Appendix D – Stakeholder Consultation

This appendix includes:

- Appendix D.1 – Planning Advisory Committee (PAC) (Meeting presentations and summaries)
- Appendix D.2 – Public open house presentations and newsletter
- Appendix D.3 – Public Materials (project brochure, technical information papers)

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D.1 Planning Advisory Committee

The Part 150 Update process benefited from the creation and participation of a Planning Advisory Committee (PAC), which served several important functions:

- Represented a broad range of stakeholder groups
- Received information about the Study and shared it with their constituencies
- Reviewed information and provided timely input to the Study
- In some cases, provided technical assistance to the Study Team

In order for the PAC to be effective and to be representative of all of the key positions involved in aircraft noise issues, GIAA composed a diverse group of key stakeholders including, but not limited to, aircraft operators, airport tenants, the fixed-based operator, flight school operators, affected jurisdictions, land use planners, and FAA Air Traffic Control. While representation needed to be broad, the PAC needed to remain a reasonable size so that deliberations would be efficient. The FAA Airport District Office also participated on the PAC in an advisory role.

The following sections provide the materials provided to the PAC throughout the course of this project.

Meeting Minutes

Meeting Name
GUM Part 150 Study – Planning Advisory Committee (PAC) Meeting #1

Attendees
See Table Below

Meeting Date
11/8/2023 (Guam)

Time
9am – 11am (Guam)

Location
Microsoft Teams Meeting

Project Name
GUM, 14 CFR Part 150 Noise Compatibility Study and Update to Noise Exposure Maps

Project Number
GIAA-S23-002

AECOM Project Number
60709218

Prepared by
G. Mayer

Meeting Attendees	
Name	**Organization**
Audie Artero	A.B. Won Pat International Airport Authority, Guam (GIAA)
Pete Camacho	A.B. Won Pat International Airport Authority, Guam (GIAA)
Trini Cotelesse	A.B. Won Pat International Airport Authority, Guam (GIAA)
Rolenda Faasuamalie	A.B. Won Pat International Airport Authority, Guam (GIAA)
Dr. Ricky Hernandez	A.B. Won Pat International Airport Authority, Guam (GIAA)
Ray Quintanilla	A.B. Won Pat International Airport Authority, Guam (GIAA)
Juan Reyes	A.B. Won Pat International Airport Authority, Guam (GIAA)
Lynn Keeley	AECOM
Elliott Lindgren	AECOM
Greg Mayer	AECOM
Chris Anderson	Andersen Air Force Base (AAFB)
Gino Pangilinan	Andersen Air Force Base (AAFB)
Alan Chen	E.M. Chen & Associates
Kevin Nishimura	Federal Aviation Administration (FAA)
Ryan Castillo	Federal Aviation Administration (FAA)
Kandyce Wantanabe	Federal Aviation Administration (FAA)
Celine Cruz	Guam Department of Land Management (DLM)
Sonega Gogue	Guam Department of Land Management (DLM)
Grace Vergara	Guam Department of Land Management (DLM)
Bob Mentzer	HMMH
Kevin Parker	HMMH
Gene Reindel	HMMH
Frank Santos	Transportation Management Group (TMG), Guam
Fred Tupaz	Transportation Management Group (TMG), Guam
Buenvenido Barcinas	United Airlines
Errol Lee	United Airlines
Justin Marion	United Airlines
Stacy Quintanilla	United Airlines

Lynn Keeley (AECOM) started the meeting, welcomed the Planning Advisory Committee, and introduced Dr. Ricky Hernandez, Deputy Executive Manager A.B. Won Pat International Airport Authority, Guam (GIAA). Dr. Hernandez discussed the importance of an airport noise compatibility study, why the Antonio B. Won Pat International Airport (Airport) is currently participating in one and emphasized the value of the Planning Advisory Committee (PAC) participation throughout the Part 150 process. Dr. Hernandez recognized the GIAA staff leading this study (Audie Artero & Ray Quintanilla, among others) along with representatives from the Transportation Management Group (TMG), Guam (Frank Santos and Fred Tupaz).

Lynn Keeley introduced the study team which includes AECOM, HMMH, and E.M. Chen & Associates. She then discussed the organizations that make up the PAC which include individuals from the Federal Aviation Administration (FAA) Airport Districts Office (ADO), FAA Airport Traffic Control Tower (ATCT), United Airlines, Japan Airlines, the United Parcel Service (UPS), FedEx, Aviation Concepts Inc. (ACI), the Guam Department of Land Management (DLM), and Andersen Air Force Base (AAFB). Meeting attendees introduced themselves.

Lynn Keeley introduced Gene Reindel (HMMH) who discussed the roles and responsibilities of the study stakeholders. Stakeholders include the FAA, airport operators, the local government, aircraft operators, air travelers and shippers, and current and potential future residents.

The roles and responsibilities of the Airport Sponsor/GIAA, the FAA, the consultant team(s), the PAC, and the public were also reviewed:

- GIAA will be responsible to certify that the documentation is true and accurate and will recommend measures to reduce noncompatible land use.
- FAA must certify that the document meets federal regulations and guidelines and approval or disapproval of the Airport's recommended measures.
- The consultant team will prepare the noise analysis, provide the documentation and support community and stakeholder outreach.
- The PAC will review study documentation, and provide input, advice, and guidance related to noise exposure map and noise compatibility program development.

Lynn then gave a brief history of the Airport. She mentioned that between 2003 and 2004, the Airport's first Part 150 Noise Compatibility Study was approved by the FAA, the Noise Exposure Maps were accepted by the FAA and the Residential Sound Solutions Program (RSSP) was established.

Bob Mentzer (HMMH) then gave an overview of the noise terminology that will be used throughout the study and stated that noise is assessed and perceived in A-weighted decibels (dB). He explained four unique aircraft noise metrics that the Part 150 Study will focus on:

1. Maximum Noise Level (L_{max}) – The maximum noise level during a specific noise event, e.g., aircraft operation
2. Sound Exposure Level (SEL) – The noise level of an entire aircraft noise event normalized to 1 second, allowing for easier comparison between events and takes into account noise level and the duration of the event
3. Equivalent Sound Level (L_{eq}) – The representative noise level for a specified period of time, e.g., 1 hour, 24 hours.
4. Day-Night Average Sound Level (DNL) – The average noise level over a 24-hour period, with an added 10 dB weighting to events between 10 p.m. and 7 a.m.

DNL is the land use compatibility noise metric required by the FAA. FAA considers all land uses with aircraft noise levels less than DNL 65 dB as compatible with aircraft noise. So, although we will evaluate land uses well outside of the airport, the focus will be on land uses within the DNL 65 dB contour.

Gene then discussed the history of Airport Noise Compatibility Planning in accordance with Title 14 of the Code of Federal Regulations (CFR) Part 150 and how this is a voluntary process. Over 250 airports have participated in the Part 150 program as it is a way to obtain federal funding for implementing approved noise compatibility measures. Gene also discussed the study process which includes the study initiation (current progress of this study), verification, development of the Noise Exposure Maps (NEMs) and

development of the Noise Compatibility Program (NCP). He mentioned that there is stakeholder engagement and public outreach throughout the study process.

Gene then explained the development of Noise Exposure Maps (NEMs). He mentioned that NEMs must include detailed descriptions of the airport layout, aircraft operations, aircraft noise exposure in terms of DNL, and land uses within the DNL 65+ dB contours. He stated that NEMs must address an existing year (the year of submittal) and a five-year forecast. The Airport expects to submit the NEMs in 2024, the forecast year would then be 2029. Forecast operations will be used and will be scaled for consistency with the most recent Master Plan Update for the Airport.

Bob noted that the team is collecting operations data, meteorological data, and terrain data which is used to adjust the distance between the aircraft in flight and the location on the ground where noise levels are being evaluated. Flight track and aircraft identification data for July 2022 – June 2023, inclusively, is being used to develop the detailed fleet mix, runway use, predominant flight paths and use of those flight paths by the aircraft operators for noise modeling. Noise model inputs and assumptions will be documented in detail and will be shared with the Airport and the PAC for feedback in advance of the modeling process.

Bob discussed that the FAA requires a study area map that extends at least 30,000' from each runway end; however, the land uses around the DNL 65+ dB will be examined more closely when the contours are created. Existing and future land use maps will be developed and will show DNL 65, 70 and 75 dB contours. When noncompatible land uses are identified, the second phase of the study will begin; the Noise Compatibility Planning (NCP) phase, to address those identified non-compatible land uses.

In terms of the NCP, there are three major categories of potential actions:

- Noise abatement measures – attempts to reduce noise at the source
- Compatible land use measures – attempts to mitigate noise at the receiver and restrict future non-compatible land use
- Program management/administrative measures – those measures required to implement and monitor the Noise Compatibility Program

The FAA accepts the NCP as compliant with Part 150 standards and the FAA reviews and either approves or disapproves recommendations to address non-compatible land uses on a measure-by-measure basis.

Gene then discussed noise abatement strategies which include arrival/departure procedures; flight tracks; runway use; airport layout changes; and, if applicable, use restrictions. Land use strategies include land acquisition, avigation easements, sound insulation, and land use controls. Programmatic strategies include implementation, promotion, and monitoring. Gene then discussed the four-step NCP development process:

- Identify Non-compatible Land Use
- Consider Noise Abatement Strategies
- Consider Land Use Strategies
- Consider Programmatic Strategies

Bob reviewed the existing measures in the 2003 NCP and the FAA approval/disapproval status of each measure. For noise abatement, 11 of the 13 measures were disapproved by FAA pending additional information from the Airport. For land use measures, 6 of the 8 recommended measures were approved and there were three remedial land use measures and four programmatic measures approved by FAA. As part of this study, the team will review these recommendations, provide an update as to their status, and assist the Airport in determining whether to eliminate, continue as is, or continue with modifications for each of the current NCP measures.

Bob then talked about the existing and future operational data being compiled for air carrier, air taxi, general aviation, and military operations. There are also local operations (aircraft that operate in local traffic patterns, operations departing or arriving from airports in a 20-mile radius, operations that simulate instrument approaches) and itinerant operations (all non-local operations) at the Airport.

Existing runway usage at the Airport was presented. For arrivals, over 86% of aircraft arrive using Runway 6L (from the south) while approximately 83% of departing aircraft also depart using Runway 6L (to the north). He explained that aircraft approaches from the north are typically lighter aircraft and the heavier aircraft arriving from the south are aligned with the runways well beyond the study area. In terms of departures, both heavy and light aircraft depart to the north.

Lynn Keeley then discussed the proposed project schedule. She stated that in May 2024, the PAC will reconvene to discuss aviation forecasts, noise modeling results, and a presentation of the draft NEM Update. The PAC will then reconvene in February 2025 to evaluate the results of the proposed NCP measures and again in August 2025 to discuss the recommended NCP measures and present the draft NCP update.

Between meetings, the PAC will be provided with information for review and input. There will be three public workshops to engage and inform the public during different steps of the process: (1) after the second PAC meeting to present the draft NEM, (2) after the third PAC meeting to present the proposed NCP measures and solicit additional input on potential measures, and (3) after the fourth PAC meeting to present the Airport-recommended measures in the NCP.

Lynn stated that the second PAC meeting is anticipated to be in-person, at a location yet to be determined. Primary topics for this meeting will be:

- Aircraft operations/noise modeling
- Overview of noise modeling process and inputs
- Land use analysis
- Draft NEMs

There were no additional questions or comments from members of the Airport, project team, or the PAC.

Dr. Ricky Hernandez thanked the project team, the PAC and the Airport for their efforts and asked members of the PAC to inform the project team if there are any other individuals from their respective organizations that should be invited to participate on the PAC. Since project materials will be distributed between meetings, it will be important that the information reach the right people.

AECOM concluded the meeting.

encl: PowerPoint Presentation

NOISE COMPATIBILITY PLANNING STUDY

Antonio B. Won Pat International Airport

Planning Advisory Committee Meeting #1

November 8, 2023

A.B. WON PAT INTERNATIONAL AIRPORT GUAM

1

Agenda

- Introductions
- Roles and Responsibilities
- Airport History
- Aircraft Noise Terminology
- Airport Noise Compatibility Planning
- Initial Noise Modeling Input Data
- Schedule and Meeting Topics
- Project Contacts
- PAC Member Discussion
- Wrap-up

2

Introductions – Study Team

Antonio B. Won Pat International Airport

A. B. Won Pat International Airport Authority, Guam (GIAA)

John M Quinata, Executive Manager

Dr. Ricky Hernandez, Deputy Executive Manager

Audie Artero, GIAA Project Manager

Transportation Management Group

Frank Santos
Fred Tupaz

Project Team

AECOM

Lynn Keeley
Project Manager

Elliott Lindgren
Project Director

Greg Mayer
Airport Planner

hmmh

Bob Mentzer
Technical Lead - Aircraft Noise Analysis

Gene Reindel
Technical Lead - FAR Part 150

Kevin Parker
Noise Analyst

EM Chen & Associates

Alan Chen
Local Project Manager

Introductions – Planning Advisory Committee (PAC)

FAA ADO Management

Gordon Wong
Carlos Salas

FAA Air Traffic Control Tower

Tim Cornelison

UPS

Lloyd Baker

Department of Land Management

Joseph M. Borja

FAA ADO Staff

Kandyce Watanabe, P.E.
Kevin Nishimura
Ryan Castillo

United

Justin Marion
Inam Amanullah

FedEx

Zeus Villaforte

Andersen Air Force Base

Chris Anderson
Gino Pangilinan

Japan Airlines

Robert Navarro

Aviation Concepts

Art Dawley

ROLES AND RESPONSIBILITIES

Airport Noise Compatibility

Stakeholder	Responsibilities
Federal government (FAA)	Regulate source noise emissions, air traffic control, funding, and safety oversight
Airport operators	Plan and implement noise compatibility measures
Local government	Compatible land use planning and control
Aircraft operators	Develop noise-sensitive schedules, cockpit procedures, and fleet improvements
Air travelers and shippers	Bear the costs (through ticket tax)
Current and potential residents	Seek to act in an informed manner

ROLES AND RESPONSIBILITIES

Part 150 Study

Airport / GIAA

- Project sponsor
- Certification that documentation is true and accurate
- Recommends measures to address noncompatible land uses

FAA

- Certification that the documentation meets federal regulations and guidelines
- Approval of Airport-recommended guidelines

Consultant Team

- Overall project management, documentation, and outreach
- Aircraft noise analysis and abatement planning
- Noise compatibility analysis and planning
- Aviation forecast and airfield analysis

PAC

- Review study inputs, assumptions, analyses, documentation, etc.
- Input, advice, and guidance related to NEM development

Public

- Provide input on study during comment period
- Review public draft documents

ROLES AND RESPONSIBILITIES

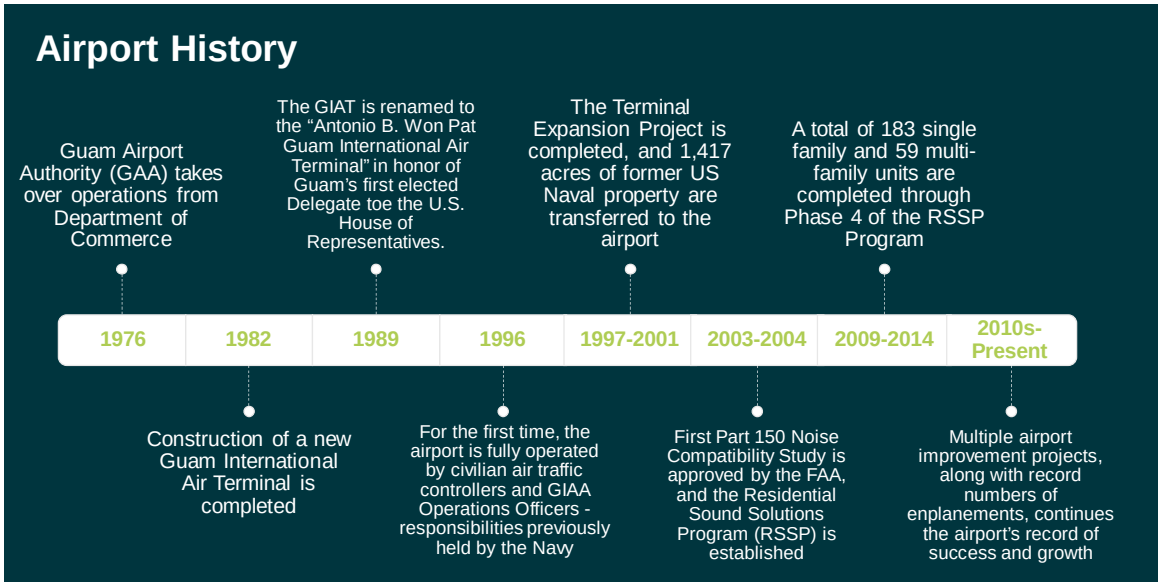
Planning Advisory Committee (PAC)

- The PAC is advisory to GIAA solely for purposes of the Airport Part 150 Study, including:
  - Review of study inputs, assumptions, analyses, documentation, etc.
  - Input, advice, and guidance related to NEM and NCP development
- PAC provides two-way communication between the committee and their respective organizations / constituents
- GIAA shall respect and consider PAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The PAC and GIAA recognize FAA is responsible for accepting NEM and NCP submissions and for approving NCP recommendations

PAC Participation Agreement

- Participation Agreement was sent with PAC invitations
  - Describes PAC's role, member responsibilities, participation expectations, etc.
- Four meetings anticipated - approximately one every six months for approximately two years
  - Agendas and background material will be provided in advance of each meeting
  - Dates and times will be sought that are convenient to a majority of members
  - Meetings are expected to be 1.5 -2 hours in length

Airport History

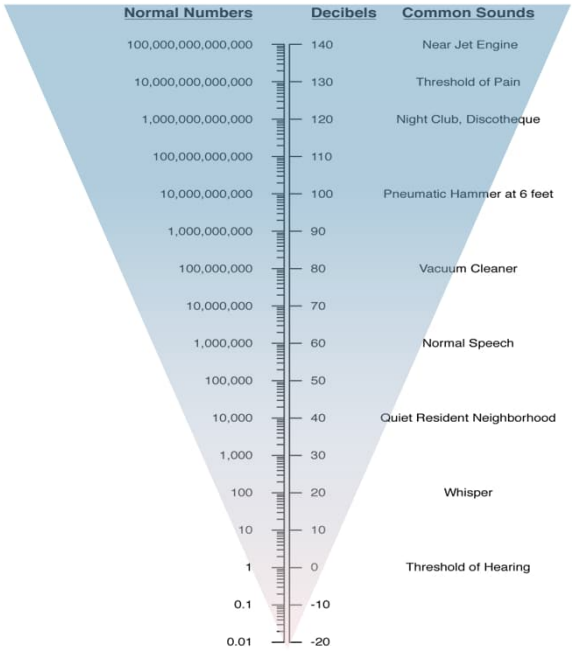


9

10

Noise Terminology

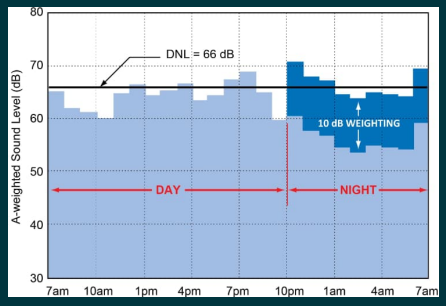
- Reported in A-weighted decibels (dB)
  - Logarithmic scale base 10
  - We hear sound pressures over a large range
  - We perceive sounds in decibels

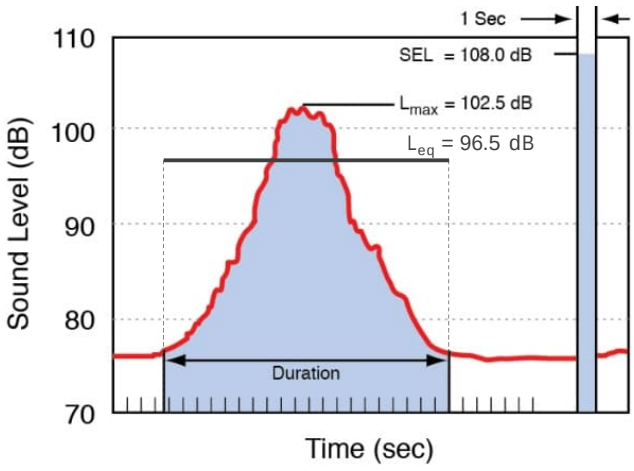


11

Noise Terminology

- Maximum Noise Level (L_{max})
- Sound Exposure Level (SEL)
- Equivalent Sound Level (L_{eq})
- Day-Night Average Sound Level (DNL)

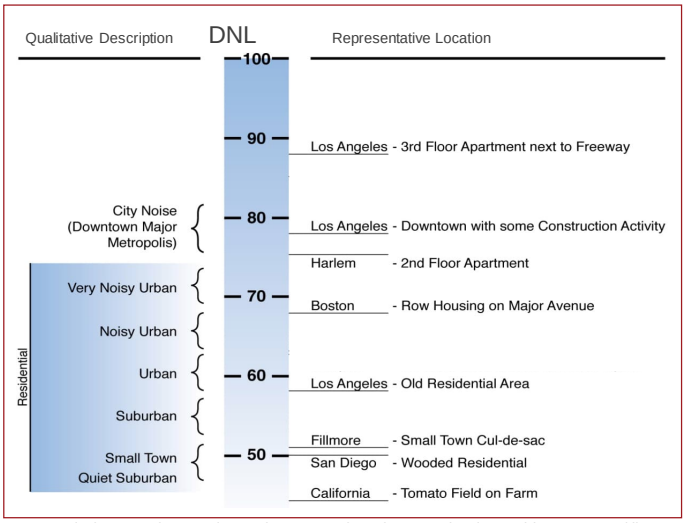




12

Noise Terminology

- FAA land use compatibility guidelines:
  - All land use is compatible with aircraft noise less than DNL 65 dB
  - Land use compatibility assessments use 5-dB contour bands
    - 65 to 70 dB
    - 70 to 75 dB
    - Greater than 75 dB

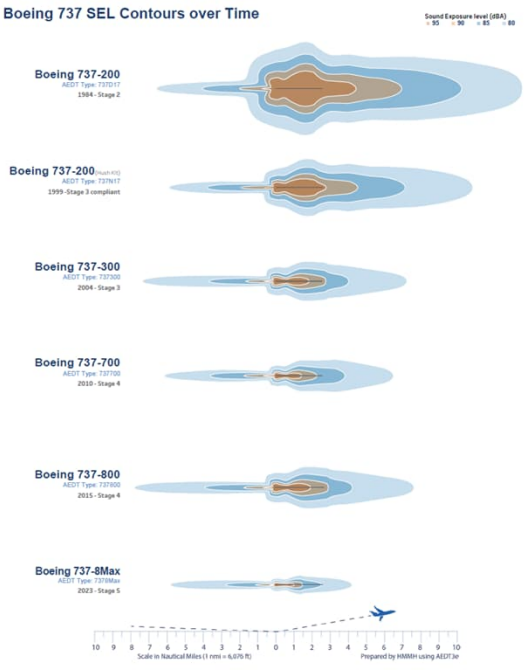


Source: United States Environmental Protection Agency, Information on Levels Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, p. 14.

13

Noise Terminology

- The sound exposure levels created by an aircraft overflight depend on its
  - Engine type
  - Thrust setting profile
  - Altitude profile
  - Airspeed profile
- These graphics compare a typical landing (from left) and takeoff (to right) of different aircraft types



14

Noise Terminology Summary

- The decibel is a complex logarithmic quantity based on sound pressure
- A-weighted decibels correlate well with how we hear
- Noise levels can be expressed many ways, including but not limited to:
  - Instantaneous maximum noise levels (Lmax)
  - Single event dose (SEL)
  - Long-duration exposure (DNL)
- Best metric to use depends on purpose
- FAA requires use of DNL for land use compatibility assessments (Part 150)
- Part 150 guidelines consider all land uses compatible below 65 dB DNL

15

Airport Noise Compatibility Planning

Title 14 of the Code of Federal Regulations Part 150

16

Airport Noise Compatibility Planning

- FAA created in response to Federal Aviation Safety and Noise Abatement Act of 1979 (ASNA)
- Codified under Title 14 of the Code of Federal Regulations Part 150
  - Formal *citation* is "14 CFR Part 150," informal is "Part 150"
- *Voluntary* FAA-defined process for airport noise studies
  - 250+ airports have participated
- *Why do airports participate*? Primary reasons include:
  - Provides access to FAA funding of some approved measures
  - Well-established, understood, accepted, and comprehensive process

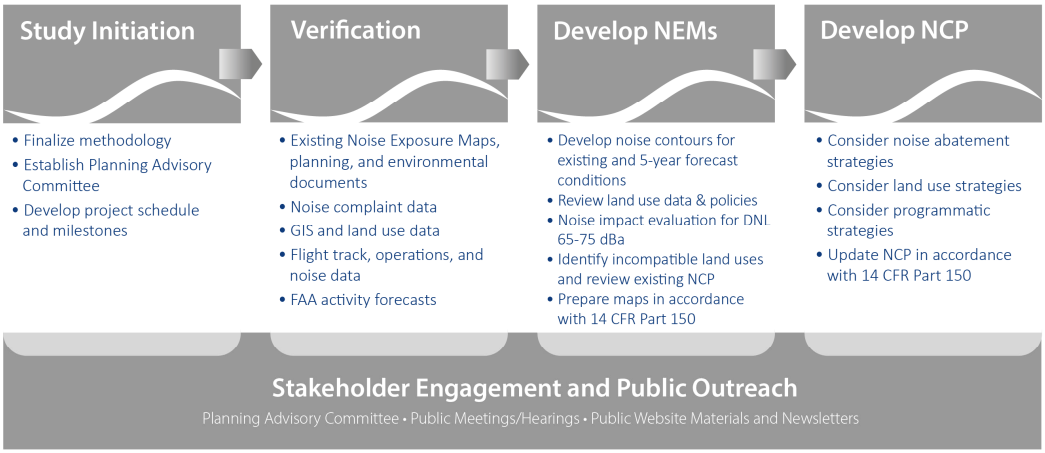
PART 150 OVERVIEW

Major Elements

- Two primary elements
  - Noise Exposure Map (NEM)
  - Noise Compatibility Program (NCP)
  - Detailed FAA guidance at www.faa.gov/airports/environmental/airport_noise/
- Consultation required with:
  - All local, state, and federal entities with control over land use within DNL 65+ dB
  - FAA regional officials, regular aeronautical users of the airport
  - All parties interested in review of and comment on the draft
- Opportunity must be offered for a final public hearing on the NCP
- GIAA will exceed all consultation requirements

PART 150 OVERVIEW

Study Process



PART 150 OVERVIEW

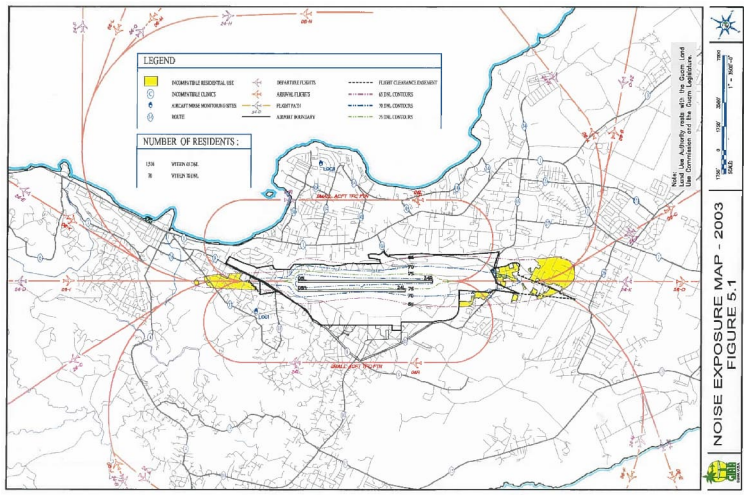
Noise Exposure Map

- FAA “accepts” NEM as compliant with Part 150 standards
- NEM must include detailed description of
  - Airport layout, aircraft operations, and other inputs to noise model
  - Aircraft noise exposure in terms of Day-Night Average Sound Level (DNL)
  - Land uses within DNL 65+ decibel (dB) contours
  - Noise / land use compatibility statistics within DNL 65+ dB contours
- NEM must address two calendar years
  - Year of submission (2024)
  - Forecast (at least five years from year of submission; 2029)
  - FAA reviews forecasts for consistency with Terminal Area Forecast (TAF)
- GIAA will submit the NEM Report in 2024

PART 150 OVERVIEW

Noise Exposure Map Development

- ✓ Develop noise contours for existing (2024) and 5-year forecast (2029) conditions
- ✓ Collect land use data and policies
- ✓ Assess noise compatibility for aircraft exposure of DNL 65 dB and greater
- ✓ Prepare documentation in accordance with 14 CFR Part 150



PART 150 OVERVIEW

NEM Data Sources

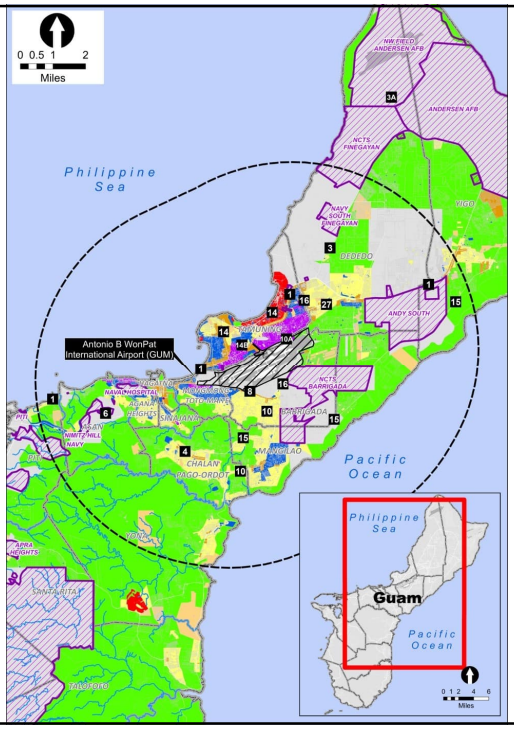
- Best available source(s) will be used for each specific category
  - *Airport layout* – Existing Airport files, FAA airport diagram, Airport Layout Plan (ALP)
  - *Meteorological* - NOAA National Climatic Data Center
  - *Terrain* - U.S. Geological Survey
  - *Baseline operations* - Recent 12-Month Radar data set (July 2022 – June 2023)
  - *Forecast operations* – Master Plan Update
  - *Flight tracks, profiles, and runway use* - Recent 12-Month Radar data set (July 2022 – June 2023)
- Data will be compared to formal and informal procedures
  - FAA departure and approach procedures (APs), etc.
  - Airport specific and industry noise abatement procedures
- Modeling assumptions will be documented in detail and shared with:
  - All interested stakeholders at PAC meetings and workshops

PART 150 OVERVIEW

Draft Study Area

FAA Study Area Map Requirements

- 30,000 ft. Runway Buffer
- Land Use documentation within study area
- Land Use jurisdiction near and within the DNL 65 dB contour



