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Antonio B. Won Pat International Airport 14 CFR Part 150 Noise Compatibility Study and Update to Noise Exposure Maps

Noise Compatibility Program Update

October 2025

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Executive Summary

Executive Summary

The A.B. Won Pat International Airport Authority, Guam (GIAA) is committed to being a good neighbor and a responsible operator of the Antonio B. Won Pat International Airport (GUM, Airport). As the Airport proprietor, GIAA is updating its Noise Compatibility Program (NCP) in accordance with Title 14 of the Code of Federal Regulation Part 150 (14 CFR Part 150 or Part 150). This is the second step in the process of updating the Part 150 study. GIAA completed the original Part 150 Study for the Airport in 2003. The Federal Aviation Administration (FAA) accepted the Noise Exposure Map (NEM) in May 2003 and provided a Record of Approval for the GIAA-recommended Noise Compatibility Program (NCP) measures in November 2003.

A Part 150 Study is a voluntary and federally supervised formal process for airport operators to address land use compatibility with noise from aircraft operations. A Part 150 Study includes the following two principal elements:

- The **Noise Exposure Map** (NEM) element describes the airport layout and operation, aircraft-related noise exposure, land uses in the airport environs, and the resulting noise/land use compatibility. Part 150 requires that the documentation address aircraft operations during two time periods: the year of submission and a forecast year at least 5 years following the year of submission.
- The **Noise Compatibility Program** (NCP) element describes the actions the airport proprietor recommends to address existing and future noncompatible land use with noise exposure from aircraft operations. When GIAA submits its NCP to the FAA, the FAA will review, evaluate, and make determinations on the individual proposed measures in the FAA's Record of Approval.

The Part 150 Study Update is divided into two phases:

- **Phase 1** focuses on the development and submittal of the NEM to the FAA for acceptance as being completed in accordance with 14 CFR Part 150, and
- **Phase 2** determines the GIAA-recommended measures to minimize noncompatible land uses from aircraft noise with the development and submittal of the NCP to the FAA for review and evaluation of the individual measures and FAA's determination of their consistency with the purposes of Part 150 that will be documented in the FAA's Record of Approval.

The NEM Update was submitted in December 2024 and was accepted by FAA in April 2025. This document presents the results of the NCP phase of the Part 150 Study update which assesses actions an airport proprietor may consider to address existing and future noncompatible land use resulting from the noise of aircraft operations. The Part 150 Study is part of the broader effort to address noise exposure resulting from aircraft operations; it covers a study area that includes the Airport and adjacent communities on Guam.

The 2029 forecast NEM analysis indicates 251 of the 303 housing units within the DNL 65 dB noise contour and the one noise sensitive site (Best Western Guam Airport Hotel) are potentially noncompatible with noise from Airport operations. For the NCP, GIAA is recommending including one new noise abatement measure and continuing one prior noise abatement measure with modification for the updated NCP. The two GIAA-recommended noise abatement measures are:

- Use of Intersection Departures on Runway 6L
- Use of ICAO-A Departure Procedures

The implementation of these two measures would decrease housing units by 90 and population by 270 within the DNL 65 dB contour compared to the 2029 forecast NEM. Implementation of the recommended noise abatement measures would result in 148 noncompatible housing units remaining, which is a reduction of 103 noncompatible housing units compared to the 2029 forecast NEM.

GIAA is recommending continuing two prior remedial land use measures and three prior preventative land use measures with modification for the updated NCP. Two of the prior preventative land use measures would be combined into one measure for this update. The four GIAA-recommended land use measures are:

- Land Use Rezoning Support
- Acquire Noncompatible Land
- Sound Insulate Noise-Sensitive Structures
- Establish and Implement an Airport Noise Overlay Zone

GIAA is recommending including three new program management measures, continuing one prior program management measure and continuing one prior program management measure with modification for the updated NCP. The five GIAA-recommended program management measures are:

- Noise Compatibility Staff
- Noise/Land Use Advisory Committee
- Update the Noise Exposure Map
- Update the Noise Compatibility Program
- Noise Abatement Signage

Sponsor's Certification

The Noise Compatibility Program (NCP) for the Antonio B. Won Pat International Airport (GUM) is hereby submitted in accordance with Title 14 of the Code of Federal Regulations Part 150. GUM is owned and operated by A.B. Won Pat International Airport Authority, Guam (GIAA). The Program was prepared with the best available information and is certified as true and complete to the best of my knowledge and belief.

The Noise Exposure Map (NEM) was prepared and submitted under separate cover in December 2024 and was accepted by the Federal Aviation Administration (FAA) on April 28, 2025. The FAA-approved Noise Exposure Maps can be found in **Section 1.7** of this NCP report and FAA acceptance of the NEM in Appendix A. The NCP is submitted in one volume: the NCP document and the appendices with background and supporting material.

The NCP Report was prepared in consultation with local public and planning agencies whose area or any portion of whose area of jurisdiction is within the 65 Day-Night Average Sound Level (DNL) contour depicted on the NEM and might be affected by any GIAA-recommended measures. The consultation also included federal and local officials having oversight responsibility and regular aeronautic users of the airport. The proposed NCP measures are recommended by GIAA.

It is further certified that adequate opportunity has been afforded to interested persons to submit their views, data, and comments concerning the formulation and adequacy of the NCP Report and the supporting documentation under penalty of 18 USC § 1001. The required public hearing was held on October 29, 2025, to obtain public comments related to the GIAA-recommended NCP measures.

ANTONIO B. WON PAT INTERNATIONAL AIRPORT

_____

By:	John M. Quinata
Title:	Executive Director
Date:	XXXXXX, 2026
Airport Name:	Antonio B. Won Pat International Airport
Airport Owner/Operator:	A.B. Won Pat International Airport Authority, Guam
Address:	355 Chalan Pasaheru, Tamuning, Guam 96913

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FAA Checklist

The FAA has developed checklists for their internal use in reviewing NEM and NCP submissions. For ease of review, the GIAA has included the FAA's NCP checklist with appropriate page numbers or other references and other notes and comments to assist in the document's review, as presented below.

14 CFR Part 150 Noise Compatibility Program Checklist: Part I	
Airport Name: Antonio B. Won Pat International Airport	**REVIEWER:**

Program Requirement	**Yes/No/ N/A**	**Supporting Pages/Review Comments**
I. SUBMITTING AND IDENTIFYING THE NCP:		
A. Submission is properly identified:		
1. 14 C.F.R. Part 150 NCP?	Y	Cover, Sponsor Certification, page vii
2. NEMs and NCP together?	N	This document is the NCP Update. The NEM update was prepared and submitted as a separate document in December 2024. Sponsor Certification, page vii.
3. Program revision? (To what extent has it been revised?)	Y	This is an update to the NCP
B. Airport and Airport Sponsor's name are identified?	Y	Sponsor Certification, page vii.
C. NCP is transmitted by airport sponsor's cover letter?	Y	The cover letter will be included with the submission to the FAA.
II. CONSULTATION (INCLUDING PUBLIC PARTICIPATION): [150.23]		
A. Documentation includes narrative of public participation and consultation process?	Y	See Section 5 and Appendix D - Public Consultation Materials
B. Identification of consulted parties:		
1. All parties in 150.23(c) consulted?	Y	Chapter 1, Section 1.3, Chapter 5, Section 5.1, Appendix C – Stakeholder Consultation.
2. Public and planning agencies identified?	Y	Chapter 1, Section 1.3.2, Chapter 5, Section 5.1, and Appendix C – Stakeholder Consultation.
3. Agencies in 2. above correspond to those affected by the NEM noise contours?	Y	Agencies identified in the NCP participated as part of the Planning Advisory Committee (PAC), Chapter 5 Section 5.1.
C. Satisfies 150.23(d) requirements by:		
1. Documentation shows active and direct participation of parties in B. above?	Y	Chapter 5 (page 5-1) and Appendix C - Stakeholder Consultation
2. Active and direct participation of general public and opportunity to submit their views, data, and comments on the formulation and adequacy of the NCP?	Y	Chapter 5 (page 5-1) and Appendix C - Stakeholder Consultation
3. Participation was prior to and during development of NCP and prior to submittal to FAA?	Y	Chapter 5 (page 5-1) and Appendix C - Stakeholder Consultation

Program Requirement	Yes/No/ N/A	Supporting Pages/Review Comments
4. Indicates adequate opportunity afforded to all consulted parties to submit views, data, etc.?	Y	Sponsor Certification, page vii; Chapter 5 (page 5-1) and Appendix C - Stakeholder Consultation
D. Evidence is included there was notice and opportunity for a public hearing on the final NCP?	Y	Chapter 5 (page 5-1) and Appendix D - Public Consultation Materials
1. Includes summary of public hearing comments, if hearing was held?	Y	Appendix E - Public Comments
2. Includes copy of all written material submitted to operator?	Y	Appendix E - Public Comments
3. Includes operator's response/disposition of written and verbal comments?	Y	Appendix E - Public Comments
F. Is there written evidence from the appropriate office within the FAA that the sponsor received informal agreement to carry out proposed flight procedures?	N/A	N/A
III. NOISE EXPOSURE MAPS: [150.23, B150.3; 150.35(f)] (This section of the checklist is not a substitute for the Noise Exposure Map checklist. It deals with maps in the context of the Noise Compatibility Program submission.)		
A. Inclusion of NEMs and supporting documentation:		
1. Map documentation either included or incorporated by reference?	Y	Chapter 1 (Section 1.7)
2. Maps previously found in compliance by FAA?	Y	Chapter 1 (Section 1.7) and Appendix A
3. FAA's compliance determination still valid?		
(a) Existing condition NEM represents conditions at the airport at the time of submittal of the NCP for FAA approval?	Y	Chapter 1 (Section 1.7) and Appendix A
(b) Forecast condition NEM represents conditions at the airport at least 5 years into the future from the date of submittal of the NCP to the FAA for approval?	Y	Chapter 1 (Section 1.7) and Appendix A
(c) Sponsor letter confirming elements (a) and (b), above, if date of submission is either different than the year of submittal of the previously approved NEMs or over 12 months from the date shown on the face of the NEM?	Y	Chapter 1 (Section 1.7) and Appendix A
(d) If (a) through (c) cannot be validated, the NEMs must be redone and resubmitted as per 150.21.	N/A	N/A
4. Does 180-day period have to wait for map compliance finding?	N	No
B. Revised NEMs submitted with program: (Review using NEM checklist if map revisions included in NCP submittal. Report the applicable findings in the spaces below after a full review using the NEM checklist and narrative.)		
1. Revised NEMs included with program?	N	No
2. Has airport sponsor requested in writing that FAA make a determination on the NEM(s), showing NCP measures in place, when NCP approval is made?	N	No
C. If program analysis uses noise modeling:		
1. INM, HNM, or FAA-approved equivalent?	Y	Chapter 1 (Section 1.7)

Program Requirement	Yes/No/ N/A	Supporting Pages/Review Comments
2. Monitoring in accordance with A150.5?	N/A	N/A
D. One existing condition and one forecast-year map clearly identified as the official NEMs?	Y	Chapter 1 (Section 1.7)
IV. CONSIDERATION OF ALTERNATIVES: [B150.7, 150.23€(2)]		
A. At a minimum, were the alternatives below considered, or if they were rejected was the reason for rejection reasonable and based on accurate technical information and local circumstances?		
1. Land acquisition and interests therein, including air rights, easements, and developmental rights?	Y	Chapter 3
2. Barriers, acoustical shielding, public building soundproofing	Y	Chapter 2
3. Preferential runway system	Y	Chapter 2
4. Voluntary flight procedures	Y	Chapter 2
5. Restrictions described in B150.7 (taking into account Part 161 requirements)	Y	Chapter 2
6. Other actions with beneficial impact not listed in the regulation	Y	Chapters 2, 3 and 4
7. Other FAA recommendations (see D, below)	N/A	N/A
B. Responsible implementing authority identified for each considered alternative?	Y	Chapters 2, 3 and 4
C. Analysis of alternative measures:		
1. Measures clearly described?	Y	Chapters 2, 3 and 4
2. Measures adequately analyzed?	Y	Chapters 2, 3 and 4
3. Adequate reasoning for rejecting alternatives?	Y	Chapters 2, 3 and 4
D. Other actions recommended by the FAA: As the FAA staff person familiar with the local airport circumstances, determine whether other actions should be added? (list separately, or on back, actions and describe discussions with airport sponsor to have them included prior to the start of the 180-day cycle. New measures recommended by the airport sponsor must meet applicable public participation and consultation with officials before they can be submitted to the FAA for action. See E. below.)	N/A	N/A
V. ALTERNATIVES RECOMMENDED FOR IMPLEMENTATION: [150.23(E), B150.7(C); 150.35(B), B150.5]		
A. Document clearly indicates:		
1. Alternatives that are recommended for implementation?	Y	Chapters 2, 3 and 4
2. Final recommendations are airport sponsor's, not those of consultant or third party?	Y	Sponsor Certification, page vii.
B. Do all program recommendations:		
1. Relate directly or indirectly to reduction of noise and noncompatible land uses? (Note: All program recommendations, regardless of whether previously approved by the FAA in an earlier Part 150 study, must demonstrate a noise benefit if the airport sponsor wants FAA to consider the measure for approval in a program update. See E. below.)	Y	Chapters 2, 3 and 4
2. Contain description of each measure's relative contribution to overall effectiveness of the program?	Y	Chapters 2, 3 and 4

Program Requirement	Yes/No/ N/A	Supporting Pages/Review Comments
3. Noise/land use benefits quantified to extent possible to be quantified? (Note: some program management measures cannot be readily quantified and should be described in other terms to show their implementation contributes to overall effectiveness of the program.)	Y	Chapters 2, 3 and 4
4. Does each alternative include actual/anticipated effect on reducing noise exposure within noncompatible area shown on NEM?	Y	Chapters 2, 3 and 4
5. Effects based on relevant and reasonable expressed assumptions?	Y	Chapters 2, 3 and 4
6. Does the document have adequate supporting data that the measure contributes to noise/land use compatibility?	Y	Chapters 2, 3 and 4
C. Analysis appears to support program standards set forth in 150.35(b) and B150.5?	Y	Chapters 2, 3 and 4
D. When use restrictions are recommended for approval by the FAA:		
1. Does (or could) the restriction affect Stage 2 or Stage 3 aircraft operations (regardless of whether they presently operate at the airport)? (If the restriction affects Stage 2 helicopters, Part 161 also applies.)	N/A	N/A
2. If the answer to D.1 is yes, has the airport sponsor completed the Part 161 process and received FAA Part 161 approval for a restriction affecting Stage 3 aircraft? Is the FAA's approval documented? For restrictions affecting only Stage 2 aircraft, has the airport sponsor successfully completed the Stage 2 analysis and consultation process required by Part 161 and met the regulatory requirements, and is there evidenced by letter from FAA stating this fact?	N/A	N/A
3. Are non-restrictive alternatives with potentially significant noise/compatible land use benefits thoroughly analyzed so that appropriate comparisons and conclusions among all alternatives can be made?	N/A	N/A
4. Did the FAA regional or ADO reviewer coordinate the use restriction with APP-400 prior to making determination on start of 180-days?	N/A	N/A
E. Do the following also meet Part 150 analytical standards?		
1. Recommendations that continue existing practices and that are submitted for FAA re-approval? (Note: An airport sponsor does not have to request FAA re-approval if noise compatibility measures are in place from previously approved Part 150 studies. If the airport has implemented the measures as approved in the previous NCP, the measures may be reported and modeled as baseline conditions at the airport.)	N/A	N/A
2. New recommendations or changes proposed at the end of the Part 150 process?	N/A	N/A

Program Requirement	Yes/No/ N/A	Supporting Pages/Review Comments
F. Documentation indicates how recommendations may change previously adopted noise compatibility plans, programs, or measures?	Y	Chapters 2, 3 and 4
G. Documentation also:		
1. Identifies agencies that are responsible for implementing each recommendation?	Y	Chapters 2, 3 and 4
2. Indicates whether those agencies have agreed to implement?	Y	Chapters 2, 3 and 4
3. Indicates essential government actions necessary to implement recommendations?	Y	Chapters 2, 3 and 4
H. Timeframe:		
1. Includes agreed-upon schedule to implement alternatives?	Y	Chapters 2, 3 and 4
2. Indicates period covered by the program?	Y	Chapters 2, 3 and 4
I. Funding/Costs:		
1. Includes costs to implement alternatives?	Y	Chapters 2, 3 and 4
2. Includes anticipated funding sources?	Y	Chapters 2, 3 and 4
VI. PROGRAM REVISION: [150.23(E)(9)**]** Supporting documentation includes provision for revision? (Note: Revision should occur when it is likely a change has taken place at the airport that will cause a significant increase or decrease in the DNL noise contour of 1.5 dB or greater over noncompatible land uses. See §150.21(d))	N	N/A

Source: FAA/APP, Washington, DC, March 1989; updated December 2007, published February 2008 (confirmed November 2023)

1. Introduction to Noise Compatibility Planning

1 Introduction to Noise Compatibility Planning

Antonio B. Won Pat International Airport (GUM, Airport) is undertaking a Noise Compatibility Planning Study in accordance with Title 14 of the Code of Federal Regulation Part 150 (14 CFR Part 150, or Part 150; herein referred to as "Study" or "Part 150 Study"). The purpose of this Part 150 Study is to develop an accurate Noise Exposure Map (NEM) that reflects current and future airport operations, communicate noise exposure levels and land use compatibility associated with aircraft operations to the surrounding communities, identify noncompatible land uses resulting from aircraft noise in the surrounding communities, and collaboratively develop recommendations aimed at addressing noncompatible land use through potential noise abatement, noise mitigation, and/or program management measures through a Noise Compatibility Program (NCP). The NEM and NCP prepared under this Study will be subject to Federal Aviation Administration (FAA) acceptance and ultimate approval of the Airport-recommended NCP measures.

Part 150 describes a formal process for airport operators to address noncompatible land uses based on noise exposure resulting from aircraft flight operations. Part 150 studies are voluntary and allow airports to apply for federal funds to implement FAA-approved measures to reduce or eliminate noncompatible land use.

A.B. Won Pat International Airport Authority, Guam (GIAA) is committed to reducing the effects of aircraft noise in nearby communities and has a long history of addressing community noise concerns associated with aircraft operations from the Airport. GIAA completed its first Part 150 Study in 2003. The NEM was accepted by the FAA in May 2003, NCP measures were approved by the FAA in November 2003, and the GIAA began providing sound insulation treatment to the eligible residential units as part of its NCP. The current Study is expected to be completed in 2025.

1.1 Part 150 Process

In 1968, Congress responded to widespread community concern with aircraft noise resulting from the dawn of the jet age by passing the Aircraft Noise and Sonic Boom Act, which set standards for measurement of aircraft noise and established noise abatement regulations associated with the certification of aircraft. The FAA's emphasis on the relationship between aircraft noise and land use compatibility planning began with the passage of the Aviation Safety and Noise Abatement Act of 1979 (ASNA). This act gives the FAA the authority to issue regulations on noise compatibility planning.

The Airport and Airway Improvement Act of 1982 provides a means for federal funding of projects to improve land use compatibility around airports. In response to ASNA, the FAA developed implementing regulations as currently codified in Title 14 of the Code of Federal Regulations (14 CFR Part 150), "Airport Noise Compatibility Planning."[1]

These voluntary Part 150 regulations set forth standards for airport operators to use when documenting noise exposure around airports and for establishing programs to minimize aircraft noise-related noncompatible land use. By regulation, a Part 150 Study includes the following two principal elements (described in Sections 1.1.1 and 1.1.2):

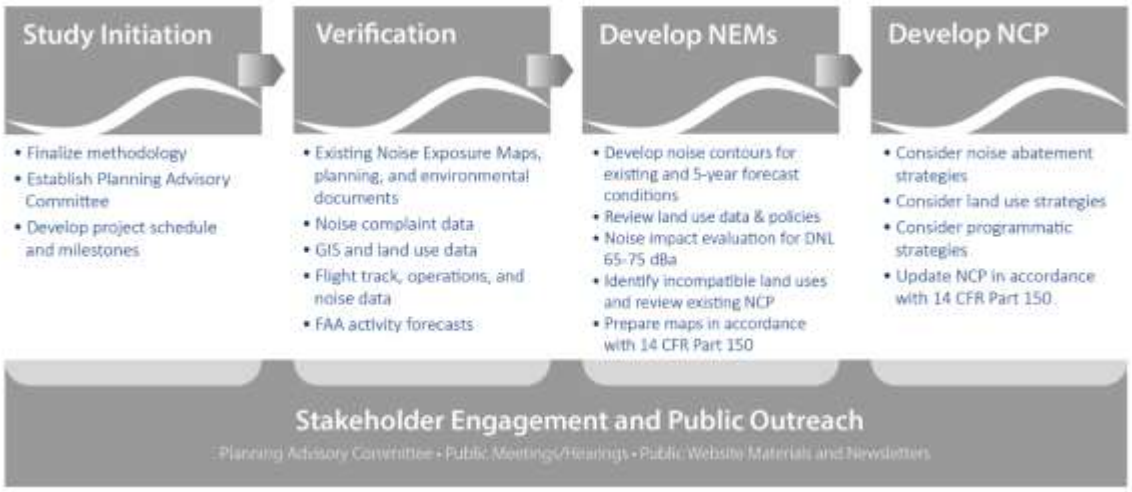
1. Noise Exposure Map (NEM)
2. Noise Compatibility Program (NCP)

Acceptance of an NEM by the FAA is a prerequisite to its subsequent review and approval of measures recommended in an NCP. **Figure 1-1** provides an overview of the FAA Part 150 process.

This Part 150 Study is divided into two phases: Phase 1 covered the development and submittal of the NEM, and Phase 2 focused on the development and submittal of the NCP. This document is the draft report for Phase 2.

[1] U.S. Government Publishing Office. Electronic Code of Federal Regulations, Title 14 CFR Part 150 – Airport Noise Compatibility Planning. Accessed at https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150?toc=1 on 12/07/2022.

Figure 1-1. Overview of the FAA Part 150 Process



1.1.1 Noise Exposure Map

The NCP document describes the Airport layout and operation, aircraft-related noise exposure, land uses in the Airport environs, and the resulting noise and land-use compatibility. Part 150 requires that NEM documentation address aircraft operations during two time periods:

1. The year of submission (the “existing conditions”) and
2. A forecast year that is at least 5 years following the year of submission (the “forecast conditions”).

The main elements in the NEM document are the two maps representing aircraft noise exposure and land use compatibility. The FAA maintains an NEM document checklist to ensure the documents include all of the requirements contained in the Part 150 regulation, including tabulated data and results, and clear descriptions of the data collection and analysis undertaken in the development of the NEM. Phase 1 of this project culminated in the FAA accepting the 2024 NEM in April 2025.

1.1.2 Noise Compatibility Program

An NCP is a list of actions an airport proprietor recommends to address existing and future noncompatible land use resulting from the noise of aircraft operations.

In addition to the NEM checklist, the FAA maintains an NCP checklist to ensure the documents include all of the requirements of Part 150, such as:

- The development of the program
- Each measure the airport sponsor considered
- The reasons the airport sponsor elected to recommend or exclude each measure
- The entities responsible for implementing each recommended measure
- Implementation and funding mechanisms
- The predicted effectiveness of both the individual measures and the overall program

The FAA reviews and approves specific measures based on information contained in the NCP. GIAA may apply for grant funding for implementation of FAA-approved measures. A GIAA-recommended and FAA-approved measure does not require implementation of the measure but merely demonstrates that the measure is in compliance with Part 150. Additionally, if a measure requires subsequent FAA action, its implementation may require environmental study under the National Environmental Policy Act of 1969 (NEPA). Phase 2 of this project is the NCP update and the focus of this document.

1.2 Antonio B. Won Pat International Airport Part 150 Study

GIAA began the Part 150 Update in the summer of 2023 and, under Phase 1 of this Study, submitted the final NEM report to FAA in December 2024 for review and acceptance of the document to be in accordance with 14 CFR Part 150 requirements. The Noise Exposure Maps were accepted by FAA on April 28, 2025. The FAA-accepted Noise Exposure Maps and respective land use compatibility summaries for 2024 and 2029 are provided in **Section 1.7** for reference.

Phase 2 of the Study began in during the summer of 2024, with a focus on updating the Airport's NCP to address the noncompatible land uses documented in the Noise Exposure Maps. There will be a 30-day public comment period on the NCP, a second public open house to answer questions related to the NCP, and a public hearing for the community to comment on the Airport-recommended measures aimed at addressing noncompatible land uses resulting from the noise exposure from aircraft operations. GIAA expects to submit this updated NCP to the FAA in early 2026 with its recommendations to address the noncompatible land uses.

1.2.1 History of Noise Compatibility Planning at Antonio B. Won Pat International Airport Guam

Aviation is important to the economic health of Guam and the quality of life of its residents, businesses, and visitors. One of the major challenges is to balance aviation needs with the needs of the local community. GIAA is committed to reducing the effects of aircraft noise and has a long history of addressing noncompatible land use at the Airport. GIAA completed its first Part 150 Study for the Airport in 2003. The NEM was accepted by the FAA in May 2003 as adhering to the requirements of Part 150, and the FAA issued its Record of Approval (ROA) in November 2003 for the Airport-recommended NCP measures.

GIAA works closely with Airport partners to reduce noise in the surrounding community by encouraging the use of noise abatement procedures and other takeoff/landing methods that reduce aircraft noise over noise-sensitive areas. The success of a noise abatement strategy depends largely on the cooperation of pilots, air traffic controllers, and Airport officials.

GIAA established a Residential Sound Solution Program (RSSP), which provides sound insulation treatments to eligible homes identified in the FAA-accepted NEM. The RSSP began after the 2003 Part 150 was approved by the FAA and had four implementation phases. As part of this program, 183 single-family houses and 24 multi-family buildings with 59 units have been acoustically treated resulting in them becoming compatible with the noise from aircraft operations at the Airport.

1.3 Roles and Responsibilities

Several groups are involved in the preparation of the Part 150 Study and have provided important information to the Study Team that has been incorporated into this NEM document, including:

- GIAA, including its staff and consultant team
- The Part 150 Planning Advisory Committee (PAC)
- The FAA
- The public

1.3.1 GIAA

As the Airport operator, GIAA is the sponsor of this Study and submits the NEM, recommends NCP measures, pursues implementation of the adopted NCP measures, and manages the consultant team. GIAA also leads public engagement efforts related to the Part 150 Study.

1.3.2 Planning Advisory Committee

Part 150 studies benefit from the creation and participation of a PAC. Representatives invited to serve on the PAC represent their respective groups and/or constituencies. The purpose of the PAC is to bring a broad range of stakeholder perspectives to the Study. PAC members participate in regular meetings, distribute information about the Study to their constituencies/organizations, and review technical components of the Study. The PAC's role is advisory

in nature; members do not have decision-making authority over elements of the Study. That is, the PAC may offer opinions, advice, and guidance to the Study, but GIAA as the operator of the Airport has the sole discretion to accept or reject the PAC recommendations in accordance with Part 150 regulations.

PAC membership includes:

- GIAA staff
- FAA Airport District Office (ADO)
- FAA airport traffic control tower (ATCT)
- Airport tenants, users, and operators
- Guam Department of Land Management
- Andersen Air Force Base

1.3.3 Federal Aviation Administration

The FAA reviews the operational forecast for consistency with its Terminal Area Forecast (TAF) and any non-standard noise modeling requests. The FAA reviews the Part 150 submission to determine whether the technical work, consultation, and documentation comply with Part 150 requirements. The FAA accepts the NEM as being completed in accordance with 14 CFR Part 150.

The FAA evaluates recommended NCP measures individually with respect to a criteria framework and determines whether each measure merits approval, disapproval, or further review for the purposes of Part 150. In addition, the FAA reviews the details of the technical documentation for broader issues of safety and ensures consistency of recommended noise abatement measures with applicable federal law. Finally, the FAA issues the Record of Approval (ROA) for the recommended measures in the NCP.

FAA involvement includes participation by staff from at least three parts of the agency:

- The Office of Environment and Energy
- The Air Traffic Organization
- The Office of Airports

The **Office of Environment and Energy** (AEE), located in FAA headquarters, reviews complex technical, regulatory, and legal matters of national environmental policy significance.

The **Air Traffic Organization** includes the Air Traffic Controllers and support staff. The Airport's ATCT provides input on operational data, safety and capacity effects of alternative noise abatement measures, and shares input on implementation requirements.

Three groups in the **Office of Airports** are involved:

1. The Honolulu Airport District Office (ADO) is the main point of contact for reviews, compliance, and direction as the Part 150 Update study progresses.
2. The Western-Pacific Region Office is responsible for determining if the documentation satisfies all Part 150 requirements and has final review of the NCP for adequacy in satisfying technical and legal requirements.
3. Headquarters ensures consistency with Part 150 regulations and reviews of national importance.

Prior to acceptance of the NEM/NCP documentation and approval of the Airport-recommended NCP measures, the FAA conducts a Lines-of-Business review, which includes Air Traffic, Flight Standards, Legal, Special Programs, Planning and Requirements, Flight Procedures, and Regional Review.

1.3.4 Public

Members of the public are given opportunities to follow the Study's progress and provide input. The public was encouraged to stay abreast of progress by reviewing project-related information, participating in the public open houses, and submitting comments on the draft documents.

1.4 Introduction to Noise Terminology

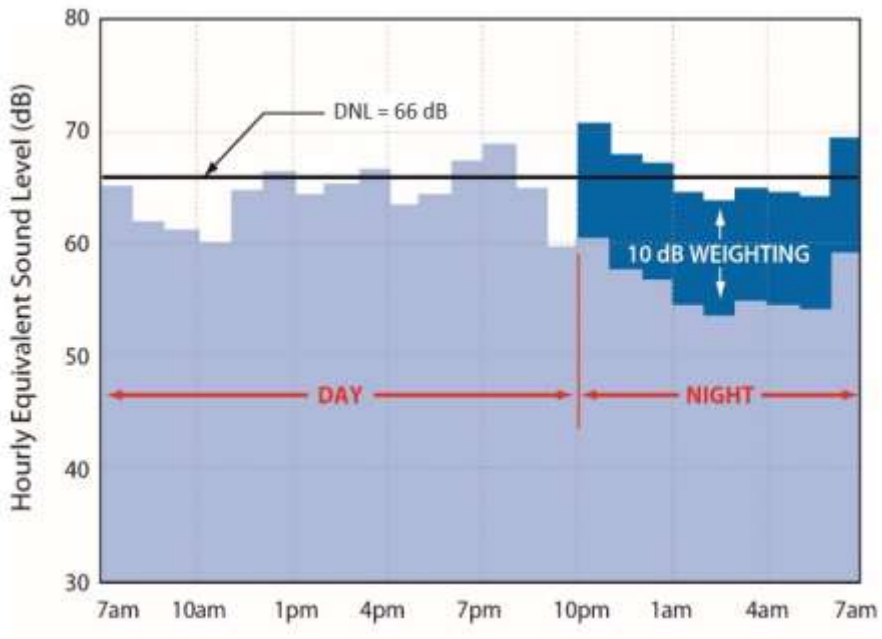
Information presented in this NEM document relies upon a reader's understanding of the characteristics of noise (unwanted sound), the effects noise has on persons and communities, and the metrics or descriptors commonly used to quantify noise. The properties, measurement, and presentation of noise involve specialized terminology.

