DRAFT ENVIRONMENTAL ASSESSMENT FOR THE EXTENSION OF RUNWAY 14-32 AND RELATED IMPROVEMENTS

North Palm Beach County General Aviation Airport

Prepared for
Federal Aviation Administration

April 2024

Orlando Airports District Office
8427 South Park Circle, Suite 524
Orlando, FL 32819

Prepared by
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This environmental assessment becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official.

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Responsible FAA Official Date

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CHAPTER 1
Purpose and Need

1.1 Introduction

Palm Beach County (County) proposes to extend Runway 14-32 at North Palm Beach County General Aviation Airport (F45 or the Airport) from 4,300 to 6,000 feet and implement related Airport improvements. This would allow the Airport to fully serve its intended role as a reliever airport to Palm Beach International Airport (PBI) by accommodating larger aircraft (including business jets) with fewer operational restrictions, meeting the demands of general aviation (GA) aircraft operators. Actions in support of the runway extension include the extension of parallel Taxiway F, potential relocation of some aircraft parking, realignment of a section of Aviation Road, realignment/reconstruction of service roads, construction of a new air traffic control tower (ATCT), and related modification of the airport's stormwater management system. The need for a longer runway to serve regional airport users was identified in the 2006 F45 Master Plan Update. Very large business jets and commercial service aircraft will continue to use Palm Beach International Airport. Upon reviewing the 2018 Runway Extension Justification Study, the Federal Aviation Administration (FAA) approved the purpose and need for extending the runway on January 23, 2019. The 2018 Runway Extension Justification Study and FAA Letter of Approval are provided in **Appendix A**.

This Proposed Project requires certain decisions and approvals by the FAA, and these federal actions are subject to the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] §§ 4321-4335). Accordingly, this Environmental Assessment (EA) has been prepared pursuant to the requirements of Section 102(2)(C) of the NEPA, Council on Environmental Quality (CEQ) Regulations (Title 40 Code of Federal Regulations [CFR] Parts 1500-1508), and guidance contained in FAA Orders 1050.1F, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, and the 1050.1F Desk Reference. The FAA is the lead federal agency with primary responsibility to ensure the requested federal actions comply with NEPA.

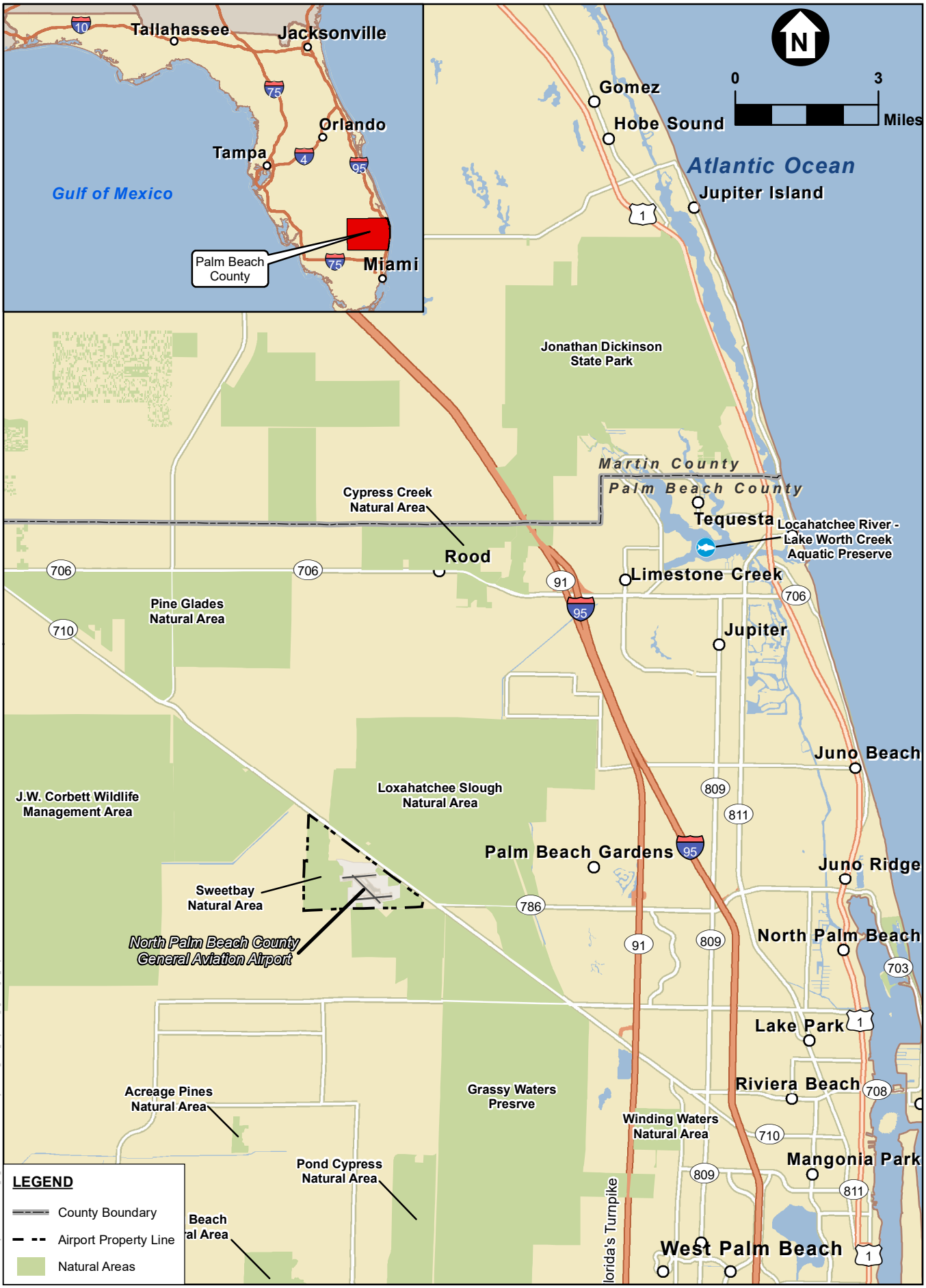
1.2 Airport Information

1.2.1 Airport Physical Setting

F45 is located on 1,832 acres in north Palm Beach County, Florida, two miles west of the city of Palm Beach Gardens, 1.5 miles north of the town of Loxahatchee, and 12 miles northwest of the city of West Palm Beach. The Airport is bordered by State Route 710 (Beeline Highway) to the north and east, the Loxahatchee Slough Natural Area to the south, and the Sweetbay Natural Area to the west and north. The Airport is 11 miles west of the Atlantic Ocean and 27 miles east of Lake Okeechobee. The Airport's location is depicted on **Figure 1-1**.

Palm Beach County is the third most populous county in Florida. Northern Palm Beach County is a fast-growing area of the County with several prominent communities, such as Hobe Sound, Jupiter, and Tequesta.[1] The County operates four airports: PBI (which provides commercial passenger service) and three GA airports: F45, Palm Beach County Park Airport (LNA), and Palm Beach County Glades Airport.

[1] United States Census Bureau, 2021. *American Community Survey 5-Year Estimates.*



Source: Esri; SFWMD, 2010; ESA, 2024.

North Palm Beach County General Aviation Airport Runway Extension EA

FIGURE 1-1
AIRPORT LOCATION

1.2.2 Natural Areas and Interlocal Agreements

To offset the loss of natural area when the Airport was developed, and to protect undeveloped lands in perpetuity, the 1990 Airport Development Order[2] required the establishment of 788 acres of Airport land as "Preserve A" to the north and 137 acres to be established as "Preserve B" to the southeast. These areas are protected by an Interlocal Agreement, as approved by the Treasure Coast Regional Planning Council and South Florida Water Management District (SFWMD). Thirty-two acres of wetlands on Airport property were preserved, and a buffer established to ensure their on-going identification and protection. An additional 29 acres of on-site wetlands were restored or enhanced to mitigate the loss of function and value of 33 acres within the footprint of Airport development. These natural areas, which were later renamed as Sweetbay, were to be maintained in accordance with a Florida Fish and Wildlife Conservation Commission (FWC) and U.S. Fish and Wildlife Service (USFWS)-approved Habitat Management Plan, developed by the Palm Beach County Zoning Division and Department of Environmental Resource Management (ERM). ERM implements the Habitat Management Plan to maintain upland and wetland habitats, control exotic vegetation, provide a controlled burning program, address recreation and other uses of the areas, and coordinate with the Airport regarding fencing, clear zone vegetation management, and other issues. Modifications or deviations from the requirements of the Development Order are determined by the Palm Beach County Board of County Commissioners. For more information on the natural areas, please see **Appendix G**. The Interlocal Agreement[3] required by the 1990 Development Order was finalized in 1992 and incorporates all the elements listed above. This Interlocal Agreement further identifies and details decision authority to the SFWMD for any modification, amendment, elimination, or change to the preserve area or the uses thereof.

The Interlocal Agreement was modified in 2011 to accommodate the need to remove wetlands considered by Palm Beach County to be a hazardous wildlife attractant at F45.[4] Approximately 55.84 acres of wetlands and surface waters, as well as an additional 28.25 acres of adjacent uplands (7.87 acres of which were designated as preserve area) were cleared, filled, and graded.[5] Wetland impacts associated with this project were mitigated through the purchase of 38.06 functional units from the Pine Glades West Mitigation Area, equating to approximately 630 acres of habitat improvements within the Loxahatchee River basin at the Pine Glades West Natural Area.

A separate Interlocal Agreement enacted in April 2016 between the Palm Beach County and the City of Palm Beach Gardens increased the allowable length of Runway 14-32 to a maximum of 6,000 feet. The aircraft approach category for the runway was identified as Category C (approach speed of 121 knots or more, but less than 141 knots), and the airplane design group was identified as Group II (wingspan of 49 feet or more, but less than 79 feet). This Interlocal Agreement also required the County to engage with the FAA on construction of an ATCT, pursuant to the FAA Contract Tower Program, upon completion of the runway extension.

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2 The *Development of Regional Impact* analysis and subsequent *Development Order for F45* outline the restrictions, limitations, and boundaries of the environmental preserves (Resolution R-90-294 of the Board of County Commissioners, Palm Beach County, Florida, approved on March 2, 1990).

3 As noted in Resolution 92-678, Palm Beach County and the South Florida Water Management District entered into the Interlocal Agreement on September 10, 1992.

4 South Florida Water Management District Environmental Resource Permit Modification Number 50-02617-S issued October 17, 2011. Permittee: Palm Beach County Department of Airports, F45. Modifying original permit issued March 14, 1991.

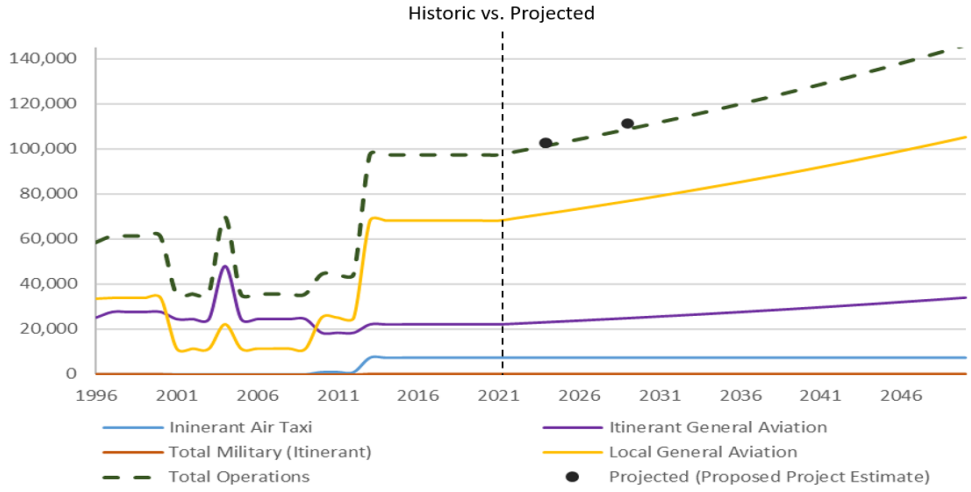
5 Palm Beach County Department of Airports, 2012. *Environmental Assessment for Wetland Modification for Wildlife Hazard Abatement at F45*. February.

1.2.3 Airport Services, Role, and Activity

The Airport is classified as a Regional General Aviation Airport and is a designated reliever airport for PBI.[6] F45 is situated between PBI, located 12 miles to the southeast, and Witham Field/Martin County Airport (SUA) located 20 miles to the north. F45 was opened in 1994 to relieve PBI by accommodating small GA aircraft activity, allowing PBI to focus on commercial and larger GA business jets. F45 also addressed growing aviation demand needs in the northern Palm Beach County and southern Martin County areas. This growth also generates jet aircraft operations at the Airport.

The Airport's three runways support business and recreational aircraft, including turboprop and small turbine business aircraft, as well as air charter and taxi service, military operations, and emergency medical and law enforcement services. Runway 9R-27L is 4,300 feet long and 100 feet wide, Runway 14-32 is 4,300 feet long and 75 feet wide, and the turf Runway 9L-27R is 3,679 feet long and 75 feet wide. Airport facilities also include a general aviation terminal, a large aircraft storage hangar, an aircraft maintenance hangar, and 176 individual aircraft storage hangars. Businesses located on the Airport include a fixed-base operator (FBO), aircraft maintenance shop, and both fixed-wing and helicopter flight schools. The distribution of operations by category of aircraft that operated at F45 in 2022 is approximately 79% piston-engine, 10% helicopter, 6% turboprop, and 5% jet.[7]

Table 1-1 and **Figure 1-2** summarize the estimated number of annual aircraft operations[8] at F45 for recent years and select forecast years.[9] Between 2012 and 2013, aircraft operations at the Airport increased by 120%, which was largely attributed to changes in the methods for estimating aircraft activity at the non-towered Airport. There were 264 aircraft based at F45 in 2021.[10]



SOURCE: FAA, 2022 Terminal Area Forecast, issued February 2023.

Figure 1-2
Aircraft Operations at F45, 1996 – 2045

6 *National Plan of Integrated Airport Systems 2023-2027*. FAA, September 30, 2022.
7 FAA TFMSC and ESA Analysis, 2023.
8 An aircraft operation is defined as one takeoff or one landing of an aircraft.
9 FAA, *2022 Terminal Area Forecast*, issued February 2023.
10 *Id.*

TABLE 1-1
FAA TERMINAL AREA FORECAST SUMMARY – F45

Fiscal Year	Itinerant Operations				Local Operations	Total Operations
	Air Taxi	General Aviation	Military	Total Itinerant	Total Local*	
Historic Activity						
2008	0	24,320	0	24,320	11,212	35,532
2009	0	24,320	0	24,320	11,212	35,532
2010	1,000	18,250	0	19,250	25,012	44,262
2011	1,000	18,250	0	19,250	25,012	44,262
2012	1,000	18,250	0	19,250	25,012	44,262
2013	7,300	21,950	100	29,350	68,050	97,400
2014	7,300	21,950	100	29,350	68,050	97,400
2015	7,300	21,950	100	29,350	68,050	97,400
2016	7,300	21,950	100	29,350	68,050	97,400
2017	7,300	21,950	100	29,350	68,050	97,400
2018	7,300	21,950	100	29,350	68,050	97,400
2019	7,300	21,950	100	29,350	68,050	97,400
2020	7.300	21,950	100	29,350	68.050	97,400
2021	7,300	21,950	100	29,350	68.050	97,400
Projected Activity						
2025	7,300	23,299	100	30,699	72,240	102,939
2030	7,300	25,100	100	32,500	77,846	110,346

SOURCE: FAA, *2022 Terminal Area Forecast*, issued February 2023.

* Local Total includes only civil aircraft operations – no local military operations are anticipated to occur at F45.

1.3 Description of the Proposed Project

1.3.1 Proposed Airport Improvements

Figure 1-3 depicts the Proposed Project, which consists of the following improvements at F45:

1.3.1.1 Runway 14-32 and Parallel Taxiway F Extension

The runway and taxiway extension, including associated infrastructure, would be designed and constructed to support the aircraft described in **Appendix A**.[11] The project's major components are described below.

- Extend Runway 14 to the northwest, increasing the runway length by 1,700 feet to a total length of 6,000 feet. Widen the entire length of the runway by 25 feet to a total width of 100 feet. Provide the necessary pavement strength to accommodate the design aircraft, as identified in **Appendix A.** This includes overlaying and reconstructing existing sections of existing pavement.

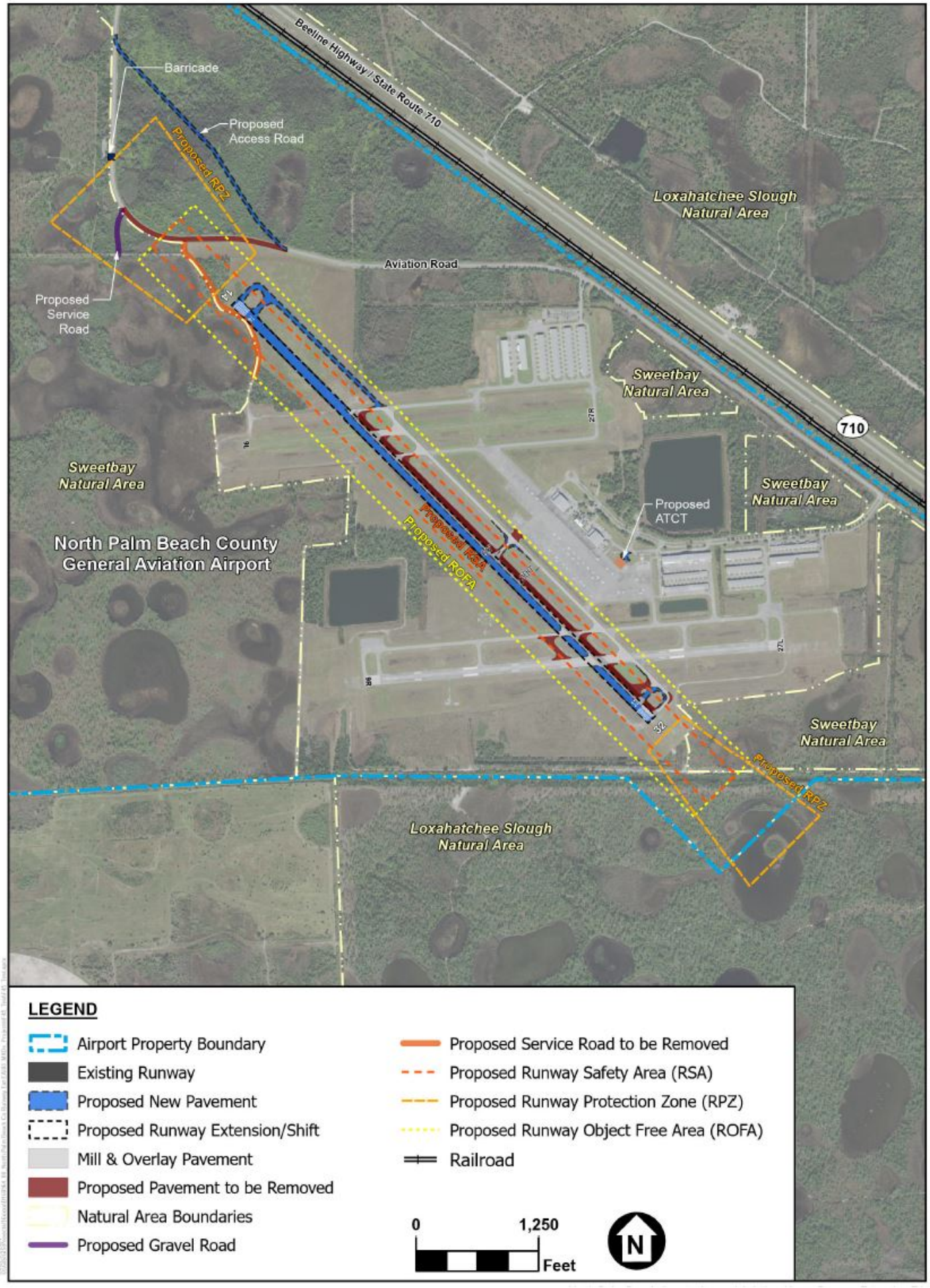
[11] With the increase in C-II aircraft operations at F45, the Draft 2020 F45 Master Plan Update recommended that the future/ultimate critical aircraft be represented by the C-II family of aircraft, which includes the Bombardier Challenger 300. As noted in the 2018 Runway Extension Justification Study, of the 712 additional operations expected 412 were in the current B-II category and 116 in the future C-II category for the Airport. Therefore, the induced aircraft mix in 2025 is not expected to significantly change the current operational fleet mix, whereas by 2030 the induced activity will likely change the critical aircraft to the C-II aircraft group.

- Extend parallel Taxiway F to the northwest, increasing the taxiway length by 1,700 feet to a total length of 6,000 feet and width of 35 feet. Construct a connector taxiway to the new Runway 14 threshold. Provide the necessary pavement strength to accommodate the design aircraft.
- Provide a runway-to-taxiway centerline separation of 300 feet by shifting the runway centerline by 60 feet.
- Clear objects, roads, and vegetation and compact and grade soils within the proposed Runway 14-32 and Taxiway F Safety Areas and Object Free Area. Construct a new access road beyond the Runway 14 end to reconnect the dead end at Aviation Boulevard outside of the proposed Runway Safety Area (RSA), Runway Object Free Area (ROFA), and proposed Runway Protection Zone (RPZ).
- Trim trees, vegetation, and objects that penetrate 14 CFR Part 77 airspace surfaces (e.g., Threshold Siting Surface, Departure Surfaces, Approach/Transitional Surfaces, or ROFA) and continuously maintain vegetation below a designated height not penetrating these surfaces.
- Culvert an existing drainage ditch and canal that runs through the RSA and RPZ beyond the end of Runway 32. Install new runway and taxiway edge lights and directional signs; relocate or install new Runway 14 threshold lights, Precision Approach Path Indicator (PAPI) lights, and Runway End Identifier Lights (REIL); and re-mark Runway 14-32 and Taxiway F pavement.
- Coordinate with FAA Air Traffic Organization (ATO) to develop new non-precision instrument approach procedures to the extended Runway 14 end. Remove close-in obstructions (e.g., trees), as needed. No major airspace changes are anticipated; if necessary, only minor procedural modifications would be required. Establishment of a new precision approach procedure is not part of the proposed project.

1.3.1.2 Supporting Actions

- *Airport Access Road Relocation*. Relocate a section of Aviation Road outside the proposed Runway 14 RPZ. The road would be rerouted to meet airport design standards and RPZ land use guidelines and minimize any wetland impacts. A section of existing roadway would remain in place and terminate in a cul-de-sac at the Sweetbay Natural Area public parking area. A portion of the closed segment pavement would be removed as needed in clearing and grading activities associated with establishing the proposed RSA and ROFA.
- *Service Road Construction.* To meet Airport and Sweetbay Natural Area maintenance access requirements, a single-lane, gravel service road would be constructed to replace service roads removed from the proposed RSA, ROFA, and RPZ. The service road would be designed to ensure final alignment avoids wetlands to the extent practicable and minimize wetland fragmentation.
- *Aircraft Parking.* Maintain at least existing area (approximately 33,000 square yards) of aircraft apron parking.
- *Air Traffic Control Tower.* Construct a new ATCT at the southeast corner of the aircraft parking apron off Aviation Road (Site 1) as shown in the F45 Tower Siting Study.[12] The new ATCT facility would be built, owned, and maintained by Palm Beach County and operated by a selected contractor.
- *Stormwater Management.* Modify the existing on-Airport stormwater management system to accommodate the Proposed Project. Further engineering of stormwater management features would be the result of on-going site planning and permitting processes, but may include the relocation and installation of ditches, swales, and culverts channeling stormwater into existing retention ponds. Note that these proposed stormwater management improvements are conceptual at this time and may be further refined as the design process continues.

[12] Jacobs, 2020. *F45 Tower Siting Study: Preliminary Sites Selection for Palm Beach County Department of Airports*. May 1, 2020.



Source: US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2024.

FIGURE 1-3
PROPOSED PROJECT

1.3.2 Anticipated New Aviation Activity

The purpose of the Proposed Project is to allow users of the Airport to operate larger aircraft (including jets) with fewer restrictions than those currently imposed by the existing runway length.[13] This affects existing users that may be limited to using smaller jets or operators using larger aircraft that are subject to weight limitations. It would also allow other (new) large jet operators to use the Airport. The Proposed Project is expected to induce an increase in aircraft operations at the Airport to meet existing demand from larger aircraft. This increase is summarized in **Table 1-2**.[14] This activity primarily includes corporate/business aircraft operations, as well as the potential for some aircraft maintenance activities.

For the purposes of this EA, the conclusions and methodology from the analysis outlined in the 2018 Runway Extension Justification Study were applied to select a reasonable estimate of future activity that would be generated by the Proposed Project. The year 2025 is anticipated to be the first full year after completion of the Proposed Project and an increase of 750 annual aircraft operations is expected. This activity level reflects approximately two new aircraft operations per day, which is roughly equivalent to the number of aircraft already operating at F45 that would benefit from the Proposed Project. It is assumed demand would grow to approximately 2,500 additional annual aircraft operations by 2030. The additional 2,500 operations included in the Proposed Project represent an increase of 2.3% over the 110,346 operations forecasted under the No Action Alternative for 2030. Assuming equal distribution over a calendar year, this increase is equivalent to an additional seven operations per day, or an average of an additional 49 aircraft flying in and out of F45 per week.

TABLE 1-2
ESTIMATED ADDITIONAL AIRCRAFT ACTIVITY

Fiscal Year	No Action – Baseline Operations[1]	Estimated Additional Operations with Proposed Project[2]	Change (%)
2025	102,939	750	0.7
2030	110,346	2,500	2.3

SOURCE: FAA, 2022 Terminal Area Forecast, issued February 2023. ESA, 2023.
NOTE:
1 Number of operations is derived from the Terminal Area Forecast
2 Based on estimates produced by ESA.

1.3.3 Project Costs and Funding

The conceptual cost estimate for the development of the Proposed Project, as shown in **Table 1-3**, is estimated to be $25.6 million. The County intends to seek FAA funding for certain project elements determined to be eligible under the Airport Improvement Program (AIP).[15] Florida Department of Transportation (FDOT) and the County would provide additional supplemental funding for the Proposed

13 At 6,000 feet, Runway 14-32 would be designed for C-II aircraft, which are within the limitations of the North Palm Beach County Airport Interlocal Agreement between Palm Beach County and the City of Palm Beach Gardens.

14 FAA 2019, *Terminal Area Forecast*, issued January 2020.

15 This EA provides information necessary for the FAA to fulfill its obligations under NEPA. Any decisions, determinations, and environmental approvals related to this EA do not signify an FAA commitment to provide financial support for the Proposed Project. A funding commitment can only be made if, and when, F45 submits a grant application for a specific, eligible project and FAA's consideration of the separate Federal funding criteria prescribed by 49 USC 47115(d) and 49 USC 40117.

Project, as needed. Note that stormwater modifications would be implemented, as designed, in association with each individual, site-specific project element and are not itemized separately.

TABLE 1-3
CONCEPTUAL PROJECT COST

Action	Estimated Cost ($)
Extend Runway 14 and Taxiway F	17.4 M
Construct Aircraft Parking Apron	1.0 M
Relocate Entrance Road	1.7 M
Construct Air Traffic Control Tower	4.8 M
Construct Service Road	0.25 M
Total	**25.15 M**

SOURCES: AID, 2020 and Jacobs *F45 Tower Siting Study*, 2020.
NOTES: M = Million. Cost estimates were developed in December 2019.

1.3.4 Conceptual Project Implementation Schedule

Table 1-4 provides a preliminary development schedule for the Proposed Project. Assuming the Proposed Project is approved, permits issued, and adequate funding is available, construction activities are anticipated to begin in 2024 and the project year opening would be 2025.

TABLE 1-4
CONCEPTUAL PROJECT SCHEDULE

Project Element	Projected Initiation (year)	Anticipated Construction Duration	Anticipated Year of Completion (year)
Extend Runway 14 and Taxiway F			
Design	2023		
Construction	2024	18 months	2025
Realign Access Road			
Design	2024		
Construction	2024	4 months	2025
Construct Air Traffic Control Tower			
Design	2024		
Construction	2024	22 months	2025

1.3.5 Permits Required

Permits that may be required to implement the Proposed Project are listed **Table 1-5**.

TABLE 1-5
SUMMARY OF REQUIRED PERMITS AND APPROVALS

Permit	Lead Agency	Status	Responsible Entity
Federal			
Clean Water Act Section 404 Wetland Permit	Florida Department of Environmental Protection	Permit required prior to construction	Palm Beach County
State			
National Pollutant Discharge Elimination System	Florida Department of Environmental Protection	Notice of Intent to Use General Permit or Permit required prior to construction	Palm Beach County
Gopher Tortoise Relocation Permit	Florida Fish and Wildlife Conservation Commission	Permit required if tortoises are located within project footprint	Palm Beach County
Environmental Resource Permit (ERP)	South Florida Water Management District	Permit modification required prior to construction	Palm Beach County
Local			
1992 Interlocal Agreement and Airport Development Order	City of Palm Beach Gardens	Approval to construct runway extension per April 2016 Addendum	Palm Beach County
1990 Interlocal Agreement	City of Palm Beach Gardens	Approval to construct runway extension per April 2016 Addendum	Palm Beach County
Local Construction Permits	Palm Beach County	Building permits required prior to construction	Construction Contractor

1.4 Purpose and Need for the Proposed Project

1.4.1 Purpose of the Proposed Project

The purpose of the Proposed Project is to allow users of the Airport to operate larger aircraft (including jets) with fewer operational restrictions than are currently imposed due to runway length.[16] This includes existing users that may be limited to using smaller jets or operators using larger aircraft that are subject to weight restrictions. It would also allow other (new) larger jet operators to use the Airport. While the length of the Airport's existing runway system can support the smaller GA jet and turboprop fleet, various larger aircraft may incur operational restrictions imposed by inadequate runway length.

A number of factors (such as aircraft weight, wind direction, elevation, and temperature) can affect the take-off and landing distance required by a given aircraft on a given day. Of these factors, the take-off weight of an aircraft is the only factor that pilots can control and, as such, pilots are occasionally required to reduce the number of passengers, the amount of payload, and/or the amount of fuel to depart from F45 under certain environmental conditions. Reducing the number of passengers and/or volume of payload creates inefficiencies and reducing fuel load may limit the range of the aircraft, requiring an intermediate re-fueling stop on the way to the final destination. In some cases, the lack of adequate runway length requires the use of smaller aircraft when flying through F45 or requires larger aircraft operators to use an alternate airport altogether.

The Proposed Project also includes supporting actions, including the rehabilitation of existing runway and taxiway pavements; construction and operation of an ATCT facility; the preservation of existing aircraft apron

[16] At 6,000 feet, Runway 14-32 would be designed for C-II aircraft, which are within the limitations of the North Palm Beach County Airport Interlocal Agreement between Palm Beach County and the City of Palm Beach Gardens.

parking area; and stormwater management. The FDOT rated the condition of the Runway 14-32 pavement in 2019 as fair (70 pavement condition index) and Taxiway F as fair/satisfactory (69 – 75 pavement condition index); however, these pavements date to the original construction of the Airport in 1994 and thus have surpassed the end of their 20-year design lifespan, with a projected need for full asphalt-concrete restoration by 2029.[17, 18] Furthermore, widening the runway requires that the additional pavement be fully integrated into the pavement structure, including matching elevations, grades, and pavement strength throughout the extent of the paved surface. The ATCT facility is proposed to enhance the safety and efficiency for users of the Airport and manage the mix of aircraft operating there. The F45 Tower Siting Study Preliminary Sites Selection [19] was prepared in May 2020 to investigate operational, physical, and financial feasibility, and it included a benefit-cost analysis and a preliminary site selection analysis that are incorporated into this EA. The Draft F45 Master Plan Update was prepared in 2020[20] and identified a rising deficiency of approximately seven aircraft tie-downs (3,556 square yards), estimating that an additional 40 tie-downs (15,756 square yards) would be required to accommodate projected future need.[21]

An existing network of maintenance roads serves the Sweetbay Natural Area and existing RPZ, RSA, and ROFA associated with Runway 14-32. These roadways allow authorized personnel to egress through wetland and other areas for vegetation management, to maintain both the Sweetbay Natural Area (e.g., invasive species control) and tree height requirements associated with glide slope specifications of user aircraft. The ERM confirmed the need to restore some access in these areas for on-going maintenance requirements if existing service roads are impacted by the Proposed Project. Some sections of maintenance road in the ROFA and RSA would not be replaced, as direct access to this space has been determined not critical to on-going maintenance operations.

1.4.2 Need for the Proposed Project

The Proposed Project is needed to allow F45 to fully serve its intended role as a reliever airport to PBI by better accommodating existing and prospective Airport users. The County seeks to advance F45's original objective, and the current runway lengths limit the ability of F45 to effectively perform the role as reliever for PBI. In particular, PBI serves a large volume of business jet aircraft that cannot currently effectively operate at F45 even though the Airport may be more conveniently located.

Planning efforts to allow the Airport to better accommodate the needs of both existing users and larger corporate jet aircraft have been on-going since the Airport opened in 1994 and are documented in periodic Airport Master Plan Updates. The existing F45 Airport Layout Plan (ALP) depicts a future extension and improvements to Runway 14-32 since 2006. The North Palm Beach County Comprehensive Plan (Revised 2023) incorporates the County Department of Airports Airport Master Plan Update (2006), including analysis of future land use compatibility for airport expansions.

17 Florida Department of Transportation, Statewide Airfield Pavement Management Program. 2019. *Airport Pavement Evaluation Report, North Palm Beach County General Aviation Airport, Reliever Airport, District 4*. November.

18 AC Restoration is defined as a "combination of asphalt pavement milling and overlay with 25% of the area subject to full-depth reconstruction."

19 Jacobs, F45 Tower Siting Study: Preliminary Sites Selection for Palm Beach County Department of Airports. 01 May 2020.

20 CH2M, 2019. *DRAFT* North Palm Beach County General Aviation Airport Master Plan – Facility Requirements. February.

21 This identified need accounts for the development of new apron parking, which is an on-going capital improvement project unrelated to this Proposed Project, implemented to meet the need that was identified in the 2006 Master Plan and 2009 Capital Improvement Project plan.

The 2018 Runway Extension Justification Study documents the types of aircraft that operate at the Airport and the issues, if any, associated with the lengths of the existing runways. Many current and potential users expressed the need for additional runway length to allow their aircraft to utilize F45 or take on more passengers and/or fuel when departing the Airport.[22] The provision of a 6,000-foot runway would support the needs of the existing users into the future and would expand utility to a larger class of aircraft. The 6,000-foot runway length would provide reasonable operational capabilities of between 60 and 90% of payload for 75% of the GA business jet fleet and is consistent with the needs of the users as identified in the surveys performed for the 2018 Runway Extension Justification Study. Operational conditions and regional demand were reviewed following the COVID-19 pandemic to determine if regional demand continues to support the need for the project. Based on a review of operational information from Palm Beach International Airport Noise and Operation Management System (ANOMS), Palm Beach International Airport served 45,791 business jet aircraft. Of these, 34,928 conform to the medium business jet categories of B-II, C-I or C-II. In 2022, there were a total of 52,175 business jet aircraft operating at PBI including 38,212 that fall in the medium business jet categories of B-II, C-I or C-II. This increase in demand for medium business jet aircraft underscores the continued need for improved capability to support this activity at F45 and fulfill its role as a reliever to PBI.

The Airport's economic output is estimated at more than $77 million per year.[23] In addition to being designated as a PBI reliever airport, F45 serves recreational flying, business activity, flight training, emergency medical aviation, law enforcement, public charters, hurricane relief efforts, and recreational events and, as such, supports local businesses.[24] The length of the existing runway limits its ability to fully serve these activities, and existing businesses that rely on F45 would also benefit from the increased ability to serve larger business class aircraft. The County has the third highest population in Florida and is popular for its tourism, with 47 miles of beach area; sports and recreation, with more than a dozen top golf courses, professional tournaments, and Professional Golf Association (PGA) of America headquarters in Palm Beach Gardens; business opportunities; and extensive agricultural production. Many of these industries regularly utilize the Airport, and businesses depend on F45 for large, international events such as the Honda Classic Golf Tournament.

Improving the operational capabilities of F45 not only provides more direct access for many of the users traveling to or from northern Palm Beach County, but also improves the growing region's resilience to significant events such as major storms and other environmental factors affecting the area. The 2006 F45 Master Plan and subsequent updates have concluded that the proposed extension is a reasonable and economically realistic enhancement that does not duplicate facilities available within the Palm Beach County System of Airports.

22 ESA, 2018. Runway Extension Justification Study, EA for the Extension of Runway 14-32 at North Palm Beach County General Aviation Airport.

23 Florida Department of Transportation, *Florida Aviation Economic Impact Study - F45*, 2022.

24 Florida Department of Transportation, *Florida Aviation Economic Impact Study - F45*, 2022.

1.5 Federal Actions

1.5.1 FAA's Role

Paragraph 201(a) in FAA Order 5050.4B, states that "airport sponsors[25] are responsible for deciding when and where airport development is needed and for building and operating airport facilities." Airport sponsors are required to seek FAA approvals necessary to implement proposed airport development projects and may also request federal funding for eligible projects under the AIP. The FAA's statutory mission is to ensure the safest, most efficient operation of the airport and airway system pursuant to Title 49, United States Code (USC) § 47101. The FAA accomplishes this mission, in part, through the review and approval of proposed airport development projects. The purpose of this process is to ensure compliance with safety, operational, airspace, and airport design standards. The Proposed Project requires FAA action and approval.

1.5.2 Requested Federal Actions

The specific federal actions under consideration through this EA include: (1) Unconditional approval of those portions of the F45 ALP that depict components of the Proposed Project pursuant to 49 U.S.C. §§ 40103(b), 44718, and 47107(a) (16), and Title 14 CFR Part 77; (2) Determination of eligibility for federal assistance under the federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (49 U.S.C. § 47101, et seq.); (3) Approval of further processing of an application for federal assistance for eligible components of the Proposed Project as shown on the ALP, using federal funds from the AIP and, (4) Amend existing and/or develop new air traffic procedures for F45 to include the proposed runway extension. The FAA would have to approve amended and/or new procedures, verify them through flight testing, and publish the procedures for general use.

[25] An airport sponsor is an airport, typically represented by an airport director, which has received FAA grants and is subject to Federal grant assurances.

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CHAPTER 2
Alternatives

2.1 Screening Process and Criteria

The alternatives screening process identifies and compares reasonable alternatives for the Proposed Project (as defined in Section 1.3). A two-tier screening process was used to screen alternatives and identify those to be evaluated in the Draft EA.