PART 150 OVERVIEW

Noise Compatibility Program

- NCP must address three major categories of recommended actions
  1. Noise abatement measures
  2. Compatible land use measures
  3. Program management/administrative measures
- FAA *accepts* NCP as compliant with Part 150 standards
- FAA reviews and *approves* or *disapproves* recommendations as compliant with Part 150 standards on a measure-by-measure basis

PART 150 OVERVIEW

NCP Categories

Objectives of proposed measures:

- **Reduce** exposure over incompatible uses
- **Limit** growth in exposure over incompatible uses
- **Mitigate** exposure where it cannot be reduced to compatible levels
- **Prevent** introduction of new incompatible uses

Land Use Strategies	Noise Abatement Strategies	Programmatic Strategies
Land acquisition	Flight tracks	Implementation
Sound insulation	Preferential runway use	Promotion
Avigation easements	Arrival/departure procedures	Monitoring
Prevention	Airport layout modifications	Reporting
Land use controls	Use restrictions	NEM updating
Real estate disclosures		NCP revision

Analysis and Selection Process

1) Evaluate effectiveness in addressing objectives
2) Evaluate feasibility (economic, operational, safety, etc.)
3) Select most effective "package" of measures
4) Identify implementation responsibilities, schedule, etc.
5) If not recommended, document reason(s)

25

PART 150 OVERVIEW

Noise Compatibility Program Development

Step 1: Identify Incompatible Land Uses
Existing conditions Noise Exposure Map
Forecast conditions Noise Exposure Map

This step completed during development of the NEM

Step 2: Consider Noise Abatement Strategies
Reduce exposure over incompatible uses
Limit growth in exposure over incompatible uses

Step 3: Consider Land Use Strategies
Mitigate residual incompatible uses
Prevent introduction of new incompatible uses

Step 4: Consider Programmatic Strategies
Implement and ***promote*** measures
Monitor and ***report*** on effectiveness
Update NEMs and ***revise*** NCP as appropriate

26

Existing NCP Measures

- 2003 NCP included:
  - Noise abatement measures (13)
  - Land use measures (8)

** Noise abatement measures were disapproved for Part 150 pending submission of additional information.

	Name	Approval Status**
NA-1	Noise Abatement Flight Tracks	Disapproved for Part 150
NA-2	Standard Instrument Departure Procedures	Disapproved for Part 150
NA-3	Delayed Flap and Gear Extension Approaches	Disapproved for Part 150
NA-4	Restriction on Visual Approaches	Disapproved for Part 150
NA-5	Close-in Noise Abatement Departure Procedures	No Action Required
NA-6	Distant Noise Abatement Departure Procedure	No Action Required
NA-7	FMS/GPS Applications, Use of On-Board Equipment	Disapproved for Part 150
NA-8	Establish Displaced Threshold	Disapproved for Part 150
NA-9	Establish Noise Barriers	Disapproved for Part 150
NA-10	High Speed Exit Taxiways	Disapproved for Part 150
NA-11	Operational Fees Based on Noise	Disapproved for Part 150
NA-12	Voluntary Fleet Mix Goals	Disapproved for Part 150
NA-13	Engine Run-Up Restrictions	Disapproved for Part 150

	Name	Approval Status
LU-1	Amend Local Land Use Plans	Approved
LU-2	Zone for Compatible Land Development	Approved
LU-3	Apply Zoning Performance Standards	Approved
LU-4	Establish a Public Information Program	Approved
LU-5	Revise Building Codes	Disapproved for Purposes of Part 150
LU-6	Dedication of Avigation Easements	Disapproved for Purposes of Part 150
LU-7	Fair Property Disclosure Policy	Approved
LU-8	Land Banking	Approved

27

Existing NCP Measures (continued)

- 2003 NCP included:
  - Remedial land use measures (3)
  - Programmatic measures (4)

	Name	Approval Status
RLU-1	Acquire Developed Property in Non-Compatible Uses	Approved
RLU-2	Property Purchase Guarantee	Approved
RLU-3	Part 150 Sound Mitigation Program	Approved

	Name	Approval Status
PM-1	Noise Compatibility Staff	Approved
PM-2	Noise Advisory Committee	Approved
PM-3	Noise Monitoring Equipment	Approved
PM-4	Flight Track Systems	Approved

28

Initial Noise Modeling Input Data

29

Noise Exposure Model Forecast

Year	ITINERANT					LOCAL			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
2022	10,501	968	7,830	930	**20,229**	14,123	643	14,766	**34,995**
07/22 to 06/23	13,790	1,489	8,806	992	**25,077**	17,045	688	17,733	**42,810**
Master Plan 2024	22,062	3,842	16,538	927	**43,369**	15,592	1,000	16,592	**59,960**
Master Plan 2029	26,512	4,331	26,951	927	**58,721**	23,933	1,000	24,933	**83,655**

Source: FAA OPSNET, GUM Master Plan

30

DRAFT MODEL INPUT DATA
Runway Use - Arrivals

By Runway End:

- 6L – 86.4%
- 6R – 7.8%
- 24R – 5.4%
- 24L – 0.5%

Source: Radar data (July 2022 – June 2023)

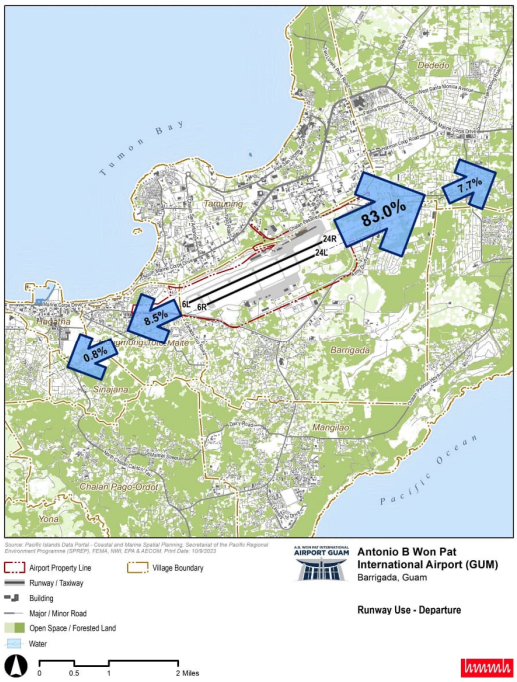
31

DRAFT MODEL INPUT DATA
Runway Use - Departures

By Runway End:

- 6L – 83.0%
- 24R – 8.5%
- 6R – 7.7%
- 24L – 0.8%

Source: Radar data (July 2022 – June 2023)



32

DRAFT MODEL INPUT DATA

Flight Track Density Plot - Arrivals

- Majority of aircraft remain aligned with the runway well outside the study area
- Approaches from the north are typically lighter aircraft

Source: Radar data (July 2022 – June 2023

DRAFT MODEL INPUT DATA

Flight Track Density Plot - Departures

- Runway alignment is less significant, with aircraft turning towards their destinations
- Track density is much more spread out beyond the runways

Source: Radar data (July 2022 – June 2023)

Schedule and Meeting Topics

35

Proposed Schedule

Note: Schedule is subject to change

Meeting / Activity	Purpose	Anticipated Time Frame
Kick-Off Meeting with GIAA and the Part 150 Team	Define organizational and procedural matters and public outreach, review and refine scope and schedule details.	July 25, 2023
1st Planning Advisory Committee Meeting	Introduction to Part 150, discuss stakeholder roles, identify issues of concern	November 8, 2023
2nd Planning Advisory Committee Meeting	Discussion on aviation forecasts, noise modeling results and presentation of the draft NEM Update	May 2024
NEM Public Comment Period and 1st Public Workshop	Overview of Part 150 process, Noise Modeling, Noise Exposure Maps, Introduction to NCP, NEM thirty-day public comment period	May 2024
GIAA to Submit Final NEM to FAA	GIAA submits final updated NEM to FAA for review and acceptance. Respond to FAA questions as needed	July 2024
3rd Planning Advisory Committee Meeting	Evaluation results of the proposed Noise Compatibility Program measures	February 2025
2nd Public Workshop (virtual)	Review Proposed Noise Compatibility Program measures	February 2025
4th Planning Advisory Committee Meeting	Noise modeling results and presentation of the draft NEM Update	August 2025
NCP Public Comment Period, 3rd Public Workshop, and NCP hearing	NCP thirty-day public comment period and third Public Workshop and NCP Hearing.	August 2025
GIAA to Submit Final NCP to FAA	GIAA submits final updated NCP to FAA for review and approval. Respond to FAA questions as needed.	December 2025

36

Project Contacts

Project Contacts:
GIAA
PO Box 8770, Tamuning, Guam
671-646-0300

AECOM Lynn Keeley
Lynn.Keeley@aecom.com
215-696-3524

HMMH Robert Mentzer
rmentzer@hmmh.com
339-234-8703

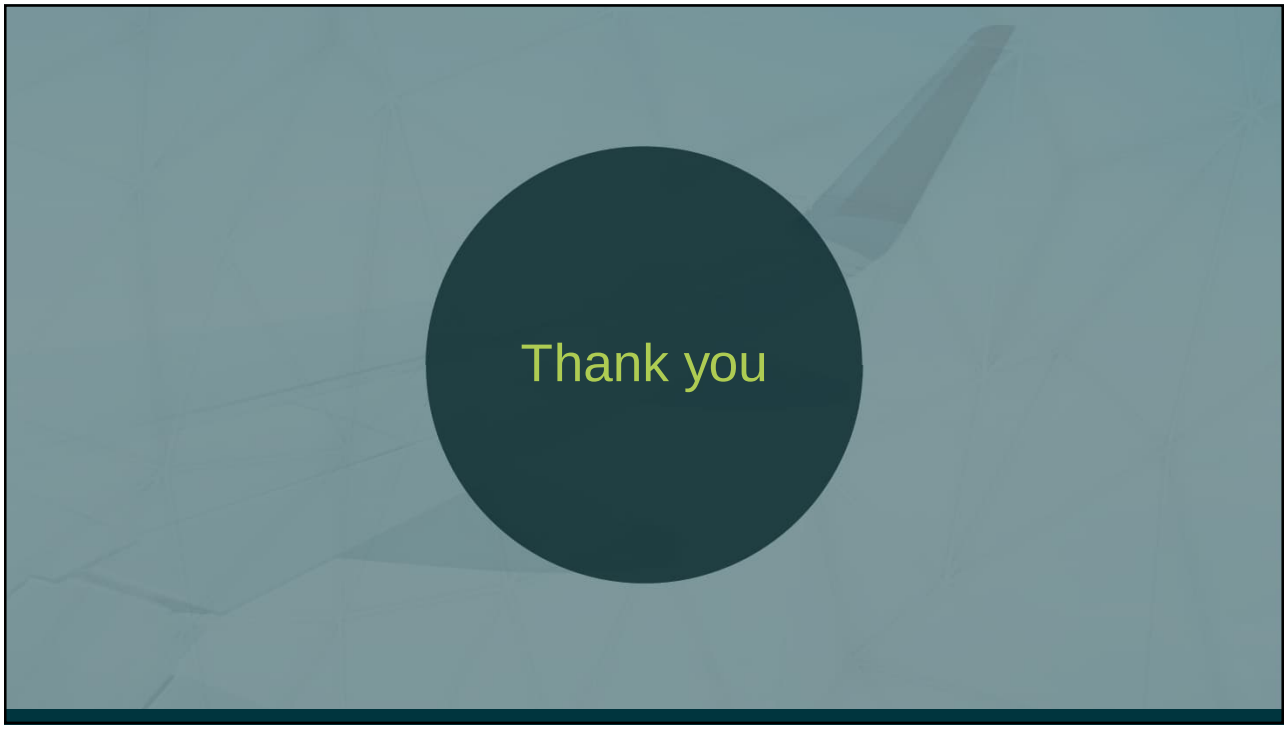
37

PAC Member Discussion

38

Wrap Up

- Next PAC meeting:
  - **Target Date: May 2023**
  - Location: TBD (In Person)
  - Primary topics:
    - Aircraft operations/noise modeling
    - Overview of noise modeling process and inputs
    - Land use analysis
    - Draft Noise Exposure Maps



Meeting Name
GUM Part 150 Study – Planning Advisory Committee Meeting #2

Subject
Noise Compatibility Planning Study – Planning Advisory Committee Meeting #2

Attendees
See Table Below

Meeting Date
5/22/2023 (Guam)

Time
10:00am-12:00pm (Guam)

Location
GIAA Conference Rooms 1 & 2

Microsoft Teams Meeting

Project Name
GUM, 14 CFR Part 150 Noise Compatibility Study and Update to Noise Exposure Maps

Project Number
GIAA-S23-002

AECOM Project Number
60709218

Prepared by
G. Mayer

Meeting Minutes

Meeting Attendees

Name	Organization
Jean Arriola	A.B. Won Pat International Airport Authority, Guam (GIAA)
Audie Artero	A.B. Won Pat International Airport Authority, Guam (GIAA)
Trini Cotelesse	A.B. Won Pat International Airport Authority, Guam (GIAA)
Joseph Javellana	A.B. Won Pat International Airport Authority, Guam (GIAA)
Tony Laniog	A.B. Won Pat International Airport Authority, Guam (GIAA)
Vanessa Pangindian	A.B. Won Pat International Airport Authority, Guam (GIAA)
Dafne Shimizu	A.B. Won Pat International Airport Authority, Guam (GIAA)
Lynn Keeley	AECOM
Elliott Lindgren	AECOM
Greg Mayer	AECOM
Chris Anderson	Andersen Air Force Base (AAFB)
Alan Chen	E.M. Chen & Associates
Kevin Nishimura	Federal Aviation Administration (FAA)
Joseph Borja	Guam Department of Land Management (DLM)
Margarita Borja	Guam Department of Land Management (DLM)
Celine Cruz	Guam Department of Land Management (DLM)
Thomas Torres	Guam Department of Land Management (DLM)
Bob Menzer	HMMH
Kevin Parker	HMMH
Gene Reindel	HMMH
Frank Santos	Transportation Management Group (TMG), Guam
Fred Tupaz	Transportation Management Group (TMG), Guam

The project team started the meeting.

The meeting began with Lynn Keeley introducing herself, members of the project team, and having members of the Planning Advisory Committee (PAC) around the room and on the phone introduce themselves.

Lynn reminded the group of their roles and responsibilities associated with this project. These groups include the Airport/GIAA, the FAA, the Consultant Team, PAC Members, and the members of the public. She also reported that the project team has completed the Study Initiation and Verification tasks of the Part 150 Study Process and has developed drafts of the Noise Exposure Maps (NEMs) that will be presented later in the meeting.

Gene Reindel gave an overview of the Noise Exposure Maps (NEMs) and what they entail. He stated that the FAA "accepts" the NEMs, which is not only a map, but a document that includes existing and forecast aircraft operations, aircraft noise exposure, land use, and noise/land use compatibility. He also discussed the local and itinerant operations from July 2022 to June 2023, as well as the operations for the Part 150 Study's base (existing) year of 2024 and the forecast year of 2029. The FAA has formally approved these forecast numbers for use in the Part 150 Study.

Gene discussed that the project team used the FAA Aviation Environmental Design Tool (AEDT) software to develop the existing and proposed noise contours for the draft NEMs. The three main elements that AEDT requires are aircraft noise and performance data, airport physical data, and aircraft operational data.

Gene explained that the data produced by the AEDT model shows that 94% of arriving flights come from the west due to the Trade Winds, with Runway 6L having the highest percentage of operations at 89%. In terms of departing traffic, Gene stated that 92% of departing flights also take off to the west due to the Trade Winds, with Runway 6L having the highest percentage of operations at 89%. Gene also explained that the AEDT model shows that the international carriers tend to use the International Civil Aviation Organization (ICAO) "A" profile while US carriers tend to use the Standard profile. In terms of flight track development, the graphics depict all of the flight tracks from July 2022 to June 2023, showing both arrivals and departures for each runway end. Gene mentioned that the dashed oval shape on the flight track maps represents 30,000-feet from the runaway end, which is an FAA required study area per Part 150.

The next step in the process entailed the project team reviewing land uses within the 30,000-foot study area, and in particular, the land uses within the 65 Day-Night Average Sound Level (DNL) contour, because the FAA deems land uses beyond the 65 DNL contour as compatible with aircraft noise exposure. Gene explained that the different colors in the graphic indicate different land uses and the symbols represent potential noise sensitive sites such as schools, places of worship, and hospitals.

Next, Gene discussed the GIAA Residential Sound Solutions Program (RSSP) which was an outcome of the Airport's 2003 Noise Compatibility Program (NCP). Gene mentioned that one of the measures approved by the FAA was to sound insulate homes located within the 65 DNL contour. This is important for the current study as any home that has received sound insulation is considered compatible in terms of land use.

Gene then showed the 2024 Draft NEM, the 2029 Draft NEM, and a comparison of the 2024 and 2029 noise contours. The comparison graphic depicts that the forecasted 2029 noise contours are slightly larger than the existing 2024 noise contours. Gene then showed the approximate compatible and noncompatible population (2020) and housing units located within the existing and forecasted 65, 70, and 75 DNL. There are no housing units within the 70 and 75 DNL contours. Gene mentioned that the next step is figuring noise abatement measures for those units within the 65 DNL.

Gene mentioned that there will be a Public Workshop to review and discuss the NEMs. This workshop will coincide with a 30-day public comment period of the Draft NEM report. Information presented at the Public Workshop will be very similar to the information provided today to the PAC.

Joseph Borja asked how the public workshop would be conducted and where would it be conducted. Gene stated that the meeting would be a hybrid meeting as individuals from AECOM and HMMH would not be able to attend in person, but GIAA team members would be in attendance in Conference Rooms 1 & 2, the location of the Workshop. Although not required, Frank Santos stated there will be one public workshop to introduce the NEMs. There will be a public hearing for the NCP at a later date and this is a Part 150 requirement.

Mr. Borja asked who the Sponsor of the public workshop will be. The Sponsor will have to conform with the local public notice law. Gene confirmed that the Airport will be the Sponsor and they will conform with local public notice law.

Lynn Keeley then reviewed the proposed Part 150 project schedule. She stated that the next steps and meetings include GIAA submission of the Draft NEM to the FAA, a third PAC meeting (anticipated before February 2025), and a second public workshop. She mentioned that this presentation, along with meeting minutes, will be made available to members of the PAC and opened the meeting up for questions and comments.

Mr. Borja asked if noise abatement measures are for all units within the 65 DNL or just residential housing units. Gene noted that measures will be for residential houses and noise sensitive structures. Gene stated that there was one place of worship that the study team thought may have been in a commercial building located the 65 DNL off of the south end of the airfield; however, it was confirmed during the windshield survey that there isn't a place of worship at that location.

Celine Cruz believed there is a Buddhist Temple located northeast of the Airport, Gene indicated that it does not appear to be in the 65 DNL contour. Ms. Cruz also mentioned that but there is a lot of justification for a zone change to light industrial in that area northeast of the airport. Mr. Borja also asked about the Jesus Christ Church of Latter Day Saints located south of the Airport; however, that building is located just outside of the 65 DNL.

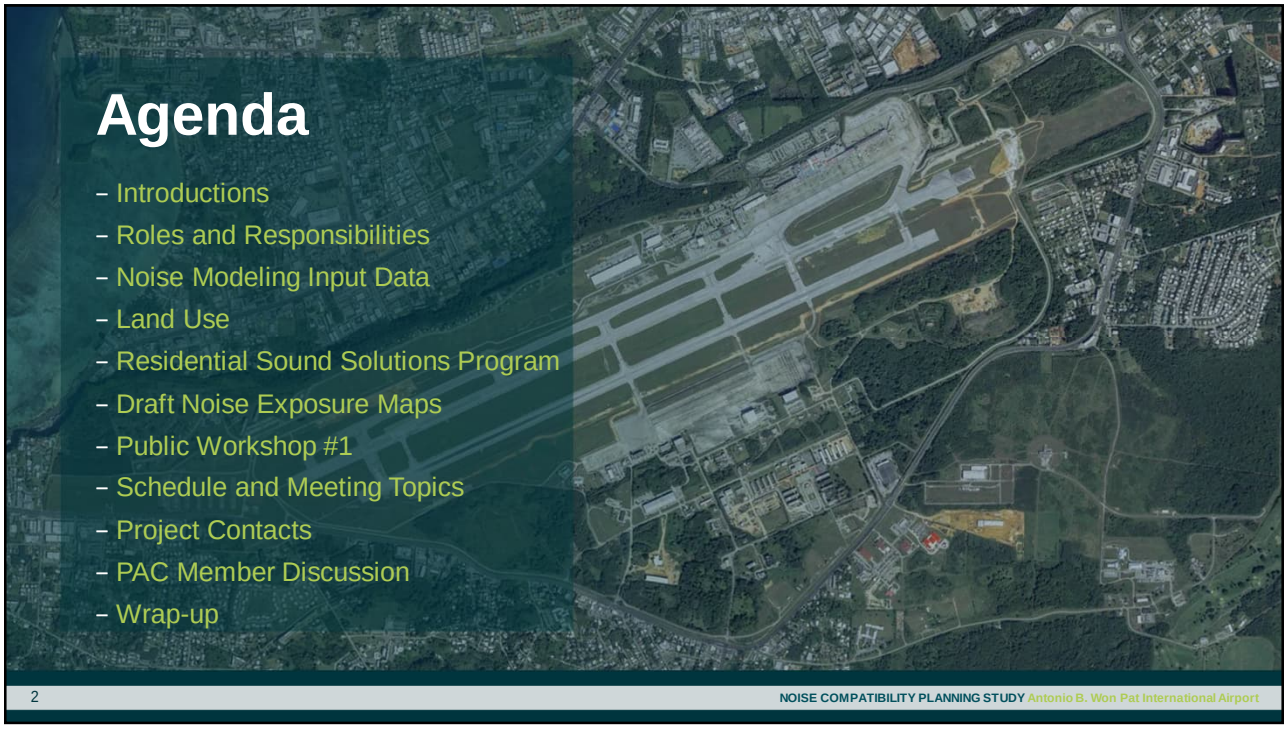
Mr. Borja also asked about the AEDT model which Gene mentioned is the new FAA standard so it can be used consistently throughout airports all around the world. He also mentioned that the military use a program called Noise Map, which gets included into AEDT. He also stated that aircraft manufacturers who certify aircraft, have to certify measures that gets inputted into AEDT. Mr. Borja also asked if someone could go outside of their house and do a noise level check. Gene confirmed that was ok, but it would not change the shape of the noise contour. Mr. Borja also asked about pilot training conducted by Japan Airlines. Gene explained that those operations are included in the local operation numbers.

Chris Anderson confirmed that the military also accounts for traffic numbers the same way in terms of the Japan Airlines pilot training. Dafne Shimizu asked about the projected population for 2029 and how that number was reached. Gene explained that this increase in population and housing units is because of the increase in DNL size from 2024 to 2029. Kevin Nishimura thanked the project team and the participation of the PAC members.

There were no further questions or discussions and the meeting was adjourned.


AECOM
NOISE COMPATIBILITY PLANNING STUDY
Antonio B. Won Pat International Airport
Planning Advisory Committee Meeting #2
May 22, 2024
A.B. WON PAT INTERNATIONAL AIRPORT GUAM

1


Agenda
– Introductions
– Roles and Responsibilities
– Noise Modeling Input Data
– Land Use
– Residential Sound Solutions Program
– Draft Noise Exposure Maps
– Public Workshop #1
– Schedule and Meeting Topics
– Project Contacts
– PAC Member Discussion
– Wrap-up
2
NOISE COMPATIBILITY PLANNING STUDY Antonio B. Won Pat International Airport

2

Introductions – Study Team

Antonio B. Won Pat International Airport

A. B. Won Pat International Airport Authority, Guam (GIAA)

John M Quinata, Executive Manager

Dr. Ricky Hernandez, Deputy Executive Manager

Audie Artero, GIAA Project Manager

Transportation Management Group

Frank Santos
Fred Tupaz

Project Team

AECOM

Lynn Keeley
Project Manager

Elliott Lindgren
Project Director

Greg Mayer
Airport Planner

hmmh

Bob Mentzer
Technical Lead - Aircraft Noise Analysis

Gene Reindel
Technical Lead - FAR Part 150

Kevin Parker
Noise Analyst

EM Chen & Associates

Alan Chen
Local Project Manager

Introductions – Planning Advisory Committee (PAC)

FAA ADO Management

Gordon Wong
Carlos Salas

FAA Air Traffic Control Tower

Tim Cornelison

Lloyd Baker

Joseph M. Borja

FAA ADO Staff

Kandyce Watanabe, P.E.
Kevin Nishimura
Ryan Castillo

Justin Marion
Inam Amanullah

Zeus Villaforte

Andersen Air Force Base

Chris Anderson
Gino Pangilinan

Robert Navarro

Yxel Espina

ROLES AND RESPONSIBILITIES

Part 150 Study

Airport / GIAA

- Project sponsor
- Certification that documentation is true and accurate
- Recommends measures to address noncompatible land uses

FAA

- Certification that the documentation meets federal regulations and guidelines
- Approval of Airport-recommended guidelines

Consultant Team

- Overall project management, documentation, and outreach
- Aircraft noise analysis and abatement planning
- Noise compatibility analysis and planning
- Aviation forecast and airfield analysis

PAC

- Review study inputs, assumptions, analyses, documentation, etc.
- Input, advice, and guidance related to NEM development

Public

- Provide input on study during comment period
- Review public draft documents

5

PART 150 OVERVIEW

Study Process

We are here!

Study Initiation

- Finalize methodology
- Establish Planning Advisory Committee
- Develop project schedule and milestones

Verification

- Existing Noise Exposure Maps, planning, and environmental documents
- Noise complaint data
- GIS and land use data
- Flight track, operations, and noise data
- FAA activity forecasts

Develop NEMs

- Develop noise contours for existing and 5-year forecast conditions
- Review land use data & policies
- Noise impact evaluation for DNL 65-75 dBa
- Identify incompatible land uses and review existing NCP
- Prepare maps in accordance with 14 CFR Part 150

Develop NCP

- Consider noise abatement strategies
- Consider land use strategies
- Consider programmatic strategies
- Update NCP in accordance with 14 CFR Part 150

Stakeholder Engagement and Public Outreach

Planning Advisory Committee • Public Meetings/Hearings • Public Website Materials and Newsletters

6

PART 150 OVERVIEW

Noise Exposure Map

- FAA "accepts" NEM as compliant with Part 150 standards
- NEM must include detailed description of
  - Airport layout, aircraft operations, and other inputs to noise model
  - Aircraft noise exposure in terms of Day-Night Average Sound Level (DNL)
  - Land uses within DNL 65+ decibel (dB) contours
  - Noise / land use compatibility statistics within DNL 65+ dB contours
- NEM must address two calendar years
  - Year of submission (2024)
  - Forecast (at least five years from year of submission; 2029)
- FAA approved the aviation forecast used for the Part 150
  - GIAA Aviation Forecasts developed for the Master Plan

Noise Exposure Model Forecast

- 2023 operations continue to recover from the Pandemic and represent 62.1% pre-pandemic 2019 level
- Recent 12-month dataset (07/22 to 06/23) used to develop baseline information

Year	ITINERANT					LOCAL			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
07/22 to 06/23	13,790	1,489	8,806	992	**25,077**	17,045	688	17,733	**42,810**
2024	22,062	3,842	16,538	927	**43,369**	15,592	1,000	16,592	**59,960**
2029	26,512	4,331	26,951	927	**58,721**	23,933	1,000	24,933	**83,655**

Source: FAA OPSNET, GIAA Aviation Forecasts

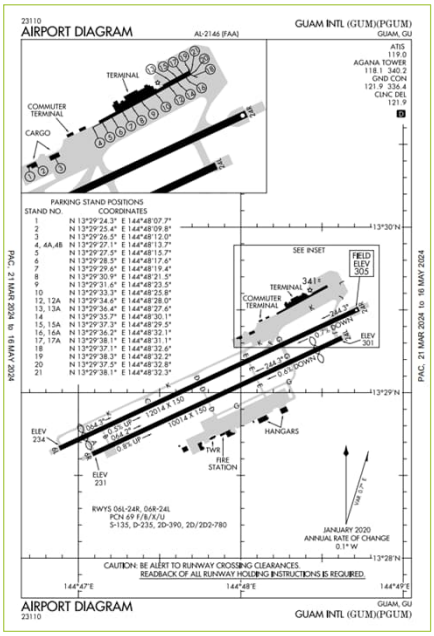
Operational Totals used for the NEMs

FAA Approves the Forecast for the Part 150.