Sound is a physical phenomenon consisting of minute vibrations (waveforms) that travel through a medium such as air or water. **Noise** is sound that is unwelcome.

Noise metrics may be thought of as measures of noise 'dose.' There are two main types, describing (1) single noise events (single-event noise metrics) and (2) total noise experienced over longer time periods (cumulative noise metrics). Single-event metrics indicate the intrusiveness, loudness, or noisiness of individual aircraft events. Cumulative metrics consider the frequency of noise events as well as the time of day in which they occur. Unless otherwise noted, all noise metrics presented in Part 150 documentation are reported in terms of the A-weighted decibel or dB.

Noise sensitivity is greater at night because background (ambient) sound levels tend to be lower at night and people tend to be sleeping. Day-Night Average Sound Level, or DNL, represents noise as it occurs over a 24-hour period, treating noise events occurring at night (10 p.m. to 7 a.m.) with a 10 dB weighting.[2] This 10 dB weighting is applied to account for greater sensitivity to nighttime noise and the fact that events at night are often perceived to be more intrusive than daytime (see **Figure 1-2**). An alternative way of describing this adjustment is that each event occurring during the nighttime period is calculated as if it were equivalent to 10 daytime events. For purposes of Part 150, DNL is normally calculated using aircraft operations data averaged over a longer period, such as a year, to smooth out fluctuations occurring in day-to-day operations. The DNL depicted by an NEM is often referred to as the annual average daily DNL.

Figure 1-2. Example of a Day-Night Average Sound Level Calculation



1.5 How to Use This Document

This document and the Part 150 Study it represents were undertaken in accordance with the requirements of the Part 150 regulation in Title 14 of the Code of Federal Regulations. The FAA-maintained NCP checklist is provided at the front of this document to assist the FAA in determining the document complies with Part 150. This document is organized as follows:

[2] For the regulatory definition of DNL see 14 CFR Part 150 §150.7 Definitions. http://www.ecfr.gov/cgi-bin/text-idx?SID=f8e6df268e3dad2edb848f61b9a0fb51&mc=true&node=pt14.3.150&rgn=div5; Accessed on 12/07/2022.

- **Section 1** introduces the location and setting of the Airport, the Part 150 Study process, roles and responsibilities of stakeholders in the process, noise terminology, aircraft noise and land use compatibility, and the FAA-accepted NEM submitted in 2024.
- **Section 2** provides an overview of GIAA's existing noise abatement measures, GIAA-recommended noise abatement measures, and those noise abatement measures considered and not recommended by GIAA.
- **Section 3** provides an overview of GIAA's existing land use measures, GIAA-recommended land use measures, and those land use measures considered and not recommended by GIAA.
- **Section 4** provides an overview of GIAA's existing program management measures, GIAA-recommended program management measures, and those program management measures considered and not recommended by GIAA.
- **Section 5** provides GIAA's stakeholder engagement efforts undertaken during the NCP phase of the Part 150 process.
- The **Appendices A-F**, provide technical information, supporting documentation, and public outreach meeting materials referenced in this NCP.

1.6 Aircraft Noise and Land Use Compatibility

The objective of airport noise compatibility planning is to promote compatible land use in communities surrounding airports. Part 150 requires the review of existing land uses surrounding an airport to determine land use compatibility associated with aircraft activity at the airport.

The land uses on Guam have been matched with the Part 150 guidelines land use categories. These are shown in **Table 1-1**. The Federal Aviation Administration (FAA) has published land use compatibility designations, as set forth in Part 150, Appendix A, Table 1 (reproduced here as **Table 1-2**). As **Table 1-2** indicates, the FAA generally considers all land uses to be compatible with aircraft noise exposure in terms of DNL below 65 dB, including residential parcels, hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries.

GIAA considers housing units as compatible with aircraft noise within the DNL 65 dB and greater contour if they were mitigated as part of the prior Residential Sound Solutions Program or if they were constructed after October 1, 1998. Per FAA policy, as of October 1, 1998, the FAA will approve, under Part 150, only remedial mitigation measures for existing noncompatible development and only preventive noise mitigation measures for new noncompatible development that may be eligible for Airport Improvement Program funding.

Table 1-1. Guam Land Uses compared to Part 150 Airport Noise / Land Use Compatibility Guidelines

Noise Exposure Map Land Uses	Part 150, Appendix A, Table 1	
	General Category	Description
Noncompatible within DNL 65		
One-Family Dwelling Zone (R-1)	Residential Use	Single Family Housing
Multiple Dwelling Zone (R-2)	Residential Use	Multi-Family Housing
Planned Unit Development (PUD)	Residential Use	Single or Multi Family Housing
Hotel Resort Zone (H)	Residential Use	Transient Lodging
Public Use (Noise Sensitive)	Public Use	Schools, Churches, Hospitals, Libraries, Nursing Homes
Compatible within DNL 65		
Residential - Compatible	Residential Use	Constructed after October 1, 1998
Conservation/Preservation (1)	Recreational	Open space, parks
Agriculture Zone (A)	Manufacturing & Production	Agriculture and Forestry
Commercial Zone (C)	Commercial Use	Offices, Retail, Warehouses
Military Lands (M)	Public Use	Government Services
Industrial Zone (M-1, M-2)	Manufacturing & Production	Manufacturing
Vacant / Undefined	Recreational	Open space / undefined

Source: GIAA; Part 150, Appendix A, Table 1

Table 1-2. Part 150 Airport Noise / Land Use Compatibility Guidelines

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key:
SLUCM: Standard Land Use Coding Manual
Y(Yes): Land use and related structures compatible without restrictions.
N(No): Land use and related structures are not compatible and should be prohibited.
NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 A-weighted decibels (dB) must be incorporated into design and construction of structure.
Notes:
The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

1) *Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction*

requirements are often started as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.

2) *Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.*
3) *Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.*
4) *Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.*
5) *Land use compatible provided special sound reinforcement systems are installed.*
6) *Residential buildings require an NLR of 25.*
7) *Residential buildings require an NLR of 30.*
8) *Residential buildings not permitted.*

Source: Part 150, Appendix A, Table 1, 2007

1.7 Airport Noise Exposure Map

This section provides a summary of the current FAA-accepted 2024 NEM. On April 28, 2025, the FAA accepted the most recent (2024) NEM update for the Airport as summarized here for reference. The fundamental noise elements of the NEM are aircraft noise exposure contours for existing and five-year forecast conditions (i.e., 2024 and 2029).

The aircraft noise contours for this study were prepared using the FAA's Aviation Environmental Design Tool (AEDT), which is a computer model that includes airport-specific information (e.g., runway data); flight track information; aircraft operation levels distributed by time of day, aircraft fleet mix, and aircraft altitude profiles.

The 2029 forecast condition was solely used as the basis for evaluating the effectiveness of proposed noise abatement measures (see Section 2 of this document). The 2029 forecast NEM was used as the baseline to evaluate the effectiveness of the noise abatement measures since it is based on a higher forecasted level of operations, it is the larger set of DNL contours and encompasses a higher number of noncompatible land use. The purpose of the noise abatement measures is to eliminate or reduce noncompatible land use and using the 2029 forecast NEM allows for an effective evaluation of the proposed measures

For ease of reference, the 2024 and 2029 noise exposure contours are presented below in **Figure 1-3** and **Figure 1-4.** The resulting land use compatibility analysis is summarized in **Table 1-3** and **Table 1-4**, which includes the population and housing units within the DNL 65 dB contour and noise-sensitive sites. The 2029 Forecast DNL 65 dB contour is slightly larger and fully encompasses the 2024 Existing DNL 65 dB contour. The land use compatibility analysis shows that there are 155 residential units and one noise-sensitive site (Best Western Guam Airport Hotel) within the Existing Condition 2024 DNL 65 dB contours and 303 residential units and the same noise-sensitive site within the Forecast Condition 2029 DNL 65 dB contours as a result of the 2029 contours encompassing a larger area than the 2024 contours. For the Existing Condition 2024 analysis, 118 of the 155 units and the one noise-sensitive site are potentially noncompatible with noise from Airport operations and for the Forecast Condition 2029 analysis, 251 of the 303 units and the one noise sensitive site are potentially noncompatible with noise from Airport operations. Part 150, Land Use Compatibility guidelines[3] consider all land uses compatible with aircraft noise exposure less than 65 dB in terms of the DNL metric.

GIAA considers housing units as compatible with aircraft noise within the DNL 65 dB and greater contour if they were mitigated as part of the prior Residential Sound Solutions Program or if they were constructed after October 1, 1998. Per FAA policy,[4] as of October 1, 1998, the FAA will approve, under Part 150, only remedial mitigation measures for existing noncompatible development and only preventive noise mitigation measures for new noncompatible development that may be eligible for Airport Improvement Program funding.

[3] Appendix A, Table 1 of 14 CFR Part 150 – Reproduced in this report in Table 4-2.
[4] Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects", Federal Register 63:46 (April 3, 1998) p.16409.

Table 1-3. Existing (2024) and Forecast (2029) Land Use Compatibility

Contour Interval	Area (Acres)		Population Census 2020				Housing Units			
			Total		Noncompatible[1]		Total		Noncompatible[1]	
	2024	2029	2024	2029	2024	2029	2024	2029	2024	2029
65-70 DNL	521.1	574.5	465	909	354	753	155	303	118	251
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	465	909	354	753	155	303	118	251

DNL = Day-Night Average Sound Level

Notes:

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.

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.

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

Table 1-4. Existing (2024) and Forecast (2029) Noise Sensitive Sites

Contour Interval	Schools		Places of Worship		Day Care		Transient Lodging	
	2024	2029	2024	2029	2024	2029	2024	2029
65-70 DNL	0	0	0	0	0	0	1	1
70-75 DNL	0	0	0	0	0	0	0	0
>75 DNL	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**

DNL = Day-Night Average Sound Level

Source: GIAA 2024

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Figure 1-3. Existing Condition (2024) Noise Exposure Map

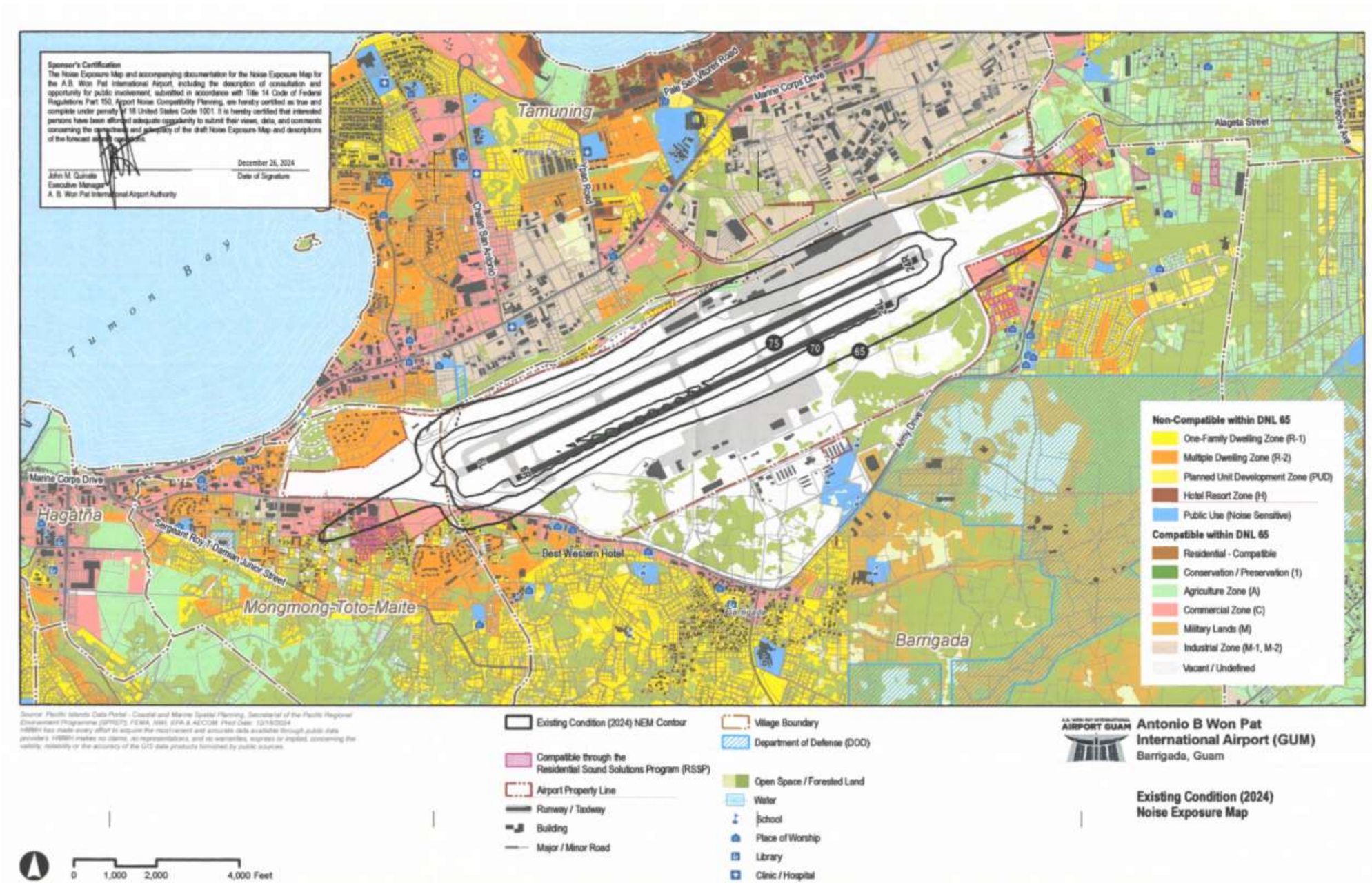

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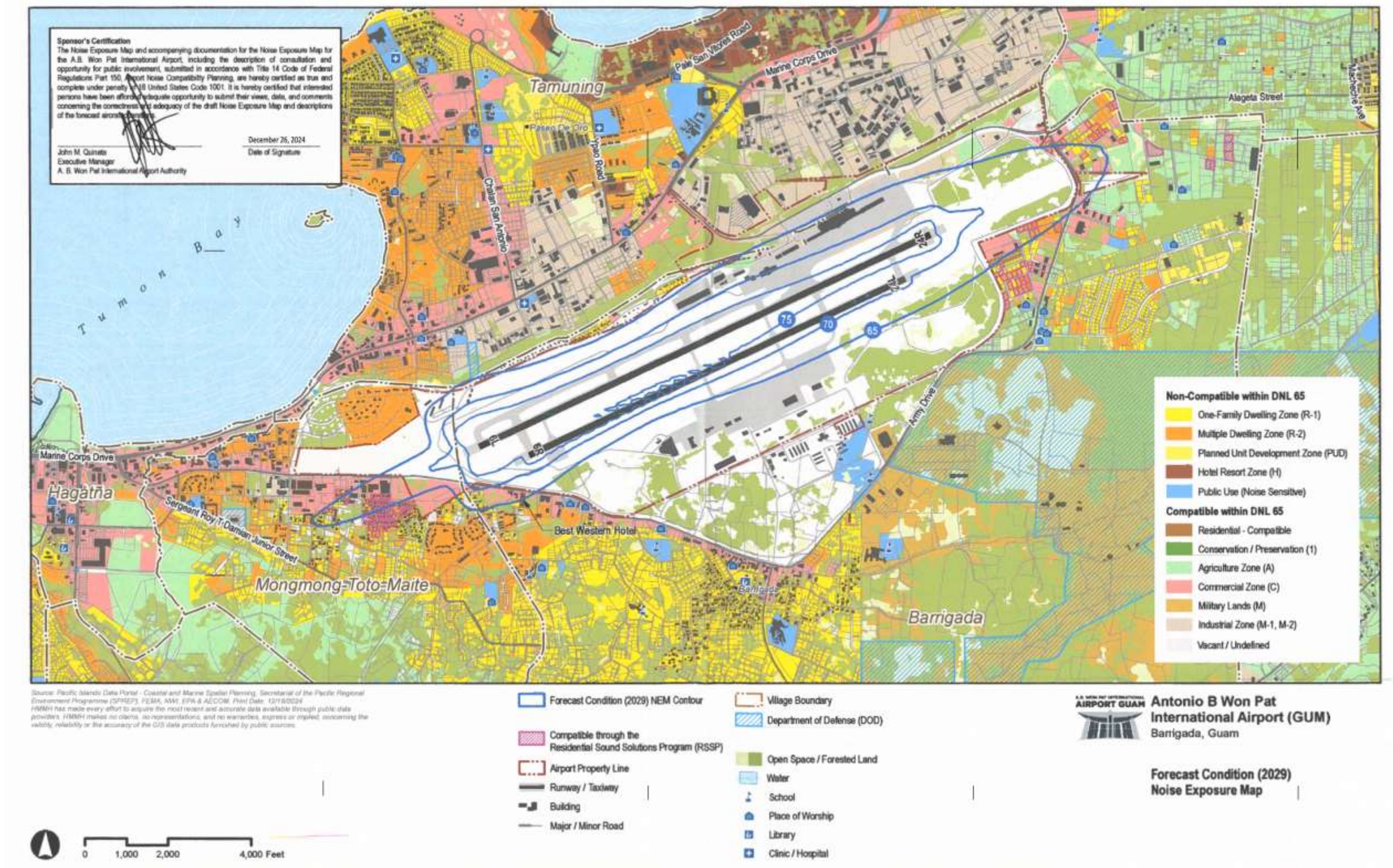
Figure 1-4. Future Conditions (2029) Noise Exposure Map



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2.
Noise Abatement Measures

2 Noise Abatement Measures

Noise abatement measures are those that control noise at the source. Such measures include aircraft flight procedures, airport layout, preferential runway use, and arrival and departure procedures. The intention of noise abatement measures in the NCP is to reduce the number of people and noise-sensitive properties exposed to aircraft noise of day-night average sound level (DNL) 65 decibels (dB) and higher.[5]

Section 2.1 identifies all GIAA recommended noise abatement measures as part of the 2003 NCP, including their implementation status. For this Part 150 Study, GIAA determined for each measure recommended in the 2003 NCP whether to continue as written, continue with modifications, or not continue the measure.

Section 2.2 describes each of the two GIAA-recommended noise abatement measures from the associated five Part 150-required categories (flight tracks, preferential runway use, arrival/departure procedures, airport layout modifications, and use restrictions) analyzed for potential inclusion in the updated NCP, as shown in **Table 2-1**.

Section 2.2 includes tables of population and housing unit changes and an implementation summary for each measure. GIAA is recommending including one new measure and continuing one prior noise abatement measure with modification for the updated NCP. The implementation of these two measures would decrease housing units by 90 and population by 270 within the DNL 65 dB contour compared to the 2029 forecast NEM. Implementation of the two recommended noise abatement measures would result in 148 noncompatible housing units remaining, which is a reduction of 103 noncompatible housing units compared to the 2029 forecast NEM.

Table 2-1. Summary of Recommended GIAA Noise Abatement Measures for the 2025 NCP

Part 150 Category	New or Modified Noise Abatement Measures		
	Number	Title	New or Modified
Arrival/Departure Procedures	1	Use of Intersection Departures on Runway 6L	New
	2	Use of ICAO-A Departure Procedures	Modified

Source: GIAA, 2025

Section 2.3 discusses the noise abatement measures that were considered, but GIAA is no longer recommending for this NCP.

2.1 Prior Recommended Noise Abatement Measures

The Part 150 process requires a complete review of the current Airport NCP measures, which are contained in the 2003 NCP, and, if implemented, the effectiveness of each measure in reducing the number of people exposed to DNL 65 dB and higher noise exposure from aircraft operations. Each of the 13 GIAA-recommended noise abatement measures in the 2003 NCP were disapproved or listed as “no action required” by the FAA in the 2003 Record of Approval (ROA). While it is possible that several of the measures may have reduced the amount of noncompatible land use, the FAA determined that not enough information was given to support the potential benefits and therefore disapproved many of the measures “until further information was given.” Because each measure was either disapproved or listed as “no action required”, none of the noise abatement measures listed in the 2003 NCP were implemented by GIAA**. Table 2-2** lists the 13 GIAA-recommended noise abatement measures in the 2003 NCP, provides the implementation status of each measure, and states whether to continue, modify, or not continue the measure in the 2025 NCP update.

[5] 14 CFR Part 150, Appendix A, Table 1.

Table 2-2. Status of 2003 NCP Noise Abatement Measures

Number	Title	Approval Status	Implementation Status	Recommendation for the 2025 NCP
NA-1	Noise Abatement Flight Tracks	Disapproved for Part 150	Not Implemented	Not Continue
NA-2	Standard Instrument Departure Procedures	Disapproved for Part 150	Not Implemented	Not Continue
NA-3	Delayed Flap and Gear Extension Approaches	Disapproved for Part 150	Not Implemented	Not Continue
NA-4	Restriction on Visual Approaches	Disapproved for Part 150	Not Implemented	Not Continue
NA-5	Close-in Noise Abatement Departure Procedures	No Action Required	Implemented by Airlines	Continue with Modification, see **Section 2.2.2**
NA-6	Distant Noise Abatement Departure Procedure	No Action Required	Implemented by Airlines	Not Continue
NA-7	FMS/GPS Applications, Use of On-Board Equipment	Disapproved for Part 150	Not Implemented	Not Continue
NA-8	Establish Displaced Threshold	Disapproved for Part 150	Not Implemented	Not Continue
NA-9	Establish Noise Barriers	Disapproved for Part 150	Not Implemented	Not Continue
NA-10	High Speed Exit Taxiways	Disapproved for Part 150	Not Implemented	Not Continue
NA-11	Operational Fees Based on Noise	Disapproved for Part 150	Not Implemented	Not Continue
NA-12	Voluntary Fleet Mix Goals	Disapproved for Part 150	Not Implemented	Not Continue
NA-13	Engine Run-Up Restrictions	Disapproved for Part 150	Not Implemented	Not Continue

Source: GIAA, 2025

The remainder of this section includes the previously recommended mitigation measures, the FAA's decision, implementation status related to each one, and recommendation for this NCP.

2.1.1 2003 NCP NA-1: Noise Abatement Flight Tracks

Description: This measure recommends the establishment of new flight tracks or modifying existing flight tracks to concentrate aircraft overflights over areas with relatively few noise-sensitive land uses.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** While the concept of flight tracks over non-noise-sensitive areas intuitively would be noise beneficial, no specific tracks are presented in the NCP. Additional review by the FAA also would be necessary to evaluate the operational safety and feasibility of new flight tracks. The measure also should provide data regarding its noise benefits. Benefits that cannot be quantified by changes in the DNL noise contour should be quantified through the use of supplemental metrics and analysis. GIAA may choose to submit the requested additional information for this mitigation measure to be reconsidered by the FAA.

***Implementation Status*:** Not Implemented

Recommendation: Not Continue

2.1.2 2003 NCP NA-2: Standard Instrument Departure Procedures

Description: This measure recommends establishing procedures that would require aircraft to follow a Standard Instrument Departure (SID) in all weather conditions, including VFR conditions. SIDs normally include departure headings and altitudes to be followed. This procedure provides a means of implementing noise abatement flight tracks for departures.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** While the concept of noise abatement SIDs intuitively would provide noise benefits, no specific procedures are presented in the NCP. Additional review by the FAA also would be necessary to evaluate the measure's operational safety and feasibility. The measure also should provide data regarding its noise benefits. Benefits that cannot be quantified by changes in the DNL noise contour should be quantified through the use of supplemental metrics and analysis. GIAA may choose to submit the requested additional information for this mitigation measure to be reconsidered by FAA.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.3 2003 NCP NA-3: Delayed Flap and Gear Extension Approaches

Description: This measure recommends continuation of the voluntary procedure that arriving aircraft delay lowering flaps and landing gear until closer to the Airport. The lower thrust settings used for the portion of the approach beyond three miles from the Airport would reduce single-event noise levels by 2 – 4 dB. Some operators, to reduce fuel consumption and noise, currently use this procedure.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** The techniques used to determine the noise benefits of changes in approach settings are still under study in the United States. Disapproval of this measure under Part 150, due to lack of information to determine the noise benefits, does not prevent aircraft operators from using alternate approach settings on a voluntary basis as described in the NCP. GIAA may choose to submit the requested additional information for this mitigation measure to be reconsidered by FAA.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.4 2003 NCP NA-4: Restriction on Visual Approaches

Description: This measure recommends Air Traffic restrict the use of visual approaches during VFR conditions. Limitations on visual approaches may reduce noise exposure by concentrating low altitude aircraft overflights in compatible land use corridors along the runway centerlines.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** Additional information is required by the FAA to determine the numbers of people or homes expected to receive the quantified noise reduction benefit from this measure. Limitations of visual approaches may, in some cases, increase noise rather than decrease noise in noise-sensitive areas.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.5 2003 NCP NA-5: Close-in Noise Abatement Departure Procedures

Description: This measure recommends departing aircraft climb under takeoff power to an altitude of at least 800 feet Above Ground Level (AGL). Thrust is then reduced to no less than that needed to maintain the required one engine climb out gradient to the initiation of flaps and slats retraction. Upon reaching 3,000 feet AGL, the aircraft resumes normal climb through the reapplication of thrust, acceleration, and the completion of flap retraction.

FAA Action: **No action required at this time. This measure relates to flight procedures under 49 United States Code (U.S.C.), Section 47504(b).** An additional review by the FAA is necessary to evaluate the operational safety and feasibility of this proposal. Where the close-in departure procedure is selected, it must be consistent with FAA Advisory Circular 91-53A. According to statements on page 6-31 of the 2003 GIAA NCP, this measure would provide measurable changes in the DNL contour, reducing population within the DNL 65 dB by about 426 people.

Implementation Status: Implemented by Airlines

Recommendation: Continue and modify as a voluntary measure, see **Section 2.2.2**.

2.1.6 2003 NCP NA-6: Distant Noise Abatement Departure Procedure

Description: This measure recommends departing aircraft climb to at least 800 feet AGL. The pitch of the aircraft is then decreased, and the aircraft accelerates to a speed adequate to maintain flight with zero flaps (nominally 210 knots). Flaps are then retracted and thrust reduced to a level not less than that necessary to maintain the required climb. Upon reaching 3,000 feet AGL (or the coastline is cleared), the aircraft resumes normal climb.

FAA Action: **No action required at this time. This measure relates to flight procedures under Section 104(b).** An additional review by the FAA is necessary to evaluate the operational safety and feasibility of this proposal. Where the distant departure procedure is selected, it must be consistent with FAA Advisory Circular 91-53A.

Implementation Status: Implemented by Airlines

Recommendation: Not Continue

2.1.7 2003 NCP NA-7: FMS/GPS Applications, Use of On-Board Equipment

Description: This measure recommends the use of sophisticated on-board equipment that integrates signals from a variety of ground-based and satellite systems to provide a visual course reference (vertical and horizontal information) for pilots to navigate along predetermined flight track.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** No specific proposals are submitted regarding the proposed location of visual course references. Additional analysis is needed to determine the benefits based on the location of the flight tracks and number of aircraft that are likely to have the on-board equipment. Additional equipment would be required both on the ground and in the aircraft. Also, GIAA could not require airport users to install the necessary equipment.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.8 2003 NCP NA-8: Establish Displaced Threshold

Description: This measure recommends displacing Runway 6L. The existing Runway 6L/24R in 2003 was 10,000 feet long and could be displaced enough to further reduce noise-impacted areas. The runway was extended and is now 12,014 feet long. The Runway 6L end was extended by 1,000 feet, which included a displaced threshold retaining the existing landing threshold. Runway 24R has also been extended since 2003.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** GIAA deferred submittal of any supplemental analysis of this measure until Runway 24R was extended to provide additional runway length lost from any runway displacement.

Implementation Status: Not Implemented
Recommendation: Not Continue

2.1.9 2003 NCP NA-9: Noise Barriers

Description: This measure recommends the construction of acoustic barriers, such as noise walls, earth berms, or vegetative barriers, to help attenuate noise caused by Airport operations.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** Additional information is required by the FAA to make an informed decision regarding location of potential noise barriers, their expected noise benefits and numbers of people or homes expected to receive the quantified noise reduction benefit. Location of barriers on the Airport must also comply with FAA's height/hazard requirements. GIAA may choose to submit the requested additional information for this mitigation measure to be reconsidered by the FAA.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.10 2003 NCP NA-10: High Speed Exit Taxiways

Description: This measure recommends the construction of high-speed exit taxiways at strategic locations along the runway to decrease the need for reverse thrust to slow arriving aircraft, and/or eliminate the need to add power to exit a runway via perpendicular taxiways.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** High-speed exit taxiways provide a benefit to the increased efficiency and capacity of the runway but provide minor reductions in single-event noise levels. The NCP states that limits on reverse thrust, which would be the purpose of a high-speed exit taxiway for noise reduction, would provide minimal benefits (page 6-9), and recommends this measure for further consideration and further review with subsequent NCP update. Additional information is needed to quantify the reduction of noise this measure would provide and whether this type of airport construction has been proposed in other airport planning documents for purposes other than noise mitigation. GIAA may choose to submit the requested additional information for this mitigation measure to be reconsidered by the FAA.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.11 2003 NCP NA-11: Operational Fees Based on Noise

Description: This measure recommends implementing differential airport user fees based on aircraft noise levels and/or time of day of operation. Such a measure would mean higher rates for aircraft that make the largest contribution to the overall noise exposure or that operate during noise-sensitive hours. The NCP recognizes that implementation would require renegotiation of use agreements with the airlines.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** The NCP does not quantify the benefits of this measure. The minimal language in Appendix B draws an “intuitive” conclusion but is not backed up by supporting analysis. The NCP recommends this measure for further consideration and review in a subsequent NCP update.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.12 2003 NCP NA-12: Voluntary Fleet Mix Goals

Description: This measure recommends an agreement whereby the airport users voluntarily establish goals and a timetable/schedule for increasing the percentage of quieter aircraft in the airport fleet mix.

FAA Action: **DISAPPROVED for the purpose of Part 150 pending submission of additional information.** The NCP does not quantify the expected benefits of this measure. The Airport would need to submit additional information for this mitigation measure to be reconsidered.

Implementation Status: Not Implemented

Recommendation: Not Continue

2.1.13 2003 NCP NA-13: Engine Run-Up Restrictions

Description: This measure recommends restricting aircraft engine run-ups to certain hours, location of engine run-up, minimizing or prohibiting nighttime run-ups, restricting engine power settings to specific levels, and/or reducing the length of run-up times at various levels.

FAA Action: **DISAPPROVED for the purposes of Part 150 pending submission of additional information.** This measure would establish a location, power setting limits, and curfew for engine run-up. Consultation with the airlines must be initiated to set curfew hours, location, engine power settings and duration. Impacts on Stage 3 scheduled operations that would have the effect of reducing or limiting the total number or hours of aircraft operations could require an analysis under Part 161, Notice and Approval of Airport Noise and Access Restrictions.