Level 1

Level 1 screening assessed whether the alternatives meet the purpose of and need for the Proposed Project (as defined in Section 1.4), including the following consideration:

- **Increase Accessibility:** The alternative would reduce operational limitations on current and prospective GA aircraft operations at F45 by providing adequate runway length to allow for the Airport to serve its intended role as a reliever airport to PBI by better accommodating existing and prospective Airport users.

Level 2

All alternatives that satisfied the Level 1 screening were carried forward to Level 2, which assessed the remaining alternatives in the context of existing land uses, constructability, potentially significant environmental effects, and operational efficiency. Criteria considered in the Level 2 analysis included:

- **Land Use:** avoids or minimizes impacts to, or acquisition of, adjacent, non-Airport land, including Sweetbay and Loxahatchee Natural Areas and avoids impacts from or to other constraints, including public roads and utilities.
- **Constructability:** does not have unusual or complex construction issues that may substantially increase construction costs, is buildable/feasible, and can be completed without substantial impacts to daily Airport operations.
- **Environmental Impacts:** considers overall habitat impacts as well as encroachment upon or impacts to wetlands, floodplains, Section 4(f) areas, recorded historic resources, or known critical habitat.
- **Operational Efficiency:** supports on-going safe, organized, and effective use and movement of aircraft and aviation support services. Promotes consolidation of functions and a logical design minimizing the need to transfer equipment between locations in support of aviation-related activity.

Alternatives that did not meet the evaluation criteria established at Level 2 were eliminated from further consideration and were not subject to a detailed analysis of environmental impacts in this EA. As required under Title 40 CFR § 1502.14(d), the No Action Alternative was advanced through the alternatives analysis as a basis of comparison against which the impacts of the other alternatives were evaluated.

Alternatives Not Considered

Potential alternatives eliminated from consideration prior to the screening process included the possible extension of either of the parallel runways to the east, which would be infeasible due to site constraints, such as State Route (SR) 710 and the CSX Railroad.

2.2 Alternatives Considered

Note that all alternatives include the construction of an ATCT on an estimated 0.5 acres of Airport land currently maintained as an open grass field at the southeast corner of the aircraft parking apron off Aviation Road. The ATCT location was recommended in the *F45 Tower Siting Study*[26] and was chosen due to its operational, physical, and financial feasibility. As no land use, constructability, environmental, or operational concerns are evident through this screening process, construction of the ATCT is carried forward for detailed analysis as a supporting action to the Proposed Project.

2.2.1 Alternative 1 - Use of Other Airports

Alternative 1 considered the utilization of other airport(s) within a 30-minute drive (or 20 nautical miles) of F45. According to the National Plan of Integrated Airport Systems (NPIAS), an airport system should provide convenient access to air transportation for as many people as possible, defined as typically not more than 20 miles of travel to the nearest NPIAS airport. The following airports operate within 20 miles of F45:

- PBI is located approximately 12 miles southeast of F45. It operates Runway 10L-28R, which is 10,001 feet long by 150 feet wide; Runway 14-32, which is 6,391 feet long by 150 feet wide; and Runway 10R-28L, which is 3,214 feet long by 75 feet wide.
- LNA is located 17 miles southeast of F45. It operates Runway 10-28, which is 3,489 feet long by 75 feet wide; Runway 16-34, which is 3,421 feet long by 100 feet wide; and Runway 4-22, which is 3,256 feet long by 75 feet wide.
- SUA is located 20 miles north of F45. It operates Runway 12-30, which is 5,828 feet long by 100 feet wide; Runway 16-34, which is 4,998 feet long by 100 feet wide; and Runway 7-25, which is 4,652 feet long by 100 feet wide.

Level 1 Screening. The use of other airports would not reduce operational limitations on current and prospective GA aircraft operations at F45. Prior to the establishment of F45, LNA functioned as a PBI reliever airport; however, LNA runways cannot accommodate larger business jet aircraft such as a Beechjet 400, Citation Latitude 680A, Lear 45, and Falcon 900B, among other aircraft types. PBI and SUA are the only airports within 20 miles that could meet the need for aircraft requiring a 6,000-foot runway; however, operational relief at PBI was one of the reasons for establishing F45, and thus shifting to or maintaining additional traffic at PBI is not an adequate solution and is often precluded by airspace restrictions. SUA has a runway that is nearly 6,000 feet in length, which could have already been accommodating relocated aircraft activity, but operators have chosen not to use that airport. Existing users have determined that F45 is the most economic and efficient location to base their operations, and the County does not have the authority to dictate that GA operations move to another airport. Thus, this alternative does not meet the purpose and need for the Proposed Project and was not carried forward for Level 2 Screening.

2.2.2 Alternative 2 - Other Modes of Transportation

Alternative 2 considered the use of other modes of transportation for the demand placed on F45, including the use of ground-based transportation resources such as trucks/automobiles, buses, conventional rail, and high-speed rail for the movement of people, goods, and services otherwise currently provided through the Airport.

[26] Palm Beach County Department of Airports, 2020. *F45 Tower Siting Study, Preliminary Sites Selection*. Prepared by Jacobs, May 1.

Level 1 Screening. Generally, vehicular and conventional train travel do not provide the same benefit as air travel because the travel times over similar distances (e.g., regional travel) cannot compete with the speed at which air travel serves a customer. Because these other modes of transportation would not provide a meaningful alternative to air travel, they would not be expected to meet the demands of GA aircraft operators or impact PBI's need for a reliever airport. Thus, the use of other modes of transportation does not meet the purpose and need for the Proposed Project and was not carried forward for Level 2 Screening.

2.2.3 Alternative 3 - Extend Runway 9R-27L to the West

Alternative 3 is depicted on **Figure 2-1** and would extend Runway 9R-27L and the full-length parallel Taxiway K 1,700 feet to the west to provide an overall runway/taxiway length of 6,000 feet. This Runway is already 100 feet wide and has 300 feet of runway-to-taxiway separation.

Level 1 Screening. This alternative would satisfy the purpose and need for the Proposed Project as it provides additional runway length at F45 that would allow larger aircraft (e.g., Beechjet 400, Citation Latitude 680A, Lear 45, and Falcon 900B) to use the Airport.

Level 2 Screening. This alternative was fully analyzed and eliminated in the 2006 Master Plan Update and was not carried forward for full analysis in this EA. The extension of Runway 9R-27L to the west would result in more encroachment into natural areas and wetlands than other alternatives. The rationale is summarized as follows:

Land Use: The environmental preserve areas situated immediately off the west end of the runway, and the Loxahatchee Slough natural area bordering the southern boundary of the Airport property constrain the area available for a westward extension of Runway 9R-27L.

The relocated segments of the highway and railroad would require acquisition of additional property, including land within the Loxahatchee Slough Preserve. Extending Runway 9R-27L to the west would also impact an estimated 106.3 acres within the Sweetbay Natural Area (71.9 acres to the west and 34.4 in the southeast).[27]

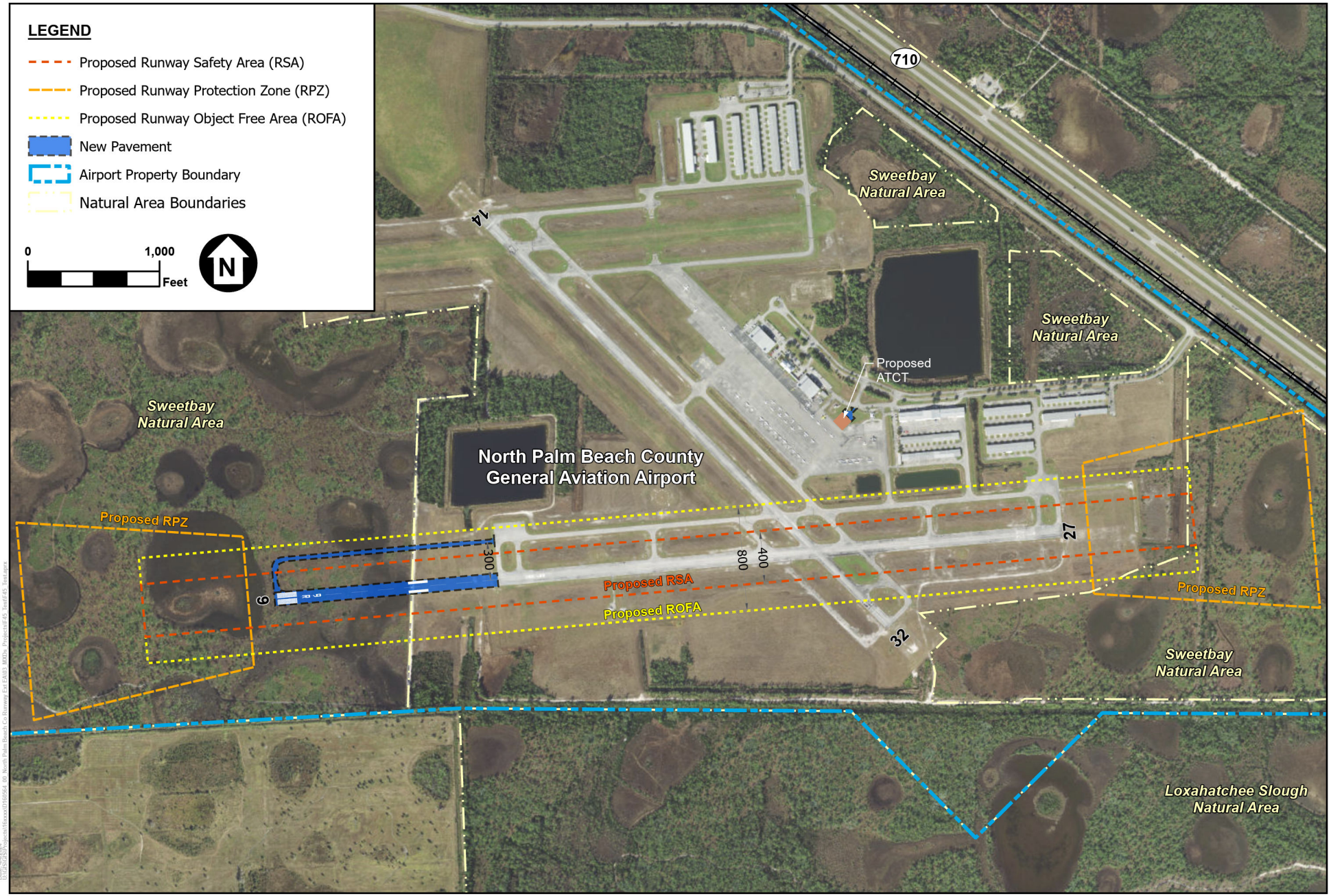
Constructability. This alternative is buildable/feasible and can be completed without substantial impacts to daily Airport operations. However, costs associated with clearing existing vegetation and transportation of required fill would be higher than other alternatives.

Environmental: An estimated 25.3 acres of wetlands would be impacted by this alternative. No effect to floodplains, Section 4(f) resources, recorded historic resources, or known critical habitat would be anticipated.

Operational Efficiency: There are no operational efficiency concerns with this alternative. This runway currently functions as the primary runway[28] at F45 and has efficient access to the majority of airfield hangar, fueling, and other ramp facilities.

[27] Wetlands estimates derived from US Fish and Wildlife Service, 2019 *National Wetlands Inventory* database

[28] A primary runway is the runway used for the majority of airport operations, typically oriented in the direction of the prevailing wind (FAA Advisory Circular 150/5300-13A).



Source: ESA, 2024; Palm Beach County, 2022.

FIGURE 2-1
ALTERNATIVE 3 - ALTERNATIVE TO EXTEND RUNWAY 9R-27L WEST

2.2.4 Alternatives 4 through 7 - Extend Runway 14-32 to the Northwest

Four alternatives for the extension of Runway 14-32 were examined for implementing the Proposed Project, as described in Section 1.3, and maintaining adequate runway/taxiway separation required for larger aircraft. Alternative 4 includes shifting the alignment of Runway 14-32 and Alternative 5 includes shifting the alignment of Taxiway F, both to provide required taxiway-to-runway spacing. In addition, two alternatives that included shifting the Runway 14-32 alignment and taking steps to reduce the length of the RSA beyond the Runway 14 end were also analyzed. Alternative 6 would incorporate installation of an Engineered Material Arresting System (EMAS) bed beyond each runway end and Alternative 7 would implement declared distances and shifting the runway threshold to accomplish the same aim. The specific impacts described in the following sections are summarized in **Table 2-1**.

2.2.4.1 Alternative 4 – Shift Runway Centerline by 60 Feet and Extend Runway 1,700 Feet (Proposed Project)

Alternative 4 is depicted on **Figure 2-2** and would shift (offset) the Runway 14-32 centerline 60 feet to the southwest and widen Runway 14-32 by 25 feet for a total runway width of 100 feet. The 1,700-foot runway extension and relocation would require 51,000 square yards of additional pavement and the removal of 19,000 square yards of existing pavement. A geotechnical survey determined that, because the existing pavements are more than 25 years old, the runway surface would require a total, full-depth reconstruction and strengthening.[29] The existing asphalt would be reclaimed and used to fortify the new base and new asphalt would be installed over the top.

Extending the taxiway and establishing connectors would require 15,100 square yards of new pavement and the removal of 4,100 square yards of old pavement. As with the runway, Taxiway F would also require a total, full-depth reconstruction and strengthening of existing pavements, and existing asphalt would be reclaimed and used in the reconstruction. The proposed RSA, ROFA, and RPZ would shift to the northwest in correspondence with the extended runway.

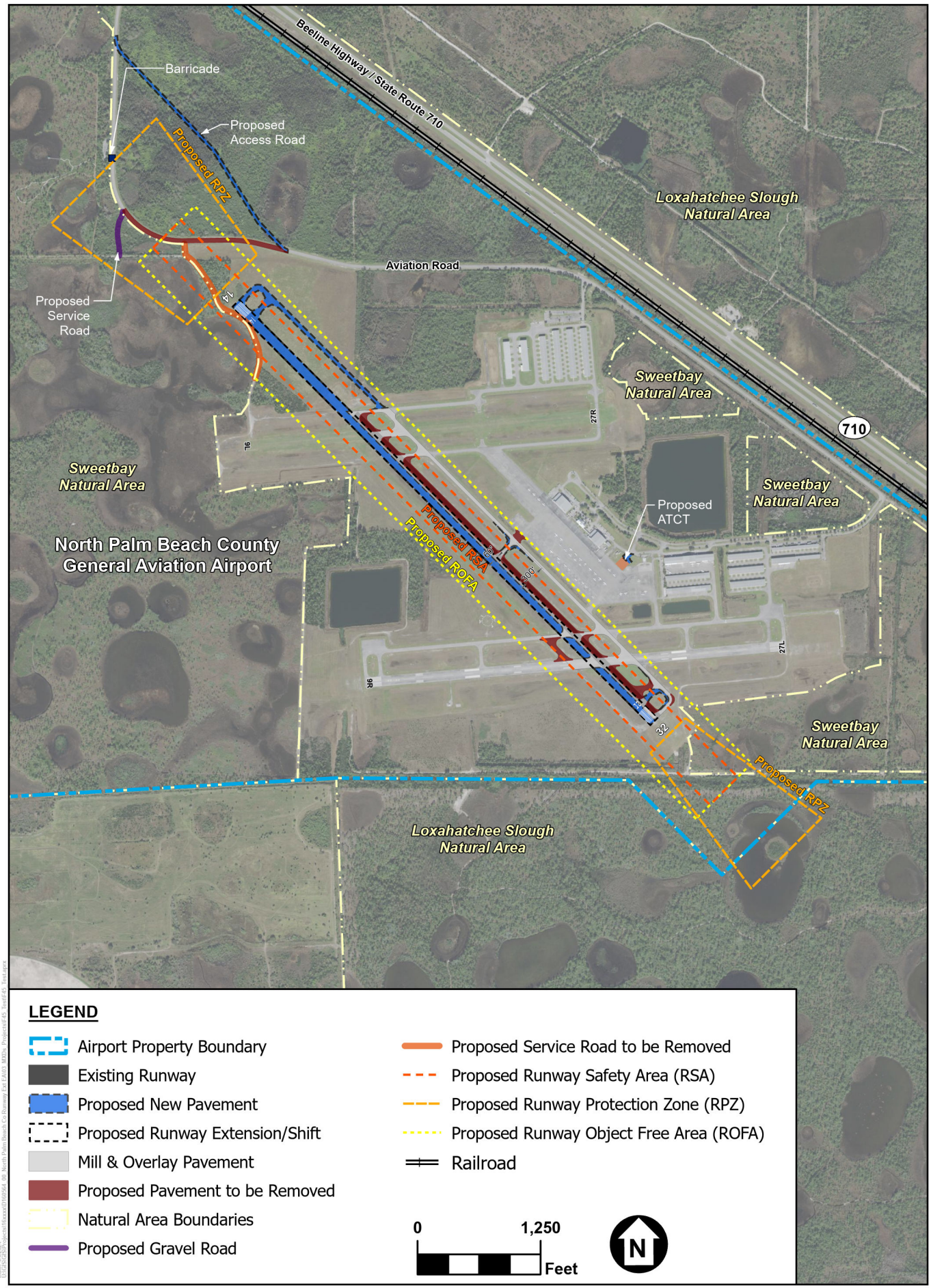
Level 1 Screening. This alternative would extend the runway and taxiway by 1,700 feet, which would reduce operational limitations on current and prospective GA aircraft operations. Thus, this alternative would meet the purpose and need, as discussed in Section 1.4.

Level 2 Screening.

Land Use. This alternative would impact acreage within both the Loxahatchee Slough and Sweetbay Natural Areas. It would not impact SR 710 or the CSX Railroad but would require the removal and relocation of a portion of Aviation Road and unpaved service roads from the proposed RPZ beyond the Runway 14 end. An existing drainage ditch and drainage canal that transect the Runway 32 RPZ would require culverting.

An estimated 6.66 acres of County-owned Loxahatchee Slough Natural Area would become part of the proposed RPZ at the Runway 32 end. The existing land use is compatible and no physical alternation within this area would be required.

[29] AID, 2021. *Geotechnical Report for the Extension of Runway 14-32 at North Palm Beach County General Aviation Airport*.



Source: US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2024.

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FIGURE 2-2

ALTERNATIVE 4 – SHIFT RUNWAY CENTERLINE BY 60 FEET AND EXTEND RUNWAY 1,700 FEET (PROPOSED PROJECT)

An estimated 32.27 acres of existing Airport property within the Sweetbay Natural Area would be affected (26.34 acres at the Runway 14 end and 5.93 acres at the Runway 32 end). At the Runway 14 end, 11.62 acres would be transferred to Airport use and cleared to support the proposed RSA and ROFA, and 14.72 acres would be transferred to maintain the proposed RPZ on Airport property. At the Runway 32 end, 5.76 acres would be converted to Airport use and cleared to support the proposed RSA and ROFA, and 0.17 acres would be impacted by the proposed RPZ.

The proposed RPZ at the Runway 14 end would extend over 1,845 feet of the existing public-use Airport 2-lane paved access road. A section of Aviation Road would be constructed on an alignment outside of the proposed RPZ. This new section of road would be approximately 2,800 feet long by 32 feet wide with a 60-foot right-of-way (9,956 square yards of new pavement). Approximately 1,750 linear feet of old access road pavement would be removed. Approximately 750 linear feet of existing road within the proposed RPZ would be left in place, but its use would be restricted to Sweetbay Natural Area and County personnel for use in on-going maintenance. A proposed 467-foot-long service road segment would be constructed from the closed section of Aviation Road to an existing service road to the southwest.

The proposed RSA and ROFA at the Runway 14 end would require the removal of 762 linear feet of an existing dirt and gravel Airport utility road. However, this length of service road has been determined to not be critical for on-going maintenance of the space it currently serves, and it would not be replaced.

Constructability. There are no constructability concerns identified with this alternative.

Operational Efficiency. This alternative would likely enhance operational efficiency at F45. Rather than restricting parking and maneuvering space or constricting future development elsewhere on the Airport property, this alternative would maintain current operational capability while providing for further enhancement of access to the terminal area as it accommodates a larger class of aircraft and increased user demand.

Environmental Impacts. This alternative would impact an estimated 11.4 acres of wetlands within the proposed RSA and ROFA (11.3 acres within Sweetbay Natural Area and 0.1 acre outside the Natural Area). Of that total, 2.4 acres of wetlands (inside the RSA) would be cleared and graded, and the remaining 9.0 acres would be cut and maintained below the runway elevation. There are an additional 12.95 acres of airfield drainage features that contain wetlands vegetation, as well as several features that do not contain vegetation and there are approximately 14 acres of wetlands within the proposed RPZs, but those areas are comprised of freshwater marsh and wet prairie habitats. Impacts would be limited to select vegetation and tree trimming and would not result in the conversion of wetland habitat. The new service road segment would not impact wetlands. The location of the rerouted portion of Aviation Road would be further refined to avoid and minimize impacts to wetlands, and, although the planned route may impact an estimated 1.16 acres of wetlands, the road design would incorporate a culverting system under the roadbed to maintain hydrologic connectivity of wetlands bisected by the new road alignment. The total direct wetland impacts for this alternative are 12.56 acres.

An existing canal and drainage ditch at the Runway 32 end would be culverted to maintain the existing conveyance of surface water and runoff away from the airfield while ensuring compliance with applicable FAA design standards.

The proposed RPZ at the northwestern end of the proposed Runway 14 extension would be adjacent to, but not extend over, the developed trail and parking area at the Sweetbay Natural Area.

No effect to floodplains, recorded historic resources, or known critical habitat would be anticipated.

2.2.4.2 Alternative 5 – Extend Runway Along the Existing Centerline and Shift Taxiway F by 60 Feet

Alternative 5 is depicted on **Figure 2-3** and would shift Taxiway F northeast 60 feet and widen Runway 14-32 by 25 feet, for a total runway width of 100 feet. Extending the runway 1,700 feet would require approximately 26,000 square yards of new pavement. Extending and relocating the taxiway and connectors would require an additional 31,000 square yards of new pavement and the removal of 20,400 square yards of existing pavement. Due to pavement age, all existing pavements would be fully reconstructed and strengthened.[30] The existing asphalt would be reclaimed and used to fortify the new base and the new asphalt would be installed over top.

Level 1 Screening. This alternative would extend the runway and taxiway by 1,700 feet, which would reduce operational limitations on current and prospective GA aircraft operations. Thus, the alternative would meet the purpose and need, as discussed in Section 1.4.

Level 2 Screening.

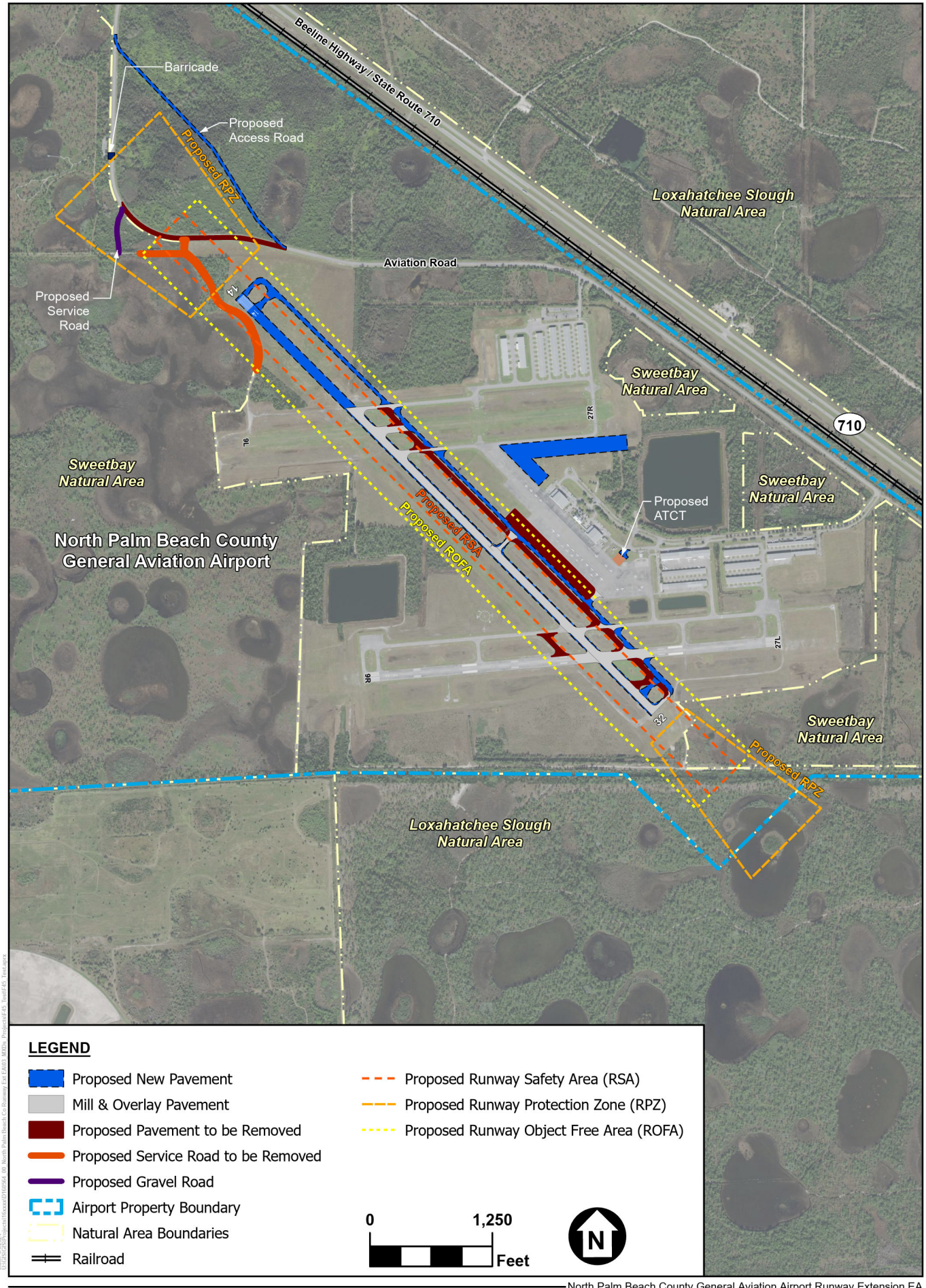
Land Use. This alternative would require the transfer of acreage within both the Loxahatchee Slough and Sweetbay Natural Areas. It would not impact SR 710 or CSX Railroad but would require the removal and relocation of a portion of Aviation Road and unpaved service roads. An existing drainage ditch and drainage canal that transect the Runway 32 RPZ would require culverting.

An estimated 6.6 acres of County-owned Loxahatchee Slough Natural Area would become part of the proposed RPZ at the Runway 32 end. The existing land use is compatible and no physical alternation within this area would be required.

An estimated 30.2 acres of existing Airport property in the Sweetbay Natural Area would be impacted (22.99 acres at the Runway 14 end and 7.21 at the Runway 32 end). At the Runway 14 end, 9.43 acres of Sweetbay Natural Area would be transferred to Airport use and cleared to support the proposed RSA and ROFA, and 13.56 acres would be transferred to maintain the proposed RPZ on Airport property. At the Runway 32 end, 6.83 acres of Sweetbay Natural Area would be converted to Airport use and cleared to support the proposed RSA and ROFA, and 0.38 acres would be included in the proposed RPZ.

The proposed RPZ at the Runway 14 end would extend over 1,845 feet of the existing public-use Airport 2-lane paved access road. A section of Aviation Road would be constructed on an alignment outside of the proposed RPZ. This new section of road would be approximately 2,800 feet long by 32 feet wide with a 60-foot right-of-way (9,956 square yards of new pavement). Approximately 1,750 linear feet of old access road pavement would be removed. Approximately 750 feet of existing road within the proposed RPZ would be left in place, but its use would be restricted to Sweetbay Natural Area and County personnel for on-going maintenance. A new 467-foot-long segment of service road would be constructed from the closed section of Aviation Road to an existing service road to the southwest.

[30] AID, 2021. *Geotechnical Report for the Extension of Runway 14-32 at North Palm Beach County General Aviation Airport*



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Source: US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2024.

FIGURE 2-3

ALTERNATIVE 5 - EXTEND RUNWAY ALONG THE EXISTING CENTERLINE AND SHIFT TAXIWAY F BY 60 FEET

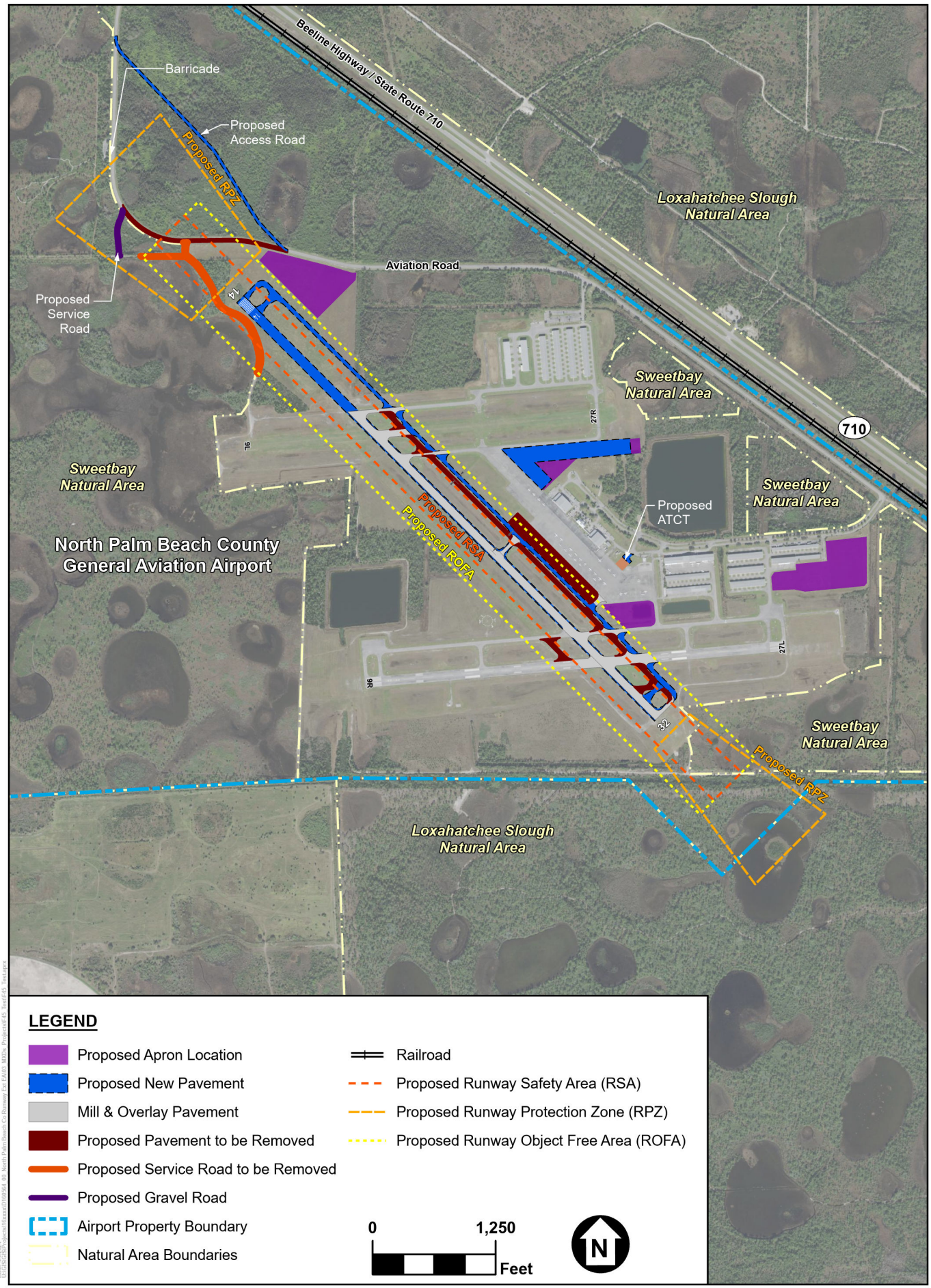
The proposed RSA and ROFA at the Runway 14 end would require the removal of 762 linear feet of an existing dirt and gravel Airport utility road. However, this service road removal is not anticipated to inhibit on-going maintenance in the area. No new realigned service road segment would need to be constructed in its place, and no additional acquisition of Sweetbay Preserve area would be necessary.

Constructability. Shifting Taxiway F 60 feet to the northeast would displace and require the replacement of 15,000 square yards of existing aircraft parking apron (affecting 37 aircraft tie-downs and two helipads) and limit the space available for a separate parking apron project currently under design to 13,127 square yards instead of the existing 26,146 square yards. Four alternative locations for relocating this function and restoring aircraft parking apron capacity were considered, as depicted in **Figure 2-4**.

- *Site A: Southeast of Existing Apron*. 12,300 square yards are available in this location; however, although this area is immediately adjacent to the potentially impacted area, it is not large enough to capture the entire volume of parking that would be displaced by the implementation of this runway extension alternative.
- *Site B: North of Terminal.* 32,100 square yards are available at this location. Although not immediately contiguous to existing aircraft apron parking, it would tie into existing Taxiway D and the existing parking apron.
- *Site C: Southeast of Property.* 37,500 square yards are available at this location; however, this area is preferentially designated in the on-going Draft 2020 Master Plan Update to accommodate future expansion of hangars, and its distance from the runway system makes it a less efficient option for apron parking.
- *Site D: Northeast of Taxiway F Extension.* 35,500 square yards are available in this location; however, this area is completely removed from the current FBO apron area and has been identified in the Draft 2020 Master Plan Update to accommodate an additional FBO, as needed. Furthermore, this location would require filling an estimated three acres of wetlands.

Operational Efficiency. The shift in the taxiway alignment both displaces the existing aircraft parking apron and limits the future ability to expand the terminal area apron to the north. Reducing apron depth reduces the capacity to meet increased need for parking and maneuvering space serving a larger class of high-performance aircraft in and around the terminal area apron. Additionally, most alternatives for apron replacement would place aircraft much further away from the existing FBO, terminal, and runway/taxiway. These locations would increase the time it takes to travel through the Airport, and the multiple turns and smaller spaces increase the complexity of maneuvering larger aircraft and aviation support services.

Environmental Impacts. This alternative would clear, and/or grade and fill an estimated 16.26 acres of wetlands in the proposed RSA and ROFA. There are an additional 12.95 acres of airfield drainage features that contain wetland vegetation, as well as several features that do not contain vegetation. There are approximately 14 acres of wetlands within the proposed RPZs, but those areas are comprised of freshwater marsh and wet prairie habitats. Impacts would be limited to select vegetation and tree trimming and would not result in the conversion of wetland habitat. The location of the rerouted portion of Aviation Road would be further refined to maximize avoidance of wetlands, and, although the planned route may impact an estimated 1.16 acres of wetlands, the road design would incorporate a culverting system under the roadbed to maintain hydrologic connectivity of wetlands bisected by the new road alignment. This alternative would avoid the drainage ditch and canal that transect the Runway 32 RPZ, avoiding the need to culvert these facilities. The total wetland impacts for this alternative is 17.42 acres.



Source: US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2024.

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FIGURE 2-4

ALTERNATIVE 5 - LOCATIONS FOR AIRCRAFT PARKING APRON DISPLACED BY THE SHIFT TAXIWAY ALTERNATIVE

The proposed RPZ at the northwestern end of the proposed Runway 14 extension would be adjacent to, but not extend over, the developed trail and parking area at the Sweetbay Natural Area.

Limited, if any impacts to floodplains, recorded historic resources, or known critical habitat would be anticipated.

2.2.4.3 Alternative 6 - Shift Runway Centerline by 60 Feet, Extend Runway 1,700 feet, and Install EMAS

Figure 2-5 depicts Alternative 6, which, like the Proposed Project (Alternative 4), would shift the Runway 14-32 centerline 60 feet to the southwest and widen Runway 14-32 by 25 feet for a total runway width of 100 feet. The 1,700-foot Runway extension and relocation would require 51,000 square yards of additional pavement and the removal of 19,000 square yards of existing pavement. The runway surface would require a total, full-depth reconstruction and strengthening. The existing asphalt would be reclaimed and used to fortify the new base and the new asphalt would be installed over top.

Extending the taxiway and establishing connectors would require 15,100 square yards of new pavement and the removal of 4,100 square yards of pavement. As with the runway, Taxiway F also requires a total, full-depth reconstruction and strengthening of existing pavements, and existing asphalt would be reclaimed and used in the reconstruction.

The proposed RSA, ROFA, and RPZ would shift to the northwest in correspondence with the runway extension. However, this alternative would include the installation of 178-foot long by 120-foot wide EMAS arrestor beds at a 420-foot setback from each runway end. EMAS is composed of a "high energy absorbing materials of selected strength, which will reliably and predictably deform under the weight of an aircraft."[31] This would effectively reduce the required RSA length beyond the runway end from 1,000 feet to 600 feet. Installation of EMAS beds and reduction of the RSA length is considered under this alternative as a means of potentially reducing impacts to wetlands on Airport property and in the Sweetbay and Loxahatchee Natural Areas that would otherwise need to be filled and mitigated. The FAA considers a properly sized and located EMAS bed to be an acceptable method for bringing an otherwise non-conforming RSA into compliance with applicable design standards. However, the FAA advises that EMAS beds should only be considered when developing a full-sized RSAs is not practicable.[32]

Level 1 Screening. This alternative would extend the runway and taxiway by 1,700 feet, which would reduce operational limitations on current and prospective GA aircraft operations. Thus, this alternative would meet the purpose and need, as discussed in Section 1.4.

Level 2 Screening.

Land Use. This alternative would impact acreage within both the Loxahatchee Slough and Sweetbay Natural Areas. It would not impact SR 710 or CSX Railroad but would require the removal and relocation of a portion of Aviation Road and unpaved service roads. An estimated 6.66 acres of County-owned Loxahatchee Slough Natural Area would become part of the proposed RPZ at the Runway 32 end. The existing land use is compatible and no physical alternation within this area would be required. An estimated

31 FAA, AC 150/5220-22B, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*, September 27, 2012, < https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_150_5220-22B.pdf>, Accessed November 2022.

32 FAA, Order 5200.8, Runway Safety Area Program, October 1, 1999, <https://www.faa.gov/documentLibrary/media/Order/Construction_5200_8.pdf>, Accessed November 2022.

31.81 acres of existing Airport property within the Sweetbay Natural Area would be impacted (26.42 acres at the Runway 14 end and 5.39 acres at the 32 end). At the Runway 14 end, 8.22 acres would be converted to Airport use and cleared to support the proposed RSA and ROFA, and 18.2 acres would be required to maintain the proposed RPZ on Airport property. At the Runway 32 end, 2.49 acres would be transferred to Airport use and cleared to support the proposed RSA and ROFA, and 2.9 acres would be included in the proposed RPZ.

