

Prepared for Boca Raton Airport Authority

TITLE 14 CODE OF FEDERAL REGULATIONS PART 150, AIRPORT NOISE COMPATIBILITY PLANNING

Draft Noise Exposure Map Update

Boca Raton Airport
Boca Raton, Florida

Prepared by: Ricondo & Associates, Inc.
October 2025

BOCA RATON AIRPORT AUTHORITY

PART 150 NOISE EXPOSURE MAP CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/ REVIEW COMMENTS
I. Submitting And Identifying The NEM:			
A. Submission is properly identified:			
1. 14 C.F.R. Part 150 NEM?	✓		Front Cover. Section 1, page 1-1.
2. NEM and NCP together?		✓	NEM submittal only.
3. Revision to NEMs FAA previously determined to be in compliance with Part 150?		✓	No revision to NEMs.
B. Airport and Airport Operator's name are identified?	✓		Front Cover. Section 1, page 1-1.
C. NCP is transmitted by airport operator's dated cover letter, describing it as a Part 150 submittal and requesting appropriate FAA determination?		✓	Submission is an NEM only.
II. Consultation: [150.21(b), A150.105(a)]			
A. Is there a narrative description of the consultation accomplished, including opportunities for public review and comment during map development?	✓		Section 1.2.3, page 1-3. Section 6, pages 6-1 through 6-4. Appendices D and E.
B. Identification of consulted parties:			
1. Are the consulted parties identified?	✓		Section 1.2.3, page 1-3. Section 6.1, page 6-1. Section 6.2, page 6-1. Section 6.3, page 6-3. Section 6.4, page 6-4. Appendices D and E.
2. Do they include all those required by 150.21(b) and A150.105(a)?	✓		Section 1.2.3, page 1-3. Section 6.1, page 6-1. Section 6.2, page 6-1. Section 6.3, page 6-3. Section 6.4, page 6-4. Appendices D and E.
3. Agencies in 2., above, correspond to those indicated on the NEM?	✓		Section 1.2.3, page 1-3. Section 6.1, page 6-1. Section 6.2, page 6-1. Section 6.3, page 6-3. Section 6.4, page 6-4. Appendices D and E.
C. Does the documentation include the airport operator's certification, and evidence to support it, that interested persons have been afforded adequate opportunity to submit their views, data, and comments during map development and in accordance with 150.21(b)?	✓		Sponsor's Certification, page i. Section 6, pages 6-1 through 6-4. Appendices D and E.
D. Does the document indicate whether written comments were received during consultation and, if there were comments, that they are on file with the FAA regional airports division manager?	✓		Section 6.3, pages 6-3 and 6-4. Appendices D and E.
III. General Requirements: [150.21]			
A. Are there two maps, each clearly labeled on the face with year (existing condition year and one that is at least 5 years into the future)?	✓		Appendix F.

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/ REVIEW COMMENTS
III. General Requirements: [150.21] ***[continued]***			
B. Map currency:			
1. Does the year on the face of the existing condition map graphic match the year on the airport operator's NEM submittal letter?	✓		Cover letter. Appendix F.
2. Is the forecast year map based on reasonable forecasts and other planning assumptions and is it for at least the fifth calendar year after the year of submission?	✓		Section 1.2.2, pages 1-2 and 1-3. Section 4.3.1, pages 4-1 and 4-2. Appendix F.
3. If the answer to 1 and 2 above is no, the airport operator must verify in writing that data in the documentation are representative of existing condition and at least 5 years' forecast conditions as of the date of submission?		✓	Not applicable.
C. If the NEM and NCP are submitted together:		✓	See I.A.2 above.
1. Has the airport operator indicated whether the forecast year map is based on either forecast conditions without the program or forecast conditions if the program is implemented?	n/a	n/a	
2. If the forecast year map is based on program implementation:			
a. Are the specific program measures that are reflected on the map identified?	n/a	n/a	
b. Does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?	n/a	n/a	
3. If the forecast year NEM does not model program implementation, the airport operator must either submit a revised forecast NEM showing program implementation conditions [B150.3(b), 150.35(f)] or the sponsor must demonstrate the adopted forecast year NEM with approved NCP measures would not change by plus/minus 1.5 DNL? (150.21(d))	n/a	n/a	
IV. Map Scale, Graphics, and Data Requirements: [A150.101, A150.103, A150.105, 150.21(a)]			
A. Are the maps of sufficient scale to be clear and readable (they must not be less than 1" to 2,000'), and is the scale indicated on the maps? (*Note (1) if the submittal uses separate graphics to depict flight tracks and/or noise monitoring sites, these must be of the same scale, because they are part of the documentation required for NEMs.*) (*Note (2) supplemental graphics that are not required by the regulation do not need to be at the 1" to 2,000' scale*)	✓		Section 2, Exhibit 2-4, page 2-8. Section 4, Exhibits 4-1 through 4-4, pages 4-7 through 4-10. Appendix F.
B. Is the quality of the graphics such that required information is clear and readable? (*Refer to C. through G., below, for specific graphic depictions that must be clear and readable*)	✓		Section 2, Exhibit 2-4, page 2-8. Section 4, Exhibits 4-1 through 4-4, pages 4-7 through 4-10. Appendix F.
C. Depiction of the airport and its environs:			
1. Is the following graphically depicted to scale on both the existing condition and forecast year maps?			
a. Airport boundaries	✓		Appendix F.
b. Runway configurations with runway end numbers	✓		Appendix F.

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/ REVIEW COMMENTS
IV. Map Scale, Graphics, and Data Requirements: [A150.101, A150.103, A150.105, 150.21(a)] ***[continued]***			
2. Does			
a. A land use base map depicting streets and other identifiable geographic features	✓		Appendix F.
b. The area within the DNL[1] 65 dB (or beyond, at local discretion)	✓		Section 3.2, page 3-1. Appendix F. The depiction of the off-airport data includes the area within the DNL 60 dBA per sponsor discretion.
c. Clear delineation of geographic boundaries and the names of all jurisdictions with planning and land use control authority within the DNL 65 dB (or beyond, at local discretion)	✓		Section 3.4, page 3-4. Appendix F. The depiction of the off-airport data includes a clear delineation of geographic boundaries and the name of the City of Boca Raton, which is the land use agency for all areas within the DNL 60 dBA contours.
D. 1. Continuous contours for at least the DNL 65, 70, and 75 dB?	✓		Appendix F.
2. Has the local land use jurisdiction(s) adopted a lower local standard and if so, has the sponsor depicted this on the NEMs?	✓		Section 3.2, page 3-1. Appendix F.
3. Based on current airport and operational data for the existing condition year NEM, and forecast data representative of the selected year for the forecast NEM?	✓		Section 1.2.2, pages 1-1 and 1-2. Section 4.3.1, pages 4-1 and 4-2.
E. Flight tracks for the existing condition and forecast year timeframes (these may be on supplemental graphics which must use the same land use base map and scale as the existing condition and forecast year NEM), which are numbered to correspond to accompanying narrative?	✓		Section 4, Exhibits 4-1 through 4-4, pages 4-7 through 4-10.
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map and scale as the official NEMs)	✓		Section 2, Exhibit 2-4, page 2-8.
G. Noncompatible land use identification:			
1. Are noncompatible land uses within at least the DNL 65 dB noise contour depicted on the map graphics?	✓		Appendix F.
2. Are noise sensitive public buildings and historic properties identified? (*Note: If none are within the depicted NEM noise contours, this should be stated in the accompanying narrative text.*)	✓		Section 3, Exhibit 3-1, page 3-3. Appendix F.
3. Are the noncompatible uses and noise sensitive public buildings readily identifiable and explained on the map legend?	✓		Appendix F.
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?	✓		Section 5.1, page 5-1. Section 5.2, page 5-3.

[1] [CNEL for California airports]

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/ REVIEW COMMENTS
V. Narrative Support of Map Data: [150.21(a), A150.1, A150.101, A150.103]			
A. 1. Are the technical data and data sources on which the NEMs are based adequately described in the narrative?	✓		Section 2.2, page 2-1. Section 3.3, pages 3-1 through 3-4. Section 4.3, pages 4-1 through 4-10. Appendix B. Appendix C.
2. Are the underlying technical data and planning assumptions reasonable?	✓		Section 2.2, page 2-1. Section 3.3, pages 3-1 through 3-4. Section 4.3, pages 4-1 through 4-10. Appendix B. Appendix C.
B. Calculation of Noise Contours:			
1. Is the methodology indicated?	✓		Section 1.2.2, page 1-2. Section 4.2, page 4-1. Section 4.3, pages 4-1 through 4-10.
a. Is it FAA approved?	✓		Section 1.2.2, page 1-2. Section 4.2, page 4-1. Section 4.3, pages 4-1 through 4-10.
b. Was the same model used for both maps? (*Note: The same model also must be used for NCP submittals associated with NEM determinations already issued by FAA where the NCP is submitted later, unless the airport sponsor submits a combined NEM/NCP submittal as a replacement, in which case the model used must be the most recent version at the time the update was started.*)	✓		Section 1.2.2, page 1-2. Section 4.2, page 4-1. Section 4.3, pages 4-1 through 4-10.
c. Has AEE approval been obtained for use of a model other than those that have previous blanket FAA approval?		✓	FAA-approved model was used. Section 1.2.2, pages 1-2 and 1-3. Section 4.2, page 4-1.
2. Correct use of noise models:			
a. Does the documentation indicate, or is there evidence, the airport operator (or its consultant) has adjusted or calibrated FAA-approved noise models or substituted one aircraft type for another that was not included on the FAA's pre-approved list of aircraft substitutions?		✓	No adjustments or calibrations to FAA-approved noise model and aircraft types were made and no substitutions not included on the FAA pre-approved list within the noise model database were made, as noted in Section 4.2, page 4-1.
b. If so, does this have written approval from AEE, and is that written approval included in the submitted document?	n/a	n/a	
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?	n/a	n/a	

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/ REVIEW COMMENTS
V. Narrative Support of Map Data: [150.21(a), A150.1, A150.101, A150.103] ***[continued]***			
4. For noise contours below DNL 65 dB, does the supporting documentation include an explanation of local reasons? (*Note: A narrative explanation, including evidence the local jurisdiction(s) have adopted a noise level less than DNL 65 dB as sensitive for the local community(ies), and including a Table or other depiction of the differences from the Federal table, is highly desirable but not specifically required by the rule. However, if the airport sponsor submits NCP measures within the locally significant noise contour, an explanation must be included if it wants the FAA to consider the measure(s) for approval for purposes of eligibility for Federal aid.*)	✓		Section 1.2.2.4, page 1-3. Section 3.2, page 3-1.
C. Noncompatible Land Use Information:			
1. Does the narrative (or map graphics) give estimates of the number of people residing in each of the contours (DNL 65, 70 and 75, at a minimum) for both the existing condition and forecast year maps?	✓		Section 5.1, page 5-1. Section 5.2, page 5-3.
2. Does the documentation indicate whether the airport operator used Table 1 of Part 150?	✓		Section 3.2, page 3-1.
a. If a local variation to Table 1 was used:		✓	Not applicable.
(1) Does the narrative clearly indicate which adjustments were made and the local reasons for doing so?	n/a	n/a	
(2) Does the narrative include the airport operator's complete substitution for Table 1?	n/a	n/a	
3. Does the narrative include information on self-generated or ambient noise where compatible or noncompatible land use identifications consider non-airport and non-aircraft noise sources?	✓		Section 3.5, page 3-5.
4. Where normally noncompatible land uses are not depicted as such on the NEMs, does the narrative satisfactorily explain why, with reference to the specific geographic areas?	✓		Section 5.1, page 5-1. Section 5.2, page 5-3.
5. Does the narrative describe how forecast aircraft operations, forecast airport layout changes, and forecast land use changes will affect forecast compatibility in the future?	✓		Section 2.2, page 2-1. Section 5.2, page 5-3. Section 5.3, page 5-6.
VI. Map Certifications: [150.21(b), 150.21(e)]			
A. Has the operator certified in writing that interested persons have been afforded adequate opportunity to submit views, data, and comments concerning the correctness and adequacy of the draft maps and forecasts?	✓		Sponsor's Certification, page i.
B. Has the operator certified in writing that each map and description of consultation and opportunity for public comment are true and complete under penalty of 18 U.S.C. § 1001?	✓		Sponsor's Certification, page i.

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1. INTRODUCTION

The Boca Raton Airport Authority (BRAA or Authority), as the airport sponsor, has updated the aircraft Noise Exposure Maps (NEMs) for Boca Raton Airport (BCT or Airport) in accordance with Title 14 Code of Federal Regulations (CFR) Part 150*, Airport Noise Compatibility Planning* (14 CFR Part 150). The purpose of this NEM Update is to identify the existing and future aircraft noise conditions (or noise conditions) around the Airport and assess the compatibility of existing and planned land uses with aircraft noise (or noise), based on the guidelines in 14 CFR Part 150, Appendix A, Table A-1, and locally adopted standards.

The first 14 CFR Part 150 study for BCT was conducted in 1989,[1] with the FAA accepting the NEMs and approving the Noise Compatibility Program (NCP) in 1991.[2] The most recent FAA-accepted NEM for BCT was in January 2002[3] and the NCP update was approved by FAA in July 2002.[4] In 2017, BRAA evaluated aircraft noise exposure (or noise exposure) in areas around the Airport, but the resulting aircraft noise contours (or noise contours) remained within the Airport property boundary, and no noncompatible land uses were identified.[5] As a result, a formal NEM Update was not submitted to the FAA. Subsequent changes in aircraft operations since 2017 have prompted BRAA to prepare a formal NEM Update to reassess land use compatibility and revise the FAA-accepted NEMs to reflect current and future noise exposure at the Airport.

1.1 TITLE 14 CODE OF FEDERAL REGULATIONS PART 150 OVERVIEW

The regulations and guidelines for airport sponsors to conduct airport noise compatibility planning were established by 14 CFR Part 150. These regulations were issued by the FAA under the Aviation Safety and Noise Abatement Act of 1979, Public Law 96-193, which mandated a standardized methodology for measuring aircraft noise, determining noise exposure, and identifying land uses that are typically compatible with varying levels of noise. The regulations provide a mechanism for airport sponsors to study aircraft noise, inform the public of existing and future noise exposure and associated noncompatible land uses, and develop measures to reduce or prevent the introduction of new noncompatible land uses. Under the Aviation Safety and Noise Abatement Act of 1979, airport operators may prepare and submit NEMs voluntarily to the FAA for review and acceptance.[6] However, following a 14 CFR Part 150 study, the airport sponsor must update the NEMs whenever there is a significant change in the noise environment.[7] Additional information on 14 CFR Part 150 is provided in **Appendix A**.

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1 Federal Aviation Administration, Part 150, *Planning Data and Noise Compatibility Program Status – Florida*, https://www.faa.gov/airports/environmental/airport_noise/part_150/states/fl (accessed August 28, 2025).

2 The first noise study conducted in accordance with 14 CFR Part 150 at BCT consisted of the development of NEMs and an NCP. NEMs contain detailed information regarding existing and future aircraft noise exposure patterns and affected land uses. NCPs include descriptions and evaluations of noise abatement and noise mitigation options to improve land use compatibility in areas surrounding airports.

3 Federal Aviation Administration*, Noise Exposure Map Notice; Receipt of Noise Compatibility Program and Request for Review Boca Raton, Airport Boca Raton, Florida*. 67 Federal Register (FR) 1262 (January 9, 2002).

4 Federal Aviation Administration*, Approval of Noise Compatibility Program, Boca Raton Airport, Boca Raton, FL*. 67 FR 47878 (July 22, 2002).

5 A noncompatible land use means that the sound exposure at a given use is generally not compatible because the cumulative noise exposure is above the thresholds identified in 14 CFR Part 150, Appendix A, Table 1.

6 The regulations in 14 CFR Part 150 are voluntary for airport operators. However, accepted NEMs and an approved NCP are necessary for federal financial participation in noise abatement measures relating to 14 CFR Part 150 at an airport.

7 14 CFR Part 150, Sec. 150.21(d).

1.2 APPROACH TO PREPARING NOISE EXPOSURE MAPS

This section summarizes the approach used to update the NEMs for BCT. In accordance with 14 CFR Part 150, the FAA requires airport sponsors to prepare two official NEMs, with the first presenting the existing noise exposure levels and surrounding land uses. The second NEM shows the expected noise exposure levels at least 5 years from the date of submission to the FAA, representing forecast conditions. Accordingly, this NEM Update includes two maps showing noise contours and land uses for both existing conditions (2025) and future conditions (2030). A summary of the methodology and noise metrics used to develop these NEMs is provided in the following subsections.