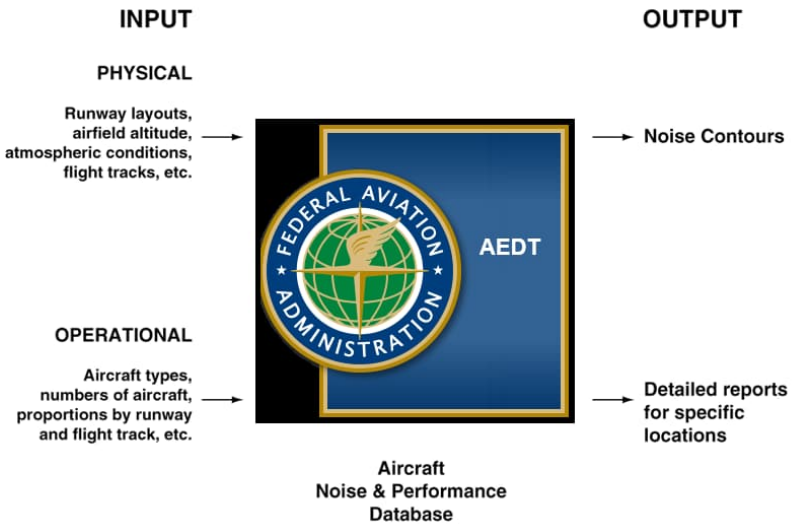
Noise Modeling Input Data

NOISE MODELING OVERVIEW
Noise Model

- Use of FAA's Aviation Environmental Design Tool (AEDT) noise modeling software is required
  - Version 3f: https://aedt.faa.gov/
  - Released December 2023
- AEDT requires noise model input data in three categories:
  1. Aircraft noise and performance data
     - Aircraft performance profiles
     - Noise level vs. distance curves
  2. Airport physical data
  3. Aircraft operational data
     - Number of aircraft operations
     - Aircraft fleet mix
     - Day-night split of operations
     - Stage length
     - Runway utilization
     - Flight track geometry and utilization



NOISE MODELING OVERVIEW
How AEDT Works



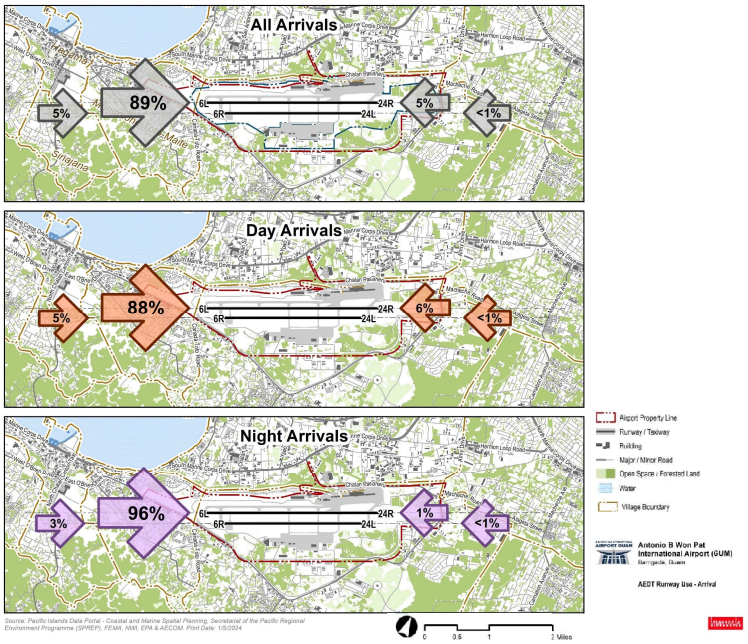
11

NOISE MODEL INPUT DATA
Runway Use - Arrivals

All Arrivals
- 89% Runway 6L
- 5% Runway 6R
- 5% Runway 24R
- <1% Runway 24L

- Approximately 94% from the west due to Trade Winds
- Approximately 94% on primary Runway 6L/24R

Source: Radar data (July 2022 – June 2023)



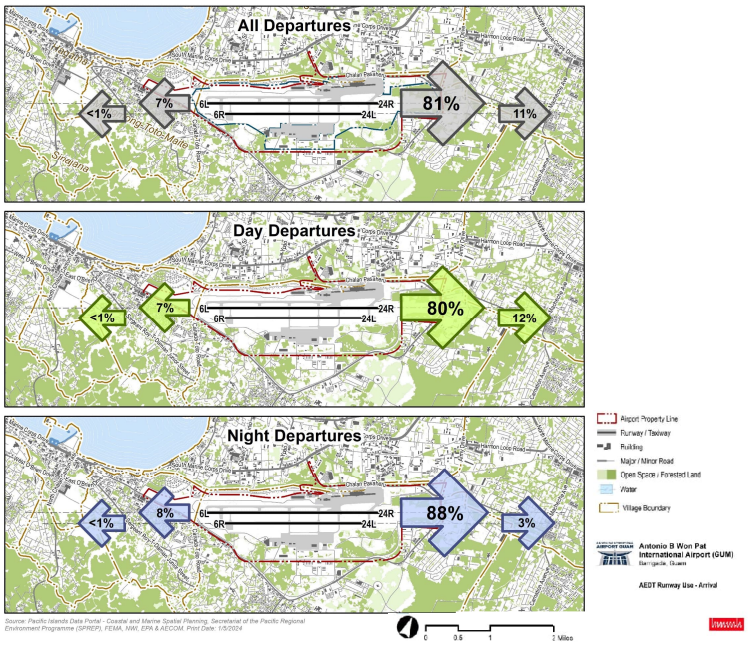
12

MODEL INPUT DATA
Runway Use - Departures

All Departures
- 81% Runway 6L
- 11% Runway 6R
- 7% Runway 24R
- <1% Runway 24L

- Approximately 92% to the east due to Trade Winds
- Approximately 88% on primary Runway 6L/24R

Source: Radar data (July 2022 – June 2023)



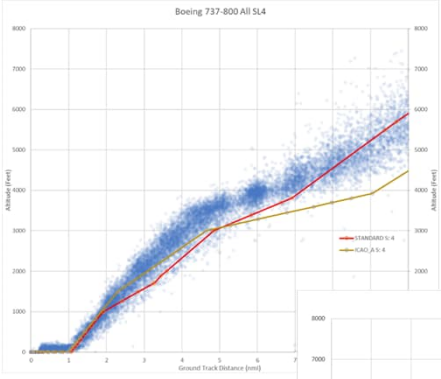
13

NOISE MODEL INPUT DATA
Flight Profile Selection

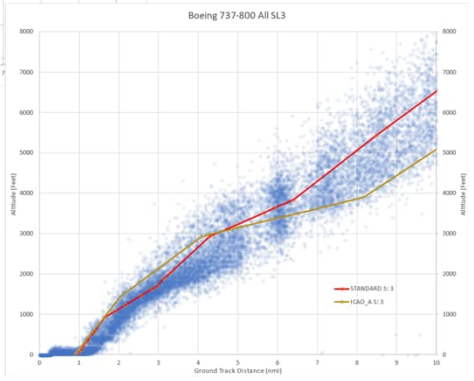
- Evaluated Four Aircraft Types:
  1. B737-800*
  2. B747-400
  3. B777-300ER
  4. A321-232
- Results
  - International Carriers tend to use the ICAO-A profile
  - US Carriers tend to use the Standard profile

* Indicates example shown

Source: Radar data (July 2022 – June 2023)



Mostly International Carriers Stage Length 4 - ICAO-A



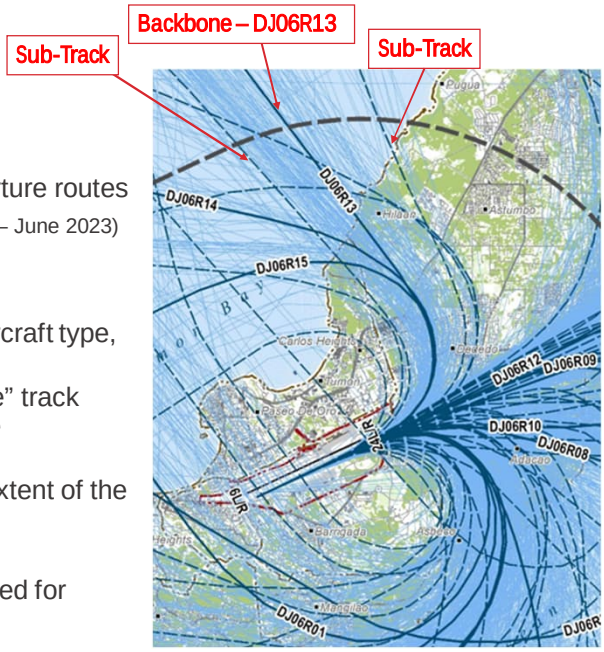
Mostly US Carriers Stage Length 3 - Standard

14

NOISE MODELING OVERVIEW

Flight Track Development

- Modeled flight tracks have been developed
  - For the predominant aircraft arrival and departure routes
  - 12 months of actual flight track data (July 2022 – June 2023)
- Model Track Development Process
  - Radar tracks are grouped into bundles (by aircraft type, runway, operation type and destination)
  - Track groups are represented by a “backbone” track and sub-tracks on either side to represent the dispersion of the bundle
  - Representative tracks are developed to the extent of the study area
  - Shown are Jet Departures from Runway 6R
  - Separate Track use percentages are developed for each track bundle and type of operation



NOISE MODEL INPUT DATA

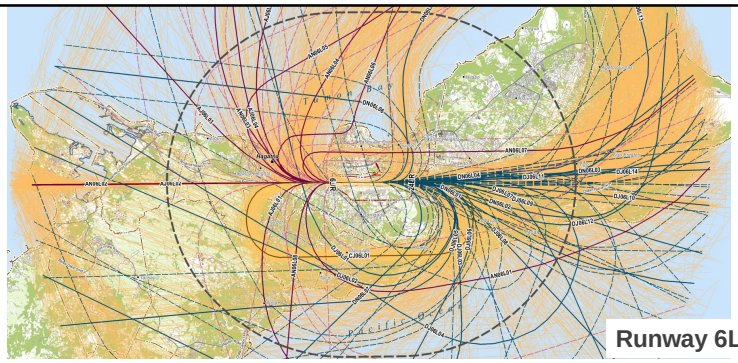
Flight Track Data

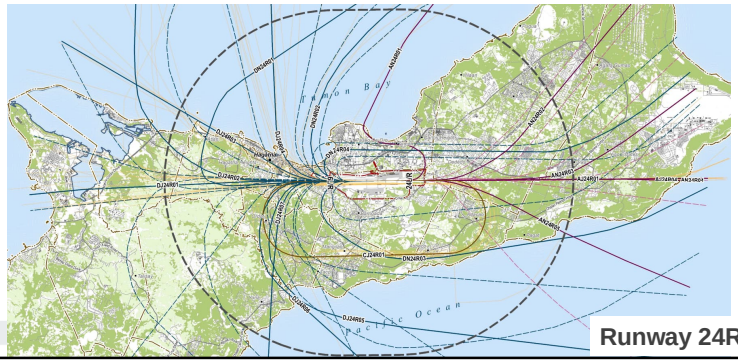
Primary Runway 6L/24R

Notes:

- Actual flight tracks in orange
- Modeled arrival tracks in red
- Modeled departure tracks in blue
- Approaches from the north are typically lighter aircraft

Source: Radar data (July 2022 – June 2023





NOISE MODEL INPUT DATA

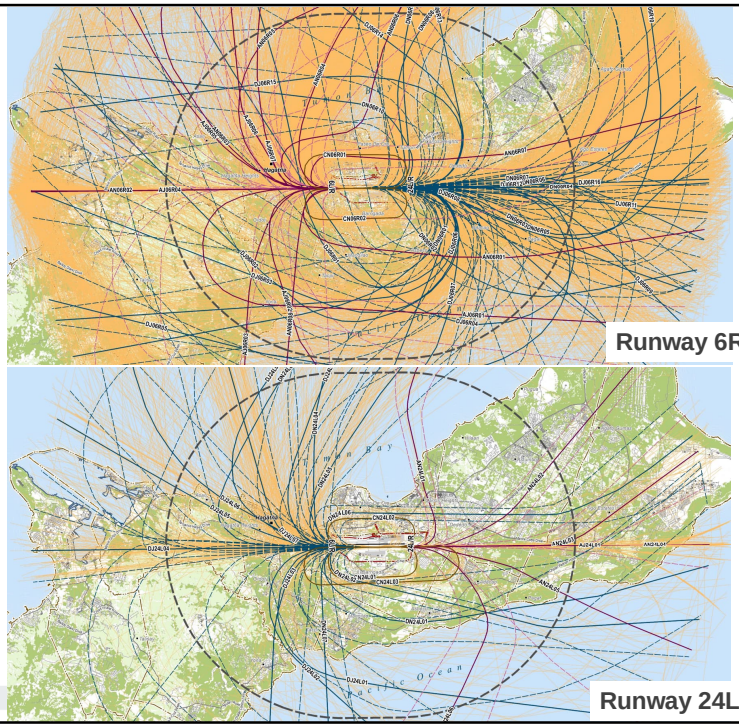
Flight Track Data

Secondary Runway 6R/24L

Notes:

- Actual flight tracks in orange
- Modeled arrival tracks in red
- Modeled departure tracks in blue
- Approaches from the north are typically lighter aircraft

Source: Radar data (July 2022 – June 2023



17

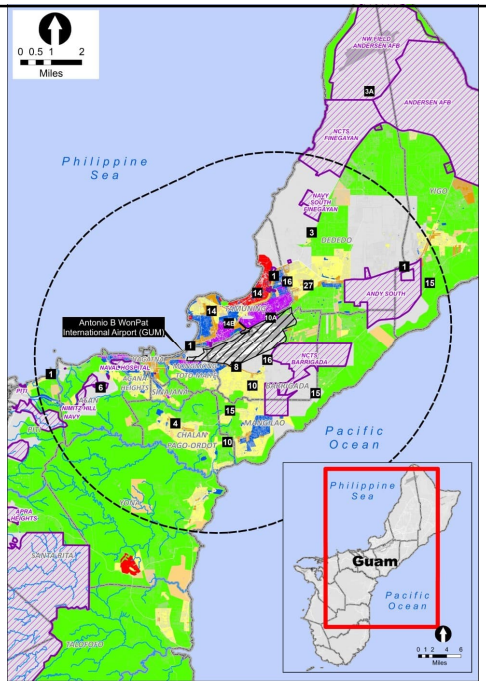
Land Use

LAND USE
Draft Study Area

Part 150 Study Area Map Requirements:

- 30,000 ft. runway buffer
- Land use documentation within study area
- Land use jurisdiction near and within the DNL 65 dB contour

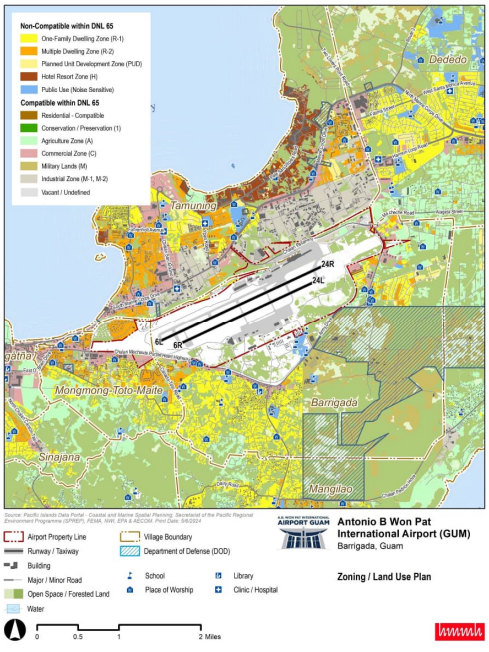
- *Note: The FAA generally considers all land uses to be compatible with aircraft noise below DNL of 65 dB.*



19

LAND USE DATA COLLECTION

- Primary steps include:
  - Assemble and review land use, zoning, and population data
  - Identify any local land use policies that address airport operations
  - Create existing land use maps
- Locations of noise-sensitive sites (e.g., churches and schools) are identified
- Local jurisdictions to review maps and advise of necessary corrections
  - Assess any deficiencies of land use data and corrective approaches
- After DNL contours have been generated, the Project Team will survey and confirm land uses within the 65 DNL contours



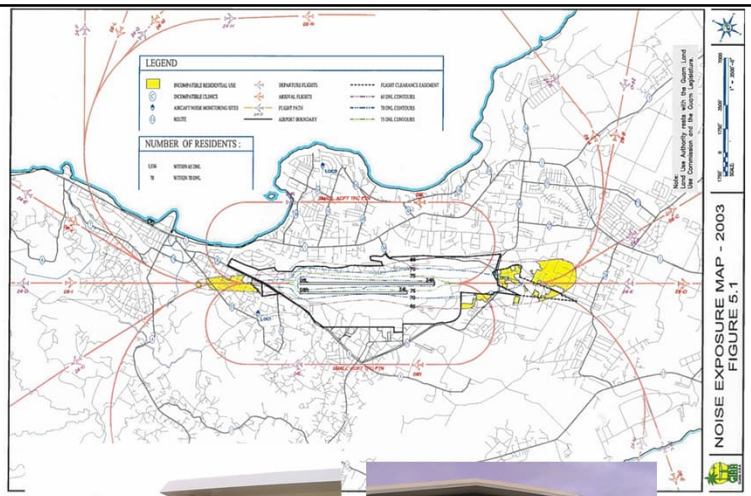
20

Residential Sound Solutions Program

21

RESIDENTIAL SOUND SOLUTIONS PROGRAM (RSSP)

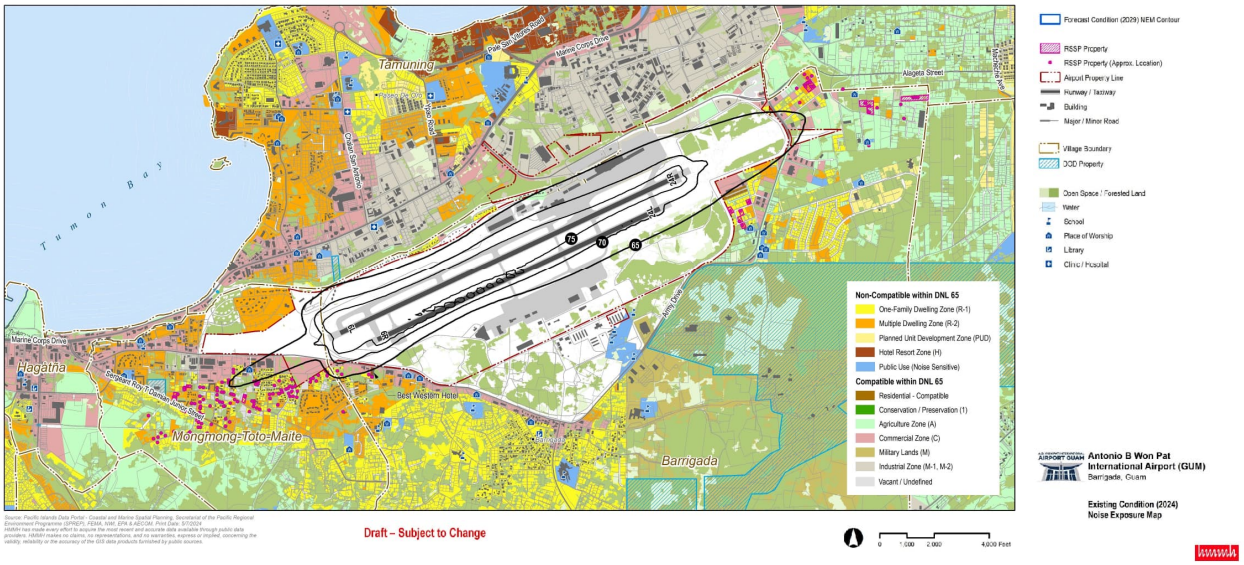
- The RSSP was an outcome of the 2003 NCP
  - Based on the 2003 NEM
  - Over 200 residential units have been treated
  - The study team has been working with GIAA to map all the RSSP properties.
  - RSSP properties are considered compatible with aircraft noise



Draft Noise Exposure Maps

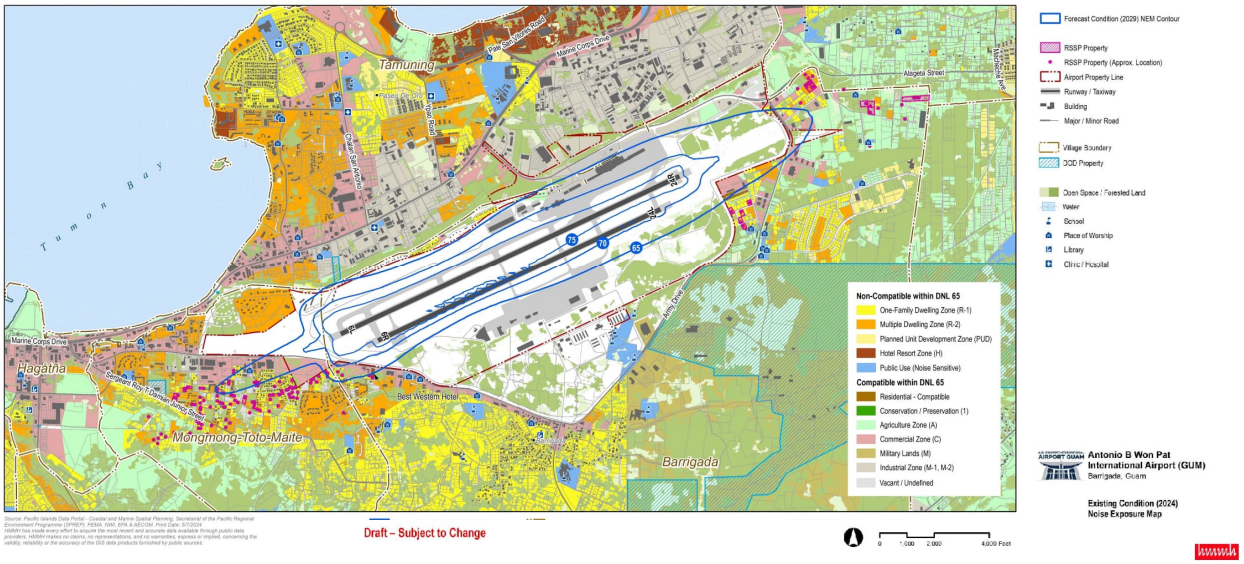
23

2024 Draft Noise Exposure Map

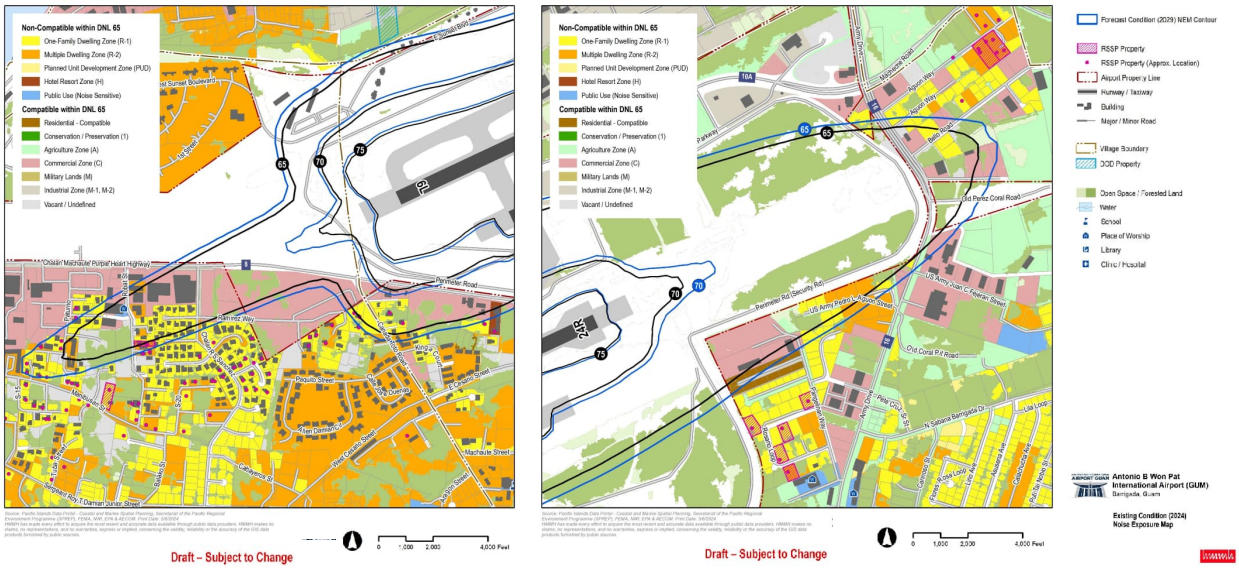


24

2029 Draft Noise Exposure Map



Draft Noise Exposure Maps



Draft Noise Exposure Maps
Land Use Assessment for Existing and Forecast Conditions

Contour Interval	Area (Acres)		Population Census 2020				Housing Units			
			Total		Noncompatible		Total		Noncompatible	
	2024	2029	2024	2029	2024	2029	2024	2029	2024	2029
65-70 DNL	521.1	574.5	462	846	434	794	154	282	149	271
70-75 DNL	236.4	248.2	0	0	0	0	0	0	0	0
>75 DNL	262.3	281.9	0	0	0	0	0	0	0	0
Total > 65 DNL	1,019.8	1,104.5	462	846	434	794	154	282	149	271

Sources: U.S. 2020 Census data, HMMH 2024

DNL = Day-Night Average Sound Level
Notes:
Estimated housing unit count. The number of buildings that participated in the RSSP was delineated based on research of available records maintained by GIAA.
The number of people is estimated based on a population factor (3.004 people per unit) developed from the 2020 U.S. Census block data within 1,000 feet of the 2029 DNL 65 dB contour.
1 – The noncompatible number subtracts those units that have received sound insulation treatment and an avigation easement or were constructed after October 1, 1998.

27

28

PUBLIC WORKSHOP #1

Presentation of draft NEM document

- Noise Model Inputs
- Draft Noise Exposure maps
- Land use assessment results
- Request and receive public comments on the draft NEM document
- Public comments can be sent via email to giaapart150@aecom.com

Date TBD

29

Schedule and Meeting Topics

30

Proposed Schedule

Note: Schedule is subject to change

Meeting / Activity	Purpose	Anticipated Time Frame
Kick-Off Meeting with GIAA and the Part 150 Team	Define organizational and procedural matters and public outreach, review and refine scope and schedule details.	July 25, 2023
1st Planning Advisory Committee Meeting	Introduction to Part 150, discuss stakeholder roles, identify issues of concern	November 8, 2023
2nd Planning Advisory Committee Meeting	Discussion on aviation forecasts, noise modeling results and presentation of the draft NEM Update	May 22, 2024
NEM Public Comment Period and 1st Public Workshop	Overview of Part 150 process, Noise Modeling, Noise Exposure Maps, Introduction to NCP, NEM thirty-day public comment period	TBD
GIAA to Submit Final NEM to FAA	GIAA submits final updated NEM to FAA for review and acceptance. Respond to FAA questions as needed	July 2024
3rd Planning Advisory Committee Meeting	Evaluation results of the proposed Noise Compatibility Program measures	February 2025
2nd Public Workshop (virtual)	Review Proposed Noise Compatibility Program measures	February 2025
4th Planning Advisory Committee Meeting	Noise modeling results and presentation of the draft NEM Update	August 2025
NCP Public Comment Period, 3rd Public Workshop, and NCP hearing	NCP thirty-day public comment period and third Public Workshop and NCP Hearing.	August 2025
GIAA to Submit Final NCP to FAA	GIAA submits final updated NCP to FAA for review and approval. Respond to FAA questions as needed.	December 2025

Project Contacts

Project Contacts:

GIAA
PO Box 8770, Tamuning, Guam
671-646-0300

AECOM Lynn Keeley
Lynn.Keeley@aecom.com
215-696-3524

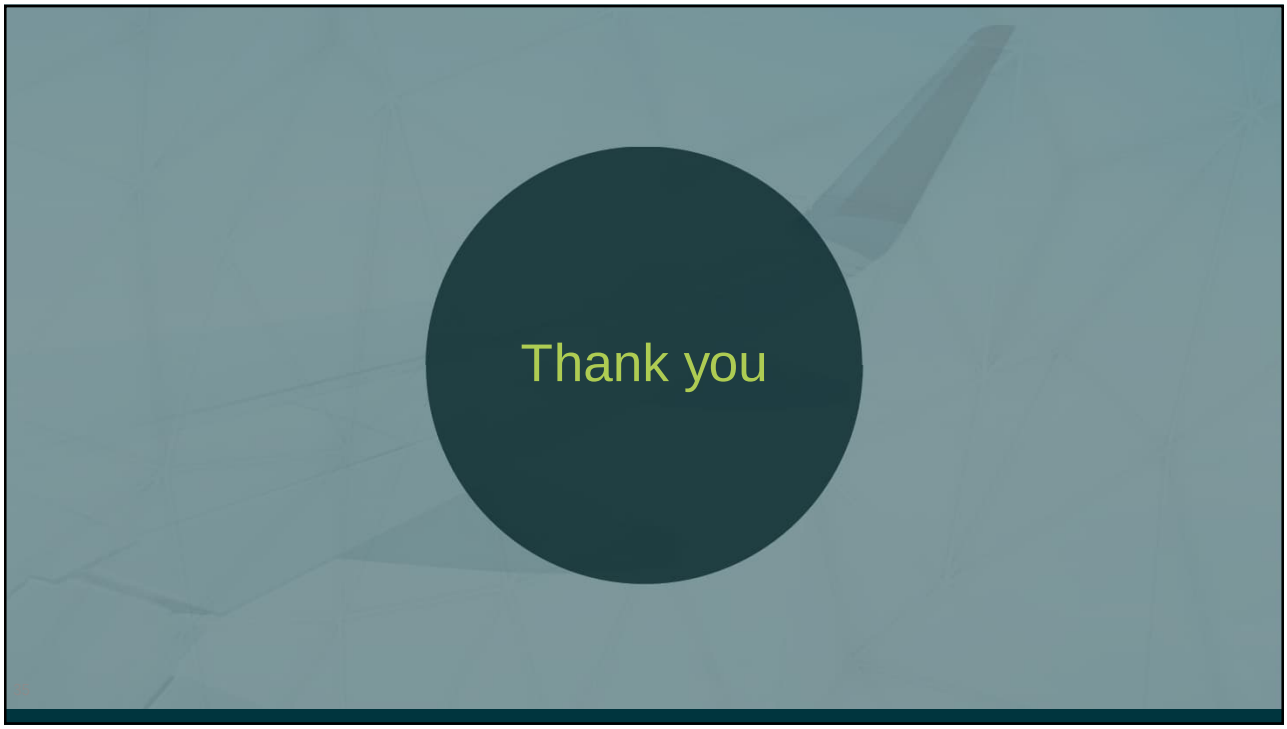
HMMH Robert Mentzer
rmentzer@hmmh.com
339-234-8703

33

Wrap Up

- Next PAC meeting:
  - **Target Date: February 2025**
  - Location: (Virtual)
  - Primary topics:
    - Noise Compatibility Program update process
    - Strategies to address non-compatible land uses identified in the NEM
      - Noise abatement strategies
      - Land use strategies
      - Program management strategies

34


Thank you

Agenda

Meeting name
GUM Part 150 Study – Planning Advisory Committee Meeting #3

Subject
Project Update

Attendees
See Table Below

Meeting date
11/14/2024 (Guam)

Time
10:00am-12:00pm (Guam)

Location
GIAA Conference Rooms 1 & 2

Microsoft Teams Meeting

Project name
GUM, 14 CFR Part 150 Noise Compatibility Study and Update to Noise Exposure Maps

Project number
GIAA-S23-002

AECOM project number
60709218

Prepared by
G. Mayer

Meeting Minutes

Meeting Attendees

Name	Organization
Jean Arriola	A.B. Won Pat International Airport Authority, Guam (GIAA)
Audie Artero	A.B. Won Pat International Airport Authority, Guam (GIAA)
Pete Camacho	A.B. Won Pat International Airport Authority, Guam (GIAA)
Trini Cotelesse	A.B. Won Pat International Airport Authority, Guam (GIAA)
Bill Gutierrez	A.B. Won Pat International Airport Authority, Guam (GIAA)
Tony Laniog	A.B. Won Pat International Airport Authority, Guam (GIAA)
Vanessa Pangindian	A.B. Won Pat International Airport Authority, Guam (GIAA)
Ray Quintanilla	A.B. Won Pat International Airport Authority, Guam (GIAA)
Juan Reyes	A.B. Won Pat International Airport Authority, Guam (GIAA)
Dafne Shimizu	A.B. Won Pat International Airport Authority, Guam (GIAA)
Marcia Taitano	A.B. Won Pat International Airport Authority, Guam (GIAA)
Lynn Keeley	AECOM
Elliott Lindgren	AECOM
Greg Mayer	AECOM
Chris Anderson (Virtual)	Andersen Air Force Base (AAFB)
Alan Chen	E.M. Chen & Associates
Ryan Castillo (Virtual)	Federal Aviation Administration (FAA)
Kevin Nishimura	Federal Aviation Administration (FAA)
Bob Mentzer (Virtual)	HMMH
Kevin Parker	HMMH
Gene Reindel	HMMH
Fernando Santos	Transportation Management Group (TMG), Guam
Frank Santos	Transportation Management Group (TMG), Guam
Ike Tambora	Transportation Management Group (TMG), Guam
Fred Tupaz	Transportation Management Group (TMG), Guam
Tammy Castro	United Airlines

Ollan McEllisett	United Airlines
Stacy Quintanilla	United Airlines
Marfie Zapanta	

The project team started the meeting.

Dafne Shimizu, the Airport's comptroller and acting manager, gave a brief introduction about the purpose of this meeting, stressed the importance of this project and the participation from the PAC members, and thanked the project team and PAC members for their contributions thus far.