Implementation Status*:* Not Implemented

Recommendation: Not Continue

2.2 Recommended Noise Abatement Measures

This section describes GIAA-recommended noise abatement measures considered during the NCP update process including the potential benefits and implementation requirements for each measure. Implementation considerations include the responsible parties, estimated cost, funding sources, schedule, and requirements, such as the potential for environmental review. While many parties were involved in arriving at these recommendations for evaluation, the final NCP recommendations are solely those of GIAA and not those of the Planning Advisory Committee (PAC), consultants, or other stakeholders.

Each noise abatement measure considered in this NCP Report is a notional design that was developed to determine potential noise benefits. The FAA-accepted forecast condition (2029) NEM contours provided in **Section 1.7** (as provided in the 2024 NEM document[6]) provide the baseline for the noise evaluations of noise abatement measures below. The 2029 forecast NEM was used as the baseline to evaluate the effectiveness of the noise abatement measures since it is based on a higher forecasted level of operations, it is the larger set of DNL contours and encompasses a higher number of noncompatible land use. The purpose of the Noise Abatement measures is to eliminate or reduce noncompatible land use and using the 2029 forecast NEM allows for an effective evaluation of the proposed measures. Each measure compares the DNL contours, dwelling units and population counts to the forecast (2029) noise exposure contours. Detailed descriptions and analysis results for the GIAA-recommended measures are provided below.

Analysis of potential NCP noise abatement measures and their potential benefits utilized the FAA's noise modeling software, AEDT version 3g. AEDT uses airport-specific information (e.g., runway data and terrain); flight track information; and aircraft operation levels distributed by time of day, aircraft fleet mix, and aircraft altitude profiles to develop noise exposure contours.

During an annual average 24-hour period, referred to as "annual average day" (AAD), the model accounts for each aircraft flight along flight tracks departing from or arriving at an airport. The flight tracks are coupled with information in the model's database relating to noise levels at varying distances and flight performance data for each type of aircraft. The model also considered terrain and average weather conditions. In general, the model computes and sums noise levels at grid locations at ground level around the Airport. The cumulative values of noise exposure at each grid location are used to develop contours of equal noise exposure.

After reviewing the prior 2003 NCP, other airport NCPs, and discussions from the first stakeholder workshop and the third PAC meeting, two potential noise abatement measures have been identified to carry forward and to combine and develop a potential forecast 2029 NEM with NCP Implementation set of DNL contours. Each measure is described in this section along with the potential to reduce the number of people and/or noise-sensitive properties inside the DNL 65 dB contour compared to the 2029 forecast NEM. These two measures carried forward for recommendation are described below under the appropriate FAA-required Part 150 category of noise abatement measures:

[6] *Antonio B. Won Pat International Airport 14 CFR Part 150 Noise Exposure Map Update*, December 2024, https://www.guamairport.com/docs/pages/corporate/reports/14-cfr-part-150-noise-exposure-map-update/guam-part150-noise-exposure-map-nem-report.pdf

1. Airport Layout (one (1) GIAA-recommended measures)
2. Arrival/Departure Procedures (one (1) GIAA-recommended measure)
3. Flight Tracks (No GIAA-recommended measures)
4. Preferential Runway Use (No GIAA-recommended measures)
5. Use Restrictions (No GIAA-recommended measures)

Descriptions of the two GIAA-recommended measures were provided to the Guam Air Traffic Control Tower (ATCT) to seek their concurrence with the measures. The ATCT completed their review and had no comments on the measures as long as they were voluntary.[7]

2.2.1 Use of Intersection Departures on Runway 6L

A single noise abatement measure under the airport layout category was considered for evaluation. This voluntary measure would have aircraft turn onto Runway 6L at Taxiway A to depart at the runway intersection except for heavy aircraft that require the full runway length or by pilot's request to use the full length. Runway 6L/24R is 12,014 feet long, and this measure would reduce the Takeoff Distance Available (TODA) to 11,014 feet. This measure would move the start of aircraft departures farther away from areas off Airport property. To evaluate measure, the B747-400, B747-8, and B777-3ER were modeled using the full length of the runway; all other aircraft were modeled departing from Taxiway A as shown in **Figure 2-1**. The B777-200, A330-301, B767-3ER and MD-11s are all large wide-body aircraft also, but in most cases the 11,014-foot TODA is sufficient. The option to use the full runway would be available by pilot request.

Figure 2-2 displays the DNL noise contours over the land use base map. The use of Intersection Departures at Taxiway A for Runway 6L results in a reduction of noncompatible land use directly south of the runway end in the residential area near Mongmong Toto Maite Loop Road. This alternative pulls the DNL 65 dB contour closer to the Airport in that area over compatible land use near Route 8, as shown in the left panel in **Figure 2-3,** resulting in the reduction of approximately 40 noncompatible housing units. However, northeast of the Airport, the DNL 65 dB contour extends farther from the Airport almost to Pedro LG Benaventa Street. The DNL 65 dB contour is also wider on both sides of the Airport along Army Drive resulting in the addition of approximately 16 noncompatible housing units, some of which have received sound insulation treatment as they were previously included in the areas potentially eligible for sound insulation. This measure may be more effective combined with other measures.

Table 2-3 displays the reduction in housing units and population compared to the 2029 forecast NEM for this noise abatement measure.

Table 2-4 displays no change in noise-sensitive sites and a reduction in land area outside the Airport boundary when comparing this noise abatement measure to the 2029 forecast NEM. The results show that this noise abatement measure could increase compatible housing units by 17 (51 people) and decrease noncompatible housing units by 24 (72 people) resulting in a net decrease of seven housing units and 21 people within the DNL 65 dB contour compared to the 2029 forecast NEM.

Table 2-5 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this noise abatement measure. This voluntary measure would not require an update to the Airport Layout Plan and could be incorporated into the ATCT standard operating procedures.

[7] Email from ATCT to GIAA on September 8, 2025.

Figure 2-1. Taxiway A Departure Intersection for Runway 6L

Source: Part 150 Noise Compatibility Study

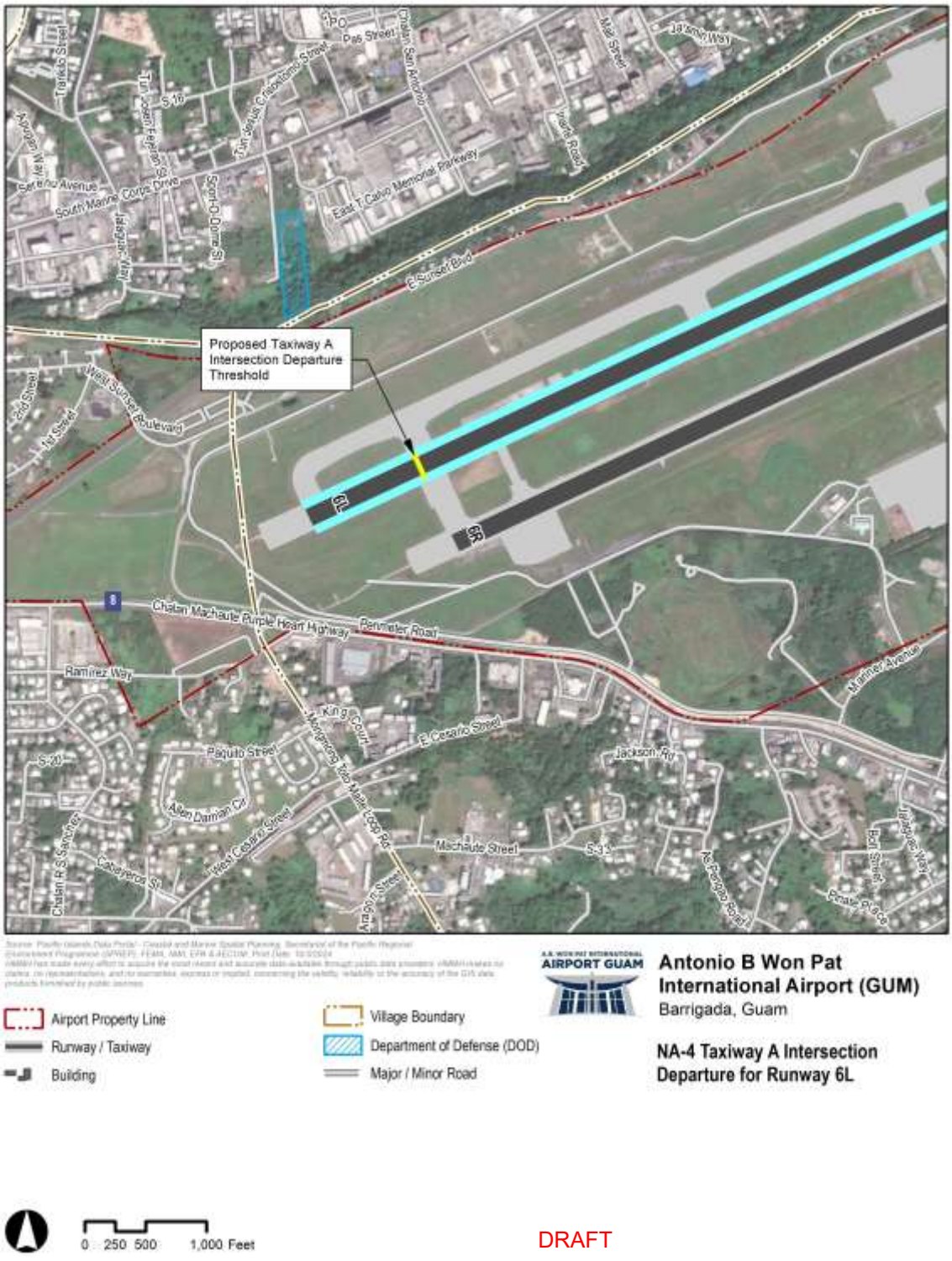

Figure 2-2. Taxiway A Intersection Departure for Runway 6L DNL Contours

Source: Part 150 Noise Compatibility Study

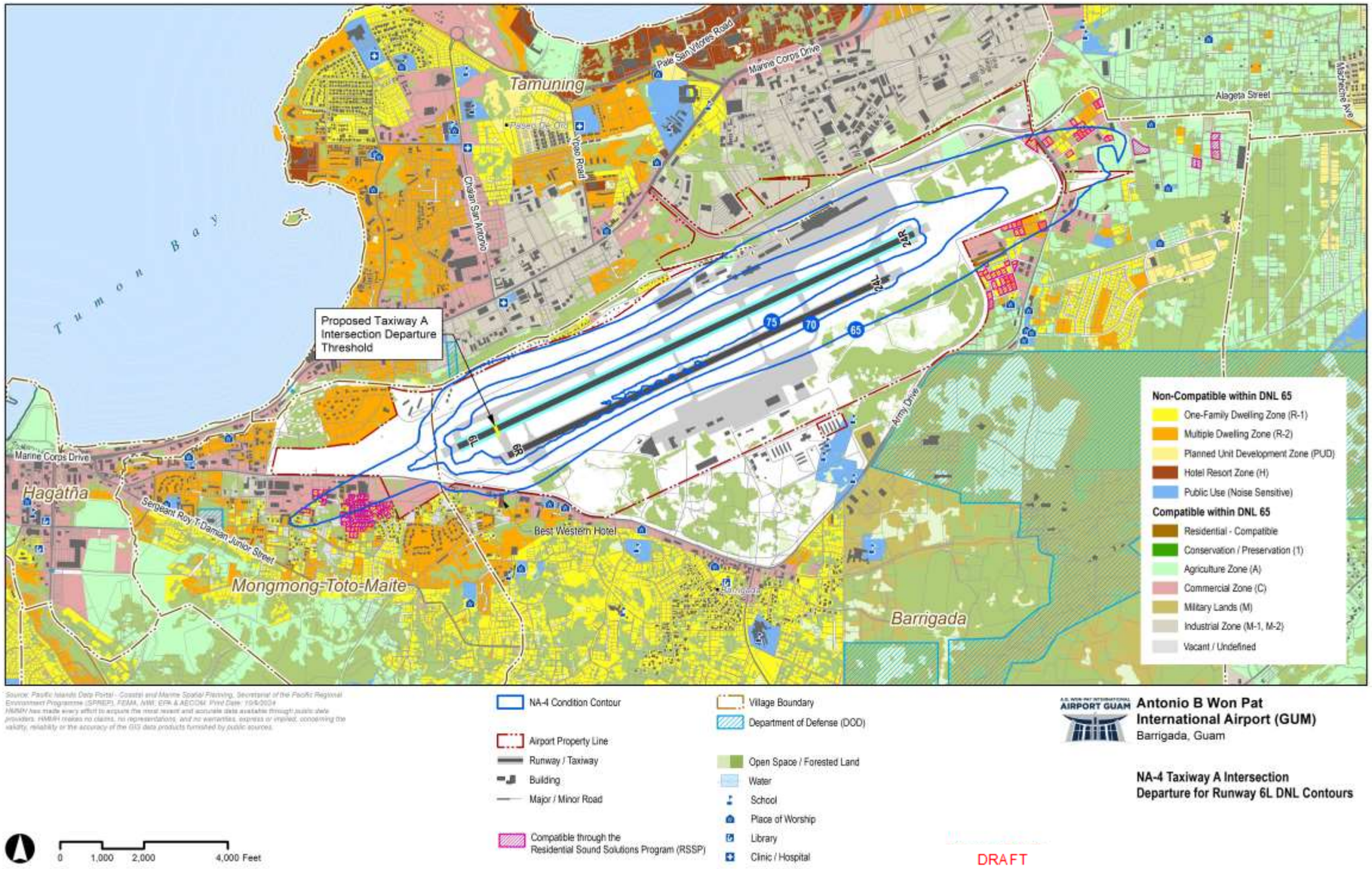

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Figure 2-3. Comparison of Forecast Condition (2029) and Taxiway A Intersection Departure for Runway 6L

Source: 2025 Part 150 Noise Compatibility Study

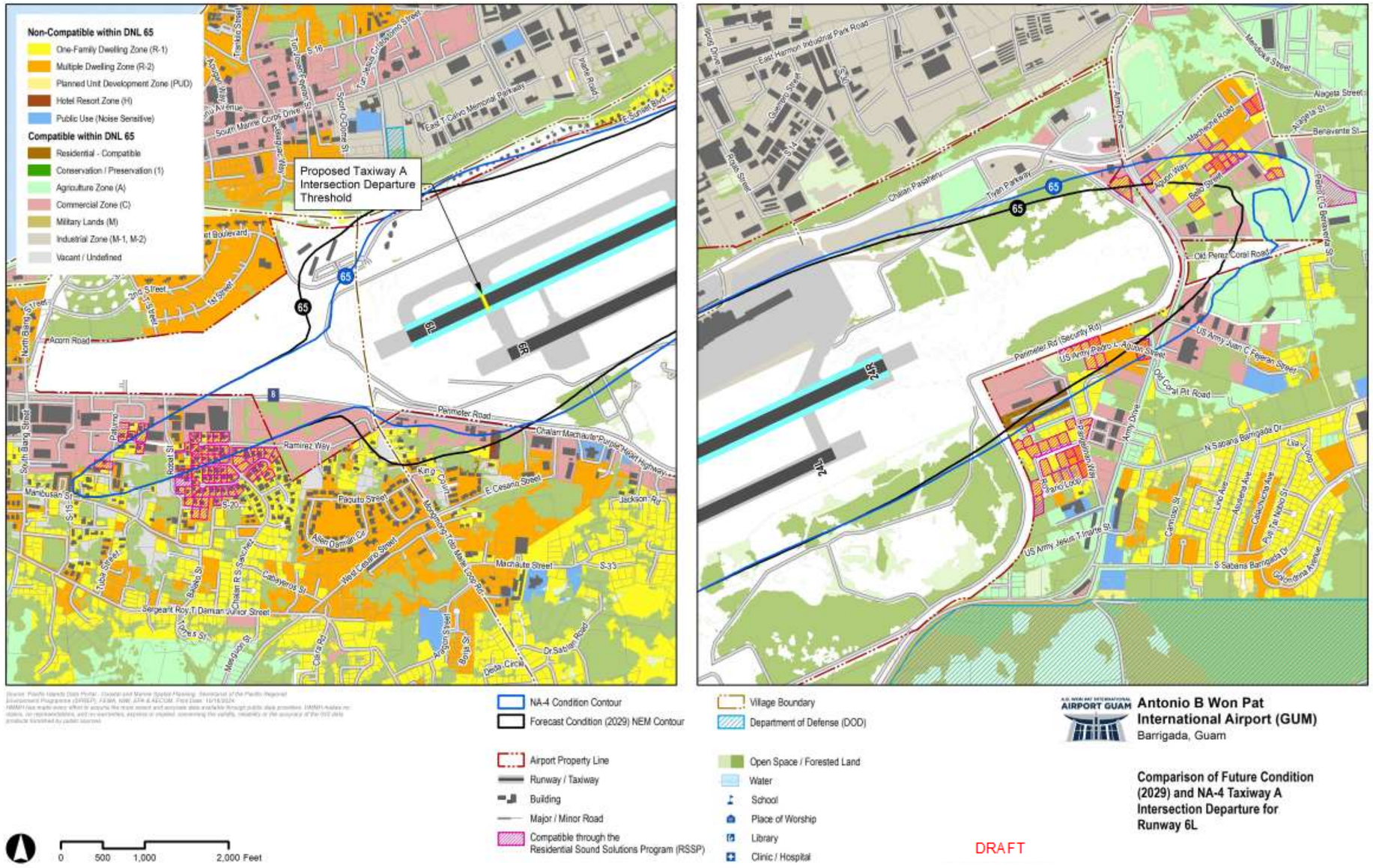

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Table 2-3. Estimated Housing Units and Population Counts for 2029 Forecast NEM and Use of Intersection Departures on Runway 6L within Different Noise Contour Intervals

Scenario (All changes are by housing unit or population within the DNL contour interval notated)	Number of Housing Units			Population		
	Noncompatible 65+	Compatible 65+	Total 65+	Noncompatible 65+	Compatible 65+	Total 65+
2029 Forecast NEM	251	52	303	753	156	909
Use of Intersection Departures on Runway 6L	227	69	296	681	207	888
Change from Forecast NEM	-24	17	-7	-72	51	-21

Note: Cell color indicates whether there is benefit in introducing this Noise Abatement Measure. No coloring indicates no change in housing units or population within the 65 DNL contour, green indicates a reduction in housing units or population within the 65 DNL contour and red indicates an increase in housing units or population within the 65 DNL contour.

Source: GIAA, 2025

Table 2-4. Estimated Noise Sensitive Sites for 2029 Forecast NEM and Use of Intersection Departures on Runway 6L within Different Noise Contour Intervals

Scenario (All changes are within the 65 DNL contour)	Number of Noise-Sensitive Sites					Land Area (Acres)
	Transient Lodging	School	Place of Worship	Daycare	Total	Total > 65 DNL
2029 Forecast NEM	1	0	0	0	1	1,104.5
Use of Intersection Departures on Runway 6L	1	0	0	0	1	1,122.6
Change from Forecast NEM	0	0	0	0	0	18.1

Source: GIAA, 2025

Conclusions: *Noise Abatement Measure: Use of Intersection Departures on Runway 6L* could reduce the total number of housing units exposed to DNL 65 dB or higher by seven and reduce the number of noncompatible housing units by 24. Use of Intersection Departures on Runway 6L could reduce the area of noise-sensitive land use southwest of the Airport and would not negatively affect safety or usage of the runway. Overall, there is a reduction of noncompatible land use and housing units.

Table 2-5. Implementation Summary for Recommended Noise Abatement Measure: Use of Intersection Departures on Runway 6L

Implementation Item	Discussion
Benefits	Reduction of up to 21 people in 7 dwelling units exposed to 65 DNL or higher with use of this measure.
Rationale	GIAA is recommending this Noise Abatement Measure because it could reduce noise levels over residential land use southwest of Runway 6L/R.
Responsible Parties	GIAA and FAA ATCT
Estimated Costs	$50,000 to update pilot information and airfield signage.[8] The expected costs associated with the development and implementation of this measure are unknown and internal to the FAA (e.g., Air Traffic Organization) and other coordinating agencies.
Funding Sources	80 percent of eligible costs FAA Airport Improvement Program and 20 percent GIAA.
Requirements	FAA approval; The ATCT to incorporate into Standard Operating Procedures as a voluntary measure and GIAA to update any airfield signage and pilot information.
Estimated Schedule	GIAA to submit a request for its development within six months of the FAA's Record of Approval for the NCP. FAA design, testing and implementation of the measure typically could take at least one year once GIAA requests initiation of the development process.

Source: GIAA, 2025

2.2.2 Use of ICAO-A Departure Procedures

FAA Advisory Circular 91-53A provides acceptable criteria for two safe Noise Abatement Departure Profile (NADP) procedures for commercial jet aircraft: Close-in NADP (NADP 1 or ICAO-A) and Distant NADP (NADP-2 or ICAO-B). As the names of the procedures suggest, the Close-in NADP provides noise benefit to areas adjacent to the Airport, whereas the Distant NADP provides noise benefit slightly farther out from the Airport. Airport operators cannot mandate the use of NADP at an airport because airport operators do not have the authority to require specific operating procedures for aircraft in flight; implementation of NADP is voluntary and at the choice of the pilot in command. However, FAA AC 91-53A encourages aircraft operators "…to use the appropriate NADP when an airport operator requests its use to abate noise for either a close-in or distant community."

Analysis in the 2024 NEM Report shows that International Airlines use ICAO-A Close-In departure profiles and Domestic Airlines use ICAO-B Distant departure profiles. See Appendix C in the 2024 NEM Report.[9] GIAA discussed the possibility of Domestic Airlines using ICAO-A procedures if requested, and the main domestic airline at the Airport explained this could be possible as they do operate those procedures at airports where they are requested.

Note: This evaluation assumes all aircraft types within AEDT that have available ICAO-A profiles were utilized.

Figure 2-2 displays the DNL noise contours over the land use base map. The use of ICAO-A Departure Procedures results in a reduction of noncompatible land use directly northeast of the runway end in the residential area near Bello Road. This alternative pulls the DNL 65 dB contour closer to the Airport in that area over residential land use near Route 16 as shown in **Figure 2-5,** and the DNL 65 dB contour is also reduced south of the Runway 24 L/R ends along Army Drive resulting in the reduction of approximately 8 noncompatible housing units. This measure may be more effective combined with other measures.

Table 2-6 displays the reduction in housing units and population compared to the 2029 Forecast NEM for this noise abatement measure. Table 2-7 displays no change in noise-sensitive sites and a reduction in land area outside the

[8] Estimated costs to be refined by GIAA
[9] https://www.guamairport.com/docs/pages/corporate/reports/14-cfr-part-150-noise-exposure-map-update/final-appendix-c-noise-modeling.pdf

airport boundary when comparing this noise abatement measure to the 2029 Forecast NEM. The results show that this noise abatement measure could decrease housing units by 18 and population by 54 within the DNL 65 dB contour compared to the 2029 Forecast NEM.

Table 2-8 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this voluntary noise abatement measure.

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Figure 2-4. All Departures Utilize ICAO-A Departure Procedure DNL Contours

Source: 2025 Part 150 Noise Compatibility Study

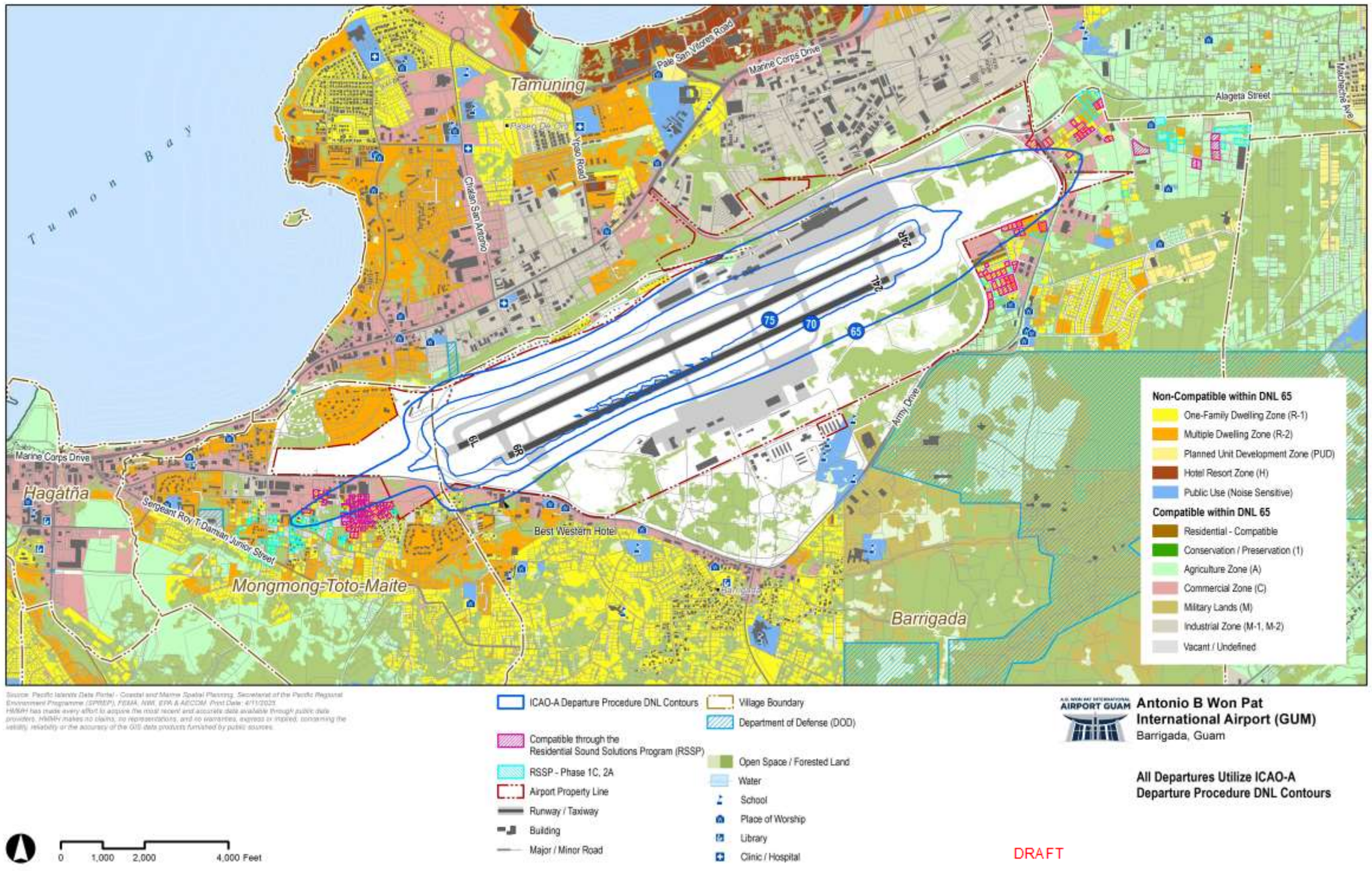

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Figure 2-5. Comparison of Forecast Condition (2029) and All Departures ICAO-A Departure Procedures

Source: 2025 Part 150 Noise Compatibility Study

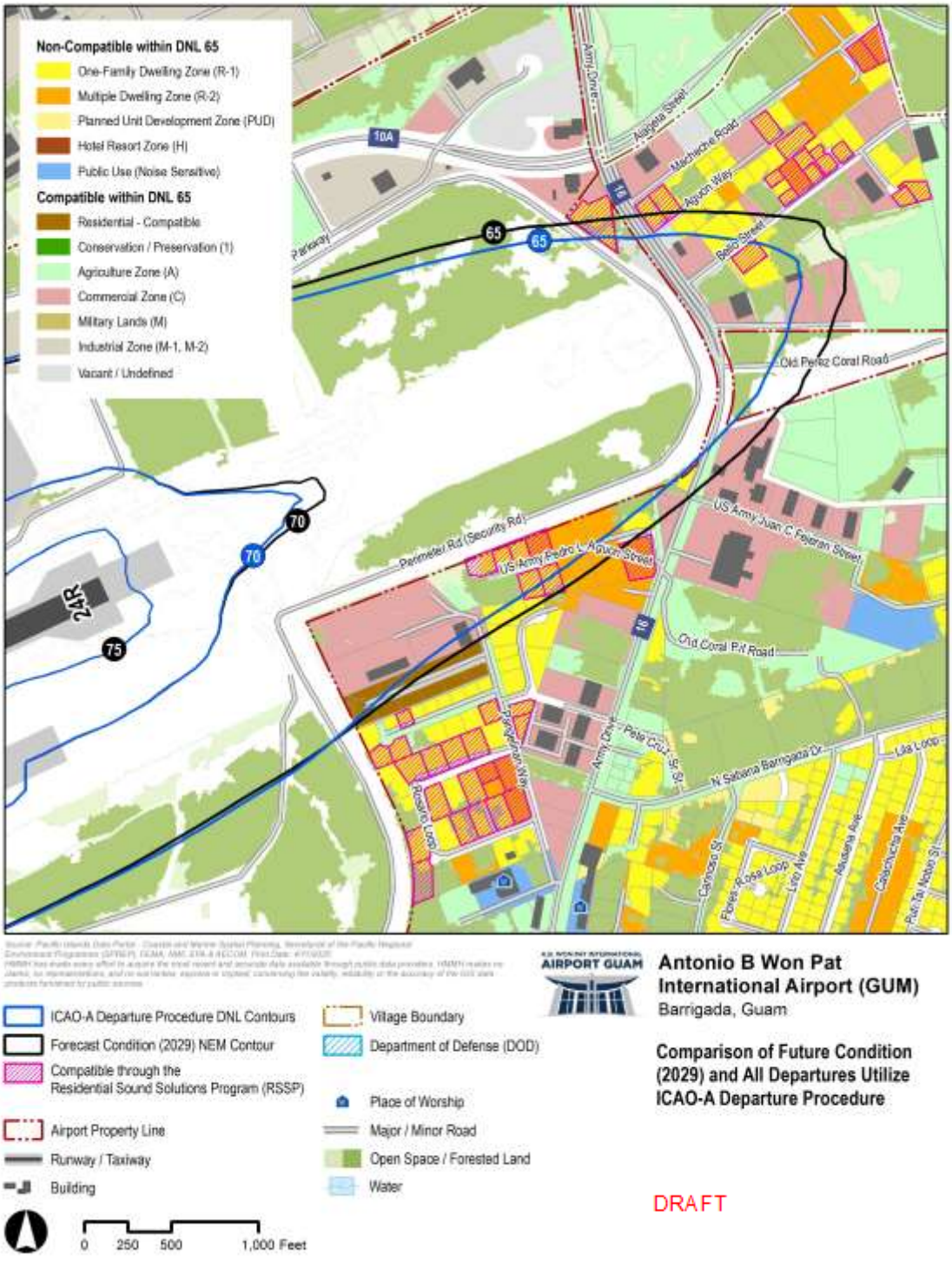

Table 2-6. Estimated Housing Units and Population Counts for 2029 Forecast NEM and Use of ICAO-A Departure Procedures

Scenario (All changes are by housing unit or population within the DNL contour interval notated)	Number of Housing Units			Population		
	Noncompatible 65+	Compatible 65+	Total 65+	Noncompatible 65+	Compatible 65+	Total 65+
2029 Forecast NEM	251	52	303	753	156	909
Use of ICAO-A Departure Procedures	243	42	285	729	126	855
Change from Forecast NEM	-8	-10	-18	-24	-30	-54

Note: Cell color indicates whether there is benefit in introducing this Noise Abatement Measure. No coloring indicates no change in housing units or population within the 65 DNL contour, green indicates a reduction in housing units or population within the 65 DNL contour and red indicates an increase in housing units or population within the 65 DNL contour.

