. In noise compatibility planning, zoning can be used to achieve two major aims: (1) to reinforce existing compatible land uses and promote the location of future compatible uses in vacant or underdeveloped land, and (2) to convert existing incompatible uses to compatible uses over time.</td>
</tr>
<tr>
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PART 150—AIRPORT NOISE COMPATIBILITY PLANNING

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Appendix A to Part 150—Noise Exposure Maps
Appendix B to Part 150—Noise Compatibility Programs

AUTHORITY: 49 U.S.C. 106(g), 40113, 44715, 47101, 47501-47504.
SOURCE: Docket No. 18691, 49 FR 49269, Dec. 18, 1984, unless otherwise noted.

Subpart A—General Provisions

§150.1 Scope and purpose.

This part prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. It prescribes single systems for—(a) measuring noise at airports and surrounding areas that generally provides a highly reliable relationship between projected noise exposure and surveyed reaction of people to noise; and (b) determining exposure of individuals to noise that results from the operations of an airport. This part also identifies those land uses which are normally compatible with various levels of exposure to noise by individuals. It provides technical assistance to airport operators, in conjunction with other local, State, and Federal authorities, to prepare and execute appropriate noise compatibility planning and implementation programs.

Subpart B—Development of Noise Exposure Maps and Noise Compatibility Programs

§150.21 Noise exposure maps and related descriptions.
§150.23 Noise compatibility programs.

Subpart C—Evaluations and Determinations of Effects of Noise Compatibility Programs

§150.31 Preliminary review: Acknowledgments.
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Appendix A to Part 150—Noise Exposure Maps
Appendix B to Part 150—Noise Compatibility Programs

AUTHORITY: 49 U.S.C. 106(g), 40113, 44715, 47101, 47501-47504.
SOURCE: Docket No. 18691, 49 FR 49269, Dec. 18, 1984, unless otherwise noted.
(a) Pursuant to 49 U.S.C. 47501 et seq., this part provides for airport noise compatibility planning and land use programs necessary to the purposes of those provisions. No submittal of a map, or approval or disapproval, in whole or part, of any map or program submitted under this part is a determination concerning the acceptability or unacceptability of that land use under Federal, State, or local law.

(b) Approval of a noise compatibility program under this part is neither a commitment by the FAA to financially assist in the implementation of the program, nor a determination that all measures covered by the program are eligible for grant-in-aid funding from the FAA.

(c) Approval of a noise compatibility program under this part does not by itself constitute an FAA implementing action. A request for Federal action or approval to implement specific noise compatibility measures may be required, and an FAA decision on the request may require an environmental assessment of the proposed action, pursuant to the National Environmental Policy Act (42 U.S.C. 4332 et seq.) and guidelines.

(d) Acceptance of a noise exposure map does not constitute an FAA determination that any specific parcel of land lies within a particular noise contour. Responsibility for interpretation of the effects of noise contours upon subjacent land uses, including the relationship between noise contours and specific properties, rests with the sponsor or with other state or local government.


§150.7 Definitions.

As used in this part, unless the context requires otherwise, the following terms have the following meanings.

Airport means any public use airport, including heliports, as defined by the ASNA Act, including: (a) Any airport which is used or to be used for public purposes, under the control of a public agency, the landing area of which is publicly owned; (b) any privately owned reliever airport; and (c) any privately owned airport which is determined by the Secretary to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft, which is used or to be used for public purposes.

Airport noise compatibility program and program mean that program, and all revisions thereto, reflected in documents (and revised documents) developed in accordance with appendix B of this part, including the measures proposed or taken by the airport operator to reduce existing noncompatible land uses and to prevent the introduction of additional noncompatible land uses within the area.

Airport Operator means, the operator of an airport as defined in the ASNA Act.

ASNA Act means 49 U.S.C. 47501 et seq.

Average sound level means the level, in decibels, of the mean-square, A-weighted sound pressure during a specified period, with reference to the square of the standard reference sound pressure of 20 micropascals.

Compatible land use means the use of land that is identified under this part as normally compatible with the outdoor noise environment (or an adequately attenuated noise level reduction for any indoor activities involved) at the location because the yearly day-night average sound level is at or below that identified for that or similar use under appendix A (Table 1) of this part.

Day-night average sound level (DNL) means the 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between midnight and 7 a.m., and between 10 p.m., and midnight, local time. The symbol for DNL is $L_{DNL}$.

Noise exposure map means a scaled, geographic depiction of an airport, its noise contours, and surrounding area developed in accordance with section A150.1 of Appendix A of this part, including the accompanying documentation setting forth the required descriptions of forecast aircraft operations at that airport during the fifth calendar year (or later) beginning after submission of the map, together with the ways, if any, those operations will affect the map (including noise contours and the forecast land uses).

Noise level reduction (NLR) means the amount of noise level reduction in decibels achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

Noncompatible land use means the use of land that is identified under this part as normally not compatible with the outdoor noise environment (or an adequately attenuated noise reduction level for the indoor activities involved at the location) because the yearly day-night average sound level is above that identified for that or similar use under appendix A (Table 1) of this part.

Regional Airports Division Manager means the Airports Division Manager having responsibility for the geographic area in which the airport in question is located.
Restriction affecting flight procedures means any requirement, limitation, or other action affecting the operation of aircraft, in the air or on the ground.

Sound exposure level means the level, in decibels, of the time integral of squared A-weighted sound pressure during a specified period or event, with reference to the square of the standard reference sound pressure of 20 micropascals and a duration of one second.

Yearly day-night average sound level (YDNL) means the 365-day average, in decibels, day-night average sound level. The symbol for YDNL is also $L_{dn}$.


§150.9 Designation of noise systems.