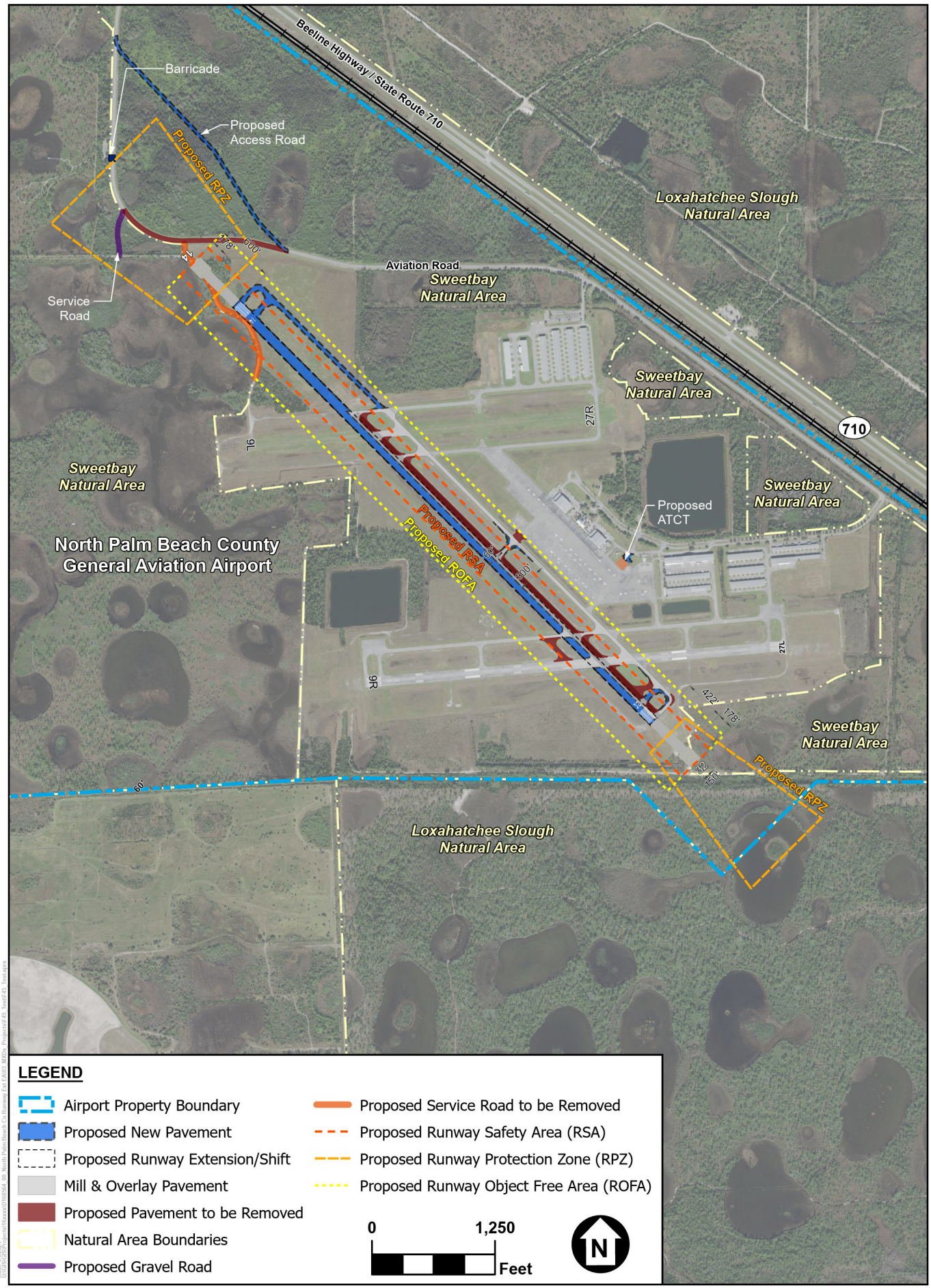
The proposed RPZ at the Runway 14 end would extend over 1,845 feet of the existing public-use Airport 2-lane paved access road. A section of Aviation Road would be constructed on an alignment outside of the proposed RPZ. This new section of road would be approximately 2,800 feet long by 32 feet wide with a 60-foot right-of-way (9,956 square yards of new pavement). Approximately 1,750 linear feet of old access road pavement would be removed. Approximately 750 linear feet of existing road within the proposed RPZ would be left in place, but its use would be restricted to Sweetbay Natural Area and County personnel for use in on-going maintenance. A new 467-foot-long service road segment would be constructed from the closed section of Aviation Road to an existing service road to the southwest.

Constructability. While this alternative is fully constructable, the alternative would be more costly (approximately $3.2 million for EMAS installation plus maintenance and periodic material replacement) while providing limited reductions in impacts to wetlands. Furthermore, EMAS is generally only supportable in instances when inadequate area is available to build fully compliant, standard RSAs. This is not the case at F45, where adequate land is available beyond both runway ends for development of full-sized RSAs.

Operational Efficiency. This alternative would likely enhance operational efficiency at F45. Rather than restricting parking and maneuvering space or constricting future development elsewhere on the Airport, this alternative would maintain current operational capability while providing for further enhancement of access to the terminal area as it accommodates a larger class of aircraft and increased user demand.

Environmental Impacts. This alternative would fill, clear, and grade an estimated 7.3 acres of wetlands in the proposed RSA and ROFA. There are an additional 12.95 acres of airfield drainage features that contain wetlands vegetation as well as several features that do not contain vegetation. There are approximately 14 acres of wetlands within the proposed RPZs, but those areas are comprised of freshwater marsh and wet prairie habitats and impacts would be limited to select vegetation and tree trimming and would not result in the conversion of wetland habitat. The new service road segment would not impact wetlands. The location of the rerouted portion of Aviation Road would be further refined to maximize avoidance of wetlands, and, although the planned route may impact an estimated 1.16 acres of wetlands, the road design would incorporate a culverting system under the roadbed to maintain hydrologic connectivity of wetlands bisected by the new road alignment. This alternative would avoid the drainage ditch and canal that transect the Runway 32 RPZ, avoiding the need to culvert these facilities. The total wetland impacts for this alternative is 8.46 acres. Overall, there is no discernable reduction in wetland impacts associated with this alternative. The proposed RPZ at the northwestern end of the proposed Runway 14 extension would be adjacent to, but not extend over, parking and trail access to the Sweetbay Natural Area.

No effect to floodplains, recorded historic resources, or known critical habitat would be anticipated.



Source: US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2024.

North Palm Beach County General Aviation Airport Runway Extension EA

FIGURE 2-5

ALTERNATIVE 6 - SHIFT RUNWAY CENTERLINE BY 60 FEET, EXTEND RUNWAY 1,700 FEET, AND INSTALL EMAS

2.2.4.4 Alternative 7 - Shift Centerline 60 feet and Extend Runway 1,700 feet with Declared Distances

This alternative is similar to Alternative 4 but uses Declared Distances to try to reduce the impacts associated with the RSA, ROFA, and RPZ beyond the runway ends. The total pavement length would be 6,000 feet. However, this alternative would reduce the available pavement aircraft operators have by employing declared distances and displaced runway thresholds. Declared distances are specific runway lengths made available by airport operators for aircraft takeoffs and landings, and include the Accelerate-Stop Distance Available, Takeoff Run Available, Takeoff Distance Available, and Landing Distance Available. By reducing the available distances available for these calculations, the distance the RSA, ROFA and RPZs, extend beyond the physical pavements ends could be reduced. This could avoid potential impacts to wetlands beyond the runway ends.

Level 1 Screening. Employing declared distances would result in operational limitations on prospective GA aircraft operations at F45. Various iterations of declared distances were explored under this alternative and all would result in some limitation on full use of the 6,000-foot runway, either by limiting the amount of runway available for takeoff or by limiting the amount of runway available for landing, or some combination thereof. While employing declared distances may help in reducing potential impacts to wetlands by reducing the necessary length for achieving full-size RSAs, analysis indicates that they would simply impose new restriction on Airport users, potentially limiting their ability to operate larger aircraft (including jets) with fewer operational restrictions than are currently imposed due to runway length. Accordingly, this alternative does not meet the purpose and need for the Proposed Project and was not carried forward for Level 2 Screening.

2.2.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built. Aircraft operations at F45 would continue a steady increase, as described in Section 1.2.2 and **Table 1-2**. Additionally, although no runway construction would take place, normal Airport maintenance activities, including pavement maintenance, would continue to be implemented during the EA study period.[33] Full mill and overlay would be installed on 35,833 square yards of pavement for Runway 14-32 and 16,722 square yards of pavement for Taxiway F. Runway 9R-27L would continue to serve as the primary runway at F45.

This alternative does not meet the purpose of and need for the Proposed Project, but it was retained for detailed analysis in this EA for comparative purposes consistent with NEPA and CEQ and FAA regulations.

2.2.2 Summary of Screened Alternatives

Table 2-1 summarizes the results of alternative evaluation against the screening criteria.

2.2.3 Sponsor's Preferred Alternative

The County has identified Alternative 4 – Shift Runway Centerline by 60 Feet and Extend Runway 1,700 Feet as the preferred alternative. This alternative meets the purpose and need in an operationally efficient manner and accommodates larger aircraft and future operations with minimal additional encroachment into both the Sweetbay and Loxahatchee Natural Areas and Airport-adjacent wetlands. Because the County has identified Alternative 4 as the Proposed Project, this alternative, along with the No Action Alternative, was carried forward for full analysis.

[33] Florida Department of Transportation, Statewide Airfield Pavement Management Program. 2019. *Airport Pavement Evaluation Report, North Palm Beach County General Aviation Airport, Reliever Airport, District 4.* November.

TABLE 2-1
ALTERNATIVES SCREENING CRITERIA EVALUATION

Alternative	Meets Purpose and Need	Estimated Impacts to Natural Areas (acres)	Constructability and Cost Effectiveness	Estimated Wetlands Impacts (acres)[34]	Operationally Efficient	Carried Forward for Further Analysis	Section 4(f) Impacts	Comments
Alternative 1 - Use of Other Airports	No	N/A	N/A	N/A	N/A	No	N/A	County does not have the authority to dictate that GA operations move to another airport. Thus, this alternative does not meet the purpose and need for the Proposed Project.
Alternative 2 - Other Modes of Transportation	No	N/A	N/A	N/A	N/A	No	N/A	Other modes of transportation would not provide a meaningful alternative to air travel, they would not be expected to meet the demands of GA aircraft operators or impact PBI's need for a reliever airport. Thus, this does not meet the purpose and need for the Proposed Project.
Alternative 3 - Extend Runway 9R-27L to the West	Yes	106.30	Yes	25.30	Yes	No	Yes	This alternative was fully analyzed and eliminated in the 2006 Master Plan Update and was not carried forward for full analysis in this EA.
Alternative 4 – Shift Runway Centerline by 60 Feet and Extend Runway 1,700 Feet (Proposed Project)	Yes	38.93	Yes	12.56	Yes	Yes	Yes	-
Alternative 5 - Extend Runway 14-32 to NW – Maintain Runway Centerline /Shift Taxiway	Yes	36.8	Yes	17.42	No	No	Yes	This alternative would place aircraft much further away from the existing FBO, terminal, and runway/taxiway and would increase the time it takes to travel through the Airport, and the multiple turns and smaller spaces increase the complexity of maneuvering larger aircraft and aviation support services. Therefore, this alternative was not carried forward.

[34] The wetland acreages do not include the 12.95 acres of vegetated airfield drainage features which are identified as "other surface waters" by the USACE and SFWMD (Permit No 50-02617-S, October 17, 2011)

TABLE 2-1
ALTERNATIVES SCREENING CRITERIA EVALUATION

Alternative	Meets Purpose and Need	Estimated Impacts to Natural Areas (acres)	Constructability and Cost Effectiveness	Estimated Wetlands Impacts (acres)[34]	Operationally Efficient	Carried Forward for Further Analysis	Section 4(f) Impacts	Comments
Alternative 6 - Shift Runway Centerline by 60 Feet, Extend Runway 1,700 feet, and Install EMAS	Yes	38.4	No	8.46	Yes	No	Yes	While this alternative is fully constructable, the alternative would be more costly while providing limited reductions in impacts to wetlands. Furthermore, EMAS is generally only supportable in instances when inadequate area is available to build fully compliant RSAs, which is not the case for the Airport. Therefore, this alternative was not carried forward.
Alternative 7 - Shift Centerline 60 feet and Extend Runway 1,700 feet with Declared Distances	No	N/A	N/A	N/A	N/A	No	N/A	Employing declared distances would result in operational limitations on prospective GA aircraft operations at F45. Accordingly, it does not meet the purpose and need.
No Action Alternative	No	None	N/A	None	N/A	Yes	None	-

SOURCE: Environmental Science Associates, 2024.

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CHAPTER 3
Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the affected environment and environmental consequences associated with the Proposed Project and its alternatives. The Affected Environment section describes the airport environs and the environment resources that would be directly, or indirectly, affected. The Environmental Consequences section evaluates the impacts that would result from construction and operation of the Proposed Project and its alternatives to determine if the impacts, with any proposed mitigation, would be significant and require preparation of an Environmental Impact Statement.

3.1.1 Study Areas

Figure 3-1 depicts the GSA, which encompasses the areas that may be directly or indirectly be affected by the Proposed Project and its alternatives. The GSA also encompasses the Detailed Study Area, which is the area where construction and physical impacts would occur. These areas include the Action Area and Area of Potential Effects (APE), specific to the evaluation of impacts to Biological Resources and Historic, Architectural, Archaeological, and Cultural Resources.

3.1.2 Measuring Environmental Impacts and Study Years

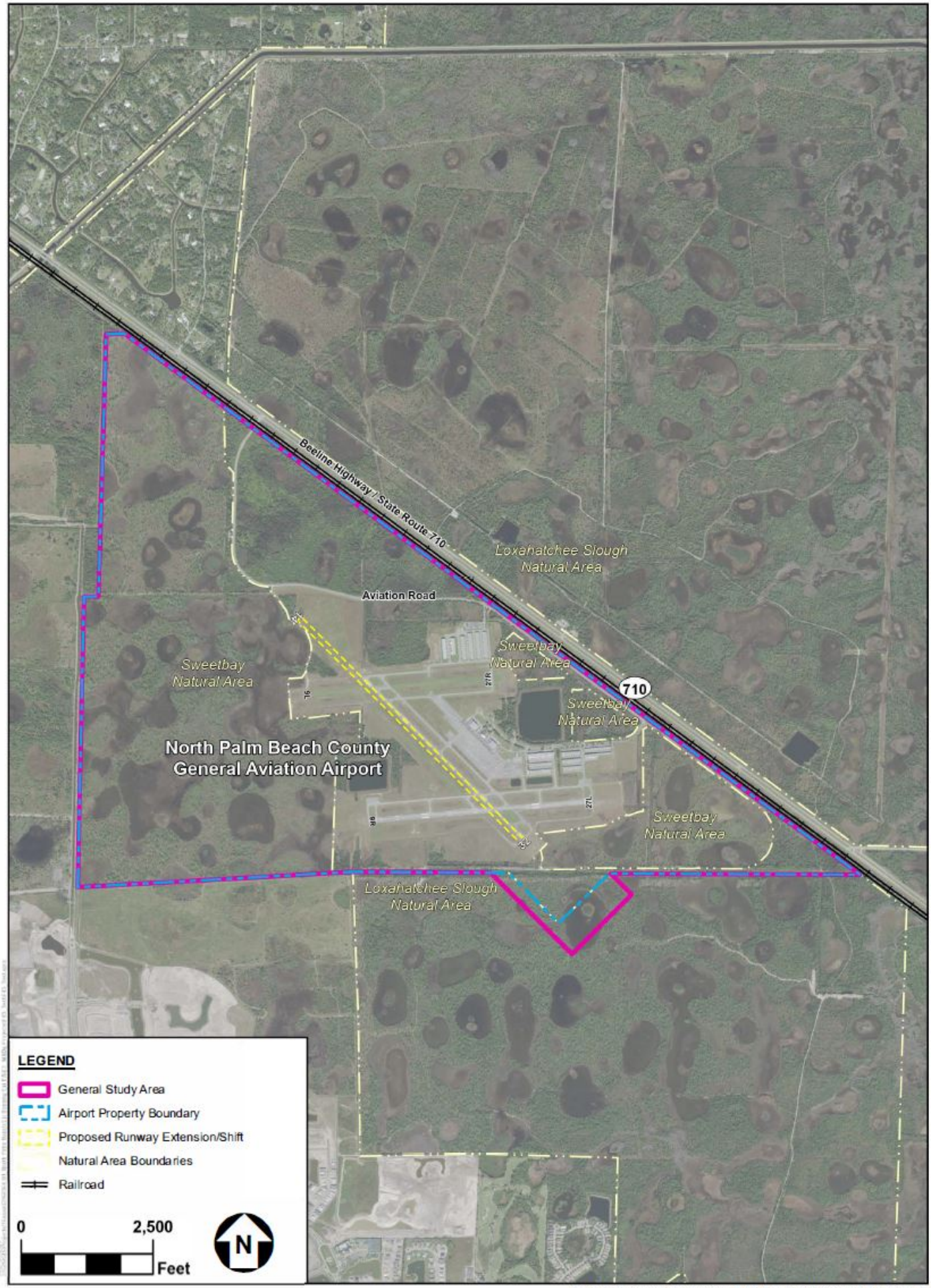
Impacts are analyzed and discussed at a level of detail necessary to disclose impacts and determine their significance. Impact significance was evaluated in accordance with FAA Order 1050.1F, the 1050.1F Desk Reference, and the NEPA implementing regulations at 40 CFR Section 1508.27, which requires considerations of both context and intensity. The environmental consequences analysis considers all potential environmental and social impacts of the Proposed Project when compared to the No Action Alternative for the same time frame.

This EA evaluates the potential impacts of the Proposed Project and No Action Alternative by analyzing the project during two different study years: 2025 and 2030. Study year 2025 is the first full year of operation of Runway 14-32. Study Year 2030 is the fifth full year after project opening and provides a reasonable time frame in which to evaluate potential on-going operational impacts, such as those associated with aircraft noise and air quality.

The year used to identify Existing Conditions in this EA is 2021. This represents the latest year for which full sets of all data were available at the time preparation of this EA commenced.

3.1.3 Resources Categories Not Affected

In accordance with CEQ regulations (40 CFR § 1502.15), resources upon which the Proposed Project is determined to have no effect do not warrant detailed examination. The environmental resources identified in FAA Order 1050.1F that would not be affected by the Proposed Project are listed and discussed below.



Source: US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2023.

North Palm Beach County General Aviation Airport Runway Extension EA

FIGURE 3-1
GENERAL STUDY AREA

3.1.3.1 Farmlands

The *Farmland Protection Policy Act of 1981* protects farmland, defined as prime or unique, from conversion to other uses. The Proposed Project would not affect any farmland and would not convert agricultural land to airport use. This resource was eliminated from further analysis in this Draft EA.

3.1.3.2 Wild and Scenic Rivers (a subcategory of Water Resources)

Wild and Scenic Rivers are rivers, tributaries, creeks, and small lakes, with adjacent land that possess outstanding scenic, recreational, and wildlife values, that are designated through the *Wild and Scenic Rivers Act* to be preserved in free-flowing condition. Florida has two rivers designated as Wild and Scenic River System rivers: the Loxahatchee River in southeast Florida and the Wekiva River in central Florida, north of Orlando. Although the Airport is in an area associated with the Loxahatchee River watershed, the Loxahatchee River is located 9.25 miles northeast of the Airport. This is well beyond the quarter mile distance that requires further analysis. Accordingly, this resource was eliminated from further analysis in this Draft EA.[35]

3.1.4 Resources Considered in this EA

FAA Order 1050.1F identifies environmental impact categories that the FAA examines for most of its actions. A total of 14 resource categories were evaluated for their potential to be impacted by the Proposed Project. This chapter also provides a list of past, present, and reasonably foreseeable projects that, in conjunction with the Proposed Project, may result in cumulative environmental impacts. The following sections discuss each of the above-listed environmental resource categories in detail.

3.2 Air Quality

3.2.1 Regulatory Context

The *Clean Air Act of 1970* (42 U.S.C. §§ 7401-7671q), as amended, required the USEPA to develop National Ambient Air Quality Standards (NAAQS) for the "criteria air pollutants" considered harmful to public health and the environment.[36] Each state is required to analyze air quality in areas within their jurisdiction and make recommendations to the EPA on whether they meet the NAAQS. "Attainment" areas meet or surpasses the NAAQS whereas those areas that do not meet the NAAQS are designated as being in "nonattainment." Areas formally designated as "nonattainment" that have met the NAAQS are designated as "maintenance." Under the General Conformity Rule (see 40 CFR Part 93), certain federal actions occurring in nonattainment areas require a general conformity determination, as defined under 40 CFR §93.153(b). The FAA has identified projects that are "presumed to conform" (see 72 Federal Register 41565-41580 [July 30, 2007]) and are thus not subject to General Conformity requirements. National standards exist for hazardous air pollutants (HAPs), which are regulated under Section 112(b) of the 1990 *Clean Air Act Amendments* (Pub. Law 101-549). Because of the low levels of emissions of these pollutants in air below the national average mixing height (3,000 feet above ground level), HAPs are not quantified in this EA.

35 *Nationwide Rivers Inventory*, National Park Service, 2023. https://www.nps.gov/maps/full.html?mapId=8adbe798-0d7e-40fb-bd48-225513d64977 accessed in December 2023. *Wild and Scenic River Database*, 2018. https://www.rivers.gov/florida.php accessed in December 2023.

36 Criteria air pollutants include precursors of ozone (O_3) which include volatile organic compounds (VOC) and oxides of nitrogen (NO_X); carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); particulate matter less than or equal to 10 microns in diameter (coarse particulates or PM_{10}); particulate matter less than or equal to 2.5 microns in diameter (fine particulates or $PM_{2.5}$); and lead.

The Florida Department of Environmental Protection (FDEP) Division of Air Resource Management monitors and maintains an annual emissions inventory, regulates mobile emissions sources, issues permits for the construction and operation of emissions sources, and ensures compliance with applicable regulations through conducting air inspections, reviewing reports, and pursuing enforcement. The FDEP sets permit rules and standards for individual emissions sources based on the size of the emission units and type of pollutants emitted.

3.2.2 Methodology

The analysis focuses on and provides a quantitative estimation of existing operational emissions at F45, projected emissions from construction activities, and emissions from future aircraft operational scenarios that may be induced by the Proposed Project. It does not include analysis of vehicular traffic because no additional, post-construction employee trips would be generated and the anticipated 2.3% increase in aircraft operations forecast by 2030 would correlate to no more than seven additional user vehicle trips per day (see Section 1.3.2). Because F45 is not located in a nonattainment or maintenance area for any criteria air pollutant, a General Conformity determination is not necessary (40 CFR §93.153(b)).[37] **Appendix B** describes the methodology used in this air quality analysis.

3.2.2.1 Construction Emissions

The Airport Construction Emissions Inventory Tool (ACEIT) was used for calculating emissions associated with construction activity. For this analysis, activity profiles and emission factors generated by ACEIT for construction activity include non-road sources, on-road sources, and fugitive emissions. Project elements are anticipated to require between 22 and 24 months of construction (see **Table 1-4**). ACEIT automatically reduces construction vehicle emission factors over time, under the assumption that construction equipment emissions control technology will continue to advance; however, to reduce the likelihood of underestimating construction emissions levels, all construction activity was modeled using 2024 emission factors. This provides a more conservative emissions estimate.

3.2.2.2 Operational Emissions

An inventory of criteria air pollutant emissions associated with aircraft activity was developed using the FAA's Aviation Environmental Design Tool (AEDT), Version 3e. For this project, the AEDT was used to calculate criteria air pollutant emissions from aircraft operations beginning at the terminal and into flight up to the mixing height. Aircraft emissions were estimated for Existing Conditions (2021) and the Proposed Project and No Action Alternative for the year of project opening (2025) and five years later (2030). The aircraft operations and fleet mix information used for the noise modeling analyses in AEDT were also used to estimate aircraft emissions (**Appendix B**).

3.2.3 Affected Environment

Palm Beach County is designated as being in attainment with the NAAQS for all criteria air pollutants.[38] Air quality is monitored at four air monitoring stations throughout the County.[39] The nearest monitoring

[37] Under the General Conformity Rule (see 40 CFR Part 93), certain federal actions occurring in nonattainment areas require a general conformity determination, as defined under 40 CFR §93.153(b).

[38] USEPA, 2020. Florida Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Accessed in July 2023 at: https://www3.epa.gov/airquality/greenbook/anayo_fl.html

[39] FDEP Office of Air Monitoring, *Palm Beach County Air Monitoring*. Accessed in July 2023 at https://floridadep.gov/air/air-monitoring/content/palm-beach-county-air-monitoring

station to F45 (Lamstein Lane station) is located 11 miles south of F45 and monitors O_3, and $PM_{2.5}$. A full year of data from the Lamstein Lane monitoring station is provided below in **Table 3-1.** The Airport is located approximately 11 miles west of the Atlantic Ocean along Florida State Road 710 just northwest of Grassy Waters Preserve. The area surrounding the airport is generally flat and there are no meteorological or topographic features that would interfere with the dispersal of local air pollutant emissions.

TABLE 3-1
LAMSTEIN LANE MONITORING STATION AIR QUALITY DATA

Date Average Pollutant Concentration (O3, 8-Hour Average, & PM2.5 24-Hour Average)		8-Hour Average Pollutant Concentration (ppb)	24-Hour Average Pollutant Concentration (µg/m3)
Year	**Month**	**O_3**	**$PM_{2.5}$**
2022	June	33	NA
2022	July	25	NA
2022	August	24	NA
2022	September	30	NA
2022	October	36	4.9
2021*	November	37	NA
2022	December	35	6.9
2023	January	38	7.5
2023	February	38	8.3
2023	March	44	10.1
2023	April	38	7.2
2023	May	45	8.2

NOTES: $PM_{2.5}$ data before October 2022 was not available. * Data from November 2021 was used as no data for November 2022 was reported.
O_3 = ozone; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; NA = Not Available.
SOURCE: Florida Department of Environmental Protection, Air Quality Monitoring (Accessed July 2023); Environmental Science Associates, 2023.

The description of Existing Conditions (2021) for air quality quantifies emissions associated with aircraft operations. **Table 3-2** provides a description of Existing Conditions (2021) criteria air pollutant emissions at F45.

TABLE 3-2
EXISTING CONDITIONS (2021) CRITERIA AIR POLLUTANT EMISSIONS INVENTORY (TONS)

Source	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Existing Conditions (2021)	571.0	12.38	2.14	0.83	0.40	0.40

NOTE: Total numbers may not add correctly due to rounding.
CO = carbon monoxide; VOC = volatile organic compounds; NO_x = oxides of nitrogen; SO_X = oxides of sulfur; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
SOURCE: FAA AEDT 3e; Environmental Science Associates, 2023.

3.2.4 Environmental Consequences

3.2.4.1 Construction Emissions

Construction associated with the Proposed Project, scheduled to occur in 2024, has the potential to create air quality impacts using heavy-duty construction equipment and vehicle trips generated from construction work. In addition, fugitive dust emissions would result from site preparation and grading activities. Mobile source emissions would result from the use of non-road construction equipment such as graders, backhoes,

and dozers, as well as on-road vehicles such as cars used in employee travel. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints), and other building materials would release VOCs. Construction emissions can vary substantially from day to day, depending on the phase of construction, the specific type of construction activities performed on a given day, and weather conditions. The estimated construction emissions inventory for the Proposed Project is presented in **Table 3-4**. For the purposes of emissions modeling, all construction was assumed to occur in the year 2024 to ensure a conservative analysis.

TABLE 3-3
PROPOSED PROJECT CONSTRUCTION-RELATED CRITERIA AIR POLLUTANT EMISSIONS INVENTORY (TONS)

Scenario	Start Year	Duration (months)	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Proposed Project	2024	12	13.10	32.54	4.51	0.06	0.94	0.21

NOTES: CO = carbon monoxide; NO_x = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SO_X = oxides of sulfur; VOC = volatile organic compound
SOURCE: ACEIT, Environmental Science Associates, 2023.

3.2.4.2 Operational Emissions

2025 No Action Alternative

Under the No Action Alternative, there would be no project-related construction emissions and aircraft operations would not be influenced by the extension of Runway 14-32 or the development of the ATCT and would occur as forecasted by the FAA TAF. Therefore, no changes or impacts to air quality would occur under the No Action Alternative in 2025.

2025 Proposed Project

The differences in emissions between the Proposed Project and No Action Alternative represent "project-related" emissions. These "project-related" emissions would consist of the additional induced operations associated with the Proposed Project: 750 additional annual operations in 2025. Estimated operational emissions in 2025 are summarized in **Table 3-5**.

TABLE 3-4
2025 PROPOSED PROJECT OPERATIONAL CRITERIA AIR POLLUTANT EMISSIONS INVENTORY (TONS)

Scenario	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
2024 Proposed Project	607.0	14.46	2.82	0.96	0.44	0.44
2024 No Action Alternative	602.0	12.99	2.26	0.87	0.42	0.42
Difference (+/-)	**+5.0**	**+1.47**	**+0.56**	**+0.09**	**+0.02**	**+0.02**

NOTE: Numbers may not sum to totals shown due to rounding.
CO = carbon monoxide; NO_x = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SO_X = oxides of sulfur; VOC = volatile organic compound
SOURCE: FAA AEDT 3e; Environmental Science Associates, 2023.

2030 No Action Alternative

Under the No Action Alternative, there would be no project-related construction emissions and aircraft operations would not be influenced by the extension of Runway 14-32 or the development of the ATCT

and would occur as forecasted by the FAA TAF. Therefore, no changes or impacts to air quality would occur under the No Action Alternative in 2030.

2030 Proposed Project

Under the Proposed Project, there would be 2,500 additional annual operations in 2030 compared to the No Action Alternative. Estimated operational emissions in 2030 are summarized in **Table 3-5**.

TABLE 3-5
2030 PROPOSED PROJECT OPERATIONAL CRITERIA AIR POLLUTANT EMISSIONS INVENTORY (TONS)

Scenario	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
2030 Proposed Project	655.0	18.12	4.21	1.22	0.51	0.51
2030 No Action Alternative	643.0	13.85	2.42	0.93	0.45	0.45
Difference (+/-)	**+12.0**	**+4.27**	**+1.79**	**+0.29**	**+0.06**	**+0.06**

NOTE: Numbers may not sum to totals shown due to rounding.

CO = carbon monoxide; NO_x = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SO_X = oxides of sulfur; VOC = volatile organic compound

SOURCE: FAA AEDT 3e; Environmental Science Associates, 2023.

3.2.5 Significance Determination

As discussed in the FAA Order 1050.F, Exhibit 4-1, significant air quality impacts would occur if "the action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the CAA, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations." The construction and operations emissions associated with the Proposed Project when compared to the No Action Alternative for the same timeframe, would not cause or contribute to violations of the NAAQS for criteria air pollutants in either 2025 or 2030. Therefore, the Proposed Project would not cause significant impacts to air quality.

3.2.6 Best Management Practices

Although the Proposed Project would not have significant air quality impacts and mitigation is not required, emissions from construction activities and fugitive dust could be reduced or offset by employing some or all the following voluntary measures: curtailing construction activities during periods of high wind conditions; reducing exposed erodible surface area through appropriate materials and equipment staging procedures; stabilizing stockpiles of raw materials and other temporarily disturbed areas with water or ground cover; stabilizing soils and establishing persistent ground cover as soon as possible after grading and construction activities; reducing equipment idling times and onsite vehicle speed; utilizing vapor-recovery systems for fuel-storage facilities; low- or zero-emissions equipment; and covered haul trucks during materials transportation.

3.3 Biological Resources

3.3.1 Regulatory Context

The Endangered Species Act of 1973 (16 U.S.C. §§ 1531-1544) requires the FAA to determine if a Proposed Project under its purview would affect a federally listed species or critical habitat designated for that species.[40] In addition, candidate species (any species that either the USFWS or National Oceanic and Atmospheric Administration [NOAA] is considering for listing as "endangered" or "threatened"), shall be identified to alert federal agencies of potential proposals or listings. Federally listed endangered or threatened species are also listed as such by the state of Florida.[41] Many of the bird species referenced in this document are, collectively, also protected under the Migratory Bird Treaty Act (MBTA).

3.3.2 Methodology

For purposes of meeting the requirements of Section 7 of the ESA, a Biological Assessment (BA) was prepared as a part of this EA. An Action Area was delineated for use in preparing the BA. The results of the BA are used herein to describe existing conditions at the Action Area. The BA is included in **Appendix C**. The Action Area is depicted on **Figure 3-2** and includes areas directly and indirectly impacted by the Proposed Project. As described in the BA, a team of environmental scientists conducted numerous on-site field surveys to characterize the environmental and natural resources that may be affected by the Proposed Project. These surveys included delineations of wetlands and surface waters,[42] vegetative community identification, habitat assessments, and listed species review. Further, a thorough review of publicly available resources, prior studies, and known site conditions was conducted to characterize biological resources within the Action Area and to provide a comprehensive listing of the potential for species occurrence, including any special status species.

3.3.3 Affected Environment

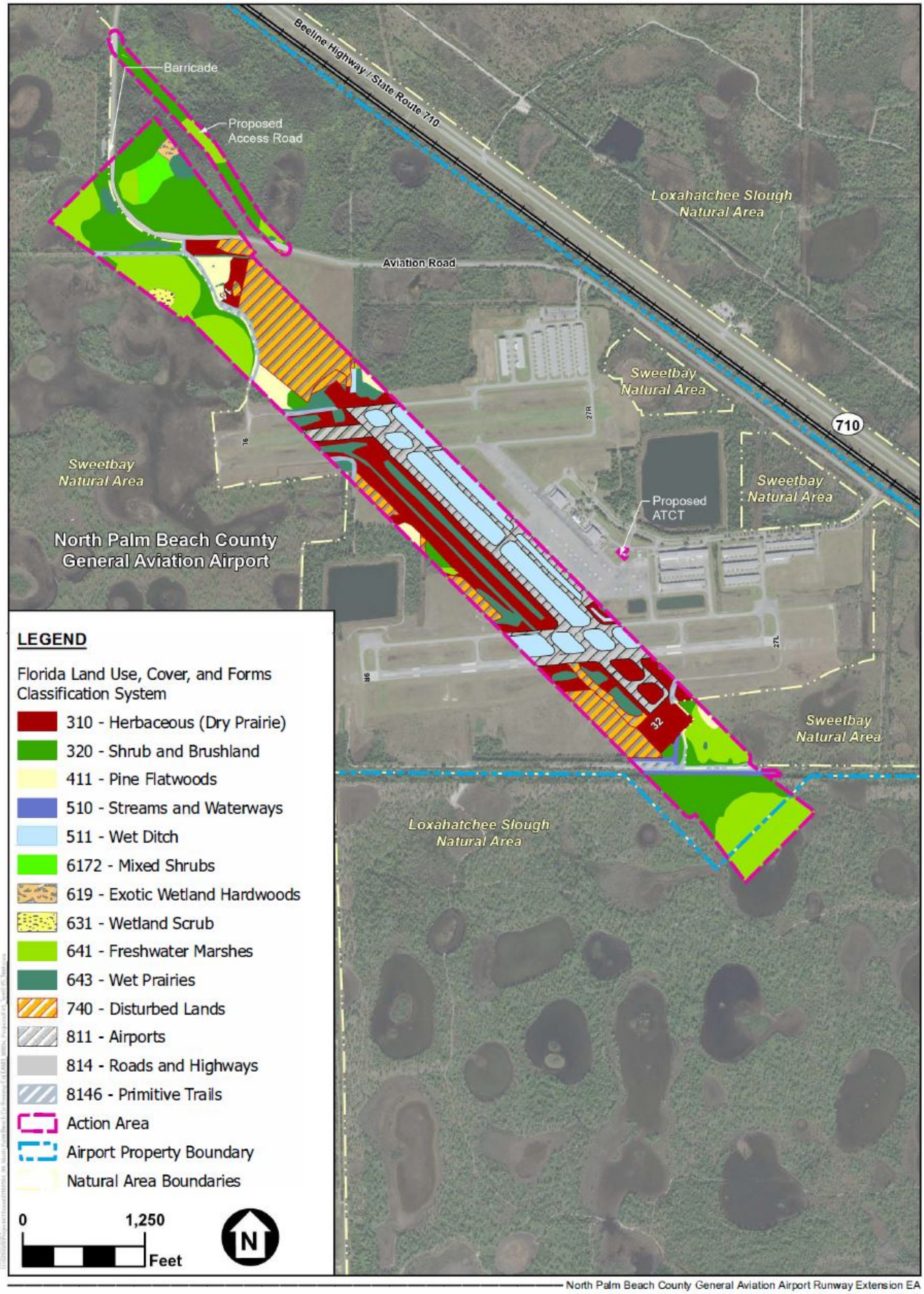
3.3.3.1 Land Cover, Vegetation, and Habitat

Vegetative reviews of the Action Area were conducted during field reviews and are typically defined by the dominant (or common) plant species composition. Upland, wetland, and other surface water habitat types were identified within the Action Area and are summarized in this section. Upland habitat within the Action Area consists primarily of low-intensity development, open space, and shrub and brushland habitat. The open space surrounding runways and taxiways is primarily classified as Herbaceous Dry Prairie consisting of a mixture of upland prairie grasses that are routinely maintained by Airport staff. Shrub and Brushland was identified surrounding the Action Area and to the southeast within the Loxahatchee Slough Natural Area. Dominant shrub and brushland species observed during the 2020 field surveys consisted of saw palmetto and cocoplum (*Chrysobalanus icaco*), mixed with other woody species. More detailed descriptions of habitats can be found in **Appendix C**.

40 *Endangered Species Act*. 16 U.S. Code § 1531-1544. December 28, 1973. As amended 1976-1982, 1984, and 1988.

41 Pursuant to Florida Statute 379.411

42 Field delineations of wetland areas were conducted pursuant to *Chapter 62-340 Florida Administrative Code* and the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual* (Regional Supplement – November 2010).



Source: ESA, 2020; Florida Fish and Wildlife Conservation Commission, 2023.