Source: GIAA, 2025

Table 2-7. Estimated Noise Sensitive Sites for 2029 Forecast NEM and Use of ICAO-A Departure Procedures

Scenario (All changes are within the 65 DNL contour)	Number of Noise-Sensitive Sites					Land Area (Acres)
	Transient Lodging	School	Place of Worship	Daycare	Total	Total > 65 DNL
2029 Forecast NEM	1	0	0	0	1	1,104.5
Use of ICAO-A Departure Procedures	1	0	0	0	1	1,084.6
Change from Forecast NEM	0	0	0	0	0	-19.9

Source: GIAA, 2025

Conclusions: *Noise Abatement Measure: All Departures Use ICAO-A Departure Procedures* could reduce the total number of housing units exposed to DNL 65 dB or higher by 18 and reduce the number of noncompatible housing units by 8. Use of ICAO-A Departure Procedures could reduce the area of noise-sensitive land use northeast of the Airport and would not negatively affect safety or usage of the runway. Overall, there is a reduction of noncompatible land use and housing units.

Table 2-8. Implementation Summary for Recommended Noise Abatement Measure: Use of ICAO-A Departure Procedures

Implementation Item	Discussion
Benefits	Reduction of up to 54 people in 18 housing units exposed to DNL 65 dB or higher with use of this measure.
Rationale	GIAA is recommending this Noise Abatement Measure because it could reduce noise levels over residential land use northeast of Runway 24L/R.
Responsible Parties	GIAA and Airlines
Estimated Costs	Costs are internal to the Airlines that participate. $25,000 to update pilot materials and information.[10]
Funding Sources	80 percent of eligible costs FAA Airport Improvement Program and 20 percent GIAA.
Requirements	FAA approval; GIAA coordination with Airlines
Estimated Schedule	Within six months of the FAA's Record of Approval for the NCP, GIAA will initiate coordination with the Airlines and update materials.

Source: GIAA, 2025

2.2.3 Revised 2029 DNL Contours With Recommended Noise Abatement Measures

The revised forecast 2029 DNL contours are based on the implementation of the two noise abatement measures documented in **Section 2.2.1** and **Section 2.2.2** if approved by FAA**. Figure 2-6** shows the revised 2029 DNL contours with the two noise abatement measures (referred to as the NCP). **Figure 2-7** shows the revised 2029 DNL contours with the NCP in comparison with the 2029 DNL contours without the NCP.

Table 2-9 displays the reduction in housing units and population compared to the 2029 forecast NEM for the revised 2029 DNL contours with the NCP. Table 2-10 displays no change in noise-sensitive sites and a reduction in land area outside the airport boundary when comparing the revised 2029 DNL contours with the NCP to the 2029 forecast NEM. The results show that the revised 2029 DNL contours with the NCP could decrease housing units by 90 and population by 270 within the DNL 65 dB contour compared to the 2029 forecast NEM. Implementation of the recommended noise abatement measures would result in 148 noncompatible housing units remaining, which is a reduction of 103 noncompatible housing units.

[10] Costs are estimated and will be refined by GIAA

Table 2-9. Estimated Housing Units and Population Counts for 2029 Forecast NEM and the 2029 DNL Contours with Combined NCP Measures (Runway 6L Intersection Dep and ICAO-A Departures)

Scenario (All changes are by housing unit or population within the DNL contour interval notated)	Number of Housing Units			Population		
	Noncompatible 65+	Compatible 65+	Total 65+	Noncompatible 65+	Compatible 65+	Total 65+
2029 Forecast NEM	251	52	303	753	156	909
2029 DNL Contours with Combined NCP Measures	148	65	213	444	195	639
Change from Forecast NEM	-103	13	-90	-309	39	-270

Note: Cell color indicates whether there is benefit in introducing this Noise Abatement Measure. No coloring indicates no change in housing units or population within the 65 DNL contour, green indicates a reduction in housing units or population within the 65 DNL contour and red indicates an increase in housing units or population within the 65 DNL contour.

Source: GIAA, 2025

Table 2-10. Estimated Noise Sensitive Sites for 2029 Forecast NEM and the 2029 DNL Contours with Combined NCP Measures (Runway 6L Intersection Dep and ICAO-A Departures)

Scenario (All changes are within the 65 DNL contour)	Number of Noise-Sensitive Sites					Land Area (Acres)
	Transient Lodging	School	Place of Worship	Daycare	Total	Total > 65 DNL
2029 Forecast NEM	1	0	0	0	1	1,104.5
2029 DNL Contours with Combined NCP Measures	1	0	0	0	1	1,112.8
Change from Forecast NEM	0	0	0	0	0	8.3

Source: GIAA, 2025

Figure 2-6. Revised 2029 DNL Contours With NCP

Source: 2025 Part 150 Noise Compatibility Study

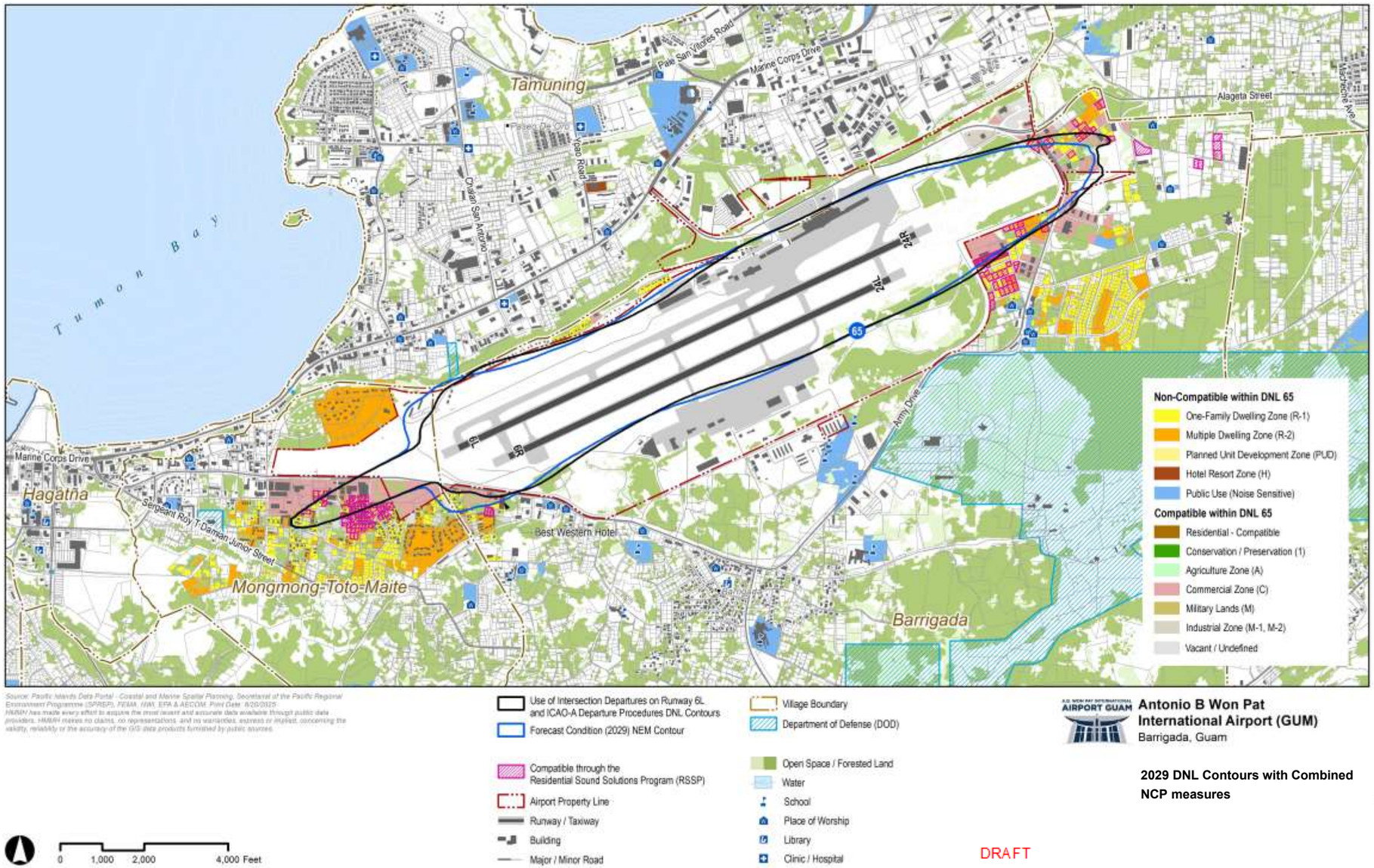

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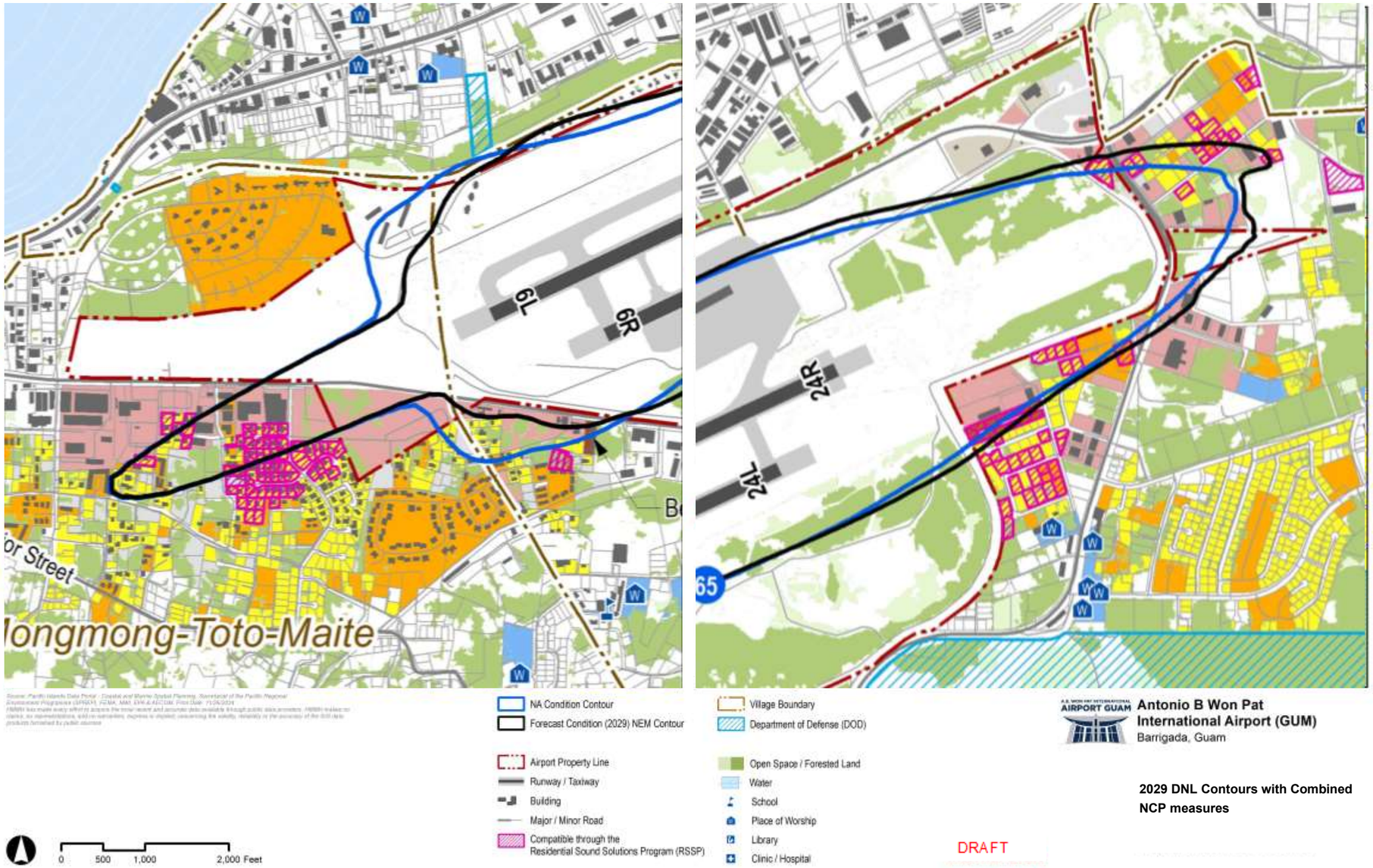
Figure 2-7. Comparison of Forecast Condition (2029) and Revised 2029 DNL Contours With NCP

Source: 2025 Part 150 Noise Compatibility Study



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2.3 Noise Abatement Measures Considered but Not Recommended

GIAA considered but does not recommend the following noise abatement measures as part of the 2025 Noise Compatibility Program.

2.3.1 Airport Layout Measures

This category considers measures to reduce noncompatible land use that would result in changes on the airfield such as displaced thresholds, runway modifications, or barriers. These measures would be future changes that would need to be included in an update to the Airport Layout Plan.

2.3.1.1 Modify the Displaced Threshold for Aircraft Arrivals to Runway 6L

A displaced threshold is a shifted runway threshold that shortens the distance available for landing on the side of the displacement. Though the reasons can vary, it is typically displaced to clear obstacles or for noise abatement near the end of the runway. Runway 6L/24R is 12,014 feet long. This measure recommends the adjustment of the arrival displaced threshold from the current 1,000 feet to a longer distance to reduce noncompatible land use. This would be a modification to the previous NA-8 measure in the 2003 GIAA NCP. The Study Team recommends evaluating the following two options of varying length of the displaced threshold to provide information GIAA can use to determine whether to recommend changing the displaced threshold and, if so, how much of a change to recommend.

Option A: This option would include a 2,458-foot displaced threshold as discussed in the 2024 Airport Master Plan. This would reduce the Landing Distance Available (LDA) to 9,556 feet and bring the Approach Runway Protection Zone (ARPZ) onto Airport property.

Option B: This option would include a 2,900-foot displaced threshold. This distance should be sufficient to shift the DNL 65 dB contour to end over compatible land use near Chalan R Sanchez Road. This would reduce the LDA to 9,114 feet and bring the ARPZ farther onto Airport property.

Figure 2-8 displays the location of both Option A and Option B Displaced Landing Thresholds on Runway 6L.

Option A results in the reduction of the DNL 65 dB contour towards Robat Street as shown in **Figure 2-9**. This would result in a reduction of 113 noncompatible housing units.

Option B results in the reduction of the DNL 65 dB contour farther towards Robat Street as shown in **Figure 2-10** but not near Chalan R Sanchez Road as expected. Start of takeoff roll noise from Runway 6L and departures from Runway 24R are reducing any benefit seen from the longer displaced threshold on Runway 6L. This would result in a reduction of 117 noncompatible housing units but very little further benefit beyond Option A. Outside of the DNL 65 dB contour, either option may result in aircraft being slightly higher on approach, approximately 25 (Option A) to 50 (Option B) feet higher along a three-degree descent path.

Reason for not recommending in this NCP: While both options provide a reduction in noncompatible land use, the measure would reduce the minimum landing distance required to support military aircraft, eliminating the closest airport to Anderson Air Force Base (AAFB) as an available alternative. There are five airports within 250 nautical miles of Guam, and they all strive to support each other's aircraft requirements (to the extent possible). The Airport is the best alternative to AAFB due to runway lengths and proximity (physical proximity for shorter flight distance as well as being the only other airport on Guam which allows for AAFB maintenance and logistical support to easily respond to any military aircraft). Reducing runway lengths to below the minimum required to support military aircraft could have an adverse impact on Department of Defense (DoD) operations. Runways are strategically valuable resources that support all aircraft operators, especially in this part of the world where alternate airports are a significant distance away. Therefore, GIAA does not support these measures and recommends not continuing NA-8 from the 2003 NCP.

Figure 2-8. Landing Displaced Threshold Options for Runway 6L

Source: GIAA 2024 Master Plan, 2025 Part 150 Noise Compatibility Study

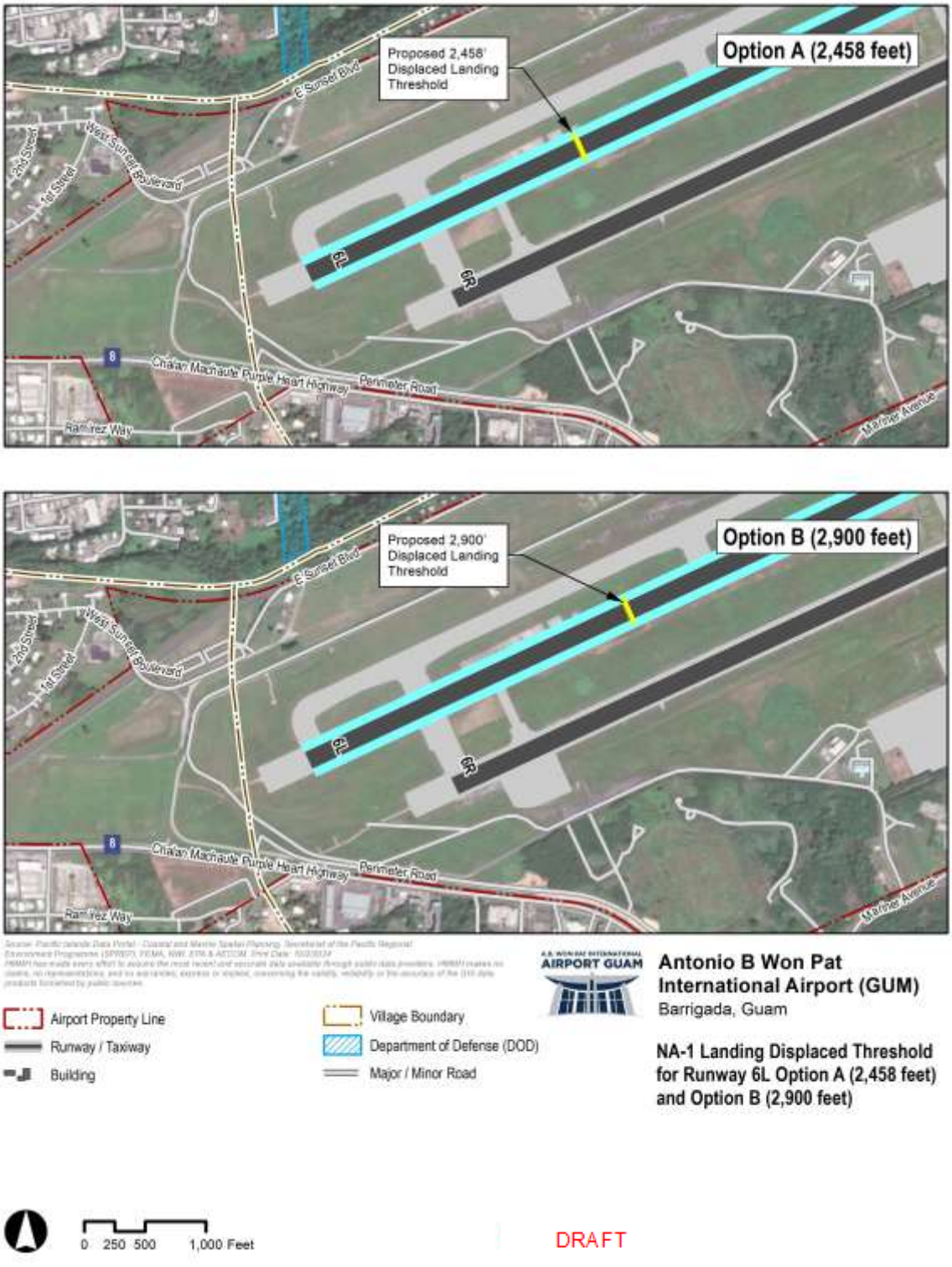


Figure 2-9. Comparison of Future Condition (2029) and Landing Displaced Threshold for Runway 6L (Option A - 2,458 feet)

Source: 2025 Part 150 Noise Compatibility Study

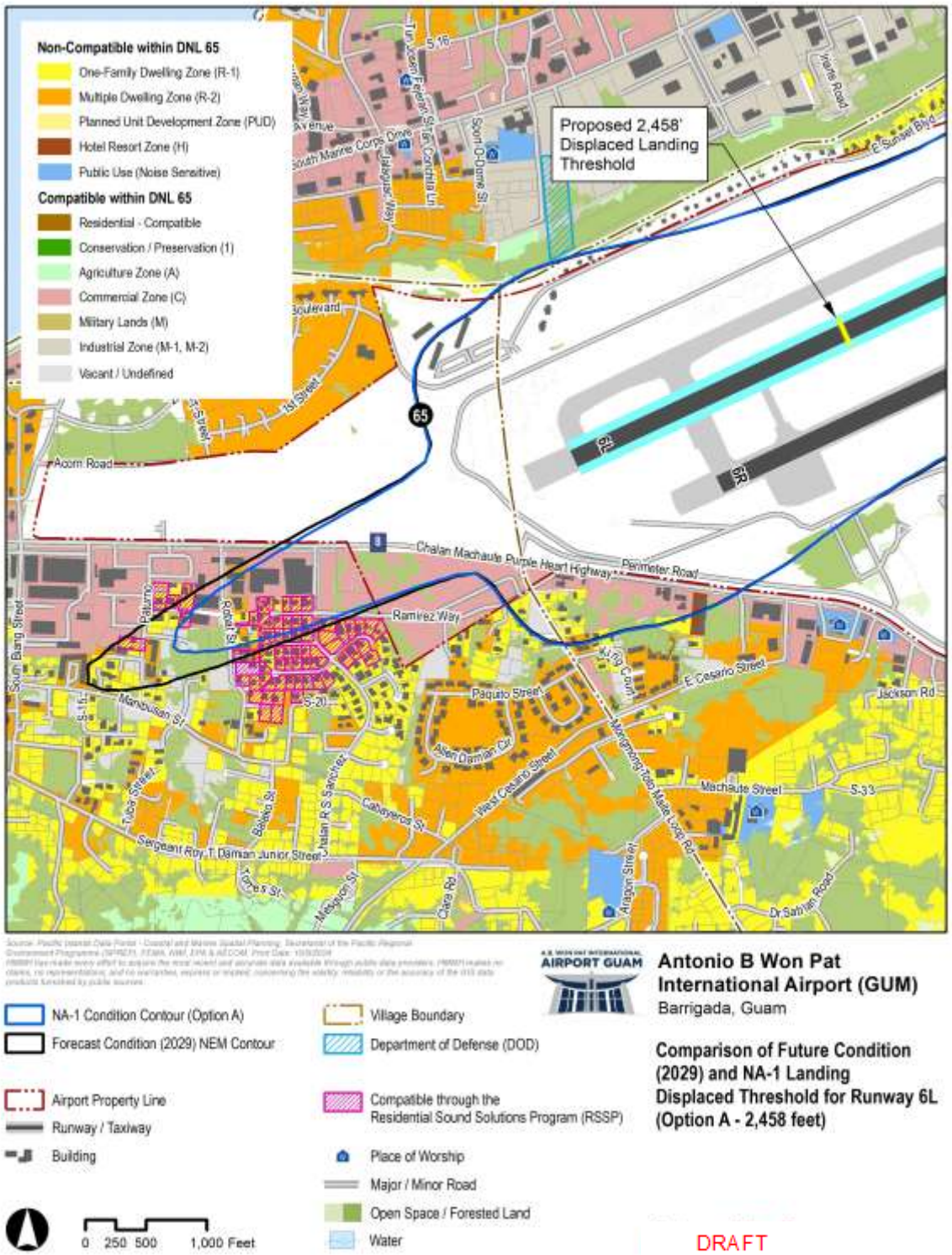
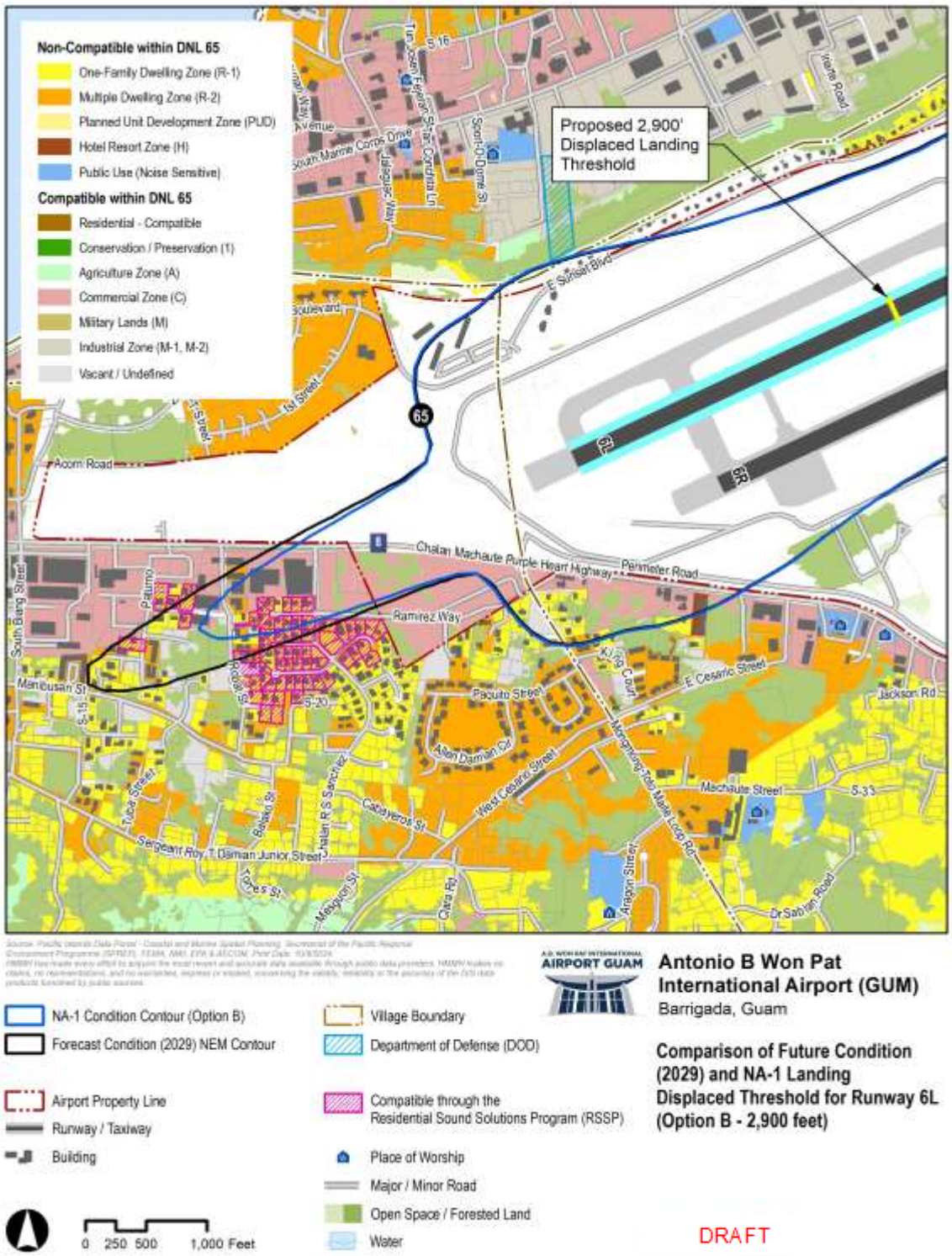


Figure 2-10. Comparison of Future Condition (2029) and Landing Displaced Threshold for Runway 6L (Option B - 2,900 feet)

Source: 2025 Part 150 Noise Compatibility Study



2.3.1.2 Modify the Displaced Threshold for Aircraft Arrivals to Runway 6R

Runway 6R/24L is 10,014 feet long. This measure would recommend displacing the Runway 6R end to reduce noncompatible land use off Airport property. This is a modification to the previous NA-8 measure in the 2003 NCP. This scenario would include a 2,528-foot displaced threshold as suggested in the 2024 Airport Master Plan. This would reduce the LDA to 7,486 feet and bring the ARPZ onto Airport property. This measure would also increase the aircraft approach profile over homes under the approach path to the southwest of the Airport outside of the DNL 65 dB contour.

Figure 2-11 displays the location of the Displaced Landing Thresholds on Runway 6R. The displaced threshold results in a small reduction in area of the DNL 65 dB contour over airport property as shown in **Figure 2-12**. This results in no reduction in noncompatible land use and a reduction of zero noncompatible housing units. Outside of the DNL 65 dB contour this may result in aircraft being higher on approach approximately 80 feet higher along a three-degree descent path to Runway 6R.

Reason for not recommending in this NCP: This measure provides little reduction in noncompatible land use and the measure would reduce the minimum landing distance required to support military aircraft, eliminating the closest airport to AAFB as an available alternative. There are five airports within 250 nautical miles of Guam, and they all strive to support each other's aircraft requirements (to the extent possible). The Airport is the best alternative to AAFB due to runway lengths and proximity (physical proximity for shorter flight distance as well as being the only other airport on Guam which allows for AAFB maintenance and logistical support to easily respond to any military aircraft). Reducing runway lengths to below the minimum required to support military aircraft could have an adverse impact on DoD operations. Runways are strategically valuable resources that support all aircraft operators, especially in this part of the world where alternate airports are a significant distance away. Therefore, GIAA does not support this measure.