Next, everyone in the room and on the phone introduced themselves, the organization they're with, and the title they hold.

Lynn Keeley gave an overview of the PAC membership, their roles and responsibilities, and the Part 150 study process, noting that the project team has completed the development of the draft Noise Exposure Map (NEM) and are currently at the stage that includes developing the Noise Compatibility Program (NCP).

Lynn displayed the existing 2024 and forecasted 2029 Noise Exposure Maps and compared them to each other. She mentioned that there was a slight increase in the 65 Day Night Average Sound Level (DNL) contour near the Runway 6L and 24R ends between 2024 and 2029. Gene discussed that the cross hatched properties are parcels that have completed sound insulation and are therefore considered compatible with noise from aircraft operations. Lynn also mentioned the locations of where the draft NEMs can be viewed. These include:

1. GIAA offices
2. The Airport website
3. Hagåtña (Main) Nieves M. Flores Memorial Library
4. Barrigada Branch Public Library

She also mentioned that there will be a public workshop/open house on Thursday night that will provide the public with information on the Airport, aircraft operations, aviation forecasts and land use on and around the Airport, the noise modeling data, and the draft Noise Exposure Maps.

Gene Reindel gave an overview of the NCP process, and the steps needed to complete the NCP update. He also reiterated that the NCP must address three major categories of recommended actions. These include:

1. Noise abatement measures
2. Land use measures, including noise mitigation measures
3. Program management/administrative measures

Gene then reviewed the 13 noise abatement measures that were included in the Airport's 2003 NCP. The project team then reviewed the noise abatement strategies that the PAC members helped develop during PAC Meeting #2.

<u>Proposed Noise Abatement Measures</u>

1. Displaced Threshold Landing – Runway 6L

Two Options:

Option A – 2,458 feet (which aligns with the option shown in the Airport's current approved Master Plan)
- Reduces 113 non-compatible housing units since the aircraft will be a bit higher on approach

Option B – 2,900 feet
- Reduces 117 non-compatible housing units since the aircraft will be a bit higher on approach

Audie Artero asked if this analysis includes all aircraft that operate at the Airport. Gene confirmed that this alternative does include all aircraft that operate at the Airport. Audie also asked if the physical runway length changes based on a displaced threshold. Gene clarified that the runway length will remain the same. The only difference is that the Landing Distance Available will decrease. Ike Tambora asked if this would affect Runway 6R/24L operations. Gene confirmed that it does not. He also clarified that closing this runway to implement a displaced threshold would be

temporary and that the Federal Aviation Administration (FAA) does not allow for modeling temporary closures for noise compatibility purposes. The modeling must be completed for all operational runways.

2. Displaced Threshold Landing – Runway 6R

Option – 2,528 feet (which aligns with the option shown in the Airport's current approved Master Plan)

Gene discussed that this did not really provide any benefit to the 65 DNL contour since there really isn't a contour that goes out for Runway 6R arrivals.

Displaced Threshold Discussions:

Chris Anderson did not recommend implementing (or modifying existing) displaced thresholds on either of the Runway 6 ends due to the potential of new instrument procedure issues and the result of shorter Landing Distances Available (LDA) which may be an issue for wet runways. Gene mentioned that the Airport's Master Plan analyzed the idea of displaced thresholds and that all critical aircraft were still able to operate with the LDAs proposed in the Master Plan. Gene stated that this was one of the primary reasons why these were considered as noise abatement measures. Chris also wanted to make sure that the Airport is still capable of handling military aircraft operations just like Andersen Air Force Base is for civilian aircraft.

Audie asked if displacing the thresholds results in remarking the runways and relocating NAVAIDs. Elliott Lindgren confirmed that it would result in that. Frank Santos mentioned that he was against the displaced threshold measures. Elliott also discussed the analysis completed in the Master Plan that evaluated displacing the thresholds so that the Airport could have full control of the Runway Protection Zones (RPZs) located completely on Airport property. The Master Plan looked into options such as relocating Route 8, tunneling Route 8, and purchasing the properties or avigation easements for properties located within the RPZs, but displacing the thresholds was the preferred alternative from both a cost and feasibility perspective.

Ray Quintanilla asked about a Modification to Standard (MOS) for a non-standard RPZ instead of displacing the thresholds, but Elliott discussed that the FAA does not grant MOS' for RPZs and recommended that at least one of the noise abatement measures for this project includes a displaced threshold to align with what is shown in the Master Plan.

Elliott asked if it made sense to eliminate the "turn after departure" measures based on the information provided by Chris. Gene mentioned that the project team will review that information and determine a reasonable solution. He also stated that to meet Part 150 regulations, the project team will need to document why or why not a recommendation was made for all potential measures.

3. Intersection Departures – Runway 6L

Gene stated that this measure includes takeoffs from the Taxiway A/Runway 6L intersection and not using the full runway length available. He mentioned that at least two aircraft would require use of the full runway length because of their staging and departure weights. This measure reduces the number of non-compatible buildings off of the Runway 6R end but increases the number of non-compatible buildings off of the Runway 24L and 24R ends resulting in a net reduction of 24 noncompatible housing units.

4. Noise Barriers Southwest of the Airport

Two Options:

Option A – Along Route 8
- Results in a two decibel (dB) or less reduction near housing units
- Does not result in a 5-dB reduction as required to receive federal funding

Option B – Along Ramirez Way (Partially on Airport Property)
- Provides a bit more noise reduction than Along Route 8 but not to provide a benefit to non-compatible land uses

He mentioned that both of these options were not very effective and did not really reduce the number of housing units inside of the 65 DNL.

5. Departures of Runway 6L – Turn Left

Gene discussed that this measure includes a standard, 15° turn to the left to avoid residential areas. This measure results in a net reduction of 12 non-compatible housing units.

6. Departures of Runway 6L – Turn Right

Gene mentioned that this measure includes a standard, 15° turn to the right to avoid residential areas. This measure results in a net addition of 15 non-compatible housing units.

7. Departures of Runway 6L – Turn Left of Right

Gene stated that this measure includes a standard, 15° turn to the left or right to avoid residential areas. This measure results in a net addition of one non-compatible housing unit.

Dafne Shimizu asked to clarify why the AEDT model was not used for the noise barriers. Gene discussed the project team used SoundPLAN as AEDT does don't have the capability to perform a sound barrier analysis.

Chris Anderson asked if the project team had evaluated the airspace given a left or right turn path after departure because of airspace restrictions. Gene mentioned that the project team did not evaluate airspace yet as they wanted to get a consensus to proceed or not to proceed with these turning measures. Chris gave an overview of the airspace at the Airport (Class D) vs. the airspace for Andersen Air Force Base (Class D). Chris described that Air Force Base gives a section of its airspace to the FAA to support departures from the Airport. He also mentioned that there is an area for temporary flight restrictions that will soon become permanent. Chris mentioned that he will send over more information pertaining to this airspace.

For the noise abatement measure that discusses the right turn for departures on Runway 6L, Bob Mentzer discussed there is an odd shape to the northernmost portion of the contour due to a depression in terrain (potentially a quarry).

8. Aircraft Use Runway 6R/24L at Night

Gene discussed that another potential noise abatement measure would be to use Runway 6R/24L for nighttime operations. This would be for non-long-haul operating aircraft since this runway is shorter in length. This would result in a decrease in the number of non-compatible housing units off of the Runway 6 ends and an increase in the number of non-compatible housing units off of the Runway 24 ends resulting in a net reduction of 161 non-compatible housing units. He did mention that some of the housing units that would fall under the new contour have been previously sound insulated. Audie asked if this measure was for both arrivals and departures. Gene confirmed it is, but aircraft typically arrive from the 6 ends and depart toward the 24 ends.

Gene discussed the continuation/modification of existing NCP Measures NA-5 and NA-6 from the 2003 NCP. This includes Noise Abatement Departure Profiles (NADP) which is recommended as currently in use by airlines. After the meeting, a few PAC members suggested that the Airport consider requesting all operators use NADP-1 (close-in) as some operators currently use this at noise-sensitive airports around the world. Gene also discussed NA-13 which focuses on engine run-up recommendations.

Gene stated that all of these noise abatement measures and the rest of the alternatives for the NCP will be discussed further in Working Paper No. 4 which is currently being finalized by the project team and will be made available to the PAC shortly.

Audie asked if there were any further pros and cons with the night-time runway switch and Gene mentioned nothing more than what was presented in the slides. Ray asked if these measures were in lieu of sound mitigating houses. Gene mentioned that is not the best way to look at it, but ultimately the Airport will need to weigh the pros and cons of each of the noise abatement measures vs. providing sound insulation to those homes effected by the noise abatement measures.

For the use of Runway 6R/24L at night measure, Bob added that the project team could modify this measure to only be for arrivals as the increase in area for that measure would be caused by the departures off of the 24 ends. Gene stated that the next step could be to combine a couple of these measures.

Elliott asked if there was a possibility of a “Do Nothing” alternative and insulate the houses within the contour since the displaced thresholds shown on the ALP are shown as long-term projects. Gene discussed that this may be considered “double-dipping” and to have a discussion with the FAA as they would be the ones to support the funding to sound mitigate these homes and then support the funding to displace the threshold(s), which would result in these homes to then be located outside of the contour, which the FAA may not support.

Ike Tambora asked about houses built after October 1998. Gene replied that those houses are not eligible for sound insulation because they should have been made aware that they were in a high noise exposure area; however, the Airport didn’t have published contours in 1998 so the landowner may not have been made aware. He mentioned that it might be a case-by-case issue. Bob added that there is a neighborhood off of one of the runway ends that was constructed in 2006 that has already been marked as compatible land use in the NEMs due to the date of development.

Potential Land Use/Mitigation Measures

Gene discussed the difference between corrective (correct the non-compatible land uses around the Airport) and preventive (prevent new non-compatible land uses around the Airport) land use measures and reviewed the land use measures that were discussed in the 2003 NCP. He reviewed the 11 land use measures in the 2003 NCP of which eight were approved and three were disapproved for purposes of Part 150, and the only measure that was implemented was the Part 150 Residential Sound Solution Program.

Gene went through the three corrective measures from the previous NCP (RLU-1 – Land Acquisition, RLU-2 – Property Purchase Guarantee, and RLU-3 – Sound Insulation) as these could be carried over for this study. He also reviewed some potential preventive measures for consideration such as Real Estate Disclosures, Adjust Building Codes, Comprehensive Land Use Planning, Easement Acquisition, and Sales Assistance and/or Purchase Assurance Program. There were no further discussions on the land use measures.

Closing

Lynn then discussed that we are approximately halfway through the study and emphasized that the anticipated date is to submit the final NEM to the FAA in January of 2025. She added that the next time the PAC will meet will be around April 2025 to discuss the noise modeling results and presentation of the draft NCP update. This may be virtual.

Kevin Nishimura asked when Working Paper No. 4 (Noise Abatement Measures) would be made available for the PAC and pending a meeting with the Guam Department of Land Management to discuss the land use measures, how long it would take to finalize Working Paper No. 5 (Land Use Measures). Bob stated that he anticipates Working Paper No. 4 to be ready for PAC review by early December 2024 and Working Paper No. 5 to be ready for PAC review by mid-December 2024.

Chris asked if the slides for this presentation would be available prior to finalizing the Working Papers. Lynn said she will have them available around the time of the draft Working Papers. The presentation will be sent out at the same time as the meeting minutes.

The project team ended the meeting.


NOISE COMPATIBILITY PLANNING STUDY
Antonio B. Won Pat International Airport
Planning Advisory Committee Meeting #3
November 13, 2024
A.B. WON PAT INTERNATIONAL AIRPORT GUAM

1


Agenda
– Introductions
– Roles and Responsibilities
– Status of NEM
– Public Workshop #1
– Noise Compatibility Program
– Round 1 Noise Abatement Measures
– Land Use Topics
– Schedule and Meeting Topics
– Project Contacts
– PAC Member Discussion
– Wrap-up
2
NOISE COMPATIBILITY PLANNING STUDY Antonio B. Won Pat International Airport

2

Introductions – Study Team

Antonio B. Won Pat International Airport

A. B. Won Pat International Airport Authority, Guam (GIAA)

John M Quinata, Executive Manager

Dr. Ricky Hernandez, Deputy Executive Manager

Audie Artero, GIAA Project Manager

Transportation Management Group

Frank Santos
Fred Tupaz

Project Team

AECOM

Lynn Keeley
Project Manager

Elliott Lindgren
Project Director

Greg Mayer
Airport Planner

hmmh

Bob Mentzer
Technical Lead - Aircraft Noise Analysis

Gene Reindel
Technical Lead - FAR Part 150

Kevin Parker
Noise Analyst

EM Chen & Associates

Alan Chen
Local Project Manager

Introductions – Planning Advisory Committee (PAC)

FAA ADO Management

Gordon Wong
Carlos Salas

FAA Air Traffic Control Tower

Tim Cornelison

Lloyd Baker

Joseph M. Borja

FAA ADO Staff

Kandyce Watanabe, P.E.
Kevin Nishimura
Ryan Castillo

Justin Marion
Inam Amanullah

Zeus Villaforte

Andersen Air Force Base

Chris Anderson
Gino Pangilinan

Robert Navarro

Yxel Espina

ROLES AND RESPONSIBILITIES

Part 150 Study

Airport / GIAA

- Project sponsor
- Certification that documentation is true and accurate
- Recommends measures to address noncompatible land uses

FAA

- Certification that the documentation meets federal regulations and guidelines
- Approval of Airport-recommended measures

Consultant Team

- Overall project management, documentation, and outreach
- Aircraft noise analysis and abatement planning
- Noise compatibility analysis and planning
- Aviation forecast and airfield analysis

PAC

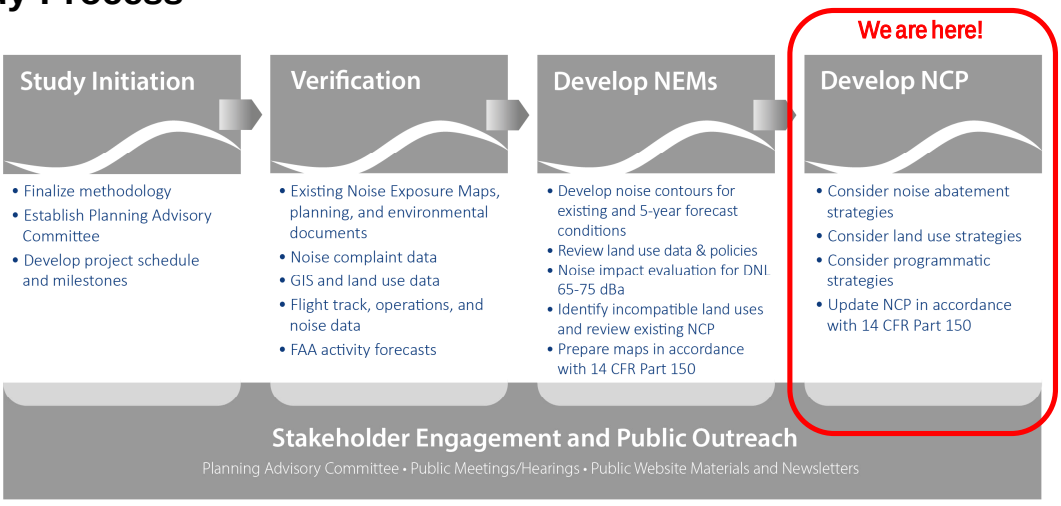
- Review study inputs, assumptions, analyses, documentation, etc.
- Input, advice, and guidance related to NEM development

Public

- Provide input on study during comment period
- Review public draft documents

PART 150 OVERVIEW

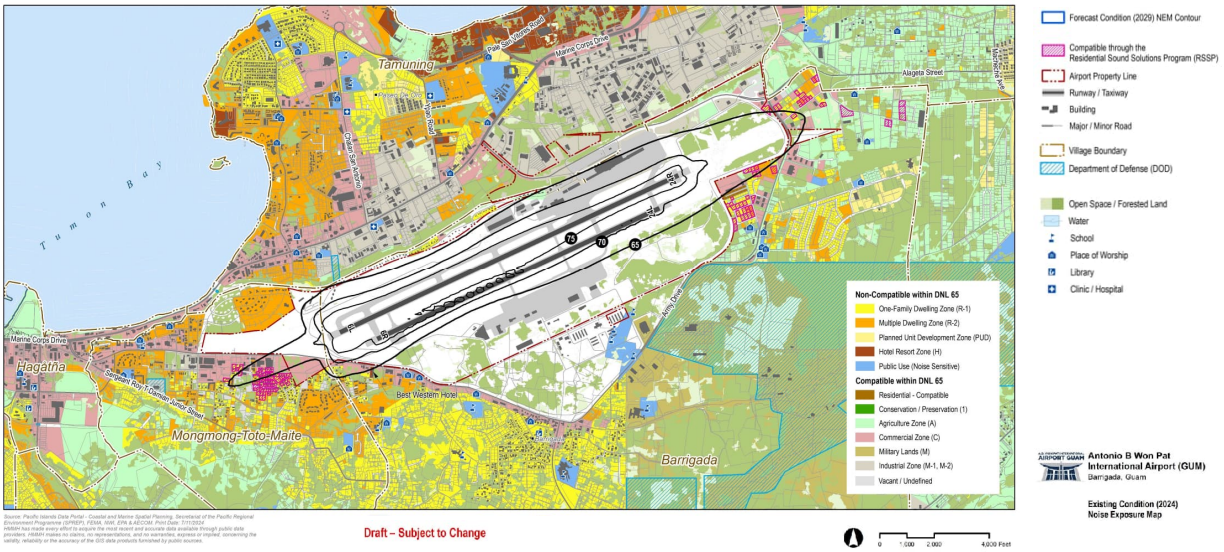
Study Process



Draft Noise Exposure Maps

7

2024 Draft Noise Exposure Map



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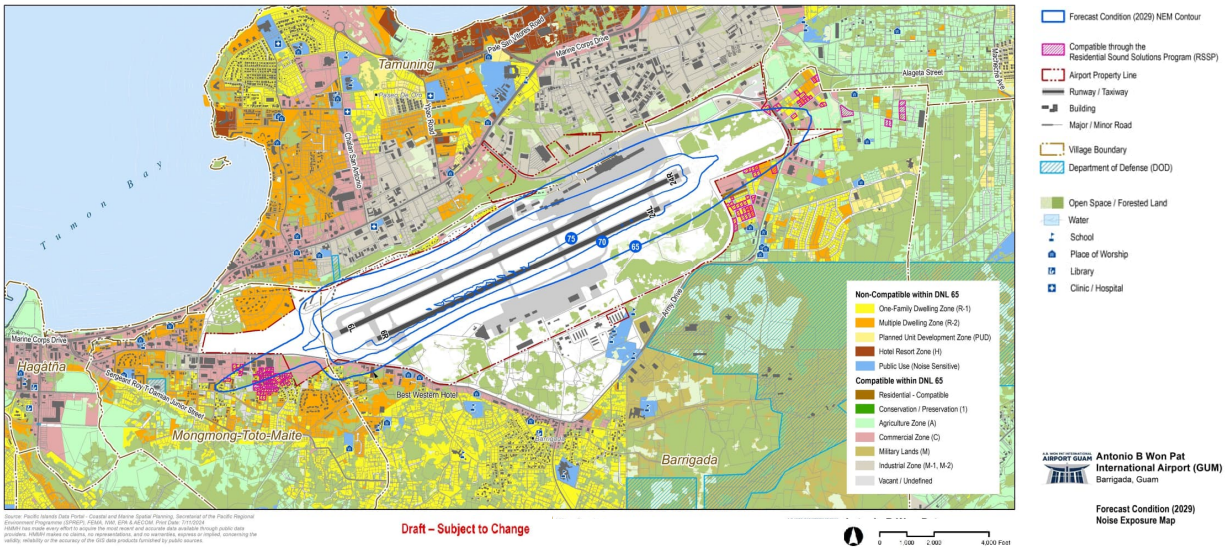
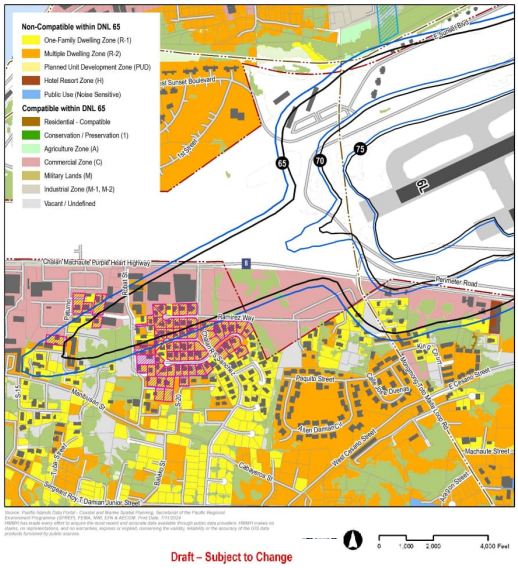
2029 Draft Noise Exposure Map

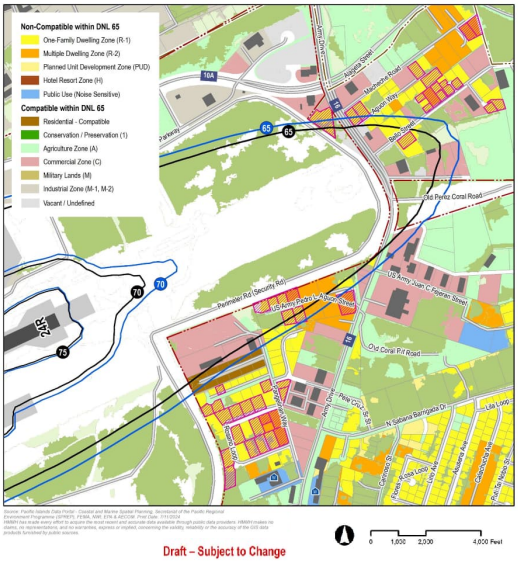


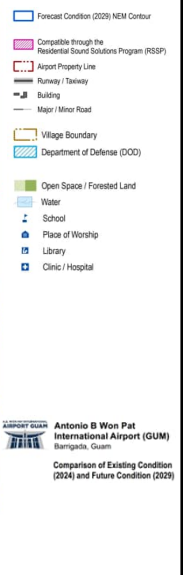
Antonio B Won Pat International Airport (GUM)
Barrigada, Guam

Forecast Condition (2029) Noise Exposure Map

Draft Noise Exposure Maps







Antonio B Won Pat International Airport (GUM)
Barrigada, Guam

Comparison of Existing Condition (2024) and Future Condition (2029)

PART 150 OVERVIEW

Status of the Draft Noise Exposure Map

- GIAA will hold a Public Comment period from November 14 to December 14, 2024
- GIAA will hold a Public Workshop on November 14, 2024
- Report documents the data used to developed the NEMs
- Public Draft Noise Exposure Maps and Report available for review:
  - At GIAA offices
  - From the Airport website
  - At Hagåtña (Main) Nieves M. Flores Memorial Library
  - At Barrigada Branch Public Library
- All public comments received will be provided to FAA along with the Final NEM Report

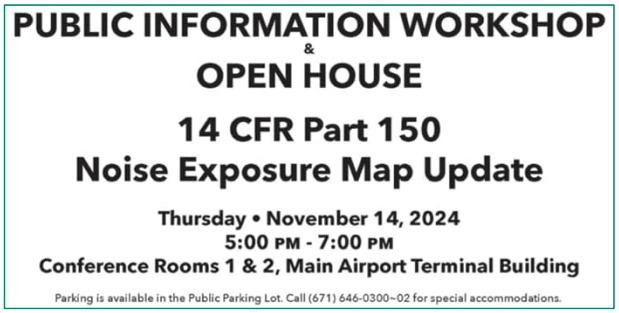
11

12

PUBLIC WORKSHOP #1

Presentation of draft NEM Maps and Report

- Workshop will begin with a short presentation
- Open House Format
  - **Four stations set up around the room**
    1. **About the Airport**
    2. **Forecast & Land Use**
    3. **Noise Modeling Data**
    4. **Noise Exposure Maps**
- Public can discuss the project with the Study Team and GIAA staff
- Public comments can be submitted at the Workshop or sent via email to giaapart150@aecom.com



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14

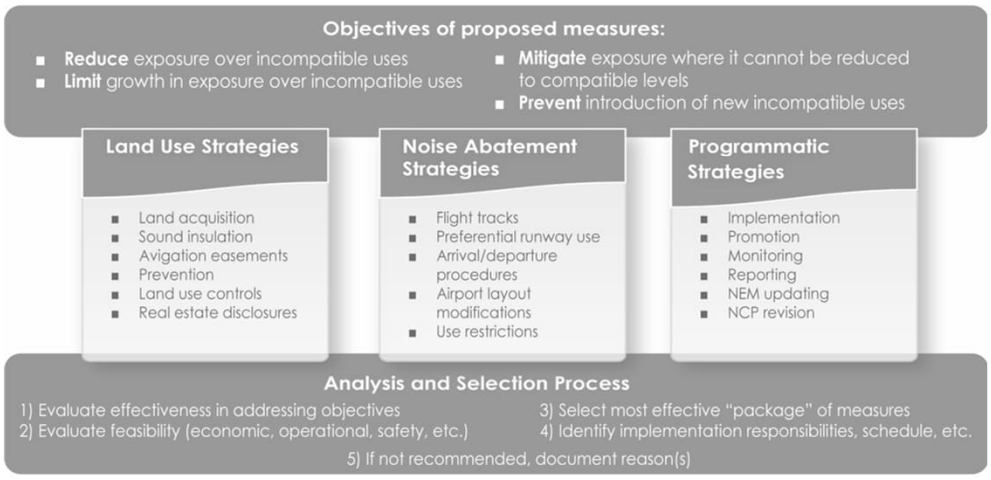
PART 150 OVERVIEW

Noise Compatibility Program

- NCP must address three major categories of recommended actions
  1. Noise abatement measures
  2. Compatible land use measures
  3. Program management/administrative measures
- FAA *accepts* NCP as compliant with Part 150 standards
- FAA reviews and *approves* or *disapproves* recommendations as compliant with Part 150 standards on a measure-by-measure basis

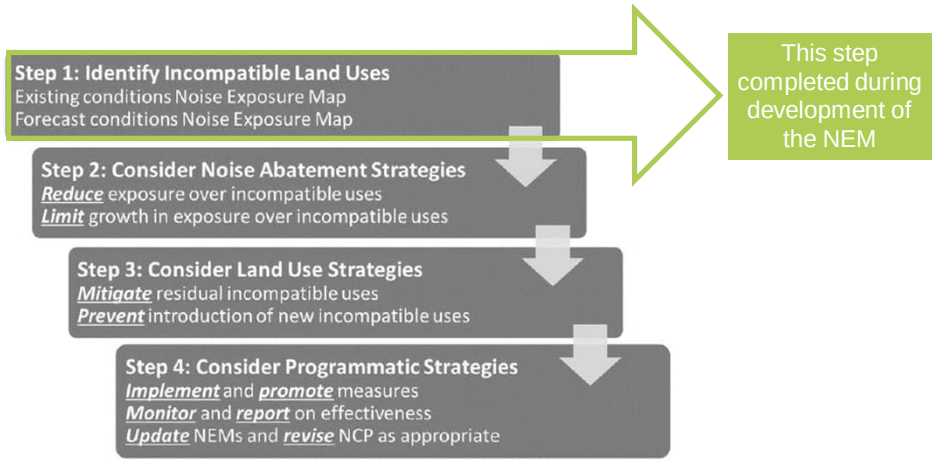
PART 150 OVERVIEW

NCP Categories



PART 150 OVERVIEW

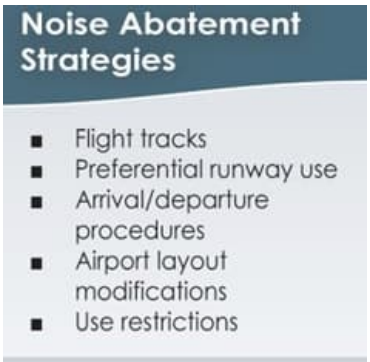
Noise Compatibility Program Development



PART 150

Noise Compatibility Program

- Stakeholder Meetings were held in May 2024
  1. Noise Abatement (NA) measures
  2. Compatible land use measures
- Considered prior NCP measures and all suggestions reviewed
- First round of NA measures suggested at PAC meeting #2 and the Stakeholder meeting were approved by GIAA for evaluation
  - Nine measures to be modeled
  - Compared to draft 2029 NEM
  - Preliminary Results presented on following slides



2003 NCP Noise Abatement Measures

Number	Title	Approval Status	Implementation Status	Considerations for 2025 GIAA NCP
NA-1	Noise Abatement Flight Tracks	Disapproved for Part 150	Not Implemented	Modify
NA-2	Standard Instrument Departure Procedures	Disapproved for Part 150	Not Implemented	Modify
NA-3	Delayed Flap and Gear Extension Approaches	Disapproved for Part 150	Not Implemented	Eliminate
NA-4	Restriction on Visual Approaches	Disapproved for Part 150	Not Implemented	Eliminate
NA-5	Close-in Noise Abatement Departure Procedures	No Action Required	Implemented by Airlines	Continue
NA-6	Distant Noise Abatement Departure Procedure	No Action Required	Implemented by Airlines	Continue
NA-7	FMS/GPS Applications, Use of On-Board Equipment	Disapproved for Part 150	Not Implemented	Eliminate
NA-8	Establish Displaced Threshold	Disapproved for Part 150	Not Implemented	Modify
NA-9	Establish Noise Barriers	Disapproved for Part 150	Not Implemented	Modify
NA-10	High Speed Exit Taxiways	Disapproved for Part 150	Not Implemented	Eliminate
NA-11	Operational Fees Based on Noise	Disapproved for Part 150	Not Implemented	Eliminate
NA-12	Voluntary Fleet Mix Goals	Disapproved for Part 150	Not Implemented	Eliminate
NA-13	Engine Run-Up Restrictions	Disapproved for Part 150	Not Implemented	Modify

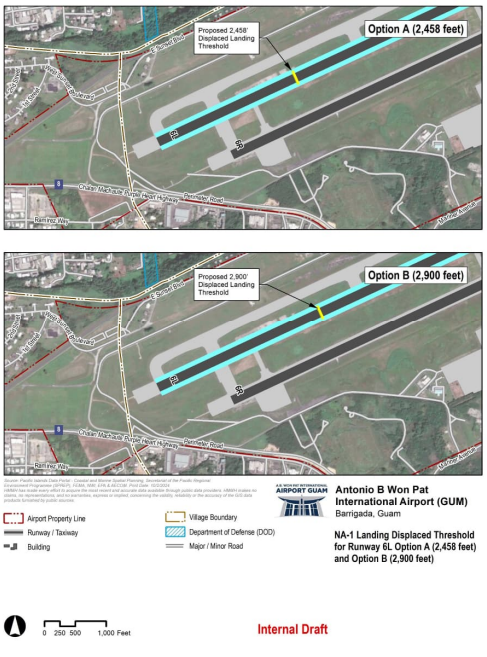
Source: GIAA & HMMH, 2024

NOISE ABATEMENT

Displaced Landing Threshold

Runway 6L

- Option A – 2,458 feet from Master Plan
  - 1,458 feet longer than existing Displaced threshold
  - Landing Distance Available (9,556 feet)
- Option B – 2,900 feet from Master Plan
  - 1,900 feet longer than existing Displaced threshold
  - Landing Distance Available (9,114 feet)