FIGURE 3-2
ACTION AREA

In addition to upland habitat, a large portion of the Action Area includes disturbed land and transportation development, such as active airfield and supporting structures associated with the Airport. Disturbed Land/Fill Areas are primarily associated with those locations within the wildlife hazard mitigation areas south of Aviation Road and southwest of Runway 14-32. Additionally, a disturbed area can be found in the southern portion of the Airport property, north of the Loxahatchee Slough Natural Area, and located south of Runway 9R-27L and west of Runway 14-32. These areas were previously filled to minimize wildlife habitat in close proximity of the nearby runway.

Wetlands and surface waters occur within and immediately surrounding the Action Area. Wetland habitat is located within the northwest and southeast portions of the RSA, ROFA, and RPZ of Runway 14-32 consisting primarily of Freshwater Marsh and Wet Prairie habitat with smaller portions of Exotic Wetland Hardwoods and Wetland Scrub. Surface water habitat consists of retention ponds, swales, and ditches as well as channelized water ways. Various swales exist adjacent to the runway and taxiways within the Action Area and along Aviation Road. Several canals and ditches were identified on the southeastern end of Runway 14-32. These conveyances differ from the swales and wet ditches in that standing water was typically observed during field surveys. **Table 3-6** summarizes the land cover and vegetative communities within the Action Area.

TABLE 3-6
EXISTING LAND COVER AND VEGETATIVE COMMUNITIES WITHIN THE ACTION AREA

Vegetative Community/Land Cover	FLUCCS Classification Code	Overall Acreage Within the Action Area
Upland Communities		
Herbaceous Dry Prairie	3100	35.72
Shrub and Brushland	3200	42.54
Pine Flatwoods	4110	5.89
Disturbed Land & Transportation		
Disturbed Land/Filled Areas	7400	31.50
Airports	8110	21.72
Roads and Highways	8140	2.61
Primitive Trails	8146	4.49
Wetland Communities		
Exotic Wetland Hardwoods	6190	0.71
Wetland Scrub	6310	0.83
Freshwater Marsh	6410	36.53
Wet Prairie	6430	15.60
Other Surface Waters		
Swale/Wet Ditch/Pond	5100	23.51
Channelized Waterways, Canals	5120	2.55
Total Acreage		**224.19**

SOURCE: CECOS 2020 field reviews; SFWMD, LULC 2014-2015; FDOT FLUCCS, 1999.

3.3.3.2 Wildlife

Common Species

As discussed in Section 3.3.3.1, the Action area encompasses several different habitat types that can accommodate species of wildlife, including federal and state listed species, and other common species. Birds, mammals, reptiles, amphibians, and invertebrates considered relatively common within the vicinity of the Airport include those generally associated with and tolerant of highly developed, urban area, and natural areas throughout south Florida. Characteristic wildlife found in the vicinity of F45 includes small to medium-sized prey mammals, such as rabbits, raccoons, opossum, armadillo, squirrels, native and nonnative anoles, and rodents; predatory animals such as coyotes, fox, and hawks; various bird guilds including doves, crows, sparrows, starlings, finches, swallows, and pigeons. Common bird species including blue jays, boat-tailed grackles, Northern cardinal, anhinga, mourning dove, common grackle, mockingbird, and downy woodpecker.

Federally Listed Species

Based on the existing site conditions, species-specific habitat requirements, desktop review, and multiple field surveys, the Action Area has a potential to support eight federally listed species and one federal candidate species (**Table 3-7**). Species listed as having no potential for occurrence are not carried forward for further review in this section. Species listed as federally endangered or threatened are also listed by the state of Florida as endangered or threatened. More detailed discussion can be found in **Appendix C**.

The American Alligator is federally listed as threatened due to similarity of appearance to the American crocodile (*Crocodylus acutus*), but only where their ranges overlap, which does not occur within the Action Area. Alligators were observed during previous field reviews and available alligator habitat exists in the Action Area, however, the American Alligator is not federally listed in this area.

TABLE 3-7
FEDERALLY LISTED SPECIES POTENTIALLY OCCURRING IN THE ACTION AREA

Common Name	Scientific Name	Species Type	USFWS Listing
Florida Bonneted Bat	*Eumops floridanus**	Mammals	E
Florida Panther	*Puma concolor coryi*	Mammals	E
Audubon's Crested Caracara	*Caracara cheriway**	Birds	T
Everglade Snail Kite	*Rostrhamus sociabilis plumbeus**	Birds	E
Red-cockaded Woodpecker	*Picoides borealis**	Birds	E
Wood Stork	*Mycteria americana*	Birds	T
American Alligator	*Alligator mississipiensis*	Reptiles	T(S/A)
Eastern Indigo Snake	*Drymarchon couperi*	Reptiles	T
Gopher Tortoise	*Gopherus polyphemus*	Reptiles	C

NOTES:
Status Codes:
E = Listed as Endangered
T = Listed as Threatened
S/A = Protected due to Similarity of Appearance to other protected species
* = Candidate species for listing under the Endangered Species Act (ESA)
SOURCES: FWC. June 2020. Florida's Endangered Species, Threatened Species and Species of Special Concern. Official Lists; FNAI. 2020. Biodiversity Matrix; USFWS. 2020. ECOS; USFWS. June 2020. Florida Department of Agriculture and Consumer Services (FDACS) Endangered, Threatened and Commercially Exploited Plants of Florida (November 2018).

The Eastern Indigo Snake (*Drymarchon couperi*) prefers dry xeric habitat types, but can be found in freshwater marshes, wet prairies, and pine flatwoods which are found within the Action Area. The Eastern Indigo Snake was historically identified to be present in some of the natural areas in the vicinity of the Airport and potential habitat was observed during the 2020 field surveys. Therefore, there is potential for this species to occur in the upland, freshwater marshes, wet prairies, and undeveloped portions of the Action Area. However, the Eastern Indigo Snake was not visually identified during the field surveys.

The Action Area is located within the Consultation Area for the Audubon's Crested Caracara (*Caracara cheriway*) and contains potential foraging habitat. However, nesting habitat was not observed during field surveys nor were there any historical records indicating the presence of nesting habitat in the Action Area.

The Everglade snail kite's (*Rostrhamus sociabilis plumbeus*) preferred foraging habitat includes large, open, freshwater marshes or lakes with shallow water and a low density of emergent vegetation. The snail kite builds its nest over water, usually in a low tree or shrub, but could also nest in non-woody vegetation like cattail or sawgrass. Nesting sites are known to exist in the region (e.g., Grassy Waters Preserve and Loxahatchee Slough) and snail kites were historically observed foraging in marshes in the area. However, nests have not been recorded within the Airport boundary, Action Area, or Sweetbay Natural Area.

Red-cockaded woodpeckers (*Picoides borealis*) use slash pine flatwoods as nesting and foraging habitat. This bird species prefers to nest within mature pine flatwoods with trees that are generally greater than 80 years old. Pine flatwoods are present in the Action Area, however, the trees are not mature enough to support nesting of this species.

Wood storks (*Mycteria americana*) nest primarily in cypress or mangrove swamps and feed in shallow freshwater marshes, narrow tidal creeks, or flooded tidal pools. The Action Area is located within the Core Foraging Area (CFA) of two wood stork colonies and water features support foraging habitat. While individuals were not observed during the 2020 field surveys, they are known to be present within and adjacent to the Action Area. Given the presence of foraging habitat, and known locations of individuals, there is potential for this species to occur in the Action Area.

The Florida bonneted bat (*Eumops floridanus*) inhabits a variety of natural habitats including tropical hardwoods, pinelands, and mangrove habitats, as well as man-made areas such as golf courses, bridges, buildings, and neighborhoods. Suitable foraging habitats, and minimal roost sites for this species were observed within the Action Area. An acoustical Florida bonneted bat survey was conducted between October 18 and November 18, 2021. General visual observations of the pine flatwoods within the Action Area were also conducted during the 2020 field surveys. No individuals or roosts were observed and no echolocations from the species were heard. For more information, please see the *2022 Florida Bonneted Bat Acoustic Survey Technical Report* located in **Appendix C**.

The areas adjacent to the Action Area contain potential suitable habitat for the Florida panther (*Puma concolor coryi*) due to the extensive, publicly owned lands surrounding the Airport. The Action Area is not within the Panther Focus Area and no panthers were observed during field reviews. Per the FWC panther data, a single adult male's death was recorded on 11/02/2019 along SR 710 approximately 15 miles west of the Aviation Road/SR 710 intersection. Note this location does not fall within the Action Area, but panthers have large territorial ranges (between 75 and 195 square miles), making overlap possible. However, active portions of the Airport are separated from the large natural areas by a perimeter security

fence which eliminates access to the airfield. Therefore, conflict between Airport operations and Florida panthers are not anticipated and the occurrence of a panther in the Action Area is low.

State-Listed Species

State listed species, pursuant to Florida Statute 379.411, with potential to occur within the Action Area due to habitat, include the Florida pine snake (*Pituophis melanoleucus*) (under review by FWS), tricolored heron (*Egretta tricolor*), sandhill crane (*Grus canadensis*), limpkin (*Aramus guarauna*), snowy egret (*Egretta thula*), white ibis (*Eudocimus albus*), little blue heron (*Egretta caerulea*), and roseate spoonbill (*Platalea ajaja*).

3.3.3.3 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§ 703-711) makes it illegal for anyone to take any migratory bird, nest, or eggs except under the terms of a valid permit. The list of bird species protected by the MBTA can be found in Title 50 Part 10.13, *List of Migratory Birds*. The list of species protected by the MBTA was updated in 2020 by incorporating the most current scientific information on taxonomy and natural distribution.[43] All bird species listed in Table 3-8 and those listed in the previous section, *State-Listed Species*, fall under the jurisdiction of the MBTA according to the Part 10.13 list. A discussion of the potential presence of these species can be found in Section 3.3.3.2, *Wildlife*, and in the BA provided in **Appendix C**. The migratory bird species in the area also includes hawks and other raptors, among many others. Other species with the potential to occur within the Action Area are protected under other regulations that include the bald eagle, which is protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Marginal habitat for the bald eagle (*Haliaeetus leucocephalus*) was found within the Action Area. No nests were identified, and the two closest nests are located approximately 4 and 4.5 miles southeast and southeast, respectively, of the Action Area. There is no likelihood of this species occurring in the Action Area.

3.3.4 Environmental Consequences

An evaluation of biological resources was conducted for the Proposed Project and No Action Alternative and includes plant and animal species listed as threatened, endangered, or as a candidate species under the ESA. Biological resources within the Action Area are identified using information collected during field surveys in preparation of the BA. Federally listed plant and animal species with potential to occur within the Action Area were evaluated for potential impacts as a result of the Proposed Project. A discussion of direct and indirect impacts to conservation areas (i.e., Section 4(f) resources) within the Action Area is included in Section 3.6, *Department of Transportation, Section 4(f)*.

3.3.4.1 No Action Alternative

Under the No Action Alternative, there would be no project-related impacts associated with the Proposed Project. Therefore, there would be no impacts under the No Action Alternative to habitat or to plant and animal species listed as threatened, endangered, or as candidate species under the ESA.

[43] USFWS, *Migratory Bird Treaty Act of 1918*, https://www.fws.gov/law/migratory-bird-treaty-act-1918 (Accessed April 2023)

3.3.4.2 Proposed Project

Land Cover, Vegetation, and Habitat

The BA identifies 52.47 acres of upland habitat directly impacted, and 31.68 acres indirectly impacted as a result of the Proposed Project. Further, the Proposed Project would impact 12.56 acres of wetlands and up to 12.95 acres of airfield drainage features with wetland vegetation[44] and up to 38.93 acres of natural area. More information on impacts to natural areas is included in **Appendix G**. Potential direct and indirect impacts associated with the Proposed Project are summarized in **Table 3-8**. More information on the potential impacts to land cover, vegetation, and habitat can be found in the BA included in **Appendix C**.

TABLE 3-8
POTENTIAL DIRECT AND INDIRECT IMPACTS WITHIN THE ACTION AREA

Vegetative Community/Land Cover	FLUCCS Classification Code	Direct Impact	Indirect Impact
Upland Communities			
Herbaceous Dry Prairie	3100	34.09	1.63
Shrub and Brushland	3200	14.50	28.49
Pine Flatwoods	4110	4.34	1.56
Total Upland Communities		**52.47**	**31.68**
Disturbed Land & Transportation			
Disturbed Land/Filled Areas	7400	26.98	4.53
Airports	8110	19.84	1.87
Roads and Highways	8140	0.92	1.69
Primitive Trails	8146	3.54	0.95
Total Disturbed Land & Transportation		**51.28**	**9.04**
Wetland Communities			
Exotic Wetland Hardwoods	6190	0.00	0.71
Wetland Scrub	6310	0.07	0.76
Freshwater Marsh	6410	12.91	23.63
Wet Prairie	6430	12.53	3.02
Total Wetland Communities		**25.51**	**28.12**
Other Surface Waters			
Swale/Wet Ditch	5100	21.28	2.23
Channelized Waterways, Canals	5120	2.53	0.02
Total Other Surface Waters		**23.81**	**2.24**

SOURCE: CECOS 2020 field reviews; SFWMD, LULC 2014-2015; FDOT FLUCCS, 1999

NOTES: Indirect impacts encompass the Proposed Runway Protection Zone and an indirect impact zone of 50 feet outside the Proposed Object Free Area, Aviation Road, and two Service Roads. It is important to note that two service roads were considered at the time of the BA. The current Proposed Project is described in Section 1.3, *Description of the Proposed Project*.

Protected Species and Section 7 Consultation

The BA identifies eight federally listed threatened, endangered, or sensitive species and one candidate species with the potential to occur within the Action Area. Determinations of effect for the species potentially present in the Action Area are summarized in **Table 3-9**. The FAA initiated consultation with

[44] The Biological Assessment incorrectly characterized approximately 12.95 acres of permitted stormwater features as wetland habitat. Surface water (SW-18) was identified in the 2010 USACE approved and referenced in the October 2011 SFWMD Permit No. 50-02617-S.

the FWS on February 6, 2023. FWS reviewed the Biological Assessment and provided concurrence with the FAA's determination on February 9, 2023. Section 7 Consultation is summarized in Section, 4.2.2, *Federal Agency Coordination* and the Biological Assessment is included as **Appendix C.**

TABLE 3-9
SPECIES DETERMINATION OF EFFECT

Common Name	Scientific Name	Species Type	Determination of Effect
Florida Bonneted Bat	*Eumops floridanus**	Mammals	No Effect
Florida Panther	*Puma concolor coryi*	Mammals	No Effect
Audubon's Crested Caracara	*Caracara cheriway**	Birds	No Effect
Everglade Snail Kite	*Rostrhamus sociabilis plumbeus**	Birds	No Effect
Red-cockaded Woodpecker	*Picoides borealis**	Birds	No Effect
Wood Stork	*Mycteria americana*	Birds	May Affect, Not Likely to Adversely Affect
American Alligator	*Alligator mississipiensis*	Reptiles	Not Applicable
Eastern Indigo Snake	*Drymarchon couperi*	Reptiles	No Effect
Gopher Tortoise*	*Gopherus polyphemus*	Reptiles	No Effect

NOTES:
Status Codes:
E = Listed as Endangered
T = Listed as Threatened
S/A = Protected due to Similarity of Appearance to other protected species
* = Candidate species for listing under the Endangered Species Act (ESA)
SOURCES: FWC. June 2020. Florida's Endangered Species, Threatened Species and Species of Special Concern. Official Lists; FNAI. 2020. Biodiversity Matrix; USFWS. 2020. ECOS; USFWS. June 2020. Florida Department of Agriculture and Consumer Services (FDACS) Endangered, Threatened and Commercially Exploited Plants of Florida (November 2018).

3.3.5 Significance Determination

FAA Order 1050.1F identifies that factors to consider in a significance determination include whether or not the action would have the potential for a long-term or permanent loss of unlisted plant or wildlife species; adverse impacts to special status species or their habitats; substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain the minimum population levels required for population maintenance.

Determinations of effect for the species potentially present in the Action Area are summarized in **Table 3-9**. Due to the direct wetland impacts and potential loss of SFH as a result of the Proposed Project, the wood stork (*Mycteria americana*) is the only species listed with a determined effect of *May Affect, Not Likely to Adversely Affect;* all other species are either *No Effect* or *Not Applicable*. A more detailed discussion of the effects can be found in **Appendix C**. It is not anticipated that the Proposed Project would have the potential to significantly impact terrestrial and aquatic animal species, game and non-game species, special status species, and environmentally sensitive or critical habitats. No adverse impacts to federally listed species or their habitats or substantial loss or fragmentation of native species' habitats or their populations is anticipated.

3.3.6 Mitigation and Best Practices

The lists below represent mitigation and best practices that are recommended as the project continues into development phase.

Best Management Practices

- BMPs typically associated with runway and roadway construction projects would be properly implemented and maintained throughout construction activities. Construction activities would be designed to minimize impacts to adjacent habitats (uplands and wetlands) while allowing construction and traffic flow to occur. Silt fences/curtains would be installed adjacent to construction activities to contain soil disturbing activities such as stormwater runoff from exiting the construction zone and discharging into adjacent areas.
- Re-vegetate temporarily disturbed work areas, using original topsoil as a seed bank.
- The relocated Aviation Road and new service road will be refined during design to avoid and/or minimize wetland and habitat impacts to the greatest extent possible.

Mitigation

- Mitigation to compensate for the functional loss resulting from the project's direct and indirect impacts to wetlands and wood stork SFH will be finalized during permitting. Mitigation is expected to be completed using functionally suitable mitigation units from Palm Beach County's Pine Glades North or West Mitigation Area or a suitable mitigation bank. More information on wetland mitigation can be found in Section 3.14, *Water Resources (Wetlands, Floodplains, Surface Waters, and Groundwater Only)*.

3.4 Climate

3.4.1 Regulatory Context

Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* (2021), establishes direction for federal agencies for improving climate preparedness and resilience strategies. Executive Order 14057 *Catalyzing America's Clean Energy Economy Through Federal Sustainability* (2021) provides specific goals and management practices to be implemented by federal agencies. The CEQ provides guidance on the consideration of GHG in NEPA documents.[45] While there is currently no formal planning process established, federal entities generally consider adaptation to the effects of climate change in accordance with local, state, and federal planning initiatives.[46] The Future Land Use Element of the 1989 Palm Beach County Comprehensive Plan[47] includes direction, objectives, and policies to increase climate change resilience through adopting appropriate county-wide land use strategies. In accordance with policies outlined in this Plan, Palm Beach County departments shall integrate consideration of climate change impacts and adaptation and mitigation strategies into existing and future planning, operations, policies, and programs.

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45 CEQ 2016. *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews*. – Under Review.

46 CEQ *Revised Draft Guidance on Consideration of Greenhouse Gas Emissions and Climate Change in NEPA Reviews,* Federal Register Vol. 79, No. 247, 77802.

47 Palm Beach County, *Palm Beach County Comprehensive Plan, Future Land Use Element,* Revised February 2023, SUB-OBJECTIVE 1.1.1 Climate Change, https://discover.pbcgov.org/pzb/planning/PDF/ComprehensivePlan/FutureLandUse.pdf (Accessed: April 2023)

3.4.2 Methodology

A GHG analysis was performed in conjunction with the air quality analysis discussed in Section 3.2. GHG emissions associated with aircraft activity was estimated using the FAA's AEDT, Version 3e.[48] Construction emissions associated with the Proposed Project were calculated using ACEIT[49] and methodologies prescribed in the FAA's Aviation Emissions and Air Quality Handbook.[50] Only the temporary emissions from construction activities are analyzed as there are no on-going actions once the Proposed Project is completed, and all construction was assumed to occur in the year 2024 in order to provide the most conservative emissions estimate. Please refer to Section 3.2.2. and **Appendix B** for additional details regarding methodology and model inputs (including the project list, modeling parameters, and complete construction modeling assumptions).

Climate resiliency, including measures considered in planning the Proposed Project that would protect facilities and infrastructure constructed as part of the Proposed Project, is analyzed qualitatively against local and state[51] planning initiatives and considers four elements associated with climate change predictions. Climate change predictions are provided in **Appendix B**. This analysis considers the potential impacts specific to protecting and maintaining the infrastructure associated with the Proposed Project in light of these anticipated changes.

The Palm Beach County Unified Land Development Code does not include any climate mitigation, adaptation, or resilience requirements.[52] The Palm Beach County 1989 Comprehensive Plan includes a climate change objective with several policies that encourage strategies which increase community resiliency and protect property, infrastructure, and cultural and natural resources from the impacts of climate change which were considered in the analysis of potential climate impacts.[53] **Appendix D** includes a description of the potential effects of climate change and threats to airports.

3.4.3 Affected Environment

The most recent available USEPA data (2022) indicate that the transportation sector accounted for 27.2% of total GHG emissions nationally in 2020.[54] Of that 27.2%, commercial aviation accounted for 5.6% of the total transportation sector, or 1.5% of the total gross CO_2e emissions in the U.S. for all sectors. Existing GHG emissions at F45 (2021) are given in **Table 3-10**. Of the six GHGs previously identified, only CO_2, CH_4, and N_2O are associated with the activity of aircraft.

48 GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

49 This tool was released with the 2016 TRB ACRP, *Guidance for Estimating Airport Construction Emissions*. ACRP Report 102 <https://doi.org/10.17226/22437>.

50 FAA, Office of Environment and Energy, 2015. *Aviation Emissions and Air Quality Handbook*, Version 3/Update 1. January.

51 FDOT, *Resiliency Policy*, https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/policy/resilience/resiliency_policy_000-525-053.pdf?sfvrsn=4dae64fd_2 (Accessed April 2023)

52 Palm Beach County, *Unified Land Development Code*, http://www.pbcgov.com/uldc/pdf/Entire_ULDC.pdf (Accessed April 12, 2023)

53 Palm Beach County, *Palm Beach County Comprehensive Plan, Future Land Use Element*, Revised February 2023, SUB-OBJECTIVE 1.1.1 Climate Change, https://discover.pbcgov.org/pzb/planning/PDF/ComprehensivePlan/FutureLandUse.pdf (Accessed: April 2023)

54 *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020*. U.S. Environmental Protection Agency, 2022.

TABLE 3-10
EXISTING CONDITIONS (2021) GHG EMISSIONS (METRIC TONS)

Source	Carbon Dioxide-Equivalent (CO_2e) Emissions
Aircraft	2,073
SOURCE: FAA AEDT 3e, Environmental Science Associates, 2023.	

The *Palm Beach County Comprehensive Plan* includes policies to consider mitigation strategies that increase efficiency and conservation, and reduce GHG emissions.[55] The County also has an established Office of Resilience (OOR) that works to address the physical, social, and economic challenges of a changing climate.[56] The OOR is a partner in the Southeast Florida Regional Climate Change Compact (the Compact) between Broward, Miami-Dade, Monroe, and Palm Beach counties. The Compact has developed a Regional Climate Action Plan (RCAP) that outlines goals, recommendations, and supporting strategies across 11 focal areas to advance the objectives of achieving net-zero GHG emissions by 2050 compared to a 2005 baseline, and of strengthening the adaptive capacity and climate resilience of the region's communities, institutions and economy. This includes 23 Sustainable Communities and Transportation (ST) initiatives to "Adapt to the impacts of climate change and reduce GHG emissions by reshaping where and how to build and move from place to place."[57] ST initiatives that are specific to airports include reducing GHG emissions (ST-16.2), investing in transportation infrastructure (ST-16.3), and incorporating climate adaptation strategies (ST-20.1).

Additionally, FAA programs also target GHG reductions at airport facilities as well as in aircraft. The FAA NextGen program seeks to modernize the nation's air transportation system through increasing the safety, efficiency, capacity, predictability, and resiliency of American aviation. Through NextGen, FAA continues to work in partnership with industry through the Continuous Lower Energy, Emissions, and Noise (CLEEN) Program to accelerate the development of technologies that reduce aircraft fuel consumption, emissions, and noise. The FAA launched the initial CLEEN I from 2010 to 2015, which implemented new, successful GHG-reducing technologies. The second phase, CLEEN II, runs from 2015 through 2020 and will implement additional innovations.[58] The global aircraft CO_2 standard is expected to reduce carbon emissions by more than 650 million metric tons between 2020 and 2040. Other FAA programs that target emission reductions include the Airport Sustainability Planning Program, which provides AIP grants to certain airports for Sustainability Master Plans or Airport Sustainability Plans that include GHG inventories and emission reduction initiatives, and the Voluntary Airport Low Emissions and Zero Emissions Vehicle and Infrastructure Pilot Programs.[59,60]

55 Palm Beach County, *Palm Beach County Comprehensive Plan, Future Land Use Element,* Revised 2023, Policy 1.1.1-f, https://discover.pbcgov.org/pzb/planning/PDF/ComprehensivePlan/FutureLandUse.pdf (Accessed: April 2023)

56 Palm Beach County, *Office of Resilience*, https://discover.pbcgov.org/resilience/Pages/About-Us.aspx (Accessed: April 2023)

57 Southeast Florida Regional Climate Change Compact, *Regional Climate Action Plan*, https://southeastfloridaclimatecompact.org/wp-content/uploads/2023/01/SEFL_RCAP3_Final.1.pdf## (Accessed: April 2023)

58 FAA, *Continuous Lower Energy, Emissions, and Noise (CLEEN) Program*, https://www.faa.gov/about/office_org/headquarters_offices/apl/eee/technology_saf_operations/cleen (Accessed April 2023)

59 FAA, *Voluntary Airport Low Emissions Program (VALE)*, https://www.faa.gov/airports/environmental/vale (Accessed April 2023)

60 FAA, *Airport Zero Emissions Vehicle and Infrastructure Pilot Program*, https://www.faa.gov/airports/environmental/zero_emissions_vehicles (Accessed April 2023)

3.4.4 Environmental Consequences

3.4.4.1 Construction Emissions

The construction emissions inventory for the Proposed Project is presented in **Table 3-11**. Under the Proposed Project, construction activities would commence in 2024 and be complete by the end of 2025. For the purposes of emissions modeling, all construction was assumed to occur in 2024 in order to estimate upper-bound construction emissions. The same methodology used for construction-related criteria air pollutant emissions was employed to calculate construction-related greenhouse gas emissions.

TABLE 3-11
PROPOSED PROJECT CONSTRUCTION-RELATED GHG EMISSIONS INVENTORY(METRIC TONS)

Year	CO_{2e}
2024	5,815
SOURCE: FAA AEDT 3e, Environmental Science Associates, 2023.	

3.4.4.2 Operational Emissions

2025 No Action Alternative

GHG emissions associated with the No Action Alternative in 2025 would result solely from Airport and aircraft operations forecasted to occur in the future. Under the No Action Alternative, there would be no additional GHG emissions at F45 because no project-related construction would occur. Therefore, CO2e emissions would not increase from 2,194 metric tons per year in 2030.

2025 Proposed Project

Climate effects determinations are based on changes in GHG emissions relative to Existing Conditions (2021). Total operational GHG emissions anticipated under the No Action Alternative and Proposed Project in 2025 are summarized in **Table 3-12**.

TABLE 3-12
OPERATIONAL GHG EMISSIONS INVENTORY IN 2025 (METRIC TONS)

Scenario	2025 CO_{2e}
No Action Alternative	2,194
Proposed Project	2,423
Difference (+/-)	**+229**
SOURCE: FAA AEDT 3e, Environmental Science Associates, 2023.	

2030 No Action Alternative

GHG emissions associated with the No Action Alternative in 2030 would result solely from Airport and aircraft operations forecasted to occur in the future. Under the No Action Alternative, there would be no additional GHG emissions at F45 because no project-related construction would occur. Therefore, CO_2e emissions would not increase from 2,311 metric tons per year in 2030.

2030 Proposed Project

Climate effects determinations are based on changes in GHG emissions relative to Existing Conditions (2021) and participation in local, regional, national, and global programs. It is understood that, while the incremental consequence of additional GHG emissions associated with activities at F45 and the County's participation in climate-related programs may be trivial, the County does have an additive role in the cumulative success of reducing its contribution to, and thus the impacts of, climate change. Total operational GHG emissions anticipated under the No Action Alternative and Proposed Project in 2030 are summarized in **Table 3-13**.

TABLE 3-13
OPERATIONAL GHG EMISSIONS INVENTORY IN 2030 (METRIC TONS)

Scenario	2030 CO_{2e}
No Action Alternative	2,311
Proposed Project	3,041
Difference (+/-)	**+730**

SOURCE: FAA AEDT 3e, Environmental Science Associates, 2023.

3.4.4.3 Total GHG Emissions and Resiliency

The difference between the No Action Alternative and Proposed Action scenarios for construction and operational GHG emissions are shown in **Table 3-14**. While the operational GHG emissions were only calculated for two future years, any operational GHG emissions would continue to occur according to the annual projected increase in aircraft activity used in the analysis.

TABLE 3-14
TOTAL GHG EMISSIONS ASSOCIATED WITH THE PROPOSED PROJECT (METRIC TONS)

Year	CO_{2e}
2024 (Construction Emissions)	5,815
2025 (Operational Emissions)	229
2030 (Operational Emissions)	730

SOURCE: FAA AEDT 3e, Environmental Science Associates, 2023.

The County acknowledges the climate and resilience initiatives identified by the Compact and COO, and identified in the Comprehensive Plan. The County is committed to implementing the appropriate strategies to ensure that the Proposed Project reduces potential climate impacts while also ensuring critical Airport infrastructure is less susceptible to the potential risks of sea level rise, local flooding, changes in precipitation, and increases in temperatures. Further, the Proposed Project would be constructed at elevations and slopes to reduce the risk of increases in rainfall. Pavements would also be constructed to withstand possible softening, cracking, and or erosion of airfield infrastructure that may result from increases in temperatures.

To reduce climate impacts in accordance with the County's Comprehensive Plan and Compact's RCAP, the County will work with airport facility users and tenants, and construction contractors, to encourage measures that reduce fuel consumption, such as carpooling and anti-idling of construction equipment, when practicable. These actions would align with the Compact's RCAP initiative ST-16.3 and the County's Comprehensive Plan Policy 1.1.1-f.

3.4.5 Significance Determination

FAA Order 1050.1F does not establish a significance threshold for climate or aviation-related GHG emissions, nor does FAA Order1050.F identify specific factors to consider in making a significance determination for GHG emissions. GHG emissions associated with the Proposed Project are anticipated to be significant. GHG emissions are expected to increase temporarily in relation to construction activities and incrementally as related to increased operations. Although the contribution of GHG at F45 is negligible on a global scale, some forecasted increases may be offset by continued improvements in industry emissions technology (e.g., through FAA NextGen and CLEEN Programs). Likewise, F45 would adhere to all state and local plans to reduce GHG emissions from its facilities, equipment, and procedures, and conform with FAA, state, and local climate change resiliency planning initiatives. Because there would be no significant GHG emissions or climate-related impacts associated with the Proposed Project, any measures undertaken by the County would be voluntary and are not required by the FAA.

3.5 Coastal Resources

3.5.1 Regulatory Context

In accordance with Section 307 of the Coastal Zone Management Act (CZMA)(16 U.S.C. §§ 1451-1466) and the CZMA implementing regulations at 15 CFR 930 subpart C, federal agency activities affecting a land or water use or natural resource of a state's coastal zone must be consistent to the maximum extent practicable with the enforceable policies of the state's coastal management program. The FDEP administers the Florida Coastal Management Program under the authority of the Florida Coastal Management Act (Chapter 380, F.S., Part II).

The Coastal Barrier Resources Act (16 U.S.C. § 3501 *et seq*) restricts federal expenditures and financial assistance that may encourage development of coastal barriers. Coastal barriers have been mapped in designated areas along the Atlantic and Gulf coasts, Great Lakes, Puerto Rico, and U.S. Virgin Islands, and these lands are designated in the USFWS John H. Chafee Coastal Barrier Resource System (CBRS).

3.5.2 Methodology

The Study Area defined to evaluate the compatibility of the Proposed Project with coastal resources includes the review of coastal resources immediately adjacent or hydrologically connected to the Airport boundary. The FAA evaluated the Proposed Project for consistency with the enforceable policies of the Florida Coastal Management Program. A detailed table summarizing the project's consistency with the Florida Coastal Management Program is provided in **Appendix E**. The Draft EA will be provided to the Florida State Clearinghouse to obtain their comments and Coastal Consistency Determination.

3.5.3 Affected Environment

The entire state of Florida, including F45, is located within the coastal zone. Although much of the Airport property is situated in upland areas, F45 is approximately 10 miles from the Atlantic Ocean and is potentially hydrologically connected to Areas of Special Management, as designated by the state of Florida, because of identified coastal resource values and evaluated within a coastal consistency determination.[61] F45 is approximately 10 miles to the southwest of the Loxahatchee River-Lake Worth Creek Aquatic

[61] As defined in the *Florida Coastal Management Program Guide*, FDEP 2019.

Preserve, which includes the Northwest Fork of the Loxahatchee River that is federally designated as a Wild and Scenic River.[62, 63] Additionally, there are eight critically eroded beach areas (33.6 miles), two non-critically eroded areas (0.9 mile), and one critically eroded inlet shoreline area (0.8 mile) in Palm Beach County.[64] Palm Beach county has at least 7.2 miles of managed shoreline, including dune restoration, seawall construction, and sand transfer/beach nourishment projects.

There are CBRS-identified Otherwise Protected Areas (OPA) within Atlantic Ocean coastal areas of eastern Palm Beach County, including Jupiter Beach, Carlin, and MacArthur Beach OPAs, and Blowing Rocks system unit to the north in Martin County; however, these coastal resources are approximately 10 to12 miles east of F45 and there are no CBRS resources within or adjacent to the Proposed Project footprint.[65] As the Proposed Project would not occur upon or have any affect to CBRS resources, CBRS resources are not carried forward for further analysis.

3.5.4 Environmental Consequences

3.5.4.1 No Action Alternative

Under the No Action Alternative, there would be no affects to coastal resources. Current aircraft operations do not impact coastal resources, and it is anticipated that the No Action Alternative, including anticipated future increase in aircraft operations, would not confer additional affects to coastal resources. On-Airport stormwater would continue to be managed on-site through existing retention and conveyance systems and eventually discharged into the airport's stormwater management system, in accordance with existing F45 Environmental Resources Permit (50-02617-S) and SFWMD permits (see Section 3.14 for further discussion of potential water quality impacts).

3.5.4.2 Proposed Project

Under the Proposed Project, there would be no land disturbing activities on the coast or in areas directly adjacent to coastal resources and the majority of the Proposed Project area is located in upland areas. The Proposed Project would convert 3.56 acres of wetland to upland area (inside the RSAs); however, these areas are located adjacent to existing infrastructure established for the purpose of operating GA aircraft, and the expansion of this infrastructure would increase safety and efficiency at the Airport. The wetland impacts were reviewed to determine potential for cumulative impacts to the greater Loxahatchee watershed or coastal resources. However, the wetland impacts would be mitigated per federal regulations. Further, any stormwater runoff as a result of the Proposed Project would be detained and treated. For more information, please see Section 3.14, *Water Resources (Wetlands, Floodplains, Surface Waters, and Groundwater Only).*

A review of the 24 Florida statutes of the Florida Coastal Management Program indicates that the Proposed Project is either consistent with the statutes or the statutes are not applicable to the project. A table providing a more detailed summary is included in **Appendix E**.

62 Florida Department of Environmental Protection, Office of Resilience and Coastal Protection, 2021. *Florida Coastal Management Program Guide*, July 8, 2021.

63 Florida Department of Environmental Protection, 2023. *Aquatic Preserve Program.* Accessed in July 2023 at: https://floridadep.gov/rcp/aquatic-preserve

64 Florida Department of Environmental Protection, Division of Water Resources Management. 2023. *Critically Eroded Beaches in Florida*. July 2023.

65 U.S. Fish and Wildlife Service. 2018. *John H. Chafee Coastal Barrier Resources System, Blowing Rocks Unit FL-15, Jupiter Beach Unit FL-16P, and Carlin Unit FL-17P.* Accessed in July 2023 at: https://www.fws.gov/CBRA/

3.5.5 Significance Determination

FAA Order 1050.1F does not establish a significance threshold for coastal resources. However, some factors have been identified which may be considered when determining if an impact may be significant. One such consideration is whether the Proposed Project would result in "adverse impacts to the coastal environment that cannot be satisfactorily mitigated." Fulfillment of the proposed mitigation measure is anticipated to diminish any adverse impacts to coastal resources to a level that would be less than significant. Any impacts to wetlands would be mitigated through the purchase of appropriate credits from either the Pine Glades North Mitigation Area or Pine Glades West Mitigation Area, as discussed in Section 3.14.5.

3.6 Department of Transportation, Section 4(f)

3.6.1 Regulatory Context

Section 4(f) of the Department of Transportation Act (re-codified and renumbered as Section 303(c) of 49 United States Code) established policy for certain resources affected by transportation projects that are funded or approved by the Department of Transportation (DOT) and its administrations and agencies. Section 4(f) of DOT Act states that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or land of a historic site of national, state or local significance only if: 1) there is no prudent and feasible alternative that would avoid using those resources, and 2) the program or project includes all possible planning to minimize harm resulting from the use. Use of a Section 4(f) property includes both physical use or constructive use. Constructive use would occurs if Section 4(f) lands are substantially impaired (diminished activities, features or attributes that contribute to its significance or enjoyment) by the Proposed Project.

Section 6(f) of the Land and Water Conservation Fund Act (LWCF) (16 U.S.C. §§ 4601-4 et seq.), as amended, provides funding for the purchase and improvement of recreational lands, wildlife and waterfowl refuges, and other similar resources. The LWCF established a fund for federal acquisition of park and recreational lands and also provides matching grants to state and local governments for recreation planning, acquisition, and development. Lands purchased by this fund are protected from conversion to uses other than public outdoor recreation.

3.6.2 Methodology

Resources covered under Section 4(f) of the DOT Act were identified in the GSA and analyzed for potential direct or indirect impacts by the Proposed Project or the No Action Alternative. The GSA is depicted in **Figure 3-1**. For more information on the methodology utilized in the analysis of resources covered under Section 4(f) of the DOT Act, see Appendix G.

3.6.3 Affected Environment

Section 4(f) resources identified in the environs of the Proposed Project include the Sweet Bay Natural Area and the Loxahatchee Slough Natural Area. The following sections discuss each of the Natural Areas in detail.