Figure 2-11. Landing Displaced Threshold for Runway 6R (2,528 feet)

Source: GIAA 2024 Master Plan, 2025 Part 150 Noise Compatibility Study

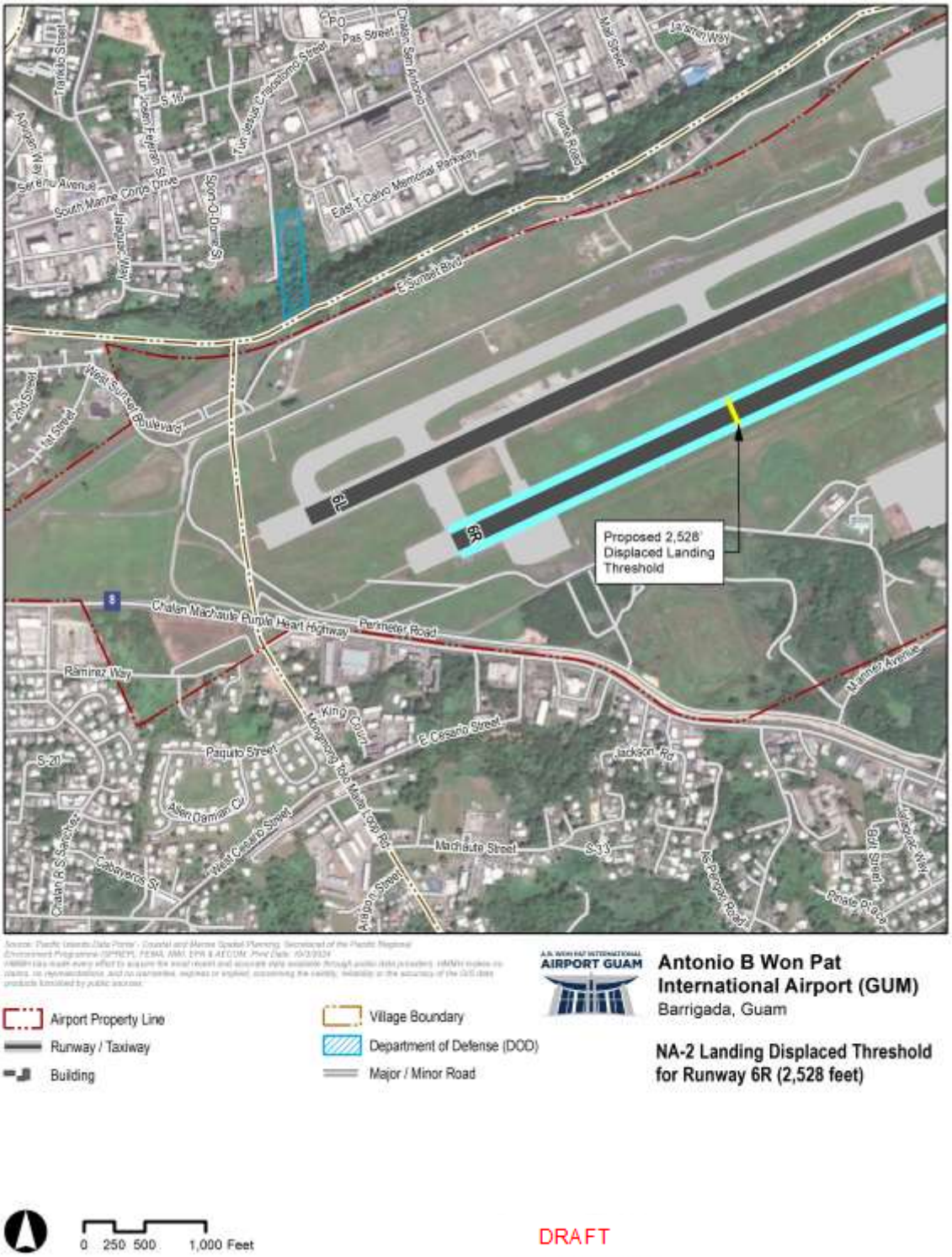
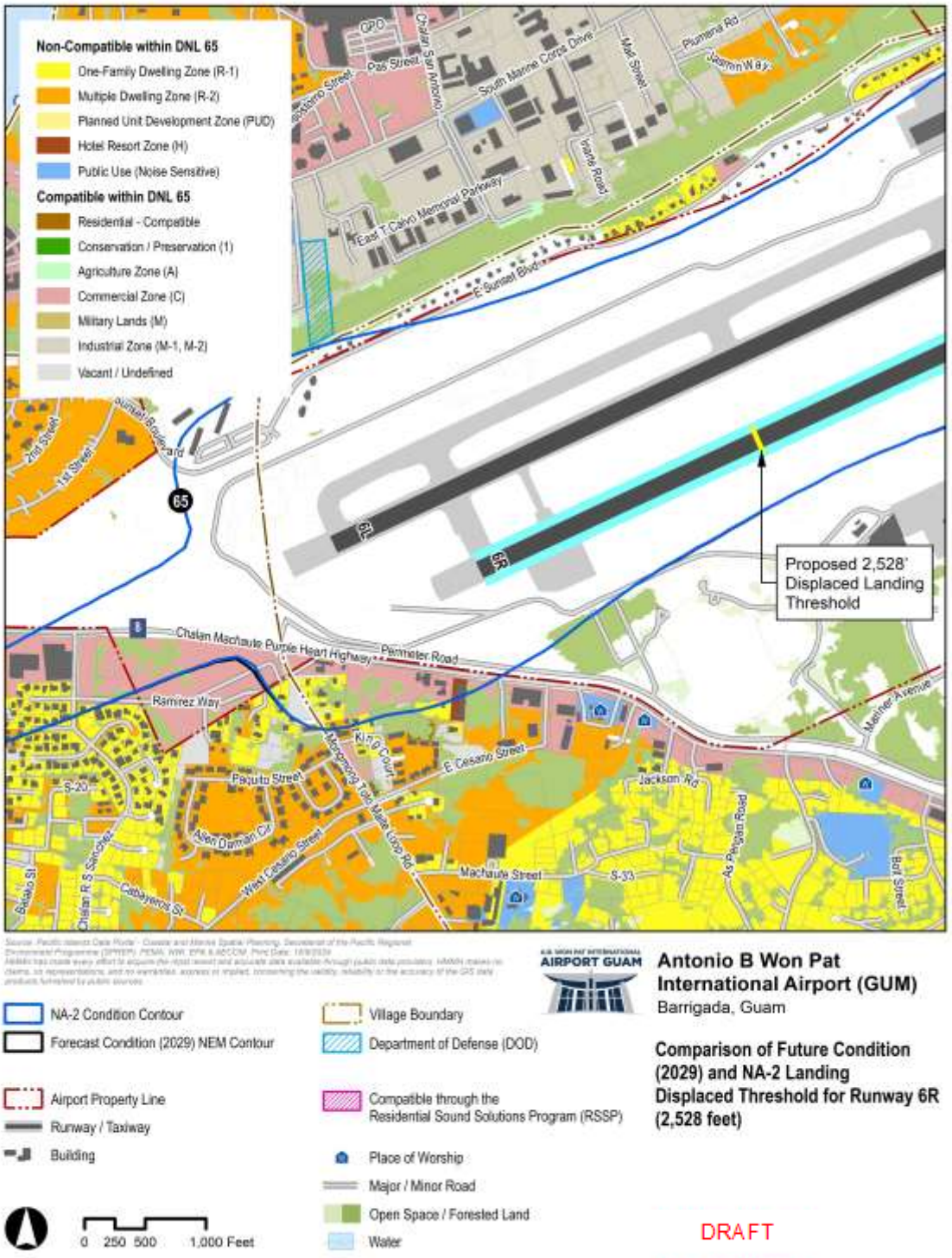


Figure 2-12. Comparison of Future Condition (2029) and Landing Displaced Threshold for Runway 6R (2,528 feet)

Source: GIAA 2024 Master Plan, 2025 Part 150 Noise Compatibility Study

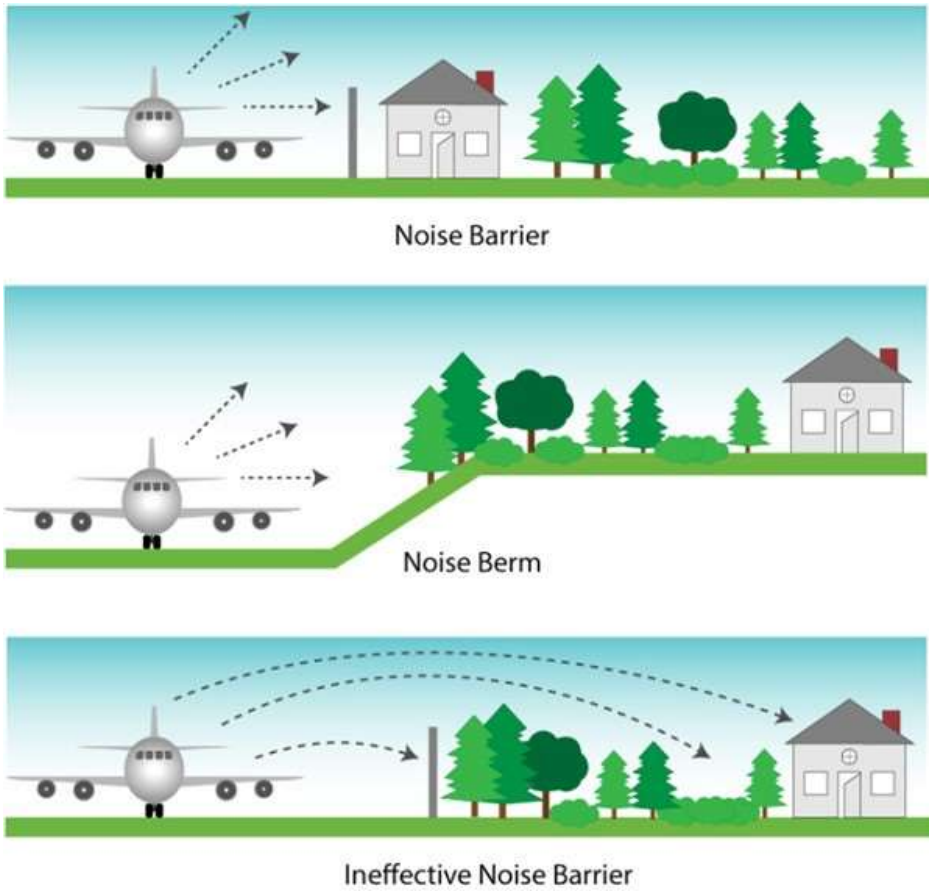


2.3.1.3 Design a Noise Barrier Southwest of the Airport near Route 8

The construction of noise barriers is often implemented on or around airport property to reduce the immediate effect of aircraft noise coming from engine run-ups or start-of-takeoff roll on departure, both of which occur with the aircraft (noise source) on the ground. Noise barriers, including earth berms and walls, can be effective at reducing noise from a source that is at or near ground level. For a noise barrier to reduce noise, the line of sight between the source and receiver needs to be blocked. **Figure 2-13** illustrates the noise barrier concept. The barrier at the top of the figure is effectively placed. The barrier at the bottom of the figure is too far from either the source or receiver to be effective. The middle figure demonstrates that an earthen berm can effectively block noise.

Figure 2-13. Illustration of the Effectiveness of a Noise Barrier for Aircraft Ground Noise

Source: 2025 Part 150 Noise Compatibility Study



The construction of barriers at airports also requires compliance with 14 CFR part 77 (Part 77) "*Safe, Efficient Use, and Preservation of the Navigable Airspace*" the regulations that restrict the placement and height of structures near runways. The Study Team modeled the effects of a 20-foot wall southwest of Runway ends 6L and 6R to determine its effect on the number of noise-sensitive sites within the 65 DNL contour. This would be a modification of the 2003 NCP NA-9 measure.

One location would be along Route 8 on Airport property (black line in **Figure 2-14** as barrier V-1.2). Airspace surfaces may limit the height of this wall, and this location would likely only work in conjunction with the displaced thresholds discussed above. Also, due to the distance from the wall to the nearest homes the noise benefit may be limited. A second possible location would be partially off Airport property along Ramirez Way and behind McDonalds on Route 8 (red line in **Figure 2-14** shown as barrier V-2).

For both barrier options, a 20-foot-high barrier was modeled with a Boeing 737-700 aircraft departure from Runway 6R. The ground noise model requires specific measured data for an aircraft source and the Boeing 737-700 data was available for this initial evaluation. The modeling also considers additional shielding from other buildings and changes in ground topography. The Study Team evaluated both barriers to provide information GIAA can use to determine whether to recommend a barrier and, if so, where to place the barrier.

The highest reductions are with the wall along Route 8. Away from the wall there are some areas of reductions between 2 to 4 dB. If the wall could be constructed, the hotel along Route 8 could see a 6 to 8 dB reduction. Three residential sites were also modeled and shown on **Figure 2-14** to demonstrate the potential noise reductions at each location. **Table 2-11** provides a summary of maximum sound levels (Lmax) and the reduction in noise at three residential receptors for Barrier V-1.2. Generally, this barrier is too far from the receivers to be effective.

Table 2-11. Maximum Level Barrier Results at Residential Receptors for Barrier V-1.2

Residential Receptor	Discussion	No Wall (Lmax dB)	With 20 Foot Wall Along Route 8 (Lmax dB)	Difference (Lmax dB)
R1	Behind McDonalds	85.4	84.6	-0.8
R2	Ramirez Ln/St	76.8	76.1	-0.7
R3	Oasis Apartments	71.6	69.1	-2.5

Source: GIAA, 2025

The second barrier (V-2) has an opening where Mongmong Toto Mate Loop Road is located and crosses Ramirez Way. The highest reductions are right along the wall. Three residential sites were also modeled and shown on **Figure 2-14** to demonstrate the potential noise reductions at each location. **Table 2-12** provides a summary of Lmax levels and the reduction in noise at three residential receptors for Barrier V-2. This barrier is too far from the source to be effective.

Table 2-12. Maximum Level Barrier Results at Residential Receptors for Barrier V-2

Residential Receptor	Discussion	No Wall (Lmax dB)	With 20 Foot Wall Along Ramirez Way (Lmax dB)	Difference (Lmax dB)
R1	Behind McDonalds	85.4	85.4	0.0
R2	Ramirez Ln/St	76.8	76.9	0.1
R3	Oasis Apartments	71.6	71.6	0.0

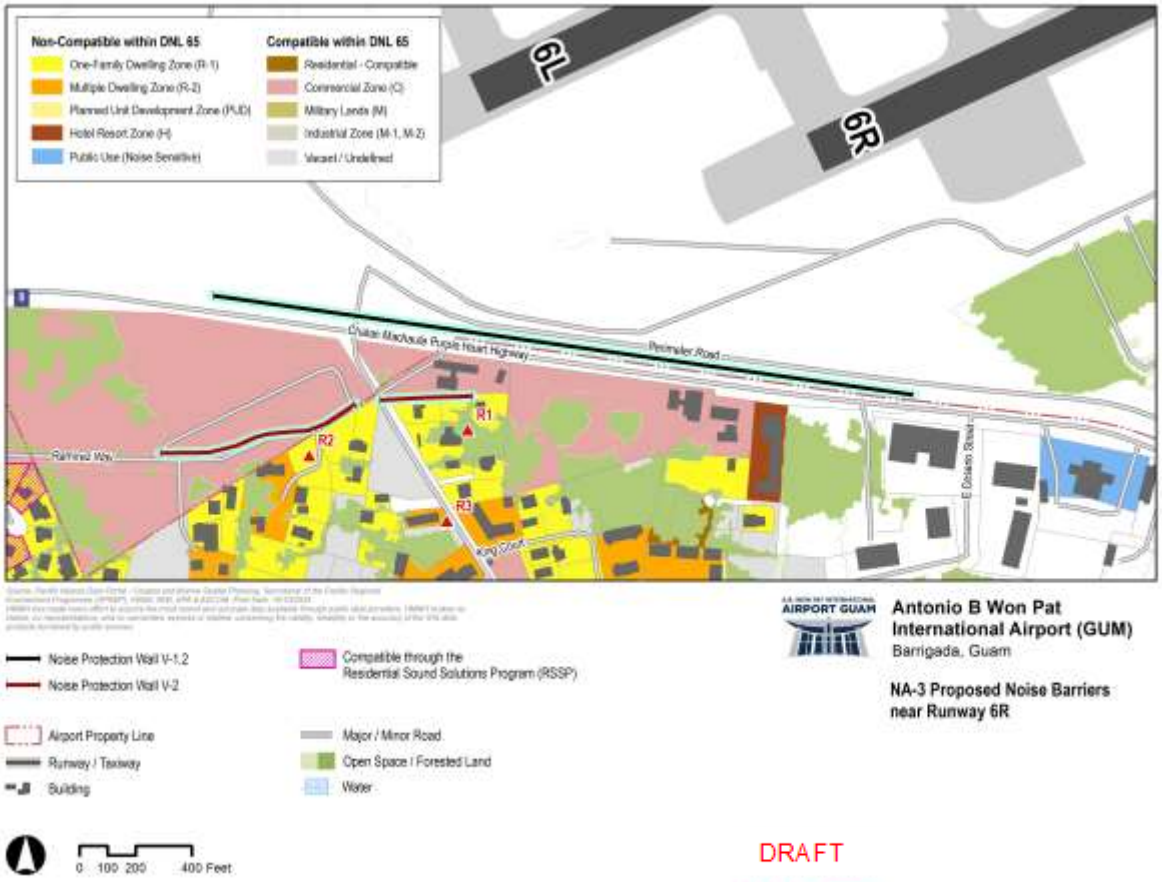
Source: GIAA, 2025

Neither provides sufficient noise reduction benefit to residential homes and both wall heights may be limited by airspace considerations. If feasible to construct Barrier V-1.2, a shorter version could be considered to provide mitigation to the hotel along Route 8.

Reason for not recommending in this NCP: Neither barrier provides an effective reduction in noise levels to noise-sensitive areas and obstruction limitations may limit the size and height of the barrier. The barriers do not provide any additional benefit to areas of noncompatible land use. Therefore, GIAA does not support this measure and recommends not continuing NA-9 from the 2003 NCP.

Figure 2-14. Proposed Noise Barriers near Runway 6R

Source: 2025 Part 150 Noise Compatibility Study



2.3.1.4 High-Speed Exit Taxiways

This noise abatement measure considered adding or increasing the use of high-speed exit taxiways. While helping aircraft exit the runway faster, additional high-speed taxiways will not have any effect on reducing noncompatible land use.

Reason for not recommending this NCP: High-speed exit taxiways provide a benefit to the increased efficiency and capacity of the runway but provide minor reductions in single-event noise levels. The high-speed exit taxiways would provide no additional benefit to areas of noncompatible land use. Therefore, GIAA does not support this measure and recommends not continuing NA-10 from the 2003 NCP.

2.3.1.5 Voluntary Engine Run-Up Guidelines

GIAA could recommend that the location and orientation of engine run-ups be designated. This would be a modification of the 2003 NCP Measure NA-13. This measure will designate recommended maintenance run-up areas to limit the noise impacts from run-ups. Given the amount of residential development to the east of the Airport and the lack of residential development to the north and south of the Airport, a designated area towards the center of the south ramp area near the Aircraft Rescue and Fire Fighting (ARFF) station could be a suitable location for all engine maintenance run-ups above flight idle power. Flight idle power maintenance run-ups would continue to be allowed on the ramp areas.

Reason for not recommending in this NCP: Ground noise from run-ups was not identified as a concern by community members and GIAA decided that guidelines were not needed at this time. Therefore, GIAA does not support this measure and recommends not continuing NA-13 from the 2003 NCP.

2.3.2 Arrival / Departure Procedures

Arrival and Departure procedure measures evaluate how the aircraft operates along its flight path. These measures typically look at increasing altitudes, reducing thrust or modifying flap procedures to reduce noise.

2.3.2.1 Increase the Glide Slope

This noise abatement measure considered increasing the glide slope on arrival to reduce the noise by keeping aircraft higher above noise-sensitive sites during arrival procedures. A 3-degree approach is a standard approach path providing a stable and consistent aircraft approach. Raising it slightly to 3.1 or 3.2 degrees provides only a minimal increase in aircraft altitude and would likely not reduce noncompatible land use. Some aircraft may not be able to fly a steeper approach safely and may affect operations.

Reason for not recommending this NCP: Raising the glide slope would likely not reduce noncompatible land use and could limit some aircraft approaches. Other GIAA measures such as using Runway 6R/24L at night for arrivals would provide more benefit. Therefore, GIAA does not support this measure.

2.3.2.2 Standard Instrument Departure (SID) Procedures

This noise abatement measure considered establishing procedures that would require aircraft to follow an SID in all weather conditions, including VFR conditions. These would be combined with noise abatement flight tracks.

Reason for not recommending this NCP: Departure procedures and flight tracks were evaluated but the measures have a potential to conflict with AAFB operations and Air Traffic Control would need to de-conflict operations. Therefore, GIAA does not support this measure and recommends not continuing NA-2 from the 2003 NCP.

2.3.2.3 Delayed Flap and Gear Extension Approaches

This noise abatement measure considered a voluntary procedure that arriving aircraft delay lowering flaps and landing gear until closer to the Airport. These would be combined with noise abatement flight tracks.

Reason for not recommending this NCP: Benefits of these methods are uncertain and would not reduce noncompatible land use. Therefore, GIAA does not support this measure and recommends not continuing NA-3 from the 2003 NCP.

2.3.2.4 Restriction on Visual Approaches

This measure recommends Air Traffic restrict the use of visual approaches during VFR conditions. Limitations on visual approaches may reduce noise exposure by concentrating low altitude aircraft overflights in compatible land use corridors along the runway centerlines.

Reason for not recommending this NCP: Benefits of this measure are uncertain and would not reduce noncompatible land use. Limitations of visual approaches may, in some cases, increase noise rather than decrease noise, in noise-sensitive areas. Therefore, GIAA does not support this measure and recommends not continuing NA-4 from the 2003 NCP.

2.3.2.5 Distant Noise Abatement Procedure

This measure recommends airlines adopt the distant noise abatement procedure. The analysis in the 2025 NEM Report indicated both types of noise abatement departure procedures are in use. Evaluation in the NCP demonstrates the close-in procedure to be beneficial and adoptable by the airlines.

Reason for not recommending this NCP: The Close-in Noise Abatement Departure Procedure provides a larger benefit than the Distant Noise Abatement Departure Procedure as it would reduce a larger area of noncompatible

land use. The Close-in is already being operated by international airlines and the major domestic airlines indicated they could use the same procedure. Therefore, GIAA will recommend the Close-in procedure and does not support the Distant procedure. GIAA recommends not continuing NA-6 from the 2003 NCP.

2.3.3 Preferential Runway Use Measures

Preferential Runway Use measures seek to reduce noncompatible land use by modifying the use of the runway to reduce activity over noncompatible land use.

2.3.3.1 Preference for Departures on Runway 6R and Arrivals on Runway 6L

This noise abatement measure to incorporate a preferential runway use program that results in aircraft departing Runway 6R and aircraft arriving Runway 6L was discussed and determined to result in departures having to cross an active runway as there is no full-length taxiway to the end of Runway 6R. Also, due to the length of Runway 6R, some foreign low-cost carriers may have to take a payload penalty to use the shorter runway to depart. Also, this would shift the DNL 65 dB lobe northeast of the Airport to the south (in line with Runway 6R), would still include noncompatible land use, and include new residential land use within the contour. This would not meet the purposes of Part 150.

Reason for not recommending in this NCP: Departing aircraft would need to cross an active runway, which could reduce efficiency and safety. Departing aircraft may also need to reduce payload to accommodate the reduced runway length. Therefore, GIAA does not support this measure.

2.3.3.2 Preference for Departures on Runway 6L and Arrivals on Runway 6R

This noise abatement measure to incorporate a preferential runway use program that results in aircraft departing Runway 6L and aircraft arriving Runway 6R was not discussed but is a follow on to the measure in **Section 2.3.3.1** above. This measure would result in arrivals having to wait on Runway 6R to cross an active runway. Also, this would shift the DNL 65 dB lobe southwest of the Airport to the south (in line with Runway 6R), would still include noncompatible land use, and include new residential land use within the contour. This would not meet the purposes of Part 150.

Reason for not recommending in this NCP: Arriving aircraft would need to cross an active runway which could reduce efficiency and safety. Arriving aircraft may also prefer the longer runway and the runway closest to the terminal. Therefore, GIAA does not support this measure.

2.3.3.3 Aircraft Use Runway 6R/24L at Night for Arrivals

The following measure details a preferential runway use, in which usage of a runway is encouraged, based on the time of day the operation is occurring. Due to the increased nighttime weighting of aircraft noise in the DNL land use compatibility metric, moving nighttime arrivals from Runway 6L/24R to Runway 6R/24L may reduce the area of noncompatible land use within the contour. At night, operations at the Airport would be lower; therefore, there would be less conflicts with using Runway 6R/24L for arrivals. The modeled scenario assumes all arrivals use Runway 6R/24L at night and departures at night would continue to use either runway as they typically operate (primarily on Runway 6L/24R). **Figure 2-15** highlights Runway 6R/24L to be used at night for arrivals.

The use of Runway 6R/24L at night for arrivals reduces the number of housing units on noncompatible land use southwest of Ramirez Way. This alternative pulls the DNL 65 dB contour closer to the Airport under the approach path to Runway 6L but shifts the DNL 65 dB contour out under the approach path to Runway 6R as shown in **Figure 2-16** resulting in the decrease of approximately 137 noncompatible housing units. However, approximately four noncompatible housing units are included within the DNL 70 dB contour for a net reduction of 133 housing units within the DNL 65 dB contour.

Reason for not recommending in this NCP:

Arriving aircraft at night to Runway 6R would shift a large portion of the DNL 65 dB contour southwest of the airport to align with Runway 6R. While the measure may reduce noise exposure for certain areas, it could result in increased noise impacts for other communities or neighborhoods not currently within the 65 DNL contour, creating potential new incompatible land use concerns. Therefore, GIAA does not support this measure.

Figure 2-15. Preferential Runway Use Measure – Aircraft Use Runway 6R/24L for Arrivals at Night

Source: 2025 Part 150 Noise Compatibility Study

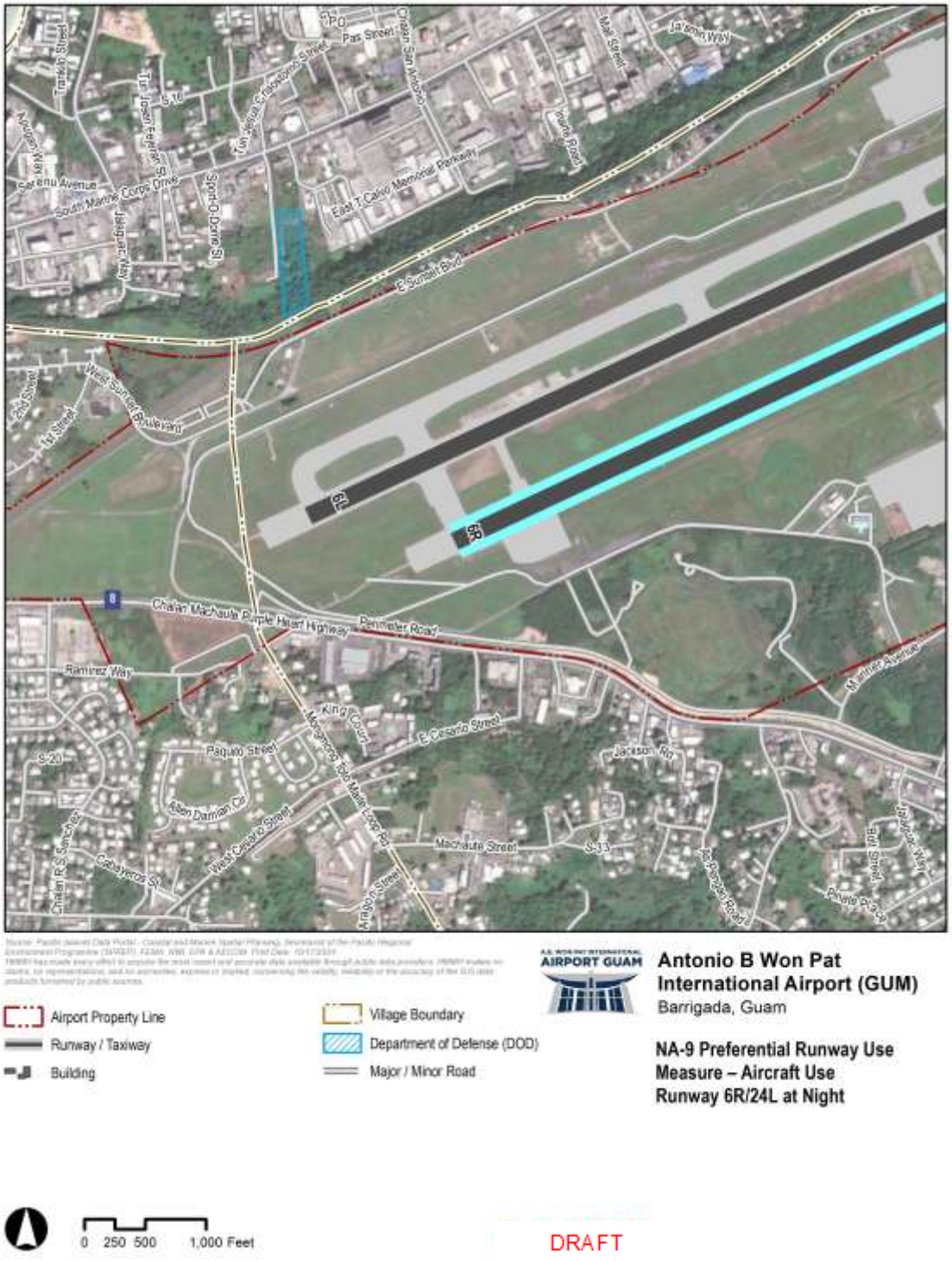
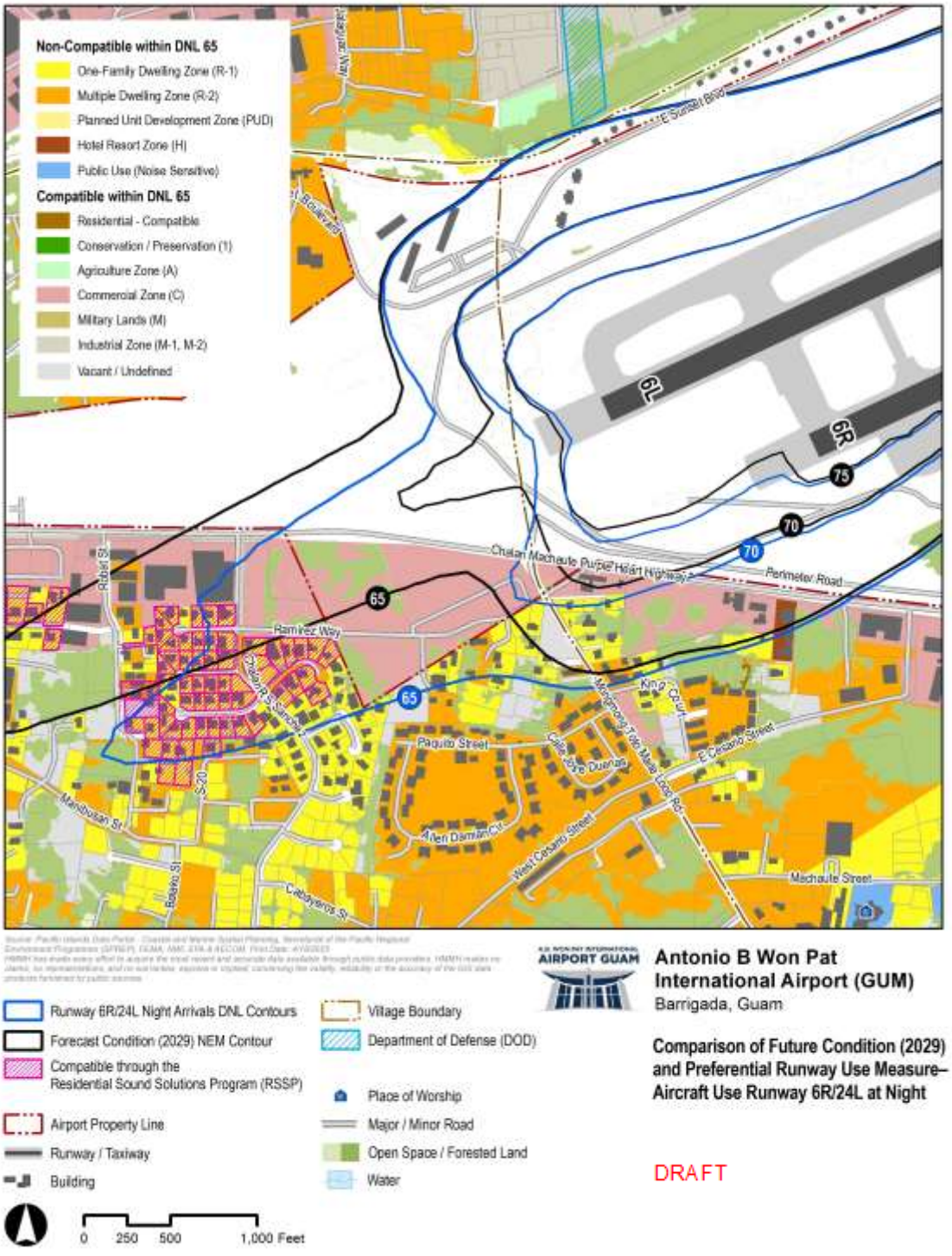


Figure 2-16. Comparison of Forecast Condition (2029) and Preferential Runway Use Measure – Aircraft Use Runway 6R/24L at Night for Arrivals

Source: 2025 Part 150 Noise Compatibility Study



2.3.3.4 Aircraft Use Runway 6R/24L at Night (Arrivals and Departures)

The following measure for evaluation consideration details a preferential runway use, in which usage of a runway is encouraged or restricted, either based on the type of aircraft using the runway or the time of day the operation is occurring. Due to the increased nighttime weighting of aircraft noise in the DNL land use compatibility metric, moving nighttime operations from Runway 6L to Runway 6R may reduce the area of noncompatible land use within the contour. At night, operations at the Airport would be lower; therefore, there would be less conflicts with using Runway 6R. The modeled scenario assumes all arrivals and departures on Runway 6R/24L at night except for long-haul operations (stage lengths greater than 4) that would require the longer runway and will continue to use Runway 6L/24R.