1.2.1 NOISE METRICS

The FAA requires NEMs prepared under 14 CFR Part 150 to use the yearly day-night average sound level (DNL) metric to quantify cumulative noise from all aircraft operations averaged over a 24-hour period based on a full calendar year of operations, known as the annual average day. Expressed in A-weighted[8] decibels (dBA), the DNL metric was developed under US Environmental Protection Agency guidance and reflects extensive research on transportation noise and its effects on human annoyance, particularly in residential areas. Nighttime operations (10:00 p.m. to 7:00 a.m.) have a 10 dBA penalty in the DNL calculation to account for increased human sensitivity and lower ambient noise levels at night.

1.2.2 METHODOLOGY

Noise contours are generated using FAA-approved modeling software to represent varying levels of noise exposure around airports. These contours identify areas subject to different noise levels and support land use compatibility planning. This section provides a brief overview of the technical methodology used for updating the NEMs. Additional information on noise contour development is presented in Section 4.

1.2.2.1 DATA COLLECTION

A comprehensive dataset on aircraft operations and surrounding land uses at BCT was collected to support the NEM Update and characterize aircraft-related noise and its effects on nearby communities. The data collection focused on calendar year 2024, which represents the most recent full year of data available when the study began.

The information collected and analyzed for updating the NEMs included:

- **Airport Layout:** Compiled from the current FAA-approved Airport Layout Plan in the most recent Master Plan Update (MPU).[9] See Section 2 for additional Airport details.
- **Land Use:** Existing land uses within the study area were mapped, and anticipated future changes in land use were considered in the NEM Update. See Section 3 for further details.
- **Aircraft Activity:** All aircraft operating at BCT were analyzed, including total annual operations, fleet mix,[10] time-of-day distributions, and typical aircraft flight paths and profiles. Additional information is presented in Section 4.

[8] A-weighting refers to a set of frequency-based adjustments applied to measured sound levels that approximate human perception of common environmental sounds.

[9] Florida Department of Transportation, *Final Approval of Airport Master Plan and Airport Layout Plan, Boca Raton Airport*, June 7, 2024.

[10] Aircraft fleet mix refers to the proportion of Airport operations by specific aircraft category.

1.2.2.2 FORECAST CONDITIONS

A forecast of aircraft activity was developed to generate the 2030 future conditions noise exposure contours, representing anticipated noise exposure levels at least 5 years after submission of this NEM Update to the FAA. The forecast follows the methodology used in the Airport MPU, which the FAA approved on May 25, 2021. The FAA approved the aircraft activity level forecast for use in this NEM Update on June 10, 2025 (see **Appendix B**). Additional information on the future aircraft activity levels used in updating the NEMs is provided in Section 4.

1.2.2.3 AIRCRAFT NOISE MODELING

Noise exposure contours for the 2025 Existing Conditions and 2030 Future Conditions NEMs were generated using Version 3g of the FAA Aviation Environmental Design Tool (AEDT), the latest version at the time of this NEM Update. Section 4 describes the AEDT and aircraft noise modeling process.

1.2.2.4 PREPARATION OF NOISE EXPOSURE MAPS

A geographic information system (GIS) was used to develop the 2025 Existing Conditions and 2030 Future Conditions NEMs by mapping the AEDT-generated noise exposure contours over local land use data. NEMs provide a visual representation of aircraft noise levels at and around an airport using contour lines delineating areas of equal noise exposure measured in DNL. The NEMs were updated in accordance with the criteria and guidelines in 14 CFR Part 150, Part B. The official updated NEMs are provided in **Appendix F** of this report.

FAA regulations require NEMs to depict DNL contours of 65, 70, and 75 dBA, but airport sponsors may also include lower-level contours. As the Authority uses the DNL 60 dBA contour for land use compatibility planning, this NEM Update identifies compatible and noncompatible land uses within the DNL 60 dBA and higher contours. Section 3.3 provides further information on the local land use regulations designed to ensure compatibility with the noise environment generated by aircraft operating at the Airport.

1.2.2.5 AIRCRAFT NOISE IMPACT ANALYSIS

The GIS analysis identified the type of land uses classified by the FAA as noncompatible with aircraft noise exposure for both the 2025 Existing Conditions and 2030 Future Conditions NEMs. It also quantified the number of people, households, and noise-sensitive sites exposed to DNL 60 dBA or higher. Additional details are provided in Section 5.

1.2.3 CONSULTATION AND PUBLIC INVOLVEMENT

Sections 150.21(b) and A150.105(a) of 14 CFR Part 150 require that all interested parties be involved in the development of NEMs and supporting documentation to be submitted to the FAA. Section 6 describes the consultation and public involvement process employed by BRAA for the NEM Update. The parties involved in preparing this NEM Update include:

- **BRAA**: As the Airport sponsor, BRAA led efforts to engage all interested parties in updating the NEMs.
- **FAA Airport District Office**: Participated through early coordination meetings.
- **Noise Technical Advisory Committee (NTAC)**: Formed to provide technical input and advice to BRAA. NTAC members included BRAA, public land use planning agencies within the anticipated noise exposure area, aeronautical users, Airport tenants, and FAA officials. The committee was involved throughout the process to review key inputs for the NEMs.
- **General Public**: Offered opportunities to provide input, including workshops where community members could comment on the draft NEMs and the data used to develop noise contours.

2. AIRPORT OVERVIEW

2.1 AIRPORT LOCATION

Situated in the City of Boca Raton (the City) in Palm Beach County, Florida, BCT is just 2 miles west of the Atlantic Ocean shoreline, approximately 18 miles north of Fort Lauderdale, and 24 miles south of West Palm Beach (see **Exhibit 2-1**). Recognized in the FAA's National Plan of Integrated Airport Systems and by the Florida Department of Transportation's Aviation and Spaceport Office, BCT functions as a general aviation (GA) reliever airport for two major commercial airports: Palm Beach International Airport (PBI), a medium-hub[11] facility 18.3 nautical miles to the north, and Fort Lauderdale–Hollywood International Airport, a large-hub[12] facility 18.5 nautical miles to the south.

2.2 AIRPORT PHYSICAL FACILITIES

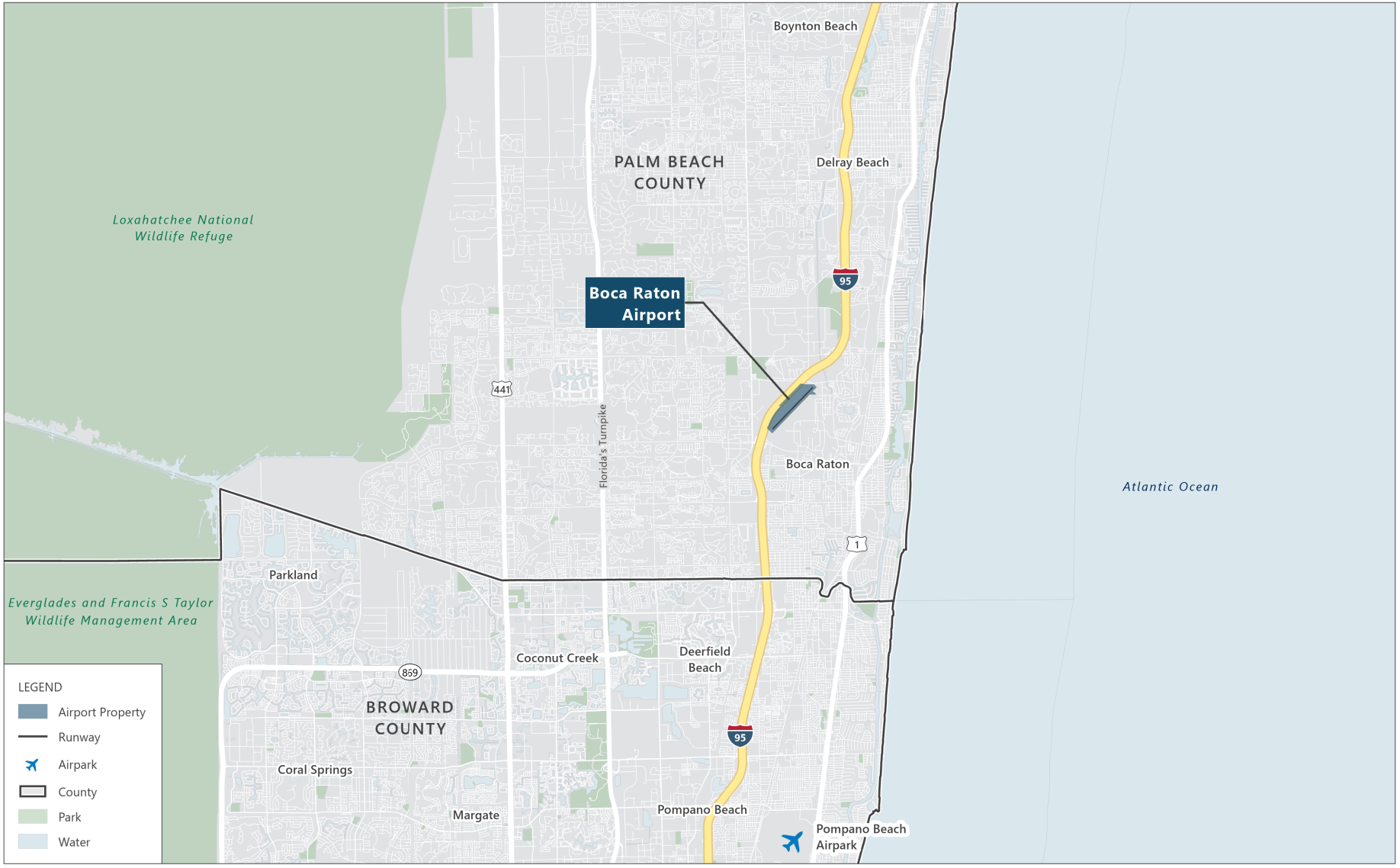
The Airport includes a range of facilities that support airfield operations, GA activities, and landside access (see **Exhibit 2-2**). These are runways, taxiways, aircraft aprons, hangars, terminal buildings, and supporting infrastructure such as navigational aids, lighting systems, and utilities. This section provides an overview of the existing physical facilities at the Airport, including size, location, and operational role, to establish a baseline for this NEM Update. BRAA has confirmed that no changes to the airfield layout are planned within the next 5 years, ensuring that the current configuration forms the basis for the existing and future conditions noise analysis.

2.2.1 RUNWAY AND TAXIWAY

As shown in **Table 2-1**, Runway 5-23 is the sole runway at BCT, measuring 6,276 feet long and 150 feet wide, with no paved shoulders. The landing thresholds are displaced by 696 feet on Runway 5 and 378 feet on Runway 23, reducing the available landing distance for each approach. Both runway ends are equipped with engineered materials arresting systems, which enhance safety by decelerating aircraft that overrun the runway to protect adjacent areas.

[11] The FAA classifies commercial service airports based on the percentage of US commercial enplanements handled. Medium hubs receive between 0.25 and 1.0 percent of annual US commercial enplanements.

[12] Large hubs receive 1 percent or more of annual US commercial enplanements.

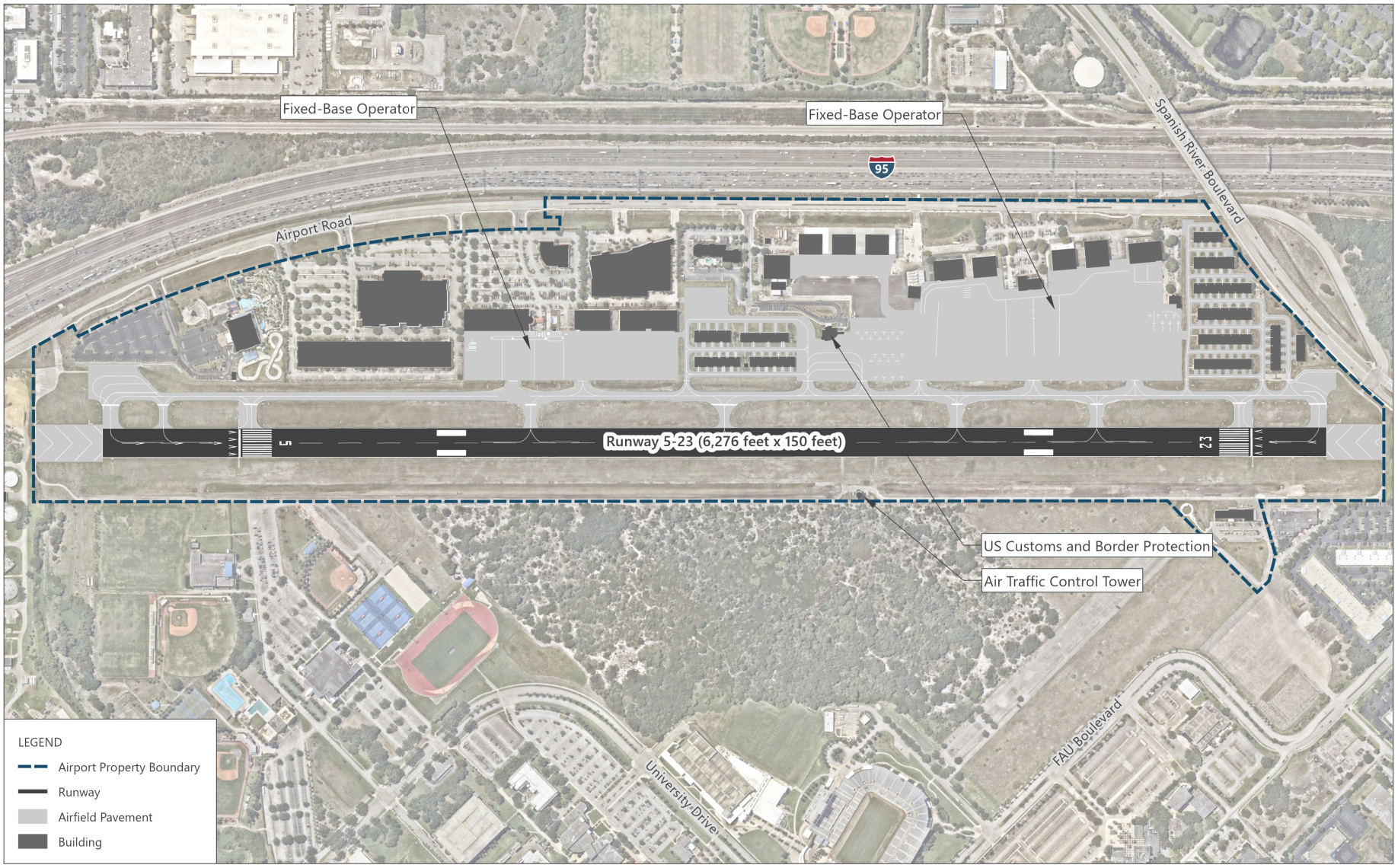


SOURCES: Boca Raton Airport Authority, 2017 (Airport property, runway); US Census Bureau, 2024 (roads, counties, water); Environmental Systems Research Institute, Inc., November 2024 (parks).

EXHIBIT 2-1

AIRPORT VICINITY MAP

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex2-1_VicinityMap_20251002



SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway, buildings, airfield pavement).

EXHIBIT 2-2

EXISTING AIRFIELD AND LANDSIDE FACILITIES

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex2-2_ExistingFacilities_20251002

TABLE 2-1 BOCA RATON AIRPORT RUNWAY CHARACTERISTICS

RUNWAY CHARACTERISTICS	RUNWAY END	
	5	23
Runway Length (feet)	6,276	
Runway Width (feet)	150	
TORA, TODA, ASDA (feet)	6,276	
LDA (feet)	5,580	5,898
Displaced Arrival Threshold (feet)	696	378
Runway End Elevation (feet above MSL)	11.5	12.7
Approach Surface Slope	36:1	41:1
Runway Markings	Non-precision	
Runway Edge Lighting	MIRLs	
Navigational Aids	RNAV (GPS), VOR/DME, GPS-A, VORTAC	
Visual Slope Indicator	4-Light PAPI	

NOTES:
DME – Distance measuring equipment
MSL – Mean sea level
MIRLs – Medium intensity runway lights
RNAV – Area navigation
PAPI – Precision approach path indicator
VOR – Very high frequency omni-directional range
VORTAC – Very high frequency omni-directional range/tactical air navigation
TORA – Takeoff run available
TODA – Takeoff distance available
ASDA – Accelerate-stop distance available
LDA – Landing distance available
SOURCE: Federal Aviation Administration, *Airport Data and Information Portal, Boca Raton Airport (BCT),* https://adip.faa.gov/agis/public/ (accessed May 23, 2025).