For purposes of this part, the following designations apply:

(a) The noise at an airport and surrounding areas covered by a noise exposure map must be measured in A-weighted sound pressure level ($L_A$) in units of decibels (dBA) in accordance with the specifications and methods prescribed under appendix A of this part.

(b) The exposure of individuals to noise resulting from the operation of an airport must be established in terms of yearly day-night average sound level (YDNL) calculated in accordance with the specifications and methods prescribed under appendix A of this part.

(c) Uses of computer models to create noise contours must be in accordance with the criteria prescribed under appendix A of this part.

§150.11 Identification of land uses.

For the purposes of this part, uses of land which are normally compatible or noncompatible with various noise exposure levels to individuals around airports must be identified in accordance with the criteria prescribed under appendix A of this part. Determination of land use must be based on professional planning criteria and procedures utilizing comprehensive, or master, land use planning, zoning, and building and site designing, as appropriate. If more than one current or future land use is permissible, determination of compatibility must be based on that use most adversely affected by noise.

§150.13 Incorporations by reference.

(a) General. This part prescribes certain standards and procedures which are not set forth in full text in the rule. Those standards and procedures are hereby incorporated by reference and were approved for incorporation by reference by the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51.

(b) Changes to incorporated matter. Incorporated matter which is subject to subsequent change is incorporated by reference according to the specific reference and to the identification statement. Adoption of any subsequent change in incorporated matter that affects compliance with standards and procedures of this part will be made under 14 CFR part 11 and 1 CFR part 51.

(c) Identification statement. The complete title or description which identifies each published matter incorporated by reference in this part is as follows:


(d) Availability for purchase. Published material incorporated by reference in this part may be purchased at the price established by the publisher or distributor at the following mailing addresses.

IEC publications:

(1) The Bureau Central de la Commission Electrotechnique, Internationale, 1, rue de Varembe, Geneva, Switzerland.

(2) American National Standards Institute, 1430 Broadway, New York, NY 10018.

(e) Availability for inspection. A copy of each publication incorporated by reference in this part is available for public inspection at the following locations:
(1) FAA Office of the Chief Counsel, Rules Docket, AGC-200, Federal Aviation Administration Headquarters Building, 800 Independence Avenue, SW., Washington, DC 20591.

(2) The respective Regional Offices of the Federal Aviation Administration as follows. The most current mailing address, phone numbers, and States covered by each region are available on the FAA’s Web site at http://www.faa.gov/arp/index.cfm?nav=hp.


(ii) Eastern Regional Office, Airports Division, 1 Aviation Plaza, Jamaica, NY 11434-4809.

(iii) Southern Regional Office, Federal Aviation Administration, ATTN: ASO-600, P.O. Box 20636, Atlanta, GA 30320-0631.


(v) Central Regional Office, Federal Aviation Administration, ACE-600, 901 Locust, Kansas City, MO 64106-2325.

(vi) Southwest Regional Office, Federal Aviation Administration, Administration, 2601 Meacham Blvd., Fort Worth, TX 76137-4298.

(vii) Northwest Mountain Regional Office, Federal Aviation Administration, Airports Division, 1601 Lind Avenue SW., Suite 315, Renton, WA 98055-4056.

(viii) Western Pacific Regional Office, 15000 Aviation Boulevard, Hawthorne, California (P.O. Box 92007, Worldway Postal Center, Los Angeles) 90009.

(ix) Alaska Regional Office, 222 W. 7th Avenue #14, Anchorage, AK 9951.

(3) National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.


Subpart B—Development of Noise Exposure Maps and Noise Compatibility Programs

§150.21 Noise exposure maps and related descriptions.

(a) Each airport operator may after completion of the consultations and public procedure specified under paragraph (b) of this section submit to the Regional Airports Division Manager five copies of the noise exposure map (or revised map) which identifies each noncompatible land use in each area depicted on the map, as of the date of submission, and five copies of a map each with accompanying documentation setting forth—

(1) The noise exposure based on forecast aircraft operations at the airport for a forecast period that is at least 5 years in the future, beginning after the date of submission (based on reasonable assumptions concerning future type and frequency of aircraft operations, number of nighttime operations, flight patterns, airport layout including any planned airport development, planned land use changes, and demographic changes in the surrounding areas); and

(2) The nature and extent, if any, to which those forecast operations will affect the compatibility and land uses depicted on the map.

(b) Each map, and related documentation submitted under this section must be developed and prepared in accordance with appendix A of this part, or an FAA approved equivalent, and in consultation with states, and public agencies and planning agencies whose area, or any portion of whose area, of jurisdiction is within the $L_{dn}$ 65 dB contour depicted on the map, FAA regional officials, and other Federal officials having local responsibility for land uses depicted on the map. This consultation must include regular aeronautical users of the airport. The airport operator shall certify that it has afforded interested persons adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the draft noise exposure map and descriptions of forecast aircraft operations. Each map and revised map must be accompanied by documentation describing the consultation accomplished under this paragraph and the opportunities afforded the public to review and comment during the development of the map. One copy of all written comments received during consultation shall also be filed with the Regional Airports Division Manager.

(c) The Regional Airports Division Manager acknowledges receipt of noise exposure maps and descriptions and indicates whether they are in compliance with the applicable requirements. The Regional Airports Division Manager publishes in the FEDERAL REGISTER a notice of compliance for each such noise exposure map and description, identifying the airport involved. Such notice includes information as to when and where the map and related documentation are available for public inspection.
(d) The airport operator shall, in accordance with this section, promptly prepare and submit a revised noise exposure map.