The use of Runway 6R at night results in a potential reduction of noncompatible land use directly south of the runway end in the residential area south of Ramirez Way. This alternative pulls the DNL 65 dB contour closer to the Airport under the approach path to Runway 6L but shifts the DNL 65 dB contour out under the approach path to Runway 6R as shown in the left panel in **Figure 2-17,** resulting in the decrease of approximately 67 noncompatible housing units. However, northeast of the Airport, the DNL 65 dB contour widens farther from the Airport to the south almost to Rosario Loop resulting in the addition of approximately 23 noncompatible housing units. Overall, there does appear to be a net benefit and reduction of 161 noncompatible housing units from this alternative.

Reason for not recommending in this NCP:

Departing aircraft would need to cross an active runway which could reduce efficiency and safety. Departing aircraft may also need to reduce payload to accommodate the reduced runway length. While the measure may reduce noise exposure for certain areas, it could result in increased noise impacts for other communities or neighborhoods not currently within the 65 DNL contour, creating potential new incompatible land use concerns. Therefore, GIAA does not support this measure.

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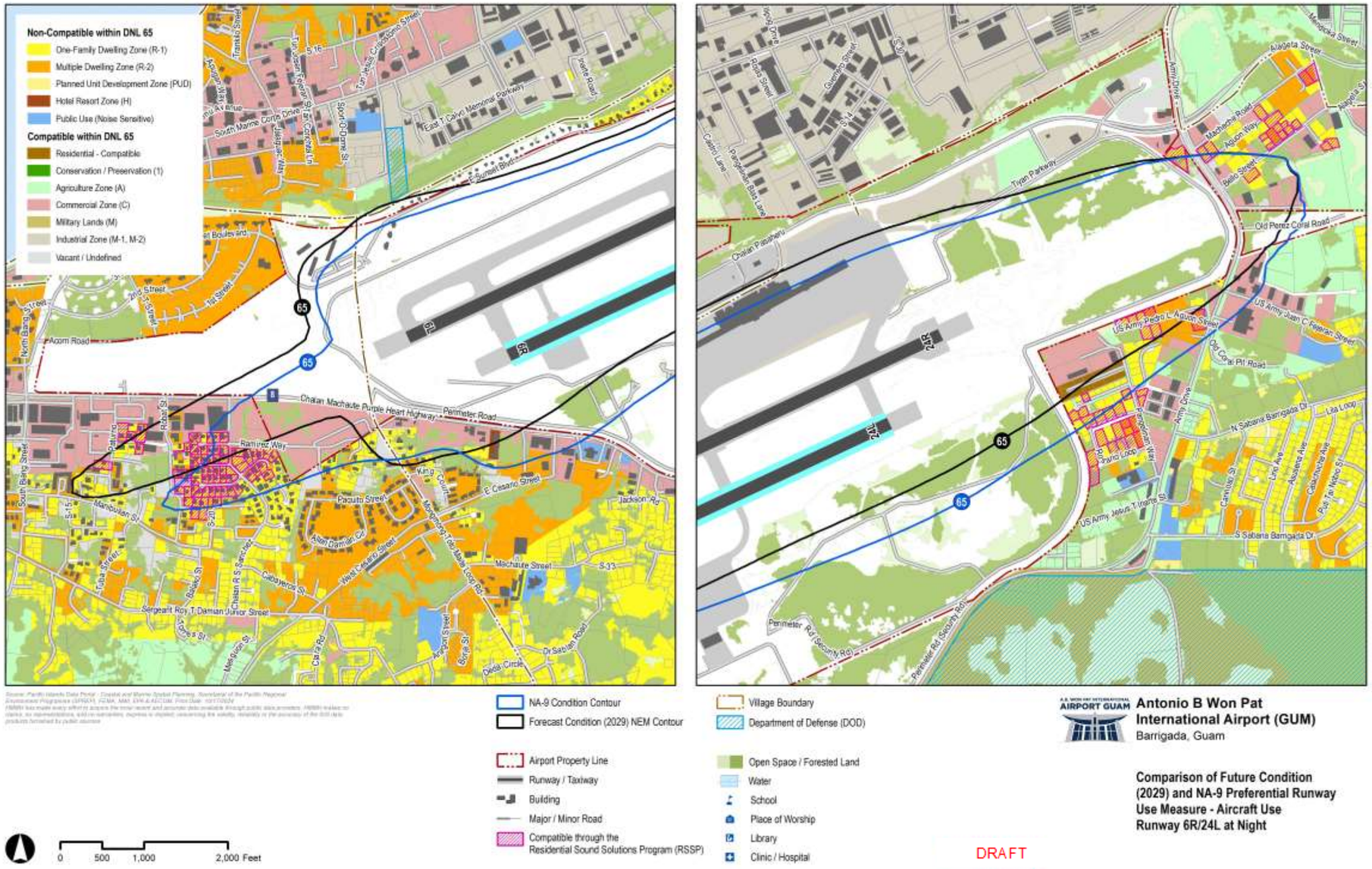
Figure 2-17. Comparison of Forecast Condition (2029) and Preferential Runway Use Measure – Aircraft Use Runway 6R/24L at Night for Arrivals and Departures

Source: 2025 Part 150 Noise Compatibility Study



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2.3.4 Flight Track Measures

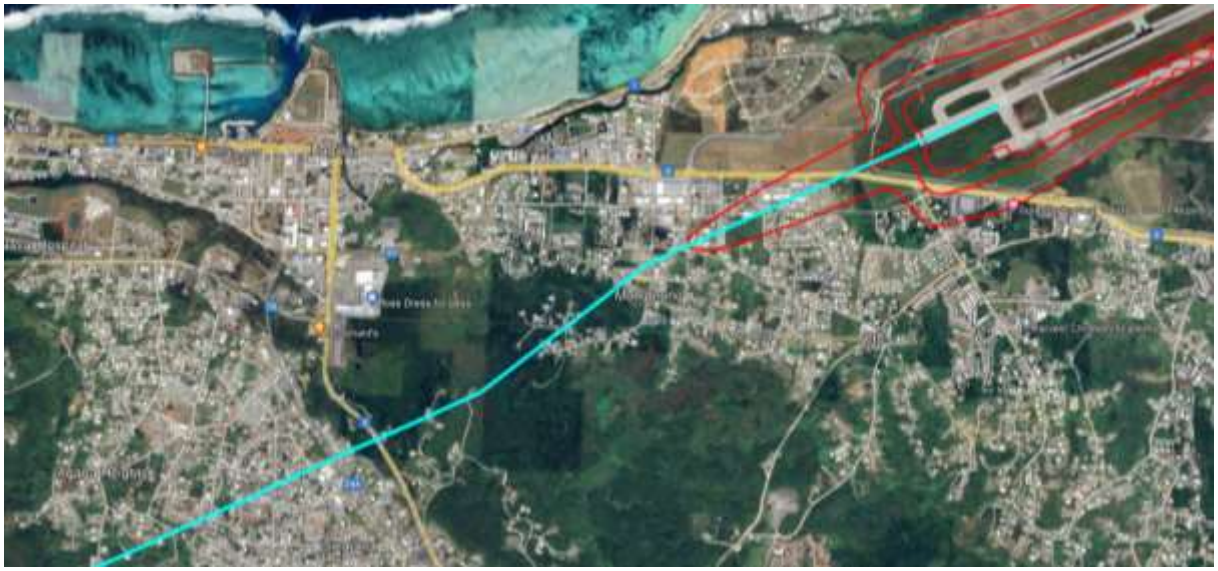
Flight track measures are designed to route aircraft farther from noncompatible land use (i.e., adjusting the path flown over land). These measures may include modifications to arrival routes, departure turns or offset approaches.

2.3.4.1 Design a Side-step Approach for Arrivals to Runway 6L

This noise abatement measure to have aircraft approach the Airport as if they were arriving Runway 6R and then side-step to Runway 6L at the latest opportunity before arrival (see hypothetical flight track [cyan line] in **Figure 2-18**) was discussed to put aircraft over an area of less noncompatible land use. Experience indicates that such a step would need to be no later than 1 to 1.5 nautical miles from the landing threshold, which is beyond the current DNL 65 dB contour around the Airport, thus not improving land use compatibility.

Reason for not recommending in this NCP: This measure would complicate the approach to Runway 6L and would not reduce noncompatible land. Therefore, GIAA does not support this measure.

Figure 2-18. Side-step Approach Concept to Runway 6L
Source: 2025 Part 150 Noise Compatibility Study



2.3.4.2 Departing Aircraft Turn Left at the End of Runway 6L

This measure provides further analysis from the 2003 NCP for NA-1, NA-2 and NA-7 which recommended modifying the flight tracks for aircraft departing Runway 6L to avoid direct overflight of noncompatible land uses immediately adjacent to the Airport. This measure would have all aircraft departing Runway 6L turn 15-degrees to the left after the end of the runway to avoid noncompatible land use northeast of the Airport. The proposed flight path and change in the DNL contours is shown in **Figure 2-19.** The use of left-turn departures from Runway 6L results in a shift to the northeast of the DNL 65 dB contour and a reduction of noncompatible land use directly northeast of the runway end as shown in **Figure 2-19,** resulting in the reduction of approximately 12 noncompatible housing units.

Reason for not recommending in this NCP:

Due to possible airspace concerns with the turn and potential conflicts with AAFB operations, GIAA decided not to pursue this option and recommends not continuing NA-1, NA-2 and NA-7 from the 2003 NCP. Other measures that GIAA is recommending provide a larger reduction in noncompatible land use.

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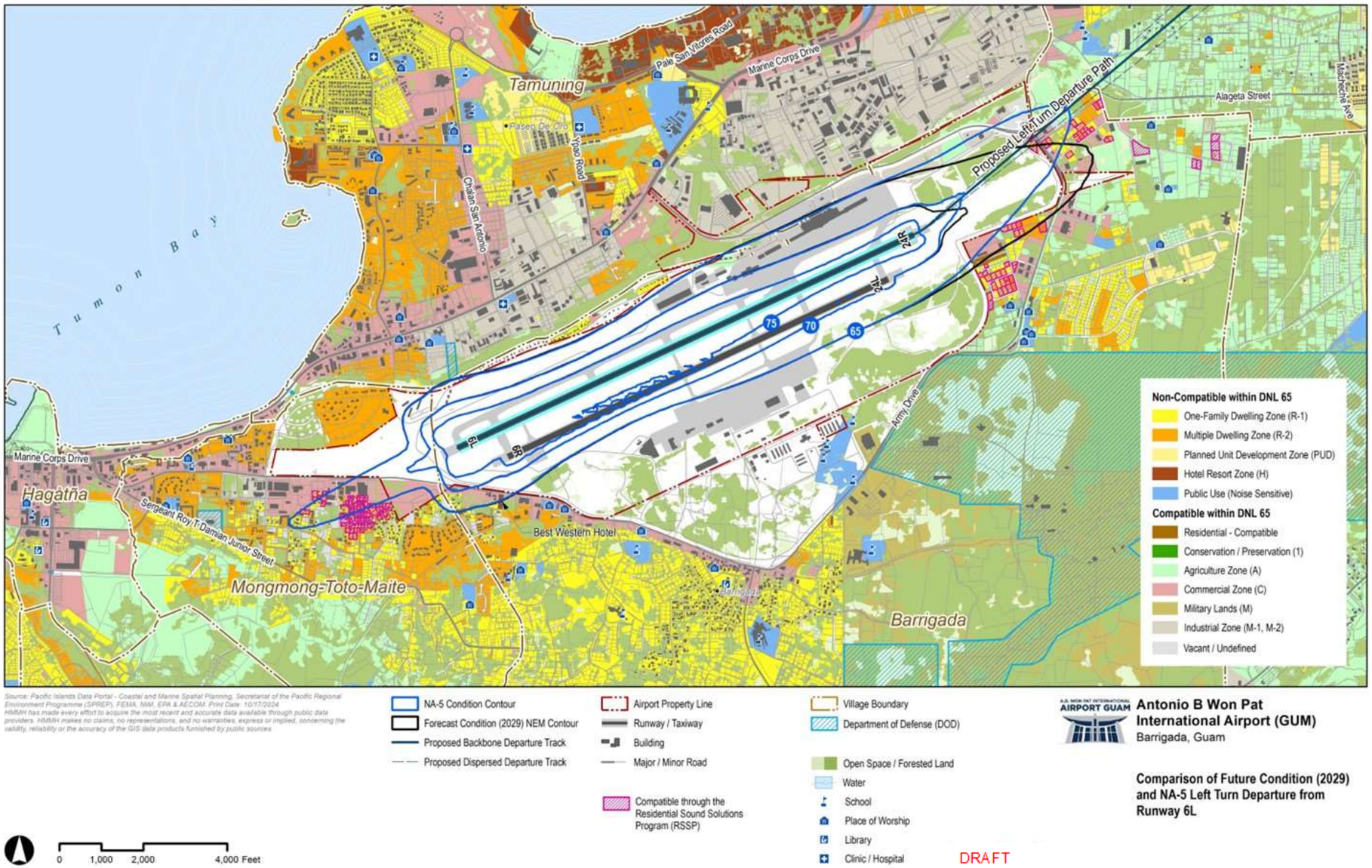
Figure 2-19. Comparison of Forecast Condition (2029) and Proposed Left Turn Departure Track from Runway 6L

Source: 2025 Part 150 Noise Compatibility Study



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2.3.4.3 Departing Aircraft Turn Right and Left at the End of Runway 6L

This measure provides further analysis from the 2003 NCP for NA-1, NA-2 and NA-7 which recommended modifying the flight tracks for aircraft departing Runway 6L to avoid direct overflight of noncompatible land uses immediately adjacent to the Airport. This measure would have all aircraft departing Runway 6L either turn 15-degrees to the left or 15-degrees to the right after the end of the runway to avoid noncompatible land use northeast of the Airport. The use of each turn was modeled using a 50/50 split in operations; The proposed flight path and change in the DNL contours is shown in **Figure 2-20.**

The use of left- and right-turn departures from Runway 6L results in a widening of the DNL 65 dB contour and reduces the extension of the DNL 65 dB contour to the northeast eliminating all noncompatible land use directly northeast of the Airport. The DNL 65 dB contour does widen and encompass additional noncompatible land uses directly east of the Airport west of Army Drive. A reduction of noncompatible land use directly northeast of the runway end and an increase of noncompatible land use directly east of the Airport west of Army Drive as shown in **Figure 2-20,** resulting in the increase of approximately one noncompatible housing unit.

Reason for not recommending in this NCP:

Due to possible airspace concerns with the turn and potential conflicts with AAFB operations, GIAA decided not to pursue this option and recommends not continuing NA-1, NA-2 and NA-7 from the 2003 NCP. Other measures that GIAA is recommending provide a larger reduction in noncompatible land use.

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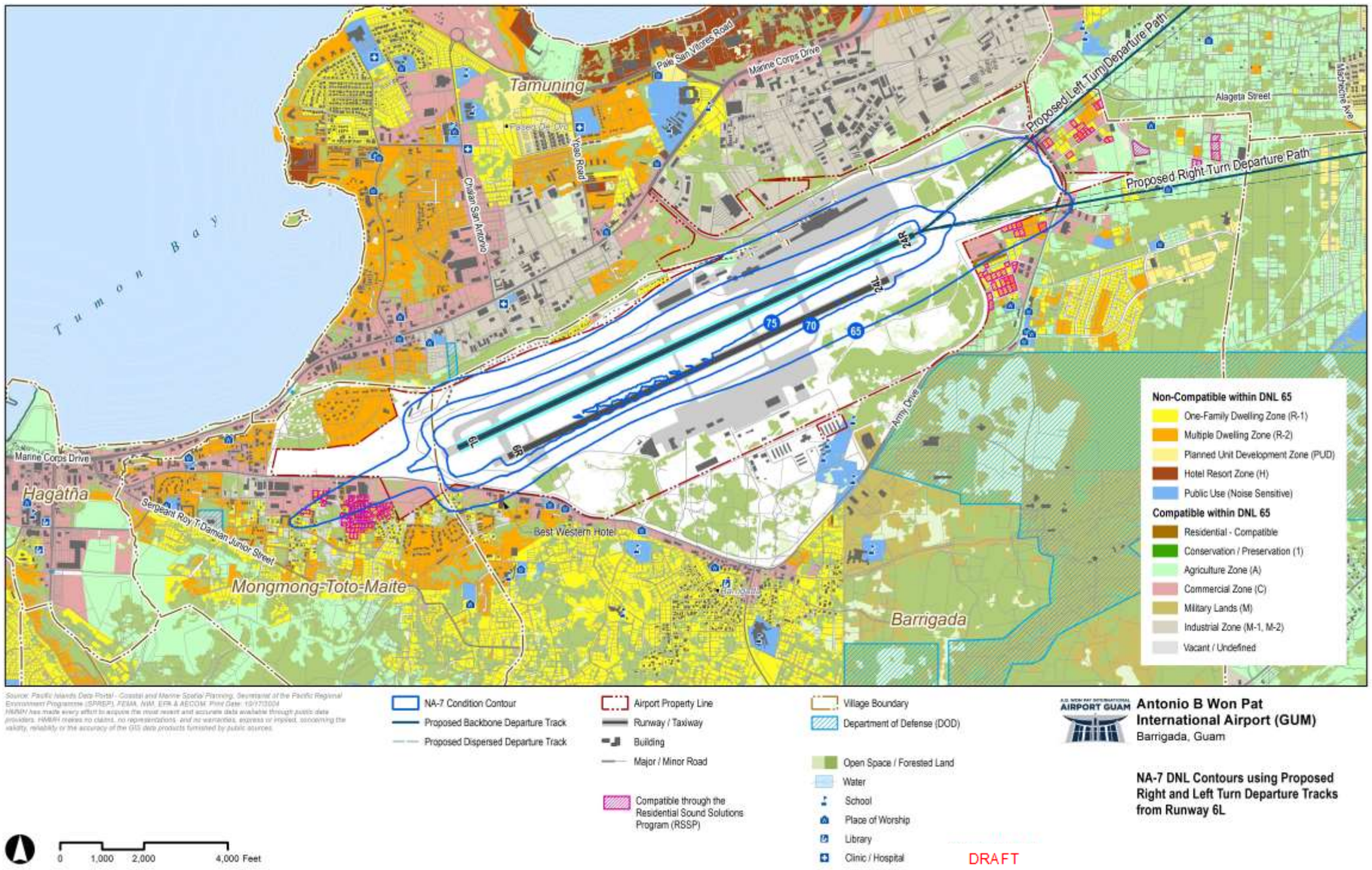
Figure 2-20. DNL Contours using Proposed Right- and Left-Turn Departure Tracks from Runway 6L

Source: 2025 Part 150 Noise Compatibility Study



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2.3.4.4 Departing Aircraft use Runway Heading and Right and Left Turns at the End of Runway 6L

This measure provides further analysis from the 2003 NCP for NA-1, NA-2 and NA-7 which recommended modifying the flight tracks for aircraft departing Runway 6L to avoid direct overflight of noncompatible land uses immediately adjacent to the Airport. This measure would have all aircraft departing Runway 6L either remaining on runway heading, turn 15-degrees to the left or 15-degrees to the right after the end of the runway to avoid noncompatible land use northeast of the Airport. The use of each flight path was modeled using a 1/3 split in operations, this will be refined if this measure moves forward. The proposed flight path and change in the DNL contours is shown in **Figure 2-21.**

Similar to NA-7, the use of left- and right-turn departures from Runway 6L results in a widening of the DNL 65 dB contour and reduces the extension of the DNL 65 dB contour to the northeast eliminating all noncompatible land use directly northeast of the Airport. Retaining some use of the runway heading departure increases the extent of the DNL 65 dB northeast of the Airport but not into areas of noncompatible land use and decreases the width of the contour compared to NA-7. The DNL 65 dB contour does widen and encompass additional noncompatible land uses directly east of the Airport west of Army Drive. A reduction of noncompatible land use directly northeast of the runway end and an increase of noncompatible land use directly east of the Airport west of Army Drive as shown in **Figure 2-21,** resulting in the increase of approximately one noncompatible housing unit.

Reason for not recommending in this NCP:

Due to possible airspace concerns with the turn and potential conflicts with AAFB operations, GIAA decided not to pursue this option and recommends not continuing NA-1, NA-2 and NA-7 from the 2003 NCP. Other measures that GIAA is recommending provide a larger reduction in noncompatible land use.

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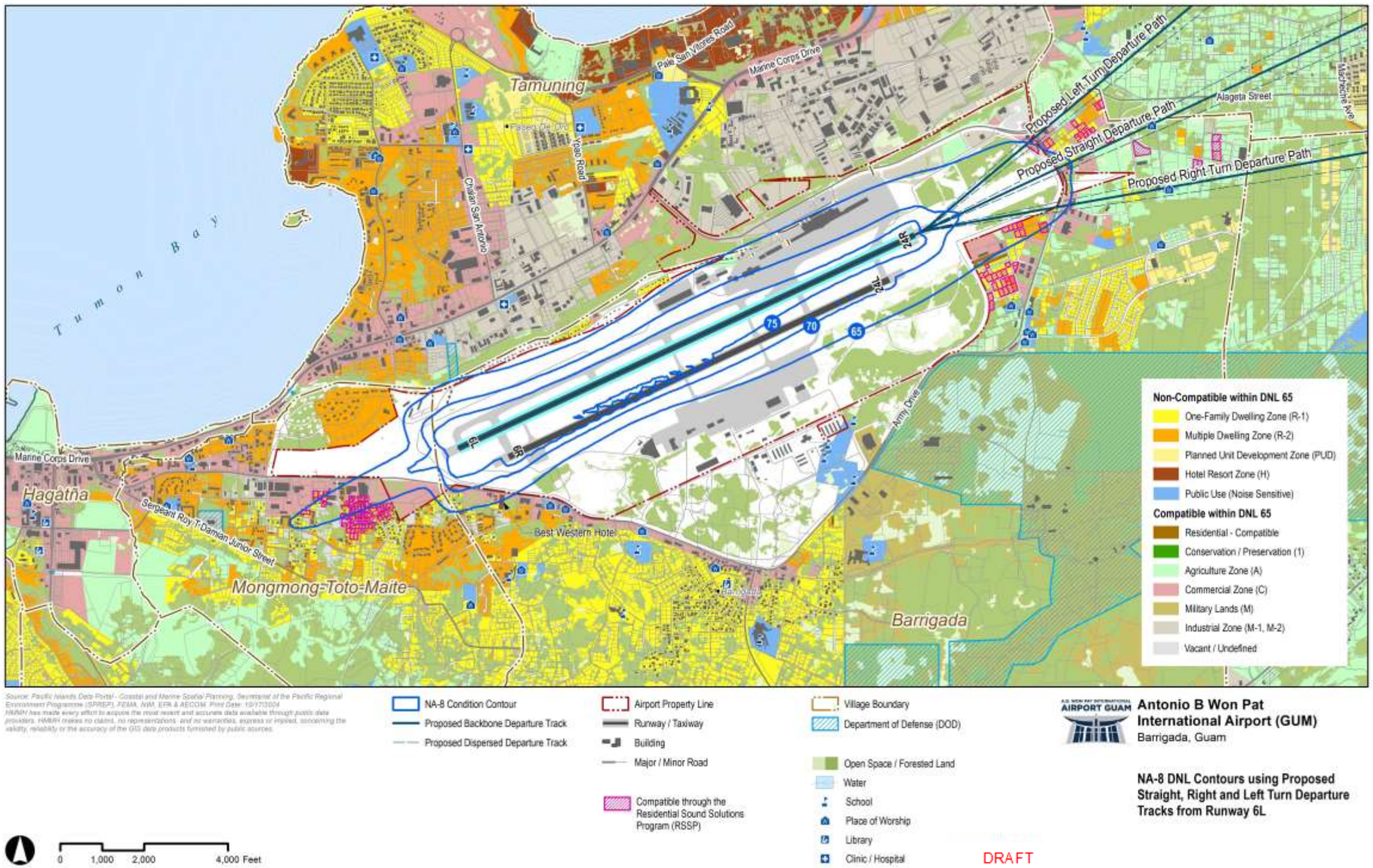
Figure 2-21. DNL Contours using Proposed Straight, Right and Left Turn Departure Tracks from Runway 6L

Source: 2025 Part 150 Noise Compatibility Study



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2.3.4.5 FMS/GPS Applications, Use of On-board Equipment

This measure recommends the use of sophisticated on-board equipment that integrates signals from a variety of ground-based and satellite systems to provide a visual course reference (vertical and horizontal information) for pilots to navigate along predetermined flight tracks.

Reason for not recommending in this NCP: RNAV(RNP) and RNAV(GPS) approaches have been implemented by FAA at the Airport. Based on discussions with the PAC and possible conflicts with AAFB, defined departure routes are not recommended at this time. Therefore, GIAA does not support this measure and recommends not continuing NA-7 from the 2003 NCP.

2.3.5 Use Restrictions

Use restriction measures are considered a last resort and are typically only considered after all other measures have been evaluated. These measures, if mandatory, would require an additional study called a 14 CFR Part 161 Airport Noise and Access Restrictions.

2.3.5.1 Operational Fees Based on Noise

This measure recommends implementing differential airport user fees based on aircraft noise levels and/or time of day of operation. Such a measure would mean higher rates for aircraft that make the largest contribution to the overall noise exposure or that operate during noise-sensitive areas. The NCP recognizes that implementation would require renegotiation of use agreements with the airlines.

Reason for not recommending in this NCP: The implementation of fees based on noise would require a 14 CFR Part 161 Airport Noise and Access Restrictions study which would likely not meet the full requirements for approval. Part 161 implements the Airport Noise and Capacity Act of 1990. Therefore, GIAA does not support this measure and recommends not continuing NA-11 from the 2003 NCP.

2.3.5.2 Voluntary Fleet Mix Goals

This measure recommends an agreement whereby the airport users voluntarily establish goals and a timetable/schedule for increasing the percentage of quieter aircraft in the airport fleet mix.

Reason for not recommending in this NCP: FAA and International Noise regulations have lowered the noise certification levels for new aircraft over time. Therefore, GIAA does not support this measure and recommends not continuing NA-12 from the 2003 NCP

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3.
Land Use Measures

3 Land Use Measures

Land use management measures address aircraft noise in areas of high noise exposure that cannot be fully addressed through the implementation of noise abatement measures as described in **Section 2** . Pursuant to the requirements of Part 150, this section evaluates corrective and preventive land use measures. Corrective land use measures, which are typically implemented by an airport operator, include land acquisition, sound insulation treatments of noise-sensitive structures (e.g., residences, schools, and places of worship), and/or easement purchase. In contrast, preventive measures prohibit the introduction of new noncompatible land uses, through zoning and/or land use plans, and/or notifying potential buyers of properties affected by aircraft noise; such measures are typically implemented by the local land use planning and zoning municipalities.

GIAA and the FAA have no regulatory authority to control land uses around airports and recognize that state and local governments are responsible for land use planning, zoning, and regulation. However, as a condition of receipt of FAA funding for airport development projects, an airport operator must provide the FAA with written assurances that "appropriate action, including the adoption of zoning laws, have been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the Airport to activities and purposes compatible with normal airport operations including the landing and takeoff of aircraft."[11] In response to this FAA requirement, this chapter discusses preventive land use management measures in **Section 3.3.2** .

Table 1 in Appendix A of 14 CFR Part 150 (reproduced below as **Table 3-3**) identifies categories of land use surrounding an airport that are acceptable within the 65, 70, and 75 DNL contours (compatible land uses). The table does not represent a federal determination of acceptable or unacceptable land use.[12] The table implies that virtually all land uses outside of the 65 DNL contour are compatible with noise from aircraft operations. Corrective measures are applicable to off-airport land within the DNL 65 dB contour. Preventive measures can extend beyond the DNL 65 dB contour to discourage development of noise-sensitive land uses near an airport.

Noncompatible land uses within the Forecast 2029 NEM provided the basis for the cost and schedule estimates for implementation of each recommended land use measure. However, per FAA guidance, the NEM must reflect airport-certified noise exposure or be updated to ensure the land use measures address noncompatible land uses with noise exposure from current or forecast aircraft operations. Eligibility to implement the land use measures will be dependent on the FAA-accepted NEM at the time of implementation.

Section 3.2 identifies all GIAA-recommended land use measures as part of the 2003 NCP for the Airport, including their implementation status. For this Part 150 Study, GIAA determined, for each measure recommended in the 2003 NCP, whether to continue as written, continue with minor modifications, or not continue the measure.

Section 3.3 describes each of the GIAA-recommended land use measures associated with the six Part 150-required categories (land acquisition, sound insulation, avigation easements, prevention, land use controls and real estate disclosures) to analyze for potential inclusion in the updated NCP, as shown in **Table 3-1**. The section includes summaries of noise benefit analyses where applicable and an implementation summary for each measure.

Table 3-1. Summary of GIAA Recommended Airport Land Use Measures for the 2025 NCP

Part 150 Category	Land Use Measure	
	Number	Title
Prevention, Land Use Controls, Avigation Easements & Real Estate Disclosures	1	Establish an Airport Noise Overlay Zone
	2	Land Use Rezoning Support
Land Acquisition	3	Continue voluntary land acquisition inside the DNL 65 dB noise contour
Sound Insulation	4	Implement a noise mitigation program to provide sound insulation treatment to noise-sensitive parcels including residential structures, schools, and other noise-sensitive buildings within the DNL 65 dB.