3.6.3.1 Sweetbay Natural Area

The Sweetbay Natural Area is a 1,094-acre nature and wetlands preserve that is located on F45 property. The Sweetbay Natural Area, established as part of the airport development program, is owned by Palm Beach County and is managed by the County's Department of Environmental Resources Management (ERM). The Natural Area is comprised of four discrete areas located on airport property. **Figure 3-3** depicts the Proposed Project relative to the Sweetbay Natural Area. In addition to its function as a nature preserve, the northwest section of the Sweetbay Natural Area is open to the public for recreational purposes. The recreation facilities include a boardwalk, marked hiking trail (Tarflower Nature Trail), an information kiosk, a covered observation platform, and a parking lot. Activities include hiking, wildlife viewing, and group events. The Natural Area is also designated as Great Florida Birding Trail. There are no public access and recreation facilities in other areas of the Sweetbay Natural Area. A network of unpaved maintenance access roads and cleared firebreaks support operations and maintenance in the Sweetbay Natural Area, including prescribed burns. The Sweetbay Natural Area is a resource subject to the protective provisions of Section 4(f) of the DOT Act. The Natural Area meets the conservation objective related to wildlife refuges and a portion meets the criteria for a publicly-owned recreation area. For more information, see **Appendix G**.

3.6.3.2 Loxahatchee Slough Natural Area

The Loxahatchee Slough Natural Area is a 13,010-acre nature preserve owned by Palm Beach County and managed by ERM. **Figure 3-4** depicts the airport and Proposed Project, relative to the Loxahatchee Slough Natural Area. The majority of the Loxahatchee Slough Natural Area (11,238 acres) is located east of the Beeline Highway (State Highway 710). This section of the Natural Area is available to the public for a variety of recreational uses. The Loxahatchee Slough Natural Area is a resource subject to the protective provisions of Section 4(f) of the DOT Act. The portion of the Natural Area located east of the Beeline Highway meets the conservation objective related to wildlife refuges and a publicly owned recreation area. The 1,772-acre parcel of the Loxahatchee Slough Natural Area located west of the Beeline Highway borders the southern boundary of the airport. There is no formal public access and no public recreation facilities on this parcel. This parcel of the Loxahatchee Slough Natural Area is not considered a public park or recreation area subject to the protective provisions of Section 4(f). However, the parcel is managed as a nature preserve and meets the conservation objective related to wildlife refuges. For more information, please see **Appendix G**.

3.6.4 Environmental Consequences

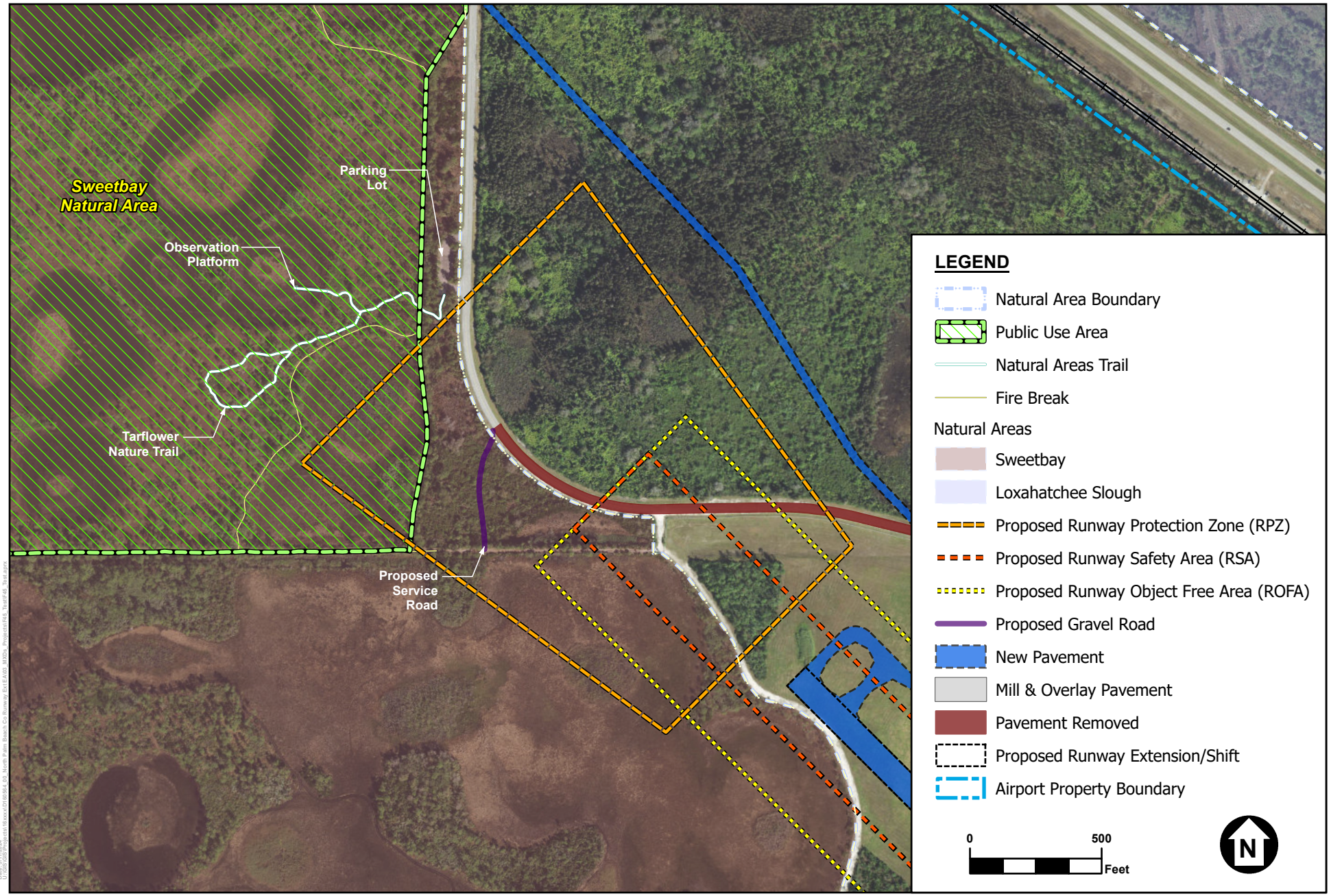
3.6.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be constructed and Section 4(f) resources would not be affected.

3.6.4.2 Proposed Project

Sweetbay Natural Area

The Proposed Project would affect a total of 32.3 acres of land within the Sweetbay Natural Area. Approximately 17.4 acres of land would be directly affected by construction of the proposed runway extension and related improvements and land clearing and approximately 14.9 acres would be within the new Runway Protection Zones (RPZs).

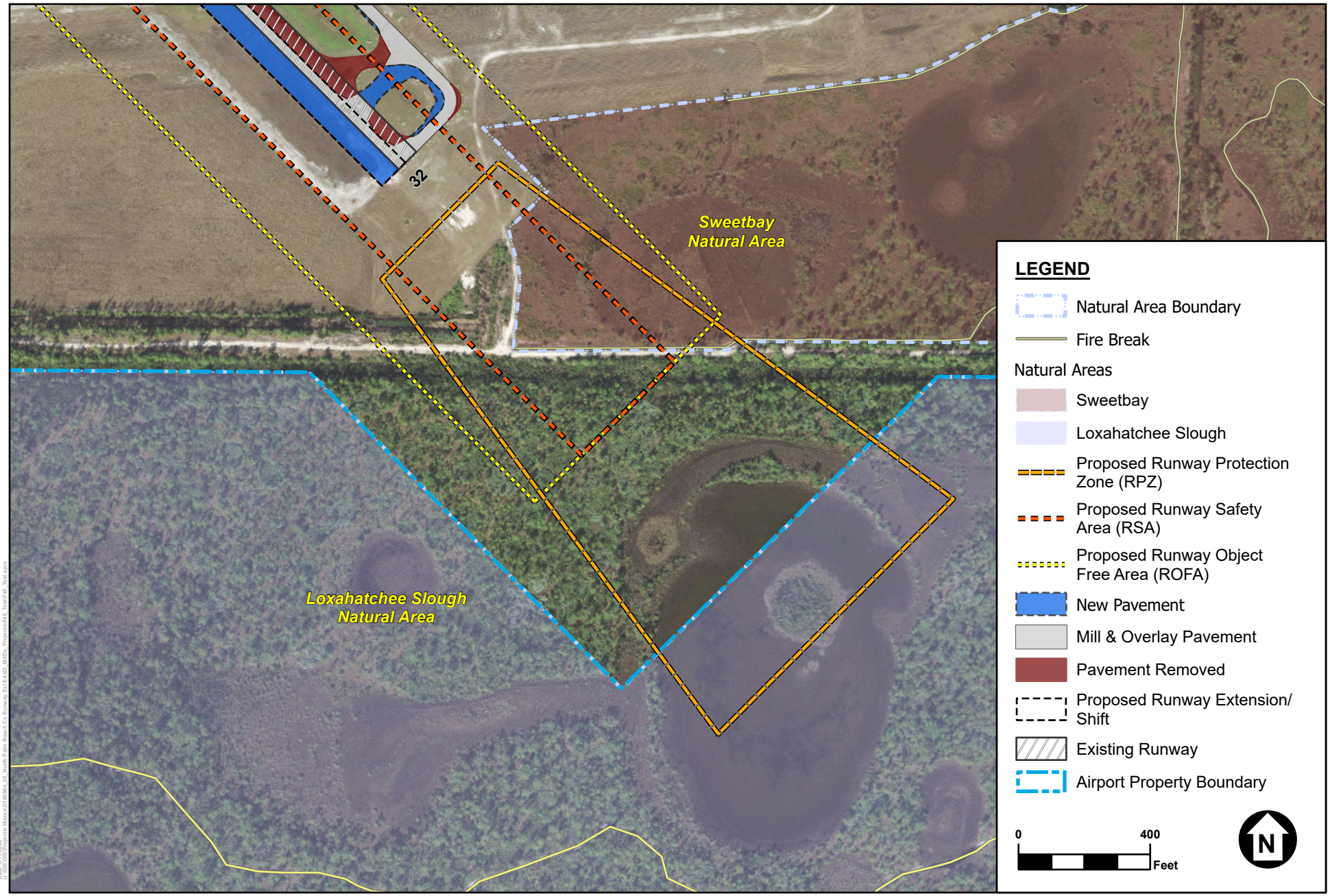


Source: ESA, 2022; Palm Beach County, 2023.

North Palm Beach County General Aviation Airport Runway Extension EA

FIGURE 3-3

SECTION 4(F) - PROPOSED PROJECT RELATIVE TO THE SWEETBAY NATURAL AREA



Source: ESA, 2022; Palm Beach County, 2023.

North Palm Beach County General Aviation Airport Runway Extension EA

FIGURE 3-4

SECTION 4(F) - PROPOSED PROJECT RELATIVE TO THE LOXAHATCHEE SLOUGH AREA

The proposed Runway 14-32 RPZs be somewhat larger and, on the Runway 14 end, the RPZ would shift from its existing location to be at the new (extended) runway end. In total, the new RPZs would encompass approximately 14.9 acres of land within the Sweetbay Natural Area. Approximately 4.05 acres of the public recreation area in Sweetbay Natural Area's Management Unit 1 would be within the Runway 14 RPZ. There are no marked trails or other facilities within this area. However, this section of the Sweetbay Natural Area contains 830 linear feet of a maintenance access way and firebreak that is used by some people for walking and hiking. The remaining 10.7 acres of land within the Runway 14 RPZ would be located on Sweetbay Natural Area property that does not have improved walking trails or other amenities. An additional 0.17 acre of Sweetbay Natural Area land would be included in the in the RPZ on that end of the runway. Construction of the proposed runway, taxiway, and related improvements would directly affect 17.4 acres of land within the Sweetbay Natural Area. This includes approximately 6.5 acres of land that would be filled and compacted for the Runway Safety Area (RSA). Approximately 10.8 acres of land would be cleared of vegetation within the Runway Object Free Area (ROFA). For more information, please see **Appendix G**.

Physical Use - The Tarflower Nature Trail and information kiosk would not be affected. To ensure compatible land use within the new section of the Runway 14 RPZ that would extend into Management Unit 1, the County proposes to limit public access within the 4-acre area. As previously noted, a section of maintenance access way and firebreak in this area is used by the public for recreation purposes. Although the RPZ would not be fenced, signage would be installed to discourage people from entering the portion of the RPZ that would be located in Management Unit 1. The portion of the maintenance access way and firebreak would remain in place and the land within the RPZ would still be managed for conservation purposes.

Portions of the proposed ROFA and RSA would extend into the Sweetbay Natural Area. Although the proposed ROFA and RSA do not encroach on areas available to the public for recreational use, the land is used for conservation purposes. As noted above, approximately 10.8 acres of Sweetbay Natural Area is located within the proposed ROFA (7.33 acres near Runway 14 end and 3.49 acres near Runway 32 end). Vegetation within the ROFA would be cut to eliminate aboveground objects (e.g., trees and bushes) that protrude above the elevation of the nearest section of the runway. This would affect approximately 8.9 acres of wetlands that would be maintained through ongoing trimming and management. Approximately 6.56 acres of the Sweetbay Natural Area located within the proposed RSA (4.27 acres at Runway 14 and 2.29 acres at Runway 32). These areas within the ROFA and RSA would cease to function as a nature preserve.

Aviation Road, which provided access from Beeline Highway to the Airport and the Sweetbay Natural Area parking lot, would be rerouted as part of the Proposed Project. The existing section of road providing access to the Sweetbay Natural Area would be terminated at the parking area with a cul-de-sac. This would allow continued public access to the recreation area. Concerns were raised by ERM that based on experience, terminating the road at a dead end has the potential to attract after-hours loitering and other activities detrimental to the ongoing maintenance and use of the Sweetbay Natural Area facilities.

Constructive Use - Aircraft presently fly over the recreational area within the Sweetbay Natural Area. The Proposed Project would extend Runway 14-32 1,700 feet closer to the recreational area and would increase aircraft activity at the airport by 2,500 annual aircraft operations (approximately 7 daily arrivals and departures). The altitude of aircraft arriving to the airport over the recreation area would be approximately 30 feet lower than present altitudes. The primary environmental effect of the Proposed Project would be the change in aircraft noise exposure over the recreation area. A noise analysis showed that the change in

noise exposure would be minimal and the recreational land uses within the Sweetbay Natural Area would be compatible with the projected aircraft noise levels. Although the removal or trimming of select trees may occur and may be noticeable at some locations, no substantial or significant change would occur that would be detrimental to the use and enjoyment of the Tarflower Trail and other facilities.

Based on the evaluations conducted, the Proposed Project would not substantially impair use of the recreation areas and activities in the Sweetbay natural Area. The Proposed Project would not constitute a constructive use.

Proposed Mitigation – Mitigation will be provided for the use of 17.8 acres of land within Sweetbay Natural Area to construct the proposed runway extension and related improvements. Mitigation will be provided to address the use of conservation land, the potential for the proposed cul-de-sac at the Sweetbay Natural Area entrance and parking area to attract loitering and other activities, and the proposed limited access to the maintenance access way and firebreak presently used by some people for hiking. To mitigate the loss of public access to an area within the Sweetbay Natural Area that is used for recreational purposes, a new 2,167-foot section of unpaved trail will be constructed. This mitigation would result in a net increase of 1,337-feet of new trail that will connect existing trails and create a loop which is expected to enhance public use opportunities for hiking. The proposed mitigation measures are discussed in more detail in Section 3.6.6 and in **Appendix G**.

Loxahatchee Slough Natural Area

Physical Use – The Proposed Project would enlarge and extend the Runway 32 Runway Protection Zone beyond the airport's southern boundary line. Approximately 6.66 acres of the Loxahatchee Slough Natural Area would be included within the RPZ. There is no formal public access, or public recreation areas, within this parcel of the Loxahatchee Slough Natural Area. However, the parcel adjoining the southern border of the airport is managed for land and habitat conservation and is subject to the protective provisions of Section 4(f) of the DOT Act. The area that would be included in the larger and extended RPZ predominantly consists of freshwater marsh. There are no trees or vegetation within Loxahatchee Slough Natural Area that would need to be removed. There would be no physical use or alterations of the Loxahatchee Slough Natural Area parcel adjoining the airport. The Proposed Project would not require any taking or use of this portion of the Loxahatchee Slough Natural Area.

Constructive Use - There would be no constructive use of the Loxahatchee Slough Natural Area.

Section 6(f) of the LWCFA Evaluation - The public recreation areas and facilities in the Loxahatchee Slough Natural Area were developed using LWCFA grant funds. There are no public recreation areas and facilities are located on the parcel located on the south side of the airport. The Proposed Project would not convert property acquired or developed using LWCFA grants for uses other than public outdoor recreation. Therefore, there would be no impacts related to the conversion of LWCFA fund-assisted properties.

Mitigation – Because there would be no physical or constructive impacts to Section 4(f) or 6(f) resources in the Loxahatchee Slough Natural Area, no mitigation is required.

3.6.5 Draft De Minimis Determination

The effects of the proposed runway extension project at the North Palm Beach County General Aviation Airport on Section 4(f) resources were evaluated under Section 4(f) of the Department of Transportation Act (recodified at 49 U.S.C. § 303). Based on the following, the Federal Aviation Administration has determined the impacts associated with the transportation use of the Sweetbay Natural Area would be *de minimis*.

1. The Proposed Project, together with the proposed avoidance, minimization, and mitigation or enhancement measures, would not adversely affect the activities, features, or attributes that qualify the Sweetbay Natural Area for protection under Section 4(f). The FAA will ensure that mitigation measures are implemented.
2. The public will be afforded an opportunity to review and comment on the effects of the project on the protected activities, features, or attributes of the Section 4(f) property.
3. The officials with jurisdiction over the property, after considering public comments and FAA's intent to make the *de minimis* impact finding, concur in writing that the project will not adversely affect the activities, features, or attributes that qualify the property for protection under Section 4(f).

The Draft De Minimis Determination for the Proposed Project is provided in **Appendix G**. The Draft De Minimis Determination is being made available for public review with this Draft Environmental Assessment. The FAA and PBCDOA will review and consider all comments on the Draft De Minimis Determination received during the public comment period. See Section 9 of the Draft De Minimis Determination and Section 4.3 on this Draft EA for information on the Public Workshop and Public Hearing for the Draft De Minimis Determination and Draft EA, as well as how to submit comments.

3.6.6 Significance Determination

FAA Order 1050.1F provides the FAA's significance threshold for Section 4(f) properties which would occur when: the action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. A significant impact under NEPA would not occur if mitigation measures eliminate or reduce the effects of the use below the threshold of significance. The FAA will make a determination on the Proposed Project with regards to Section 4(f) after public comments are received on the EA.

3.6.7 Mitigation Measures

Habitat – Sweetbay Natural Area includes areas that were mitigation for the original airport development. Mitigation for the loss of habitat within Sweetbay Natural Area would be replaced at a permitted mitigation site and will be completed in accordance with state permit requirements. It is anticipated that the mitigation will be completed through the purchase of the appropriate number of credits from the County's Pine Glades West Mitigation Area, Loxahatchee Mitigation Bank or RG Reserve Mitigation Bank.

Security Concerns – To address concerns for a potential to attract loitering and other activities detrimental to the on-going maintenance and operation of the public use facilities at the Sweetbay Natural Area, the DOA will work with ERM to install a security camera to monitor the facility. In addition, the DOA is in the process of hiring a permanent on-site manager who would be responsible for regular patrols of the truncated roadway and Sweetbay Natural Area parking lot as an ongoing effort to discourage loitering at the facility. Additional signage to deter individuals from accessing the natural areas and fencing at the fire break entrance within the proposed RPZ will be implemented.

Facilities and Amenities – Development of new facilities at Sweetbay is limited by the original development order (Interlocal Agreement R-90-0294) which requires that construction be restricted to only that needed to implement the approved management plan, conduct clear zone maintenance, construct necessary navigational aids required by FAA and implement the airport development. Because an existing firebreak will be impacted by the proposed RPZ and it is not currently gated to deter public access, DOA will install a gate and signage identifying the area as "no public access". A new 2,167-foot trail will be established to mitigate impacts to a portion of the existing firebreak (**Figure 3-5**). The mitigation will result in a net increase of 1,337-feet of new unpaved trail that will create a connected trail loop which is expected to enhance public use opportunities for hiking. This mitigation is consistent with the preservation of the ecological integrity of the preserve and directs public use away from Airport operations. This will assure compliance with the original development order (Interlocal Agreement R-90-0294) which identifies that passive recreation and scientific uses be "consistent with the preservation of the ecological integrity of the preserve and compatible with airport operations".

As there would be no physical or constructive impacts to Section 4(f) resources in the Loxahatchee Slough Natural Area, no mitigation is warranted.

3.7 Hazardous Materials, Solid Waste, and Pollution Prevention

3.7.1 Regulatory Context

Federal, state, and local laws regulate the use, storage, transport, and disposal of hazardous materials. Applicable federal laws include *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA or Superfund) (42 U.S.C. § 9601 *et seq)*; *Resource Conservation and Recovery Act* (RCRA) (42 U.S.C. § 6901 *et seq*); *Superfund Amendments and Reauthorization Act of 1986* (SARA) (Public Law 99-499); *Emergency Planning and Community Right-to-Know Act* (42 U.S.C. § 11001 *et seq*); and *Toxic Substances Control Act* (15 U.S.C. § 2601 *et seq*.) Federal regulations promulgated to implement these statutes are codified in Title 40 CFR, *Protection of the Environment*. In addition, Section 311 of the *Clean Water Act* (33 U.S.C. § 1321), as amended by the *Oil Pollution Act* (33 U.S.C. §§ 2701-2761), requires spill response plans for facilities that store oil-based or oil products.

On the federal level, solid waste is primarily regulated by the RCRA and the amendments to the RCRA included in the *Hazardous and Solid Waste Amendments Act of 1984* (HSWA) (P.L. 98-616, 98 Stat. 3221). In Florida, the USEPA has authorized the FDEP to administer the statewide hazardous waste management and regulatory program under the RCRA and HSWA. The FDEP Division of Waste Management implements federal and state laws regarding the handling of solid and hazardous waste. The *Pollution Prevention Act* of 1990 (U.S.C. §13101) establishes pollution prevention as a national objective and requires prevention and reduction of pollution at the source, when possible, so waste has a reduced impact on the environment. Waste minimization is encouraged through source reduction and the use of non-hazardous substances, recycling, affirmative procurement, and conversion of waste to energy. Source reduction includes practices that reduce hazardous and other substances from being released into the environment prior to recycling, treatment, or disposal.

SOURCE: ERM, 2024.

Figure 3-5
Proposed Public Use Trail

3.7.2 Methodology

This analysis identifies and evaluates activities or processes that use hazardous materials or produce hazardous and solid wastes, involve waste handling and use of receiving disposal facilities, identifies existing properties where hazardous materials (including environmental contamination) may occur, and discusses applicable pollution prevention procedures. This includes the assessment of whether the Proposed Project would produce any unique waste streams that would not be accommodated by existing management processes and technologies or that would create any additional risks to human health or the environment. A review of the USEPA's NEPAssist database was conducted to identify regulated facilities with geographical locations on or adjacent to the Proposed Project footprint. The FDEP Florida Geographic Data Library, *Contamination Locator Map*, was also reviewed to determine the presence of hazardous or solid waste sites within or adjacent to the Proposed Project footprint.

3.7.3 Affected Environment

There are currently three sites permitted on Airport property as very small quantity generators of hazardous wastes. **Table 3-15** lists the RCRA sites located on Airport property. There are no other generators located within two miles of the Airport. All hazardous substances at F45 are strictly managed in accordance with federal and state hazardous material management protocols. Hazardous materials are used and stored onsite at F45. The hazardous wastes generated are in support of Airport aircraft operations and maintenance. These substances include petroleum, oils, lubricants, and other materials used for aircraft and ground vehicle maintenance. There are no chemical de-icing systems in use at F45.

TABLE 3-15
ON-AIRPORT RCRA SITES

FRS ID	Name	Status	Compliance/ Enforcement Issues	On Airport Property?
110035506066	PALM BEACH COUNTY, N COUNTY AIRPORT	Active	None	Yes
110038897904	AIRCRAFT MAINTENANCE SPECIALIST INC	Active	None	Yes
110037321831	LANDMARK FBO HOLDINGS LLC	Active	None	Yes

NOTE:
Compliance and enforcement information available in the USEPA ECHO report is only available for the previous 5-year period.
SOURCE: USEPA, *Enforcement and Compliance History Online (ECHO)*, <https://echo.epa.gov/> (Accessed July 2023).

The review of USEPA and FDEP data did not reveal any National Priorities List (NPL) sites (also referred to as "Superfund" sites) on or within one mile of the Airport.[66] The site was determined eligible by the FDEP for state funded cleanup under the Abandoned Tank Restoration Program (ATRP) in July 1992.[67] During the development of the Airport in 1992, a 1,000-gallon steel tank containing diesel fuel was located in the southeast portion of the Airport below the current Taxiway Q. Reportedly, the tank was half buried, and a portion of the contents spilled during transport from the tank's original location, impacting nearby soil and groundwater. Initial Remedial Actions (IRA) were taken place in 1993 to remove any free and adsorbed phase hydrocarbons through excavation and treatment of soil and groundwater off-site. A site

66 Florida Department of Environmental Protection, *Florida Geographic Data Library - Contamination Locator, Map.* http://prodenv.dep.state.fl.us/DepClnup/ (Accessed: July 2023)

67 Ibid.

assessment that included soil and groundwater testing of the Airport was performed in 2007, which included taking groundwater and soil samples around the site of the spill near Taxiway Q. Concentrations of target hydrocarbon compounds were detected in soil and groundwater samples at concentrations below the state cleanup standards. As a result, a No Further Action (NFA) was recommended for the site to the FDEP.[68]

Waste and recycling service is administered at F45 by the Solid Waste Authority (SWA) of Palm Beach County through regional service agreements on five service areas. F45 falls under service area 1 and is serviced by Waste Pro.[69] Palm Beach County through the SWA provides recycling to residents and businesses but does not require either to recycle. All waste haulers that operate in the SWA service areas provide recycling services, if requested. Solid waste at the terminal is handled through an 8-yard dumpster for garbage, a 4-yard dumpster for cardboard, and a 96-gallon tote for non-fiber recycling.[70] The majority of F45's waste is sent to a landfill or a Renewable Energy Facility (REF). The tenants at the Airport participate in the recycling program by SWA, which consists of cardboard dumpster collection and a 95-gallon tote for non-fiber recycling. SWA operates two REFs approximately seven miles to the southeast of the Airport. The REFs are estimated to reduce the amount of waste going to landfills by up to 90%.[71] Based on SWA's 2022 Landfill Depletion Model, the SWA operates a 334-acre landfill that contains an estimated 53 million cubic yards of space with 26 million cubic yards remaining that could be fully depleted in 2054.[72]

The *Pollution Prevention Act of 1990* (42 U.S.C. §§ 13101-13109) requires prevention and reduction of pollution at the source, when possible, so that waste has a reduced impact on the environment. Pollution reduction at the source includes practices to keep hazardous substances from being released into the environment prior to recycling, treatment, or disposal.

3.7.4 Environmental Consequences

An evaluation of hazardous materials, solid waste, and pollution prevention was conducted for the Proposed Project and No Action Alternative. The results of the evaluation were compared to appropriate regulatory guidelines and criteria, including the potential for the Proposed Project to violate applicable laws or regulations; involve a contaminated site on the USEPA's NPL; or change the quantity, type, or collection of hazardous or solid waste that could exceed local capacity.

3.7.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no effects on the on-going management of hazardous materials or hazardous and solid wastes at F45. Although there is forecasted operational growth at F45 in the No Action Alternative, hazardous materials and solid waste would continue to be appropriately managed through existing infrastructure and protocols in accordance with federal, state, and local regulations.

68 REP Associates, Inc., *Site Assessment Report*, June 2007.

69 Solid Waste Authority of Palm Beach County (SWA), *Service Areas*, https://swa.org/223/Service-Areas (Accessed: June 2023)

70 Jacobs, *North Palm Beach County Airport (F45) Draft Master Plan Report*, May 2020.

71 Solid Waste Authority of Palm Beach County, *List of Facilities*, https://www.swa.org/Facilities/Facility/Details/Renewable-Energy-Facility-2-11 (Accessed: June 2023)

72 Solid Waste Authority of Palm Beach County, *2022 Landfill Depletion Model*, https://swa.org/DocumentCenter/View/374/Landfill-Depletion-Model-PDF?bidId= (Accessed: June 2023)

3.7.4.2 Proposed Project

Three RCRA sites were identified within Airport property. These sites support aircraft operations and maintenance at the Airport. The Proposed Project would result in an increase in airside activity of 0.7% and 2.2% in 2025 and 2030, respectively. However, there would be no substantial changes in the handling, use, or disposal of hazardous materials as a result of the Proposed Project in either 2025 or 2030. There would be an increase in fueling and maintenance of aircraft, GSE, and Airport-dedicated vehicles, as well as use of fuel storage tanks. This would include the more frequent use petroleum, oils, and lubricants and other materials used for aircraft and ground vehicle maintenance. However, Airport ground crews would employ best management practices to minimize the potential for spills on Airport property in accordance with AC 150/5210-22, *Airport Certification Manual (ACM),* Section 139.321 - Handling and Storing of Hazardous Substances and Materials.

As discussed in Section 3.7.3, *Existing Conditions (2021)*, there are no NPL properties located within or adjacent to the Proposed Project. The Airport is considered a cleanup site by FDEP due to soil and water contamination from a fuel spill that occurred over 30 years ago. Remediation actions of the site occurred in 1993 under the FDEP's ATRP. A site assessment completed in 2007 indicates that concentrations of target hydrocarbon compounds at the location of the spill were below the state cleanup standards. Therefore, a NFA for the site was recommended to the FDEP. Further, the approximate location of the spill is outside the location where construction activities would occur for the Proposed Project. Therefore, the Proposed Project would not interfere with any remediation activities or disturb soil and groundwater near the site.

The Proposed Project is likely to result in a minor increase in solid waste due to the growth of business and public charter operations involving passenger transport. However, any increase in solid waste from the increase in passengers would be minimal because waste that comes off airplanes after flights only represents about 20% of an airport's total municipal solid waste stream.[73] Additionally, there is no likelihood of exceeding existing waste processing capacity offered by SWA. Between 60 and 90% of waste collected by SWA is combusted in a REF, which reduces the amount of solid waste going to the landfill.

The Proposed Project would not result in major changes to existing pollution prevention activities in accordance with AC 150/5210-22, Section 139.321. County staff would continue to employ best practices to avoid, reduce, or prevent pollution at the Airport.

3.7.5 Significance Determination

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention in FAA Order 1050.1F. However, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for this resource category. The factors to consider are included in FAA Order 1050.1F Section 7.6.5. Based on the above information, the Proposed Project when compared to the No Action Alternative would not result in significant impacts to hazardous materials, solid waste, or pollution prevention.

[73] FAA, *Recycling, Reuse and Waste Reduction at Airports,* April 24, 2013.

3.8 Historic, Architectural, Archaeological, and Cultural Resources

3.8.1 Regulatory Context

Several laws and regulations require that possible effects on historic, archaeological, and cultural resources be considered during the planning and execution of federal undertakings, including the *National Historic Preservation Act* (NHPA), the *Archaeological Resources Protection Act*, and the *Native Graves Protection and Repatriation Act*. The Proposed Project is an undertaking with the potential to affect historic properties, and therefore is subject to compliance with the requirements of the Section 106 process. Section 106 of the NHPA requires a federal agency with jurisdiction over a proposed federal action (referred to as an "undertaking") to take into account the potential effects of the undertaking on historic properties as defined in 36 CFR 800.16(*l*)(1). As such, this EA was prepared in compliance with Section 106 and its implementing regulations. The Section 106 process is accomplished through consultation with the State Historic Preservation Office (SHPO), federally recognized Native American tribes, local governments, and other interested parties. Consultation with Native American tribes regarding issues related to Section 106 must recognize the government-to-government relationship between the federal government and tribes, as set forth in EO 13175, *Consultation and Coordination with Indian Tribal Governments* and the *Presidential Memorandum on Tribal Consultation* (2009).

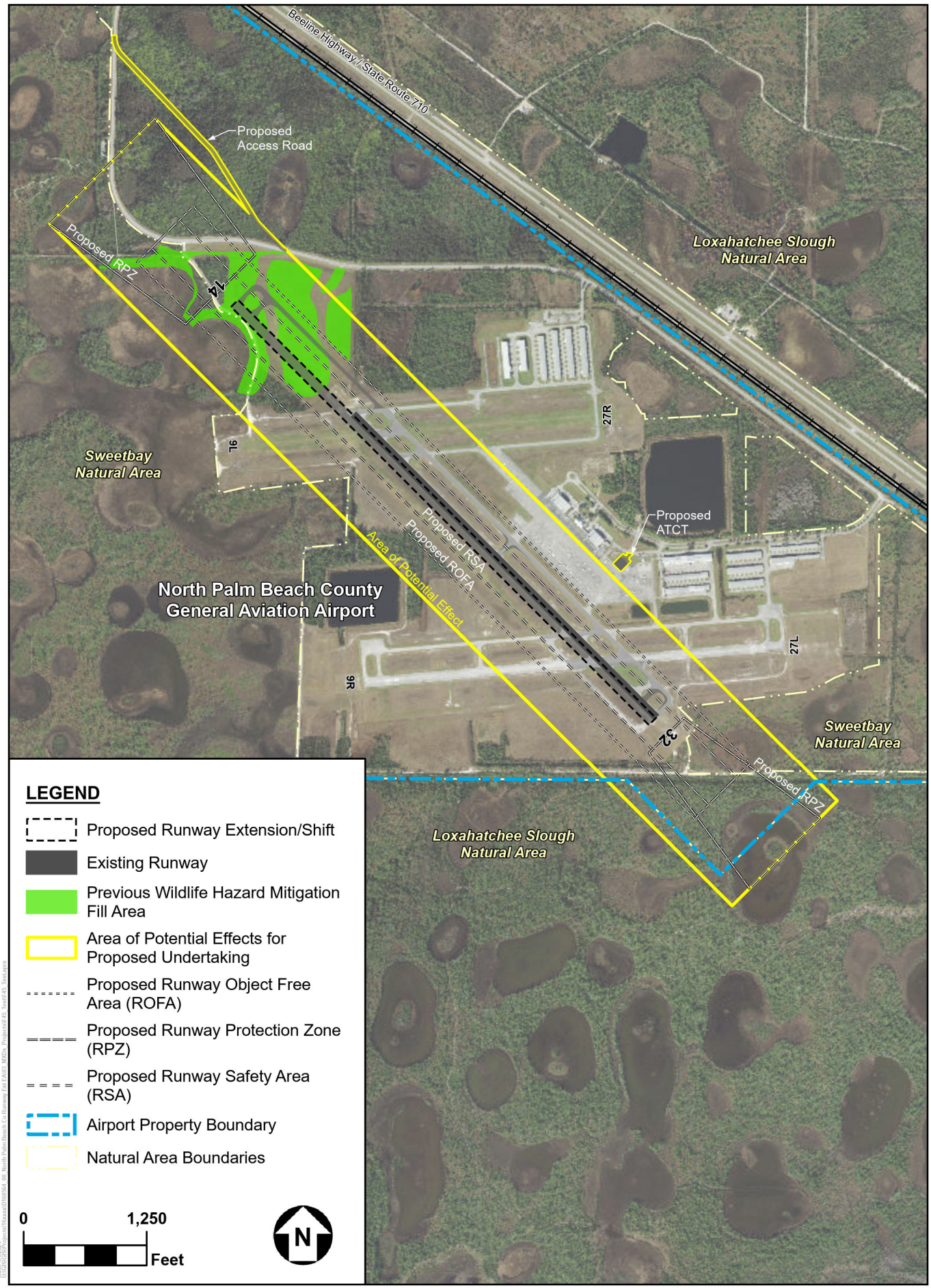
3.8.2 Methodology

3.8.2.1 Study Area

The APE is a specialized study area developed for the consideration of potential impacts to historic, historic architectural, and archaeological resources. The APE defines the areas within which an action and its alternatives could directly impact or indirectly cause changes in the character or use of historic properties and/or archaeological resources (**Figure 3-6**). The APE includes both areas of direct and indirect effects. The Direct Effects portion of the APE would generally be limited to areas associated construction of the proposed runway and taxiway extension, including adjacent Runway and Taxiway Safety Areas and Object Free Areas; areas associated with relocation of a portion of the airport access road and airport maintenance roads; and access road construction. The Indirect Effects portion of the APE would encompass an area around the runway likely to be exposed to increased noise (DNL 65 dB or higher), air emissions, light emissions, etc.

3.8.2.2 Literature Review

The Florida Master Site File is an inventory of archaeological sites; historical structures, cemeteries, bridges, districts, landscapes, and linear features; and archaeological and historical survey reports and other manuscripts relevant to history and historic preservation in Florida. A Florida Master Site file review for the APE associated with the Proposed Project was performed in September 2020. Further, background research and literature review included an examination of the Palm Beach County Property Appraiser's data; soil survey information; plat map; field notes; and tract book records; historic aerial photos on file at the Publication of Archival Library and Museum Materials; regional prehistories, histories, and site location predictive models; and relevant CRAS reports and manuscripts.



Source: USGS The National Map, 2020; ESA, 2023; Palm Beach County, 2020.

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FIGURE 3-6

AREA OF POTENTIAL EFFECT FOR THE PROPOSED PROJECT (UNDERTAKING)

3.8.3 Affected Environment

The area of the Proposed Project is extensively disturbed and modified, and background research revealed no recorded archaeological sites or historic resources within the APE prior to the disturbance.

A review of information contained in the Florida Master Site File showed no known resources listed on the National Register of Historic Places (NRHP) within the APE or near F45. Further, background research and literature review included an examination of the Palm Beach County Property Appraiser's data; soil survey information; plat map; field notes; and tract book records; historic aerial photos on file at the Publication of Archival Library and Museum Materials; regional prehistories, histories, and site location predictive models; and relevant Cultural Resource Assessment Survey (CRAS) reports and manuscripts. The nearest National Register-eligible resource is the Seaboard Airline Railroad Station (PB12917), which is located approximately nine miles east of the Airport. A desktop analysis was prepared for the Proposed Project. The study included the identification and description of all known archaeological sites and historic resources located within or proximate to the APE, as well as a discussion of potential archaeologically sensitive areas. A copy of desktop analysis can be found in **Appendix F**.

Research performed during the desktop analysis indicates that no archaeological sites have been recorded within or near the APE. There is a low probability for aboriginal and historic archaeological site occurrence. This is due to lack of preferred soil types; the areas low, wet setting; and no evidence of hammocks is present. The potential for unrecorded historic period archaeological sites was also assessed and found to be low. A review of the property appraiser data suggests no potential for historic structures and the historic aerial photos and maps revealed no historic buildings or structures. Because there is low potential for archaeological and historic sites, a CRAS is not warranted for this project.

3.8.4 Environmental Consequences

3.8.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no potential for disturbance of any known or unknown historic or archaeological cultural resources.