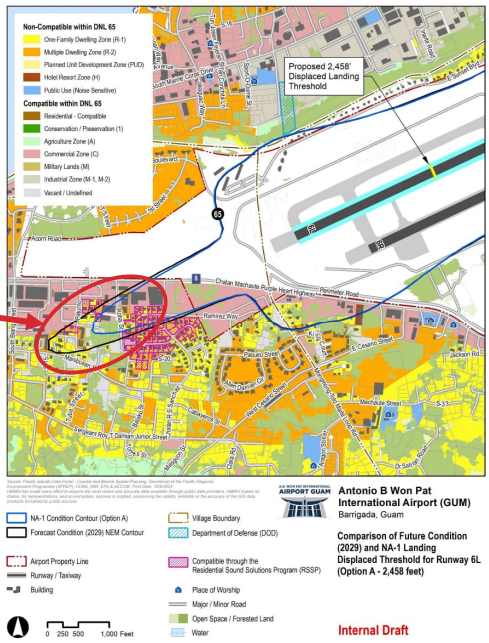
NOISE ABATEMENT
Displaced Landing Threshold

Runway 6L – Option A

- Reduction of 113 noncompatible housing units
- Aircraft higher on approach

Results	Option A (Yes/No)
Provides Benefit within the DNL 65 dB contour	Yes
Does not include additional noncompatible land uses	Yes
May reduce noise levels outside the DNL 65 dB contour	Yes
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes

Area of Noise Reduction



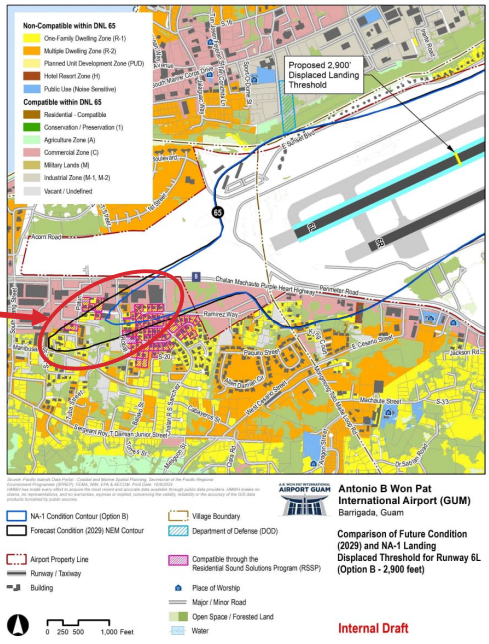
NOISE ABATEMENT
Displaced Landing Threshold

Runway 6L – Option B

- Reduction of 117 noncompatible housing units
- Aircraft higher on approach

Results	Option B (Yes/No)
Provides Benefit within the DNL 65 dB contour	Yes
Does not include additional noncompatible land uses	Yes
May reduce noise levels outside the DNL 65 dB contour	Yes
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes

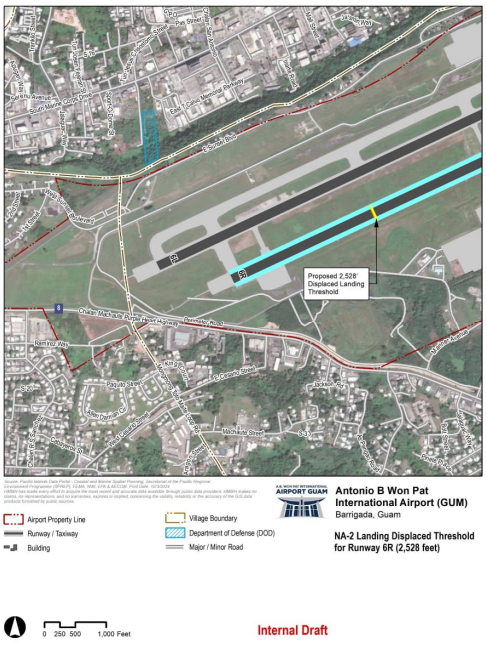
Area of Noise Reduction



NOISE ABATEMENT
Displaced Landing Threshold

Runway 6R

- 2,528 feet from Master Plan
  - Landing Distance Available (7,486 feet)



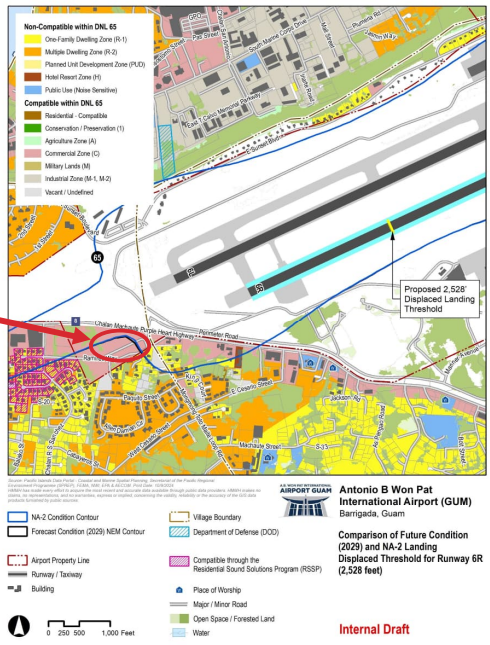
NOISE ABATEMENT
Displaced Landing Threshold

Runway 6R

- No change in noncompatible housing units
- Aircraft higher on approach

Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	No
Does not include additional noncompatible land uses	Yes
May reduce noise levels outside the DNL 65 dB contour	Yes
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes

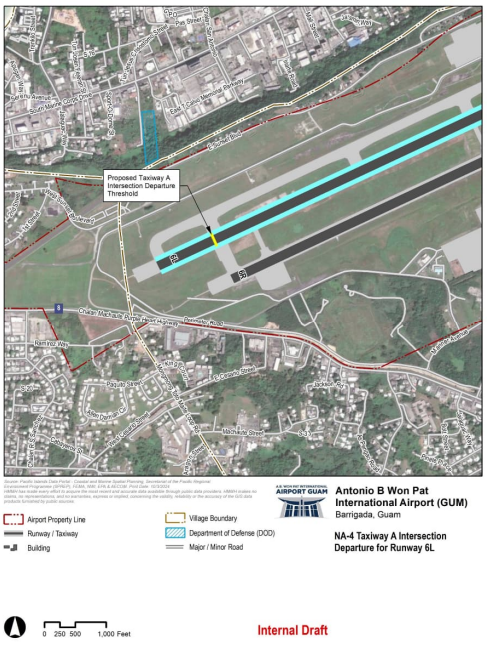
Area of Noise Reduction



NOISE ABATEMENT
Intersection Departures on Runway 6L

Runway 6L

- Aircraft would depart from Taxiway A
  - Takeoff Distance Available (11,014 feet)
  - B747 and B777-300 would still use full length
  - Full length available at pilot request



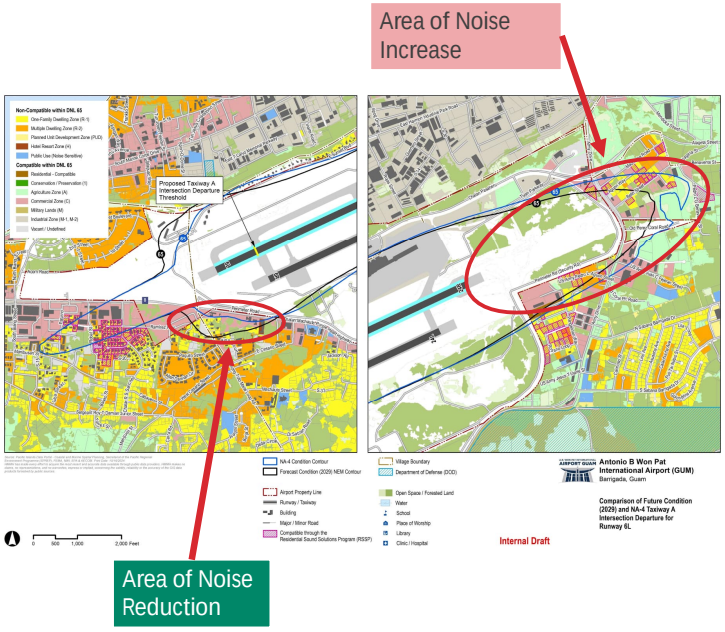
25

NOISE ABATEMENT
Intersection Departures on Runway 6L

Runway 6R

- Net reduction of 24 noncompatible housing units
- Aircraft lower on departure northeast of airport

Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	Yes
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes

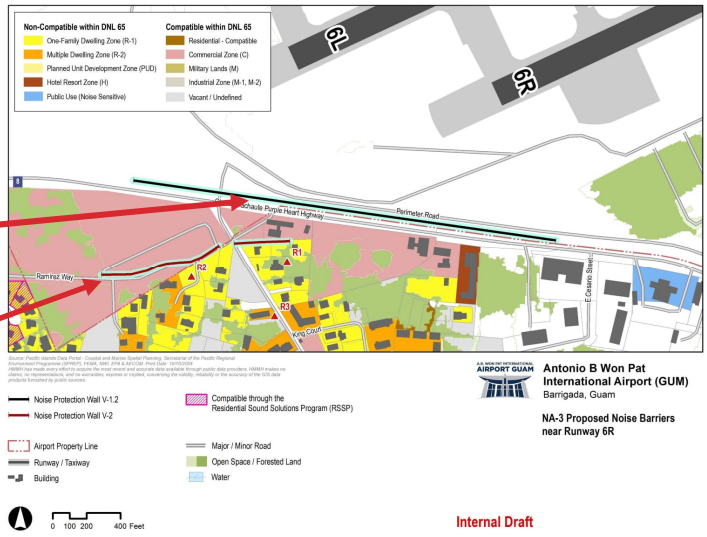


26

NOISE ABATEMENT
Noise Barriers Southwest of Airport

Two Potential Barriers Evaluated

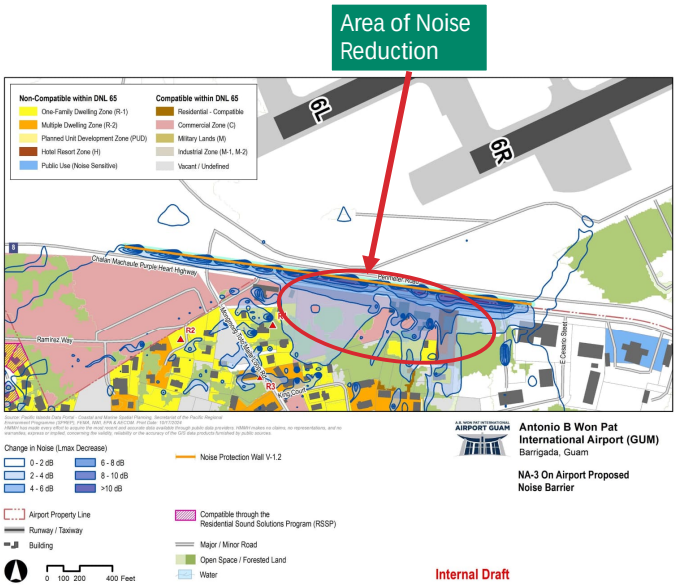
- One Along Route 8 on Airport Property near Runway
- One Along Ramirez Way Partially on Airport Property near residences



NOISE ABATEMENT
Noise Barrier Along Route 8

- Two dB or less reduction near housing units
- Could provide reduction for hotel
- Airspace likely limit length & height of barrier

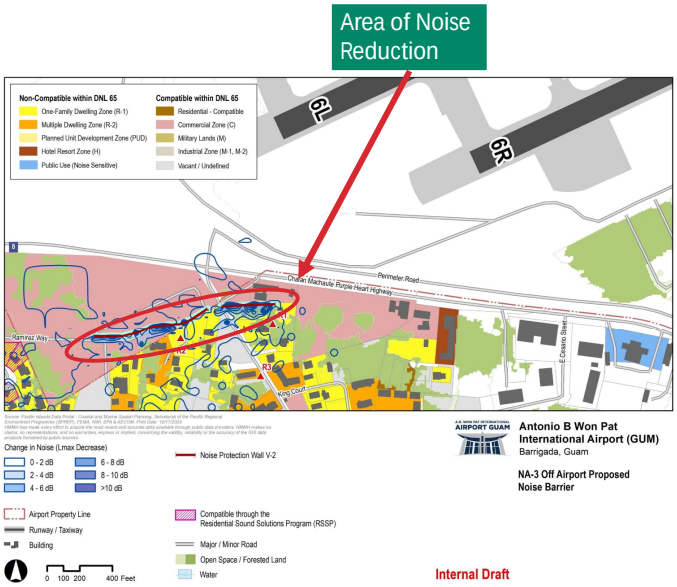
Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	No
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	No
Likely not to result in capacity issues	Yes



NOISE ABATEMENT
Noise Barrier Along Ramirez Way

- Higher reduction only for adjacent housing units
- Airspace likely limit length & height of barrier

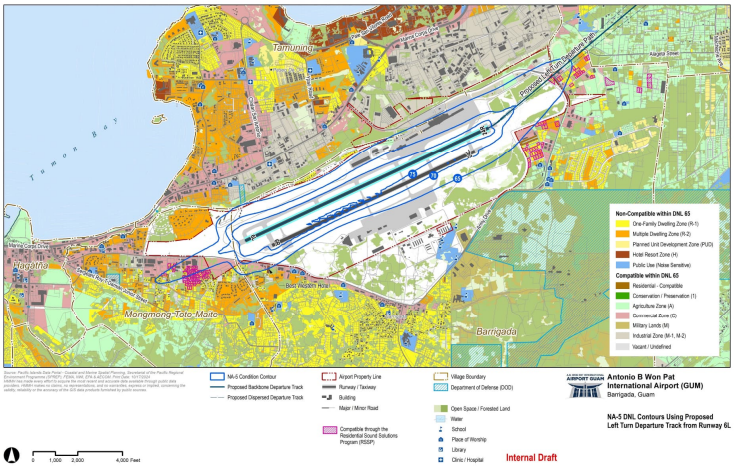
Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	No
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	No
Likely not to result in capacity issues	Yes



NOISE ABATEMENT
Departures on Runway 6L Turn Left

Runway 6L

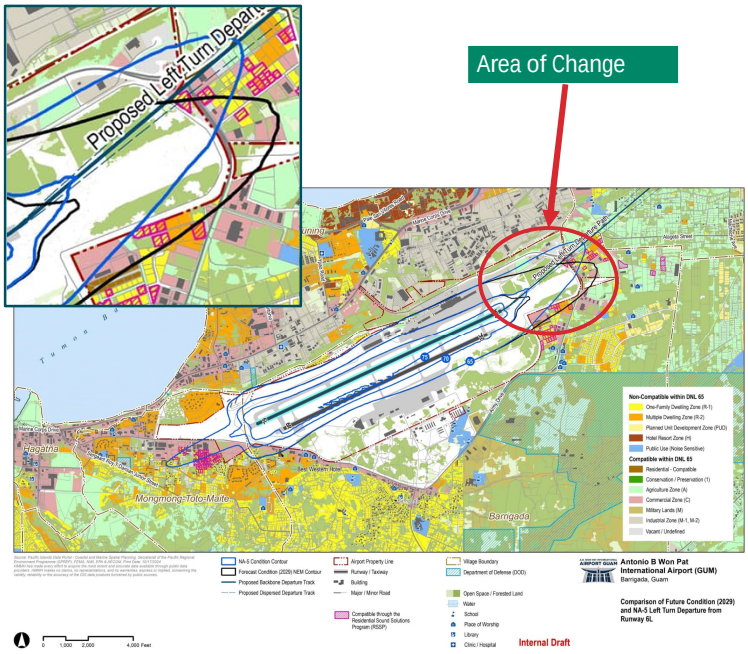
- Aircraft would turn left after departing from Runway 6L
  - Turn 15 degrees to left to avoid residential areas



NOISE ABATEMENT
Departures on Runway 6L Turn Left

- Net reduction of 12 noncompatible housing units

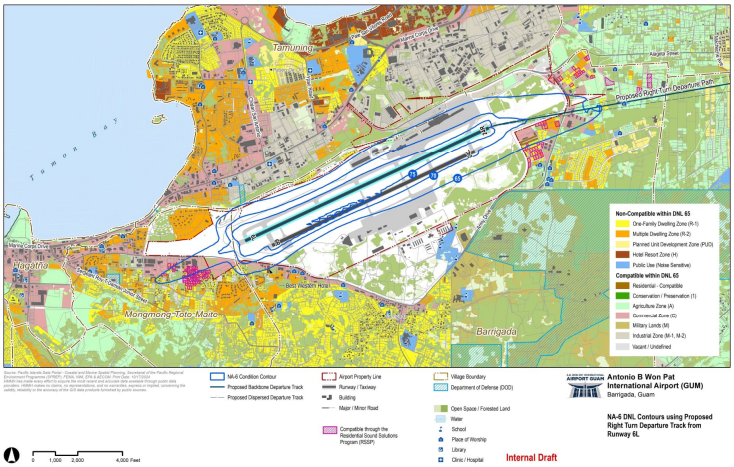
Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	Yes
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes



NOISE ABATEMENT
Departures on Runway 6L Turn Right

Runway 6L

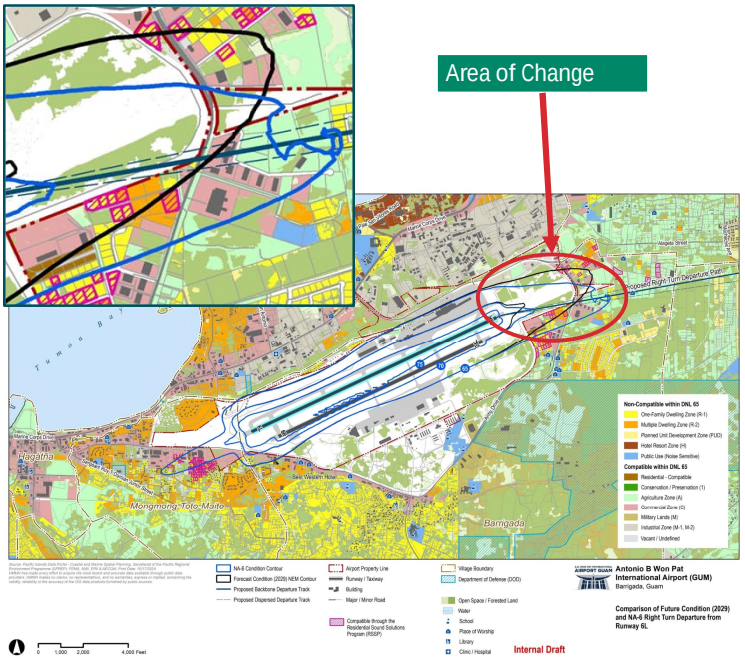
- Aircraft would turn right after departing from Runway 6L
  - Turn 15 degrees to right to avoid residential areas



NOISE ABATEMENT
Departures on Runway 6L Turn Right

- Net addition of 15 noncompatible housing units

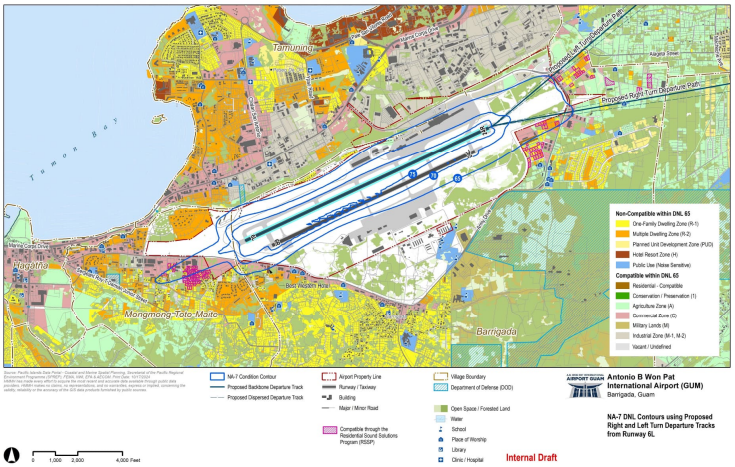
Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	No
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes



NOISE ABATEMENT
Departures on Runway 6L Turn Left or Right

Runway 6L

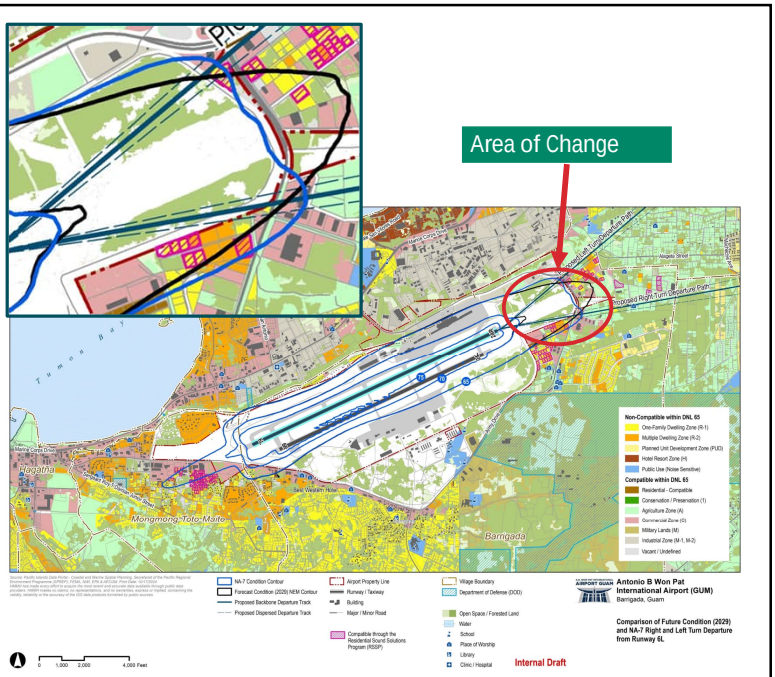
- Aircraft would turn left or right after departing from Runway 6L
  - Turn 15 degrees to left or right to avoid residential areas
  - Modeled ½ use on each flight path



NOISE ABATEMENT
Departures on Runway 6L Turn Left or Right

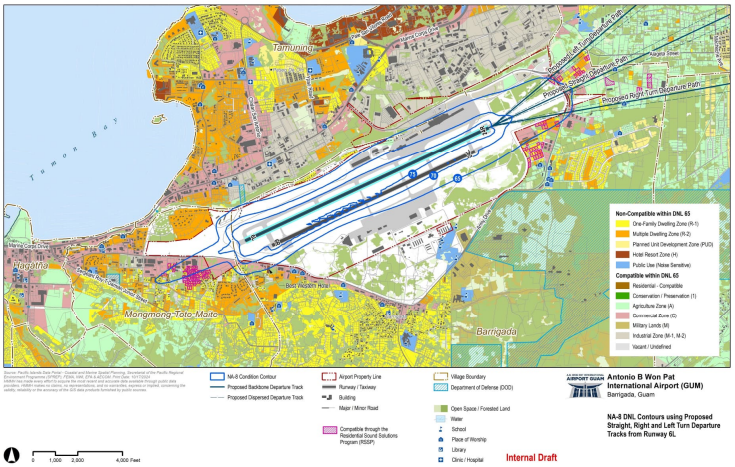
- Net addition of one noncompatible housing units

Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	No
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes



NOISE ABATEMENT
Departures Use Runway Heading and Right and Left Turns at the End of Runway 6L

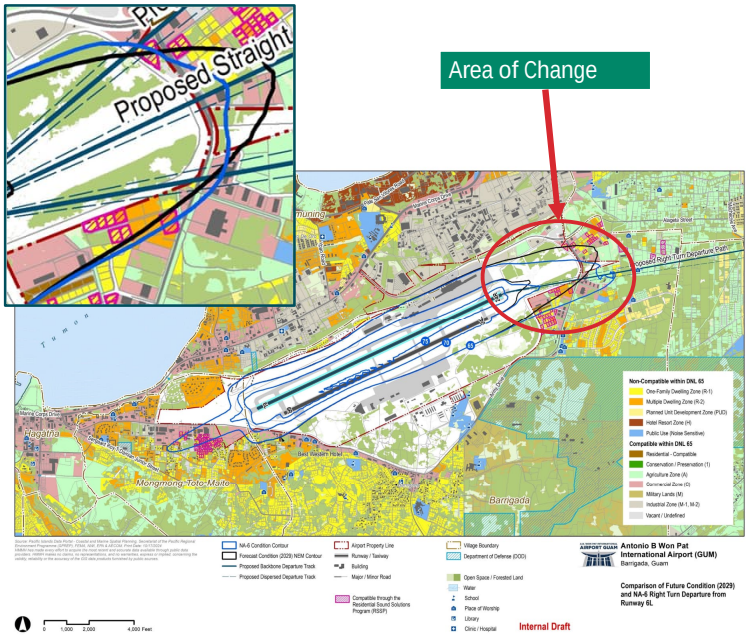
- Aircraft would fly runway heading or turn left or right after departing from Runway 6L
  - Turn 15 degrees to the left or right to avoid residential areas
  - Modeled 1/3 use on each path



NOISE ABATEMENT
Departures Use Runway Heading and Right and Left Turns at the End of Runway 6L

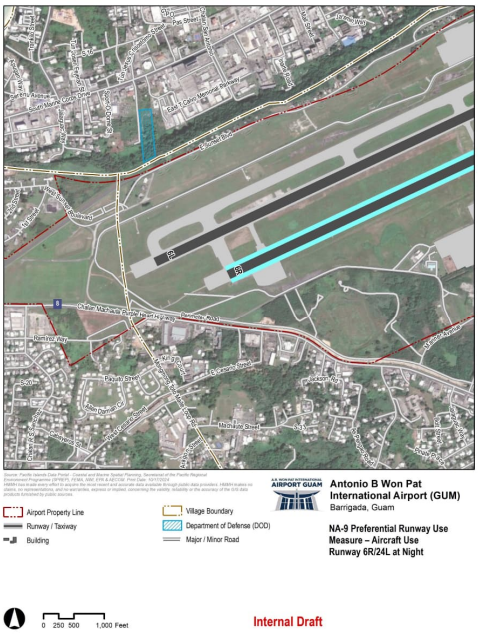
- Net reduction of one noncompatible housing units

Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	No
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes



NOISE ABATEMENT
Aircraft Use Runway 6R/24L at Night

- Night only when operations are reduced
- All arrivals and departures on Runway 6R/24L
  - Except for long-haul operations (Stage lengths greater than 4)

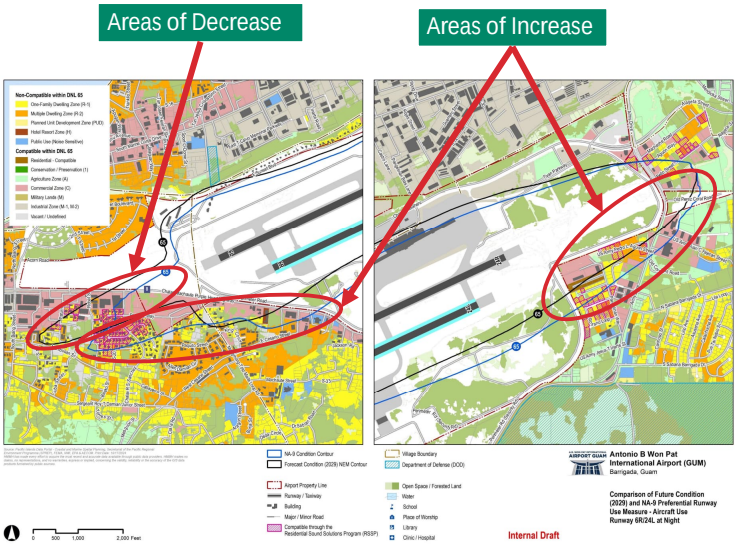


NOISE ABATEMENT

Aircraft Use Runway 6R/24L at Night

- Net reduction of 161 noncompatible housing units

Results	(Yes/No)
Provides Benefit within the DNL 65 dB contour	Yes
Does not include additional noncompatible land uses	No
May reduce noise levels outside the DNL 65 dB contour	No
Likely not to result in airspace issues	Yes
Likely not to result in capacity issues	Yes



NOISE ABATEMENT

Continue / Modify Existing NCP Measures

- Combine NA-5 and NA-6 from 2003 NCP
  - Noise Abatement Departure Profiles (NADP)
  - Voluntary Measure
  - Recommend as currently in use by Airlines
  - ICAO-A: International Airlines
  - ICAO-B: Domestic Airlines
- Modify NA-13 from 2003 NCP
  - Engine Run-up Recommendations
  - Voluntary Measure
  - Preferred location on airfield for maintenance run ups
  - Recommend heading for idle runups on ramps

Discussion:
Noise Abatement Measures

- PAC recommendations:
  - Measures to proceed with?
  - Measures not to proceed?
  - Additional measures to consider?