Source: GIAA 2025

[11] Airport and Airway Development Act of 1970. Pub. L. 91-258. 84 Stat. 219-253. May 21, 1970

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

Section 3.4 discusses the land use measures considered that GIAA is no longer recommending for this NCP.

3.1 Land Use Guidelines

The land uses on Guam have been matched with the Part 150 guidelines land use categories. These are shown in **Table 3-2.** The FAA has published land use compatibility designations, as set forth in Part 150, Appendix A, Table 1 (reproduced here as **Table 3-3**). As **Table 3-3** indicates, the FAA generally considers all land uses to be compatible with aircraft-related noise exposure in terms of DNL below 65 dB, including residential parcels, hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries. These categories will be referenced throughout the Part 150 process.

GIAA considers housing units as compatible with aircraft noise within the DNL 65 dB and greater contour if they were mitigated as part of the prior Residential Sound Solutions Program or if they were constructed after October 1, 1998. Per FAA policy, as of October 1, 1998, the FAA will approve, under Part 150, only remedial mitigation measures for existing noncompatible development and only preventive noise mitigation measures for new noncompatible development that may be eligible for Airport Improvement Program (AIP) funding.[13]

Table 3-2. Guam Land Uses compared to Part 150 Airport Noise / Land Use Compatibility Guidelines

Noise Exposure Map Land Uses	Part 150, Appendix A, Table 1	
	General Category	Description
Noncompatible within DNL 65		
One-Family Dwelling Zone (R-1)	Residential Use	Single Family Housing
Multiple Dwelling Zone (R-2)	Residential Use	Multi-Family Housing
Planned Unit Development (PUD)	Residential Use	Single or Multi Family Housing
Hotel Resort Zone (H)	Residential Use	Transient Lodging
Public Use (Noise Sensitive)	Public Use	Schools, Churches, Hospitals, Libraries, Nursing Homes
Compatible within DNL 65		
Residential - Compatible	Residential Use	Constructed after October 1, 1998
Conservation/Preservation (1)	Recreational	Open space, parks
Agriculture Zone (A)	Manufacturing & Production	Agriculture and Forestry
Commercial Zone (C)	Commercial Use	Offices, Retail, Warehouses
Military Lands (M)	Public Use	Government Services
Industrial Zone (M-1, M-2)	Manufacturing & Production	Manufacturing
Vacant / Undefined	Recreational	Open space / undefined

Source: GIAA, 2025

[13] Final Policy on Part 150 Approval of Noise Mitigation Measures: *Effect on the Use of Federal Grants for Noise Mitigation Projects* (Noise Policy), was published in the Federal Register on April 3, 1998, at 63 FR 16409

Table 3-3. Part 150 Airport Noise / Land Use Compatibility* Guidelines

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

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

Key:

SLUCM: Standard Land Use Coding Manual

Y(Yes): Land use and related structures compatible without restrictions.

N(No): Land use and related structures are not compatible and should be prohibited.

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

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 A-weighted decibels (dB) must be incorporated into design and construction of structure.

Notes:

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

9) *Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often started as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.*
10) *Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.*
11) *Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.*
12) *Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.*
13) *Land use compatible provided special sound reinforcement systems are installed.*
14) *Residential buildings require an NLR of 25.*
15) *Residential buildings require an NLR of 30.*
16) *Residential buildings not permitted.*

Source: Part 150, Appendix A, Table 1, 2007

3.2 Prior Recommended Land Use Measures

In the 2003 NCP, GIAA recommended eight preventive land use measures and three corrective (or remedial) land use measures. For this Part 150 Study, the approved land use measures from the original 2003 NCP were evaluated to determine the status of those that have been implemented. **Table 3-4** lists the 11 GIAA-recommended land use measures in the 2003 NCP, of which eight were approved by the FAA in the 2003 ROA and summarizes the implementation status of each measure. This section details each of the existing land use (LU) measures and their implementation status based on analysis. The history of noise compatibility planning at the Airport is presented in Section 1.2.1 in the 2024 NEM document.

Table 3-4. Status of 2003 NCP Land Use (Noise Mitigation) Measures

Number	Title	Approval Status	Implementation Status	Recommendation for the 2025 NCP
LU-1	Amend Local Land Use Plans to Bring Them into Conformance with GIAA's Noise Compatibility Guidelines	Approved	Not Implemented	Modify, see **Section 3.3.2.1**
LU-2	Zone for Compatible Land Development	Approved	Not Implemented	Modify, see **Section 3.3.1.1**
LU-3	Apply Zoning Performance Standards	Approved	Not Implemented	Modify, see **Section 3.3.2.1**
LU-4	Establish a Public Information Program	Approved	Not Implemented	Not Continue
LU-5	Revise Building Codes	Disapproved for the Purposes of Part 150	Not Implemented	Not Continue
LU-6	Dedication of Avigation Easements	Disapproved for the Purposes of Part 150	Not Implemented	Not Continue
LU-7	Fair Property Disclosure Policy	Approved	Not Implemented	Not Continue
LU-8	Land Banking	Disapproved for the Purposes of Part 150	Not Implemented	Not Continue
RLU-1	Acquire Developed Property in Non-Compatible Uses	Approved	Not Implemented	Continue, see **Section 3.3.1.2**
RLU-2	Property Purchase Guarantee	Approved	Not Implemented	Not Continue
RLU-3	Part 150 Sound Mitigation Program	Approved	Implemented	Continue, see **Section 3.3.1.3**

Source: GIAA 2025

3.2.1 2003 NCP LU-1: Amend Local Land Use Plans to Bring Them into Conformance with GIAA's Noise Compatibility Guidelines

Description: This measure recommends amending the land use plans in line with GIAA's recommended noise compatibility guidelines. This measure will inhibit noncompatible development near the Airport.

FAA Action: Approved. This measure is within the jurisdiction of the Government of Guam. The local government has the authority to implement this measure.

Implementation Status: Not Implemented – Based on discussions with GIAA and the Guam Department of Land Management (DLM), no additional action has been taken. The 2022 Land Development Guidebook does not mention the 2003 NCP measures nor show the noise contours. The implementation of this measure requires cooperation between GIAA and the various local land use agencies,[14] such as the DLM, with land use management responsibilities.

Recommendation: Modify, see **Section 3.3.2.1**.

[14] The Bureau of Statistics and Plans, Bureau of Budget and Management Research (BBMR), Department of Public Works, and Guam Land Use Commission

3.2.2 2003 NCP LU-2: Zone for Compatible Land Development

Description: This measure recommends zoning lands near the Airport for compatible uses consistent with the Airport Master Plan.

FAA Action: ***Approved.*** This measure is within the jurisdiction of the Government of Guam. The local government has the authority to implement this measure.

Implementation Status: ***Not Implemented*** – Based on discussions with GIAA and the DLM, no additional action has been taken. The implementation of this measure requires cooperation between GIAA and the various local land use agencies, such as the DLM, with land use responsibilities.

Recommendation: Modify, see **Section 3.3.1.1**.

3.2.3 2003 NCP LU-3: Apply Zoning Performance Standards

Description: This measure recommends the local government adopt and enforce ordinances and controls to regulate building construction methods and material for the purpose of attenuating aircraft noise in habitable buildings in and around the Airport Noise Zone.

FAA Action: ***Approved.*** This measure is within the jurisdiction of the Government of Guam. The local government has the authority to implement this measure.

Implementation Status: ***Not Implemented*** – Based on discussions with GIAA and the DLM, no additional action has been taken. The implementation of this measure requires cooperation between GIAA and the various local land use agencies, such as the DLM, with land use responsibilities.

Recommendation: Modify, see **Section 3.3.2.1**.

3.2.4 2003 NCP LU-4: Establish a Public Information Program

Description: This measure recommends establishing a program to develop and distribute informational materials concerning aircraft noise. Portions of this measure are also discussed in items 1 and 2 under Program Management Elements.

FAA Action: ***Approved.***

Implementation Status: ***Partially Implemented*** – GIAA provided information as part of the Sound Mitigation Program RLU-3, but no additional public information has been provided.

Recommendation: Not Continue

3.2.5 2003 NCP LU-5: Revise Building Codes

Description: This measure recommends modifying the building code to require specified interior noise reduction for new construction in the Airport Noise Zones.

FAA Action: ***Disapproved for the Purposes of Part 150.*** New construction within the DNL 65 dB noise contour is considered incompatible with normal airport operations and is inconsistent with the purposes of Part 150 to reduce or prevent incompatible land use. This measure is within the jurisdiction of the Government of Guam. The FAA's disapproval for the purposes of Part 150 is not intended to interfere with local land use decisions. The FAA recognizes that inclusion of appropriate sound attenuation in newly constructed or altered noise-sensitive structures will make the interior compatible with airport operations. However, the FAA will not participate in any future remedial mitigation measures for new noise-sensitive development that occurs after October 1, 1998.

Implementation Status: ***Not Implemented*** – Based on discussions with GIAA and the DLM, no additional action has been taken.

Recommendation: Not Continue

3.2.6 2003 NCP LU-6: Dedication of Avigation Easements

Description: This measure recommends requiring the dedication of avigation easements as a condition of building permits in affected areas.

FAA Action: ***Disapproved for the Purposes of Part 150.*** New construction within the DNL 65 dB noise contour is considered incompatible with normal airport operations and is inconsistent with the purposes of Part 150 to reduce or prevent incompatible land use. This measure is within the jurisdiction of the Government of Guam. The FAA recognizes that acquiring avigation easements will provide the airport operator an interest in the land for which an avigation easement was purchased. However, the FAA will not participate in future remedial mitigation measures for new noise-sensitive development that occurs after October 1, 1998.

Implementation Status: ***Not Implemented*** – Based on discussions with GIAA and the DLM, no additional action has been taken. However, avigation easements are required on Guam for any home that participated in the Sound Insulation Program (RLU-3).

Recommendation: Not continue, as a stand-alone measure. Continue to include as part of the Sound Insulation Program.

3.2.7 2003 NCP LU-7: Fair Property Disclosure Policy

Description: This measure recommends requiring the disclosure of aircraft noise levels by property owners and their agents.

FAA Action: ***Approved.*** This measure is within the jurisdiction of the Government of Guam. The local government has the authority to implement this measure.

Implementation Status: ***Not Implemented*** – Based on discussions with GIAA and the DLM, no additional action has been taken. The implementation of this measure requires cooperation between GIAA and the Government of Guam.

Recommendation: Not Continue

3.2.8 2003 NCP LU-8: Land Banking

Description: This measure recommends acquisition of fee-simple privately owned, private land to prevent noncompatible land use.

FAA Action: ***Disapproved for the Purposes of Part 150 pending submission of additional information.*** Additional information is required by the FAA to make an informed decision regarding this measure's effectiveness in meeting the goals of Part 150 to reduce incompatible land use and prevent the introduction of new noncompatible land uses. Additional information should include the location of the property, and the noise levels associated with the property, and the likelihood that it will be developed incompatibly and must therefore be acquired.

Implementation Status: ***Not Implemented*** – Further information has not been provided to the FAA.

Recommendation: Not Continue

3.2.9 2003 NCP RLU-1: Acquire Developed Property in Non-Compatible Uses

Description: This measure recommends the acquisition of developed properties to alleviate aircraft noise effects in areas on noncompatible residential land use within the DNL of 65 dB contour.

FAA Action: ***Approved.*** GIAA may acquire noncompatible residential properties within the 65 DNL contour for either NEM for conversion to compatible non-residential use. The FAA will use the 2003 DNL 65 dB noise contour as accepted by the FAA on May 19, 2003, to make funding priority decisions. Contiguous areas, to ensure neighborhood equity, may also be included.

Implementation Status: ***Not Implemented*** – GIAA could implement this measure. While this measure was approved by the FAA, according to GIAA, no properties have been acquired as part of the 2003 NCP.

Recommendation: Continue, combine with RLU-2; see **Section 3.3.1.1**.

3.2.10 2003 NCP RLU-2: Property Purchase Guarantee

Description: This measure recommends offering homeowners a purchase guarantee to assure that their property would be acquired at fair market value and returned to residential use with appropriate sound insulation measures, releases, and restrictions if the owner had made a “bona fide effort” to sell the property within the 65 DNL contour based on the 2003 NEM. Measure 3, sound mitigation, would also be included with this measure. The property would be sold at fair market value after sound mitigation.

***FAA Action:* Approved.** The FAA will use the 2003 DNL 65 dB noise contour as accepted by the FAA on May 19, 2003, to make funding priority decisions. Contiguous areas, to ensure neighborhood equity, may also be included.

***Implementation Status:* Not Implemented** – GIAA could implement this measure. While this measure was approved by the FAA, according to GIAA, the property purchase guarantee was never given to or needed by homeowners whose properties were within the 65 dB DNL contour. No documentation proving that this occurred has been found. If the property purchase guarantee was an option, which never needed to be used, this measure can be understood as implemented.

***Recommendation*:** Not Continue

3.2.11 2003 NCP RLU-3: Part 150 Sound Mitigation Program (Residential, School, and Other Public Buildings)

Description: This measure recommends the acoustical treatment of residences, schools, and other public buildings within the DNL of 65 dB contour. In lieu of acoustical treatment, a residential homeowner would have the options to sell their residential property as described in measures 1 or 2 above.

***FAA Action:* Approved.** The FAA will use the 2003 DNL 65 dB noise contour as accepted by the FAA on May 19, 2003, to make funding priority decisions. Contiguous areas, to ensure neighborhood equity, may also be included.

***Implementation Status:* Implemented.**

GIAA successfully implemented the Part 150 Residential Sound Solution Program following the 2003 NCP. Approximately 287 parcels with 314 housing units were identified for the insulation program. The sound insulation program started after the 2003 GIAA NCP was approved by the FAA and had seven phases. As part of this program, 121 housing units on 116 parcels were acoustically treated through the third phase of the program. The remaining housing units were in various stages of design and acoustical testing through 2018.

Recommendation: Continue, see **Section 3.3.1.3.**

3.3 Recommended Land Use Measures

This section describes land use measures recommended by GIAA to address noncompatible land uses identified in the forecast condition (2029) Noise Exposure Map. Corrective land use measures are applicable to off-airport land within the DNL 65 dB contour. Based on the experience of other airports and according to the FAA, the preventive land use measures discussed in this section can be effective in preventing the development of new noncompatible land uses. It is up to local governments to decide whether to pursue preventative land use management measures to reduce noncompatible land uses that are consistent with the requirements of 14 CFR Part 150, Appendix A, Sec. 150.123.

In addition to the PAC, the study team met separately and consulted with the different agencies on Guam responsible for land use control including:

- Department of Land Management (DLM)
- Guam Land Use Commission (GLUC)
- Bureau of Budget and Management Research (BBMR)
- Department of Public Works (DPW)

Each agency has reviewed the following measures, and GIAA has incorporated their comments into this set of recommended measures.

3.3.1 Corrective Land Use Measures

GIAA is recommending the following corrective land use management measures as part of the NCP.

3.3.1.1 Land Use Rezoning Support

This measure would modify LU-2 from the 2003 NCP. To encourage future compatible land use, GIAA would provide letters of support to rezone properties to compatible use from noncompatible use, e.g., residential to industrial. To discourage future noncompatible land use, GIAA would provide letters not supporting the rezoning of properties to

noncompatible use. Property owners interested in rezoning would be encouraged to rezone to a category that supports compatible land use and a letter of support from GIAA may strengthen their efforts to rezone the property.

In discussions with DLM and GIAA, this was seen as a potential measure for some areas near the Airport. Supporting rezoning of noncompatible residential parcels and/or other interests associated with such parcels is a corrective land use measure because it supports converting noncompatible land use to compatible land use.

Table 3-5 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this land use measure.

Table 3-5. Implementation Summary for Recommended Land Use Measure: Land Use Rezoning Support

Implementation Item	Discussion
Benefits	This measure could help reduce noncompatible land uses.
Rationale	GIAA is recommending this measure because it could help reduce noncompatible land use near the Airport.
Responsible Parties	GIAA
Estimated Costs	Internal to GIAA
Funding Sources	GIAA
Requirements	FAA approval of this measure
Estimated Schedule	GIAA could implement this measure within six months of FAA approval.

Source: GIAA 2025

Conclusions: *Land Use Measure: Land Use Rezoning Support* could provide a letter of support to property owners to rezone their properties to compatible land uses. GIAA could also provide a letter not supporting rezoning of a property to noncompatible land use. This could reduce or prevent new noncompatible land use near the Airport.

3.3.1.2 Acquire Noncompatible Land

This measure would combine RLU-1 and RLU-2 from the 2003 NCP. Acquisition of noncompatible residential parcels and/or other interests associated with such parcels is a corrective land use measure because it converts noncompatible land use to a compatible land use.

Pursuant to the requirements of FAA Order 5100.37B *Land Acquisition and Relocation Assistance for Airport Projects*, an airport that purchases a property with a noncompatible land use utilizing AIP grant funding may modify the land use by removing the noncompatible structure, working with the jurisdiction to rezone the property to a compatible land use, and reselling the property. The process must also comply with the current version of FAA Advisory Circular 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*.

This approach is intended to create “buffer zones” of compatible land use near the Airport. Another approach would be for an airport that has acquired a parcel with a noncompatible land use to sound insulate the structure (thereby making the land use compatible) and then resell it.

GIAA could consider the potential acquisition of residential properties within the DNL 65 dB and higher contours as a corrective mitigation measure to make the properties compatible. The program is voluntary, but any acquisitions must follow the provisions set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act (49 CFR Part 24; Uniform Act). The 2029 Future NEM identifies 251 noncompatible housing units located within the DNL 65 dB contour. However, at this time no parcels have been identified for potential purchase.

GIAA would follow the recommendations in 49 U.S.C. § 47107 (c)(2)(A) when the land is no longer needed for noise compatibility purposes.

Table 3-6 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this land use measure.

Table 3-6. Implementation Summary for Recommended Land Use Measure: Acquire Noncompatible Land

Implementation Item	Discussion
Benefits	This measure helps eliminate noncompatible land uses.
Rationale	GIAA is recommending this measure because it would reduce noncompatible land use where other mitigation options are not viable.
Responsible Parties	GIAA
Estimated Costs	The current median sold home price in Guam is $470,000.[15] Relocation costs are estimated at $35,000 in addition to program management fees of $90,000. At this time, no parcels have been identified for purchase.
Funding Sources	80 percent of eligible costs FAA Airport Improvement Program and 20 percent GIAA.
Requirements	FAA approval of this measure
Estimated Schedule	GIAA can apply for funding once this measure is approved by the FAA, assuming the property owners wish to sell.

Source: GIAA 2025

Conclusions: *Land Use Measure: Acquire Noncompatible land* could become beneficial as it allows for the repurposing of formerly noncompatible land and transforming it into useable noise compatible land.

3.3.1.3 Sound Insulate Noise-Sensitive Structures

This measure would continue RLU-3 from the 2003 NCP. Noise mitigation programs provide sound insulation treatment to eligible noise-sensitive structures located within the 65 DNL contour based on an FAA-accepted NEM. Sound insulation can be used as a corrective mitigation measure for noncompatible residences, schools, and other noise-sensitive properties as long as they were constructed prior to October 1, 1998. Sound-insulated buildings are considered compatible with aircraft noise.

Under Part 150, the types of dwelling units that could be sound insulated include, but are not limited to, single-family units, multi-family units, transient lodging, and multi-use structures (such as those with retail on the ground floor and dwelling units above). Multi-use structures with a mix of noise-sensitive and non-noise-sensitive uses (such as an apartment over a store) are not eligible for sound insulation if the zoning of the parcel is compatible with aircraft noise, such as commercial, retail, or industrial zoning. Non-residential noise-sensitive public buildings (such as schools, hospitals, and health care facilities), and properties on or eligible for inclusion in the National Register of Historic Places are also eligible.

Sound insulation programs mitigate aircraft noise exposure by providing compatible noise environments inside the structures. Sound insulation treatments may include window and door replacement, caulking, weather stripping, and positive air ventilation. The purpose of the positive air ventilation is to allow for replacement windows and doors to remain closed to provide the full benefit of the sound insulation treatment to residents. Positive ventilation systems use a fan to draw outside air into an indoor space, pressurizing the space. Indoor air is exhausted out of the building through sound-insulated exterior openings.[16] Mobile dwelling units are not eligible because the FAA has determined that there are no effective sound insulation methods or materials for mobile homes.

There are 251 noncompatible residential housing units and one transient lodging currently within the 2029 DNL 65 NEM contours. In residential sound insulation programs funded in part by FAA AIP grants, a dwelling unit is only eligible for sound insulation if it meets all of the criteria set forth in the FAA Order 5100.38D, Change 1 AIP Handbook, Appendix R and FAA Advisory Circular, 150/5000-9B, *Guidelines for Sound Insulation of Structures Exposed to Aircraft Noise*. A dwelling unit is not eligible for federally funded sound insulation just by virtue of its location inside the 65 DNL contour.

[15] https://www.livingonguam.com/blog/guam-real-estate-market-update-what-may-2025-means-you/
[16] FAA Advisory Circular, 150/5000-9B, Guidelines for Sound Insulation of Structures Exposed to Aircraft Noise, dated 6/8/2022.

In order to be eligible, the dwelling unit must meet, at a minimum, the following criteria:

1) Located within the 65 DNL contour of an FAA-accepted NEM
2) Constructed before October 1, 1998
3) Adherence with local building codes[17]
4) An average noise level in habitable rooms at or above 45 DNL (with windows closed)

The goal of sound insulation under 14 CFR Part 150 is to provide an average interior noise level of 45 DNL or below and to provide at least a 5-dB improvement to the structure. Sound insulation does not change the outdoor noise environment (e.g., backyards, patios, and courtyards).

Block Rounding

According to Section 6.3.4 of the FAA Advisory Circular, 150/5000-9B, a dwelling unit located outside of the DNL 65 dB contour may be eligible for sound insulation in some circumstances. Dwelling units located on or immediately outside the 65 DNL contour may be eligible for sound insulation treatments under the concept of "block rounding." Block rounding involves expanding noise mitigation just beyond the 65 DNL contour to "include parcels contiguous to the project area."[18] The FAA has the option, but is not obligated, to approve a request for block rounding if all requirements in Appendix R, including Table R-2 of the AIP Handbook are met, such as being a noise-sensitive land use, having an average sound level above 45 DNL in habitable rooms, and being constructed before October 1, 1998.

In addition, pursuant to Section 6.3.5 of the FAA Advisory Circular, 150/5000-9B, an airport sponsor may "consider the use of neighborhood equity when a few dwelling units in the eligible noise contour (pursuant to Paragraph R-6 in the AIP Handbook) that do not meet the interior noise level requirements are scattered among dwelling units that meet the interior noise level criteria."[19] The FAA has the option, but is not obligated, to approve such requests for consideration of neighborhood equity. The dwelling units in consideration would have to meet all other eligibility requirements, such as being a noise-sensitive land use, having an average sound level above DNL 45 in habitable rooms, and being constructed before publication of FAA- accepted noise contours.

Avigation Easements

In exchange for accepting sound insulation under this measure, GIAA will require the property owner to provide an avigation easement. An avigation easement grants rights of overflight in the airspace above or near a property. It also grants the right to create noise or other effects that may result from the lawful operation of aircraft, and the right to remove any obstructions to overflight, in the nearby airspace. The property owner has restricted use of their property subject to the airport sponsor's easement for overflight and other applicable restrictions on the use and development of the parcel. Avigation easements run with the land (i.e., are attached to the property for so long as the easement is in effect).

Table 1 of Appendix A in 14 CFR Part 150 (included in this report as **Table 1-2**) indicates that residential land uses are not compatible with aircraft noise exposure of 65 DNL or higher. Therefore, an avigation easement provided at the time of the sound insulation binds future property owners and informs them of the property's exposure to aircraft noise while also restricting use of the parcel as described in the avigation easement.

Table 3-7 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this land use measure.

[17] Areas within a structure that do not meet the local building code are not "habitable" under FAA requirements and, therefore, are not eligible for sound insulation that is funded with AIP grants. The AIP Handbook, Appendix R, provides the following example of an area that is not eligible for sound insulation: "A resident has converted part of a basement to a bedroom and the bedroom conversion does not meet the building code requirements to be categorized as a bedroom. The converted bedroom is not considered habitable space."

[18] FAA, AIP Handbook, https://www.faa.gov/airports/aip/aip_handbook/appendix#PR09

[19] FAA, AIP Handbook, https://www.faa.gov/airports/aip/aip_handbook/appendix#PR10

Table 3-7. Implementation Summary for Recommended Land Use Measure: Sound Insulate Noise Sensitive Structures

Implementation Item	Discussion
Benefits	Installation of sound insulation and positive ventilation treatments provides adequate noise reduction inside people's homes for compatibility with indoor activities. Once treated, a property is considered compatible with aircraft noise. This measure could benefit up to 753 people in 251 housing units exposed to noise levels 65 DNL or higher.
Rationale	GIAA is recommending this Land Use Measure because it continues an existing program and could be an effective way to provide appropriate noise level reduction inside eligible housing units.
Responsible Parties	GIAA.
Estimated Costs	$21.9 million[20] to provide sound insulation treatments to approximately 251 housing units and 753 people, subject to the assumptions and limitations set forth in **Section 3.3.1.3**.
Funding Sources	80 percent of eligible costs FAA Airport Improvement Program and 20 percent GIAA.
Requirements	FAA approval; identification of eligible properties; secured funding to sound insulate properties.
Estimated Schedule	GIAA would look to restart the RSSP within six months of FAA Approval. It could take several years to complete the remaining homes within the program.

Source: GIAA 2025

Conclusions: *Land Use Measure: Sound Insulate Noise Sensitive Structures* could provide immediate aid to those continually affected by the excessive aircraft noise. Sound Insulating buildings and creating a compatible noise level could be an effective way to improve compatibility with aircraft noise.

3.3.2 Preventive Land Use Measures

Based on the experience of other airports and according to the FAA, the preventive land use measures discussed in this section can be effective in preventing the development of new noncompatible land uses. It is up to state and local governments to decide whether to pursue preventive land use management measures to reduce noncompatible land use. Consistent with the requirements of 14 CFR Part 150, Sec.150.23, GIAA included land use planning entities in the communities surrounding the Airport as part of the PAC. As part of this consultation, GIAA educated the committee about the potential benefits of preventive land use measures and gauged their level of interest in potentially pursuing any of these approaches.

3.3.2.1 Establish and Implement an Airport Noise Overlay Zone

Airport noise overlay zones are intended to prevent noncompatible land uses from being developed near an airport. The noise overlay zone works in tandem with the local jurisdictions' existing zoning and provides detailed information regarding the recommended land uses within the overlay zone, such as noise level reduction required for noise-sensitive structures. If the overlay zone allows for noncompatible land uses, such as residential, schools and churches, then the overlay zone could also include specific building codes to ensure compatibility and the addition of avigation easements. However, the FAA does not encourage the introduction of new noncompatible development within the DNL 65 dB contour.

[20] Costs were estimated based on average cost for mitigation in 2016 adjusted for inflation to 2025 costs and multiplied by 251 potential units (($65,567*33% = $87,204) x 251 units = $21.9 Million)

The DLM and GIAA showed interest in establishing airport noise overlay zones to assist in better land use compatibility with aircraft operations. An Airport Noise Overlay Zone is typically defined by noise contours or jurisdictional boundaries. For example, the 2029 DNL 60 dB contour could be used to define an Airport Noise Overlay Zone as shown in **Figure 3-1**. The hypothetical Airport Noise Overlay Zone is defined by a rectangle encompassing the DNL 60 dB contour. This approach covers the arrival paths to both runway ends and provides a buffer beyond the contour to cover future changes to departure flight paths. This zone would provide a greater than 5 dB buffer to the 2029 DNL 65 dB contour to help prevent future noncompatible land use as operations at the Airport increase resulting in potentially larger noise exposure contours.

There are three areas defined in **Figure 3-1,** and each area would have different levels of notification and recommendations.

1) The rectangle area would be the area where GIAA is notified of proposed development.
2) The DNL 60 dB contour would be the area where additional sound insulation for noise-sensitive structures is recommended.
3) The DNL 65 dB contour would be the area where new noise-sensitive development is not recommended.

Within the DNL 60 dB area, GIAA and local land use agencies would recommend developers/contractors consider sound attenuation standards for new construction of noise-sensitive structures. This would apply if DLM does not intend to pursue formal approval of soundproofing standards for new construction within the Airport noise overlay area. Adoption of sound attenuation standards would require interjurisdictional coordination and political advocacy. Because of this, GIAA and DLM will advocate for them informally through outreach to local villages and developers to encourage including sound attenuation standards for noise-sensitive development in their new building designs for construction in the Airport noise overlay area to provide sufficient noise level reduction.

GIAA would work with DLM and other local agencies to consider if new development meets noise level reduction requirements that meet or exceed a 45 dB DNL interior noise level as required for land use compatibility per Part 150 guidance.[21]

Within the DNL 60 dB contour, at a minimum, new residential structures should be constructed using the following guidelines for acoustically rated products:

- Windows: product with at least an Outdoor Indoor Transmission Class (OITC) of 32.
- Exterior stand-alone doors: product with at least an OITC of 30 to 32 or a prime door with an OITC 27 to 28 in series with a storm door with an OITC 26 to 28 which achieves OITC 30 to 32.
- Walls:
    - Masonry exterior facades: No treatment required
    - Non-masonry exterior facades:
        - With existing insulation: No treatment required
        - Without existing insulation: Add insulation in existing exterior walls or add one layer of QuietRock 510
- Air Conditioning Units: Do not use through-wall units

The overlay zone and recommendations would be incorporated into the Guidebook to Development Requirements on Guam, published by the Bureau of Statistics and Plans.

Table 3-8 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this land use measure.