(1) If, after submission of a noise exposure map under paragraph (a) of this section, any change in the operation of the airport would create any "substantial, new noncompatible use" in any area depicted on the map beyond that which is forecast for a period of at least five years after the date of submission, the airport operator shall, in accordance with this section, promptly prepare and submit a revised noise exposure map. A change in the operation of an airport creates a substantial new noncompatible use if that change results in an increase in the yearly day-night average sound level of 1.5 dB or greater in either a land area which was formerly compatible but is thereby made noncompatible under Appendix A (Table 1), or in a land area which was previously determined to be noncompatible under that Table and whose noncompatibility is now significantly increased.

(2) If, after submission of a noise exposure map under paragraph (a) of this section, any change in the operation of the airport would significantly reduce noise over existing noncompatible uses that is not reflected in either the existing conditions or forecast noise exposure map on file with the FAA, the airport operator shall, in accordance with this section, promptly prepare and submit a revised noise exposure map. A change in the operation of the airport creates a significant reduction in noise over existing noncompatible uses if that change results in a decrease in the yearly day-night average sound level of 1.5 dB or greater in a land area which was formerly noncompatible but is thereby made compatible under Appendix A (Table 1).

(3) Such updating of the map shall include a reassessment of those areas excluded under section A150.101(e)(5) of Appendix A because of high ambient noise levels.

(4) If the forecast map is based on assumptions involving recommendations in a noise compatibility program which are subsequently disapproved by the FAA, a revised map must be submitted if revised assumptions would create a substantial, new noncompatible use not indicated on the forecast map. Revised noise exposure maps are subject to the same requirements and procedures as initial submissions of noise exposure maps under this part.

(e) Each map, or revised map, and description of consultation and opportunity for public comment, submitted to the FAA, must be certified as true and complete under penalty of 18 U.S.C. 1001.

(f)(1) Title 49, section 47506 provides that no person who acquires property or an interest therein after the date of enactment of the Act in an area surrounding an airport with respect to which a noise exposure map has been submitted under section 47503 of the Act shall be entitled to recover damages with respect to the noise attributable to such airport if such person had actual or constructive knowledge of the existence of such noise exposure map unless, in addition to any other elements for recovery of damages, such person can show that—

No person who acquires property or an interest therein after the date of enactment of the Act in an area surrounding an airport with respect to which a noise exposure map has been submitted under section 103 of the Act shall be entitled to recover damages with respect to the noise attributable to such airport if such person had actual or constructive knowledge of the existence of such noise exposure map unless, in addition to any other elements for recovery of damages, such person can show that—

(i) A significant change in the type or frequency of aircraft operations at the airport; or
(ii) A significant change in the airport layout; or
(iii) A significant change in the flight patterns; or
(iv) A significant increase in nighttime operations; occurred after the date of the acquisition of such property or interest therein and that the damages for which recovery is sought have resulted from any such change or increase."

(f)(2) Title 49 section 47506(b) further provides:

That for this purpose, “constructive knowledge” shall be imputed, at a minimum, to any person who acquires property or an interest therein in an area surrounding an airport after the date of enactment of the Act if—

(i) Prior to the date of such acquisition, notice of the existence of a noise exposure map for such area was published at least three times in a newspaper of general circulation in the county in which such property is located; or
(ii) A copy of such noise exposure map is furnished to such person at the time of such acquisition.

(g) For this purpose, the term significant in paragraph (f) of this section means that change or increase in one or more of the four factors which results in a "substantial new noncompatible use" as defined in §150.21(d), affecting the property in issue. Responsibility for applying or interpreting this provision with respect to specific properties rests with local government.

§150.23 Noise compatibility programs.

(a) Any airport operator who has submitted an acceptable noise exposure map under §150.21 may, after FAA notice of acceptability and other consultation and public procedure specified under paragraphs (b) and (c) of this section, as applicable, submit to the Regional Airports Division Manager five copies of a noise compatibility program.

(b) An airport operator may submit the noise compatibility program at the same time as the noise exposure map. In this case, the Regional Airports Division Manager will not begin the statutory 180-day review period (for the program) until after FAA reviews the noise exposure map and finds that it and its supporting documentation are in compliance with the applicable requirements.

(c) Each noise compatibility program must be developed and prepared in accordance with appendix B of this part, or an FAA approved equivalent, and in consultation with FAA regional officials, the officials of the state and of any public agencies and planning agencies whose area, or any portion or whose area, of jurisdiction within the Ldn 65 dB noise contours is depicted on the noise exposure map, and other Federal officials having local responsibility of land uses depicted on the map. Consultation with FAA regional officials shall include, to the extent practicable, informal agreement from FAA on proposed new or modified flight procedures. For air carrier airports, consultation must include any air carriers and, to the extent practicable, other aircraft operators using the airport. For other airports, consultation must include, to the extent practicable, aircraft operators using the airport.

(d) Prior to and during the development of a program, and prior to submission of the resulting draft program to the FAA, the airport operator shall afford adequate opportunity for the active and direct participation of the States, public agencies and planning agencies in the areas surrounding the airport, aeronautical users of the airport, the airport operator, and the general public to submit their views, data, and comments on the formulation and adequacy of that program. Prior to submitting the program to the FAA, the airport operator shall also provide notice and the opportunity for a public hearing.

(e) Each noise compatibility program submitted to the FAA must consist of at least the following:

1. A copy of the noise exposure map and its supporting documentation as found in compliance with the applicable requirements by the FAA, per §150.21(c).

2. A description and analysis of the alternative measures considered by the airport operator in developing the program, together with a discussion of why each rejected measure was not included in the program.

3. Program measures proposed to reduce or eliminate present and future noncompatible land uses and a description of the relative contribution of each of the proposed measures to the overall effectiveness of the program.

4. A description of public participation and the consultation with officials of public agencies and planning agencies in areas surrounding the airport, FAA regional officials and other Federal officials having local responsibility for land uses depicted on the map, any air carriers and other users of the airport.