- **Purpose of NA measures:** to reduce exposure over noncompatible land uses

Noise Abatement Strategies

- Flight tracks
- Preferential runway use
- Arrival/departure procedures
- Airport layout modifications
- Use restrictions

41

Land Use

42

Land Use/Mitigation Measures

- There are two types of land use measures
  - Corrective – intended to correct existing noncompatible land uses.
  - Preventive – intended to prevent future noncompatible land uses
- Local jurisdictions typically have implementation and enforcement responsibilities
  - Neither the FAA nor the Airport have control over land uses outside of the Airport boundary
  - Therefore, it is the responsibility of the jurisdiction(s) to obtain and preserve compatible land use around the Airport

2003 NCP Land Use Measures

Number	Title	Approval Status	Implementation Status	Considerations for 2025 GIAA NCP
LU-1	Amend Local Land Use Plans to Bring Them into conformance with GIAA's Noise Compatibility Guidelines	Approved	Not Implemented	Continue/Modify/Eliminate?
LU-2	Zone for Compatible Land Development	Approved	Not Implemented	
LU-3	Apply Zoning Performance Standards	Approved	Not Implemented	
LU-4	Establish a Public Information Program	Approved	Not Implemented	
LU-5	Revise Building Codes	Disapproved for Part 150	Not Implemented	
LU-6	Dedication of Avigation Easements	Disapproved for Part 150	Not Implemented	
LU-7	Fair Property Disclosure Policy	Approved	Not Implemented	
LU-8	Land Banking	Disapproved for Part 150	Not Implemented	
RLU-1	Acquire Developed Property in Non-Compatible Uses	Approved	Not Implemented	
RLU-2	Property Purchase Guarantee	Approved	Not Implemented	
RLU-3	Part 150 Sound Mitigation Program	Approved	Implemented	Continue

Source: GIAA & HMMH, 2024

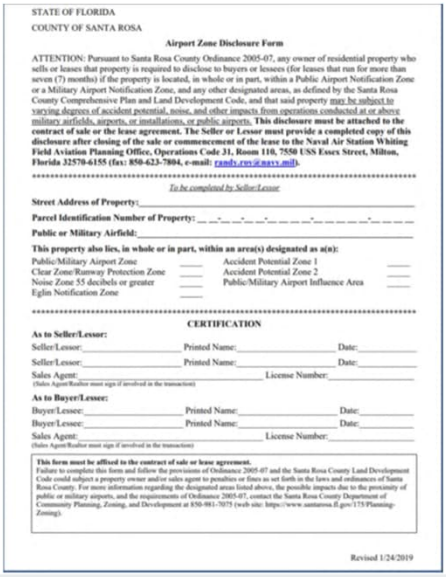
Land Use/Mitigation Measures

- Existing Corrective Measures **(For Discussion)**
  - **RLU-1 Land Acquisition** – Approved under the 2003 Part 150 for noncompatible parcels within the DNL 65 dB. Properties will be converted to compatible use.
    - No properties have been acquired by GIAA
  - **RLU-2 Property Purchase Guarantee** - Approved under the 2003 Part 150 for noncompatible parcels within the DNL 65 dB. Properties will be acquired, mitigated and returned to residential use.
    - No properties have been acquired by GIAA
  - **RLU-3 Sound Insulation** – Approved under 2003 Part 150 for noncompatible parcels (residential, schools, public buildings) within the DNL 65 dB.
    - 183 single family houses and 24 multifamily buildings with 59 units have been acoustically treated

Land Use/Mitigation Measures

Potential Preventive Measures
Additional Measures for Consideration

- Real Estate Disclosures
  - Mechanism for informing buyers of property in airport vicinity about aircraft noise (providing "disclosure")
  - Requirement that sellers and/or real estate brokers must inform buyers
  - Part of the sales agreement
  - Disclosure of this type is generally enacted at the county or state level
  - Applicable to properties within a specific noise contour or within a certain distance from an airport



STATE OF FLORIDA
COUNTY OF SANTA ROSA

Airport Zone Disclosure Form

ATTENTION: Pursuant to Santa Rosa County Ordinance 2005-07, any owner of residential property who sells or leases that property is required to disclose to buyers or lessees (for leases that run for more than seven (7) months) if the property is located, in whole or in part, within a Public Airport Notification Zone or a Military Airport Notification Zone, and any other designated areas, as defined by the Santa Rosa County Comprehensive Plan and Land Development Code, and that said property may be subject to varying degrees of accident potential, noise, and other impacts from operations conducted at or above military airfields, airports, or installations, or public airports. **This disclosure must be attached to the contract of sale or the lease agreement. The Seller or Lessor must provide a completed copy of this disclosure after closing of the sale or commencement of the lease to the Naval Air Station Whiting Field Aviation Planning Office, Operations Code 31, Room 110, 7550 USS Essex Street, Milton, Florida 32570-6155 (fax: 850-623-7004, e-mail: randy.cox@navy.mil).**

To be completed by Seller/Lessor

Street Address of Property:_____

Parcel Identification Number of Property: __-__-__-____-___-___-____-____

Public or Military Airfield:_____

This property also lies, in whole or in part, within an area(s) designated as a(n):

Public/Military Airport Zone	____	Accident Potential Zone 1	____
Clear Zone/Runway Protection Zone	____	Accident Potential Zone 2	____
Noise Zone 55 decibels or greater	____	Public/Military Airport Influence Area	____
Eglin Notification Zone	____		

CERTIFICATION

As to Seller/Lessor:

Seller/Lessor:_____ Printed Name:_____ Date:_____

Seller/Lessor:_____ Printed Name:_____ Date:_____

Sales Agent:_____ License Number:_____

(Sales Agent/Realtor must sign if involved in the transaction)

As to Buyer/Lessee:

Buyer/Lessee:_____ Printed Name:_____ Date:_____

Buyer/Lessee:_____ Printed Name:_____ Date:_____

Sales Agent:_____ License Number:_____

(Sales Agent/Realtor must sign if involved in the transaction)

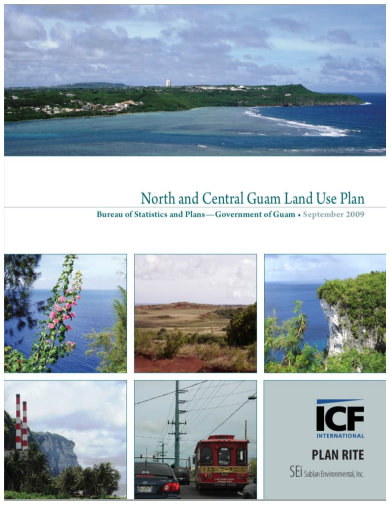
This form must be affixed to the contract of sale or lease agreement.
Failure to complete this form and follow the provisions of Ordinance 2005-07 and the Santa Rosa County Land Development Code could subject a property owner and/or sales agent to penalties or fines as set forth in the laws and ordinances of Santa Rosa County. For more information regarding the designated areas listed above, the possible impacts due to the proximity of public or military airports, and the requirements of Ordinance 2005-07, contact the Santa Rosa County Department of Community Planning, Zoning, and Development at 850-981-7075 (web site: https://www.santarosa.fl.gov/175/Planning-Zoning).

Revised 1/24/2019

Land Use/Mitigation Measures

Potential Preventive Measures
Additional Measures for Consideration

- Adjust Building Codes
  - Intended to raise minimum building standards in vicinity of an airport
  - Intended to promote compatible land uses in airport vicinity
- Comprehensive Land Use Planning
  - GIAA and DLM would participate in land use planning efforts
  - Intended to prevent noncompatible land uses from being developed in airport vicinity
  - Airport Noise Overlay District (possible)



Land Use/Mitigation Measures

Potential Corrective Measures
Additional Measures for Consideration

- Easement Acquisition
  - Airport purchases avigation easement from property owner
  - Easement is attached to the property deed in perpetuity
  - No change in land use
- Sales Assistance and/or Purchase Assurance Program
  - Owners wishing to relocate outside the DNL 65 dB area are provided with technical and financial assistance in the sale of their home or able to sell their property directly to the Airport in exchange for an avigation easement
  - Property is made compatible and resold on open market
  - Possible change in land use

Discussion:
Land Use Measures

- PAC recommendations:
  - Measures to proceed with?
  - Measures not to proceed?
  - Additional measures to consider?

- **Purpose of NA measures:**
  - Corrective – to correct existing noncompatible land uses.
  - Preventive – to prevent future noncompatible land uses

Schedule and Meeting Topics

Proposed Schedule

We are here!

Note: Schedule is subject to change

Meeting / Activity	Purpose	Anticipated Time Frame
Kick-Off Meeting with GIAA and the Part 150 Team	Define organizational and procedural matters and public outreach, review and refine scope and schedule details.	July 25, 2023
1st Planning Advisory Committee Meeting	Introduction to Part 150, discuss stakeholder roles, identify issues of concern	November 8, 2023
2nd Planning Advisory Committee Meeting	Discussion on aviation forecasts, noise modeling results and presentation of the draft NEM Update	May 22, 2024
NEM Public Comment Period and 1st Public Workshop	Overview of Part 150 process, Noise Modeling, Noise Exposure Maps, Introduction to NCP, NEM thirty-day public comment period	November 2024
3rd Planning Advisory Committee Meeting	2nd Round results of the proposed Noise Abatement Measures, Land Use and Program Management measures.	November 2024
GIAA to Submit Final NEM to FAA	GIAA submits final updated NEM to FAA for review and acceptance. Respond to FAA questions as needed	January 2025
2nd Public Workshop (virtual)	Review Proposed Noise Compatibility Program measures	April 2025
4th Planning Advisory Committee Meeting	Noise modeling results and presentation of the draft NCP Update	April 2025
NCP Public Comment Period, 3rd Public Workshop, and NCP hearing	NCP thirty-day public comment period and third Public Workshop and NCP Hearing.	September 2025
GIAA to Submit Final NCP to FAA	GIAA submits final updated NCP to FAA for review and approval. Respond to FAA questions as needed.	December 2025

Project Contacts

Project Contacts:

GIAA
PO Box 8770, Tamuning, Guam
671-646-0300

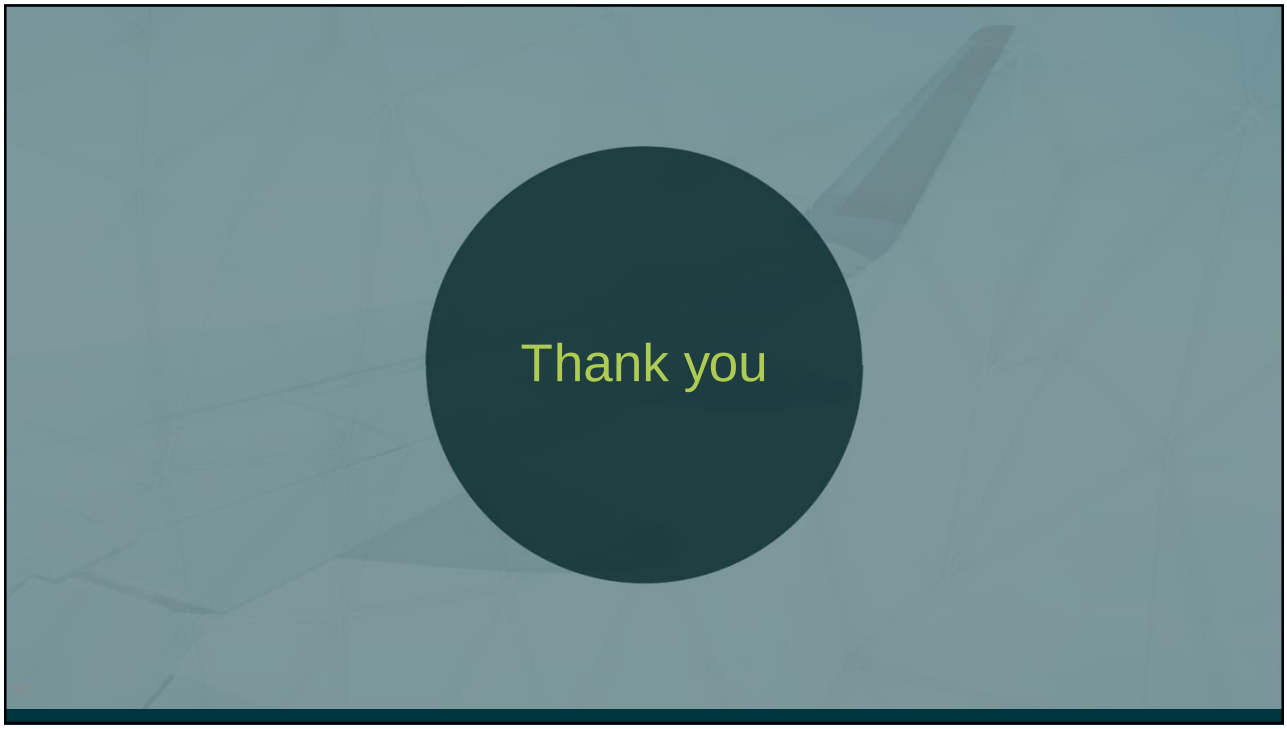
AECOM Lynn Keeley
Lynn.Keeley@aecom.com
215-696-3524

HMMH Robert Mentzer
rmentzer@hmmh.com
339-234-8703

Wrap Up

- Next PAC meeting:
  - **Target Date: April 2025**
  - Location: (Virtual)
  - Primary topics:
    - Noise Compatibility Program update process
    - Strategies to address non-compatible land uses identified in the NEM
      - Noise abatement strategies
      - Land use strategies
      - Program management strategies

53



54

D.2 Public Workshop and Newsletter

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Public Information Workshop Notices

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EDITH MATANANE LEON GUERRERO
P.O. BOX 24681
Barrigada, Guam 96921
Telephone: (671) 788-1920
Appearing PRO SE

IN THE SUPERIOR COURT OF GUAM
IN THE MATTER OF THE ESTATE OF
JOSEPHINE LEON GUERRERO BORJA
aka JOSEPHINE L.G. BORJA
aka JOSEPHINE MATANANE LEON GUERRERO
aka JOSEPHINE M. LEON GUERRERO
Decedent,
BY
EDITH MATANANE LEON GUERRERO, Petitioner.
PROBATE CASE NO. PR0154-24

NOTICE OF HEARING PETITION FOR LETTERS OF ADMINISTRATION

THIS NOTICE IS REQUIRED BY LAW. YOU ARE NOT REQUIRED TO APPEAR IN COURT UNLESS YOU DESIRE

NOTICE IS GIVEN by the Petitioner Edith Matanane Leon Guerrero, has filed herein a Petition for Letters of Administration upon the Estate of Josephine Leon Guerrero Borja aka Josephine L.G. Borja aka Josephine Matanane Leon Guerrero aka Josephine M. Leon Guerrero, and the time and place of said hearing is in the Superior Court of Guam, Guam Judicial Center, 120 West O'Brien Drive, Hagåtña, Guam 96910 on October 23, 2024, at the hour of 9:30 a.m. o'clock and all persons interested are hereby notified to appear and show cause, if any they have, why said Petition should not be granted.

Reference is made to said Petition for further particulars.

Dated: September 9, 2024

JANICE M. CAMACHO-PEREZ
CLERK, SUPRERIOR COURT OF GUAM
/S/ PAULINE I. UNTALAN
CHAMBER/COURTROOM CLERK

You may appear in person at the Courtroom of Judge Dana A. Gutierrez, 120 W. O'Brien Drive, Hagatña, Guam or you may participate via Zoom by logging onto https://guamcourts-org.zoom.us and enter the Meeting ID: 839 7874 0380 and Passcode: 189701. For technical assistance, please call (671) 475-3207 five (5) minutes prior the designated hearing time.

LUJAN & WOLFF LLP
Attorneys at Law
Suite 300, DNA Building
238 Archbishop Flores Street
Hagåtña, Guam 96910
Telephone (671) 477-8064/5
Facsimile (671) 477-5297
Attorneys for Petitioner
Eugenia Fejerang

IN THE SUPERIOR COURT OF GUAM

IN THE MATTER OF THE ESTATE
OF
EUGENIO MILLIONES VEGAFRIA
Deceased.

PROBATE CASE NO. PR0082-24

NOTICE OF HEARING ON PETITION FOR LETTERS OF ADMINISTRATION

NOTICE IS HEREBY GIVEN that EUGENIA FEJERANG has filed herein her Petition for Letters of Administration upon the Estate of EUGENIO MILLIONES VEGAFRIA also known as EUGENIO MILLIONES VEGAFRIA JR., Deceased, and that on OCT 23 2024, at 9:30 a.m., before the Honorable Dana A. Gutierrez, at the Superior Court of Guam, Guam Judicial Center, 120 West O'Brien Drive, Hagåtña, Guam, 96910-5174, has been set the hearing on said petition and all persons interested are hereby notified to appear at the time and place set for said hearing and show cause if any they have why the petition should not be granted.

Reference is hereby made to the said petition for further particulars.

Dated : SEP 17, 2024.

By: /s/ Pauline I. Untalan
Chamber/Courtroom Clerk
SUPERIOR COURT OF GUAM

You may appear in person at the Courtroom of Judge Dana A. Gutierrez, 120 W. O'Brien Drive, Hagåtña, Guam or you may participate Via Zoom by logging onto https://guamcourts-org.zoom.us and enter the **Meeting ID: 839 7874 0380** and **Passcode: 189701**. For technical assistance, please call (671) 475-3207 five (5) minutes prior the designated hearing time.

A.B. WON PAT INTERNATIONAL AIRPORT GUAM

PUBLIC NOTICE

The A.B. Won Pat International Airport Authority, Guam (GIAA), an autonomous agency of the Government of Guam, will host a Public Information Workshop to present information on the 14 CFR Part 150 Noise Exposure Map Update. An overview of the Part 150 Noise Study process, introduction to noise metrics, the updated Draft Noise Exposure Map, and next steps in the study process will be presented. The Public Information Workshop will be conducted in an open-house format with a brief presentation at the start and a series of information stations will be set up to allow members of the public to ask questions of the study team and GIAA.

PUBLIC INFORMATION WORKSHOP
&
OPEN HOUSE

14 CFR Part 150
Noise Exposure Map Update

Thursday • November 14, 2024
5:00 PM - 7:00 PM
Conference Rooms 1 & 2, Main Airport Terminal Building

Parking is available in the Public Parking Lot. Call (671) 646-0300~02 for special accommodations.
This ad is paid for by GIAA.

Public Information Workshop & Open House on 14 CFR Part 150 Draft Noise Exposure (NEM) Map Update & Availability for Public Review & Comment

Thursday, October 31, 2024

The A.B. Won Pat International Airport Authority, Guam (GIAA), an autonomous agency of the Government of Guam, announces that on Thursday, November 14, 2024, they will hold a Public Information Workshop & Open House on the 14 CFR Part 150 Draft Noise Exposure Map (NEM) Update report. The workshop and open house will be held from 5:00pm to 7:00pm at the Airport Terminal Building in Conference Rooms 1 and 2 on the ground floor above the Arrivals Lobby.

Also on November 14th, the 14 CFR Part 150 Draft NEM Update report will be available for a 30-day public review period through December 14, 2024 from 8:00AM to 5:00PM ChST, Monday through Friday except official holidays. Hardcopies of the Draft NEM Update report will be available at the following three (3) locations:

- GIAA Administrative Office – 3rd Floor Main Airport Terminal Bldg.
  355 Chalan Pasaheru, Tamuning, Guam 96913
- Nieves M. Flores Memorial Library
  254 Martyr Street, Hagåtña, Guam 96910
- Barrigada Branch Public Library
  177 San Roque Drive, Barrigada, Guam 96913

The report will also be available to view or download at www.guamairport.com. Comments may be submitted at any time during the public comment period, at the Public Information Workshop, submission of Comment Forms at the locations above, by email to giaapart150@aecom.com, or by mail to:

Mr. John M. Quinata – Executive Manager
A.B. Won Pat International Airport Authority, Guam
P.O. Box 8770, Tamuning, Guam 96931

Comments must be received no later than 5:00PM on December 14, 2024.

LATEST NEWS

- REMINDER – Public Information Workshop & Open House...
- Public Information Workshop & Open House on 14...
- GUAM'S AIRPORT TERMINAL POISED FOR A "FLOOR LIFT"
- Guam's Artemio "Ricky" Hernandez named 2024-2025 Obama Foundation...
- Strong Investor Demand of Guam Airport Bonds Leads...

View Archives

REMINDER – Public Information Workshop & Open House on 14 CFR Part 150 Draft Noise Exposure (NEM) Map Update & Availability for Public Review & Comment

Thursday, November 7, 2024

The A.B. Won Pat International Airport Authority, Guam (GIAA), an autonomous agency of the Government of Guam, is reminding the public that on Thursday, November 14, 2024, they will hold a Public Information Workshop & Open House on the 14 CFR Part 150 Draft Noise Exposure Map (NEM) Update report. The workshop and open house will be held from 5:00pm to 7:00pm at the Airport Terminal Building in Conference Rooms 1 and 2 on the ground floor above the Arrivals Lobby.

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View Archives

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Public Information Workshop Presentation

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NOISE COMPATIBILITY PLANNING STUDY

Antonio B. Won Pat International Airport

Public Information Workshop
and Open House
November 14, 2024

A.B. WON PAT INTERNATIONAL AIRPORT GUAM

1

Agenda

- Welcome and Introductions
- Roles and Responsibilities
- Aircraft Noise Terminology
- Airport Noise Compatibility Planning
- Public Information Workshop /Open House

2

Introductions – Study Team

Antonio B. Won Pat International Airport

A. B. Won Pat International Airport Authority, Guam (GIAA)

John M Quinata, Executive Manager

Dr. Ricky Hernandez, Deputy Executive Manager

Audie Artero, GIAA Project Manager

Transportation Management Group

Frank Santos
Fred Tupaz

Project Team

AECOM

Lynn Keeley
Project Manager

Elliott Lindgren
Project Director

Greg Mayer
Airport Planner

hmmh

Gene Reindel
Technical Lead - FAR Part 150

Kevin Parker
Noise Analyst

CHEN

EM Chen & Associates

Alan Chen
Local Project Manager

3

ROLES AND RESPONSIBILITIES

Part 150 Study

Airport / GIAA

- Project sponsor
- Certification that documentation is true and accurate
- Recommends measures to address noncompatible land uses

FAA

- Certification that the documentation meets federal regulations and guidelines
- Approval of Airport-recommended guidelines

Consultant Team

- Overall project management, documentation, and outreach
- Aircraft noise analysis and abatement planning
- Noise compatibility analysis and planning
- Aviation forecast and airfield analysis

Planning Advisory Committee (PAC)

- Review study inputs, assumptions, analyses, documentation, etc.
- Input, advice, and guidance related to NEM development

Public

- Provide input on study during comment period
- Review public draft documents

4

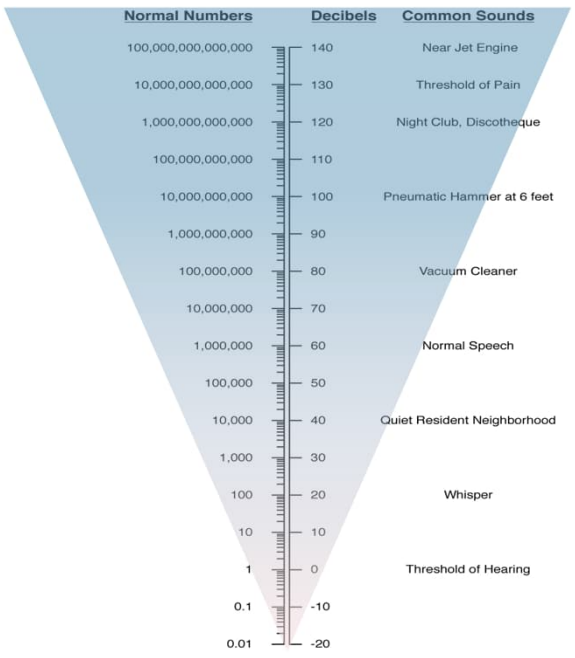
4

Aircraft Noise Terminology

5

Noise Terminology

- Reported in A-weighted decibels (dB)
  - Logarithmic scale base 10
  - We hear sound pressures over a large range
  - We perceive sounds in decibels



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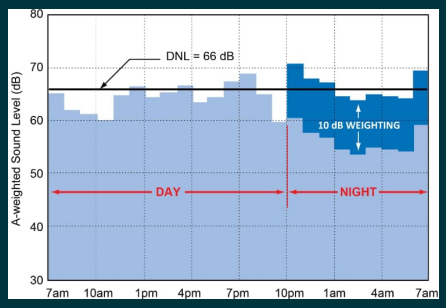
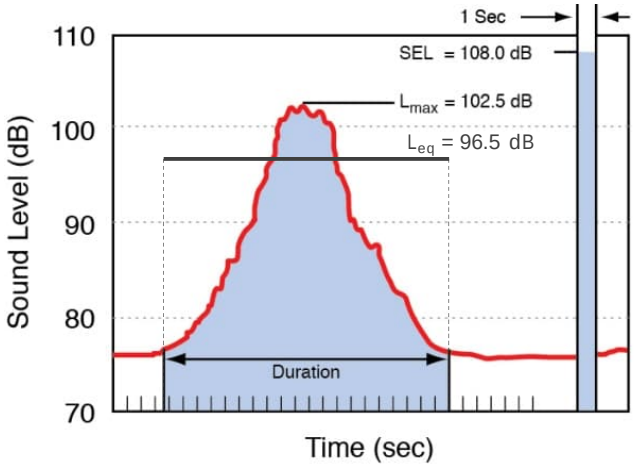
Noise Terminology

- Maximum Noise Level (L_{max})
- Sound Exposure Level (SEL)
- Equivalent Sound Level (L_{eq})
- Day-Night Average Sound Level (DNL)





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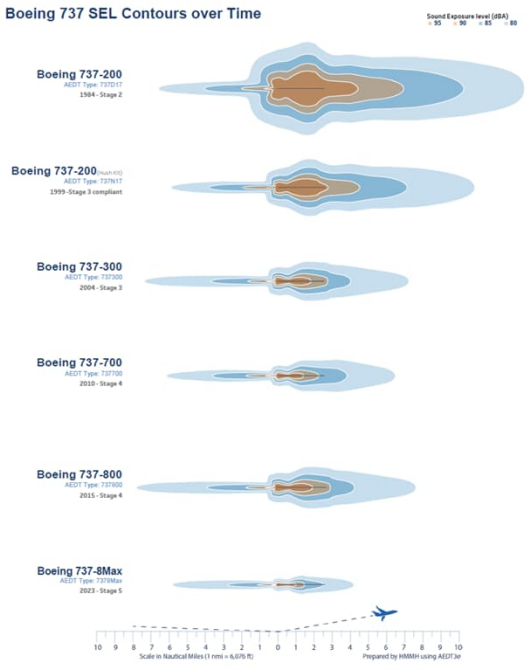
Noise Terminology

- The sound exposure levels created by an aircraft overflight depend on its
  - Engine type
  - Thrust setting profile
  - Altitude profile
  - Airspeed profile
- These graphics compare a typical landing (from left) and takeoff (to right) of different aircraft types



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8

Noise Terminology Summary

- The decibel is a complex logarithmic quantity based on sound pressure
- A-weighted decibels correlate well with how we hear
- Noise levels can be expressed many ways, including but not limited to:
  - Instantaneous maximum noise levels (Lmax)
  - Single event dose (SEL)
  - Long-duration exposure (DNL)
- Best metric to use depends on purpose
- FAA requires use of DNL for land use compatibility assessments (Part 150)
- Part 150 guidelines consider all land uses compatible below 65 dB DNL

Airport Noise Compatibility Planning

Title 14 of the Code of Federal Regulations Part 150

Airport Noise Compatibility Planning

- FAA created in response to Federal Aviation Safety and Noise Abatement Act of 1979 (ASNA)
- Codified under Title 14 of the Code of Federal Regulations Part 150
  - Formal *citation* is "14 CFR Part 150," informal is "Part 150"
- *Voluntary* FAA-defined process for airport noise studies
  - 250+ airports have participated
- *Why do airports participate*?
  - Primary reasons include:
    - Provides access to FAA funding of some approved measures
    - Well-established, understood, accepted, and comprehensive process

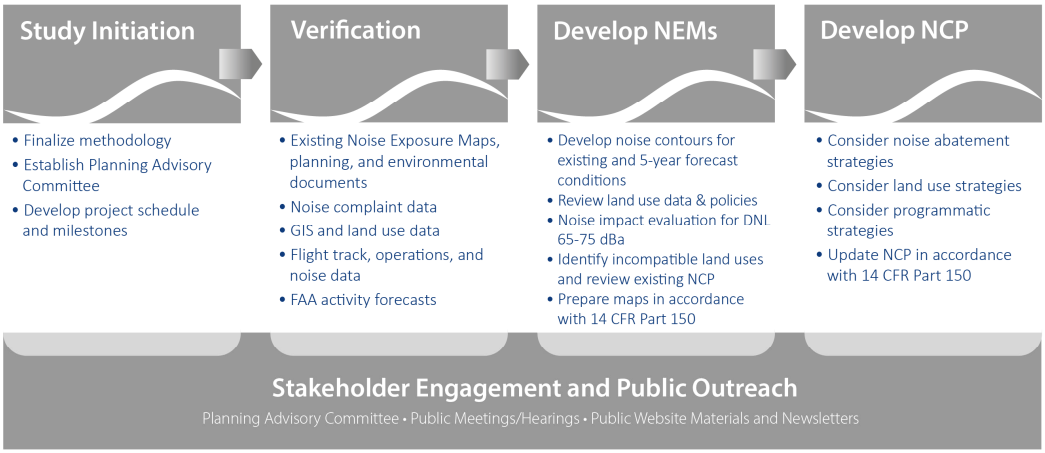
PART 150 OVERVIEW

Major Elements

- Two primary elements
  - Noise Exposure Map (NEM)
  - Noise Compatibility Program (NCP)
  - Detailed FAA guidance at www.faa.gov/airports/environmental/airport_noise/
- Consultation required with:
  - All local, state, and federal entities with control over land use within DNL 65+ dB
  - FAA regional officials, regular aeronautical users of the airport
  - All parties interested in review of and comment on the draft
- Opportunity must be offered for a final public hearing on the NCP
- GIAA will exceed all consultation requirements

PART 150 OVERVIEW

Study Process



PART 150 OVERVIEW

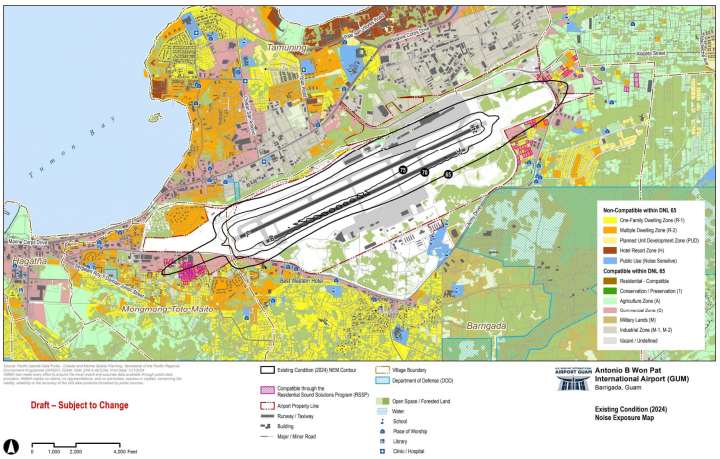
Noise Exposure Map

- FAA “accepts” NEM as compliant with Part 150 standards
- NEM must include detailed description of
  - Airport layout, aircraft operations, and other inputs to noise model
  - Aircraft noise exposure in terms of Day-Night Average Sound Level (DNL)
  - Land uses within DNL 65+ decibel (dB) contours
  - Noise / land use compatibility statistics within DNL 65+ dB contours
- NEM must address two calendar years
  - Year of submission (2024)
  - Forecast (at least five years from year of submission; 2029)
  - FAA approved the Part 150 forecast

PART 150 OVERVIEW

Noise Exposure Map Development

- ✓ Develop noise contours for existing (2024) and 5-year forecast (2029) conditions
- ✓ Collect land use data and policies
- ✓ Assess noise compatibility for aircraft exposure of DNL 65 dB and greater
- ✓ Prepare documentation in accordance with 14 CFR Part 150



PART 150 OVERVIEW

NEM Data Sources

- Best available source(s) were used for each specific category
  - *Airport layout* – Existing Airport files, FAA airport diagram, Airport Layout Plan (ALP)
  - *Meteorological* - NOAA National Climatic Data Center
  - *Terrain* - U.S. Geological Survey
  - *Baseline operations* - Recent 12-Month Radar data set (July 2022 – June 2023)
  - *Forecast operations* – GIAA Aviation Forecasts approved by FAA developed in parallel with the Master Plan Update
  - *Flight tracks, profiles, and runway use* - Recent 12-Month Radar data set (July 2022 – June 2023)
- Data was compared to formal and informal procedures
  - FAA departure and approach procedures (APs), etc.
  - Airport specific and industry noise abatement procedures
- Modeling assumptions were documented in detail and shared with:
  - GIAA and PAC members