[21] FAA Order 5100.38D or current version, Airport Improvement Handbook, Appendix R. and FAA Advisory Circular 150/5000-9B, Guidelines for Sound Insulation of Structures Exposed to Aircraft Noise

Table 3-8. Implementation Summary for Recommended Land Use Measure: Establish and Implement an Airport Noise Overlay Zone

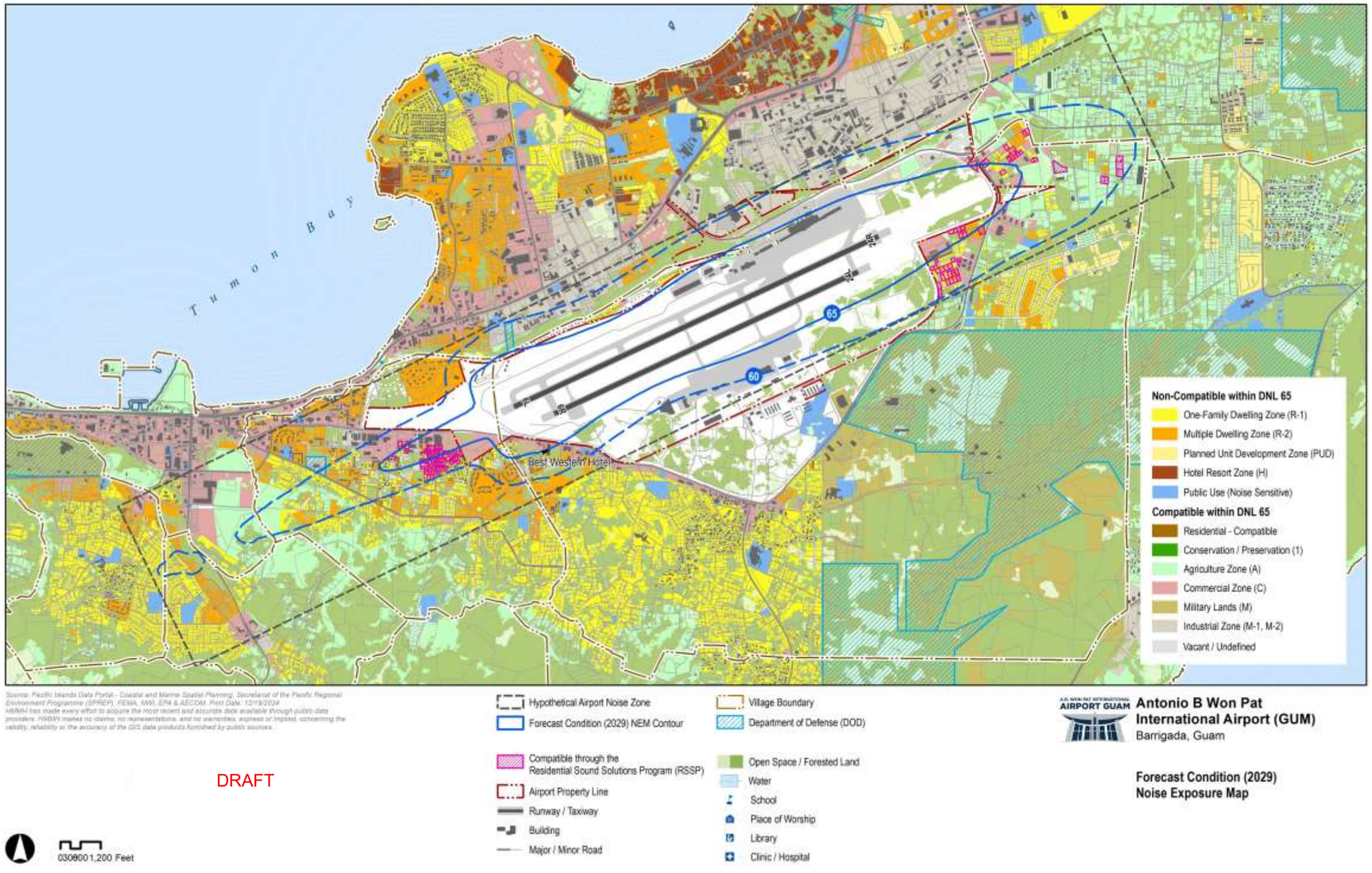
Implementation Item	Discussion
Benefits	This measure encourages compatible land uses in the airport affected area and increased public awareness of the airport affected area would promote compatible land uses.
Rationale	GIAA is recommending this measure because it may provide a long-term, cost-effective way to prevent future noncompatible land uses.
Responsible Parties	GIAA, local agencies
Estimated Costs	GIAA staff time and effort in pursuing the sub-measures
Funding Sources	GIAA
Requirements	FAA approval of this measure
Estimated Schedule	Pursuit of sound attenuation material recommendations can begin immediately and does not require FAA approval.

Source: GIAA 2025

Conclusions: *Land Use Measure: Establish and Implement an Airport Noise Overlay Zone* could allow for the creation of an area where GIAA is notified of new developments, an area where building methods would encourage sound reducing materials to help reduce future noise-related issues and not recommending additional development within the DNL 65 dB contour.

Figure 3-1. Hypothetical Airport Noise Overlay Zone

Source: GIAA



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3.4 Land Use Measures Considered but Not Recommended

GIAA considered but does not recommend the following land use measures as part of the 2025 NCP.

3.4.1 Establish a Public Information Program

This measure recommends establishing a program to develop and distribute informational materials concerning aircraft noise. Portions of this measure are incorporated into the RSSP and recommended program measures.

Reason for not recommending in this NCP:

GIAA prefers to work with interested parties and local land use agencies on an ongoing basis through other programs. Therefore, GIAA does not support this measure and recommends not continuing LU-4 from the 2003 NCP.

3.4.2 Revise Building Codes

Jurisdictions create, codify and enact into law, and periodically update building codes to protect public health, safety, and general welfare as they relate to the construction and occupancy of structures. In areas of noncompatible land use, within the 65 DNL or higher aircraft noise exposure contours, jurisdictions may implement amended building codes to ensure newly installed structures provide for adequate noise level reduction that results in compatible land use by providing acceptable interior/habitable spaces. Such amended building codes would specify a required interior noise level in terms of DNL and/or a specific noise level reduction in terms of Sound Transmission Class, Outdoor to Indoor Transmission Loss[22] or both. The result would require home builders and contractors to provide plans that provide for the required minimum noise level reduction based on the location of the parcel relative to the 65 DNL or higher aircraft noise exposure contours and the intended use of the interior space(s). This measure is not recommended for inclusion in this NCP.

Reason for not recommending in this NCP:

GIAA prefers to focus noise mitigation on those items that provide a noise benefit to the residents and users of the noncompatible structures. Housing units and non-residential structures with noise-sensitive land uses are considered compatible if constructed after October 1, 1998; therefore, raising the minimum building standards within the DNL 65 dB would not have a benefit in reducing noncompatible land uses. Therefore, GIAA does not support this measure and recommends not continuing LU-5 from the 2003 NCP.

3.4.3 Acquire Avigation Easements

An avigation easement is a conveyance of airspace over another parcel for use by the airport in exchange for a one-time cash payment from the airport to the parcel owner. As a result, the parcel owner has restricted use of the property subject to the airport sponsor's easement for overflight and other applicable restrictions on the use and development of the parcel. Easement rights acquired through an avigation easement typically include the following: the "right-of-flight" of aircraft; the right to cause noise, dust, and other environmental disturbances; the right to remove all objects protruding into the airspace together with the right to prohibit future obstructions or interference in the airspace; and the right of ingress and egress on the land to exercise the other rights acquired.

Avigation easements are intended to be attached to the parcel deed in perpetuity. The easement becomes a means to inform future owners of the parcel's exposure to aircraft noise and restrict use of the parcel as described in the avigation easement.

An appraisal is usually required for the purchase of avigation easements based on fair market value in accordance with FAA Advisory Circular 150-5100-17, "*Land Acquisition and Relocation Assistance for AIP Assisted Projects*," Section 2.2.8, "*Appraisal of Avigation Easements Acquired for Airport Operations and Standards*." The compensation value must not be set arbitrarily at the $10,000 maximum value. The easement compensation must be reasonable and relate to the actual value range for the non-complex easement acquisition.

Avigation easement acquisition will be associated with other GIAA-recommended noise mitigation measures, such as land acquisition and sound insulation, but not for compensation to the parcel owner as a stand-alone measure. This measure is not recommended for inclusion in this NCP.

[22] Sound transmission class (STC) can be used to determine the reduction of noise within a structure. STC ratings indicate how well a building partition attenuates, or decreases, airborne sound from human speech. The Outdoor to Indoor Transmission Loss (OITC) rating system measures the transmission of outdoor sounds (such as car horns, sirens, construction, and low-flying airplanes) through exterior walls, windows, doors, and other facade elements.

Reason for not recommending in this NCP:

GIAA prefers to focus noise mitigation on those items that provide a noise benefit to the residents and users of the noncompatible structures. This measure would not provide a reduction in noncompatible land use. Avigation easements will be required for parcel owners to receive noise mitigation from the RSSP recommended in **Section 3.3.1.3**. Therefore, GIAA does not support this measure and recommends not continuing LU-6 from the 2003 NCP.

3.4.4 Include Aircraft Noise in Real Estate Disclosures

Real estate disclosure is a preventive land use strategy because it is focused on raising awareness of aircraft noise exposure among potential buyers of property. Real estate disclosures provide the opportunity for the real estate purchaser to learn about the property and the seller's experience in it. Such disclosures inform buyers while also protecting the sellers from future legal action by revealing issues that negatively affect the value, usefulness, or enjoyment of the property. Some communities near airports include aircraft noise in real estate disclosure forms to ensure that the buyer is aware that the property is in the vicinity of an airport.

Reason for not recommending in this NCP:
The decision whether to pursue a policy to include aircraft noise in real estate disclosures is an issue for government entities to decide. During the NCP phase of the 14 CFR Part 150 Study, GIAA discussed this potential measure with land use agencies on the PAC, which were not supportive of this measure. Members of the PAC did not support the inclusion of aircraft noise in real estate disclosures based on concerns related to property valuation. GIAA will continue to provide public information and education to raise awareness of noise exposure potential in residential areas surrounding the Airport. Therefore, GIAA does not support this measure and recommends not continuing LU-7 from the 2003 NCP.

3.4.5 Land Banking

This measure recommends acquisition of fee-simple privately owned, private land to prevent noncompatible land use.

Reason for not recommending in this NCP:

GIAA prefers to focus noise mitigation on those items that provide a noise benefit to the residents and users of the noncompatible structures. This measure would not provide a reduction in noncompatible land use. Therefore, GIAA does not support this measure and recommends not continuing LU-8 from the 2003 NCP.

3.4.6 Property Purchase Guarantee

This measure recommended offering homeowners a purchase guarantee to assure that their property would be acquired at fair market value and returned to residential use with appropriate sound insulation measures, releases, and restrictions if the owner had made a "bona fide effort" to sell the property within the 65 DNL contour based on the 2003 NEM. The property would be sold at fair market value after sound mitigation. GIAA would prefer to purchase eligible land and convert it to a compatible land use. The land acquisition measure includes a similar option for interested property owners without a guarantee.

Reason for not recommending in this NCP:

GIAA prefers to focus noise mitigation on those items that provide a noise benefit to the residents and users of the noncompatible structures without providing a guarantee to purchase property. Therefore, GIAA does not support this measure and recommends not continuing RLU-2 from the 2003 NCP.

4.
Program Management Measures

4 Program Management Measures

Program management measures enable the GIAA to monitor the implementation and compliance of the recommended noise abatement and land use management measures in Chapters 2 and 3 of this NCP, as well as enhance stakeholders' understanding of aircraft noise. Program management measures are critical to the implementation and success of the GIAA noise program as provided in the NCP.

Section 4.1 identifies all existing program management measures from the 2003 NCP, including their implementation status. For this Part 150 Study, GIAA determined, for each measure recommended in the 2003 NCP, whether to continue as written, continue with minor modifications, or not continue the measure.

Section 4.2 describes each of the recommended program management measures in each of the six Part 150-required categories (implementation, promotion, monitoring, reporting, updating the NEM and revising the NCP) to analyze for inclusion in the updated NCP, as shown in **Table 4-1**.

Table 4-1. Summary of GIAA Recommended Program Management Measures for the 2025 NCP

Part 150 Category	Program Management Measure	
	Number	Title
Implementation	1	Noise Compatibility Staff
Monitoring	2	Land Use Advisory Committee
NEM Updating	3	Update Noise Exposure Map
NCP Revision	4	Update the Noise Compatibility Program
Promotion	5	Noise Abatement Signage
Reporting	1, 3, 4	These measures would provide reporting on the NCP.

Source: GIAA 2025

Section 4.3 discusses the program management measures considered that GIAA is not recommending in this NCP.

4.1 Prior Recommended Program Management Measures

GIAA currently has no program management measures in place to monitor aircraft noise exposure and engage local communities in understanding aircraft noise. This section describes the existing program management measures recommended in the 2003 NCP and the current implementation status of each. Table 4-2 lists the four GIAA-recommended program management measures in the 2003 NCP that were approved by the FAA in the 2003 ROA and summarizes the implementation status of each measure.

Table 4-2. Status of 2003 NCP Program Management Measures

Number	Title	Approval Status	Implementation Status	Recommendation for the 2025 NCP
PM-1	Noise Compatibility Staff	Approved	Not Implemented	Continue, see **Section 4.2.1**
PM-2	Noise Advisory Committee	Approved	Not Implemented	Modify, see **Section 4.2.2**
PM-3	Noise Monitoring Equipment	Approved	Not Implemented	Not Continue
PM-4	Flight Track Systems	Approved	Not Implemented	Not Continue

Source: GIAA 2025

4.1.1 2003 NCP PM-1: Noise Compatibility Staff

Description: This measure recommends establishing a professional staff person responsible for noise compatibility and abatement measures. The staff would provide a conduit for better community participation in noise abatement decisions and better dissemination of information.

FAA Action: **APPROVED.** This would be a single position within GIAA's new environmental division.

Implementation Status: Not Implemented.

Recommendation: Continue, see **Section 4.2.1**.

4.1.2 2003 NCP PM-2: Noise Advisory Committee

Description: This measure recommends establishing a community advisory committee that meets regularly to address noise concerns. The committee would enhance the operator's understanding of community noise concerns and increase community understanding of constraints on airport users and operators.

FAA Action: **APPROVED.** The Noise Advisory Committee would provide information to both aircraft operators and the community.

Implementation Status: Not Implemented.

Recommendation: Modify, see **Section 4.2.2**

4.1.3 2003 NCP PM-3: Noise Monitoring Equipment

Description: This measure recommends the installation of equipment to monitor and record aircraft noise levels. The equipment could be used to enhance conformance to adopt noise abatement measures.

FAA Action: **APPROVED.** This measure could provide data to the Airport on existing flight procedures and flight track adherence and the implementation of new flight procedures that may be approved by the FAA in the future. It also will be useful in providing data for updating the Part 150 study in the future. For the purposes of aviation safety, this approval does not extend to the use of monitoring equipment for enforcement purposes by in-situ measurement of any pre-set noise thresholds.

Implementation Status: Not Implemented.

Recommendation: Not Continue

4.1.4 2003 NCP PM-4: Flight Track Systems

Description: This measure recommends the installation of equipment that monitors aircraft operations and correlates data with FAA ARTS radar data. The system will be used to establish a regular program of monitoring and reporting conformance with recommended noise abatement procedures.

FAA Action: **APPROVED.** This measure could provide data to the Airport on existing flight procedures and flight track adherence and the implementation of new flight procedures that may be approved by the FAA in the future. It also will be useful in providing data for updating the Part 150 study in the future. For the purposes of aviation safety, this approval does not extend to the use of monitoring equipment for enforcement purposes by in-situ measurement of any pre-set noise thresholds.

Implementation Status: Not Implemented

Recommendation: Not Continue

4.2 Recommended Program Measures

After reviewing the prior measures, the prior NCP and other airport NCPs, and discussions from meetings with GIAA, six potential program management measures have been identified for recommendation. These six recommended measures are described below and fall under one of the Programmatic Measures Part 150 categories, which are:

- Implementation
- Promotion
- Monitoring
- Reporting
- NEM Update
- NCP revisions

4.2.1 Noise Compatibility Staff

The measure recommends the employment of one staff position to support the implementation and monitoring of the Airport-recommended Noise Compatibility Program measures. In addition, this position would provide coordination with airport management for the RSSP until its completion. This would be a continuation of PM-1 from the 2003 NCP.

Table 4-3 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this Program Management Measure.

Table 4-3. Implementation Summary for Recommended Program Management Measure: Noise Compatibility Staff

Implementation Item	Discussion
Benefits	Noise Compatibility staff will assist GIAA to understand, respond to, and address community concerns associated with aircraft noise from airport operations. In the future, staff will continue to maintain the existing NCP measures, facilitate the implementation of the new approved NCP measures and monitor adherence with them.
Rationale	GIAA is recommending this Program Management Measure because this new position would help respond to aircraft noise complaints from the public and interface with stakeholder representatives, the communities, and airport users. With the completion of the NCP, this position will be critical in successful implementation of the approved NCP measures.
Responsible Parties	GIAA
Estimated Costs	The FAA does not fund program operating expenses. GIAA will fund this position.
Funding Sources	GIAA
Requirements	FAA approval and GIAA development of the position
Estimated Schedule	GIAA would establish this position within six months of approval of the NCP.

Source: GIAA 2025

Conclusions: *Program Management Measure: Noise Compatibility Staff* will enable GIAA to continue to understand, respond to, and address community concerns associated with aircraft noise from airport operations. This position will facilitate the implementation of the new measures recommended in this NCP Report, as approved by the FAA.

4.2.2 Noise/Land Use Advisory Committee

This measure would establish a Noise/Land Use Advisory Committee that meets regularly (i.e., quarterly) where GIAA would meet with the land use agencies to discuss land use issues, challenges, and solutions related to noise compatibility. This would continue the coordination developed during the NCP development. This committee would allow GIAA to address compatible land use issues, noise issues related to zoning and permitting and engage the community in these discussions. The committee would enhance GIAA's understanding of local issues with regard to noise compatible land use and foster an exchange of information between the land use agencies and GIAA. GIAA would arrange the meeting space and set the agendas for the meetings.

Table 4-4 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this Program Management Measure.

Table 4-4. Implementation Summary for Recommended Program Management Measure: Noise/Land Use Advisory Committee

Implementation Item	Discussion
Benefits	The Noise/Land Use Advisory Committee will enable the collaboration of various land use agencies on Guam and GIAA to share aircraft noise related information pertaining to comprehensive planning, land use issues, zoning issues, and noise mitigation efforts at the Airport.
Rationale	GIAA is recommending this Program Management Measure so that there can be a collaboration and sharing of information, with various agencies on Guam, pertaining to comprehensive planning, land use issues, zoning issues, and noise mitigation efforts for the Airport.
Responsible Parties	GIAA
Estimated Costs	GIAA staff time and resources
Funding Sources	Not applicable
Requirements	GIAA to determine committee members, work with members to set up meeting protocols and committee responsibilities, and begin meeting on a regular basis
Estimated Schedule	Schedule established within six months of FAA approval of the NCP

Source: GIAA 2025

Conclusions: *Program Management Measure: Noise/Land Use Advisory Committee* will enable the collaboration of various agencies on Guam to share information pertaining to comprehensive planning, land use issues, zoning issues, and noise mitigation efforts. The committee would include land use planning agencies, local zoning jurisdictions, and other stakeholders at the Airport.

4.2.3 Update the Noise Exposure Map

The FAA requires that an airport operator update their NEMs if there is substantial change in the noise contours over noncompatible land uses. Title 14 CFR Part 150 defines a DNL 1.5 dB change or more as substantial. In addition, the FAA requires by policy that if the FAA-accepted NEM used to document project eligibility for noise compatibility planning/projects are more than five years old, the airport operator must confirm in writing to the FAA Regional Airports Division and District Office that the NEMs upon which noise compatibility planning/projects are based continue to be a reasonable representation of current and/or forecast conditions.

In the event GIAA is continuing to address noncompatible land uses around the Airport, GIAA will plan to update their NEM in 2029 unless they are able to certify that the FAA-accepted NEM continues to represent existing and/or future conditions. GIAA will also consider updating the NEM prior to 2029 if a substantial change occurs resulting in an expected change of 1.5 dB over noncompatible land uses.

Table 4-5 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this Program Management Measure.

Table 4-5. Implementation Summary for Recommended Program Management Measure: Update the Noise Exposure Map

Implementation Item	Discussion
Benefits	This measure will enable GIAA to meet Part 150 requirements if applicable changes in the noise environment occur at the Airport.
Rationale	GIAA is recommending this measure to meet the requirements of 14 CFR Part 150, Section 150.21(d).1.125.
Responsible Parties	GIAA
Estimated Costs	$800,000
Funding Sources	80 percent of eligible costs FAA Airport Improvement Program and 20 percent GIAA.
Requirements	FAA's approval of this measure; and GIAA to secure funding for the update of the Noise Exposure Map when warranted.
Estimated Schedule	To be determined when a significant change has occurred triggering the NEM update or when FAA requires an update for FAA funding of NCP measures.

Source: GIAA 2025

Conclusions: *Program Management Measure: Update the Noise Exposure Map* will enable GIAA to meet the requirements of 14 CFR Part 150, Section 150.21(d), if applicable changes in the noise environment occur at the Airport.

4.2.4 Update the Noise Compatibility Program

Title 14 CFR Part 150, Sec. 150.23(e)(9), states that NCPs must include a "[p]rovision for revising the program if made necessary by revision of the noise exposure map." This may occur if a significant change is identified that results in a revision to the NEMs. Examples of changes are a large addition of noncompatible land uses, or new elements required to achieve land use compatibility. The NCP does not require an update with each NEM update.

GIAA would update the NCP only when additional measures and/or modified measures are required to reduce noncompatible land use.

Table 4-6 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this -Program Management measure.

Table 4-6. Implementation Summary for Recommended Program Management Measure: Update the Noise Compatibility Program

Implementation Item	Discussion
Benefits	This measure will enable GIAA to meet the requirements of 14 CFR Part 150 if a revision of the NCP is made necessary by revision to the NEM for the Airport.
Rationale	GIAA is recommending this measure to meet the requirements of 14 CFR Part 150, Section 150.23(e)(9).
Responsible Parties	GIAA
Estimated Costs	$1,000,000
Funding Sources	80 percent of eligible costs FAA Airport Improvement Program and 20 percent GIAA.
Requirements	FAA's approval of this measure; and GIAA to secure funding for the update of the Noise Compatibility Program when appropriate.
Estimated Schedule	No schedule set at this time.

Source: GIAA 2025

Conclusions: *Program Management Measure: Update the Noise Compatibility Program* will enable GIAA to meet the requirements of 14 CFR Part 150, Section 150.23(e)(9), if made necessary by a revision of the NEMs for the Airport.

4.2.5 Noise Abatement Signage

GIAA would install noise abatement signs on the airfield near the ends of each runway, reminding pilots of the noise abatement program in place at the Airport. The signs could remind pilots that there are noise-sensitive areas near the Airport or that pilots should follow ICAO-A Departure profiles (if recommended in the NCP). Placing any informational signs for noise abatement procedures must comply with Advisory Circular 150/5340-18H, *Standards for Airport Sign Systems*.

Table 4-7 provides a summary of implementation requirements along with the benefits and rationale for the recommendation of this Program Management measure.

Table 4-7. Implementation Summary for Recommended Program Management Measure: Noise Abatement Signage

Implementation Item	Discussion
Benefits	Noise Abatement Signage would provide noise abatement information to the pilots using the Airport. This could include details on preferential noise abatement runway usage, and use of noise abatement departure procedures.
Rationale	GIAA could recommend this measure because the signs are an informational tool and are an effective communication method to remind pilots about noise abatement.
Responsible Parties	GIAA.
Estimated Costs	The installation of a new signage has an estimated cost of $35,000 per sign.[23] GIAA would be responsible for on-going maintenance.
Funding Sources	80 percent of eligible costs FAA Airport Improvement Program and 20 percent GIAA.
Requirements	Not applicable.
Estimated Schedule	Within one-year of FAA approval of the NCP.

Source: GIAA 2025

Conclusions: *Program Management Measure: Noise Abatement Signage will provide noise abatement information to the pilots to follow the recommended noise abatement procedures.*

[23] This is an estimated cost to be refined by GIAA

4.3 Program Management Measures Considered but Not Recommended

4.3.1 Noise Monitoring Equipment

This measure recommends the installation of equipment to monitor and record aircraft noise levels. The equipment could be used to enhance conformance to adopted noise abatement measures.

Reason for not recommending in this NCP:

Noise modeling alone is required for the purposes of Part 150. Measurements do not determine the size nor shape of the noise exposure contours utilized to assess land use compatibility. GIAA does not see a need for ongoing permanent noise monitoring since the one-time noise measurement program being considered as a program management measure will suffice. Therefore, GIAA does not support this measure and recommends not continuing PM-3 from the 2003 NCP.

4.3.2 Flight Tracking System

This measure recommends the installation of equipment that monitors aircraft operations and correlates data with FAA radar data. The system would be used to establish a regular program of monitoring and reporting conformance with recommended noise abatement procedures.

Reason for not recommending in this NCP:

GIAA does not see the value in having a flight track monitoring system, given the low volume of noise complaints and the even lower volume of complaints requiring an analysis of the flight tracks. Therefore, GIAA does not support this measure and recommends not continuing PM-4 from the 2003 NCP.

4.3.3 Noise Measurement Program

GIAA does not see a need for an ongoing permanent noise monitoring program as described in measure PM-3 from the 2003 NCP. However, GIAA is interested in obtaining information from noise measurements to engage with the community. This measure would have provided a one-time noise measurement program to collect noise measurements of airport operations at multiple sites. The program would be at least seven days and include up to six measurement locations in nearby noise-sensitive locations near the Airport. The locations will be determined by GIAA and local representatives. Radar data for the same period would be purchased and correlated with the noise event data to separate aircraft noise events from community noise events.

A one-time program was considered instead of acquiring portable monitors because if portable monitors are acquired then GIAA would then be responsible for calibrating the equipment, training staff, collecting and analyzing data and reporting on measured results. GIAA considered a one-time measurement program to be more cost effective and provide the necessary data. The monitoring program and monitoring equipment would not be used for enforcement purposes or compliance evaluations of noise abatement measures.

Reason for not recommending in this NCP:

Noise modeling alone is required for the purposes of Part 150. Measurements do not determine the size nor shape of the noise exposure contours utilized to assess land use compatibility. GIAA does not see a need for a large-scale noise measurement program since the area of the DNL 65 dB contour is near the airport and under the flight paths. GIAA is considering a one-time noise measurement site outside the DNL 65 dB contour as part of this project to provide some reference data. Therefore, GIAA does not support this measure and recommends not continuing PM-3 from the 2003 NCP.

5.
Stakeholder Engagement

5 Stakeholder Engagement

One of the opportunities afforded by an update to the Airport's Part 150, including the NCP, is stakeholder engagement. This chapter describes outreach efforts conducted throughout the development of the NCP to engage airport stakeholders. Stakeholders and those interested in airport noise compatibility planning were afforded an ongoing opportunity to learn about the Study and provide comments. This occurred through various mechanisms, including a PAC, a project initiation brochure, public draft documents, a public open house and hearing, and a 30-day public comment period. GIAA formed a PAC to ensure the key stakeholders remained engaged in the process and to efficiently keep them apprised of the progress and results.

5.1 Planning Advisory Committee

Table 5-1 provides the list of member organizations that were invited to participate on the PAC as consulting parties. The regulations governing the stakeholder consultation portions of the Part 150 process are found at 14 CFR 150.21(b) and 14 CFR 150.105(a). While a PAC is not specifically described in Part 150, GIAA created a PAC as part of this Part 150 Study in an effort to provide robust outreach and feedback related to all aspects of the Study. Not all member organizations invited to the PAC chose to send a representative, but a broad range of representatives took part, and all members were invited to each meeting whether or not they attended previous meetings. These representatives were provided multiple opportunities through the PAC to submit their views, data, and comments concerning the proposed measures of the draft Noise Compatibility Program and descriptions of forecast aircraft operations, as described in 14 CFR 150.21(b).

Table 5-1. Member Organizations on the Planning Advisory Committee

Public Agencies or Planning Agencies	FAA Officials	Regular Aeronautical Users of the Airport
• GIAA • Guam Chamber of Commerce • Guam Department of Land Management	• FAA ATCT • Western-Pacific Region, Airports Division • Honolulu Airports District Office (ADO)	• United Airlines • Japan Airlines • Federal Express • United Parcel Service • ACI • Andersen Air Force Base

Source: GIAA

GIAA scheduled PAC meetings for which the Study Team served as meeting facilitators, presented information, and engaged the members in appropriate discussions to assist in the validation of the collected information. Major topics discussed at each of the PAC meetings are presented in **Table 5-2**. Slides from PAC meeting presentations and the meeting summaries are provided in **Appendix D.1**.

Table 5-2. Meeting Topics of the Planning Advisory Committee

PAC Meeting #	Date	Topics Covered
3	11/14/2024	Review of the Noise Exposure Maps, Public Workshop and comment period. Review of potential Noise Abatement measures and introduction of Land Use measures.
4	3/14/2025	Second review of Noise Abatement measures, review of potential Land Use measures and introduction and review of potential Program Management measures.
5	10/29/2025	Review of the Draft Noise Compatibility Program, the public comment period and next steps.

Source: GIAA

5.2 Land Use Meetings

The Study Team served as meeting facilitators, presented an overview of potential land use measures, and engaged land use agencies in Guam as the agencies would be responsible for the implementation of any FAA-approved land

use measures. The presentation was distributed to each agency, and the Department of Land Use Management presented the project at the May 2025 Land Use meeting.

Table 5-3. Land Use Meetings

Meeting #	Date	Topics Covered
1	11/15/2024	Overview of the Part 150 Study and start of the NCP phase of the project. The purpose of the discussion was to review potential land use management measures that could be recommended to the FAA as part of the Noise Compatibility Plan (NCP).
2	4/16/2025	Review of the Part 150 process, introduction and review of potential Land Use measures considered by GIAA.

Source: GIAA

5.3 Public Open House and Hearing

The Study Team members as well as GIAA staff will serve as facilitators at various stations at the public open house to discuss the project and answer questions from the public. The public open house will be held during the public comment period for this NCP document and will present this draft NCP to the public and provide the opportunity for a public hearing. The public open house will be held in person with the GIAA and the Study Team. The public open house event is summarized in **Table 5-4**. The Public Hearing will start with a brief presentation and then a question-and-answer session that will be transcribed by a court reporter. The court reporter will be available during the public workshop to record any additional public comments. All open house and public hearing materials will be provided in **Appendix D.2**.

Written public comments will be accepted at the Public Workshop and all comments provided during the Public Hearing. GIAA will share the public open house and public hearing information with PAC members and elected officials to share with their constituencies. Additionally, for the public open house, GIAA will post notices to the Airport website and social media accounts on the GIAA Facebook page at @Guam International Airport Authority and Instagram at @guam_airport.

Table 5-4. Public Meeting

Meeting	Date	Topics Covered
Open House and Public Hearing	10/29/2025	Final public open house and public hearing for the presentation of the GIAA-recommended NCP measures

Source: GIAA

5.4 Public Review and Comments on the NCP Report

GIAA provided the draft NCP document for public review and comment from October 29, 2025 through December 1, 2025. An electronic version of the full draft NCP document was posted on the Airport website for the public review period at https://www.guamairport.com. A hard copy (printed paper edition) of the draft NCP document was available for public review at the following locations during normal business hours:

- At the GIAA offices, 355 Chalan Pasaheru, Tamuning, 96913, Guam
- Public Library – Nieves M. Flores Memorial Library, 254 Martyr Street, Hagåtña, Guam 96910
- Public Library – Barrigada Branch Public Library, 177 San Roque Drive, Barrigada, Guam 96913

The draft NCP document will be the primary topic of discussion at the October 29, 2025, public open house and hearing. The open house, public hearing and draft NCP document availability and comment period will be publicized through the Airport website, the local newspaper and the PAC membership.

Public comments can be submitted in writing at the public open house, during the public hearing, on comment forms at the drop boxes at the libraires, 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

The final NCP will include all public comments received prior to the close of the public comment period for the NCP document.

Public comments received on the GIAA 2025 Draft NCP will be included in **Appendix E**.

5.5 Project Website

The Part 150 Study information is available at https://www.guamairport.com. Study-related information and resources are posted on this site.

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