5. The actual or anticipated effect of the program on reducing noise exposure to individuals and noncompatible land uses and preventing the introduction of additional noncompatible uses within the area covered by the noise exposure map. The effects must be based on expressed assumptions concerning the type and frequency of aircraft operations, number of nighttime operations, flight patterns, airport layout including planned airport development, planned land use changes, and demographic changes within the Ldn 65 dB noise contours.

6. A description of how the proposed future actions may change any noise control or compatibility plans or actions previously adopted by the airport proprietor.

7. A summary of the comments at any public hearing on the program and a copy of all written material submitted to the operator under paragraphs (c) and (d) of this section, together with the operator's response and disposition of those comments and materials to demonstrate the program is feasible and reasonably consistent with obtaining the objectives of airport noise compatibility planning under this part.

8. The period covered by the program, the schedule for implementation of the program, the persons responsible for implementation of each measure in the program, and, for each measure, documentation supporting the feasibility of implementation, including any essential governmental actions, costs, and anticipated sources of funding, that will demonstrate that the program is reasonably consistent with achieving the goals of airport noise compatibility planning under this part.

9. Provision for revising the program if made necessary by revision of the noise exposure map.

§150.31 Preliminary review: Acknowledgments.

(a) Upon receipt of a noise compatibility program submitted under §150.23, the Regional Airports Division Manager acknowledges to the airport operator receipt of the program and conducts a preliminary review of the submission.

(b) If, based on the preliminary review, the Regional Airports Division Manager finds that the submission does not conform to the requirements of this part, he disapproves and returns the unacceptable program to the airport operator for reconsideration and development of a program in accordance with this part.

(c) If, based on the preliminary review, the Regional Airports Division Manager finds that the program conforms to the requirements of this part, the Regional Airports Division Manager publishes in the FEDERAL REGISTER a notice of receipt of the program for comment which indicates the following:

(1) The airport covered by the program, and the date of receipt.

(2) The availability of the program for examination in the offices of the Regional Airports Division Manager and the airport operator.

(3) That comments on the program are invited and, will be considered by the FAA.

(d) The date of signature of the published notice of receipt starts the 180-day approval period for the program.


§150.33 Evaluation of programs.

(a) The FAA conducts an evaluation of each noise compatibility program and, based on that evaluation, either approves or disapproves the program. The evaluation includes consideration of proposed measures to determine whether they—

(1) May create an undue burden on interstate or foreign commerce (including unjust discrimination);

(2) Are reasonably consistent with obtaining the goal of reducing existing noncompatible land uses and preventing the introduction of additional noncompatible land uses; and

(3) Include the use of new or modified flight procedures to control the operation of aircraft for purposes of noise control, or affect flight procedures in any way.

(b) The evaluation may also include an evaluation of those proposed measures to determine whether they may adversely affect the exercise of the authority and responsibilities of the Administrator under the Federal Aviation Act of 1958, as amended.

(c) To the extent considered necessary, the FAA may—

(1) Confer with the airport operator and other persons known to have information and views material to the evaluation;

(2) Explore the objectives of the program and the measures, and any alternative measures, for achieving the objectives.

(3) Examine the program for developing a range of alternatives that would eliminate the reasons, if any, for disapproving the program.

(4) Convene an informal meeting with the airport operator and other persons involved in developing or implementing the program for the purposes of gathering all facts relevant to the determination of approval or disapproval of the program and of discussing any needs to accommodate or modify the program as submitted.

(d) If requested by the FAA, the airport operator shall furnish all information needed to complete FAA's review under (c).

(e) An airport operator may, at any time before approval or disapproval of a program, withdraw or revise the program. If the airport operator withdraws or revises the program or indicates to the Regional Airports Division Manager, in writing, the intention to revise the program, the Regional Airports Division Manager terminates the evaluation and notifies the airport operator of that action. That termination cancels the 180-day review period. The FAA does not evaluate a second program for any airport until any previously submitted program has been withdrawn or a determination on it is issued. A new evaluation is commenced upon receipt of a revised program, and a new 180-day approval period is begun, unless the Regional Airports Division Manager finds that the modification made, in light of the overall revised program, can be
§150.35 Determinations; publications; effectivity.

(a) The FAA issues a determination approving or disapproving each airport noise compatibility program (and revised program). Portions of a program may be individually approved or disapproved. No conditional approvals will be issued. A determination on a program acceptable under this part is issued within 180 days after the program is received under §150.23 of this part or it may be considered approved, except that this time period may be exceeded for any portion of a program relating to the use of flight procedures for noise control purposes. A determination on portions of a program covered by the exceptions to the 180-day review period for approval will be issued within a reasonable time after receipt of the program. Determinations relating to the use of any flight procedure for noise control purposes may be issued either in connection with the determination on other portions of the program or separately. Except as provided by this paragraph, no approval of any noise compatibility program, or any portion of a program, may be implied in the absence of the FAA's express approval.

(b) The Administrator approves programs under this part, if—

(1) It is found that the program measures to be implemented would not create an undue burden on interstate or foreign commerce (including any unjust discrimination) and are reasonably consistent with achieving the goals of reducing existing noncompatible land uses around the airport and of preventing the introduction of additional noncompatible land uses;

(2) The program provides for revision if made necessary by the revision of the noise map; and

(3) Those aspects of programs relating to the use of flight procedures for noise control can be implemented within the period covered by the program and without—

   (i) Reducing the level of aviation safety provided;

   (ii) Derogating the requisite level of protection for aircraft, their occupants and persons and property on the ground;

   (iii) Adversely affecting the efficient use and management of the Navigable Airspace and Air Traffic Control Systems; or

   (iv) Adversely affecting any other powers and responsibilities of the Administrator prescribed by law or any other program, standard, or requirement established in accordance with law.