3.8.4.2 Proposed Project

The Proposed Project would extend the length of Runway 14-32 by 1,700 feet and widen it by 40 feet. This would also include related grading and drainage improvements and service and access road realignments. This would occur primarily on land subject to prior disturbance and modification. Other potential effects of the Proposed Project could include noise, light, and air emissions.

Due to the extensive prior disturbance and modification of the Proposed Project site, as well as a lack of correlation between site characteristics and probability for archaeological sites, there is no expectation that archaeological artifacts or evidence of prior occupation would be discovered during Proposed Project construction. In the event evidence of cultural material or prior occupation is uncovered, a stop work order would be issued to accommodate an appropriate archaeological survey.

3.8.4.3 Section 106 Consultation

The Florida SHPO was consulted specific to the Proposed Project in May 2021. Consultation with Native American tribes was initiated in July 2021. The letters initiating consultation included descriptions of the

proposed undertaking (Proposed Project), the APE, and the potential historic and archaeological resources in the APE. The initiation letters disclosed the FAA's determination that the proposed undertaking would not affect any historic properties. A response was not received from the Florida SHPO. Only one Tribe responded with concurrence that there should be no effects to any known historic properties. The Draft EA will be provided to the Florida SHPO for their additional review. More information on SHPO and Tribal consultation can be found in Chapter 4, *Agency Coordination and Public Involvement*. The following Native American Indian tribes were contacted and invited to participate in the Section 106 consultation process (July 27, 2021): Miccosukee Tribe of Indians of Florida, Muscogee (Creek) Nation, Poarch Band of Creek Indians, Seminole Tribe of Florida, and Seminole Nation of Oklahoma. The Muscogee (Creek) Nation expressed no objection to the Proposed Project (September 08, 2021; **Appendix F**). No Tribal governments requested the performance of a Cultural Resources Assessment Survey as a condition of the FAA's acceptance of this EA.

3.8.5 Significance Determination

The FAA has not established a significance threshold for this impact category. However, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for historical, architectural, archeological, and cultural resources. This includes situations where the proposed action would result in a finding of Adverse Effect through the Section 106 process. There is no finding of Adverse Effect through Section 106 Consultation for the Proposed Project. There are no archaeological sites or materials anticipated to be encountered during construction. There are no indirect effects of the Proposed Project, such as noise or air emissions, anticipated to impact any known sites of cultural significance. Therefore, there will be no significant impact to historic, architectural, archaeological, or cultural sites.

3.9 Land Use

3.9.1 Regulatory Context

Under Section 1502.16(c) of the CEQ Regulations, discussion of environmental impacts associated with a proposed action must include consideration of "possible conflicts between the proposed action and the objectives of federal, regional, state, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." The Airport is located in unincorporated Palm Beach County and is subject to the land use controls and zoning regulations established by the County. Planned land use for areas around the Airport is addressed in the Future Land Use Element of Palm Beach County's 1989 Comprehensive Plan.[74] Zoning in Palm Beach County is addressed in the County's Unified Land Development Code (ULDC).

3.9.2 Methodology

As noted in Section 9.3 of the 1050.1F Desk Reference, conflicts may occur when a Proposed Project creates impacts that are incompatible with existing and/or future planned land uses. The analysis evaluates the compatibility of the Proposed Project with surrounding land uses, potential changes in land use that would degrade airport services or safety; or land use changes that would be inconsistent or in conflict with the environmental goals, objectives, or guidelines of the Palm Beach County Comprehensive Plan or ULDC. The land use data evaluated is available from the Palm Beach County Planning, Zoning, and Building Department's Planning and Zoning Divisions.

[74] The Future Land Use Element of the Palm Beach County Comprehensive Plan was last updated in February 2023.

3.9.3 Affected Environment

The Airport is located in rural, unincorporated Palm Beach County; however, with the exception of the Sweetbay Natural Area that borders the Airport property to the west and a portion of open space to the east, the Airport property is almost entirely surrounded by the City of Palm Beach Gardens. The area in which the Airport is situated is almost entirely surrounded by undeveloped open space. The closest area of development, a low-density residential development, lies approximately one mile northwest of the Airport along SR 710. Additional areas of residential development lie 1.25 miles south of the Airport. A new single-family residential development located 0.75 miles to the southwest of the Runway 9R end is under construction at the time of the preparation of this EA. The Airport Property and surrounding areas within unincorporated Palm Beach County, including the Sweetbay Natural Area are designated (UT) Transportation and Utilities Facilities in the Future Land Use Element of the Palm Beach County 1989 Comprehensive Plan. These same areas are zoned for (PO) Public Ownership.

Most of the area to the north of the Airport, across SR 710, and immediately south and southeast of the Airport are designated for Conservation in the Future Land Use Element of the City of Palm Beach Gardens Comprehensive Plan. These areas are also zoned for Conservation. Northeast of the Airport property, across SR 710 and north of PGA Boulevard are areas designated for (RR10) Rural Residential (1 Unit Per 10 Acres) and (C) Commercial use. These areas are zoned (PDA) Planned Development Area. Land immediately west of the Sweetbay Natural Area is designated for (MXD) Mixed Use. This area is zoned (PCD) Planned Community Development with a (CU) Conditional Use Overlay. The existing zoning districts surrounding the Airport are depicted on **Figure 3-7** and planned future land uses are depicted on **Figure 3-8**.

3.9.4 Environmental Consequences

3.9.4.1 No Action Alternative

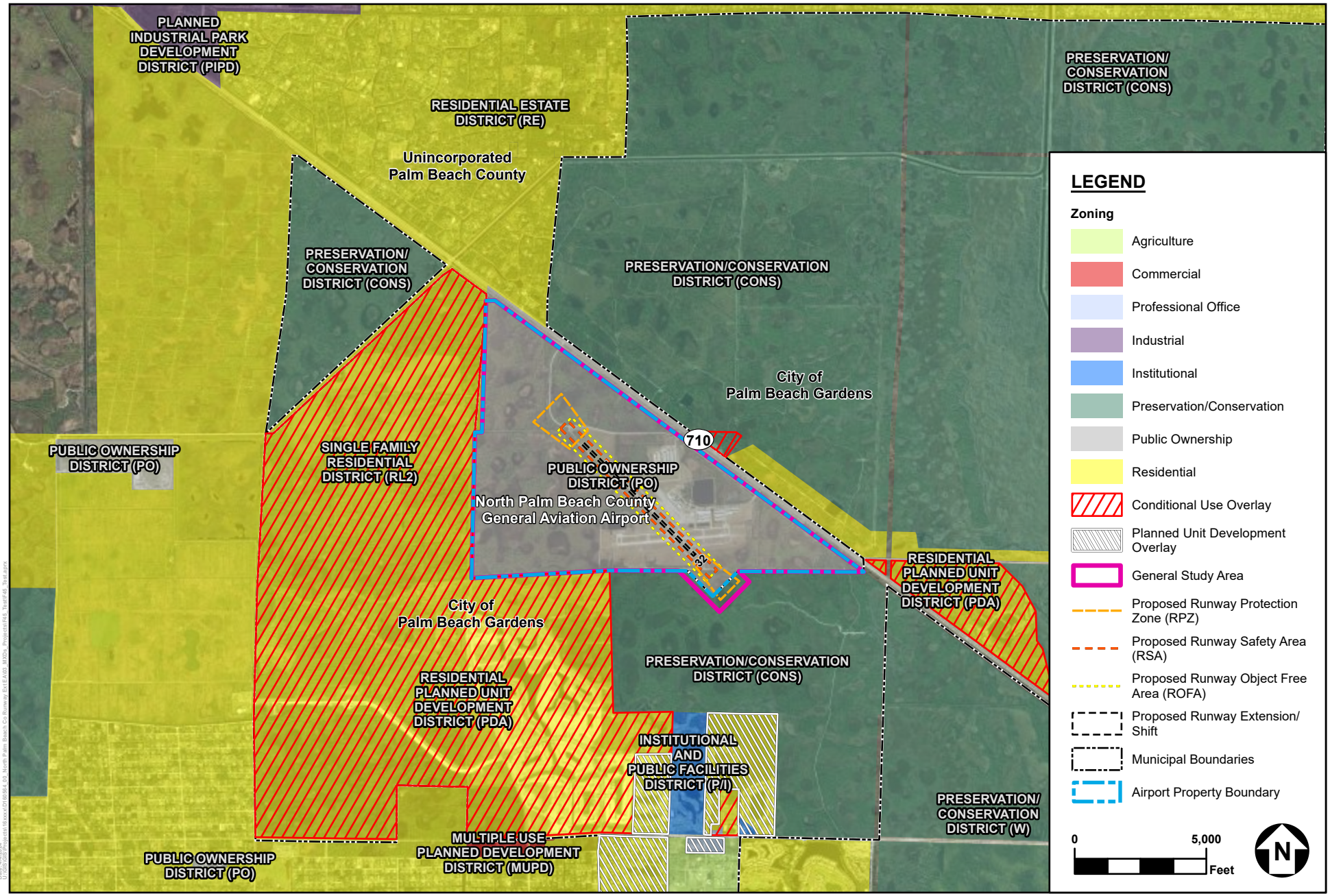
Under the No Action Alternative, the Proposed Project would not be built and there would be no potential for any impacts that would be incompatible with existing or planned future land uses.

3.9.4.2 Proposed Project

The Proposed Project would occur entirely on the Airport property and would not result in changes to local land uses or conversion of adjacent land uses to airport use. The Proposed Project is consistent with all applicable local plans and ordinances, and no uses have been identified within or outside of Airport property that would be incompatible or otherwise degrade Airport services or safety.

3.9.5 Significance Determination

Extending and shifting the runway would enhance safety on the airfield by allowing for appropriate horizontal separations between Runway 14-32 and the parallel taxiway. This would be consistent with the intended use of the Airport property and advance the aim of safe and efficient operation of a public facility. Therefore, no adverse impacts to surrounding land uses or applicable plans should result from construction or implementation of the Proposed Project.



Source: ESA, 2023; Palm Beach County, 2022; US Census Bureau, 2020; City of Palm Beach Gardens, 2022.

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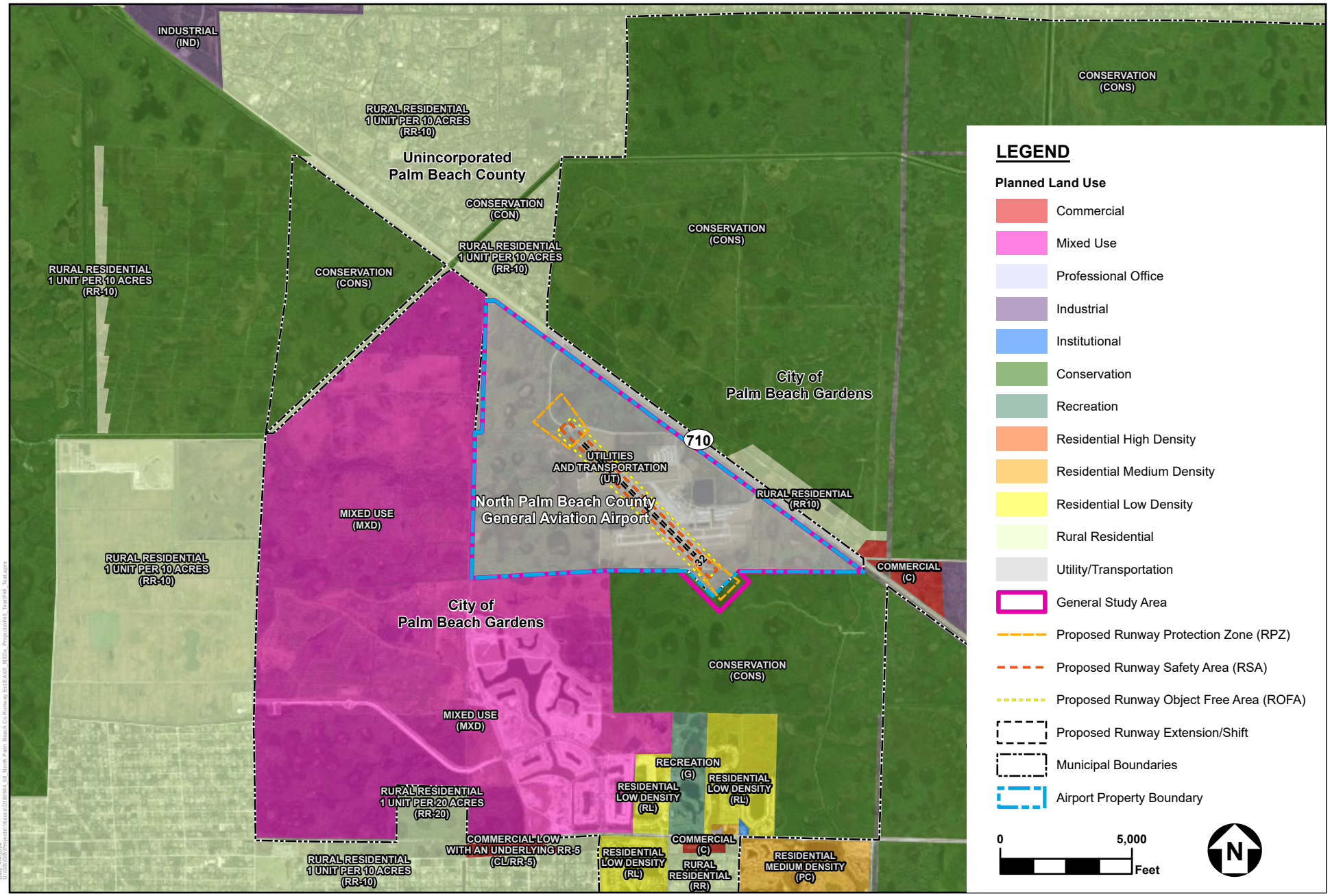
FIGURE 3-7
EXISTING ZONING IN THE GENERAL STUDY AREA



Source: ESA, 2023; Palm Beach County, 2022; US Census Bureau, 2020; City of Palm Beach Gardens, 2022.

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FIGURE 3-8

PLANNED FUTURE LAND USE IN THE GENERAL STUDY AREA

3.10 Natural Resources and Energy Supply

3.10.1 Regulatory Context

Federal laws addressing natural resources and energy supply include the *Energy Independence and Security Act* (42 USC Section 17001 *et seq*.) and *Energy Policy Act* (42 USC Section 15801 *et seq*.). These laws require federal agencies to improve energy use, efficiency, alternatives, security, and reliability. Under CEQ Regulations (40 CFR 1502.16(a)), environmental review of a proposed action must assess the energy requirements, energy conservation, and the use of natural or consumable resources associated with each alternative. The FAA requires the consideration of potential impacts to utilities (including electricity, water/sewage, and fuel), impacts to consumable or scarce materials, and compliance with state and local rules, ordinances, or guidelines and the encourages the development of facilities designed and constructed with sustainability and energy efficiency best practices (FAA Order 1053.1, *Energy and Water Management Program for FAA Buildings and Facilities*).

3.10.2 Methodology

The analysis evaluates the Proposed Project's demand for energy and natural resources. FAA Order 1050.1F, Exhibit 4-1, provides criteria for analyzing the effects of a project on energy and natural resources. The analysis should consider whether the Proposed Project would generate demand that would exceed available or future supplies of natural resources. Natural resources refer to the raw materials that would be committed to a proposed project, such as water, asphalt, aggregate, and wood, etc. The analysis should also analyze whether the Proposed Project, when compared to the No Action Alternative, would have the potential to exceed the local energy supply. Energy supply refers to the coal, natural gas, and fuel available to support the construction, operation, and maintenance of an action.

3.10.3 Affected Environment

3.10.3.1 Natural Resources

Water is supplied to the Airport by the Seacoast Utility Authority (Authority).[75] The Authority serves approximately 92,000 people in a 65-square mile service area. Water is treated at the Authority's water plant, which has a treatment capacity of 30.5 million gallons per day. Palm Beach County provides sanitary sewer services at F45 through lines located within Airport property.

Approximately 6,250 cubic yards of aggregate and/or asphalt would be required for the extension and widening of Runway 14 to the northwest, the extension of parallel Taxiway F to the northwest, and the construction of a connector taxiway to the new Runway 14 threshold. Approximately 400 cubic yards of aggregate would be used to construct a new service road beyond the Runway 14 end. Aggregate and/or asphalt would be sourced from local suppliers in Palm Beach County. Construction of the Proposed Project would require approximately 40,000 cubic yards of fill material, which would be sourced from local suppliers and in accordance with state and local regulations.

3.10.3.2 Energy Supply

Electricity is provided to the Airport by the Florida Power & Light Company (FPL) and natural gas is provided by Florida Public Utilities. The FPL generates electricity through a combination of solar arrays

[75] Seacoast Utility Authority, *SUA Service Area Map*, https://www.sua.com/engineering/gis/ (Accessed: June 2023)

and natural gas fired and nuclear power plants. Fuel for aircraft is supplied through the FBO, Signature Flight Support, which provides fueling, catering, lavatory service, rental car services, ground support, tie-down space, and hangar space. Fuel facilities at the Airport include two 10,000-gallon tanks for Jet A and AvGas, as well as a 5,000-gallon tank for automotive fuel.[76]

3.10.4 Environmental Consequences

An evaluation of natural resources and energy supply was performed for the Proposed Project and No Action Alternative. The results of the evaluation were compared to appropriate regulatory guidelines and criteria, including the increased demands on energy utilities, water supplies and treatment, and natural resources that the Proposed Project may cause.

3.10.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no impacts attributable to construction of the Runway 14-32 extension. Normal Airport maintenance activities, including pavement maintenance, would continue to be implemented. Although there would still be steady increase of forecasted operational growth at F45 (see Table 1-2), the impacts of additional aviation activity on natural resources and energy supplies would be minimal.

3.10.4.2 Proposed Project

The primary natural resources that would be utilized as part of the Proposed Project are water, aggregate, asphalt, and fill material (e.g., clean dirt or rock). Water would be used during construction activities for purposes of reducing dust and cleaning equipment; however, once construction is complete, there would be minimal increased demand for water resources and treatment associated with the Proposed Project. After completion of the Proposed Project, there would be a minor increase in demand for water resources and treatment that is in proportion to the minor increase in airside activity of 0.7% and 2.3% in 2025 and 2030, respectively. However, the increased demand for water resources and treatment during construction and after completion of the Proposed Project is not anticipated to exceed local supplies now or in the future. It is not anticipated that the Proposed Project would have any impact on sewer services at F45.

The Proposed Project would require a total of approximately 6,250 cubic yards of concrete and/or asphalt, and 40,000 cubic yards of clean fill material. The location of the borrow site(s) is undetermined at this time; however, there are several site options in proximity to (e.g., within 20 miles) the Proposed Project area. It is not anticipated that the demand for concrete, aggregate, or fill material associated with this project would overwhelm the selected supplier(s) or restrict regional supply for other actions in the area, now or in the future. Further, the demand for concrete, aggregate, or fill material associated with this project would not significantly disrupt the flow of traffic near borrow site(s).

The Proposed Project is anticipated to result in an increase in demand for fuel due to construction and increased airside activity. Fuel usage for construction of the Proposed Project would be primarily attributable non-road construction equipment such as graders, backhoes, and dozers, as well as on-road vehicles such as cars used in employee travel and transportation of materials to and from the site. After construction, there would be an increase in fueling of aircraft, ground support equipment (GSE), Airport-

[76] Jacobs, *North Palm Beach County Airport (F45) Draft Master Plan Report*, May 2020.

dedicated vehicles, and fueling trucks. However, the demand of fuel during and after construction activities would not exceed existing or anticipated fuel storage capacity (i.e., fuel available for use by equipment). Further, any increase in demand for jet fuel (e.g., Jet-A) would be in proportion to the minor increase in aircraft activity. Therefore, the Proposed Project would have no effect on fuel reserves.

While there may be a temporary increase in the use of electricity and other utility services at F45 during construction, the increase in demand during construction is temporary and would be minimal. After construction, there is anticipated to be demand for electricity that is proportionate to the increase in airside activity. However, construction and post-construction activities as a result of the Proposed Project are not anticipated to exceed current or future local supplies of electricity. Therefore, the Proposed Project would have no effect on electricity demand.

3.10.5 Significance Determination

FAA Order 1050.1F Section 10.3.2 provides information on FAA's significance determination. The FAA has not established a significance threshold for natural resources and energy supply in FAA Order 1050.1F. The FAA has identified factors to consider when evaluating potential environmental impacts for natural resources and energy supply. If these factors exist, there is not necessarily a significant impact. The FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts. When compared to the No Action Alternative, the Proposed Project would not result in significant impacts to natural resources or energy supplies, such as water, aggregate, asphalt, fill material, fuel, or electricity.

3.11 Noise and Noise-Compatible Land Use

3.11.1 Regulatory Context

The FAA requires preparation of a noise exposure analysis when a project may result in a change in cumulative noise exposure to noise sensitive areas around an airport.[77] Common development actions that may result in a change to the noise environment include runway reconfiguration, changes in aircraft operations and/or movements, and changes to aircraft types using an airport.

3.11.2 Methodology

FAA Order 1050.1F requires that detailed noise analyses be completed using an FAA-approved computer model to assess aircraft noise impacts. For purposes of this analysis, the FAA's AEDT, Version 3e, was used to prepare the aircraft noise analysis documented in this EA. The noise analysis characterizes the noise environment under Existing Conditions (2021) as well as an estimation of noise associated with aircraft operations under both the No Action and Proposed Project Alternatives in the Study Years 2025 and 2030. The modeled aircraft DNL contours for the Proposed Project and No Action Alternative are compared to evaluate noise contributions from aircraft operations. The terms and metrics associated with aircraft noise used in the noise analysis are further described in detail in **Appendix B.**

[77] Noise sensitive areas may include residential, educational, health, religious structures and sites, parks and recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites.

3.11.3 Affected Environment

3.11.3.1 Existing Operations

The existing noise environment in the area surrounding F45 was evaluated based on the number of aircraft operations at the Airport in 2021 and associated airport operational characteristics (e.g., runway use, flight track locations, etc.). Additional information is provided in **Appendix B**. The study area reviewed to characterize existing noise impacts from current land uses includes the areas within the existing noise contours and the areas adjoining the Proposed Project footprint. Existing Conditions (2021) operations by aircraft category are summarized in **Table 3-16**.

TABLE 3-16
ANNUAL OPERATIONS BY AIRCRAFT TYPE EXISTING CONDITIONS (2021)

Aircraft Category	Numbers of Operations
Jet	2,379
Piston	89,058
Turboprop	2,053
Helicopter	3,910
Total	**97,400**

SOURCE: Environmental Science Associates, 2023.

3.11.3.2 Existing DNL Contours

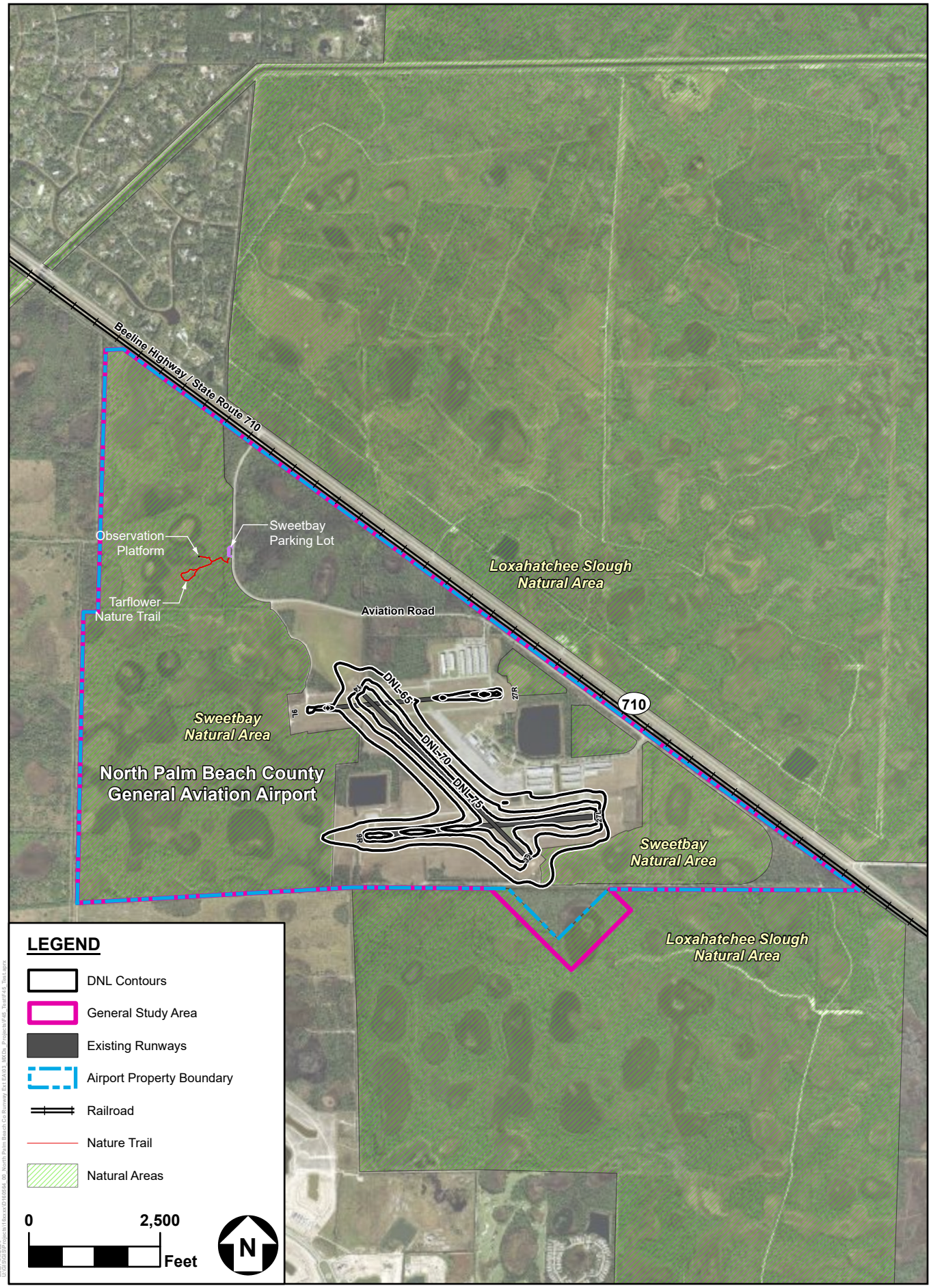
Figure 3-9 depicts the Existing Conditions (2021) noise contours for the Airport.

3.11.3.3 Existing Land Use Compatibility

The FAA defines DNL 65 dB as the threshold of noise compatibility for residential land uses. However, there are no residential land uses in the vicinity of F45. The Airport is bounded by Sweetbay Natural Area to the west and east, and the Loxahatchee Slough Natural area to the north and south. Section 3.6, *Department of Transportation, Section 4(f)*, includes a grid point analysis to show existing noise levels at the natural areas. The only areas where the existing DNL contours leave the Airport Property Boundary are to the south of the Airport, where the contours extend into the Loxahatchee Slough Natural Area. **Table 3-17** shows the acreage within the DNL 60 dB and higher contours both on- and off-Airport property. There were no residential land uses or noise-sensitive sites within the Existing Conditions (2021) DNL contours.

3.11.4 Environmental Consequences

In accordance with FAA Order 1050.1F, the future noise environment and potential noise impacts related to the Proposed Project and the No Action Alternative were evaluated for 2025 and 2030 using AEDT, Version 3e. See Appendix B for more information on the modeling inputs used. Please also see Section 3.6, *Department of Transportation, Section 4(f),* for a grid point analysis of noise levels under the No Action and Proposed Project for 2025 and 2030 at the natural areas.



Source: AEDT 3e; US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2023.

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FIGURE 3-9

EXISTING CONDITIONS (2021) DNL CONTOURS

TABLE 3-17
LAND USES, POPULATION, AND HOUSING WITHIN THE DNL 60 AND HIGHER CONTOURS
EXISTING CONDITIONS (2021)

	Land Uses exposed to DNL 60 and Higher (acres)						
Contour Areas	**DNL 60-65**	**DNL 65-70**	**DNL 70-75**	**DNL 75+**	**Total**	**Dwelling Units**	**Population**
On-Airport Property	***247.2***	***101.1***	***51.4***	***36.4***	***436.1***	***0***	***0***
Off-Airport Property	***12.0***	***0***	***0***	***0***	***12.0***	***0***	***0***
Residential	0	0	0	0	0	0	0
Mixed-Use	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0
Industrial/Manufacturing	0	0	0	0	0	0	0
Institutional/Public	0	0	0	0	0	0	0
Open Space/Outdoor Recreation/ Agriculture	12.0	0	0	0	12.0	0	0
Transportation/Utility	0	0	0	0	0	0	0
Vacant/Undeveloped	0	0	0	0	0	0	0
Total	**259.2**	**101.1**	**51.4**	**36.4**	**448.1**	**0**	**0**

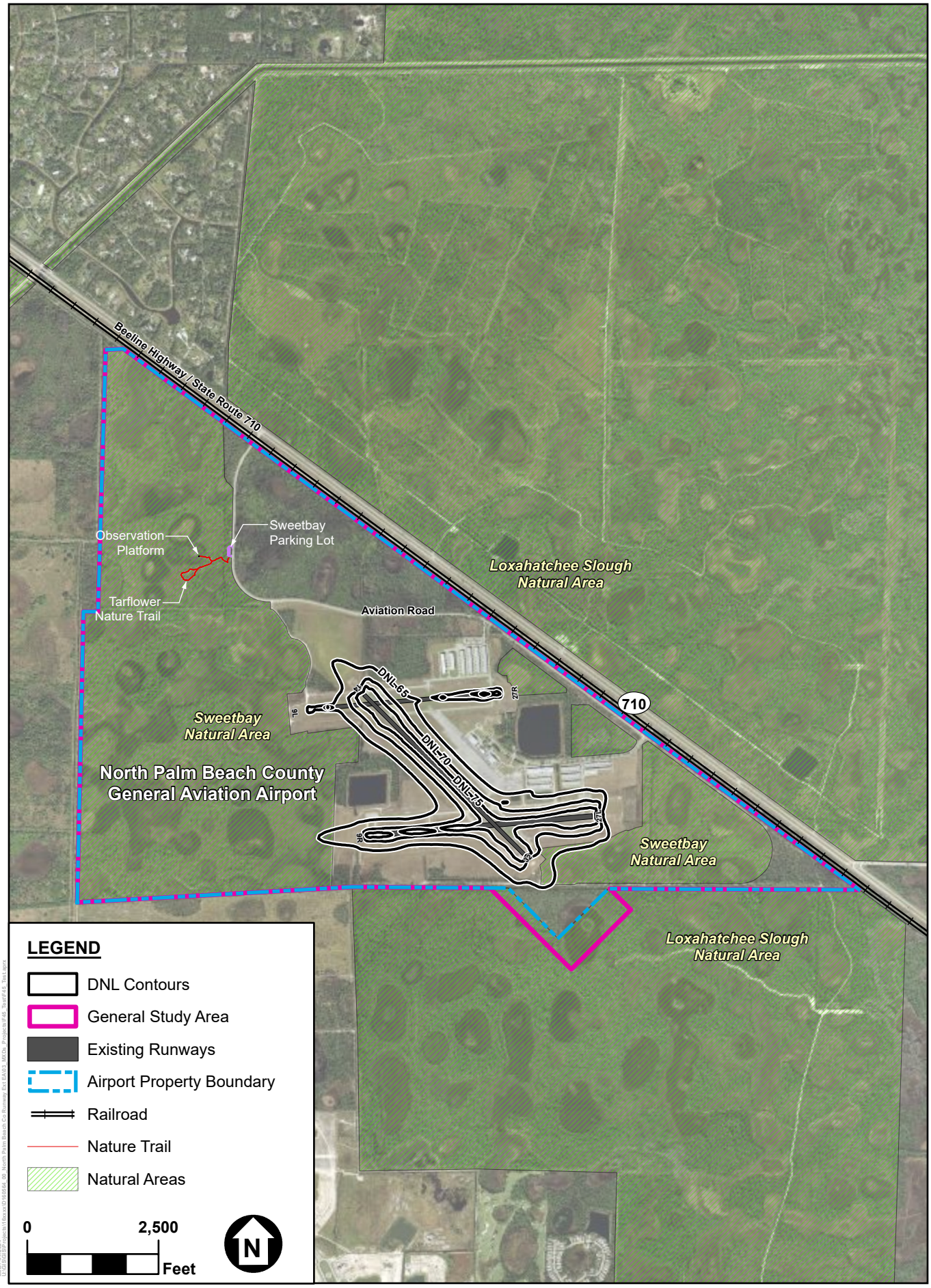
NOTE: Numbers may not add due to rounding.
DNL = Day-Night Average Sound Level
SOURCE: Environmental Science Associates, 2023.

3.11.4.1 2025 No Action Alternative

Under the No Action Alternative in 2025, 102,939 aircraft operations are predicted to occur at the Airport. **Figure 3-10** depict the noise contours associated with the No Action Alternative for 2025. All of the area within the DNL 65 dB contour is within the Airport property boundary. Under the No Action Alternative, there are no off-Airport land uses within DNL 65 dB contours in 2025.

3.11.4.2 2025 Proposed Project

The Proposed Project would allow for additional induced operations on Runway 14-32. Under the Proposed Project, 103,689 aircraft operations are predicted to occur at the Airport in 2030 (**Table 3-18**). **Table 3-19** provides the total population and acreages within the DNL 60, 65, 70, and 75 dB contours for the No Action Alternative and Proposed Project in 2025. When compared to the No Action Alternative, the Proposed Project would result in an increase of approximately 16 acres within the DNL 60 and higher contours and 25 acres within the DNL 65 and higher contours in 2025. However, there are no off-Airport land uses, such as residential or commercial property, within DNL 65 dB contours (i.e., the contours remain within the Airport property boundary). **Figure 3-11** depict the noise contours associated with the Proposed Project for 2025. For a discussion of impacts to the natural areas, please see Section 3.6, *Department of Transportation, Section 4(f).*



Source: AEDT 3e; US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2023.

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FIGURE 3-10

NO ACTION ALTERNATIVE: 2025 DNL CONTOURS AT F45

TABLE 3-18
ANNUAL OPERATIONS BY AIRCRAFT TYPE
2025 NO ACTION ALTERNATIVE AND PROPOSED PROJECT

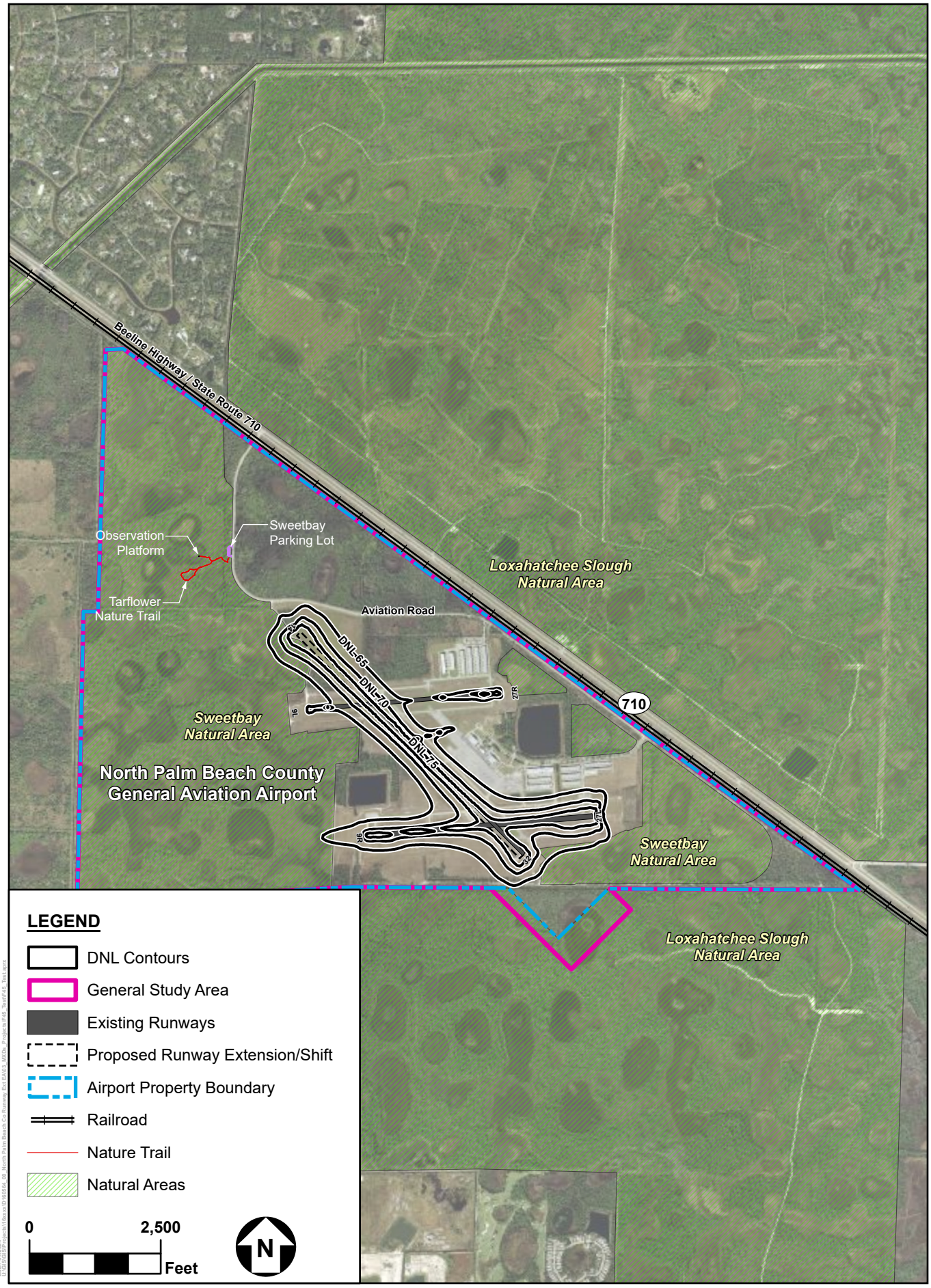
Aircraft Category	2025 No Action Alternative	2025 Proposed Project
Jet	2,498	3,233
Piston	94,180	94,180
Turboprop	2,155	2,170
Helicopter	4,105	4,105
Total	**102,939**	**103,689**

SOURCE: Environmental Science Associates, 2023.