The taxiway system at BCT is designed to link Runway 5-23 efficiently with aviation facilities across the airfield. The primary parallel taxiway, Taxiway B, is northwest of the runway, 40 feet wide, and extends the full length of the runway, providing direct access to key operational areas. Taxiways P1 through P11 range from 20 to approximately 60 feet in width and provide access from the apron areas to Taxiway B. Taxiways B1 through B9 connect Runway 5-23 to Taxiway B, with most of them ranging between 50 and 80 feet wide.

2.2.2 GENERAL AVIATION / FIXED-BASE OPERATOR

BCT is served by two fixed-base operators (FBOs): Atlantic Aviation and Signature Aviation. Both FBOs operate 24 hours a day and provide a full range of services, including aircraft towing, fueling, and hangar space, car rental facilities, maintenance facilities, office and conference rooms, and pilot lounges. Atlantic Aviation owns five hangars and leases eight additional hangars from BRAA. Signature Aviation subleases three hangars from Premier Aviation and, in turn, subleases space in those hangars to provide maintenance and charter operations services to subtenants. Both FBOs operate the fuel farm facilities at BCT. In addition to the FBOs, BCT hosts one GA tenant, Boca Aircraft Owners, which has been operating at the Airport since 1983 and occupies eight hangars, owning two of them, with the other six owned by BRAA.

2.2.3 AIR TRAFFIC CONTROL

The Airport is served by an airport traffic control tower (ATCT) located approximately 180 feet east of Runway 5-23. The ATCT operates daily from 7:00 a.m. to 11:00 p.m. BRAA owns and maintains the ATCT, which was opened in 2000 as part of the FAA Contract Tower Program and is operated by Robinson Aviation, Inc. The Palm Beach Terminal Radar Approach Control facility at PBI provides radar approach and departure control for aircraft operating at BCT.

2.2.4 OTHER AVIATION FACILITIES

The US Department of Homeland Security opened a US Customs and Border Protection (CBP) facility at BCT in 2018 to clear passengers arriving from international originations. Housed in a one-story, 4,550-square-foot building, the facility operates Thursday through Monday between 10:30 a.m. and 8:30 p.m., with after-hours processing available upon request. The CBP facility can process up to 20 people at a time, including passengers and crew arriving on aircraft ranging from single-engine piston aircraft to large corporate jets,[13] with medium-size jets[14] accounting for the largest portion of aircraft processed.

Lynn University, a private institution, has a 2,700-square-foot facility at the Airport that includes space for classrooms and offices. Students have access to a fleet of 11 aircraft[15] for flight training conducted in accordance with 14 CFR Part 141, *Pilot Schools*.[16]

2.2.5 NON-AVIATION FACILITIES

Five tenants and subtenants currently operate non-aviation facilities on Airport property, including Boomers!, Cinemark Theatres, City Furniture / Ashley Home Store, Fairfield Inn & Suites, and Mattress Firm.

2.3 AIRSPACE CONFIGURATION

The National Airspace System is divided into three categories of airspace: controlled, uncontrolled, and special use. Controlled airspace is further classified into Classes A, B, C, D, and E, all of which require aircraft operators to establish and maintain two-way radio communications before entering and while within the designated area. BCT is within Class D airspace during hours of ATCT operations. Outside the ATCT operating hours, BCT reverts to Class G airspace, which is uncontrolled. The airspace chart for BCT is shown on **Exhibit 2-3**.

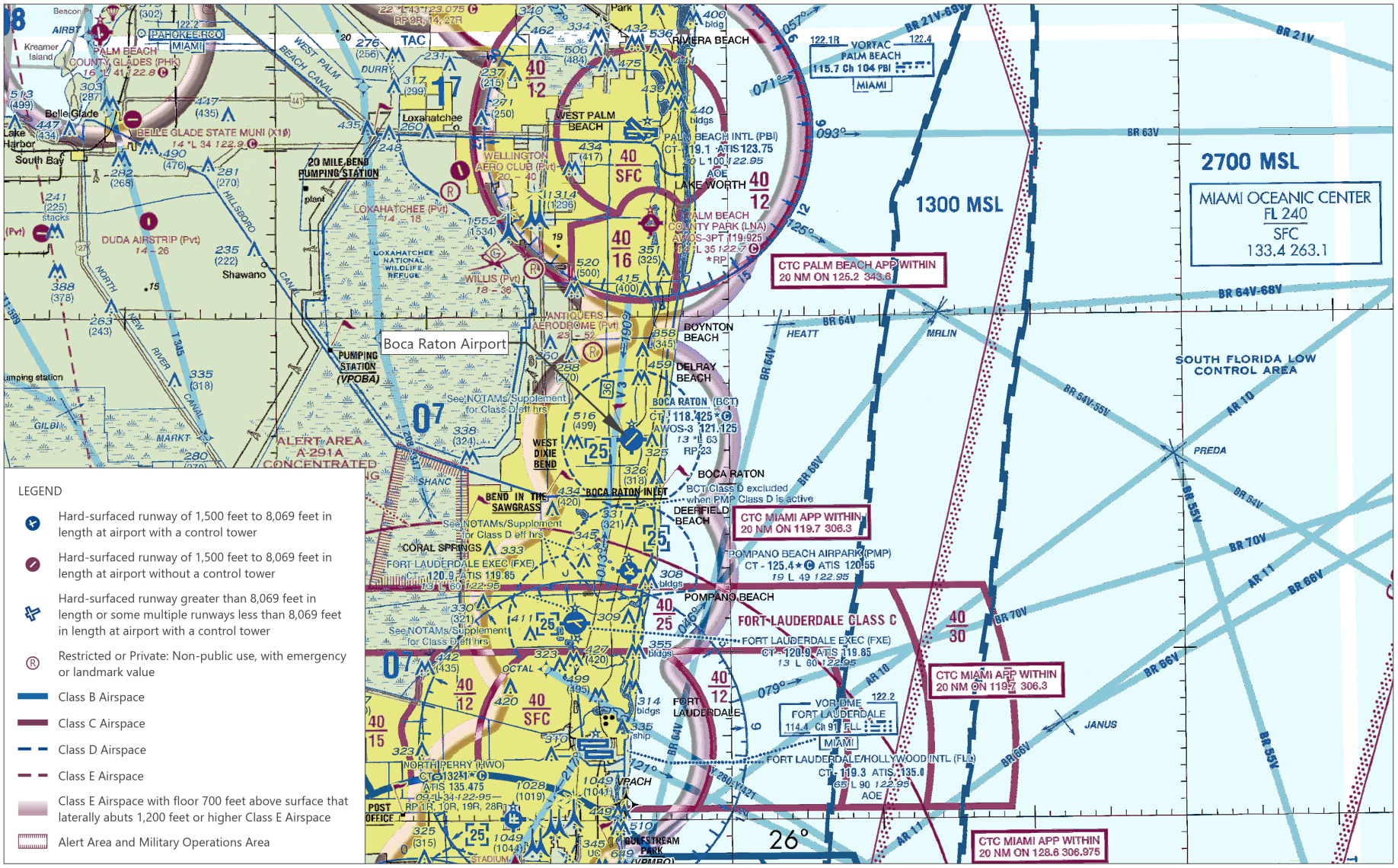
Air defense identification zones (ADIZs) and temporary flight restriction areas are not categorized as controlled, uncontrolled, or special-use airspace. Entry into an ADIZ requires aircraft registered in the United States and internationally to file and activate a flight plan with the appropriate aeronautical facility, provide identification before entering or exiting US airspace, and close the flight plan upon completion of the flight. The corridor of the contiguous US ADIZ lies east of BCT over the Atlantic Ocean.

[13] Large jet aircraft weigh more than 41,000 pounds and include models such as the Gulfstream 4, Falcon 2000, and Canadair Challenger 604.

[14] Medium jet aircraft weigh between 12,500 pounds and 41,000 pounds and include aircraft such as the Cessna 560XL Citation Excel, Canadair Challenger 300, and Learjet 60.

[15] Lynn University, "A glimpse into Lynn University's aviation history," https://www.lynn.edu/news/2023/a-glimpse-into-lynn-universitys-aviation-history (accessed April 18, 2025).

[16] Lynn University, "College of Aeronautics," https://www.lynn.edu/campus-directory/locations/aeronautics (accessed April 18, 2025).



SOURCES: Federal Aviation Administration, Visual Flight Rules, *Miami Sectional Chart*, August 2025.

EXHIBIT 2-3

NORTH 0 10 mi

BOCA RATON AIRPORT AIRSPACE

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex2-3_Airspace_20251002

2.4 CURRENT NOISE ABATEMENT PROGRAM

BCT has a noise abatement and pilot education program originally established under the FAA-approved 14 CFR Part 150 Study in 2002.[17,18] The program is closely tied to the Airport's community engagement efforts and includes the following elements:

- noise abatement procedures for pilots, including recommended flight paths
- a citizen input and noise abatement hotline
- internet-based flight tracking system
- noise abatement flight cards for pilots
- noise monitoring and flight tracking system with seven permanent noise monitors throughout the community (see **Exhibit 2-4**)

The program also includes the following voluntary measures to reduce aircraft noise:

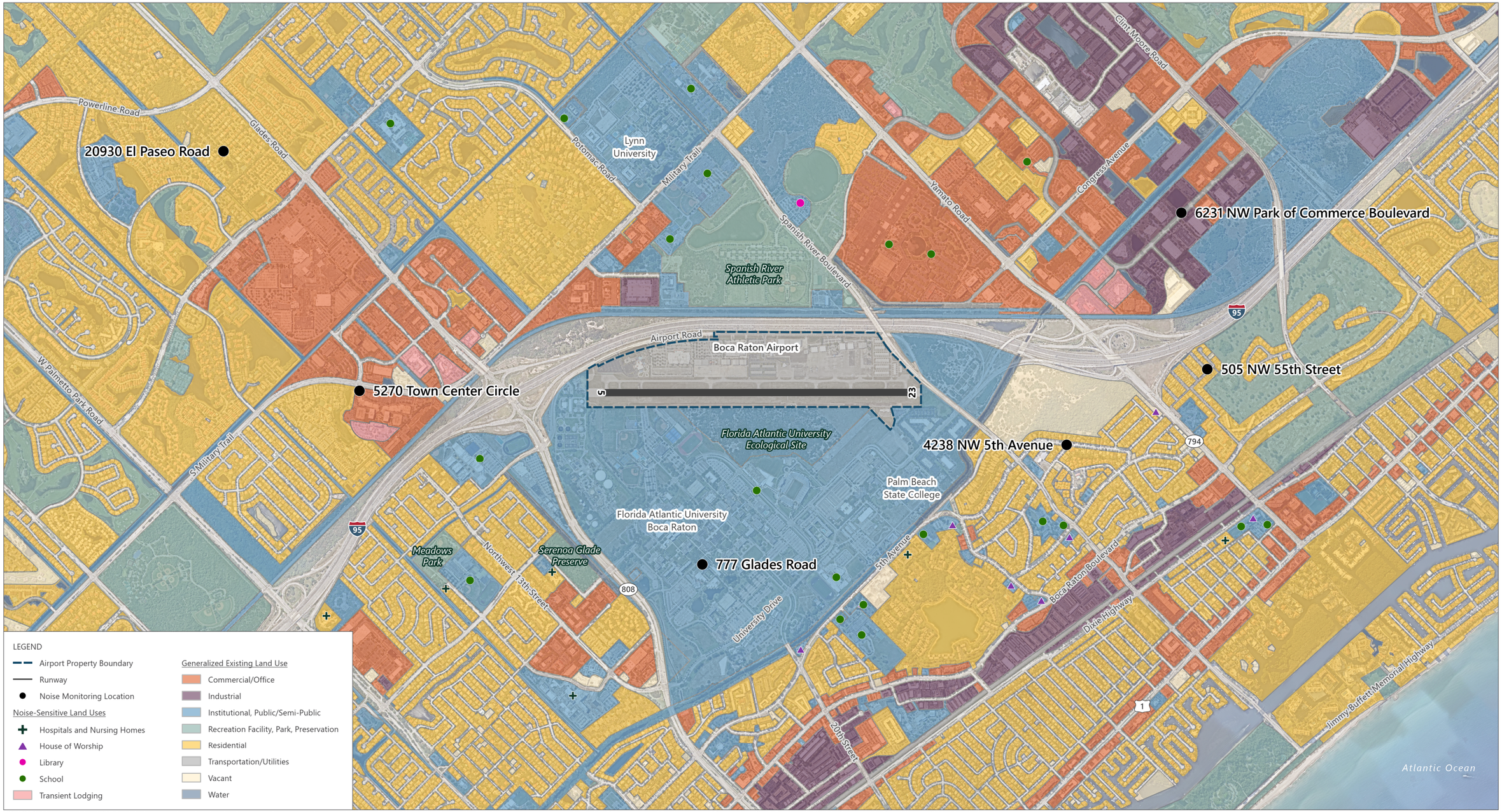
- nighttime curfew from 10:00 p.m. to 7:00 a.m.
- straight-in approaches are generally discouraged to reduce residential overflight
- touch and go activity is limited to 9:00 a.m. and 5:00 p.m., Monday through Friday
- departures that do not use the full runway (e.g., stop-and-go activities and intersection takeoffs) are discouraged
- arrivals that use the full runway are encouraged to minimize reverse thrust, which is used to slow an aircraft after landing
- use of the noise abatement procedures recommended by the National Business Aviation Association's recommended noise abatement procedures[19]
- high-power maintenance runups[20] are permitted between 8:00 a.m. and 8:00 p.m. only with ATCT authorization

[17] Boca Raton Airport Authority, *1990 BCT Part 150 Study*, August 19, 1991.

[18] Federal Aviation Administration, *Approval of Noise Compatibility Program, Boca Raton Airport, Boca Raton, FL*. 67 FR 47878 (July 22, 2002).

[19] The National Business Aviation Association publishes recommended departure and approach procedures to reduce noise impacts in communities. More information on these procedures can be found on BRAA's webpage at https://bocaairport.com/noise-abatement/procedures-for-pilots/.

[20] High-power maintenance runups are routine engine maintenance checks involving an aircraft running its engine at a high power for several minutes on the ground to verify safe performance before a flight.



SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Boca Raton Airport Authority, 2009 (noise monitoring locations); Ricondo & Associates, Inc., 2025 (lodging).

NORTH 0 2,000 ft

EXHIBIT 2-4

NOISE MONITOR LOCATIONS

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex2-4_NoiseMonitorLocations_20251002

3. LAND USE ANALYSIS

3.1 INTRODUCTION

To evaluate how land use relates to noise exposure associated with aircraft activity, 14 CFR Part 150 requires a review of land uses in areas surrounding airports. For BCT, this includes mapping land uses within the DNL 60 dBA and higher noise contours[21] and identifying noise-sensitive uses that may not be compatible with certain levels of aircraft noise exposure. The presence of noise-sensitive uses within the DNL 60 dBA contour does not automatically indicate incompatibility, but it does indicate the use may be noncompatible and warrants further investigation.

This section discusses the recommended land uses generally considered compatible under Appendix A of 14 CFR Part 150, explains the data collection and verification process, provides an overview of the municipal jurisdictions with land use authority near BCT, identifies relevant local policies, and summarizes the existing ambient noise environment.

3.2 LAND USE COMPATIBILITY

The guidelines included in Appendix A of 14 CFR Part 150 were used for determining land use compatibility within each noise exposure contour.[22] These guidelines are consistent with land use guidelines developed by other federal agencies such as the US Environmental Protection Agency and the US Department of Housing and Urban Development.