(c) When a determination is issued, the Regional Airports Division Manager notifies the airport operator and publishes a notice of approval or disapproval in the FEDERAL REGISTER identifying the nature and extent of the determination.

(d) Approvals issued under this part for a program or portion thereof become effective as specified therein and may be withdrawn when one of the following occurs:

   (1) The program or portion thereof is required to be revised under this part or under its own terms, and is not so revised;

   (2) If a revision has been submitted for approval, a determination is issued on the revised program or portion thereof, that is inconsistent with the prior approval.

   (3) A term or condition of the program, or portion thereof, or its approval is violated by the responsible government body.

   (4) A flight procedure or other FAA action upon which the approved program or portion thereof is dependent is subsequently disapproved, significantly altered, or rescinded by the FAA.

   (5) The airport operator requests rescission of the approval.

   (6) Impacts on flight procedures, air traffic management, or air commerce occur which could not be foreseen at the time of approval.

A determination may be sooner rescinded or modified for cause with at least 30 days written notice to the airport operator of the FAA's intention to rescind or modify the determination for the reasons stated in the notice. The airport operator may, during the 30-day period, submit to the Regional Airports Division Manager for consideration any reasons and circumstances why the determination should not be rescinded or modified on the basis stated in the notice of intent. Thereafter, the FAA either rescinds or modifies the determination consistent with the notice or withdraws the notice of intent and terminates the action.
(e) Determinations may contain conditions which must be satisfied prior to implementation of any portion of the program relating to flight procedures affecting airport or aircraft operations.

(f) Noise exposure maps for current and forecast year map conditions that are submitted and approved with noise compatibility programs are considered to be the new FAA accepted noise exposure maps for purposes of part 150.


Appendix A to Part 150—Noise Exposure Maps

PART A—GENERAL

Sec. A150.1 Purpose.
Sec. A150.3 Noise descriptors.
Sec. A150.5 Noise measurement procedures and equipment.

PART B—NOISE EXPOSURE MAP DEVELOPMENT

Sec. A150.101 Noise contours and land usages.
Sec. A150.103 Use of computer prediction model.
Sec. A150.105 Identification of public agencies and planning agencies.

PART C—MATHEMATICAL DESCRIPTIONS

Sec. A150.201 General.
Sec. A150.203 Symbols.
Sec. A150.205 Mathematical computations.

PART A—GENERAL

Sec. A150.1 Purpose.
Sec. A150.3 Noise descriptors.

(a) This appendix establishes a uniform methodology for the development and preparation of airport noise exposure maps. That methodology includes a single system of measuring noise at airports for which there is a highly reliable relationship between projected noise exposure and surveyed reactions of people to noise along with a separate single system for determining the exposure of individuals to noise. It also identifies land uses which, for the purpose of this part are considered to be compatible with various exposures of individuals to noise around airports.

(b) This appendix provides for the use of the FAA’s Integrated Noise Model (INM) or an FAA approved equivalent, for developing standardized noise exposure maps and predicting noise impacts. Noise monitoring may be utilized by airport operators for data acquisition and data refinement, but is not required by this part for the development of noise exposure maps or airport noise compatibility programs. Whenever noise monitoring is used, under this part, it should be accomplished in accordance with Sec. A150.5 of this appendix.

Sec. A150.5 Noise measurement procedures and equipment.

(a) Sound levels must be measured or analyzed with equipment having the “A” frequency weighting, filter characteristics, and the “slow response” characteristics as defined in International Electrotechnical Commission (IEC) Publication No. 179, entitled “Precision Sound Level Meters” as incorporated by reference in part 150 under §150.11. For purposes of this part, the tolerances allowed for general purpose, type 2 sound level meters in IEC 179, are acceptable.

(b) Noise measurements and documentation must be in accordance with accepted acoustical measurement methodology, such as those described in American National Standards Institute publication ANSI 51.13, dated 1971 as revised 1973, entitled “ANS—Methods for the Measurement of Sound Pressure Levels”; ARP No. 796, dated 1969, entitled “Measurement of Aircraft Exterior Noise in the Field”; “Handbook of Noise Measurement,” Ninth Ed. 1980, by Arnold P.G.
Peterson; or “Acoustic Noise Measurement,” dated Jan., 1979, by J.R. Hassell and K. Zaveri. For purposes of this part, measurements intended for comparison to a State or local standard or with another transportation noise source (including other aircraft) must be reported in maximum A-weighted sound levels (LAM); for computation or validation of the yearly day-night average level (Ldn), measurements must be reported in sound exposure level (LAE), as defined in Sec. A150.205 of this appendix.

**PART B—NOISE EXPOSURE MAP DEVELOPMENT**

Sec. A150.101 Noise contours and land usages.

(a) To determine the extent of the noise impact around an airport, airport proprietors developing noise exposure maps in accordance with this part must develop Ldn contours. Continuous contours must be developed for YDNL levels of 65, 70, and 75 (additional contours may be developed and depicted when appropriate). In those areas where YDNL values are 65 YDNL or greater, the airport operator shall identify land uses and determine land use compatibility in accordance with the standards and procedures of this appendix.

(b) Table 1 of this appendix describes compatible land use information for several land uses as a function of YDNL values. The ranges of YDNL values in Table 1 reflect the statistical variability for the responses of large groups of people to noise. Any particular level might not, therefore, accurately assess an individual’s perception of an actual noise environment. Compatible or noncompatible land use is determined by comparing the predicted or measured YDNL values at a site with the values given. Adjustments or modifications of the descriptions of the land-use categories may be desirable after consideration of specific local conditions.

(c) Compatibility designations in Table 1 generally refer to the major use of the site. If other uses with greater sensitivity to noise are permitted by local government at a site, a determination of compatibility must be based on that use which is most adversely affected by noise. When appropriate, noise level reduction through incorporation of sound attenuation into the design and construction of a structure may be necessary to achieve compatibility.