TABLE 3-19
LAND USES, POPULATION, AND HOUSING WITHIN THE DNL 60 AND HIGHER CONTOURS
2025 NO ACTION ALTERNATIVES AND PROPOSED PROJECT

	Land Uses exposed to DNL 60 and Higher (acres)						
Contour Areas	DNL 60-65	DNL 65-70	DNL 70-75	DNL 75+	Total	Dwelling Units	Population
2025 No Action Alternative							
On-Airport Property	***255.3***	***105.0***	***52.7***	***37.9***	***450.9***	***0***	***0***
Off-Airport Property	***15.2***	***0***	***0***	***0***	***15.2***	***0***	***0***
Residential	0	0	0	0	0	0	0
Mixed-Use	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0
Industrial/Manufacturing	0	0	0	0	0	0	0
Institutional/Public	0	0	0	0	0	0	0
Open Space/Outdoor Recreation/ Agriculture	15.2	0	0	0	15.2	0	0
Transportation/Utility	0	0	0	0	0	0	0
Vacant/Undeveloped	0	0	0	0	0	0	0
Total	**270.4**	**105.0**	**52.7**	**37.9**	**466.0**	**0**	**0**
2025 Proposed Project							
On-Airport Property	***255.1***	***116.0***	***64.2***	***40.0***	***475.3***	***0***	***0***
Off-Airport Property	***6.6***	***0***	***0***	***0***	***6.6***	***0***	***0***
Residential	0	0	0	0	0	0	0
Mixed-Use	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0
Industrial/Manufacturing	0	0	0	0	0	0	0
Institutional/Public	0	0	0	0	0	0	0
Open Space/Outdoor Recreation/ Agriculture	6.6	0	0	0	6.6	0	0
Transportation/Utility	0	0	0	0	0	0	0
Vacant/Undeveloped	0	0	0	0	0	0	0
Total	**261.6**	**116.0**	**64.2**	**40.0**	**481.9**	**0**	**0**
Change	**-8.8**	**11.0**	**11.5**	**2.0**	**15.8**	**0**	**0**

NOTE: Numbers may not add due to rounding.
DNL = Day-Night Average Sound Level
SOURCE: Environmental Science Associates, 2023.



Source: AEDT 3e; US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2023.

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FIGURE 3-11

PROPOSED PROJECT: 2025 DNL CONTOURS AT F45

3.11.4.3 2030 No Action Alternative

Under the No Action Alternative in 2030, 110,346 aircraft operations are predicted to occur at the Airport. **Figure 3-12** depict the noise contours associated with the No Action Alternative for 2030. The majority of area within the DNL 65 dB contour for both study years is within the Airport property boundary. Under the No Action Alternative, there are no noise-sensitive sites or land uses within DNL 65 dB contours in 2030.

3.11.4.4 2030 Proposed Project

The Proposed Project would allow for additional induced operations on Runway 14-32. Under the Proposed Project, 112,846 aircraft operations are predicted to occur at the Airport in 2030. The total number of aircraft operations under the Proposed Project are shown in **Table 3-20. Figure 3-13** depict the Proposed Project noise contours for 2030. As shown, the majority of area within the DNL 65 contour is within the Airport property boundary. There are no noise-sensitive sites or residential land uses within DNL 65 contours in 2030. **Table 3-21** provides the total on- and off-Airport acreages and population located within the DNL 60, 65, 70, and 75 dB contours for the No Action Alternative and Proposed Project in 2030. When compared to the No Action Alternative, the Proposed Project would result in an increase of approximately 23 acres within the DNL 60 and higher contours and 28 acres within the DNL 65 and higher contours in 2030. For a discussion of impacts to the natural areas, please see Section 3.6, *Department of Transportation, Section 4(f).*

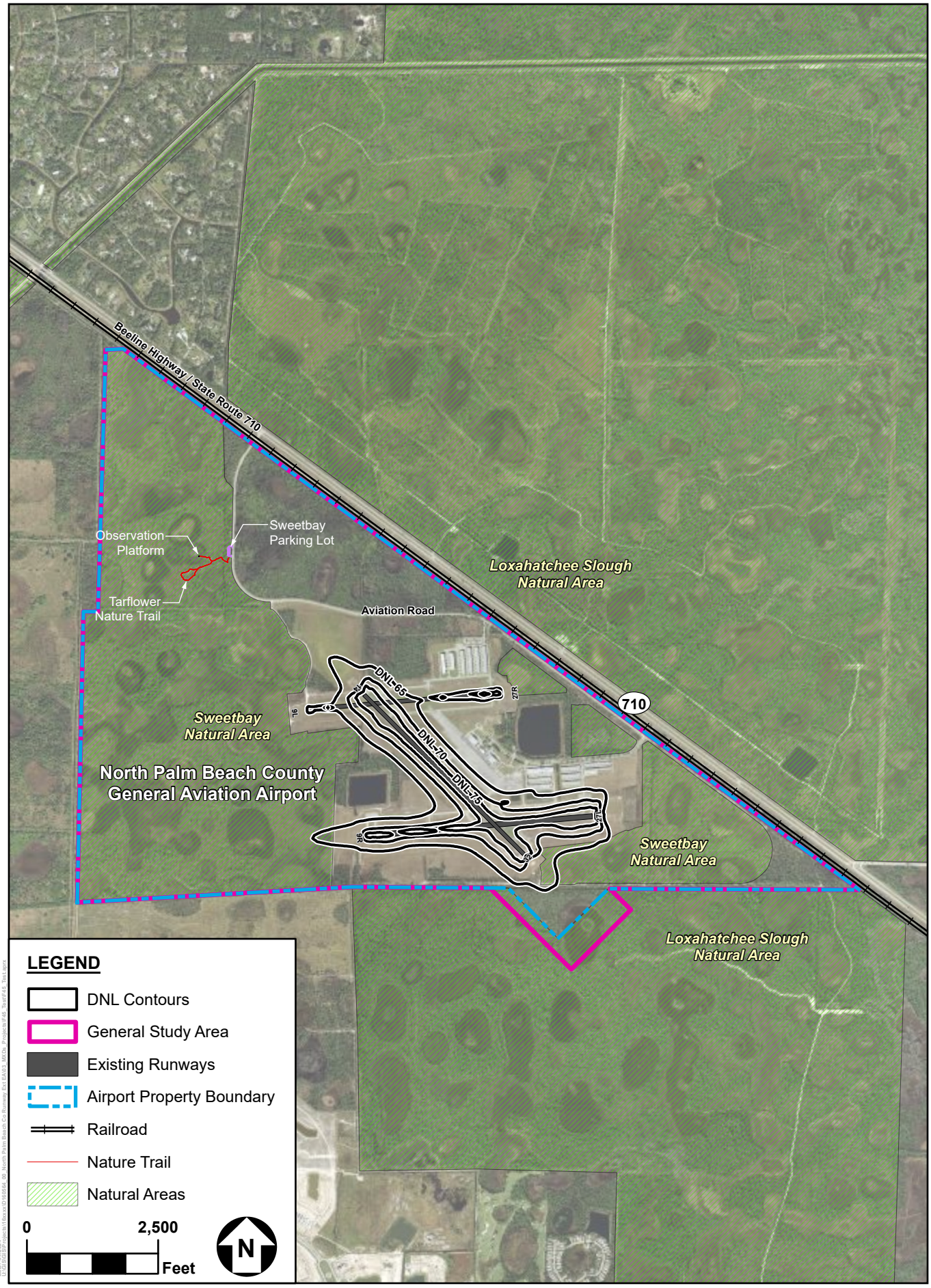
3.11.5 Comparison to Significant Impact Thresholds

FAA Order 1050.1F states that a significant noise impact would occur if analysis shows that the Proposed Project when compared to the No Action Alternative for the same timeframe would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above DNL 65, or that would be exposed at or above DNL 65 due to a DNL 1.5 dB or greater increase. There are no noise-sensitive sites or land uses within DNL 65 contours under either alternative. Accordingly, when compared to the No Action Alternative, the Proposed Project would not result in any noise impacts in either 2025 or 2030.

3.12 Socioeconomics and Environmental Justice

3.12.1 Regulatory Context

FAA Order 1050.1F describes socioeconomics as "an umbrella term used to describe aspects of a project that are either social or economic in nature." A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternatives (FAA, 2015). Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994), directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations. DOT Order 5610.2 (1997), *Environmental Justice in Minority and Low Income Populations,* implements EO 12898. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risk*, requires federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children and ensure that its actions address any disproportionate risks. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs federal agencies to analyze their policies, programs, activities, and standards for any environmental health or safety risks that may disproportionately affect children. The following sections describe population, employment, income, and housing in the GSA.



Source: AEDT 3e; US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2023.

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FIGURE 3-12

NO ACTION ALTERNATIVE: 2030 DNL CONTOURS AT F45

TABLE 3-20
ANNUAL OPERATIONS BY AIRCRAFT TYPE
2030 NO ACTION ALTERNATIVE AND PROPOSED PROJECT

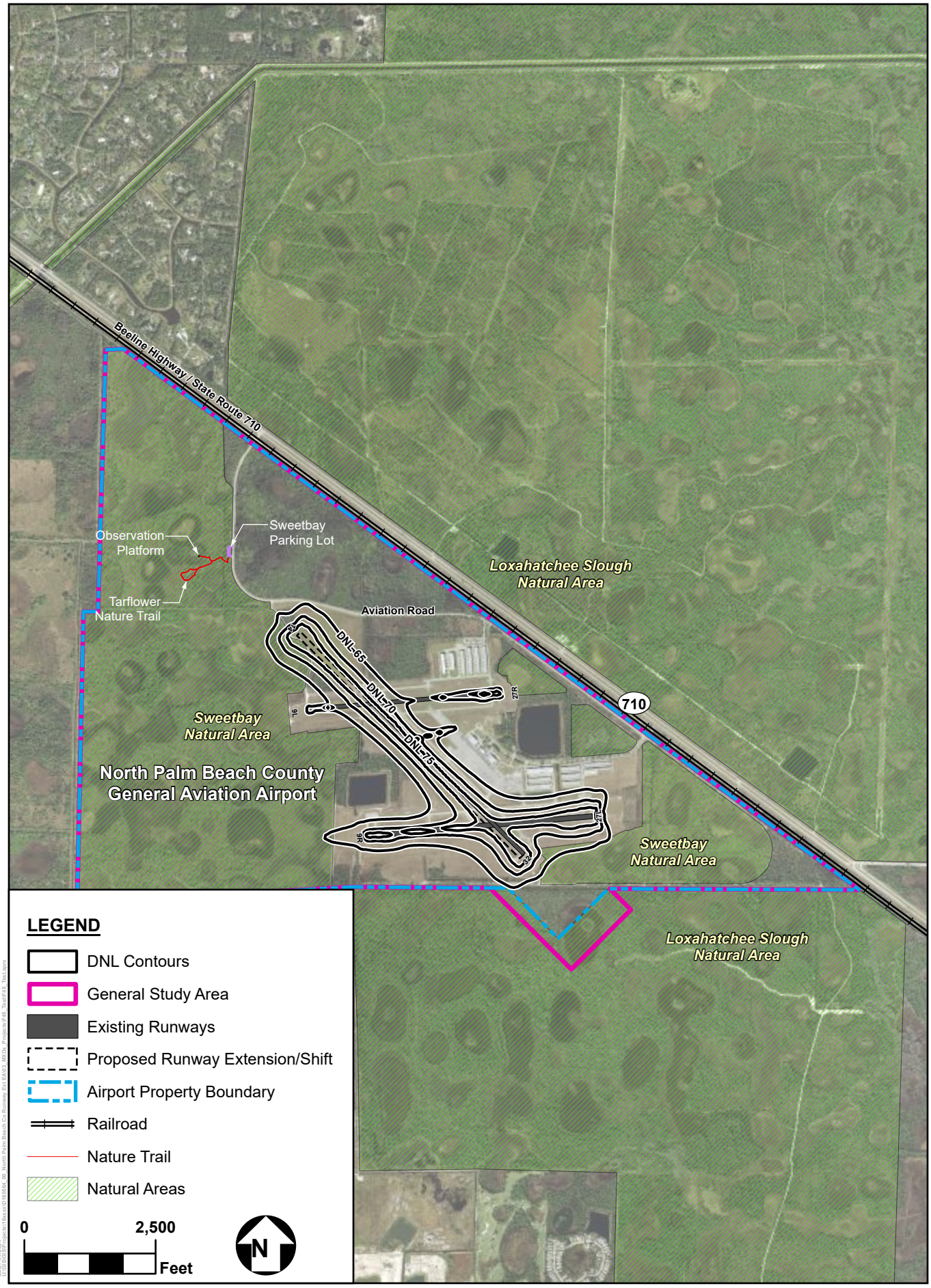
Aircraft Category	2030 No Action Alternative	2030 Proposed Project
Jet	2,657	5,107
Piston	101,030	101,030
Turboprop	2,292	2,342
Helicopter	4,366	4,366
Total	**110,346**	**112,846**

SOURCE: Environmental Science Associates, 2023.

TABLE 3-21
LAND USES, POPULATION, AND HOUSING WITHIN THE DNL 60 AND HIGHER CONTOURS
2030 NO ACTION ALTERNATIVES AND PROPOSED PROJECT

	Land Uses exposed to DNL 60 and Higher (acres)						
Contour Areas	**DNL 60-65**	**DNL 65-70**	**DNL 70-75**	**DNL 75+**	**Total**	**Dwelling Units**	**Population**
2030 No Action Alternative							
On-Airport Property	***266.0***	***110.3***	***54.5***	***40.1***	***470.9***	***0***	***0***
Off-Airport Property	***19.7***	***0***	***0***	***0***	***19.7***	***0***	***0***
Residential	0	0	0	0	0	0	0
Mixed-Use	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0
Industrial/Manufacturing	0	0	0	0	0	0	0
Institutional/Public	0	0	0	0	0	0	0
Open Space/Outdoor Recreation/ Agriculture	19.7	0	0	0	19.7	0	0
Transportation/Utility	0	0	0	0	0	0	0
Vacant/Undeveloped	0	0	0	0	0	0	0
Total	**285.7**	**110.3**	**54.5**	**40.1**	**490.6**		
2030 Proposed Project							
On-Airport Property	***271.5***	***120.7***	***68.0***	***44.6***	***504.7***	***0***	***0***
Off-Airport Property	***9.3***	***0***	***0***	***0***	***9.3***	***0***	***0***
Residential	0	0	0	0	0	0	0
Mixed-Use	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0
Industrial/Manufacturing	0	0	0	0	0	0	0
Institutional/Public	0	0	0	0	0	0	0
Open Space/Outdoor Recreation/ Agriculture	9.3	0	0	0	9.3	0	0
Transportation/Utility	0	0	0	0	0	0	0
Vacant/Undeveloped	0	0	0	0	0	0	0
Total	**280.8**	**120.7**	**68.0**	**44.6**	**514.0**	**0**	**0**
Change	**-4.9**	**10.3**	**13.5**	**4.5**	**23.4**	**0**	**0**

NOTE: Numbers may not add due to rounding.
DNL = Day-Night Average Sound Level
SOURCE: Environmental Science Associates, 2023.



Source: AEDT 3e; US Census Bureau, 2020; USGS The National Map, 2020; ESA, 2023.

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FIGURE 3-13

PROPOSED ACTION: 2030 DNL CONTOURS AT F45

3.12.2 Methodology

U.S. Census Bureau data is accessed to describe socioeconomic conditions in the Proposed Project area. These data are used to determine if economically disadvantaged areas are located in proximity to F45 and to assess the potential vulnerability of specific communities or groups to environmental impacts identified throughout this EA.

3.12.3 Affected Environment

3.12.3.1 Socioeconomics

The socioeconomic analysis evaluates how the Proposed Project potentially affects the human environment, including elements such as population, employment, housing, and public services. The study area includes the six Census Tracts: 78.46, 78.47, 79.09, 79.14, 79.15, and 79.19. This area encompasses a larger area than the GSA.

Population and Housing

The U.S. Census Bureau estimated the 2020 population of Palm Beach County to be 1,482,057 persons.[78] This represents approximately 7% of Florida's population of 21,216,924. As shown in **Table 3-22**, population among the census tracts surrounding the Airport varies. Census Tract 78.47, with a population of 8,479 is the most populated census tract. Census Tract 78.46, with a population of 711, is the least populated census tract. The census tracts surrounding the Airport varied in their number of housing units. Census Tract 78.47 featured the largest number of housing units (2,940) and Census Tract 78.46 featured the smallest number of housing units (305). Census Tract 79.09 had the highest vacancy rate for 2020, at 27.6%. Census Tract 78.47 had the lowest vacancy rate, at 3.9%.

TABLE 3-22
POPULATION AND HOUSING DATA (5-YEAR ESTIMATES 2017-2021)

	Population	Total Housing Units	Vacancy Rate (%)
Palm Beach County	1,481,233	702,877	17.3
Census Tract 78.46	668	288	10.4
Census Tract 78.47	8,654	3,010	4.1
Census Tract 79.09	4,341	2,628	27.9
Census Tract 79.14	5,614	1,841	7.1
Census Tract 79.15	1,402	399	7.5
Census Tract 79.19	5,614	1,775	2.4

SOURCE: 2017-2021 American Community Survey 5-year survey estimates.

[78] US Census Bureau, American Community Survey Demographic and Housing Estimates 2021. Accessed January 2023 at http://data.census.gov.

Employment and Economics

Table 3-23 identifies the labor force, civilian unemployment rate, and median household income in the study area. For point of comparison, the same data for Palm Beach County is also provided. Unemployment rates in the study area census tracts range from 5% in Census Tract 79.19 to 1.3% in Census Tract 78.46. Excluding Census Tract 79.19, all census tracts in the study area have unemployment rates that are markedly lower than those of Palm Beach County as a whole.

TABLE 3-23
LABOR FORCE, UNEMPLOYMENT, AND MEDIAN HOUSEHOLD INCOME (5-YEAR ESTIMATES 2017-2021)

	Total Labor Force	Civilian Unemployment Rate* (%)	Median Household Income ($)
Palm Beach County	735,676	3.2	68,874
Census Tract 78.46	326	2.1	86,618
Census Tract 78.47	4,867	1.9	130,390
Census Tract 79.09	1,707	3.2	120,357
Census Tract 79.14	2,889	2.6	77,296
Census Tract 79.15	957	1.8	119,931
Census Tract 79.19	2,940	2.2	94,809

SOURCE: 2017-2021 American Community Survey 5-year survey estimates.
NOTES: *not seasonally adjusted.

Median household incomes in the study area are higher than for Palm Beach County as a whole, and range from $74,533 in Census Tract 79.14, to $126,094 in Census Tract 78.47. Based on the U.S. Census Bureau's American Community Survey five-year estimates for 2020, 11.6% of the population of Palm Beach County had income below poverty level. In comparison, 13.1% of the population of Florida as a whole had income below poverty level.

The Airport generated approximately $45 million in total economic output in 2019.[79] At that time, there were 312 on-Airport employees with labor income of approximately $13.7 million. The Airport is principally used for GA activity, including recreational and business flying, as well as flight training and aircraft maintenance. The Airport also plays a role in supporting emergency and law enforcement activity. Visitors using the Airport contributed approximately $7.4 million to the local economy through consumption of goods and services.

Surface Transportation

The Airport is accessed by way of Aviation Road from one intersection with State Road (SR) 710 (Bee Line Highway). SR 710 is a 57-mile-long, four-lane, divided highway that runs from the northern end of Lake Okeechobee in the northwest to County Road (CR) 811 in Riviera Beach in the southeast. The FDOT tracks traffic data for SR 710. In 2020, the annual average daily traffic volume for the portion of SR 710 between Innovation Drive and SR 786/PGA Boulevard was 13,100 vehicles. Data provided by FDOT indicates that as of 2017, the segment of SR 710 adjacent to the Airport operated at Level of Service (LOS)

79 Florida Department of Transportation, *Statewide Aviation Economic Impact Study Technical Report*, 2019.

B.[80] "Level of Service" is a qualitative measure used to evaluate roadway operating conditions. The LOS considers factors such as speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. Levels typically range from "A" through "F", with "A" representing free flowing traffic and "F" representing traffic beyond capacity. A LOS B" represents traffic volumes at less than roadway capacity and constitutes an acceptable level of service. A freight/passenger rail line runs alongside SR 710 and is used by Amtrak's Silver Service/Palmetto passenger route. The nearest passenger stations are in Okeechobee and West Palm Beach.

3.12.3.2 Environmental Justice

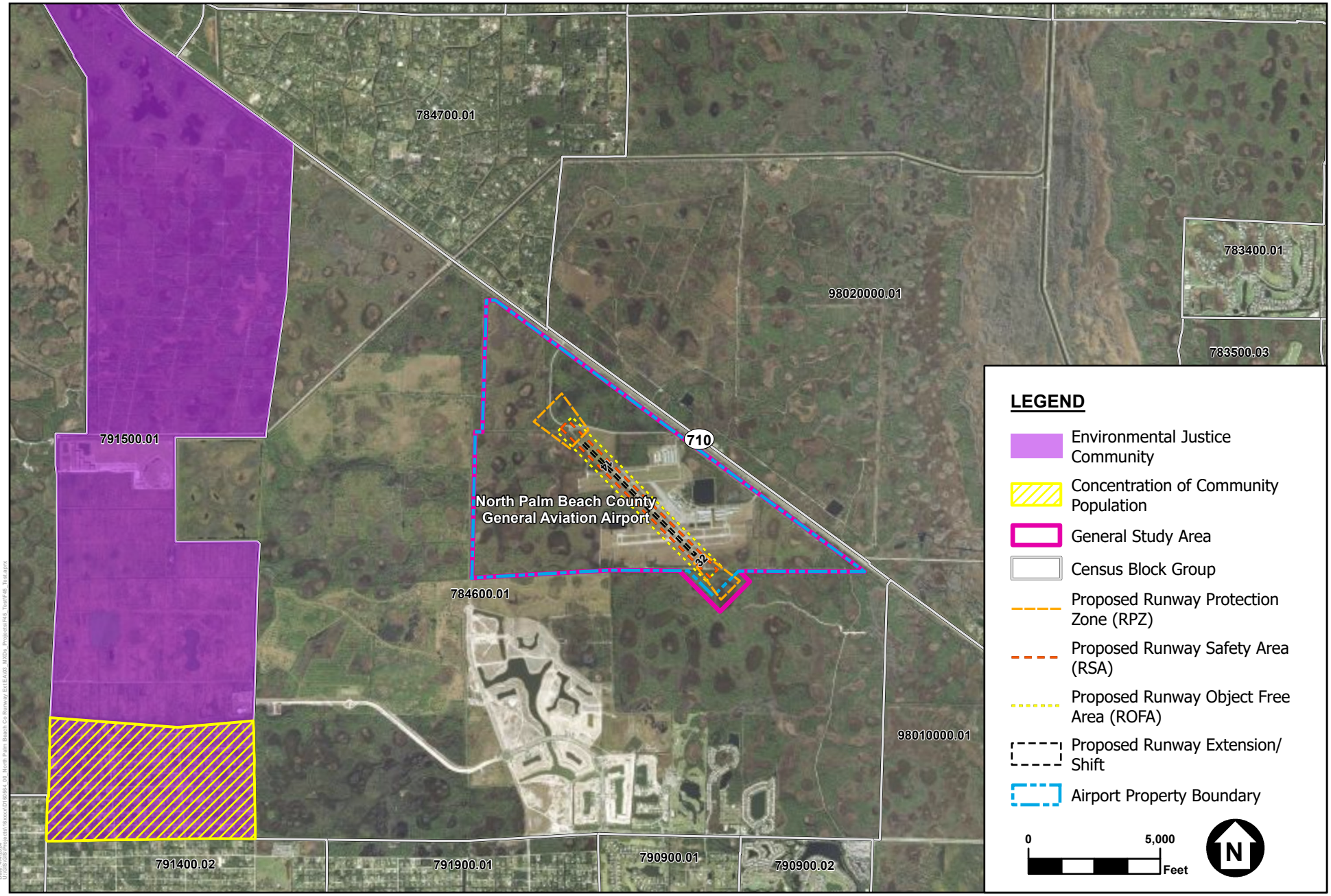
To determine whether there are environmental justice communities in the area of the Proposed Project, the minority and low-income characteristics of Palm Beach County and the U.S. Census block groups adjacent to the Airport were identified using the U.S. EPAs EJSCREEN tool and the U.S. Census Bureau's 2017-2021 American Community Survey 5-Year Data Release.[81] A total of eight census tracts, including 17 census block groups were identified in the Airport environs and constitute the study area for purposes of environmental justice. Of those census tracts, only six, including 14 census block groups, were determined to be populated and further analyzed. Census block groups with minority and/or low-income populations greater than or equal to their populations for Palm Beach County as a whole are identified as environmental justice communities. The average minority population composition for all census block groups within Palm Beach County is 47.5%, and the average low-income population composition is 11.6%. One census block group was identified as an environmental justice community that is located approximately 1.5 miles west of the GSA. This area is already overflown by aircraft arriving and departing to and from Runway 14-32. Environmental justice communities in the Airport environs are depicted on **Figure 3-14**. Summarized statistics for Palm Beach County and the census tracts and census block groups in the Airport area are provided in **Table 3-24**.

3.12.3.3 Children's Environmental Health and Safety Risks

The Airport is located in Palm Beach County, which hosts the tenth largest school district in the United States, serving more than 197,000 students at hundreds of schools throughout the County. The closest school to the Airport, Pierce Hammock Elementary School, is located 3.25 miles southwest of the Airport. The nearest public park, Kidscape Park, is located 5.5 miles southwest of the Airport. The nearest daycare center, the All-Star Kids Early Learning Center, is located approximately five miles southwest of the Airport. There is also no residential development within the GSA. The nearest public facilities likely to serve children are located within the northwest section of Sweetbay Natural Area located on Airport property. This area is already overflown by aircraft arriving and departing to and from Runway 14-32.

80 Florida Department of Transportation, 2018 FDOT D4 Level of Service Report, June 2019. <https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/programs/sm/los/districts/district-4/2018_fdot_d4_los_report.pdf?sfvrsn=4f208763_2> Accessed June 2023.

81 USEPA, 2021. *EJSCREEN*. US Census Bureau, 2021. *American Community Survey 2017-2021 5-Year Data Estimates.*



Source: ESA, 2023; Palm Beach County, 2022; US Census Bureau, 2020.

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FIGURE 3-14
ENVIRONMENTAL JUSTICE COMMUNITIES IN THE F45 AREA

TABLE 3-24
ENVIRONMENTAL JUSTICE COMMUNITIES ADJACENT TO NORTH PALM BEACH COUNTY GENERAL AVIATION AIRPORT, 2017-2021

	Total Population	Minority Composition (%)	People Living Below Poverty Level (2021) ($)
Palm Beach County	1,481,233	47.5	11.6
Census Tract 78.46	668	5.4	4.2
Census Block Group 784600.01	668	5.4	4.2
Census Tract 78.47	8,654	15.9	2.8
Census Block Group 784700.01	1,046	22.8	3.2
Census Block Group 784700.02	3,377	14.1	2.1
Census Block Group 784700.03	487	6.4	1.8
Census Block Group 784700.04	2,730	18.9	4.6
Census Block Group 784700.05	1,014	10.8	0.0
Census Tract 79.09	4,341	20.2	5.5
Census Block Group 790900.01	1,339	32.5	7.2
Census Block Group 790900.02	1,404	21.8	6.4
Census Block Group 790900.03	1,598	8.6	3.3
Census Tract 79.14	5,614	33.9	1.9
Census Block Group 791400.01	3,362	37.1	0.8
Census Block Group 791400.02	2,252	29.1	3.5
Census Tract 79.15	1,402	**49.6**	5.0
Census Block Group 791500.01	1,402	**49.6**	5.0
Census Tract 79.19	5,614	35.0	4.8
Census Block Group 791900.01	2,515	32.1	3.7
Census Block Group 791900.02	3,099	37.4	5.6

SOURCE: 2017-2021 American Community Survey 5-year survey estimates.
NOTES: Bolded numbers indicate that these census tracts are identified as minority or low-income populations.

3.12.4 Environmental Consequences

3.12.4.1 Socioeconomics

No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built. Therefore, there would be no socioeconomic impacts in areas surrounding the Airport. There would be no induced growth or potential for relocation of employees or additional strain on local housing stocks.

Proposed Project

While the Proposed Project would include runway improvements, this activity would be limited to the Airport property and would not disrupt or divide the local community. The Proposed Project would not cause the relocation of businesses or employees and thus would not produce economic hardship or place a strain on local housing stocks. The Proposed Project may include temporary employment opportunities associated with construction activities. It is expected that these employment opportunities would be filled locally and would provide a direct economic benefit to the surrounding community. The temporary increase in employment

opportunities associated with project construction would likely induce some minor local economic growth with a corresponding change in the community tax base due to use of local services by project employees.

The Proposed Project would not induce any new on-going demand on transportation systems beyond the construction phase. The segment of SR 710 adjacent to the Airport operates at a LOS B, indicating that traffic volumes are less than roadway capacity and constitutes an acceptable level of service. The additional vehicular traffic due to construction activities would be temporary and limited to specific times of day which would not impact the current level of service provided by SR 710. Further, the additional traffic is anticipated to be in proportion to the increase in aircraft operations of approximately 2.3%. Assuming equal distribution over a calendar year, this increase is equivalent to an additional seven operations per day. Overall, this would be a small daily increase and is not anticipated to affect LOS of nearby roadways.

3.12.4.2 Environmental Justice

No Action Alternative

One census block group (791500.01) has been identified as an environmental justice community. Under the No Action Alternative, the Proposed Project would not occur and there would be no impacts to the identified environmental justice community.

Proposed Project

The Proposed Project would not result in significant noise or air quality impacts, as described in Sections 3.2.5 and 3.11.4.3. One census block group (791500.01) has been identified as an environmental justice community and is located approximately 1.5 miles from the Airport property boundary. Given that the air quality and noise impacts associated with the Proposed Project would be primarily localized to Airport property, and not within or adjacent to census block group 791500.01, the Proposed Project would not result in disproportionately high and adverse human health or environmental effects to the identified environmental justice community. Further, the Proposed Project would not increase vehicular traffic on nearby roadways to and from F45 because there would not be a substantial increase in the number of aircraft operations. Lastly, the Proposed Project would not introduce aircraft overflights over census block group 791500.0 because the Proposed Project would not result in a change or alteration to existing aircraft flight paths to and from F45.

3.12.4.3 Children's Environmental Health and Safety Risks

No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built. Therefore, there would be no children's environmental health and safety risks. The risks to children's environmental health and safety would remain limited to noise exposure from aircraft currently arriving and departing to and from Runway 14-32.

Proposed Project

The nearest public facilities likely to serve children are located within the northwest section of Sweetbay Natural Area located on Airport property. This area is already overflown by aircraft arriving and departing to and from Runway 14-32. The primary effect of the Proposed Project would be the change in aircraft noise exposure and emissions over the recreation area. A noise analysis (presented in Appendix G) shows that the change in noise exposure would be minimal and the recreational land uses within the Sweetbay Natural Area would be compatible with the projected aircraft noise levels. Further, as detailed in Section

3.6 of this Draft EA, the construction and operation emissions associated with the Proposed Project would not cause or contribute to violations of the NAAQS for criteria air pollutants in either 2025 or 2030.

3.12.5 Significance Determination

FAA Order 1050.1F Section 12.1.3.1 provides information on FAA's significance determination. The FAA has not established a significance threshold for socioeconomics, environmental justice, or children's environmental health and safety risks in FAA Order 1050.1F. The FAA has identified factors to consider when evaluating potential environmental impacts for socioeconomics, environmental justice, and children's environmental health and safety risks. If these factors exist, there is not necessarily a significant impact. The FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts. When compared to the No Action Alternative, the Proposed Project would not result in significant impacts to socioeconomics, environmental justice, or children's environmental health and safety due to the reasons described in sections above.

3.13 Visual Effects

3.13.1 Regulatory Context

The 1050.1F Desk Reference states that an assessment of potential impacts to visual resources is required to consider to what extent a Proposed Project could produce light emissions with potential to interfere with activity or cause annoyance or otherwise degrade the visual character of an existing environment. Beyond the guidance provided in FAA Order 1050.1F, there are no other specific regulatory requirements for analyzing the visual effects of a project.

3.13.2 Methodology

In accordance with Section 13.3.3 of the 1050.1F Desk Reference, the analysis of potential impacts for visual effects was completed by reviewing land uses surrounding the Airport for sensitivity to light emissions as well as the potential for the Proposed Project to interfere with the aesthetics and visual character of the surrounding areas. The evaluation of the effects of light emissions includes whether the Proposed Project could create annoyance or interfere with normal activities from light emissions; or affect the visual character of the area due to the light emissions. The evaluation also considered effects to visual resources and visual character, such as the ability of the Proposed Project to affect the nature of the visual character of the area; contrast with the visual resources and/or visual character in the study area; and block or obstruct the views of visual resources.

3.13.3 Affected Environment

As described in Section 3.8, *Land Use,* F45 is located in a largely undeveloped rural area, surrounded by large swathes of wetlands, upland prairie, shrubs and brush, and varied woodland. Consistent with the terrain and this type of land cover, the Airport is largely hidden from surrounding areas. The nearest residential community is about a mile north of the Airport boundary along Highway 710. The nearest publicly accessible areas beyond the Airport property are the Sweetbay Natural Area Parking Lot and Highway 710. While the Airport is visible from portions of Aviation Road, along the Airport perimeter and beyond the Runway 14 end, there is no visibility from adjacent locations due to the terrain and dense vegetation.

Existing light sources at the Airport primarily include runway and taxiway lights, lighted airfield directional signage, and light from navigational equipment. The Airport has a rotating beacon that emits alternating white and green flashes of light from sunset to sunrise that identifies the location of the Airport from a distance at night. Other light sources include lighting on the terminal area buildings, hangars, and parking areas. There are no streetlights on the portion of Aviation Road that leads from Highway 710 to the Airport terminal parking areas.

3.13.4 Environmental Consequences

3.13.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built. Therefore, there would be no possible new sources of light emissions or effects to the visual character of the areas surrounding the Airport. Light emissions at the Airport would remain limited to the runways, airport buildings, and parking areas. The visual resources and character of the Airport environs would remain unchanged and continue to reflect a typical facility of its type.

3.13.4.2 Proposed Project

The Proposed Project would extend Runway 14-32 to the northwest and southeast and require rerouting and removing portions of Aviation Road to construct an Access Road outside of the proposed RSA, ROFA, and RPZ. The Proposed project also includes a Proposed Service Road to replace the loss of service roads in the proposed RSA, ROFA, and RPZ. The Proposed Access Road would be outside of Sweetbay Natural Area while the Proposed Service Road would impact portions of Sweetbay through clearing of shrub and brushland vegetation. However, the Proposed Service and Access Roads would be similar to the existing road in function and form, and would not alter the visual setting of the area.

Aviation Road and the service roads currently do not have lighting. Since the function of the new road would be similar, new lighting is not expected to be introduced. If any lighting is installed, it is unlikely that the introduction of new light sources associated with these activities would be visible from publicly accessible areas of the Sweetbay Natural Area due to the terrain and vegetation. Sweetbay Natural Area is also not available to the public after daylight hours. Further, physical development (e.g., pavenment, concrete, etc.) associated with Runway 14 extension will likely be out of view from the trails and observation platform at Sweetbay Natural Area due to distance and presence of dense vegetation. Therefore, activities associated with the Proposed Project are not anticipated to result in annoyance or effect the visual character of the area. Additionally, reconfiguration of Aviation Road would necessitate gating the road just beyond Sweetbay Natural Area parking lot, limiting access to areas adjacent to the Airport property beyond what is currently accessible. This would further reduce potential visibility to viewers beyond the Airport property. Therefore, it is unlikely that the Proposed Project would generate noticeable light emissions or detract from surrounding visual resources.

Construction of an ATCT is a connected action to the Proposed Project. The proposed height of the ATCT to the top of the tower antennas would be 100.2 feet above ground level. At this height, it is likely that the tower would be taller than nearby trees. Further, the tower will include rooftop lighting associated with the antennas. Therefore, the top of the ATCT and associated lighting will likely be visible to travelers using Highway 710. However, there are no open established views or viewpoints of concern surrounding the Airport. The closest viewpoint is an observation platform located in Sweetbay Natural Area, and this area is not available to the

public after daylight hours. Further, because use of Highway 710 is itinerant, the ATCT and associated lighting is unlikely to create annoyance or interfere with normal activities from light emissions, affect the visual character of the area, or block or obstruct views of any visual resources in the area.

While construction equipment would be present on the Airport property during development of the Proposed Project, the temporary presence of construction equipment and activities would be unlikely to be observed beyond the airfield because of the distance and degree of vegetation between the Airport and nearest residential development. Furthermore, light sources associated with construction would be unlikely as most activities would be confined to daylight hours. If nighttime construction operations were to occur and additional night lighting required, it is unlikely that light emissions would be perceived by sensitive receptors (i.e., adjacent residential communities) because of the degree of vegetation between the nearest residential development (the land use most sensitive to nighttime light emissions) and the Airport.

The Proposed Project includes installing new runway and taxiway edge lights and directional signs, Runway 14 threshold lights, PAPI Lights, and REIL. Further, the Proposed Project would include relocating or installing new Runway 14 threshold lights. There are no anticipated changes to the type of runway end approach lighting. It is unlikely for airfield lighting installed to support the Runway 14-32 extension to be perceived by any residential development due to vegetation and distance of the Airport from the nearest development. Sweetbay Natural Area, its observation platform, and trail system is closed at night, therefore, any airfield lighting installed to support the Runway 14-32 extension is unlikely to be perceived from Sweetbay Natural Area.

3.13.5 Significance Determination

FAA Order 1050.1F Section 13.3.3 provides information on FAA's significance determination. The FAA has not established a significance threshold for visual effects in FAA Order 1050.1F. The FAA has identified factors to consider when evaluating potential environmental impacts for visual effects. If these factors exist, there is not necessarily a significant impact. The FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts. When compared to the No Action Alternative, would not result in significant impacts to visual effects. Any visual impact introduced as a part of the Proposed Project is unlikely to be perceived due to the distance and vegetation between the Airport and nearest residential development.

3.14 Water Resources (Wetlands, Floodplains, Surface Waters, and Groundwater Only)

3.14.1 Regulatory Context

The *Clean Water Act of 1972* (33 U.S.C. §§ 1251-1387), the *Safe Drinking Water Act of 1972* (42 U.S.C. §§ 300(f)-300j26), the *Rivers and Harbors Act* of 1899 (33 U.S.C. § 401 and 403), and the *Water Quality Act* of 1987 (42 U.S.C. §§ 300(f)-300j-26) are the primary federal laws protecting the nation's waters. Executive Order 11988 *Floodplain Management* addresses potential development in the nation's floodplains. Executive Order 11990, *Protection of Wetlands*, directs federal agencies to take action to minimize the destruction, loss, or degradation of wetlands on their property and mandates review of proposed actions on wetlands through procedures established by NEPA. Executive Order 11988, *Floodplain Management* (1977) and Department of Transportation Order 5650.2, *Floodplain Management*

and Protection require that actions avoid floodplains, and if no practicable alternative exists, to design actions to minimize risk of loss of human life, damage to property, or interruption of the natural and beneficial values of floodplain resources.