As noted in Section 1.2.1, land use compatibility is evaluated using DNL based on average annual day operations. Under the FAA guidelines in **Table A-1** of Appendix A, all land uses are generally considered compatible with aircraft noise exposure below DNL 65 dBA. However, the notes in the FAA's compatibility guidelines state that "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." Consistent with this guidance, the Authority has adopted the DNL 60 dBA contour as the threshold of land use compatibility. The City also applies the same threshold in future land use planning. In practice, BRAA considers residential land use within the DNL 60 dBA and higher contours to be noncompatible, while all other land uses are considered compatible. This is the only deviation from the compatibility guidelines in 14 CFR Part 150, Appendix A, Table 1.[23]

This NEM Update identifies compatible and noncompatible land uses within the DNL 65 dBA and higher noise contours, in accordance with Table 1 in Appendix A of 14 CFR Part 150. It also evaluates land uses within the DNL 60 dBA contour, consistent with the Authority and City's land use compatibility guidelines. While the City has established notification requirements for land development proposed within the DNL 55 dBA contour, these guidelines are not considered a land use compatibility threshold. Accordingly, the DNL 55 dBA is presented for informational purposes only and is not applied in land use compatibility planning. More information on the local land use regulations and guidelines is described in Section 3.4.

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[21] As the Record of Approval for the 1990 BCT Part 150 Study (dated August 19, 1991) shows, the FAA approved BRAA's adoption of the DNL 60 dBA contour as the boundary for determining land use compatibility.

[22] Title 14 Code of Federal Regulations Part 150, Appendix A, Table 1, *Land Use Compatibility with Yearly Day-Night Average Sound Level.*

[23] Boca Raton Airport Authority, *Boca Raton Airport Part 150 Noise Compatibility Study Update, Chapter 7, Table 7.3, Recommended BCT Noise/Land Use Compatibility Guidelines*, September 2001.

3.3 LAND USE DATA COLLECTION

A comprehensive GIS database of existing land uses in the areas surrounding the Airport was developed for the NEM Update. The database encompasses areas within approximately one mile of the Airport, covering the full extent of the DNL 60 dBA noise contour and providing a sufficient dataset to identify land uses potentially affected by aircraft noise. Land use planning and zoning documents were obtained from local jurisdictions with regulatory authority in the vicinity of the Airport to ensure consistency with 14 CFR Part 150 requirements. The City was identified as the primary jurisdiction within one mile of BCT where land uses fall within the DNL 60 dBA and higher contours. BRAA coordinated with the local jurisdictions to document existing land uses and review relevant land use controls and policies.

3.3.1 EXISTING LAND USE

The existing land use information was compiled from parcel-level data from the Florida Department of Environmental Protection.[24] The data were generalized using land use codes and descriptions to group similar categories. For example, all residential land uses of varying densities were combined under a single "residential" category. Existing land uses surrounding the Airport are shown on **Exhibit 3-1**.

The Airport is bounded by Florida Atlantic University (FAU) to the east and Interstate 95 (I-95) to the west. To the north, land uses include a mix of public land and commercial properties. Immediately east of the Airport are several public institutions, including FAU, Palm Beach State College, and Boca Raton High School. Across the El Rio Canal, the land use is predominantly residential. Southwest of the Airport, land uses consist primarily of commercial properties, including professional offices and retail establishments.

3.3.2 FUTURE LAND USE

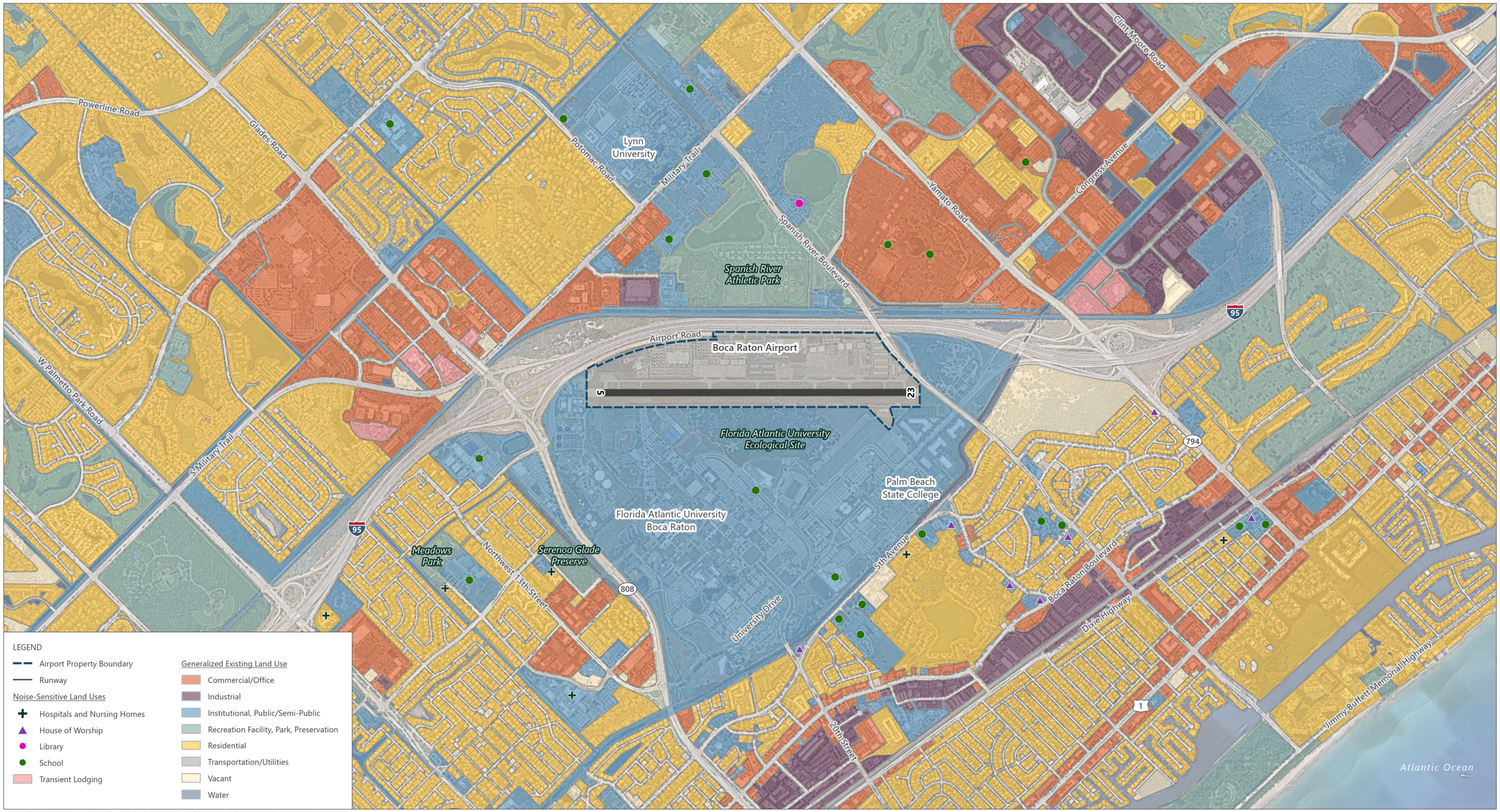
The future land use information is based on the 2020 Comprehensive Plan (Comprehensive Plan) for the City.[25] In most cases, future land use categories in the Comprehensive Plan were consistent with those in 14 CFR Part 150, Appendix A, Table 1. One future land use category was reclassified. Specifically, the Planned Mobility[26] designation in the Comprehensive Plan has been generalized as Mixed Use for the purposes of this NEM Update.

Future land uses surrounding the Airport generally align with existing conditions, except for areas generalized as mixed use. Southeast of the Airport, FAU will continue to be designated as institutional and public/semi-public. Residential neighborhoods northeast of the Airport along Spanish River Boulevard will remain unchanged. Areas generalized as mixed use are primarily west of I-95, to the northwest and southwest of the Airport, with additional mixed use proposed northeast of the Airport on currently vacant property. According to the City, the development plans for this area include a mix of residential and commercial uses.

[24] Florida Department of Environmental Protection, *Statewide Land Use Land Cover*, 2025.

[25] City of Boca Raton, Development Services Department, *2020 Boca Raton Comprehensive Plan Maps, Future Land Use 2040,* Revised Date: March 12, 2024.

[26] Planned Mobility may include a range of uses such as commercial, office, financial institutions, health care, residential, hotel, recreational, educational, community, and cultural facilities.



SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Ricondo & Associates, Inc., 2025 (lodging).

NORTH 0 2,000 ft

EXHIBIT 3-1

EXISTING LAND USES AND NOISE-SENSITIVE SITES

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3.3.3 NOISE-SENSITIVE SITES

In addition to identifying and mapping land uses, 14 CFR Part 150 also requires the identification of noise-sensitive public buildings and properties eligible for inclusion in the National Register of Historic Places. Relevant local and national databases were reviewed for this NEM Update to identify the following noise-sensitive uses:

- music venues and auditoriums
- places of worship
- public libraries
- hospitals and nursing homes
- transient lodgings
- schools
- historic structures and properties

The Florida Geographic Data Library was reviewed and compiled to identify all noise-sensitive sites within the study area. Those sites are shown on Exhibit 3-1.

3.4 LOCAL ZONING REGULATIONS AND LAND USE GUIDELINES

3.4.1 THE CITY OF BOCA RATON

The Airport is located within the zoning jurisdiction of the City, which holds regulatory authority over land use in areas immediately surrounding BCT. To manage development effectively and minimize the impact of aircraft noise on the community, the City has established three distinct land use noise zones: Zone A, Zone B, and Zone C. These zones are formally defined in the City's Code of Ordinances and designed to align land development with the anticipated noise environment generated by aircraft operations at the Airport.

The noise zones were originally determined based on projected noise levels through 1998. Zone A corresponds to areas within the DNL 75 dBA contour and above, including land within the Airport property boundaries where the noise levels are highest. Zone B encompasses the DNL 70 to 75 dBA contours, while Zone C covers the DNL 65 to 70 dBA contours. Each zone has specific land use compatibility standards.

In Zone A, development is restricted to transportation-related uses, with residential use prohibited. Zone B allows a broader range of uses but requires site-specific analyses, and certain structures must be subject to avigation easements[27] or noise mitigation measures. For example, residential properties, commercial lodging, and public use facilities in Zone B must meet a flyover single event outdoor to indoor sound level reduction (SLR) requirement of 30 decibels based on the arithmetic average of at least four individual flyover event SLR values. Zone C permits most nonresidential commercial development, but residential land uses and certain public facilities within this zone must comply with a sound level reduction of 25 decibels. This requirement helps maintain an acceptable indoor noise environment for occupants despite the moderate noise exposure from aircraft operations.[28]

The Comprehensive Plan serves as the guiding framework for managing growth, land use, infrastructure, and transportation through 2040. It includes policies addressing proposed and future development around the Airport, with an emphasis on maintaining land use compatibility with aircraft operations. The relevant policies from the

[27] Avigation easements are legal agreements that acknowledge the presence of aircraft operations.

[28] City of Boca Raton, Code of Ordinances, Chapter 3, Article III, Section 3-53, Chart A, *Noise Sensitive Land Use Guidance Chart*. April 28, 2025.

Transportation and Future Land Use Elements that support compatible land uses within the noise environment around the Airport are summarized below.

- **POLICY TRAN.4.2.4**: "The City shall provide copies of development proposals that are located within the 55 through 70 DNL noise zone to the Boca Raton Airport Authority for review and comment prior to scheduling for public hearing before Planning and Zoning and/or City Council consideration."[29]
- **POLICY LU.2.3.3**: "Land located within the 60 through 70 DNL noise contour of the Boca Raton Airport amended to a residential or mixed-use future land use category shall execute and record an avigation easement in favor of the City, the Airport Authority and any other applicable governmental entity prior to any development approval. Undeveloped parcels with residential future land use designations within the 60 through 70 DNL noise contour shall also require the recording of an avigation easement."[30]
- **POLICY LU.2.3.4**: "The City shall provide copies of development proposals that are located within the 55 through 70 DNL noise zone to the Boca Raton Airport Authority for review and comment prior to scheduling for public hearing and consideration by the Planning and Zoning Board and/or City Council."[31]

3.5 LOCAL AMBIENT NOISE ENVIRONMENT

A key factor in assessing land use compatibility around an airport is the overall noise environment in the surrounding area. Under 14 CFR Part 150, Appendix A, Section 101, land uses may be considered compatible with airport-related noise if the ambient noise from non-aircraft sources equals or exceeds the noise from aircraft operations. Although ambient noise levels were not specifically measured near the Airport for the NEM Update, the surrounding area features a mix of suburban and urban development, including industrial and commercial corridors.

Several non-aircraft noise sources contribute to the local sound environment. Major roads—such as I-95 along the western Airport boundary, West Yamato Road approximately 3,000 feet north, and Glades Road approximately 1,000 feet south of the Airport—contribute to the ambient noise levels. A railroad along I-95 further contributes to noise in the area.

Given the urbanized nature of the surrounding area, ambient noise is expected to vary across the study area, being generally lower in residential neighborhoods and higher in commercial and industrial zones, particularly near major roadways.

[29] City of Boca Raton, *2020 Boca Raton Comprehensive Plan, Transportation Element*, July 2020.

[30] City of Boca Raton, *2020 Boca Raton Comprehensive Plan, Future Land Use Element*, July 2020.

[31] *Ibid*

4. DEVELOPMENT OF EXISTING AND FUTURE NOISE CONTOURS

4.1 INTRODUCTION

This section discusses the methodologies, data sources, and software used for the aircraft noise analysis and generating the noise exposure contours shown in the updated NEMs.

4.2 FEDERAL AVIATION ADMINISTRATION NOISE MODEL

Under 14 CFR Part 150, aircraft noise must be analyzed and described using standard methodologies and metrics. This ensures that assessments are accurate, comparable, and consistent with federal guidelines, providing a basis for effective noise compatibility planning. This process begins with an FAA-approved noise model. For this NEM Update, noise exposure contours for the 2025 existing and 2030 future conditions were generated using the AEDT Version 3g, which is the most recently released version. Developed under FAA guidance, the AEDT is the only noise model approved for use under 14 CFR Part 150. The contours produced by the AEDT are based on the airport-specific data described in the following section.

4.3 NOISE MODEL INPUTS

The AEDT relies on a range of airport-specific data inputs, including airfield layout (runways and helipads), operational levels by time of day (e.g., day and night), aircraft fleet mix, departure stage lengths, runway use, aircraft performance, flight tracks and their utilization, meteorological data, and terrain features. These inputs capture the key aspects of airport operating conditions relevant to noise modeling. Each input category is discussed in this section.

4.3.1 AIRCRAFT OPERATIONS

In accordance with 14 CFR Part 150, NEMs were prepared for two scenarios: existing conditions (2025) and 5-year future conditions (2030). The 2025 Existing Conditions NEM was developed using operational data for the full year of 2024, while the 2030 Future Conditions NEM was developed using the 2030 operations forecast. The annual aircraft activity forecast used for the NEMs was prepared using the same methodology as the Airport MPU forecast, which the FAA approved on May 25, 2021. The FAA subsequently approved the aircraft activity levels for this NEM Update on June 10, 2025 (see Appendix B). These FAA-approved operational levels provide the best available basis for modeling noise exposure in the development of the 2025 Existing Conditions and 2030 Future Conditions NEMs.

Table 4-1 presents the annual operations by user category for both itinerant and local operations. In 2024, there were 85,555 itinerant and local[32] annual aircraft operations recorded at BCT. The 2024 aircraft activity levels used to represent the 2025 existing conditions are within one percent of the 2025 levels in FAA's 2024 Terminal Area Forecast (TAF) and within two percent of the BCT forecast update conducted for this NEM Update.[33] At the time of preparing

[32] Itinerant operations involve aircraft arriving from outside the airport area and departing to locations outside the airport area. Local operations involve aircraft that remain in the local traffic pattern and conduct simulated instrument approaches, touch and go operations, or designated practice, generally within a 20-mile radius of the ATCT.

[33] US Department of Transportation, Federal Aviation Administration, Terminal Area Forecast (TAF), January 2025.

this NEM Update in early 2025, temporary flight restrictions (TFRs)[34] were in effect for several days at the Airport during 2025 and are expected to occur through 2028 and early 2029. However, the effects are temporary, unpredictable, and not representative of existing or anticipated future typical conditions at BCT. Accordingly, TFR-related effects are not incorporated into the operational data used to develop the 2025 Existing Conditions or 2030 Future Conditions NEMs. For the two reasons described above, operational activity data from 2024 is considered to serve as a reasonable representation of typical existing conditions at the time the NEMs are submitted to FAA.