(d) For the purpose of compliance with this part, all land uses are considered to be compatible with noise levels less than Ldn 65 dB. Local needs or values may dictate further delineation based on local requirements or determinations.

(e) Except as provided in (f) below, the noise exposure maps must also contain and identify:

1. Runway locations.
2. Flight tracks.
3. Noise contours of Ldn 65, 70, and 75 dB resulting from aircraft operations.
4. Outline of the airport boundaries.
5. Noncompatible land uses within the noise contours, including those within the Ldn 65 dB contours. (No land use has to be identified as noncompatible if the self-generated noise from that use and/or the ambient noise from other nonaircraft and nonairport uses is equal to or greater than the noise from aircraft and airport sources.)
6. Location of noise sensitive public buildings (such as schools, hospitals, and health care facilities), and properties on or eligible for inclusion in the National Register of Historic Places.
7. Locations of any aircraft noise monitoring sites utilized for data acquisition and refinement procedures.
8. Estimates of the number of people residing within the Ldn 65, 70, and 75 dB contours.
9. Depiction of the required noise contours over a land use map of a sufficient scale and quality to discern streets and other identifiable geographic features.

(f) Notwithstanding any other provision of this part, noise exposure maps prepared in connection with studies which were either Federally funded or Federally approved and which commenced before October 1, 1981, are not required to be modified to contain the following items:

1. Flight tracks depicted on the map.
2. Use of ambient noise to determine land use compatibility.
3. The Ldn 70 dB noise contour and data related to Ldn 70 dB contour. When determinations on land use compatibility using Table 1 differ between Ldn 65-70 dB and the Ldn 70-75 dB, determinations should either use the more conservative Ldn 70-75 dB column or reflect determinations based on local needs and values.
4. Estimates of the number of people residing within the Ldn 65, 70, and 75 dB contours.

Table 1—Land Use Compatibility* With Yearly Day-Night Average Sound Levels

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https://www.ecfr.gov/cgi-bin/text-idx?SID=3a595ad81d12ab09c5eb75cc25b2100a&mc=tr... 5/23/2017
<table>
<thead>
<tr>
<th>Land use</th>
<th>Yearly day-night average sound level ($L_{dn}$) in decibels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below 65</td>
</tr>
<tr>
<td><strong>RESIDENTIAL</strong></td>
<td></td>
</tr>
<tr>
<td>Residential, other than mobile homes and transient lodgings</td>
<td>Y</td>
</tr>
<tr>
<td>Mobile home parks</td>
<td>Y</td>
</tr>
<tr>
<td>Transient lodgings</td>
<td>Y</td>
</tr>
<tr>
<td><strong>PUBLIC USE</strong></td>
<td></td>
</tr>
<tr>
<td>Schools</td>
<td>Y</td>
</tr>
<tr>
<td>Hospitals and nursing homes</td>
<td>Y</td>
</tr>
<tr>
<td>Churches, auditoriums, and concert halls</td>
<td>Y</td>
</tr>
<tr>
<td>Governmental services</td>
<td>Y</td>
</tr>
<tr>
<td>Transportation</td>
<td>Y</td>
</tr>
<tr>
<td>Parking</td>
<td>Y</td>
</tr>
<tr>
<td><strong>COMMERCIAL USE</strong></td>
<td></td>
</tr>
<tr>
<td>Offices, business and professional</td>
<td>Y</td>
</tr>
<tr>
<td>Wholesale and retail—building materials, hardware and farm equipment</td>
<td>Y</td>
</tr>
<tr>
<td>Retail trade—general</td>
<td>Y</td>
</tr>
<tr>
<td>Utilities</td>
<td>Y</td>
</tr>
<tr>
<td>Communication</td>
<td>Y</td>
</tr>
<tr>
<td><strong>MANUFACTURING AND PRODUCTION</strong></td>
<td></td>
</tr>
<tr>
<td>Manufacturing, general</td>
<td>Y</td>
</tr>
<tr>
<td>Photographic and optical</td>
<td>Y</td>
</tr>
<tr>
<td>Agriculture (except livestock) and forestry</td>
<td>Y</td>
</tr>
<tr>
<td>Livestock farming and breeding</td>
<td>Y</td>
</tr>
<tr>
<td>Mining and fishing, resource production and extraction</td>
<td>Y</td>
</tr>
<tr>
<td><strong>RECREATIONAL</strong></td>
<td></td>
</tr>
<tr>
<td>Outdoor sports arenas and spectator sports</td>
<td>Y</td>
</tr>
<tr>
<td>Outdoor music shells, amphitheaters</td>
<td>Y</td>
</tr>
<tr>
<td>Nature exhibs and zoos</td>
<td>Y</td>
</tr>
<tr>
<td>Amusements, parks, resorts and camps</td>
<td>Y</td>
</tr>
<tr>
<td>Golf courses, riding stables and water recreation</td>
<td>Y</td>
</tr>
</tbody>
</table>

Numbers in parentheses refer to notes.

*The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

**KEY TO TABLE 1**


Y (Yes) = Land Use and related structures compatible without restrictions.

N (No) = Land Use and related structures are not compatible and should be prohibited.

NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

**NOTES FOR TABLE 1**

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.

Sec. A150.103 Use of computer prediction model.

(a) The airport operator shall acquire the aviation operations data necessary to develop noise exposure contours using an FAA approved methodology or computer program, such as the Integrated Noise Model (INM) for airports or the Heliport Noise Model (HNM) for heliports. In considering approval of a methodology or computer program, key factors include the demonstrated capability to produce the required output and the public availability of the program or methodology to provide interested parties the opportunity to substantiate the results.