PART 150 OVERVIEW

Noise Exposure Map

- Topic of Tonight's Public Workshop
- Report documents the data used to developed the NEMs
- Public Comment period (November 14, 2024, to December 14, 2024)
- Public Draft Noise Exposure Maps and Report available for review:
  - At GIAA offices
  - From the Airport website
  - At Hagåtña (Main) Nieves M. Flores Memorial Library
  - At Barrigada Branch Public Library
- All public comments received will be provided to FAA along with the Final NEM Report
- GIAA plans to submit the NEM Report by the end of 2024

17

PART 150 OVERVIEW

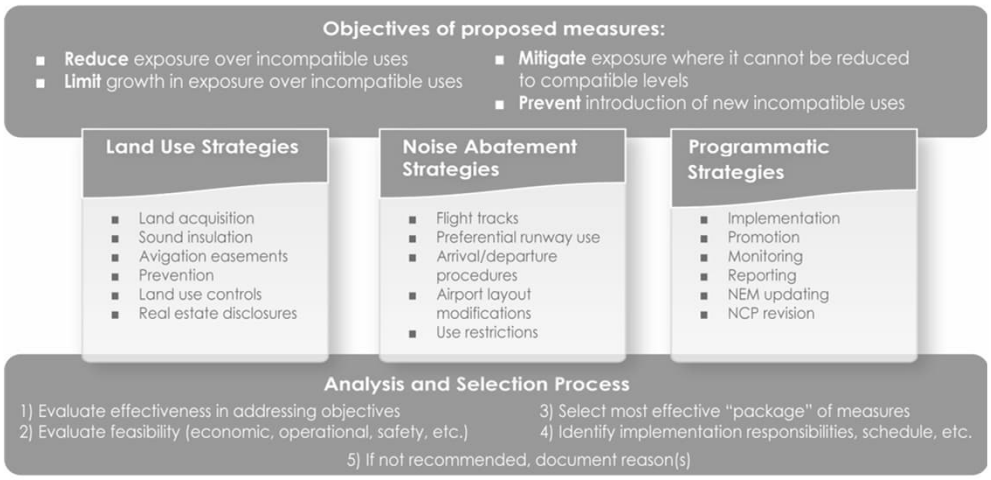
Noise Compatibility Program

- NCP must address three major categories of recommended actions
  1. Noise abatement measures
  2. Compatible land use measures
  3. Program management/administrative measures
- FAA *accepts* NCP as compliant with Part 150 standards
- FAA reviews and *approves* or *disapproves* recommendations as compliant with Part 150 standards on a measure-by-measure basis

18

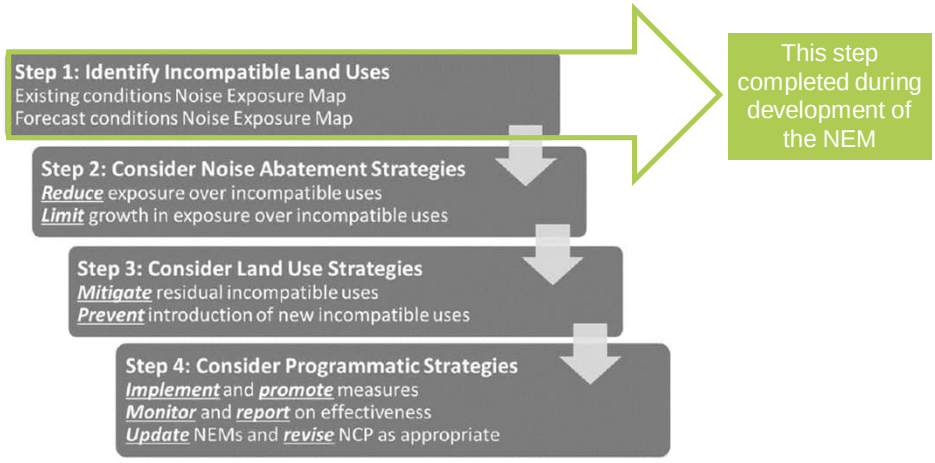
PART 150 OVERVIEW

NCP Categories



PART 150 OVERVIEW

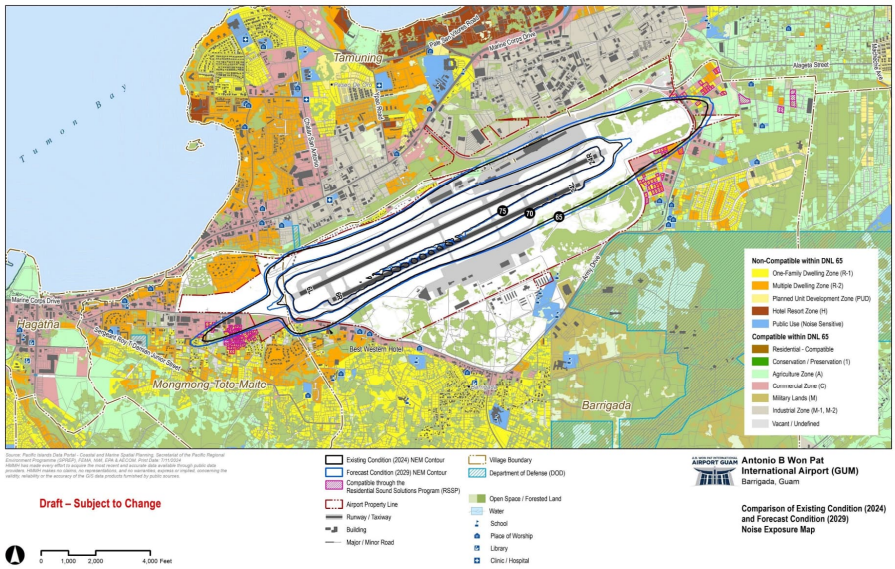
Noise Compatibility Program Development



Noise Exposure Maps & Workshop Format

21

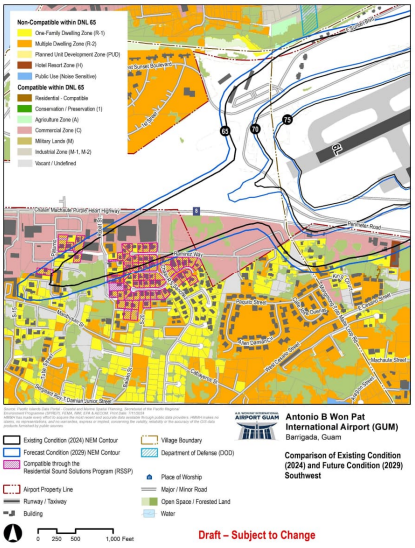
2024 & 2029 Draft Noise Exposure Contours

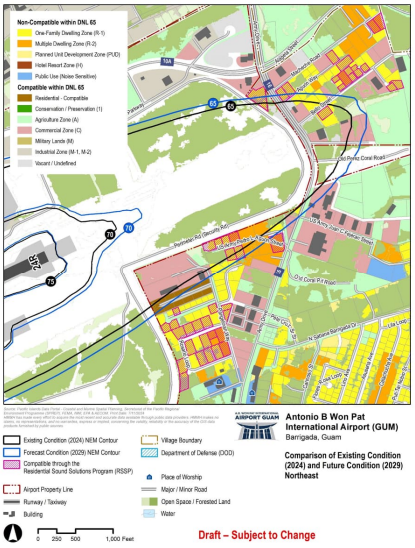


22

22

Draft Noise Exposure Maps-
Zoomed in to neighborhoods adjacent to each end of the Airport





SCAN HERE
TO ACCESS THE NOISE
EXPOSURE MAP REPORT

Public Information Workshop

- Open House Format
  - **Four stations set up around the room**
    1. **About the Airport**
    2. **Forecast & Land Use**
    3. **Noise Modeling Data**
    4. **Noise Exposure Maps**
  - **Airport staff and Study team are available to discuss the Study**
  - **Submit comments by December 14, 2024**

Written comments (accepted through December 14, 2024)

- Here at Workshop
- Via comment boxes at GIAA office and each Library
- Via email: GIAAPart150@aecom.com
- Mail to:

GIAA
Part 150 Study
PO Box 8770, Tamuning, Guam

Workshop Opens

Open House Format
Four stations

1. About the Airport
2. Forecast & Land Use
3. Noise Modeling Data
4. Noise Exposure Maps

SCAN HERE
TO ACCESS THE NOISE
EXPOSURE MAP REPORT

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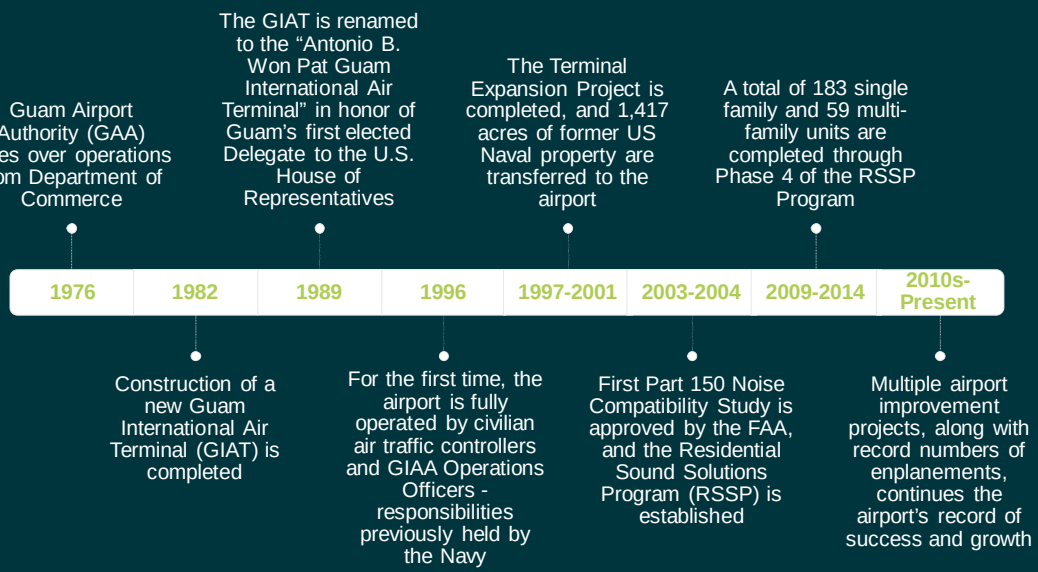
Public Information Workshop Boards

1

Airport History



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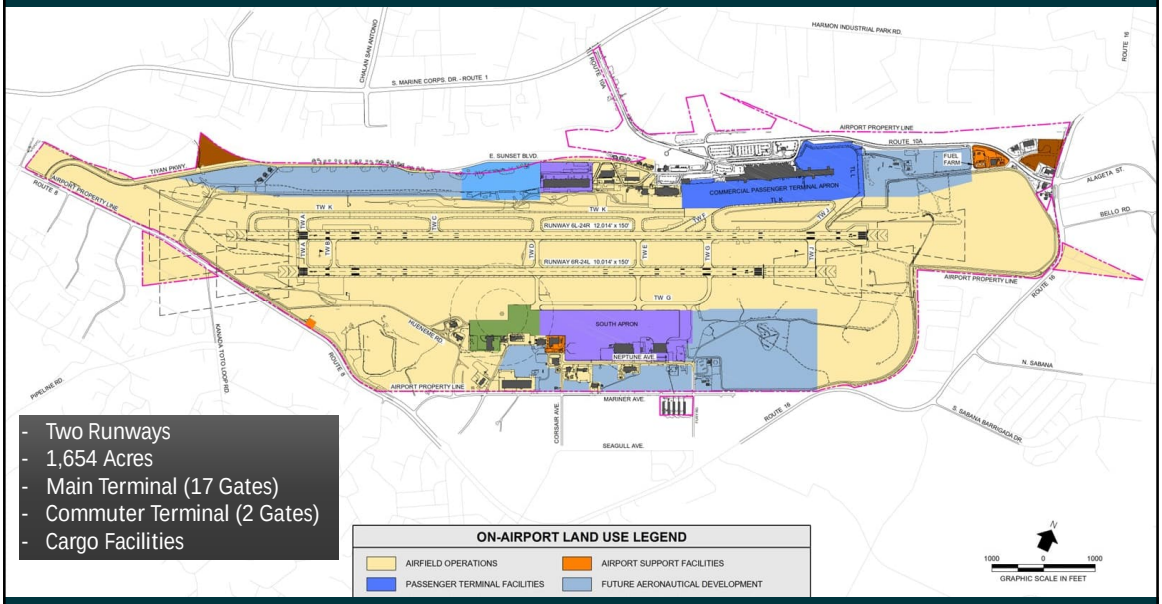
Airport Facilities



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Noise Exposure Model Forecast

- 2023 operations continue to recover from the pandemic and represent 62.1% of the pre-pandemic 2019 level of operations
- A recent 12-month dataset (07/22 to 06/23) was used to develop baseline information
- FAA approved the Part 150 forecast

Year	ITINERANT					LOCAL			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
07/22 to 06/23	13,790	1,489	8,806	992	**25,077**	17,045	688	17,733	**42,810**
2024	22,062	3,842	16,538	927	**43,369**	15,592	1,000	16,592	**59,960**
2029	26,512	4,331	26,951	927	**58,721**	23,933	1,000	24,933	**83,655**

Source: FAA OPSNET, FlightAware, GIAA Aviation Forecasts

Operational Totals used for the NEMs

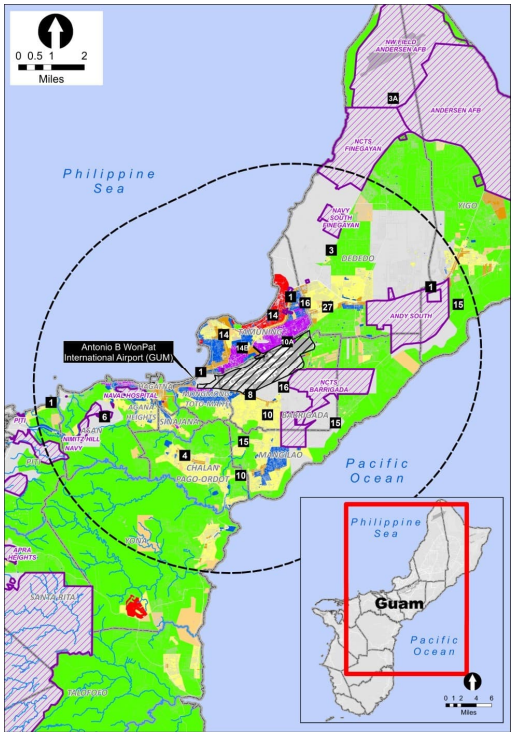
4

LAND USE
Draft Study Area

Part 150 Study Area Map Requirements:

- 30,000 ft. Runway Buffer
- Land use documentation within study area
- Land use jurisdiction near and within the DNL 65 dB contour

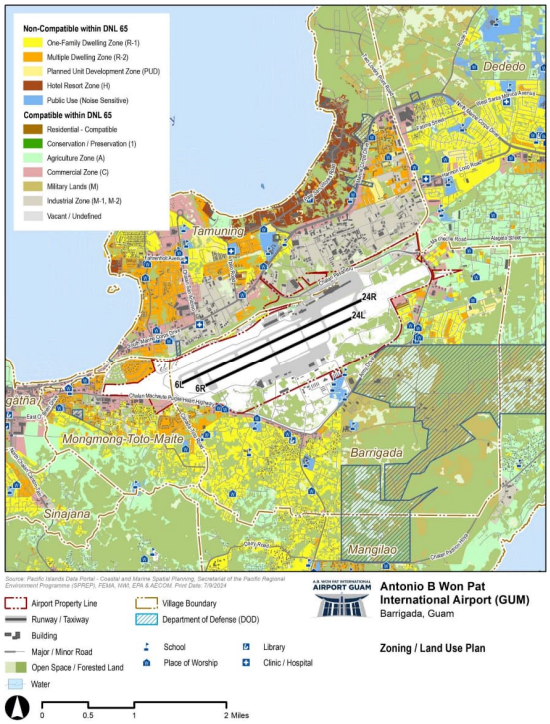
- Note: The FAA generally considers all land uses to be compatible with aircraft noise below DNL of 65 dB



5

LAND USE DATA COLLECTION

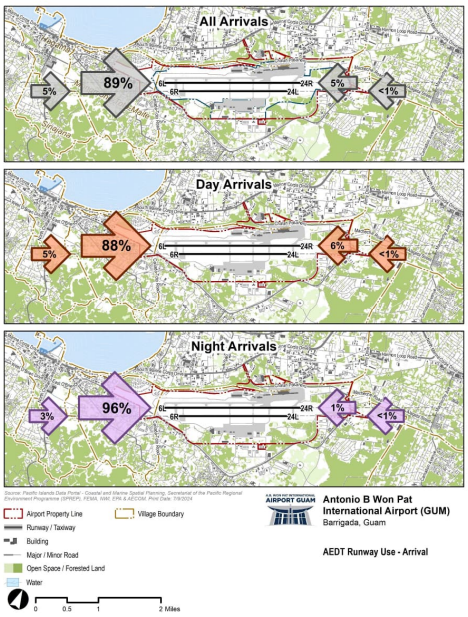
- Primary steps include:
  - Assemble and review land use, zoning, and population data
  - Identify any local land use policies that address airport operations
  - Create existing land use maps
- Locations of noise-sensitive sites (e.g., churches and schools) are identified
- Local jurisdictions to review maps and advise of necessary corrections
  - Assess any deficiencies of land use data and corrective approaches
- After DNL contours have been generated, the study team will survey and confirm land uses within the 65 DNL contours

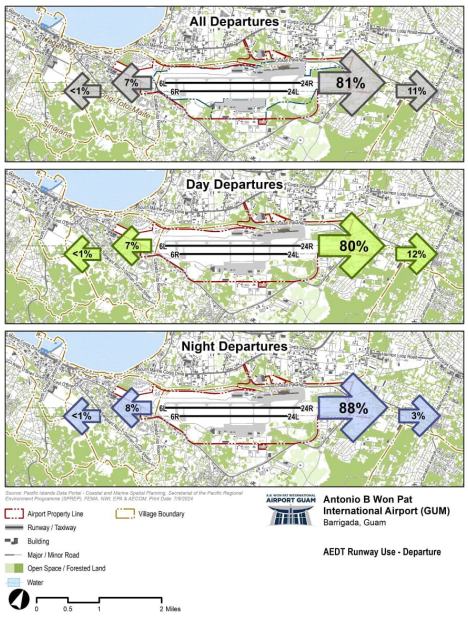


6

NOISE MODEL INPUT DATA
Runway Use

Over 90% northeast flow due to Trade Winds





7

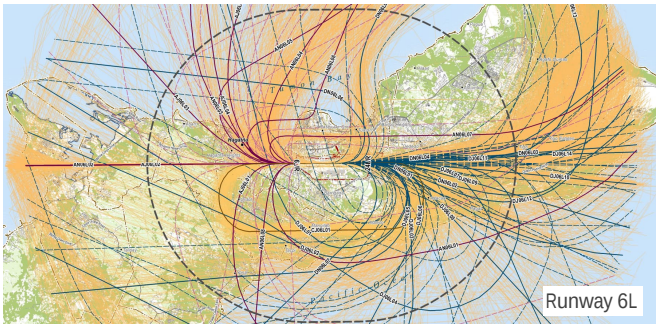
NOISE MODEL INPUT DATA
Flight Track Data
Primary Runway 6L/24R

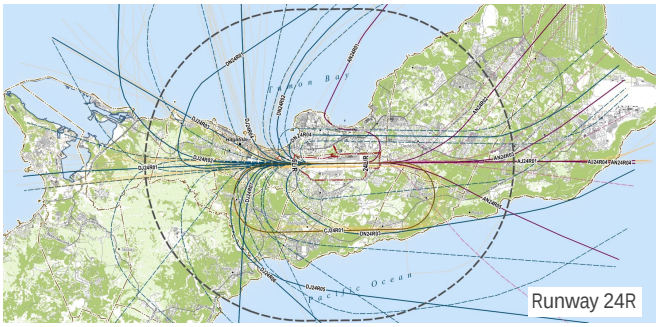
Notes:

- Actual flight tracks in orange
- Modeled arrival tracks in red
- Modeled departure tracks in blue

- Approaches from the north are typically lighter aircraft

Source: Radar data (July 2022 – June 2023)





8

NOISE MODEL INPUT DATA

Flight Track Data

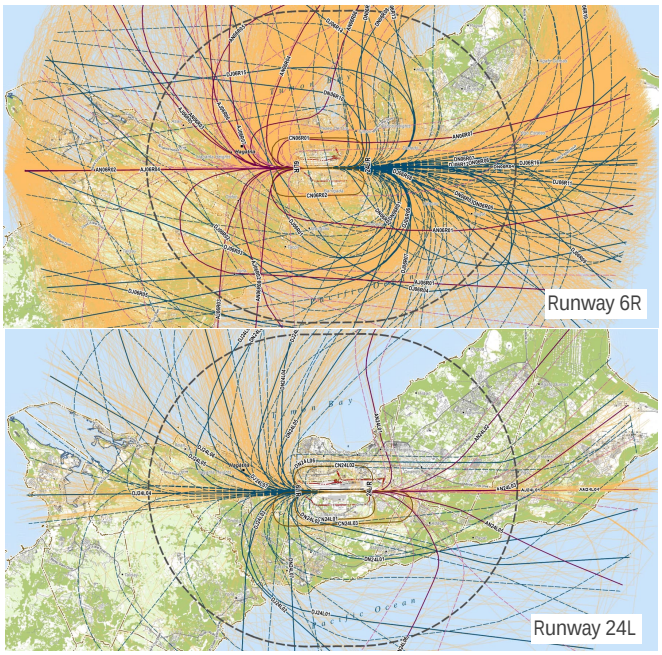
Secondary Runway 6R/24L

Notes:

- Actual flight tracks in orange
- Modeled arrival tracks in red
- Modeled departure tracks in blue

- Approaches from the north are typically lighter aircraft

Source: Radar data (July 2022 – June 2023)



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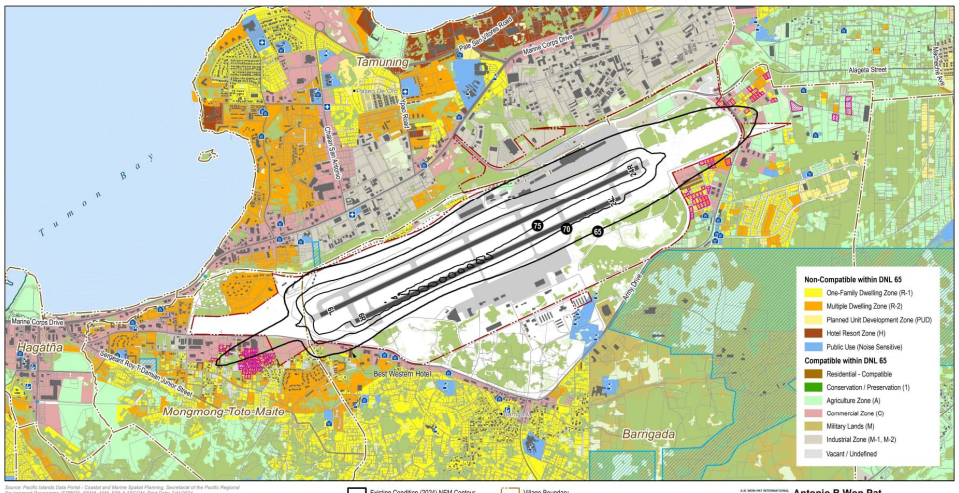
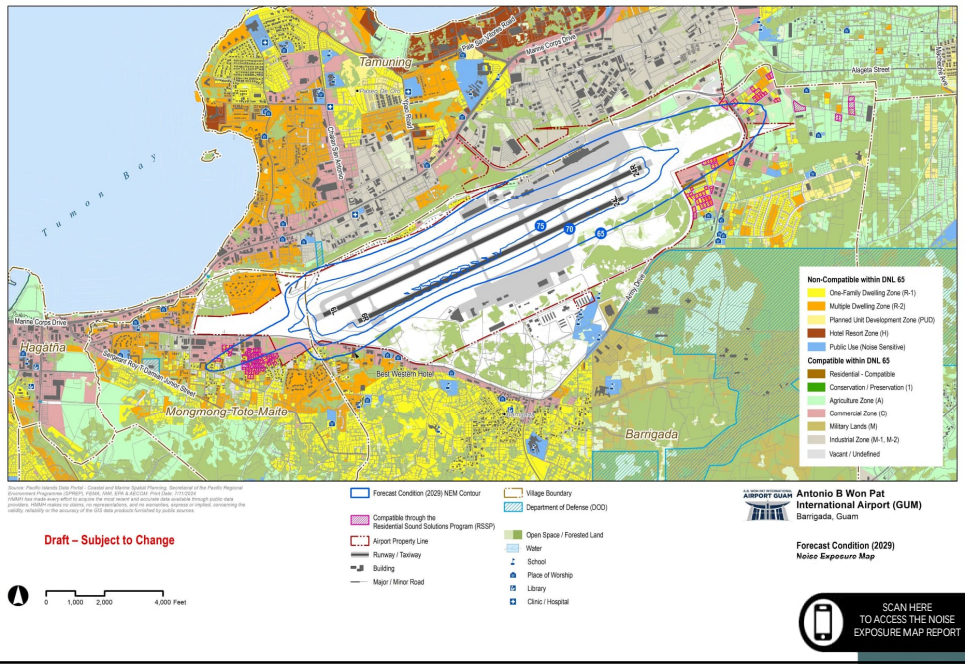
2024 Draft Noise Exposure Map

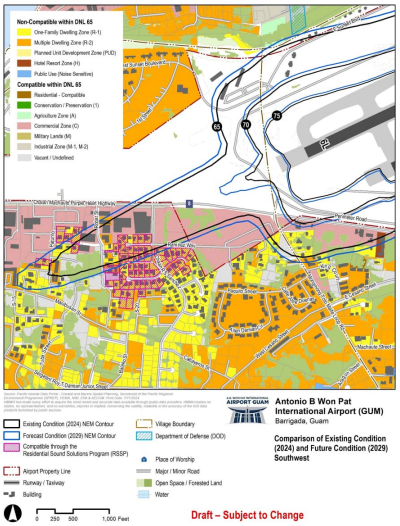


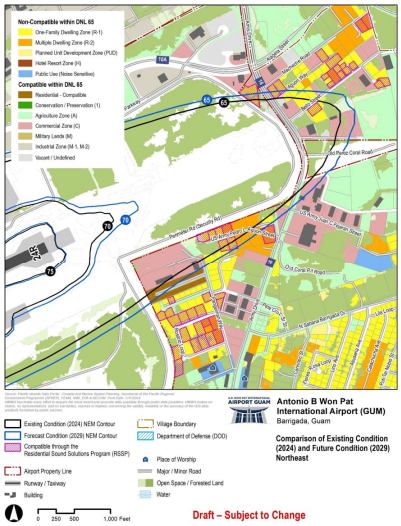
10

2029 Draft Noise Exposure Map



Draft Noise Exposure Maps – Zoomed in to neighborhoods adjacent to each end of the Airport





	Area (Acres)		
Contour Interval	2024	2029	Change
65-70 DNL	521.1	574.5	53.4
70-75 DNL	236.4	248.2	11.8
>75 DNL	262.3	281.9	19.6
Total > 65 DNL	1019.8	1104.5	84.7

	Population (2020 Census)					
	Total			Noncompatible		
Contour Interval	2024	2029	Change	2024	2029	Change
65-70 DNL	465	909	444	354	753	399
70-75 DNL	0	0	0	0	0	0
>75 DNL	0	0	0	0	0	0
Total > 65 DNL	465	909	444	354	753	399

	Housing Units (2020 Census)					
	Total			Noncompatible		
Contour Interval	2024	2029	Change	2024	2029	Change
65-70 DNL	155	303	148	118	251	133
70-75 DNL	0	0	0	0	0	0
>75 DNL	0	0	0	0	0	0
Total > 65 DNL	155	303	148	118	251	133

Notes:

1. *The number of buildings that participated in the RSSP was delineated based on research of available records maintained by GIAA. Land use and housing units within the DNL 65 dB contours were verified by windshield survey in May 2024.*
2. *The number of people is estimated based on a population factor (3.004 people per unit) developed from the 2020 U.S. Census block data within 1,000 feet of the 2029 DNL 65 dB contour.*
3. *The noncompatible number subtracts those units that have received sound insulation treatment and an avigation easement or were constructed after October 1, 1998.*

Sources: U.S. 2020 Census data, GIAA 2024

A.B. WON PAT INTERNATIONAL
AIRPORT GUAM
ATURIDAT PUETTON BATKON A'REN GUAHAN ENTENASIONAT

PUBLIC INFORMATION WORKSHOP & OPEN HOUSE
ON CFR PART 150 DRAFT NOISE EXPOSURE MAP (NEM) UPDATE

THURSDAY, NOVEMBER 14, 2024 • 5PM - 7PM • GIAA CONFERENCE ROOMS 1 & 2

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D.3 Public Outreach (Brochure, Technical Information Papers)

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PART 150
NOISE COMPATIBILITY STUDY
UPDATE

INTRODUCTION

The A. B. Won Pat International Airport Authority, Guam (GIAA) is undertaking a Part 150 Noise Compatibility Study Update at the Antonio B. Won Pat International Airport (the Airport) to assess land use compatibility with noise exposure from current and forecast aircraft operations, evaluate the effectiveness of the measures in place to improve land use compatibility, and to determine means to continue to improve land use compatibility at the Airport. Part 150 studies have two phases: (1)Noise Exposure Map (NEM) and (2) Noise Compatibility Program (NCP).

In addition to updating the Airport Noise Exposure Maps for a 2024 existing condition and 2029 future condition, the study provides the GIAA an opportunity to: (1) Review the status and effectiveness of those noise abatement and mitigation measures recommended in the previous NCP, (2) Identify which NCP measures should be maintained for continued implementation, (3) Identify and incorporate noise reduction measures currently being pursued by the GIAA which are not in the previous NCP, and (4) Identify new measures to further improve land use compatibility at the Airport.

PHASE 1 : NOISE EXPOSURE MAP (NEP)

The Noise Exposure Map (NEM) documentation describes the Airport layout, land uses in the Airport environs, aircraft operations and the noise exposure from those operations, and the resulting land use compatibility. The NEM documentation must address two time frames: (1) data representing the year of submission (the "existing conditions") and (2) a forecast year that is at least five years following the year of submission (the"forecast conditions"). Part 150 requires more than simple "maps" to provide all the necessary information in an NEM. In addition to maps, the NEM documentation presents tabulated data, describes the data collection and analysis undertaken in its development, and presents the land uses potentially noncompatible with the aircraft noise exposure. The NEM document is prepared in consultation with the airport's users, the public, local governments, land use control agencies, and the Federal Aviation Administration (FAA).

PHASE 2 : NOISE COMPATIBILITY PROGRAM (NCP)

The Noise Compatibility Program (NCP) identifies measures an airport operator has taken or proposes to take to reduce, and/or prevent the introduction of, non-compatible land uses. Developing the NCP is a multi-step process in consultation with the affected communities, local governments, the airport's users, and the FAA.

PART 150 STUDY GOALS & OBJECTIVES

The goal of this study is to improve land use compatibility in the vicinity of the Airport with noise from aircraft operations , while allowing the Airport to continue to serve its key role in the community.