Total aircraft operations are forecast to increase from 85,555 operations in 2024 to 97,274 operations in 2030. Growth from 2024 to 2030 represents a 2.2 percent compound annual growth rate (CAGR). Itinerant air taxi and local GA operations are forecast to grow at slightly higher CAGRs than total aircraft operations, representing 3.0 percent and 2.5 percent CAGRs, respectively, while itinerant GA operations are forecast to grow at 1.7 percent CAGR. Military operations are forecast to remain constant, in line with FAA TAF forecast methodology.

TABLE 4-1 AIRCRAFT OPERATIONS BY CATEGORY – EXISTING (2025) AND FUTURE CONDITIONS (2030)

	ITINERANT				LOCAL			TOTAL AIRCRAFT OPERATIONS
YEAR	AIR TAXI[1]	GENERAL AVIATION[2]	MILITARY[3]	TOTAL	GENERAL AVIATION	MILITARY	TOTAL	
Existing Conditions								
2025	16,088	42,870	151	59,109	26,171	275	26,446	85,555
Future Conditions								
2030	19,177	47,311	151	66,639	30,360	275	30,635	97,274

NOTES:
1 Air Taxi is an aircraft designed to have a maximum seating capacity of 60 seats or a maximum payload capacity of 18,000 that is used to carry passengers or cargo for hire or compensation.
2 Takeoffs and landings of all civil aircraft, except those classified as air carriers or air taxis.
3 All classes of military and government agency takeoffs and landings at FAA and federal tower contract facilities.
SOURCES: US Department of Transportation, Federal Aviation Administration, Operations Network, April 2025 (historical operations); Ricondo & Associates, Inc., April 2025 (forecast).

4.3.2 AIRCRAFT OPERATIONS FLEET MIX

The 2024 data collected from the Aircraft Noise Monitoring System (ANOMS) and FAA Traffic Flow Management System Counts were used to determine the aircraft fleet profile at BCT. The fleet includes jets, turboprops, piston aircraft, military planes, and helicopters, reflecting the role of the Airport in supporting business, personal, instructional, military, and charter aviation. **Table 4-2** presents the fleet mix by major category, while **Appendix C** provides a breakdown by specific aircraft type and operation type. Based on input from BRAA and Airport users, the fleet of aircraft using BCT is expected to remain generally consistent through 2030.

[34] TFRs are flight restrictions issued when the President of the United States is in residence at Mar-a-Lago. TFRs impose varying levels of restrictions depending on whether an airport is located within the inner or outer core of the restricted area. Airports in the inner core face stricter limitations. For example, at PBI, all aircraft operations are prohibited except for military, law enforcement, and scheduled commercial activity when a TFR is in effect. In contrast, BCT is in the outer core and subject to less stringent restrictions.

TABLE 4-2 EXISTING CONDITIONS (2025) AND FUTURE CONDITIONS (2030) FLEET MIX

AIRCRAFT CATEGORY	2025 SHARE OF FLEET (%)	2030 SHARE OF FLEET (%)
Jet	39.0%	39.2%
Turboprop	4.7%	4.6%
Piston	55.4%	55.3%
Helicopter	1.0%	1.0%
Total	**100%**	**100%**

SOURCES: Boca Raton Airport Authority, Aircraft Noise Monitoring System, Aircraft Radar and Flight Header Data for CY2024 (aircraft types); Boca Raton Airport Traffic Control Tower Operations Log; Federal Aviation Administration, Traffic Flow Management System Counts, http://aspm.faa.gov/ (aircraft types; accessed January 14, 2025). Ricondo & Associates, Inc., July 2025 (analysis).

4.3.3 AIRCRAFT OPERATIONS BY TIME OF DAY

For DNL calculations, sound events occurring during nighttime hours are weighted with an additional 10 decibels to account for people's increased sensitivity to noise at night and the lower ambient background levels. Accordingly, the AEDT assigns aircraft operations to daytime (7:00 a.m. to 9:59 p.m.) or nighttime (10:00 p.m. to 6:59 a.m.). The 2024 ANOMS data provided the primary basis for these time-of-day splits, as the system records actual arrival and departure times as well as the specific aircraft types. **Tables 4-3** and **4-4** summarize annual arrivals, departures, and touch and go activity by time of day for the existing and future conditions, respectively. The time-of-day proportions by aircraft category are assumed to be the same in 2025 and 2030. However, aircraft activity is forecast to change by operation type between 2025 and 2030. For example, itinerant and local operations are forecast to grow at different rates, which is reflected in the slight changes in time-of-day percentages in Tables 4-3 and 4-4. Appendix C provides a breakdown by aircraft and operation types.

TABLE 4-3 EXISTING CONDITIONS (2025) ANNUAL ARRIVALS AND DEPARTURES BY TIME OF DAY

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES			TOUCH AND GO			GRAND TOTAL
	DAY[1]	NIGHT[2]	TOTAL	DAY[1]	NIGHT[2]	TOTAL	DAY[1]	NIGHT[2]	TOTAL	
Jet	18.0%	1.2%	19.3%	18.5%	0.8%	19.3%	0.4%	0.1%	0.5%	39.0%
Turboprop	2.0%	0.1%	2.1%	2.0%	0.1%	2.1%	0.2%	0.1%	0.4%	4.7%
Piston	11.8%	0.9%	12.7%	12.0%	0.7%	12.7%	28.7%	1.3%	30.0%	55.4%
Helicopter	0.5%	<0.0%	0.5%	0.5%	<0.0%	0.5%	--	--	--	1.0%
Total	**32.3%**	**2.3%**	**34.6%**	**32.9%**	**1.7%**	**34.6%**	**29.4%**	**1.5%**	**30.8%**	**100.0%**

NOTES:

An aircraft operation is equivalent to one arrival/landing or one departure/takeoff. Due to rounding, the percentages above may vary slightly from the totals.

1 Operations occurring between 7:00 a.m. and 9:59 p.m.

2 Operations occurring between 10:00 p.m. and 6:59 a.m.

SOURCES: Boca Raton Airport Authority, Aircraft Noise Monitoring System, Aircraft Radar and Flight Header Data for CY2024 (aircraft types); Boca Raton Airport Traffic Control Tower Operations Log; Federal Aviation Administration, Traffic Flow Management System Counts, http://aspm.faa.gov/ (aircraft types; accessed January 14, 2025). Ricondo & Associates, Inc., July 2025 (analysis).

TABLE 4-4 FUTURE CONDITIONS (2030) ANNUAL ARRIVALS AND DEPARTURES BY TIME OF DAY

AIRCRAFT CATEGORY	ARRIVALS			DEPARTURES			TOUCH AND GO			GRAND TOTAL
	DAY[1]	NIGHT[2]	TOTAL	DAY[1]	NIGHT[2]	TOTAL	DAY[1]	NIGHT[2]	TOTAL	
Jet	18.1%	1.2%	19.4%	18.6%	0.8%	19.4%	0.4%	0.1%	0.5%	39.2%
Turboprop	2.0%	0.1%	2.1%	2.0%	0.1%	2.1%	0.2%	0.1%	0.4%	4.6%
Piston	11.4%	0.9%	12.3%	11.6%	0.7%	12.3%	29.3%	1.3%	30.6%	55.3%
Helicopter	0.4%	<0.0%	0.5%	0.5%	<0.0%	0.5%	--	--	--	1.0%
Total	**32.0%**	**2.3%**	**34.3%**	**32.7%**	**1.6%**	**34.3%**	**29.9%**	**1.5%**	**31.4%**	**100.0%**

NOTES:
An aircraft operation is equivalent to one arrival/landing or one departure/takeoff. Due to rounding, the percentages above may vary slightly from the totals.
1 Operations occurring between 7:00 a.m. and 9:59 p.m.
2 Operations occurring between 10:00 p.m. and 6:59 a.m.
SOURCES: Boca Raton Airport Authority, Aircraft Noise Monitoring System, Aircraft Radar and Flight Header Data for CY2024 (aircraft types); Boca Raton Airport Traffic Control Tower Operations Log; Federal Aviation Administration, Traffic Flow Management System Counts, http://aspm.faa.gov/ (aircraft types; accessed January 14, 2025). Ricondo & Associates, Inc., July 2025 (analysis and forecast).

4.3.4 DEPARTURE STAGE LENGTH

Aircraft departure noise varies with takeoff weight. A fully loaded aircraft on a long-haul flight weighs more at departure than the same aircraft on a short-haul flight due to the additional fuel required for the longer distance. Heavier aircraft require higher thrust settings to reach takeoff speed, use more runway length, and climb more slowly than lighter aircraft, exposing a larger land area to higher noise levels. To account for this, the AEDT includes up to 10 departure climb profiles corresponding to various departure weights based on the fuel load and aircraft type. These profiles cover trip lengths from 500 to over 11,000 nautical miles, as summarized in **Table 4-5**.

Most GA aircraft default to stage length 1 in the AEDT, representing the maximum takeoff weight regardless of actual distance flown. This models the aircraft at their maximum gross takeoff weight, producing the slowest climb performance. To assign departure stage lengths at BCT, 2024 ANOMS data were analyzed by aircraft type. Given the smaller size of most GA aircraft, stage lengths are generally shorter than those at most commercial airports, making stage length 1 predominant at BCT. However, some jet aircraft in 2024 flew over 500 nautical miles, resulting in modeled stage lengths ranging from categories 1 to 6, while all other aircraft were modeled at stage length 1. **Table 4-6** presents the modeled departure stage lengths by aircraft category. All arriving aircraft were modeled with a stage length of 1. Stage lengths are assumed to remain constant between the 2025 and 2030 study years.

TABLE 4-5 STAGE LENGTH CATEGORIES

CATEGORY	STAGE LENGTH (NAUTICAL MILES)
1	0–500
2	500–1,000
3	1,000–1,500
4	1,500–2,500
5	2,500–3,500
6	3,500–4,500
7	4,500–5,500
8	5,500–6,500
9	6,500–11,000
M	Maximum range at maximum takeoff weight

SOURCE: US Department of Transportation, Federal Aviation Administration, *Aviation Environmental Design Tool (AEDT): Version 3g, User Manual*, August 2024.

TABLE 4-6 MODELED DEPARTURE STAGE LENGTH BY AIRCRAFT CATEGORY

AIRCRAFT CATEGORY	STAGE LENGTH CATEGORY					
	1	2	3	4	5	6
Jet	91.4%	6.3%	1.4%	0.8%	0%	0.1%
Turboprop	100%	0%	0%	0%	0%	0%
Piston	100%	0%	0%	0%	0%	0%
Helicopter	100%	0%	0%	0%	0%	0%

NOTE:
Values may not add to 100 percent due to rounding. No aircraft were modeled for a stage length greater than 6.
SOURCE: Federal Aviation Administration, Aviation Environmental Design Tool Version 3g, August 2024 (stage length categories); Ricondo & Associates, Inc., August 2025 (analysis).

4.3.5 RUNWAY USE

The AEDT uses runway-use data to assign aircraft operations to the appropriate runway end based on the type of operation (arrival or departure). The 2024 ANOMS data provided information on runway usage at the Airport. The runway-use assignments were derived from flights recorded in the ANOMS radar data. These data provide definitive information on the runway ends used by specific aircraft types. **Table 4-7** summarizes runway use for arrivals, departures, and touch and go operations by fixed-wing aircraft (jet, piston, and turboprop) in 2025 and 2030, broken down by time of day (daytime and nighttime). Runway use is assumed to remain the same for existing and future conditions because there are no anticipated or planned changes to the runway dimensions, air traffic procedures, and predominant wind patterns at BCT. Appendix C provides more information on runway use.

TABLE 4-7 EXISTING CONDITIONS (2025) AND FUTURE CONDITIONS (2030) RUNWAY USE BY TIME OF DAY

	DAY[1]			NIGHT[2]		
AIRCRAFT ACTIVITY	RUNWAY 5	RUNWAY 23	TOTAL	RUNWAY 5	RUNWAY 23	TOTAL
Arrivals	72.8%	20.5%	93.3%	5.0%	1.7%	6.7%
Departures	74.6%	20.6%	95.2%	3.7%	1.0%	4.8%
Touch and Go	75.8%	19.5%	95.3%	3.6%	1.1%	4.7%
Overall	**74.4%**	**20.2%**	**94.6%**	**4.1%**	**1.3%**	**5.4%**

NOTES:
Values may not add to 100 percent due to rounding.
1 DAY = 7:00 a.m. to 9:59 p.m.
2 NIGHT = 10:00 p.m. to 6:59 a.m.
SOURCES: Ricondo & Associates, Inc., January 2025; Boca Raton Airport Authority, Aircraft Noise Monitoring System, Aircraft Radar and Flight Header Data, date obtained January 10, 2024 (2024 operations); Ricondo & Associates, Inc., August 2025 (analysis).

4.3.6 FLIGHT TRACKS AND UTILIZATION

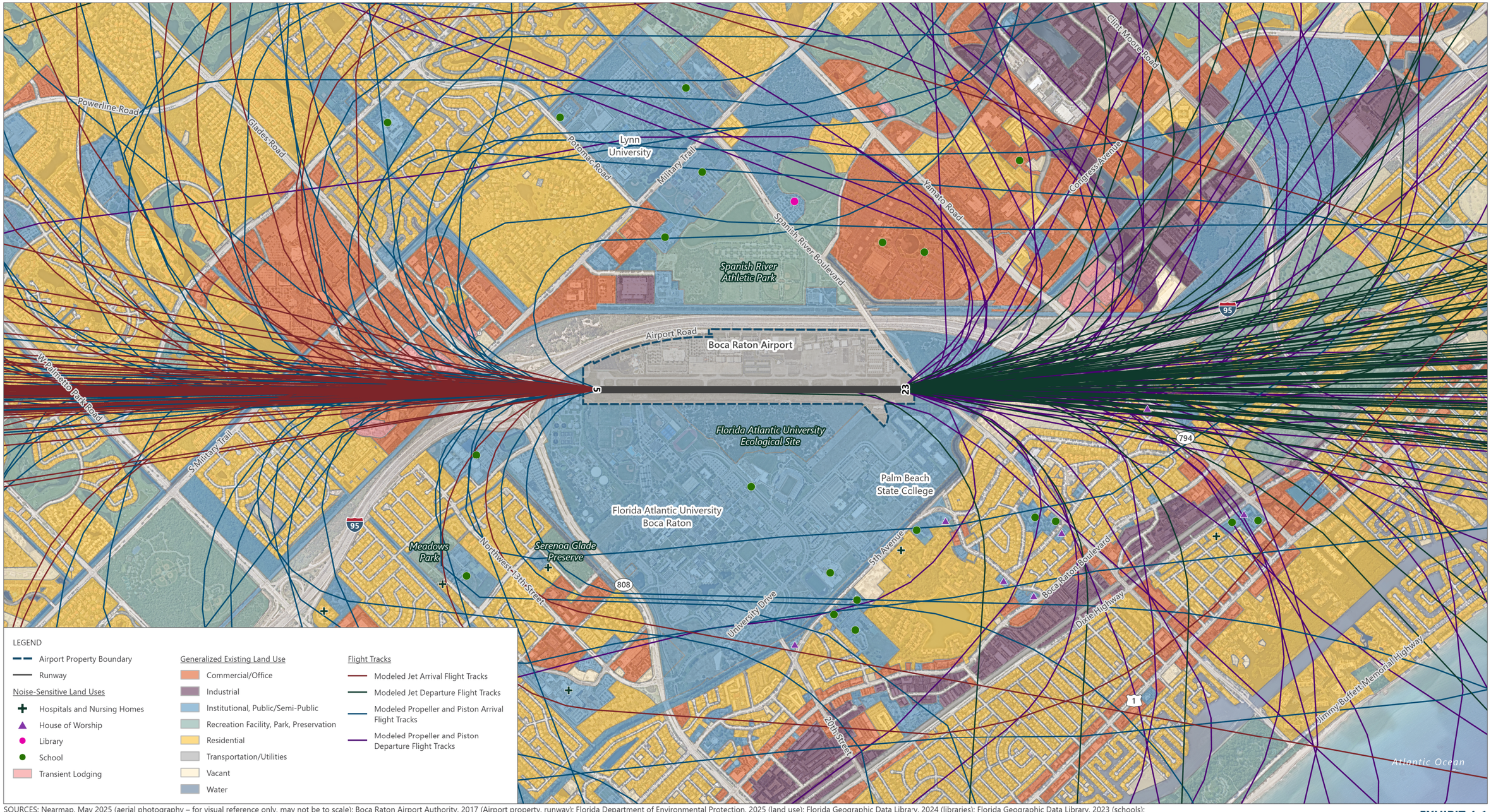
Flight tracks are the routes that aircraft follow during arrivals and departures. ANOMS radar data for 2024 were used to develop flight tracks for the AEDT. The radar tracks were grouped into "bundles" based on common trajectory and directional characteristics, with each bundle representing a corridor of similar flight paths for a specific runway and operation type. Bundles were defined according to the general direction of flight and notable distinctions in path characteristics near the runway.