(b) Except as provided in paragraph (c) of this section, the following information must be obtained for input to the calculation of noise exposure contours:

1. A map of the airport and its environs at an adequately detailed scale (not less than 1 inch to 2,000 feet) indicating runway length, alignments, landing thresholds, takeoff start-of-roll points, airport boundary, and flight tracks out to at least 30,000 feet from the end of each runway.

2. Airport activity levels and operational data which will indicate, on an annual average-daily-basis, the number of aircraft, by type of aircraft, which utilize each flight track, in both the standard daytime (0700-2200 hours local) and nighttime (2200-0700 hours local) periods for both landings and takeoffs.

3. For landings—glide slopes, glide slope intercept altitudes, and other pertinent information needed to establish approach profiles along with the engine power levels needed to fly that approach profile.

4. For takeoffs—the flight profile which is the relationship of altitude to distance from start-of-roll along with the engine power levels needed to fly that takeoff profile; these data must reflect the use of noise abatement departure procedures and, if applicable, the takeoff weight of the aircraft or some proxy for weight such as stage length.

5. Existing topographical or airspace restrictions which preclude the utilization of alternative flight tracks.

6. The government furnished data depicting aircraft noise characteristics (if not already a part of the computer program's stored data bank).

7. Airport elevation and average temperature.

(c) For heliports, the map scale required by paragraph (b)(1) of this section shall not be less than 1 inch to 2,000 feet and shall indicate heliport boundaries, takeoff and landing pads, and typical flight tracks out to at least 4,000 feet horizontally from the landing pad. Where these flight tracks cannot be determined, obstructions or other limitations on flight tracks in and out of the heliport shall be identified within the map areas out to at least 4,000 feet horizontally from the landing pad. For static operation (hover), the helicopter type, the number of daily operations based on an annual average, and the duration in minutes of the hover operation shall be identified. The other information required in paragraph (b) shall be furnished in a form suitable for input to the HNM or other FAA approved methodology or computer program.

Sec. A150.105 Identification of public agencies and planning agencies.

(a) The airport proprietor shall identify each public agency and planning agency whose jurisdiction or responsibility is either wholly or partially within the Ldn 65 dB boundary.

(b) For those agencies identified in (a) that have land use planning and control authority, the supporting documentation shall identify their geographic areas of jurisdiction.

PART C—MATHEMATICAL DESCRIPTIONS

Sec. A150.201 General.

The following mathematical descriptions provide the most precise definition of the yearly day-night average sound level ($L_{dn}$), the data necessary for its calculation, and the methods for computing it.

Sec. A150.203 Symbols.

The following symbols are used in the computation of $L_{dn}$:

<table>
<thead>
<tr>
<th>Measure (in dB)</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Sound Level, During Time T</td>
<td>$L_T$</td>
</tr>
<tr>
<td>Day-Night Average Sound Level (individual day)</td>
<td>$L_{dn}$</td>
</tr>
</tbody>
</table>
Sec. A150.205 Mathematical computations.

(a) Average sound level must be computed in accordance with the following formula:

\[ L_T = 10 \log_{10} \left( \frac{1}{T} \int_0^T L_{A(t)} \, dt \right) \]  

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where \( T \) is the length of the time period, in seconds, during which the average is taken; \( L_{A(t)} \) is the instantaneous time varying A-weighted sound level during the time period \( T \).

NOTE: When a noise environment is caused by a number of identifiable noise events, such as aircraft flyovers, average sound level may be conveniently calculated from the sound exposure levels of the individual events occurring within a time period \( T \):

\[ L_T = 10 \log_{10} \left( \frac{1}{T} \sum_{i=1}^{n} L_{AEi} \right) \]  

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where \( L_{AEi} \) is the sound exposure level of the \( i \)-th event, in a series of \( n \) events in time period \( T \), in seconds.

NOTE: When \( T \) is one hour, \( L_T \) is referred to as one-hour average sound level.

(b) Day-night average sound level (individual day) must be computed in accordance with the following formula:

\[ L_{dn} = 10 \log_{10} \left( \frac{1}{86400} \int_{0}^{2400} 10^{\frac{L_{A(t)}}{10}} \, dt + \int_{2400}^{3600} 10^{\frac{L_{A(t)}}{10}} \, dt \right) \]  

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Time is in seconds, so the limits shown in hours and minutes are actually interpreted in seconds. It is often convenient to compute day-night average sound level from the one-hour average sound levels obtained during successive hours.

(c) Yearly day-night average sound level must be computed in accordance with the following formula:

\[ L_{dn} = 10 \log_{10} \left( \frac{1}{365} \sum_{i=1}^{365} 10^{L_{dn_i}} \right) \]  

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where \( L_{dn_i} \) is the day-night average sound level for the \( i \)-th day out of one year.

(d) Sound exposure level must be computed in accordance with the following formula:

\[ L_{AE} = 10 \log_{10} \left( \frac{1}{t} \int_{t_1}^{t_2} 10^{\frac{L_{A(t)}}{10}} \, dt \right) \]  

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where \( t \) is one second and \( L_{A(t)} \) is the time-varying A-weighted sound level in the time interval \( t_1 \) to \( t_2 \).

The time interval should be sufficiently large that it encompasses all the significant sound of a designated event.

The requisite integral may be approximated with sufficient accuracy by integrating \( L_{A(t)} \) over the time interval during which \( L_{A(t)} \) lies within 10 decibels of its maximum value, before and after the maximum occurs.


Appendix B to Part 150—Noise Compatibility Programs
Sec. B150.1 Scope and purpose.

Sec. B150.3 Requirement for noise map.

Sec. B150.5 Program standards.

Sec. B150.7 Analysis of program alternatives.

Sec. B150.9 Equivalent programs.