The primary objectives of this study are to:

- Identify noncompatible land uses associated with the current and projected noise exposure from aircraft operations
- Mitigate existing noncompatible land use
- Prevent the introduction of new noncompatible land uses
- Provide noise mitigation measures that are sensitive to the needs of the community
- Collaborate with local land use planning and development agencies on future land use development in the vicinity of the Airport

PART 150 STUDY PROCESS

The first step in the Part 150 Update at the Airport is to collect information about local land use information and aircraft operations. This includes information on the local noise-sensitive land uses at the parcel level, the number and types of airplanes flown, and which runways and flight paths the airplanes use to take off and land by time of day. The next step is to display the existing level of noise exposure and the forecasted level of noise exposure that may exist five years in the future on land use maps of the airport and surrounding areas. Noise contours are lines that show equal levels of noise exposure around an airport which are overlaid onto maps depicting local land-use. These maps are used to determine the compatibility with aircraft noise of the,land uses that exist in the communities surrounding the airport. Once the level of noise exposure has been determined, alternatives are developed that are designed to reduce the noncompatible land use. Recommendations may include changing flight procedures, the sound insulation of homes, and steps that local planning agencies can take to promote compatible development in areas that are most effected by airplane noise. The final product of the study is a list of measures the Airport recommends to address the noncompatible land uses identified in the NEM. The NCP containing the list of Airport recommendations is submitted to the Federal Aviation Administration (FAA) for review and acceptance. Upon acceptance of the NCP as being completed in accordance with 14 CFR Part 150, the FAA has up to 180 days to issue a Record of Approval (ROA) that identifies those Airport recommendations approved by the FAA and are eligible for federal funding to assist with the implementation of those measures.

PART 150 STUDY PROCESS

DATA COLLECTION

Collect information about the Airport operations.

Planning Advisory and Community Participation Point

NOISE EXPOSURE MAPS

Display the existing level of noise and the forecasted level of noise that may exist five years in the future on maps of the airport and surrounding areas.

MITIGATION ALTERNATIVES

Alternatives are developed that are designed to reduce the level of noise impact.

FAA REVIEW & APPROVAL

Develop a program that contains all of the measures that were considered and recommends which should be implemented. The program is submitted to the Federal Aviation Administration (FAA) for review and approval.

STUDY SCHEDULE

The Part 150 Noise Compatibility Study Update is expected to take approximately 24-30 months to complete with the NEM being submitted to the FAA in early 2024, which provides the Airport the opportunity to apply for federal funding of existing measures while the development of the NCP continues. The study was initiated in July 2023.

FREQUENTLY ASKED QUESTIONS

What is a Part 150 Noise Compatibility Study?

The Federal Aviation Administration (FAA) issued Title 14 Code of Federal Regulations (CFR) Part 150, Airport Noise Compatibility Planning, in January 1985. 14 CFR Part 150 provides airport operators with a formal process for preparing aircraft noise exposure maps and developing airport land use compatibility programs.

The purpose of a Part 150 Study is to produce recommendations that the Airport, local municipalities, airlines, and/or the FAA may take to address noncompatible land uses resulting from the noise of existing and future aircraft operations. Per Regulation, the Airport has three categories of noise compatibility program measures available to them: (1) noise abatement measures, which are those that control noise at the source, (2) land use measures, which include mitigation and preventive measures for those noncompatible land uses that could not be addressed through noise abatement measures and (3) program management measures, which are those that enable the Airport to implement and promote the NCP measures, monitor and report on the effectiveness of the measures, and regularly update the NEM and revise the NCP as needed.

Part 150 studies have two elements:
(1) Noise Exposure Map (NEM) Report. This document contains detailed information on existing and future airport noise exposure and land use.
(2) Noise Compatibility Program (NCP). This document recommends measures to address the noncompatible land uses identified in the NEM.

Why is a Part 150 Study being conducted at the Airport?

The Part 150 Study is voluntary program administered through FAA regulation. Being a responsible neighbor and improving land use compatibility with aircraft operations is important to the GIAA. Voluntary participation in the program will allow the GIAA to become eligible to receive federal funding to develop and implement the programs, identified through the Part 150 Study, to address noncompatible land uses.

How is Aircraft Noise Exposure Determined?

In 1981, the Federal Aviation Administration formally adopted the Day-Night Average Sound Level (DNL) as the primary metric for reporting aircraft

noise exposure. Day-Night Average Sound Level, abbreviated DNL, is the 24-hour average sound level, in decibels, obtained from the accumulation of all ai craft operations, with the addition of 10 decibels to sound levels from 10 P.M. to 7 A.M. The weighting of nighttime events accounts for the usual increased interfering effects of noise during the night, when ambient levels are lower and people are trying to sleep. The 24-hour DNL is presented in Part 150 as an annual-average day (AAD) to reflect aircraft noise exposure generated by daily aircraft operations averaged over an entire year and are identified by "noise exposure contours" similar to a topographical map showing terrain elevations in equal levels.

What are noise contours and how are they used?

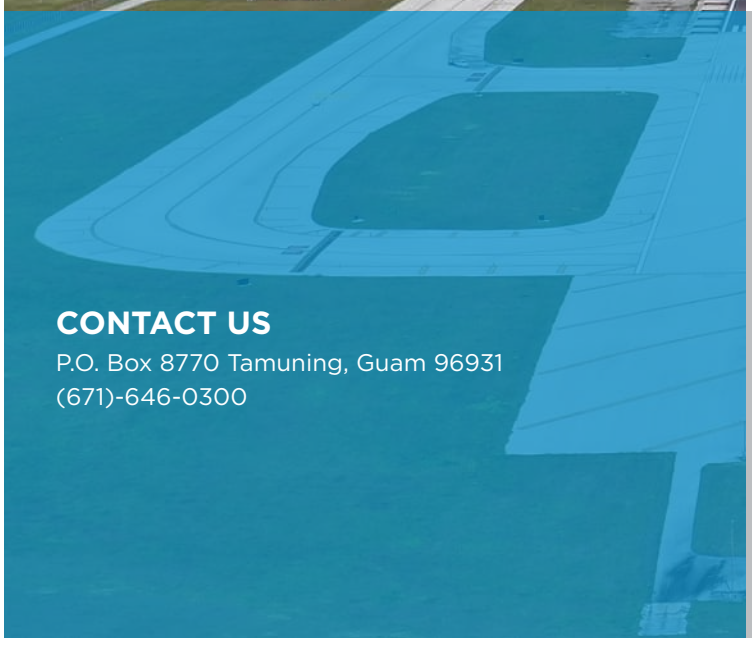
A noise contour represents the average annual noise exposure levels summarized by lines connecting points of equal noise exposure. Noise contours are computer generated lines that are modeled to reflect both current aircraft operations as well as to predict the future aircraft operations.

A variety of information is gathered during the study to create an accurate noise contour, including: number of flights; flight paths, type of aircraft, type of aircraft engines, time of day, weather conditions, and runway use. These data are used to generate noise contours that are overlaid onto land use maps to create a Noise Exposure Map (NEM). The Noise Exposure Maps developed for the Airport will be used in several ways:

- Defining where areas of roughly equal noise exposure exist in the communities surrounding the Airport.
- Assessing various alternative solutions to reduce the number of noncompatible land uses.
- Defining eligibility for federal funds for noise compatibility programs.

How can I participate in the Part 150 Update process?

The public is invited to express their views and submit comments throughout the Part 150 study process. There are a number of ways that the general public can participate in the process including a series of public workshops throughout the process and a public hearing to be held near the end of the process.



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Technical Information Paper (TIP) No.1

Noise Compatibility Study (Part 150) Process

Background

In 1999, the A.B. Won Pat International Airport Authority, Guam (GIAA) began participating in the voluntary federal Airport Noise Compatibility Planning process under Title 14 of the Code of Federal Regulations Part 150 (14 CFR Part 150 or simply "Part 150") for the Antonio B. Won Pat International Airport (Airport). This process culminated in a report submitted to the Federal Aviation Administration (FAA) in 2003. The FAA accepted the 2003 and 2008 Noise Exposure Maps (NEMs) contained in the report and provided a Record of Approval (ROA) addressing the Airport-recommended measures provided in the Noise Compatibility Program (NCP). The FAA issued its ROA in 2003.

In total, the FAA approved 12 of the 28 proposed measures in the 2003 NCP. The following table lists each proposed measure. Measures marked with a single asterisk (*) were disapproved for the purposes of Part 150 pending submission of additional information, while measures marked with two asterisks (**) were listed as "No action required at this time." Two measures (marked with #) were disapproved entirely for the purposes of Part 150.

Noise Abatement Strategies	Land Use Strategies	Programmatic Strategies
1. Noise Abatement Flight Tracks *	**Preventive Measures**	1. Noise Compatibility Staff
2. Standard Instrument Departure Procedures *	1. Amend Local Land Use Plans for Compliance with the Airport's Noise Compatibility Guidelines	2. Noise Advisory Committee
3. Delayed Flap and Gear Extension Approaches**	2. Zone for Compatible Land Development	3. Noise Monitoring Equipment
4. Restriction on Visual Approaches *	3. Apply Zoning Performance Standards	4. Flight Track Systems
5. Close-in Noise Abatement Departure Procedures **	4. Establish a Public Information Program	
6. Distant Noise Abatement Departure Procedure **	5. Revise Building Codes #	
7. FMS/GPS Applications* (FMS/GPS is on board navigation equipment to assist the pilot)	6. Dedication of Avigation Easements #	
8. Establish Displaced Threshold *	7. Fair Property Disclosure Policy	
9. Construct Noise Barriers *	8. Land Banking *	
10. High Speed Taxiways *	**Corrective Measures**	
11. Operational Fees Based on Noise *	1. Acquire Developed Property in Non-Compatible Uses	
12. Voluntary Fleet Mix Goals *	2. Property Purchase Guarantee	
13. Engine Run-Up Restrictions *	3. Part 150 Sound Mitigation Program	

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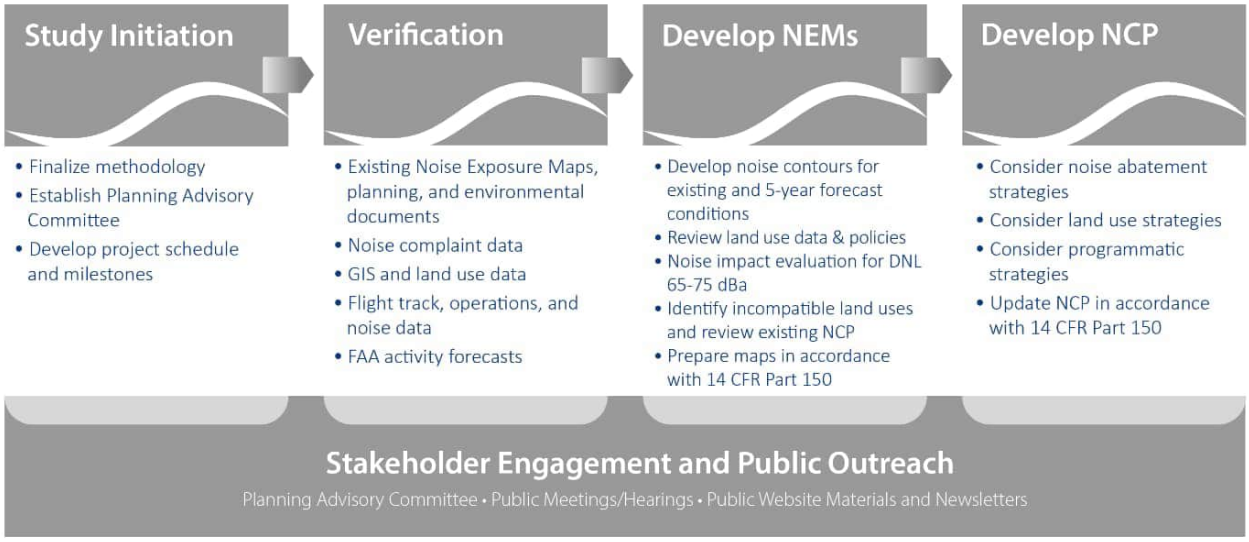
Part 150 Update

The Airport has begun the process of updating the Part 150 Study, particularly to develop NEMs for current (2024) and projected 5-year (2029) aircraft operations. As a result of the updated NEMs, the Airport intends to update the Airport's NCP to address noncompatible land use that may not have been fully resolved through measures implemented as a result of the 2003 FAA ROA. The Airport expects to submit the updated NEMs to the FAA in 2024 and the updated NCP to the FAA in 2025. A summary of the process is depicted below.



Study Team

The Airport has contracted with a team of experienced airport planners (AECOM), noise consultants (HMMH), and a local engineering firm (E.M. Chen) to conduct the Part 150 Study. A Planning Advisory Committee (PAC), representing a full range of Airport operation, business, and municipal stakeholders, will provide oversight and guidance, as well as assist with public outreach.

Study Schedule

The Part 150 Study began in the summer of 2023 and will be completed in two phases. The NEM update is scheduled to be completed in 2024, and an updated NCP is scheduled to be submitted to the FAA for final review in 2025. Public workshops will be held at several key points in the study process to permit all interested parties to review assumptions, baseline data, forecasts, and draft results, and to provide feedback and suggestions. The Airport may apply for federal grants to continue the sound insulation program once the FAA accepts the NEM.

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Project News

The Airport Part 150 Study is in the inventory phase, which includes data collection, meeting with users of the Airport, and setting up the noise model, which by federal regulation is the FAA Aviation Environmental Design Tool (AEDT). During this phase of the Study, the Airport has set up the PAC and is planning to develop the existing and future noise contours.

Stay Connected

For more information or to submit comments and feedback, please contact GIAA at P.O. Box 8770 Tamuning, Guam 96931 or (671) 646-0300.

A.B. WON PAT INTERNATIONAL AIRPORT GUAM

Technical Information Paper (TIP) #2

Frequently Asked Questions (FAQs)

The A.B. Won Pat International Airport Authority, Guam (GIAA), answers basic questions about the Part 150 Study update below. Questions and answers will be added to this list as the study progresses.

What is a Part 150 Study?

A Part 150 Study is a voluntary federally funded and supervised program available to airports to assess land use compatibility with aircraft noise and recommend measures to address noncompatible land uses identified through the land use assessment. This Airport Noise Compatibility Planning program is codified under Title 14 of the Code of Federal Regulations Part 150, thus the name "Part 150." Part 150 Studies include two products: (1) the Noise Exposure Map (NEM), which provides the results from the land use compatibility assessment and (2) the Noise Compatibility Program (NCP), which describes the airport-recommended measures to address noncompatible land uses identified in the NEM documentation.

What is the purpose of the current Part 150 Study Update?

Airports participate in Part 150 studies to gain access to federal funds, which are used to support the implementation of measures to address noncompatible land uses. GIAA is updating the Antonio B. Won Pat International Airport (the Airport) NEM to apply for federal funds and continue its sound insulation program. The GIAA is reviewing and updating the NCP to be sure the measures continue to adequately address the noncompatible land uses identified in the NEM update.

Who conducts the update?

The Airport sponsors the Part 150 Study update and is ultimately responsible for its findings. The Airport has hired a study team of experienced airport planners (AECOM), noise consultants (HMMH), and a local engineering firm (E.M. Chen) to conduct the Part 150 Study, with the help of a Planning Advisory Committee (PAC).

The PAC consists of Airport representatives, FAA representatives including the local airport traffic control tower, Airport user representatives including airline and air cargo carriers, and representatives from local jurisdictions responsible for land use planning and control.

Is the process public?

Yes. The Part 150 Study is an opportunity for the Airport to engage with interested members of the public in terms of aircraft noise and land use compatibility. The update includes informational public workshops, the first of which is anticipated to occur in late spring 2024. The purpose of the workshops

is to provide an opportunity for the public to review project materials, discuss the study with the Airport, and to offer written comments. The public may also contact the Airport directly at P.O. Box 8770 Tamuning, Guam 96931 or (671) 646-0300.

How long will the study take?

The Airport is completing the Part 150 Study update in two phases in order to gain access to federal funds for the continuation of its sound insulation program as soon as possible. It is estimated that the NEM documentation will be submitted to the FAA for acceptance in 2024, and the NCP will be submitted to the FAA in 2025. The Airport may apply for federal funding to continue the sound insulation program upon FAA acceptance of the NEM.

What is the end product of the Part 150 Study Update?

There are two end products resulting from the Part 150 Update: (1) the Noise Exposure Map with the aircraft noise exposure contours and associated land use compatibility for calendar years 2024 and 2029 and (2) the Noise Compatibility Program with the Airport's recommendations to address the noncompatible land uses identified in the Noise Exposure Map.

What is a Noise Exposure Map (NEM)?

A Noise Exposure Map (NEM) is a land use assessment document that includes a scaled, geographic depiction of an airport, its associated aircraft noise exposure contours, and the surrounding land uses developed in accordance with the methods described in Part 150 for an existing condition and a forecast condition. The noise contours show the areas where aircraft noise is expected to equal or exceed Day-Night Average Sound Levels (DNL) of 65, 70, and 75 decibels (dB). The contours are superimposed on a land use map of the area surrounding the airport to display the aircraft noise exposure and the underlying land use compatibility.

What is the Noise Compatibility Program (NCP)?

A Noise Compatibility Program (NCP) consists of measures to address noncompatible land uses identified on the NEM. NCP measures fall into three categories: Noise Abatement Measures (including flight procedures), Land Use Measures (including noise mitigation options such as sound insulation), and Program Management Measures (including means to implement, monitor, and report the NCP measures).

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Who has final approval of the NEMs and the NCP?

Ultimately, the FAA determines whether the new NEM and NCP documents are compliant with Part 150 regulations and approves or disapproves each of the Airport-recommended NCP measures individually through a Record of Approval (ROA) letter.

How will the noise contours be developed for the Part 150 Study?

The aircraft noise exposure contours will be generated by a computer modeling program (Airport Environmental Design Tool, or "AEDT"), which is the modeling program required by the FAA for purposes of Part 150. The input data for the AEDT include a forecast of aircraft operations, on an annual average day, for each of the study years (broken down between day and night activity), runway utilization rates for aircraft types, flight track geometry for different aircraft types, and other factors.

What do the decibel levels of the noise contours represent?

The decibel levels represent the "Day-Night Average Sound Level" ("DNL" for short), which is a 24-hour average sound level in decibels, for an annual average day of aircraft operations with 10 dB added to nighttime noise events (between 10 p.m. and 7 a.m.). The noise when aircraft are overhead is averaged with the noise during the day when there is less or no aircraft noise, so the DNL level for a particular location is considerably lower than the highest decibel levels that might be heard or measured on a noise meter at that location during aircraft overflights.

Why is DNL used to develop noise contours rather than the sound level I hear when planes are overhead?

The Part 150 regulation requires the aircraft noise exposure contours to use Day-Night Average Sound Level (DNL) to assess land use compatibility. The advantage of DNL is that it reflects cumulative annual-average day noise exposure and not just the noise level at a specific moment in time.

Does DNL take into account the time of day when noise occurs?

Yes, 10 dB is added to each nighttime noise event (from 10 p.m. to 7 a.m.). This is mathematically equivalent to counting a single nighttime flight the same as 10 identical daytime flights.

Does DNL take into account weather and topography?

Yes. A 10-year weather history is used to develop the aircraft noise exposure contours, so the contours reflect the effect of varying weather conditions on aircraft operations and on sound transmission. Topographic data are also used in the model to determine noise on the ground using the distance from the aircraft to the actual ground elevation.

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Will noise monitors be used to measure the noise at specific locations?

No. The FAA requires aircraft noise exposure contours be developed through its computer modeling program rather than actual noise measurements. The input into the modeling program is far more comprehensive than what could possibly be obtained from field measurements, and modeling is the only practical way of determining the noise that will be experienced at all of the geographic points that are represented in the noise contours. Noise modeling is also necessary to forecast the noise that is expected in the future, as required by Part 150. The FAA noise modeling program uses measured data results and has been shown to accurately portray the results from measurements in the field.

Will the noise contours generated by the new study anticipate future conditions?

Yes. Two aircraft noise exposure contours will be developed: one representing existing conditions projected to 2024 and the second representing the forecast conditions estimated in 2029.

Will the Part 150 Study be limited to identifying the noise that currently exists, or will an effort be made to reduce noise exposure?

The purpose of the Part 150 Study update is to assess land use compatibility from existing aircraft noise operations and the 5-year forecast, and for the Airport to determine and recommend measures aimed at addressing and potentially eliminating all noncompatible land uses.

Will my house be eligible for sound insulation as part of the noise compatibility program?

Under FAA noise compatibility criteria, houses are eligible for sound insulation only if they are located within the 65 DNL contour. Once the Noise Exposure Map is accepted by the FAA, the Airport will have a complete inventory of the homes potentially eligible for sound insulation, which is the main purpose of the Noise Exposure Map update at this time. Under updated guidance that has been issued by the FAA since the eligible homes were identified for the Airport's current program, houses must have an interior DNL level of 45 dB or greater in addition to having an exterior DNL of 65 dB or greater to be added to the program. Until the Noise Exposure Map is developed, submitted, and accepted by the FAA, it is not known which houses will be included.

What if I have more questions about the Part 150 Update?

Questions or comments about the Part 150 Study Update can be submitted to P.O. Box 8770 Tamuning, Guam 96931 or (671) 646-0300. While the GIAA cannot answer each person's questions individually, all questions and comments that are submitted will be reviewed and may be added to these FAQs.

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Technical Information Paper (TIP) No. 3

Aircraft Noise Fundamentals

The Part 150 Study will use several terms to describe aircraft noise. The metrics described here form the basis for the noise analyses conducted in accordance with Title 14 of the Code of Federal Regulations Part 150.

Noise

All sounds come from a source such as a musical instrument, a voice, or an aircraft. It takes energy to produce sound. The sound energy produced by any source travels through the air in waves—tiny, quick oscillations of pressure just above and below atmospheric pressure. These waves enter the ear, creating the sound we hear.

The Decibel (dB)

Because the range of sound pressures is very large and our ears are not sensitive to small differences in pressures, we use logarithms (a mathematical exponent that indicates a number's size to the power of 10) to simplify the ratio to a smaller range and express the resulting value in decibels. The decibel (dB) is a ratio that compares the sound pressure of the sound source (e.g., an aircraft's overflight) to a reference sound pressure (the quietest sound that people can hear). Two useful rules of thumb to remember when comparing individual sound sources are:

- Most people perceive a 10 dB increase to be about a doubling of loudness, and
- Changes of less than 3 dB are not easily detected outside of a laboratory setting.

Frequency, or "pitch," is an important characteristic of sound. The human ear does not respond equally to equal noise levels at different frequencies. To adjust noise levels to resemble the way they are heard by humans, we apply the "A-weighting" filter. The resulting value is the A-weighted sound level, which is used for all sound levels reported in Part 150 documents unless otherwise noted. A-weighting discounts sound waves in the range that people do not hear well and accentuates the speech frequencies because our ears our tuned to those frequencies. The filter has very little effect in the middle range, between 500 and 10,000 hertz (Hz). Studies have shown that A-weighted sound levels compare well with human judgment of "noisiness." **Figure 1**, to the right, provides noise levels of common indoor and outdoor noise sources.

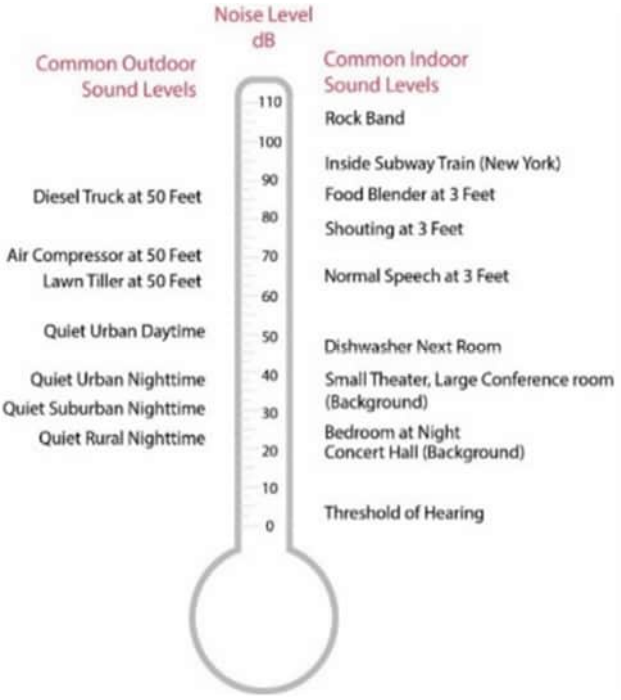

Figure 1

Noise Levels of Common Sounds in dB

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Noise Metrics

There are two main categories of noise metrics used to describe aircraft noise: (1) single-event noise metrics and (2) cumulative noise metrics. Single-event noise metrics quantify the intrusiveness, loudness, or noisiness of individual aircraft events. Cumulative noise metrics consider a longer period of time and are used to assess land use compatibility.

Maximum A-Weighted Sound Level (Lmax)

A-weighted sound levels vary with time. For example, the sound increases as an aircraft approaches, then falls and blends into the background as the aircraft recedes into the distance. We often describe a particular noise "event" by its maximum sound level (Lmax). However, two events with identical Lmax values may be perceived quite differently, since one may be of very short duration, while the other may be much longer.

Sound Exposure Level (SEL)

SEL is the most common measure of cumulative noise exposure for a single aircraft flyover. Mathematically, it is the sum of the sound energy over the entire duration of a noise event; one can think of it as an equivalent noise event with a one-second duration. See **Figure 2** for an illustration of how to compute SEL from an aircraft noise event.

Because the SEL is "normalized" to one second, it is typically larger in magnitude than the Lmax for the noise event. In fact, for most aircraft noise events, the SEL is about 7 to 12 dB higher than the Lmax. A higher SEL can result from either a louder or longer event, or some combination of those factors.

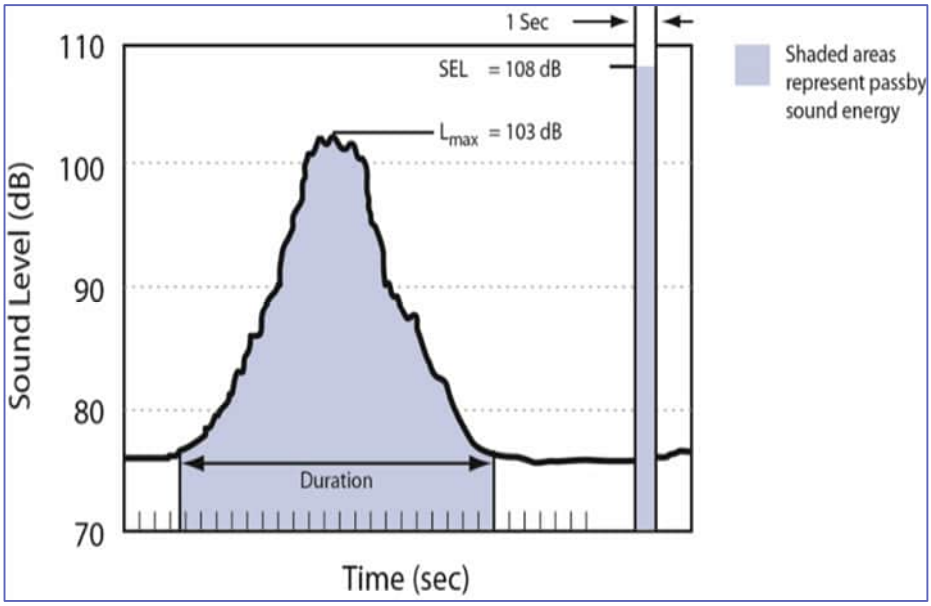

Figure 2

Sound Exposure Level and Lmax

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Day-Night Average Sound Level (DNL)

The Day-Night Average Sound Level (DNL) represents noise as it occurs over a 24-hour period, with one important exception: DNL adds 10 dB to events between 10 p.m. and 7 a.m. This 10 dB increase reflects a greater sensitivity to nighttime sound; people often judge noises at night as more intrusive because background noise at night is lower and most people are sleeping.

Figure 3 graphically depicts the manner in which the nighttime adjustment is applied in calculating DNL. Each bar in the figure is a one-hour equivalent sound level (Leq; a single-number value representing the varying sound energy over that time period). To calculate DNL, 10 dB is added to each hourly Leq for the hours between 10 p.m. and 7 a.m.

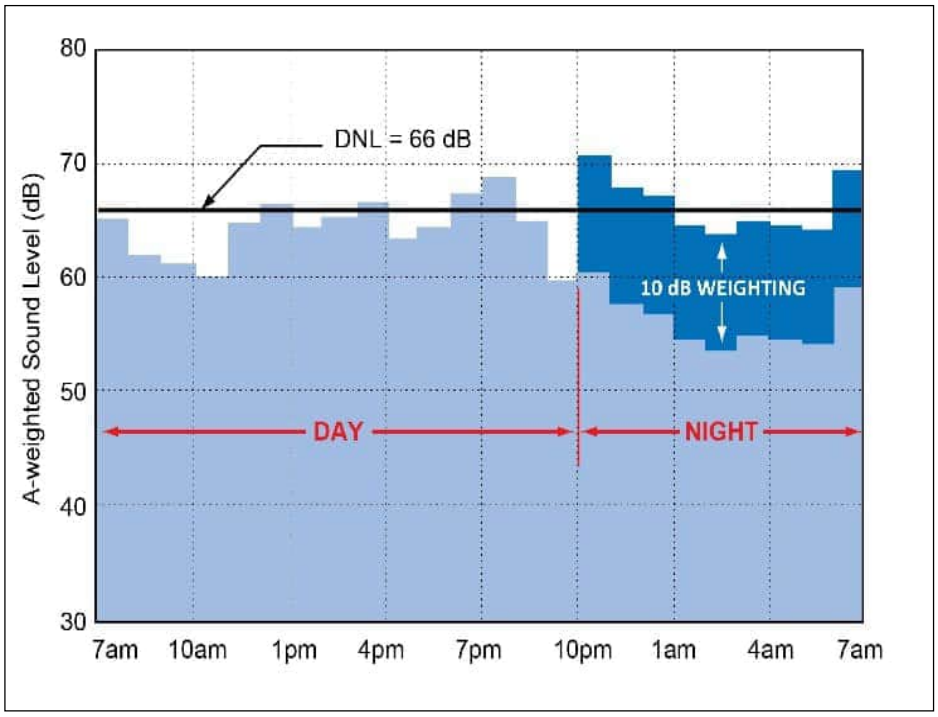

Figure 3

Example of a DNL Calculation

FAA *requires* the use of DNL contours to assess land use compatibility (14 CFR Part 150) and to determine significant noise impacts from federal actions (FAA Order 1050.1F).

Noise contours are lines of equal noise exposure around an airport (much like topographic maps that indicate contours of equal elevation). DNL contours, per FAA regulations, reflect average annual operating conditions, taking into account the average number of flights each day, how often each runway is used throughout the year, and where the aircraft typically fly over the surrounding communities.

Noise Modeling

The Aviation Environmental Design Tool (AEDT) is used to calculate the level of aircraft noise. AEDT uses a database of aircraft noise characteristics to predict DNL based on aircraft types, average annual day number of aircraft operations, operating conditions, aircraft performance, and aircraft flight patterns.