For each bundle, a central "backbone" track representing the average trajectory was developed, along with lateral "subtracks" that reflect the spread of flight paths on either side of the backbone. These subtracks capture variability in the corridor and provide a more accurate representation of real-world conditions.

Exhibits 4-1 through **4-3** show the AEDT flight tracks for arrivals, departures, and touch and go operations for each runway end, while **Exhibit 4-4** presents helicopter flight tracks. There are no planned changes to the runway geometry, and the FAA did not indicate any reasonably foreseeable changes to air traffic procedures for BCT; therefore, flight tracks are expected to remain unchanged through 2030. Time-of-day utilization for each track is presented in Appendix C. The radar tracks used to create the flight tracks are also provided in Appendix C.

4.3.7 METEOROLOGICAL DATA AND TERRAIN

The AEDT accounts for the effects of meteorological conditions on aircraft performance and sound propagation. Default AEDT meteorological data for BCT were used for both the 2025 Existing Conditions and 2030 Future Conditions NEMs. The default data are based on 10-year averages of the surface weather recorded at BCT, including an average of 79.1 degrees Fahrenheit temperature, 69.7 percent humidity, dew point of 68.3 degrees Fahrenheit, and wind speed of 8.4 knots. Local terrain data were also incorporated from the United States Geological Survey.

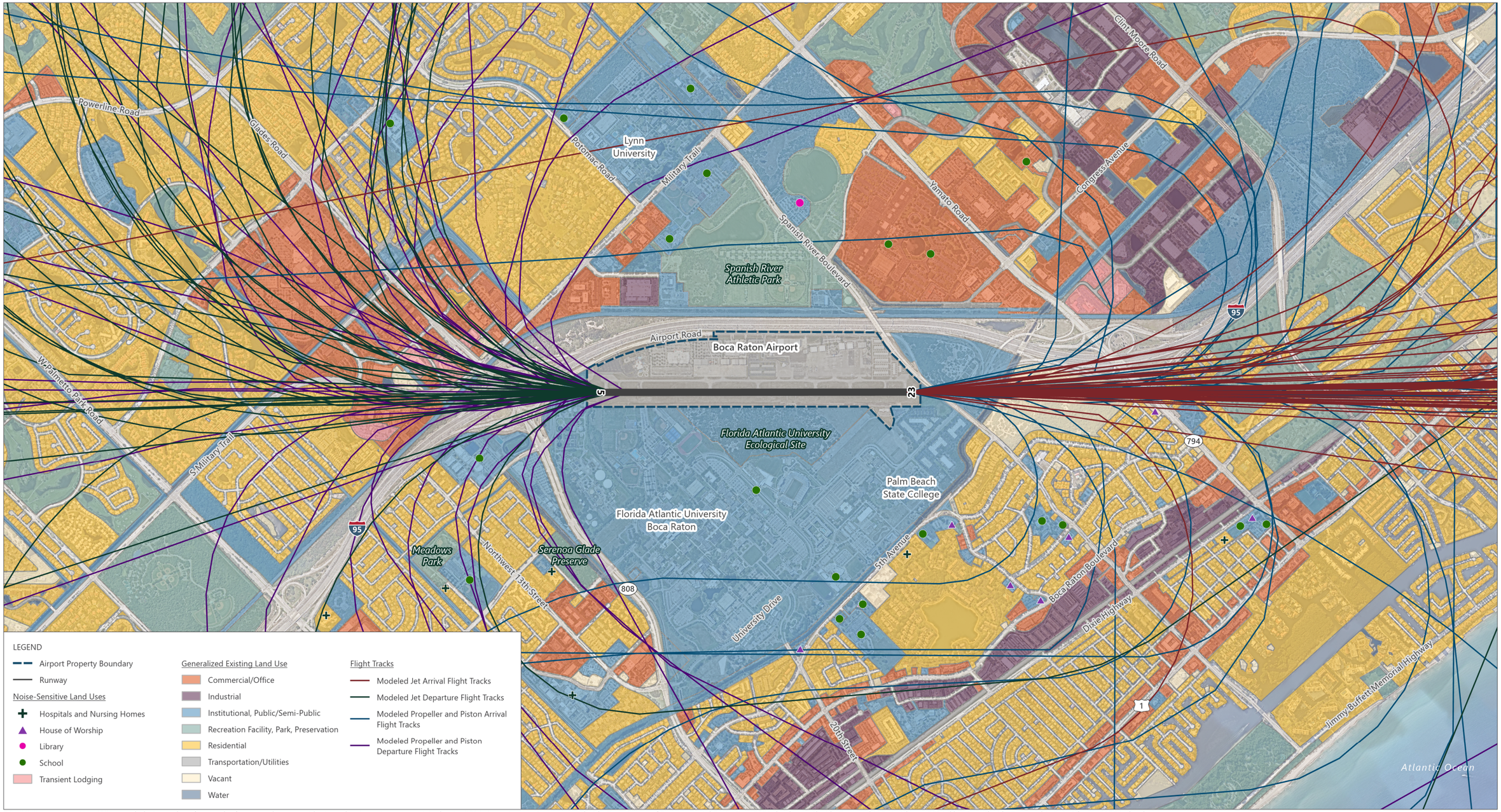


SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Aircraft Noise Monitoring System (ANOMS), Aircraft Radar and Flight Header Data for CY2024, 2025 (radar tracks); Ricondo & Associates, Inc., 2025 (modeled tracks, lodging).

EXHIBIT 4-1

AVIATION ENVIRONMENTAL DESIGN TOOL
FLIGHT TRACKS – RUNWAY 5

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex4-1_FlightTracksRwy5_20251002

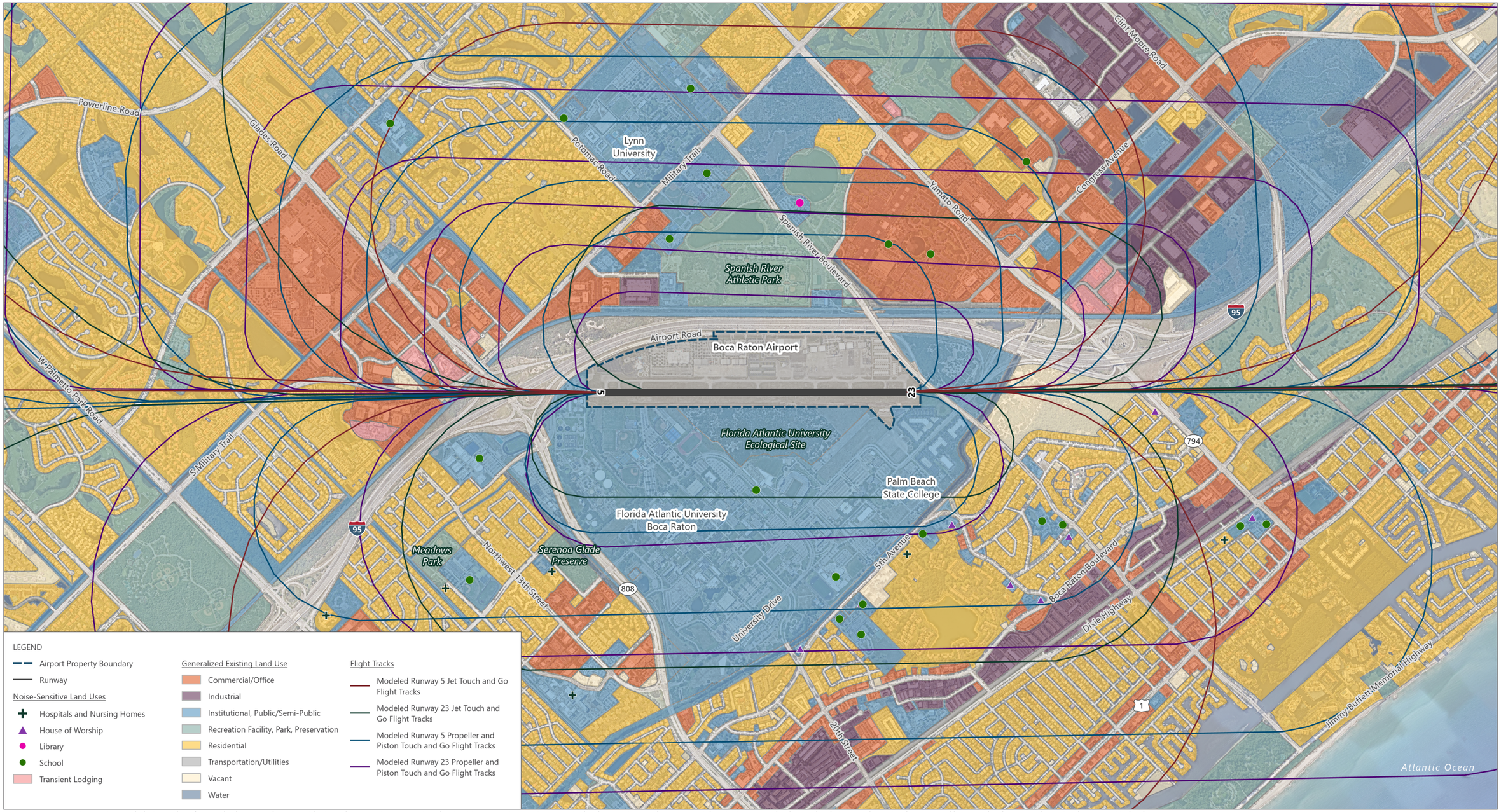


SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Aircraft Noise Monitoring System (ANOMS), Aircraft Radar and Flight Header Data for CY2024, 2025 (radar tracks); Ricondo & Associates, Inc., 2025 (modeled tracks, lodging).

EXHIBIT 4-2

AVIATION ENVIRONMENTAL DESIGN TOOL
FLIGHT TRACKS – RUNWAY 23

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex4-2_FlightTracksRwy23_20251002



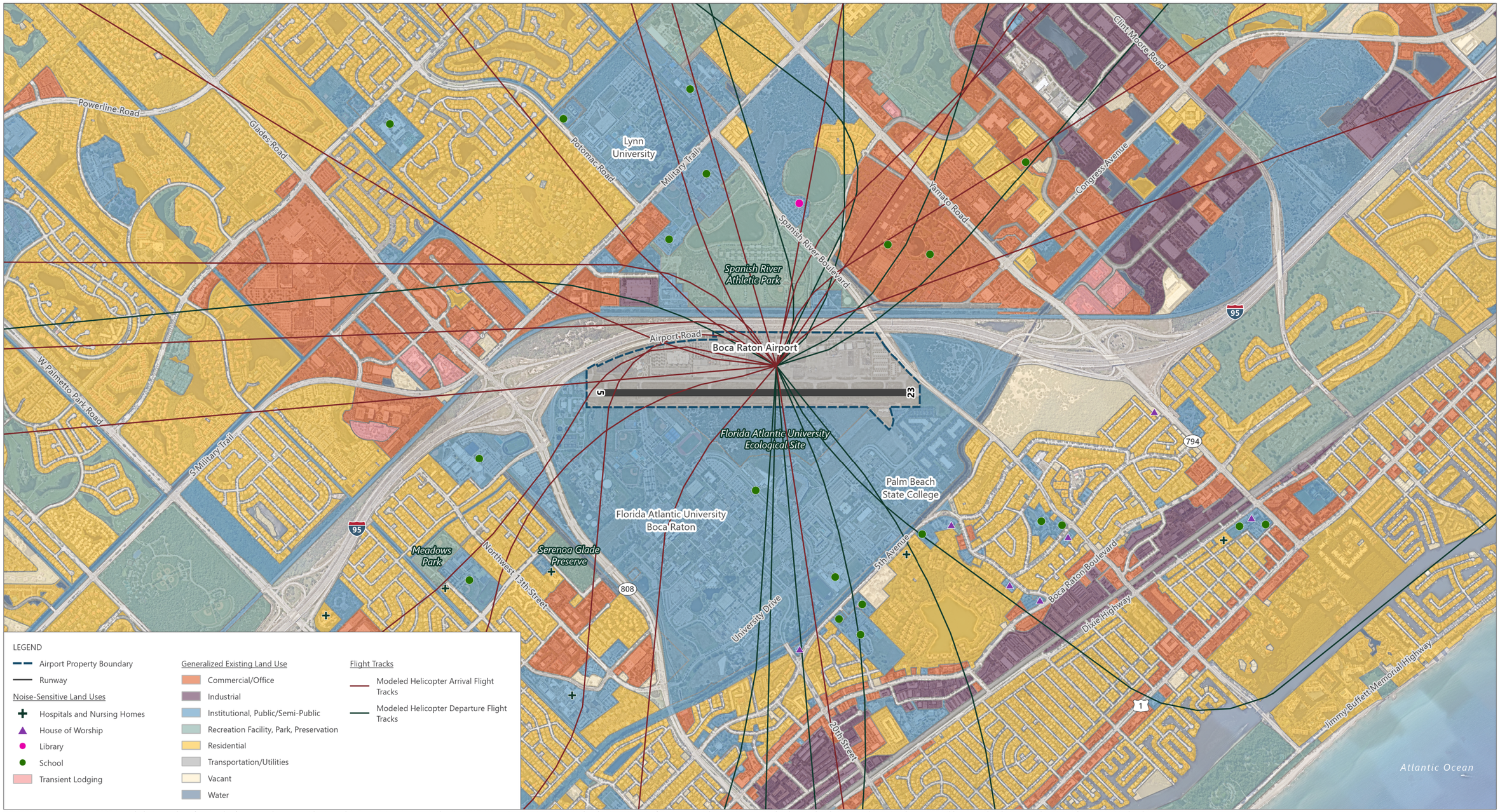
SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Aircraft Noise Monitoring System (ANOMS), Aircraft Radar and Flight Header Data for CY2024, 2025 (radar tracks); Ricondo & Associates, Inc., 2025 (modeled tracks, lodging).

NORTH 0 2,000 ft

EXHIBIT 4-3

AVIATION ENVIRONMENTAL DESIGN TOOL
FLIGHT TRACKS – TOUCH AND GO

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex4-3_FlightTracksTNG_20251002



SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Aircraft Noise Monitoring System (ANOMS), Aircraft Radar and Flight Header Data for CY2024, 2025 (radar tracks); Ricondo & Associates, Inc., 2025 (modeled tracks, lodging).

EXHIBIT 4-4

AVIATION ENVIRONMENTAL DESIGN TOOL
FLIGHT TRACKS – HELICOPTER

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex4-4_FlightTracksHelo_20251002

5. 2025 AND 2030 NOISE EXPOSURE

Noise exposure for the 2025 existing conditions and 2030 future conditions are discussed in this section. It also evaluates land use compatibility using FAA and local guidelines, identifies noise-sensitive locations, and describes the types of land uses and populations exposed to aircraft noise. The official updated NEMs are provided in Appendix F of this report.