Sec. B150.1 Scope and purpose.

(a) This appendix prescribes the content and the methods for developing noise compatibility programs authorized under this part. Each program must set forth the measures which the airport operator (or other person or agency responsible) has taken, or proposes to take, for the reduction of existing noncompatible land uses and the prevention of the introduction of additional noncompatible land uses within the area covered by the noise exposure map submitted by the operator.

(b) The purpose of a noise compatibility program is:

(1) To promote a planning process through which the airport operator can examine and analyze the noise impact created by the operation of an airport, as well as the costs and benefits associated with various alternative noise reduction techniques, and the responsible impacted land use control jurisdictions can examine existing and forecast areas of noncompatibility and consider actions to reduce noncompatible uses.

(2) To bring together through public participation, agency coordination, and overall cooperation, all interested parties with their respective authorities and obligations, thereby facilitating the creation of an agreed upon noise abatement plan especially suited to the individual airport location while at the same time not unduly affecting the national air transportation system.

(3) To develop comprehensive and implementable noise reduction techniques and land use controls which, to the maximum extent feasible, will confine severe aircraft YDNL values of Ldn 75 dB or greater to areas included within the airport boundary and will establish and maintain compatible land uses in the areas affected by noise between the Ldn 65 and 75 dB contours.

Sec. B150.3 Requirement for noise map.

(a) It is required that a current and complete noise exposure map and its supporting documentation as found in compliance with the applicable requirements by the FAA, per §150.21(c) be included in each noise compatibility program:

(1) To identify existing and future noncompatible land uses, based on airport operation and off-airport land uses, which have generated the need to develop a program.

(2) To identify changes in noncompatible uses to be derived from proposed program measures.

(b) If the proposed noise compatibility program would yield maps differing from those previously submitted to FAA, the program shall be accompanied by appropriately revised maps. Such revisions must be prepared in accordance with the requirements of Sec. A150.101(e) of appendix A and will be accepted by FAA in accordance with §150.35(f).

Sec. B150.5 Program standards.

Based upon the airport noise exposure and noncompatible land uses identified in the map, the airport operator shall evaluate the several alternative noise control actions and develop a noise compatibility program which—

(a) Reduces existing noncompatible uses and prevents or reduces the probability of the establishment of additional noncompatible uses;

(b) Does not impose undue burden on interstate and foreign commerce;

(c) Provides for revision in accordance with §150.23 of this part.

(d) Is not unjustly discriminatory.

(e) Does not derogate safety or adversely affect the safe and efficient use of airspace.

(f) To the extent practicable, meets both local needs and needs of the national air transportation system, considering tradeoffs between economic benefits derived from the airport and the noise impact.

(g) Can be implemented in a manner consistent with all of the powers and duties of the Administrator of FAA.

Sec. B150.7 Analysis of program alternatives.
(a) Noise control alternatives must be considered and presented according to the following categories:

(1) Noise abatement alternatives for which the airport operator has adequate implementation authority.

(2) Noise abatement alternatives for which the requisite implementation authority is vested in a local agency or political subdivision governing body, or a state agency or political subdivision governing body.

(3) Noise abatement options for which requisite authority is vested in the FAA or other Federal agency.

(b) At a minimum, the operator shall analyze and report on the following alternatives, subject to the constraints that the strategies are appropriate to the specific airport (for example, an evaluation of night curfews is not appropriate if there are no night flights and none are forecast):

(1) Acquisition of land and interests therein, including, but not limited to air rights, easements, and development rights, to ensure the use of property for purposes which are compatible with airport operations.

(2) The construction of barriers and acoustical shielding, including the soundproofing of public buildings.

(3) The implementation of a preferential runway system.

(4) The use of flight procedures (including the modifications of flight tracks) to control the operation of aircraft to reduce exposure of individuals (or specific noise sensitive areas) to noise in the area around the airport.

(5) The implementation of any restriction on the use of airport by any type or class of aircraft based on the noise characteristics of those aircraft. Such restrictions may include, but are not limited to—

   (i) Denial of use of the airport to aircraft types or classes which do not meet Federal noise standards;

   (ii) Capacity limitations based on the relative noisiness of different types of aircraft;

   (iii) Requirement that aircraft using the airport must use noise abatement takeoff or approach procedures previously approved as safe by the FAA;

   (iv) Landing fees based on FAA certificated or estimated noise emission levels or on time of arrival; and

   (v) Partial or complete curfews.

(6) Other actions or combinations of actions which would have a beneficial noise control or abatement impact on the public.

(7) Other actions recommended for analysis by the FAA for the specific airport.

(c) For those alternatives selected for implementation, the program must identify the agency or agencies responsible for such implementation, whether those agencies have agreed to the implementation, and the approximate schedule agreed upon.

Sec. B150.9 Equivalent programs.

(a) Notwithstanding any other provision of this part, noise compatibility programs prepared in connection with studies which were either Federally funded or Federally approved and commenced before October 1, 1981, are not required to be modified to contain the following items:

(1) Flight tracks.

(2) A noise contour of $L_{dn}$ 70 dB resulting from aircraft operations and data related to the $L_{dn}$ 70 dB contour. When determinations on land use compatibility using Table 1 of appendix A differ between $L_{dn}$ 65-70 dB and $L_{dn}$ 70-75 dB, the determinations should either use the more conservative $L_{dn}$ 70-75 dB column or reflect determinations based on local needs and values.

(3) The categorization of alternatives pursuant to Sec. B150.7(a), although the persons responsible for implementation of each measure in the program must still be identified in accordance with §150.23(e)(8).

(4) Use of ambient noise to determine land use compatibility.

(b) Previously prepared noise compatibility program documentation may be supplemented to include these and other program requirements which have not been excepted.
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