5.1 2025 NOISE EXPOSURE

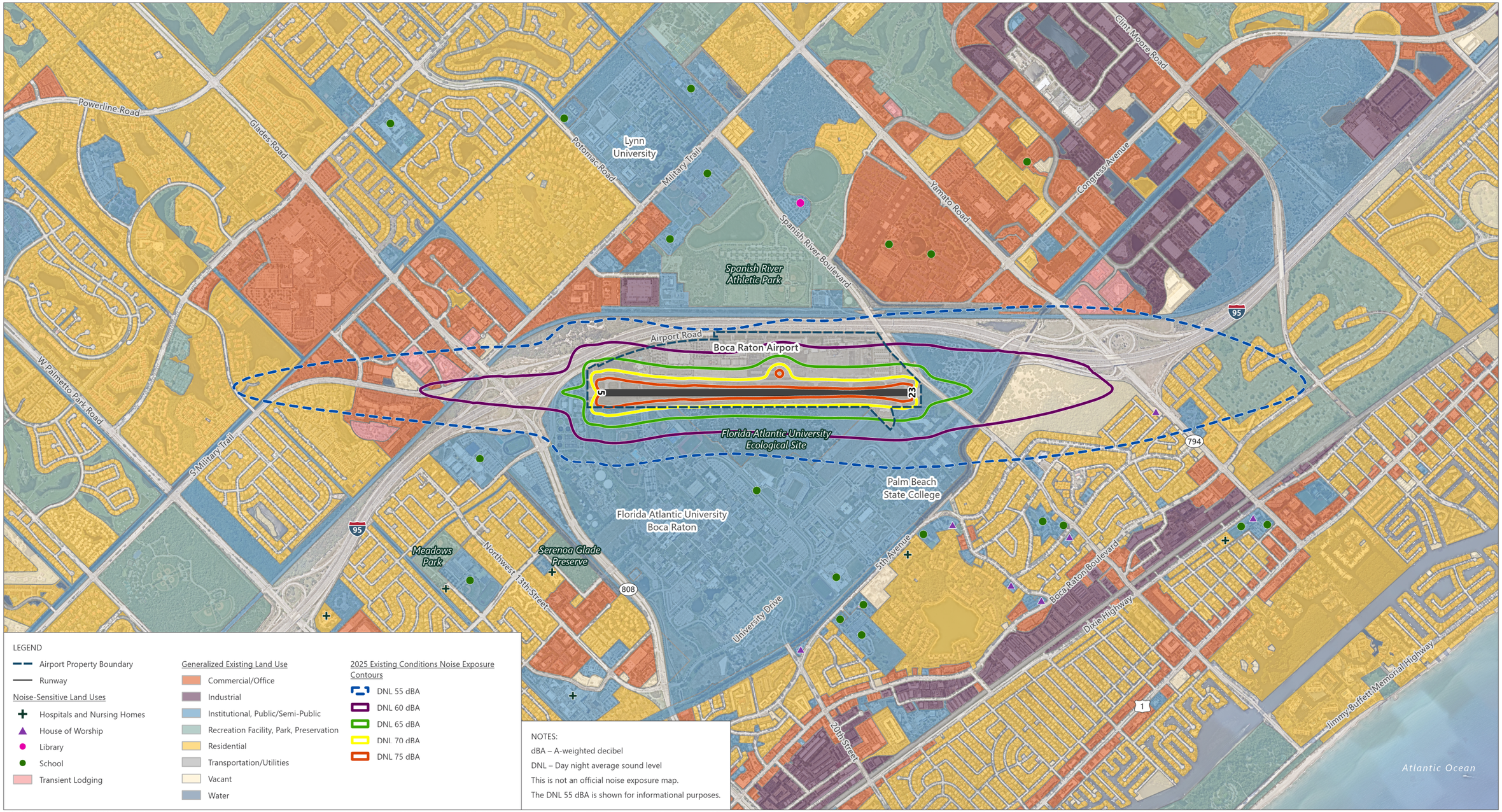
Exhibit 5-1 shows the 2025 Existing Conditions DNL contours overlaid on current land uses around the Airport. The DNL 65, 70, and 75 dBA noise contours are depicted in accordance with 14 CFR Part 150 requirements. While the FAA requires NEMs to depict DNL 65 dBA and higher for agency acceptance, the DNL 60 dBA and 55 dBA noise contours are also included in this exhibit because BRAA and the City use these thresholds for land use planning. According to the BRAA, residential land uses within the DNL 60 dBA noise contour are considered noncompatible, and the City's Comprehensive Plan requires an avigation easement for any future residential development in these areas. Further, the City's Comprehensive Plan requires development proposals within the DNL 55 dBA contour to be submitted to BRAA for review and comment. Exhibit 5-1 presents the DNL 55 dBA and higher contours for information purposes.

The shape of the noise contours is primarily determined by the combination of runway use and flight tracks, while their overall size depends on aircraft type, the number of operations by aircraft type, and the time of day of operations. As shown in Table 4-7, the Airport operates predominantly in northeast flow, with Runway End 5 accommodating most arrivals and departures. Under these conditions, arriving aircraft are typically established on a stabilized final approach to the runway threshold, producing a concentrated and relatively narrow noise contour in the arrival corridor. Departing aircraft generate broader and more dispersed noise contours due to variability in climb profiles and subsequent dispersion along flight paths. This asymmetry between arrival and departure operations, combined with the predominance of northeast versus southwest flow, explains the observed geometry and extent of the noise contours at BCT.

Table 5-1 summarizes residential units, population, and noise-sensitive facilities exposed to DNL 60 dBA and higher for the 2025 Existing Conditions NEMs provided in Appendix F. No residential units or population fall within the DNL 65 dBA and higher noise contours, as confirmed through land use data, aerial imagery and BRAA field surveys. The only potentially noise-sensitive land use within this contour is part of the FAU campus, but it does not include classroom or residential facilities. Instead, the southwest portion of the contour covers portions of a softball field and an athletic center used by student athletes. Institutional areas in the northwest portion of the contour have commercial office space unrelated to FAU or Palm Beach State College.[35,36]

[35] FAU, Facilities Management, *Official Campus Maps, Boca Campus*, https://www.fau.edu/facilities/maps/ (accessed August 27, 2025).

[36] Palm Beach State College, Boca Raton campus, *Campus Map*, https://www.palmbeachstate.edu/locations/boca-raton/ (accessed August 27, 2025).



SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Ricondo & Associates, Inc., 2025 (lodging); Ricondo & Associates, Inc., Federal Aviation Administration, Aviation Environmental Design Tool (AEDT) Version 3g, August 2025 (noise exposure contours).

EXHIBIT 5-1

2025 EXISTING CONDITIONS
NOISE EXPOSURE CONTOURS

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex5-1_ExistingNEM_20251003

TABLE 5-1 RESIDENTIAL UNITS, POPULATION, AND NOISE-SENSITIVE FACILITIES – 2025 EXISTING CONDITIONS

LAND USE		ANNUAL DAY NIGHT AVERAGE SOUND LEVEL (DBA)			
		DNL 60 65	DNL 65 70	DNL 70 75	DNL 75+
Residential	Population[1]	0	0	0	0
	Dwelling units	0	0	0	0
Noise-Sensitive Facilities	Music venues / auditoriums[2]	0	0	0	0
	Place of worship[3]	0	0	0	0
	Public libraries	0	0	0	0
	Hospitals and nursing homes	0	0	0	0
	Transient lodgings[4]	1	0	0	0
	Schools	1	1	1	0
Other	Historic properties[5]	0	0	0	0
	Total	**2**	**1**	**1**	**0**

NOTES:
1 Population counts do not include transient lodgings.
2 Includes concert halls and amphitheaters consistent with 14 CFR Part 150.
3 Place of worship is consistent with "churches" in 14 CFR Part 150.
4 Transient lodgings include resorts, hotels, and timeshares.
5 Historic properties are those listed in or eligible for listing in the National Register of Historic Places.

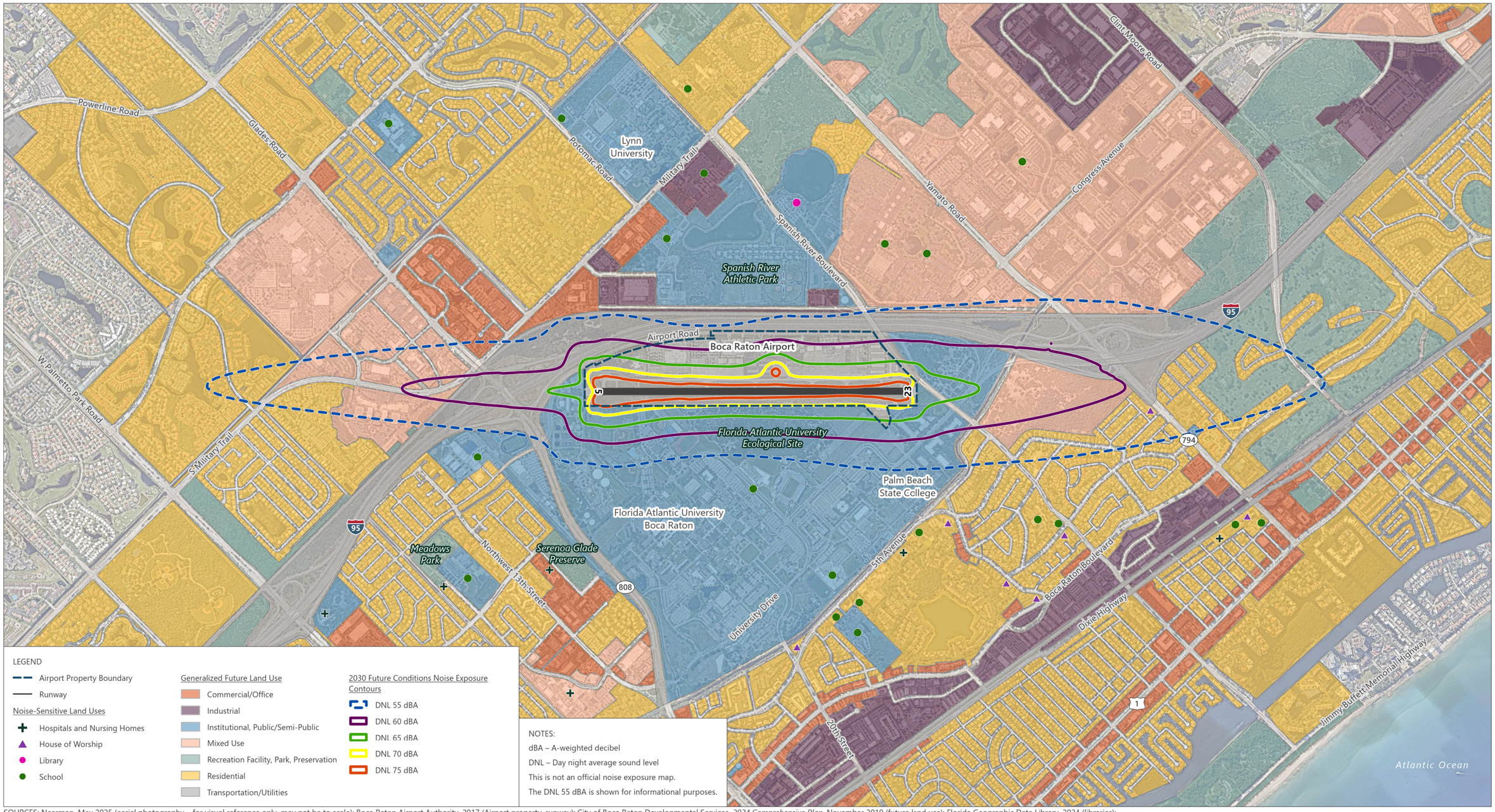
SOURCES: US Census, 2024 (population); Palm Beach County GIS, Jun 2025 (dwelling units); Florida Geographic Data Library, 2025 (historic features); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Ricondo & Associates, Inc., 2025 (lodging); Ricondo & Associates, Inc., November 2021 (based on Federal Aviation Administration Aviation Environmental Design Tool, Version 3g).

As Table 5-1 shows, there are no residential dwelling units or populations in the DNL 60 dBA noise contour, which extends to portions of the FAU campus and an area designated as transient lodging. However, the transient lodging land use in the DNL 60 dBA contour does not contain any physical lodging facilities. Similarly, while portions of FAU campus fall within the DNL 60 dBA contour, the BRAA compatibility threshold only applies to residential developments. There are no residential uses or dormitories in the DNL 60 dBA or higher contours.

5.2 2030 NOISE EXPOSURE

Exhibit 5-2 shows the 2030 Existing Conditions DNL contours overlaid on future land uses around the Airport. The DNL 65, 70, and 75 dBA noise contours are depicted in accordance with 14 CFR Part 150, while the exhibit also shows the DNL 60 dBA and DNL 55 dBA contours for planning purposes.

The overall shape of the 2030 contours is similar to that for the 2025 existing conditions, aircraft landing and takeoff patterns are expected to remain unchanged, and no airfield modifications are proposed that would alter runway use or flight procedures. However, the contours extend slightly in some areas due to the forecast increase in aircraft operations by 2030, resulting in a modest expansion of cumulative noise exposure around the Airport.



SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); City of Boca Raton Developmental Services, *2024 Comprehensive Plan*, November 2019 (future land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Ricondo & Associates, Inc., Federal Aviation Administration, Aviation Environmental Design Tool (AEDT) Version 3g, August 2025 (noise exposure contours).

NORTH 0 2,000 ft

EXHIBIT 5-2

2030 FUTURE CONDITIONS
NOISE EXPOSURE CONTOURS

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex5-2_FutureNEM_20251003

Table 5-2 summarizes residential dwelling units, population, and noise-sensitive facilities exposed to DNL 60 dBA and higher for the 2030 Future Conditions NEM presented in Appendix F. No residential units or population are located within these contours, as confirmed through local land use data, aerial imagery, and a BRAA staff survey. The only potentially noise-sensitive land use within the DNL 65 dBA contour is part of FAU, but that area does not include classroom or residential facilities. The remainder of the DNL 65 dBA contour contains commercial office space, which is considered compatible land use according to Table 1 in Appendix A of 14 CFR Part 150.

TABLE 5-2 RESIDENTIAL UNITS, POPULATION, AND NOISE-SENSITIVE FACILITIES – 2030 FUTURE CONDITIONS

LAND USE		ANNUAL DAY NIGHT AVERAGE SOUND LEVEL (DBA)			
		DNL 60 65	DNL 65 70	DNL 70 75	DNL 75+
Residential	Population[1]	0	0	0	0
	Dwelling units	0	0	0	0
Noise-Sensitive Facilities	Music venues / auditoriums[2]	0	0	0	0
	Place of worship[3]	0	0	0	0
	Public libraries	0	0	0	0
	Hospitals and nursing homes	0	0	0	0
	Transient lodgings[4]	0	0	0	0
	Schools	1	1	1	0
Other	Historic properties[5]	0	0	0	0
	Total	**1**	**1**	**1**	**0**

NOTES:
1 Population counts do not include transient lodgings.
2 Includes concert halls and amphitheaters consistent with 14 CFR Part 150.
3 Place of worship is consistent with "churches" in 14 CFR Part 150.
4 Transient lodgings include resorts, hotels, and timeshares.
5 Historic properties are those listed in or eligible for listing in the National Register of Historic Places.
SOURCES: US Census, 2024 (population); Palm Beach County GIS, Jun 2025 (dwelling units); Florida Geographic Data Library, 2025 (historic features); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Ricondo & Associates, Inc., 2025 (lodging); Ricondo & Associates, Inc., November 2021 (based on Federal Aviation Administration Aviation Environmental Design Tool, Version 3g).

As shown in Table 5-2, there are no residential dwelling units or population within the DNL 60 dBA noise contour, which extends into land designated as Mixed Use and Industrial, as seen on Exhibit 5-2. The only noise-sensitive facility within the DNL 60 dBA contour is FAU. The BRAA compatibility threshold only applies to residential developments, but the portions of the FAU campus within the DNL 60 dBA contour do not contain any residential uses or dormitories, so the FAU property there is considered compatible.

In addition to the FAU campus, the DNL 60 dBA contour in the 2030 Future Conditions NEM includes several areas classified in the City's Comprehensive Plan as Planned Mobility,[37] which may support both residential and commercial development in the future. One such area is a currently vacant parcel northeast of Runway 23 and east

[37] Planned Mobility has been generalized as "Mixed Use" for the purposes of this NEM Update. Planned Mobility may include a range of uses such as commercial, office, financial institutions, health care, residential, hotel, recreational, educational, community, and cultural facilities. Although some developments may have a single type of use, a mixture of land uses is specifically encouraged.

of I-95. It is anticipated that the area will be developed for mixed commercial and residential uses by 2030. BRAA has acquired avigation easements for this property, ensuring that any future development remains compatible with both BRAA's objectives and the City's land development policies, as described in the Comprehensive Plan.

5.3 COMPARISON OF 2025 AND 2030 NOISE EXPOSURE

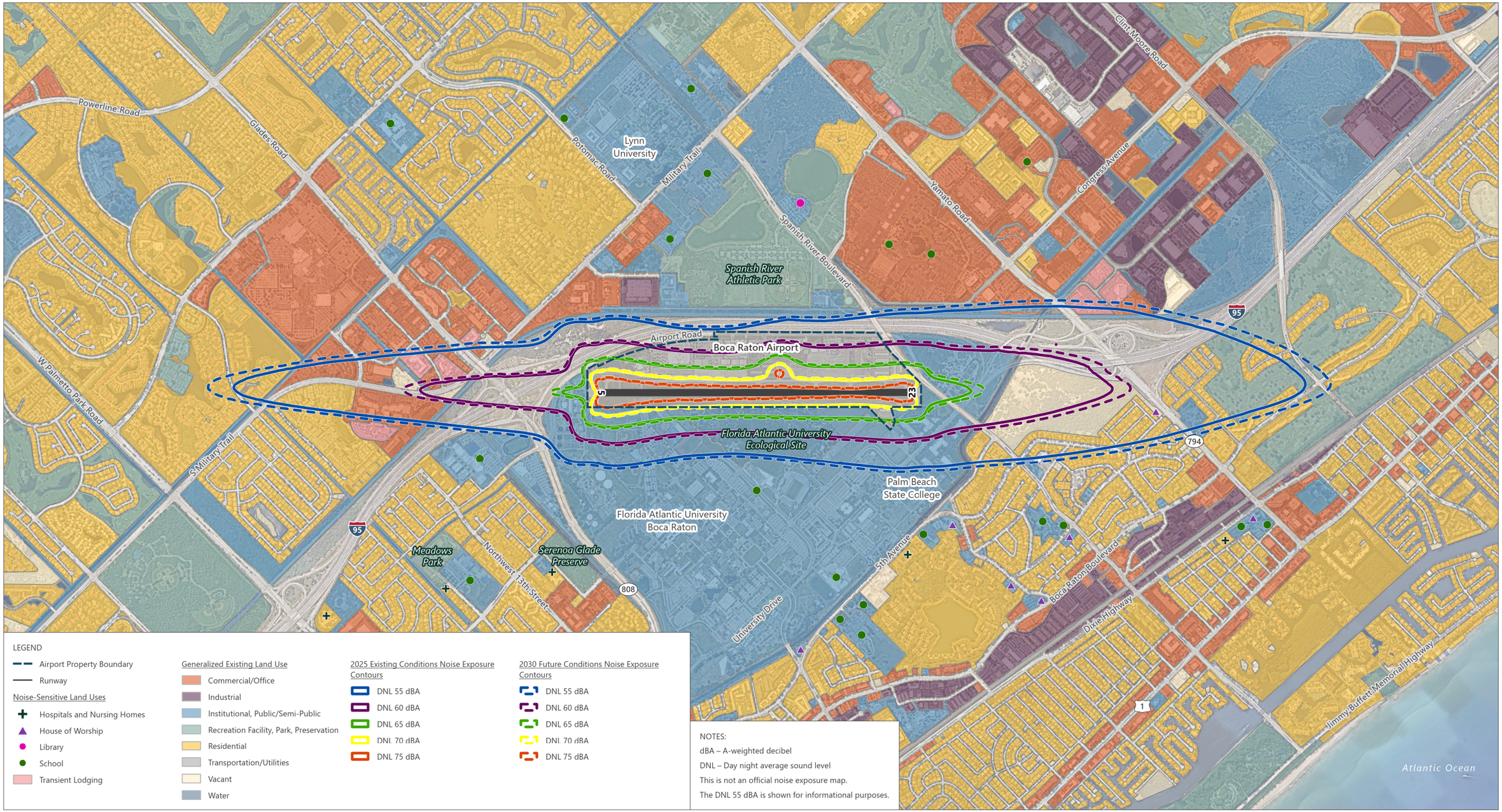
Exhibit 5-3 compares the 2025 existing conditions and 2030 future conditions noise contours. **Table 5-3** provides a comparison of the land area in acres. As shown in Exhibit 5-3, the DNL 65 dBA contour in the 2030 future conditions encompasses a larger land area than the corresponding contour in the 2025 existing conditions. This expansion results in a greater portion of land use classified as institutional falling within the DNL 65 dBA contour. However, most of the additional areas encompass transportation infrastructure classified as institutional land use and does not include noise-sensitive facilities or buildings within the DNL 65 dBA contour.

The DNL 60 dBA and higher contours show additional land area exposed to aircraft noise exposure due to the forecast increase in operations. While there is no increase in housing units or population, the 2030 future conditions reflect planned growth in mixed-use development under the City's Comprehensive Plan. This includes potential development on a previously vacant property northeast of Runway 23 and east of I-95. It is anticipated that the area will be developed for mixed commercial and residential uses by 2030. However, BRAA has acquired avigation easements for this property, ensuring that any future development remains compatible with both BRAA's objectives and the City's land development policies, as described in the Comprehensive Plan. While both the 2025 existing conditions and 2030 future conditions include FAU within the DNL 60 dBA and higher contours, the areas encompassed do not include any classroom or housing facilities, so they are compatible with BRAA and City land use planning policies.

TABLE 5-3 LAND AREA COMPARISON – EXISTING CONDITIONS (2025) AND FUTURE CONDITIONS (2030)

ANNUAL DAY NIGHT AVERAGE SOUND LEVEL (DBA)	LAND AREA (ACRES)		
	2025	2030	DIFFERENCE
DNL 60–65	272.00	300.69	+28.69
DNL 65–70	96.51	106.41	+9.90
DNL 70–75	54.46	56.88	+2.43
DNL 75+	43.27	47.77	+4.50
TOTAL DNL 60+	**466.24**	**511.76**	**+45.52**
TOTAL DNL 65+	**194.24**	**211.07**	**+16.83**

NOTE:
Totals may not add due to rounding.
SOURCE: Ricondo & Associates, Inc., August 2025 (based on the Federal Aviation Administration's Aviation Environmental Design Tool [AEDT], Version 3g).



SOURCES: Nearmap, May 2025 (aerial photography – for visual reference only, may not be to scale); Boca Raton Airport Authority, 2017 (Airport property, runway); Florida Department of Environmental Protection, 2025 (land use); Florida Geographic Data Library, 2024 (libraries); Florida Geographic Data Library, 2023 (schools); Florida Geographic Data Library, 2022 (houses of worship); Florida Geographic Data Library, 2018 (group care facilities); Ricondo & Associates, Inc., 2025 (lodging); Ricondo & Associates, Inc., Federal Aviation Administration, Aviation Environmental Design Tool (AEDT) Version 3g, August 2025 (noise exposure contours).

NORTH 0 2,000 ft

EXHIBIT 5-3

2025 EXISTING AND 2030 FUTURE CONDITIONS
NOISE EXPOSURE CONTOURS

Project: P:\GIS\Projects\BCT\APRX\BCT_NoiseExposure_20251002.aprx Layout: BCT_NEM_Ex5-3_ExistingAndFutureNEM_20251003

6. CONSULTATION AND PUBLIC INVOLVEMENT

6.1 INTRODUCTION

The NEM Update included consultations with municipalities and stakeholders, as required by 14 CFR 150.21(b) and A150.105(a), through an NTAC. The NEM Update also provided opportunities for public comment during meetings. Under 14 CFR 150.21(b) and A150.105(a) (Appendix A to 14 CFR Part 150), the NEMs and documentation should be prepared and submitted:

> in consultation with states, public agencies, and planning agencies whose area, or any portion of whose area, of jurisdiction is within the DNL 65 dBA contour depicted on the map, FAA regional officials, and other Federal officials having local responsibility for land uses depicted on the map. This consultation must include regular aeronautical users of the airport. The airport operator shall certify that it has afforded interested persons adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the draft noise exposure map and descriptions of forecast aircraft operations.

Consultation required by 14 CFR Part 150 includes the following stakeholders:

- aeronautical users (e.g., FBOs, pilots, based aircraft operators)
- jurisdictional authorities with land located within the DNL 65 or greater contours
- interested parties (i.e., the public)

For the NEM Update, stakeholder representatives included aeronautical users, the City, the FAA, the Palm Beach County Department of Aviation, and interested parties. According to 14 CFR 150.21(b), NEMs and documentation development present opportunities for public review and comment. Documents supporting the consultation process and opportunities for the public to comment are provided in **Appendices D** and **E**. Comments from the public and interested stakeholders were collected and considered throughout this NEM Update, as discussed in the following section.

6.2 NOISE TECHNICAL ADVISORY COMMITTEE

BRAA formed an NTAC to provide input throughout this NEM Update. The role of the NTAC was advisory and limited to this NEM Update. The role of each NTAC member was to provide input and technical advice regarding the NEM Update in addition to informing their respective organizations of the meeting discussions. BRAA had sole discretion to accept or reject the NTAC recommendations.

The NTAC was formed in accordance with 14 CFR 150.21(b). As such, the NTAC consisted of BRAA, FAA officials, public land use agencies within the anticipated noise exposure area, aeronautical users, Airport tenants (i.e., FBOs), community organizations (i.e., homeowners associations, local businesses), and individual local residents. **Table 6-1** lists the NTAC members.

TABLE 6-1 NOISE TECHNICAL ADVISORY COMMITTEE MEMBERS (BY ORGANIZATION)

NTAC MEMBER ORGANIZATIONS	
Airport Representatives	
Boca Raton Airport Authority	Boca Raton Airport Authority Board
Federal and Local Stakeholders	
City of Boca Raton	Federal Aviation Administration
Palm Beach County Department of Airports	
Airport Tenants and Aeronautical Users	
Signature Aviation	FHP Aviation
Atlantic Aviation	NetJets
Privaira	Global Wings
Boca Aircraft Owners	
Community Organizations	
Boomers!	Federation of Boca Raton Homeowners Associations
Via Verde Homeowners Association	Hab Center Boca Raton
Wimbledon Villas	
Institutions	
Lynn University	West Boca Raton Community High School

SOURCE: Boca Raton Airport Authority, August 2025.

BRAA held three NTAC meetings at key stages of the update process. A summary of those meetings, including dates and topics discussed, is provided below. Meeting announcements were sent to all NTAC members before each meeting. Advance notice of the meetings was posted on the project website, and they were open to the public. All NTAC meeting materials, including agendas, presentations, and meeting notes, are provided in **Appendix D**. NTAC meeting presentation materials were also made available on the study website.

NTAC Meeting #1 (June 17, 2025) – Introduction to the NTAC, 14 CFR Part 150 Study Overview, and FAA-Approved Forecast

The first meeting provided an overview of NTAC member roles and responsibilities, previous 14 CFR Part 150 studies at the Airport, and the NEM Update process. It also included a presentation of the FAA-approved forecast, an introduction to noise metrics, a preliminary operational analysis, a review of existing land uses, and a categorization of radar tracks.

NTAC Meeting #2 (August 22, 2025) – Noise Modeling Methodology, Operational Analysis, AEDT Flight Track Development, and Draft NEMs

The second meeting provided an overview of the noise modeling methodology, including detailed information on the key data necessary for generating noise contours using the AEDT. The inputs discussed included aircraft operational data such as annual operations counts, fleet mix, stage lengths, and aircraft flight tracks. The presentation also covered meteorological data and time-of-day distributions influencing noise propagation and weighting in the model. The draft NEMs for the 2025 existing conditions and 2030 future conditions were presented for review and discussion.

NTAC Meeting #3 (October 21, 2025) – Review of Draft NEM Update Report

The third meeting will provide NTAC members with an opportunity to review and discuss this draft NEM Update Report, including the data and inputs used to develop the draft NEMs.

6.3 PUBLIC MEETINGS, DRAFT NOISE EXPOSURE MAP UPDATE REPORT, AND PUBLIC COMMENTS

Throughout the update process, BRAA accepted comments from the public and held meetings to provide opportunities for the public and interested stakeholders to review and comment on information used in updating the NEMs. One public meeting was held at the beginning of the process, and a second is scheduled for October 22, 2025. Additional information on the public meetings and the draft NEM Update Report is provided below.

6.3.1 FIRST PUBLIC MEETING

The first public meeting for the NEM Update was held on June 18, 2025. Notice of the meeting was published in the Sun Sentinel on May 18, 2025, and shared through BRAA's social media accounts. The meeting provided an overview of the NEM Update process, the need for the update, opportunities for public involvement and comment, the FAA-approved forecast, and other relevant information. Informational materials included presentation boards and a handout summarizing key topics. Comment forms were also provided for those wishing to leave an official comment for consideration in updating the NEMs. Copies of the public meeting notice, sign-in sheets, presentation materials, and media coverage are included in **Appendix E**. No members of the public attended the meeting, and no comments were received.

6.3.2 SECOND PUBLIC MEETING

The second public meeting on the NEM Update is scheduled for October 22, 2025. The meeting will feature large-scale printouts of the draft NEMs for the 2025 existing conditions and 2030 future conditions. Representatives from BRAA and the consultancy team will be available to answer questions and provide additional context. Attendees will also be able to submit formal comments on the draft NEMs. Information on the second public meeting is provided below.

- **DATE:** Wednesday, October 22, 2025
- **TIME:** 1:00 to 3:00 p.m. Eastern
- **LOCATION:** Boca Raton Airport Authority Administration Building, 903 NW 35th Street, Boca Raton, FL

6.3.3 DRAFT NOISE EXPOSURE MAP UPDATE REPORT

A Notice of Availability of the draft NEM Update Report and a notice of the second public meeting was published in the Sun Sentinel on October 6, 2025. The notice stated that the draft NEM Update Report would be available for public review and comment on October 8, 2025. The notices were also placed on the NEM Update website. The draft NEM Update Report is available electronically (in PDF format) for download at https://bocaairport.com/noise-exposure-map-update/. Printed copies of the draft NEMs and accompanying report are also available for review during normal hours (9:00 a.m. to 5:00 p.m. Eastern) at the locations listed below.

- Boca Raton Airport Authority Administration Building, 903 NW 35th Street, Boca Raton, FL
- Spanish River Library located at 1501 Spanish River Blvd, Boca Raton, FL

6.3.4 PUBLIC COMMENTS

The comment period begins on October 8, 2025, and ends on November 6, 2025 (all comments must be received by 5:00 p.m. Eastern). The draft NEM Update Report will be available at the above locations until the close of the comment period. Anyone wishing to submit comments may do so at any time during the comment period. Comments on the draft NEMs may also be submitted online at https://bocaairport.com/noise-exposure-map-update/. All comments received on the draft NEM Update Report will be included in Appendix E. Responses to comments will be developed after the public comment period has closed. This section, along with Appendix E, will be updated before the final NEM Update Report is submitted to the FAA. There have been no public comments received to date on the NEM Update.

6.4 OTHER CONSULTATION AND PUBLIC OUTREACH

In addition to the public and NTAC meetings, BRAA presented information and materials to the BRAA Board (the Board), representatives from the City, and established a public webpage for the NEM Update. Additional elements of the consultation and public outreach program implemented by BRAA are summarized below.

6.4.1 BOCA RATON AIRPORT AUTHORITY BOARD MEETINGS

While BRAA staff manage the Airport and have managed the NEM Update, the Board holds the authority to authorize staff to sign the final NEM Update Report for submittal to FAA. As the Board's approval is required, it was involved throughout the NEM Update at BCT. BRAA held a meeting on June 18, 2025, where information specific to the draft NEM Update was presented for Board review and comment. A second Board meeting will be held on October 22, 2025. The Board will review and approve the final NEMs after the public comment period closes. Appendix D provides the information and materials presented at the Board meeting held in June 2025.

6.4.2 CITY OF BOCA RATON MEETING

BRAA held a meeting with the City to present the existing and future land use maps for review. Following the review, the City determined that both maps were consistent with the City's plans and land use data. Correspondence with the City is included in Appendix D.

6.4.3 TITLE 14 CODE OF FEDERAL REGULATIONS PART 150 STUDY INFORMATION WEBSITE

BRAA developed and published a dedicated public webpage to support the NEM Update.[38] The webpage was designed to facilitate the dissemination of information and materials used for the draft NEMs to the public and other interested stakeholders. Specifically, materials presented at NTAC meetings and public meetings were made available on the webpage. BRAA also provided an email address for the public and other interested individuals to submit questions or comments during the NEM Update process. There have been no public comments received to date on the NEM Update. The following information and documents were available on the website:

- upcoming project meetings
- NEM Update documents, including NTAC and public meeting materials, the draft NEM Report, and NEMs
- background information on 14 CFR Part 150, aircraft noise, and current noise abatement at BCT
- frequently asked questions

[38] The NEM Update webpage can be found at https://bocaairport.com/noise-exposure-map-update/.