The Clean Water Act (CWA) (33 U.S.C. §§ 1251–1387), as amended, establishes the basic structure for regulating discharges of pollutants or fill material into the Waters of the U.S. and regulating quality standards for surface waters. Section 404 of the Clean Water Act regulates discharge of dredge or fill material into waters of the U.S., including wetlands, and a permit is required from the Department of the Army, Corps of Engineers (USACE), or the responsible state agency, for discharges of these materials into those waters/wetlands. Section 404 permitting was assumed by the State of Florida for non-retained waters in 2020. The Florida Department of Environmental Protection (FDEP) implements the Section 404 program for the State. Further a state Environmental Resource Permit (ERP) is also required from South Florida Water Management District (SFWMD) before work can begin within state jurisdictional wetlands and/or other surface waters.[82] The Safe Drinking Water Act (SDWA) authorizes the USEPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water.

3.14.2 Methodology

Onsite field surveys were conducted on May 28, 2020, June 2, 2020, June 16, 2020, July 1, 2020, July 8, 2020, and July 9, 2020, to characterize the environmental resources that may be affected by the Proposed Project. A study area was delineated for use in the field surveys and includes areas that would be directly and indirectly impacted by the Proposed Project. These surveys included site-specific delineations of wetlands and other surface waters[83] in accordance with USACE and state regulations. To identify overall wetland habitats and surface waters within the Action Area, the FWS NWI database and the SFWMD Land Cover Land Use database were reviewed prior to initiating fieldwork. The SFWMD Environmental Monitoring web map, SFWMD DBHYDRO Database, and the EPA Sole Source Aquifers for Drinking Water were reviewed to determine the presence of water quality sensitive areas near the Airport. Floodplain resources within the affected environment are evaluated against the FEMA Flood Insurance Maps (FIRMs) for the Airport.

3.14.3 Affected Environment

3.14.3.1 Wetlands

Wetland resources are located within and immediately surrounding the Airport property boundary. Wetland habitat surrounding the Airport generally consist of a mixture of freshwater marshes, wet prairies, and wet pinelands. At the Airport, wetlands can be found in the northwest, south, and southeast along the Airport property boundary and surrounding airport infrastructure such as runways, taxiways, and roads. Prominent wetland resources were identified within the northwest and southeast portions of the RSA, ROFA, and RPZ of Runway 14-32. This includes wetland resources in the Loxahatchee Slough and Sweetbay Natural Areas. Wetland vegetation was also noted in stormwater retention ponds, ditches, and swales adjacent to Runway

82 Pursuant to Chapter 373, Florida Statutes

83 Other surface waters means surface waters as described and delineated pursuant to Rule 62-340.600, F.A.C., as ratified by Section 373.4211, F.S., other than wetlands.

14-32 and taxiways; however, based upon the prior binding jurisdictional determinations[84], and as codified in SFWMD Environmental Resource Permit No. 50-02617-S (issued March 14, 2011), these areas are considered "other surface waters" (OSWs)[85]. More information on wetland resources, including habitat descriptions, can be found in **Appendix C** and Section 3.3.3.1, *Land Cover, Vegetation, and Habitat.*

3.14.3.2 Surface Water

Surface waters within the Airport boundary include man-made stormwater reservoirs and drainage features, such as upland-cut ditches and swales, designed and constructed to convey stormwater. Prominent water reservoirs are located immediately east of the Airport's passenger terminal and immediately north of Taxiways L and M. Smaller sized reservoirs can be found directly north of the eastern portion of Taxiway K. Channelized waterways are generally located along the periphery of the Airport's southern and eastern boundary. Wet ditches and swales can be found throughout the Airport property between runways and taxiways. Field surveys identified 23.51 acres of unidentified ditches and swales within the study area. An estimated 2.55 acres of surface waters were categorized as unidentified channelized waterways. As described previously, 12.95 acres of OSWs were also characterized within the study area. The surface waters identified in the 2020 field surveys are all man-made features constructed during or after airport development and are a part of the surface water management system at the Airport.

3.14.3.3 Floodplains

According to the FEMA FIRM for the Proposed Project location, the Airport is not located within or adjacent to any floodplains or Special Flood Hazard Area Zones. The closest Special Flood Hazard Area Zones is located approximately 1.5 miles to the southeast of the Proposed Project along Bee Line Highway and within the Loxahatchee Slough Natural Area. Thus, no impacts to floodplains are anticipated and floodplains are eliminated from further analysis. The FEMA FIRM panels include 12099C0332F, 12099C0334F, 12099C0353F, and 12099C0351F.[86] A copy of the FEMA FIRMs can be found in **Appendix J**.

3.14.3.4 Groundwater

The Airport is located within the Biscayne Sole Source Aquifer (Biscayne Aquifer) Streamflow and Recharge Source Zone.[87] The Sole Source Aquifers (SSA) are designated by the USEPA under section 1424(e) of the SDWA of 1974. An SSA supplies at least 50% of the drinking water consumed in the areas overlying the aquifer. These areas may have no alternative drinking water source(s) that could physically, legally, and economically supply those who depend on the aquifer for drinking water.[88] The Biscayne Aquifer underlies an area of approximately 4,000 square miles. It is located just below ground level and is comprised of porous rock and soil which allow for the water levels in the aquifer to rise and recharge rapidly

84 USACE approved delineation 2010.

85 Other surface waters means surface waters as described and delineated pursuant to Rule 62-340.600, F.A.C., as ratified by Section 373.4211, F.S., other than wetlands.

86 FEMA FIRM panels 12099C0332F, 12099C0334F, and 12099C0351F are not printed because of the absence of any Special Flood Hazard Areas.

87 U.S. Environmental Protection Agency, *Map of Sole Source Aquifer Locations*. https://www.epa.gov/dwssa/map-sole-source-aquifer-locations (Accessed: April 2023)

88 U.S. Environmental Protection Agency, Sole Source Aquifers in the Southeast, https://archive.epa.gov/region4/water/groundwater/web/html/r4ssa.html#biscayne (Accessed: April 2023)

in response to rainfall.[89] However, given that the Biscayne aquifer is highly permeable and lies at shallow depths, it is susceptible to contamination from activities above its location.

3.14.4 Environmental Consequences

3.14.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no impacts to water resources that are attributable to the extension of Runway 14-32 and other proposed actions. Although there would still be steady increase of forecasted operational growth at F45, the impacts of additional aviation activity on water resources would be minimal.

3.14.4.2 Proposed Project

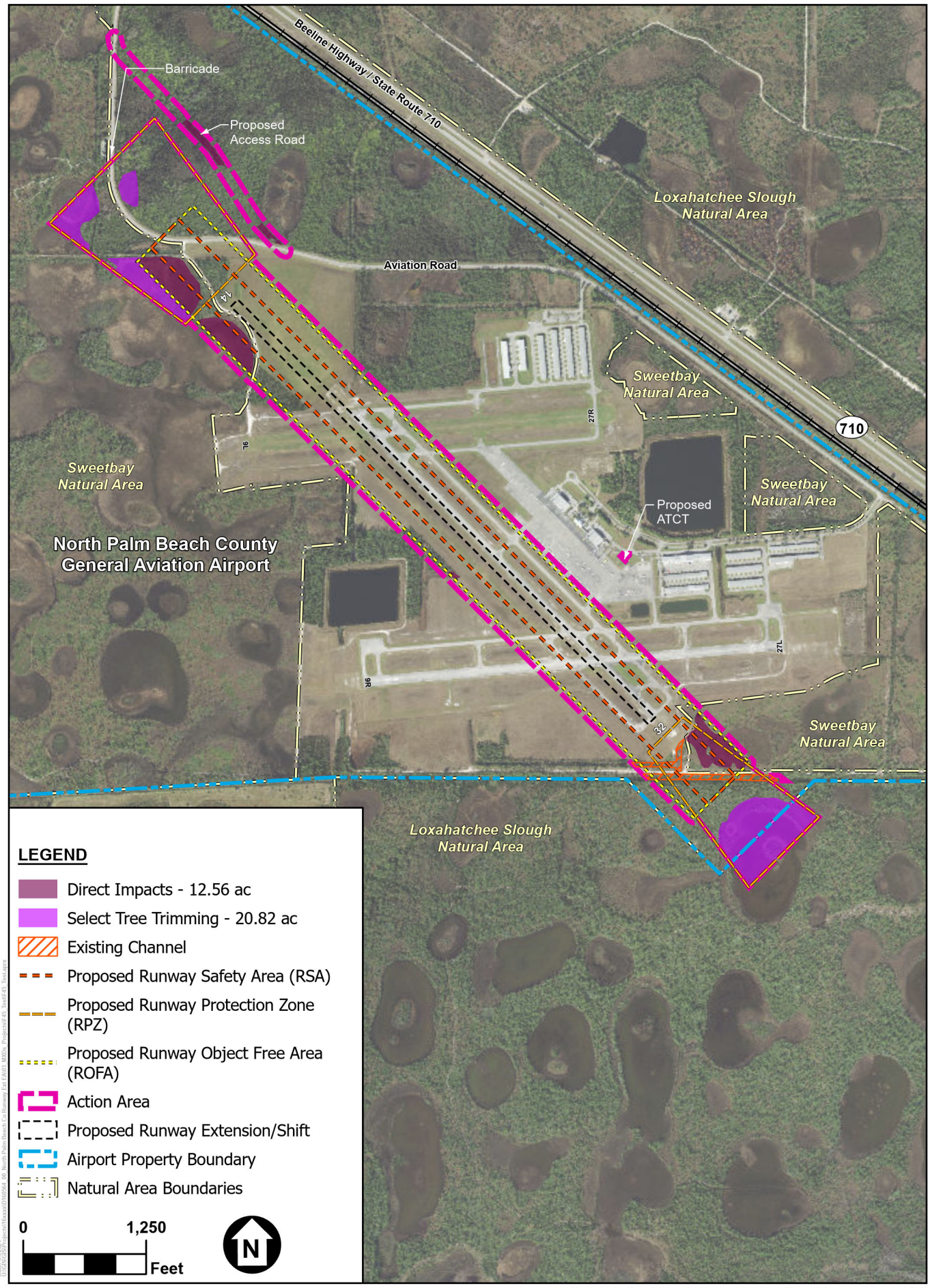
Wetlands

Construction and land clearing associated with the proposed runway extension and related improvements would directly impact an estimated 12.56 acres of wetlands (e.g., exotic wetland hardwoods, wetland scrub, freshwater marsh, and wet prairie). Up to an estimated 21 acres of wetlands would be subject to selective and as-needed tree trimming within the proposed Runway 14-32 RPZs in accordance with FAA 150/5190-4B, *Airport Land Use Compatibility Planning*. Wetlands located within the proposed RPZs, outside of the proposed ROFA and RSA, would remain post-project and be available for wildlife use. **Figure 3-15** shows the wetlands impacts as a result of the Proposed Project.

The Proposed Project would result in direct impacts to 12.56 acres of wetland resources as result of the proposed RSA, ROFA, and new Access Road. This includes an estimated 2.4 acres of wetlands that would be cleared and filled for the Runway 14 and 32 RSAs. Approximately 1.16 acres of wetlands would be cleared and filled for the Airport Access Road. Lastly, approximately 9 acres of wetlands would be cleared and maintained below the runway elevation for the ROFAs. These direct impacts include areas within the Airport boundary as well as Sweetbay Natural Area. Approximately, 11.3 acres of wetland resources would be directly impacted within the Sweetbay Natural Area. There would be no direct impacts to wetlands within Loxahatchee Slough Natural Area. Wetlands that would be directly impacted would be mitigated by the County and in accordance with applicable regulatory requirements and interlocal agreements.

The total acres of wetlands within the Action Area represent 1.2% of the total, unprotected, herbaceous wetlands within the Loxahatchee River Basin. Therefore, the potential wetland impacts associated with the Proposed Project are not anticipated to result in an adverse cumulative impact to freshwater wetlands within the Loxahatchee River Basin, especially since the mitigation options considered by the County would occur within the same basin.

89 U.S. Geologic Survey, 1990. *Groundwater Atlas of the United States, Segment 6, Alabama, Florida, Georgia, South Carolina HA 730-G*. https://pubs.usgs.gov/ha/730g/report.pdf



North Palm Beach County General Aviation Airport Runway Extension EA

Source: ESA, 2020.

FIGURE 3-15
WETLAND IMPACTS

An ERP from SFWMD and a Section 404 permit from FDEP[90] or the Department of the Army Corps of Engineers (USACE) would be required to address wetland impacts and mitigation[91].[92,93] Directly impacted wetland resources would be mitigated in accordance with state and federal regulatory criteria.[94] The County would seek mitigation through the purchase of credits to compensate for the direct impacts to wetlands as a part of the Proposed Project. Mitigation credits would be purchased from either the Pine Glades North Mitigation Area or Pine Glades West Mitigation Area. Both areas include forested and herbaceous wetland habitat located within the Loxahatchee River Basin.

Surface Water

The Proposed Project could result in 36.76 acres of direct impacts and 2.24 acres of indirect impacts to surface waters that include swales/ditches and channelized waterways/canals within the Airport boundary. These surface water resources primarily serve to convey stormwater runoff from the runways and road and are part of the surface water management system. There are no identified surface water features identified in USGS National Hydrography Dataset.[95]

Groundwater

The Proposed Project would require the use of clean fill material on top of cleared surfaces to support the Runway 14-32/Taxiway F extension and supporting actions, as identified in Section 1.3.1. As a part of the Proposed Project, the local topography would likely be elevated and altered to better convey stormwater away from runways and taxiways. This would likely alter the existing flow rate and depth to groundwater where fill material would be used to elevate components of the Proposed Project. Further, the Proposed Project would result in the addition of impermeable surfaces, which could alter local superficial recharge characteristics to groundwater. However, the Biscayne Aquifer is approximately 4,000 square miles in size. Any potential changes as a result of the Proposed Project would be localized to the Airport and would be unlikely to result in a significant change to recharge characteristics of the Biscayne Aquifer. Further, because clean fill would be used, it is not likely that the Proposed Project would further contaminate existing groundwater. Further, the Proposed Project would not involve the use of groundwater for construction activities.

3.14.5 Significance Determination

3.14.5.1 Wetlands

FAA Order 1050.1F Section 14.1.3.1 provides the FAA's significance threshold for wetlands. A significant impact would occur when: 1) Adversely affect a wetland's function to protect the quality or quantity of

90 Florida Intervenors' Motion for Limited Stay of February 15, 2024 Vacatur Order in the Memorandum Opinion, U.S. District Court for the District of Columbia "Center for Biological Diversity et al v. Michael S. Regan et al" February 15, 2024. February 26, 2024.

91 Memorandum Opinion, U.S. District Court for the District of Columbia "Center for Biological Diversity et al v. Michael S. Regan et al" February 15, 2024.

92 Florida Department of Environmental Protection, July 2007. *Operating Agreement Concerning Regulation Under Part IV, Chapter 373, F.S., Between South Florida Water Management District and DEP*. https://floridadep.gov/ogc/ogc/content/operating-agreements#waterdistricts

93 Florida Department of Environmental Protection, December 1989. *Authorization to SFWMD to Administer, Enforce and Defend Part IV of Chapter 373, Florida Statutes (as Amended in 1989)*. https://floridadep.gov/ogc/ogc/content/operating-agreements#waterdistricts

94 Part IV, Chapter 373, F.S.

95 USGS, 2023. *National Hydrography Dataset*.

municipal water supplies, including surface waters and sole source and other aquifers; 2) Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected; 3) Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public); 4) Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands; 5) Promote development of secondary activities or services that would cause the circumstances listed above to occur; or 6) Be inconsistent with applicable state wetland strategies. The potential loss of wetland habitat as a result of the Proposed Project, including any reduction in functional value, would be considered a significant impact without mitigation.

3.14.5.2 Surface Water

FAA Order 1050.1F states that surface water impacts are significant if the proposed action would: 1) exceed water quality standards established by federal, state, local, and tribal regulatory agencies, or 2) contaminate public drinking water supply such that public health may be adversely affected. Implementation of erosion control BMPs and pollution prevention measures would minimize the potential for substantial water quality impacts during construction. More information on BMPs can be found in Section 3.14.5, *Mitigation and Best Practices*.

3.14.5.3 Groundwater

FAA Order 1050.1F states that groundwater impacts are significant if the Proposed Project would: 1) exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies, or 2) contaminate an aquifer used for public water supply such that public health may be adversely affected. The Proposed Project would utilize clean fill, in accordance with SFWMD requirements. Since clean fill would be used, it is not likely that the Proposed Project would further contaminate existing groundwater. Any discharges that may potentially affect municipal drinking water supplies, important sole-source aquifers, or protected groundwater supplies would be taken into consideration during the implementation phase of the Proposed Project.

3.14.6 Mitigation and Best Practices

The Proposed Project would include the implementation of mitigation and best management practices in accordance with SFWMD and section 404 permits to compensate for the loss of wetland habitat and maintain water quality throughout the construction and operational phases. The 12.56 acres of potentially directly impacted wetlands would be mitigated through the purchase of suitable credits from the Pine Glades North Mitigation Area, Pine Glades West Mitigation Area or a suitable mitigation bank.

Construction BMPs would be designed to minimize erosion and sedimentation and prevent spills. Collectively, erosion control measures and pollution prevention plans would be expected to preclude substantial water quality impacts and any significant potential for the Proposed Project to exceed applicable water quality standards. Specific measures and practices that may be implemented include: Stormwater Pollution Prevention Plan; Construction Sequencing and Erosion Control Measures; Structural Controls to Minimize Sediment Transport; and, Pollution Prevention and Control.

3.15 Cumulative Impacts

A NEPA analysis requires the consideration of cumulative impacts. Cumulative impacts are those impacts that may result from an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7 [1978, as amended in 1986 and 2005). This section describes past, present, and reasonably foreseeable[96] future projects in the vicinity of the Airport and their effects, which when combined with the impacts associated with the Proposed Project or its alternatives may produce cumulative impacts.

3.15.1 Methodology

Table 3-25 lists past, present, and reasonably foreseeable projects within the vicinity of the Airport that were considered for purposes of the cumulative impacts analysis. The GSA represents the area in which the Proposed Project would have potential for direct and indirect impacts to the environment. However, projects within the vicinity of the Airport beyond the GSA for one statute mile were identified and considered for inclusion in the analysis. The temporal basis for identifying past, present, and reasonably foreseeable projects was 10 years before the Existing Conditions (2021) Study Year (i.e., 2013) and five years beyond the 2030 planning horizon (i.e., 2034). Extending Runway 14-32 at F45, in combination with other past, present, and reasonably foreseeable future projects can contribute to cumulative impacts. Major transportation and development projects in the vicinity of F45 that could have some effect within the GSA were identified and will be considered in the assessment of cumulative impacts.

TABLE 3-25
PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

Plan/Project Name	Description	Source
Past Projects		
Wetland Modification for Wildlife Hazard Abatement (2012)	Cleared, filled, and graded approximately 55.84 acres of existing wetlands and surface waters.	Vegetative communities, wildlife habitat, and solid waste
T-Hangar Construction (2015)	Construction of two new T-hangar buildings north of Runway 9R-27L.	Not Applicable
Perimeter Security Fence Improvements (2019)	Installation of new fencing and replacement of existing fencing.	Not Applicable
Present Projects		
Avenir Planned Community Development (2019-Present)	An approximately 5,000-acre planned development featuring 3,900 residential dwelling units as well as office, retail, dining, institutional, and open space land uses. Site preparation commenced in 2018, and construction is on-going at the time of EA publication.	Unknown/not evaluated
Reasonably Foreseeable Future Projects		
Osprey Isles (Star of David) (2024)	A petition to change comprehensive land use and zoning designations on 9.98 and a 43.41-acre parcels to accommodate an expansion of the existing Star of David cemetery	Unknown/ not evaluated.
SW Corner of Northlake Blvd / 112th Ter (Vintage Oaks) (2024)	Request to amend the land use and zoning for 17.89 acres to construct 111 townhomes	Unknown/ not evaluated
F45 Terminal Ramp Expansion (2025)	Expansion of the Terminal Ramp	Not Applicable
Northwest Apron Expansion (2025)	Expansion of the northwest apron to include additional parking space and tie-downs.	Not Applicable

96 FAA Order 5050.4B, Sec. 9, para. q.

TABLE 3-25
PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

Plan/Project Name	Description	Source
T-Hangar Access Pavement Rehabilitation (2025)	Reconstruction of the T-hangar access pavement, including patching, crack sealing, and surface seal.	Not Applicable
Taxiway J Rehabilitation (Apron Connector) (2025)	Rehabilitation of Taxiway J and other taxiway rehabilitation projects, includes surface seal (2,217.3 sq. ft.) and asphalt concrete patching (711.5 sq. ft.).	Not Applicable
Northern Apron Pavement Reconstruction (2025)	Reconstruction of the northern apron, includes Portland cement concrete restoration and asphalt concrete restoration.	Not Applicable
T-Hangar Access Pavement Reconstruction (2025)	Reconstruction of the T-hangar access pavement, includes asphalt concrete restoration.	Not Applicable
Central Apron Pavement Reconstruction (2025)	Reconstruction of the central apron pavement, includes asphalt concrete restoration.	Not Applicable
Taxiway R Rehabilitation (2025)	Rehabilitation of Taxiway R, including surface sealing (2970.8 sq. ft.) of pavement.	Not Applicable
Taxiway D Rehabilitation (2025)	Rehabilitation of Taxiway D, including surface sealing (7,724.2 sq. ft.) of pavement.	Not Applicable
Runway 9R-27L Rehabilitation (2025)	Reconstruction of Runway 9R-27L, including asphalt concrete crack sealing, surface sealing (106,758.6 sq. ft.), and asphalt concrete patching (1,241.1 sq. ft.).	Not Applicable
Taxiway K2 Rehabilitation (2025)	Rehabilitation of Taxiway K2, including surface sealing (1,539.2 sq. ft.).	Not Applicable
Taxiway K3 Rehabilitation (2025)	Rehabilitation of Taxiway K3, including surface sealing (1,598.4 sq. ft.).	Not Applicable
T-Hangar Access Pavement Reconstruction (2026-2030)	Reconstruction of the T-hangar access pavement, includes asphalt concrete restoration (200,177 sq. ft.).	Not Applicable
Runway 9R-27L Reconstruction (2026-2030)	Reconstruction of Runway 9R-27L pavement, includes asphalt concrete restoration (422,070 sq. ft.).	Not Applicable
Taxiway A1 Rehabilitation (2026-2030)	Rehabilitation of Taxiway A1 pavement, including surface sealing (793.3 sq. ft.) and asphalt concrete patching (70 sq. ft.).	Not Applicable
Taxiway K5 Rehabilitation (2026-2030)	Rehabilitation of Taxiway K5 pavement, including surface sealing (1,612.4 sq. ft.) and asphalt concrete patching (580 sq. ft.).	Not Applicable
Fueling Hardstand Reconstruction (2026-2030)	Reconstruction of the fueling hardstand	Not Applicable
Taxiway C Rehabilitation (2026-2030)	Rehabilitation of Taxiway C, including surface sealing (8,885.6 sq. ft.),	Not Applicable

NOTES:

PCD = Planned Community Development

SOURCE: City of Palm Beach Gardens, Planning & Zoning Department, 2022. https://www.pbgfl.com/637/Development-Projects (accessed December 22, 2022); County of Palm Beach, Department of Airports, Airports Planning & Development Division, September 30, 2022; FDOT, November 2019; Jacobs, May 2020 and April 2021.

3.15.2 Past, Present, and Reasonably Foreseeable Future Actions

Projects in the Airport environs, to include areas within one statue mile of the GSA boundary, that occurred in the past 10 years, current projects, and reasonably foreseeable future projects within the next five years were selected for analysis. Actions presently occurring in the F45 environs are primarily associated with the Avenir planned community development.

3.15.2.1 Past Actions

The 1050.1F Desk Reference defines past actions as "actions that occurred in the past and may warrant consideration in determining the environmental impacts of an action."[97]

3.15.2.2 Present Actions

The 1050.1F Desk Reference states present actions are "any other actions that are occurring in the same general time frame as the proposal." Special attention should be given to projects which might exacerbate "traffic, noise, or other environmental concerns" in conjunction with the Proposed Project.

3.15.2.3 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are "actions that may affect projected impacts of a proposal and are not remote or speculative", as stated in the 1050.1F Desk Reference. The Desk Reference further clarifies, "actions not grounded in planning documents, projected development trends, or regional or local plans would typically be considered remote and speculative, and thus need not be analyzed." Reasonably foreseeable future actions are those occurring in the same timeframe considered in the evaluation of the Proposed Project.

3.15.3 Regulatory Context

A NEPA analysis requires evaluation of cumulative impacts defined as those impacts that may result from an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions".[98]

3.15.4 Affected Environment

Local off-Airport development projects are a recent occurrence. The lands surrounding the Airport existed in a state of undeveloped wetland areas until the adoption by the Palm Beach Gardens city council in April 2010 of the planned community development known as Alton. The Alton development was the first large-scale mixed-use project in the City of Palm Beach Gardens, and its various phases and pods continue to comprise the developments being constructed and planned around F45.

Projects presently being developed in the F45 environs are associated with the on-going implementation of the Alton planned community development.

Future actions anticipated on the Airport include reconstruction of Runway 9L-27R, taxiway pavement rehabilitations, T-hangar reconstruction, and terminal ramp expansion. Off-Airport projects will continue to consist of projects associated with forthcoming phases of the Alton planned community development.

3.15.5 Cumulative Impact Discussion

The analysis of cumulative impacts is summarized in **Table 3-26**.

97 Department of Transportation, Federal Aviation Administration, Order 1050.1F Desk Reference

98 40 CFR 1508.7 [1978, as amended in 1986 and 2005]

TABLE 3-26
ANALYSIS OF CUMULATIVE IMPACTS

Resource Category	Impact(s) Analysis
Air Quality	Per Section 3.2.5, Proposed Project construction and operations criteria air pollutant emissions in years 2025 and 2030 would not result in a violation of the NAAQS or require a General Conformity determination. The past, present, and reasonably foreseeable future projects identified in Table 3-26 do not include actions that would result in significant negative impacts to air quality in the GSA and all projects are presumed to conform with applicable air quality regulations. The Proposed Project is not anticipated to contribute to any significant cumulative impacts to air quality in combination with other past, present and reasonably foreseeable future projects.
Biological Resources	Per information disclosed in the BA and the findings in Section 3.3, the Proposed Project is not anticipated to significantly impact terrestrial and aquatic animal species, game and non-game species, special status species, and environmentally sensitive or critical habitats. Neither are any federally listed species or their habitats anticipated to be adversely impacted by the Proposed Project through any substantial loss or fragmentation. Construction of F45 occurred in the early 1990s and was performed in accordance with an interlocal agreement which described specific conditions and mitigation measures to avoid significant impacts to biological resources. Subsequent interlocal agreements and associated amendments have established preserve areas and conditions to avoid and mitigate potential impacts. Implementation of mitigation measures discussed in Section 3.3.6 would diminish potential adverse impacts of the Proposed Project, and other past, present, and reasonably foreseeable future projects at the airport would take place on areas of the airfield already disturbed by existing development and on-going activity. None of the projects listed in Table 3-26 are anticipated to impact any federally or state-listed endangered, threatened, or candidate species or designated critical habitat. Therefore, the Proposed Project would not be anticipated to contribute to any significant cumulative impacts regarding biological resources.
Climate	Per Section 3.4.5, the FAA has not established significance thresholds for assessing impacts to climate, nor have specific factors been identified for consideration in making a significance determination for GHG emissions. No past, present, and reasonably foreseeable projects are anticipated to emit substantial amounts of GHGs, and, as such, the Proposed Project is not anticipated to contribute to any adverse cumulative impacts to the climate.
Coastal Resources	Per Section 3.5.5, the FAA has not established a significance threshold for coastal resources. Nonetheless, 3.6 acres of wetland area would be converted to upland area for the Proposed Project, and areas surrounding F45 are undergoing development that may result in conversion of wetland areas to developed or disturbed land. However, the wetland areas affected by the Proposed Project may already be somewhat degraded due to their proximity to on-going airfield operations and infrastructure. Furthermore, wetland mitigation occurring through purchase of wetland credits at areas more favorable to wetland conditions would also diminish any adverse impacts associated with the Proposed Project. The expansion of existing infrastructure at F45 would be undertaken to enhance safety and efficiency of the on-going operations, and any adverse impacts associated with the Proposed Project would represent a minimal contribution to cumulative impacts to coastal resources when considering past, present, and reasonably foreseeable future projects.
Department of Transportation, Section 4(f) Resources	Per Section 3.6.4.2, the Proposed Project would impact 32.27 acres of Sweetbay Natural Area and 6.66 acres of the Runway 32 RPZ would extend into Loxahatchee Slough Natural Area. A de minimis determination has been made regarding the significance of the Proposed Project's potential impacts on Section 4(f) resources. While no amenities would be displaced, mitigation is proposed to offset the potential loss of natural area in the Sweetbay Natural Area. Potentially affected habitat within Sweetbay Natural Area would be replaced at a location to be agreed upon by the County and ERM and would be completed in accordance with state permit requirements. With the mitigation providing new preserve habitat of equivalent or better quality than the impacted area, it is not anticipated that the Proposed Project would contribute to any cumulative impacts associated with past, present, or reasonably foreseeable future projects.
Hazardous Materials, Solid Waste, and Pollution Prevention	Per Section 3.7, there would be no significant impacts to hazardous materials, solid waste, or pollution prevention resulting from the Proposed Project. Accordingly, the Proposed Project would not be anticipated to contribute to any cumulative impacts associated with past, present, or reasonably foreseeable future projects.

TABLE 3-26
ANALYSIS OF CUMULATIVE IMPACTS

Resource Category	Impact(s) Analysis
Historic, Architectural, Archaeological, and Cultural Resources	Per Section 3.8.4.2, no archaeological sites or materials are anticipated to be encountered during construction of the Proposed Project, and no indirect effects of the Proposed Project, such as noise or air emissions, are anticipated to impact any known sites of cultural significance. Accordingly, no significant impacts to historic, architectural, archaeological, or cultural resources are anticipated, nor would the Proposed Project be expected to contribute to any cumulative impacts associated with past, present, or reasonably foreseeable future projects.
Land Use	Per Section 3.9, the Proposed Project would be consistent with the intended use of the Airport property and advance the aim of safe and efficient operation of a public facility. This would, therefore, not violate any applicable plans or regulations governing land use in the GSA. No adverse impacts to surrounding land uses or applicable plans would result from construction or implementation of the Proposed Project, nor would the Proposed Project contribute to any cumulative impacts associated with past, present, or reasonably foreseeable future projects.
Natural Resources and Energy Supply	Per Section 3.10, no impact to natural resources or energy supply would be anticipated to result in from the Proposed Project. Therefore, it is not anticipated that the Proposed Project would contribute to any cumulative impacts associated with past, present, or reasonably foreseeable future projects.
Noise and Noise-Compatible Land Use	Per Section 3.11.4.5, the Proposed Project would not result in any significant impacts related to noise or noise-compatible land use. While on-going land development in areas proximate to the airport is changing the ambient noise environment, F45 is an existing source of airport noise. Development surrounding the study area would remain buffered from noise resulting from operations at F45 due to the presence of protected natural areas between the airfield and newly developed spaces. Any increases in noise associated with the Proposed Project would not be anticipated to contribute to any cumulative impact associated with any past, present, or reasonably foreseeable future projects.
Socioeconomics and Environmental Justice	Per Section 3.12.4, the Proposed Project is not anticipated to induce activity such as increased traffic with potential to significantly impact socioeconomics or environmental justice communities. The past, present, and reasonably foreseeable future projects identified in Table 3-26 are not anticipated to result in any significant negative impacts to disadvantaged communities. In considering the low potential of the Proposed Action to significantly impact socioeconomics or environmental justice communities, along with the effects of other identified past, present, and reasonably foreseeable future projects, no cumulative impacts are anticipated.
Visual Effects	Per Section 3.13.5, any visual impacts introduced as a part of the Proposed Project are unlikely to be perceived due to the distance and vegetation between the Airport and nearest viewpoints. No significant impacts are, therefore, anticipated to result from the Proposed Project. The past, present, and reasonably foreseeable future projects included in this analysis are not anticipated to result potential visual impacts. There is, therefore, no expectation for any cumulative visual effects with potential to detrimentally the visual characteristics in the GSA.
Water Resources	Per Section 3.14, there is potential for significant impacts to water resources associated with the filling of 3.56 acres of wetlands. The purchase of wetland mitigation credits would offset the impacts to water resources, and the expansion of existing infrastructure at F45 would be undertaken to enhance safety and efficiency of the ongoing operations. Although cumulative impacts associated with other past, present, and reasonably foreseeable future projects would be a possibility, any adverse impacts associated with the Proposed Project would be anticipated to contribute minimally.

SOURCE: Environmental Science Associates, 2023.

CHAPTER 4
Agency Coordination and Public Involvement

4.1 Early Agency Coordination

Early agency coordination was performed by engaging with federal, state, and local agencies that have an interest in the Proposed Project. In coordination with the FAA, PBC notified several agencies of the intent to prepare an EA for the proposed extension of Runway 14-32 at the F45. On behalf of the FAA, PBC sent a notice of preparation to (1) inform agencies of the preparation of the EA, (2) request any information relevant to project's environmental setting to be considered in the EA, and (3) to obtain an understanding of any interest, issues, concerns an agency may have regarding the proposed runway extension. Please see **Appendix H** for more information on agency coordination performed as part of this EA, including an example of the Notice of Preparation and a list of the agencies notified.

4.2 Agency and Tribal Consultation

Under 40 CFR § 1501.4, federal agencies are required to involve environmental agencies, applicants, and the public, to the extent practicable, in the preparation of EAs. The primary components of the agency coordination and consultation and public involvement program for this EA include: (1) Notice of Preparation of an Environmental Assessment; (2) Publication of the Draft EA Notice of Availability; (3) Circulation of the Draft EA and for agency and public review; and, (4) Preparation of a Final EA that will include responses to comments received on the Draft EA. Keeping agencies and the public informed and gathering their input is an essential component of any environmental study. The following sections summarize the federal and state agency coordination and public involvement program for this EA.

4.2.1 Federal Agency Consultation

4.2.1.1 U.S. Fish and Wildlife Service

The FAA initiated consultation with the FWS through email transmittal of a formal Biological Assessment on February 6, 2023. FWS reviewed the information provided and found that the proposed action is "not likely to adversely affect" any federally listed species or designated critical habitat protected by the Endangered Species Act of 1973. This was signed by the Florida Ecological Services Field Office on February 9, 2023, and consultation has been completed. FWS provided a separate comment via email transmittal that is being addressed through letter response. A copy of this e-mail is provided in Appendix H.

4.2.2 State Agency Consultation

4.2.2.1 Florida Division of Historic Resources – SHPO

Consultation with the Florida SHPO, representative Timothy A. Parsons, was initiated on March 28, 2021. The letter initiating consultation under Section 106 of the NHPA is provided in Appendix F. More information on SHPO consultation is provided in Section 3.8.4.3, *Section 106 Consultation*, of this EA.

4.2.3 Tribal Consultation

Consultation with Native American tribes was initiated on July 27, 2021. The letters initiating consultation under Section 106 of the NHPA is provided in Appendix F. More information on consultation is provided in Section 3.8.4.3, *Section 106 Consultation*, of this EA.

4.3 Public Involvement

Under 40 CFR § 1501.4, federal agencies are required to involve environmental agencies, applicants, and the public, to the extent practicable, in the preparation of EAs. Keeping the public informed and gathering their input is an essential component of any environmental study. A summary of the public involvement program for this EA is summarized below.

4.3.1 Public Workshop/Hearing

A Public Workshop will be held to discuss the analyses presented in the Draft EA and to answer questions from the public. The Public Workshop will be held between 5:30 P.M. and 6:30 P.M. on May 14, 2024, at Palm Beach State College, Palm Beach Gardens Campus Multi-Purpose Room SC-127, 3160 PGA Boulevard, Palm Beach Gardens, FL 33410. A Public Hearing to receive formal verbal comments from the public will be held immediately after the Public Workshop at 6:30 P.M. and conclude once all comments are made. The Public Workshop will be an Open House style workshop; there will be no formal presentation. There will be boards describing the NEPA process, alternatives considered, the Proposed Action, and an overview of the analyses and results of the Draft EA environmental analysis. The Study Team will be available to answer questions. The Public Hearing will include a brief overview of the Public Hearing process and an opportunity for members of the public and agency representatives to provide formal oral comments, which will be transcribed by a court reporter and included and addressed in the Final EA.

4.3.2 How to Provide Public Comments

The 30-day comment period begins April 9, 2024, and will close on May 21, 2024, at 5:00 P.M. EDT. Anyone wishing to submit comments may do so at any time during the comment period. Comments on the Draft EA should be mailed to: Palm Beach County Department of Airports, 846 Palm Beach International Airport, West Palm Beach, FL 33406. Comments should be as specific as possible and address the adequacy of the information presented and the analysis of potential environmental impacts. All comments received during the comment period will be addressed in the Final EA. It should be noted that whether comments are submitted in writing or verbally during the formal Public Hearing, they will be considered equally. *Be advised that your entire comment–including your personal information–may be made publicly available. While you can ask us in your comment to withhold your personal identifying information, we cannot guarantee that we will be able to do so.*

4.4 Final EA

After the comment period and Public Hearing, the FAA will review and address all comments received in the Final EA. The FAA will equally consider comments submitted in writing or verbally during the formal Public Hearing.

CHAPTER 5
List of Preparers and Reviewers

5.1 Palm Beach County Department of Airports

Name	Title	Project Responsibility
Gary M. Sypek	Senior Deputy Director of Airports	Evaluation of the NEPA document; agency consultations
Andrew Gamboa	Airport Planner	Evaluation of the NEPA document;
Michael Giambrone	Director of Airports Planning	Evaluation of the NEPA document;

5.2 Environmental Science Associates

Name	Title	Project Responsibility	Education	Years Experience
Amy Paulson	Principal Associate	Project management, NEPA documentation including purpose and need, alternatives, and QA/QC.	M.S. Conservation Biology and Sustainable Development, B.S. Ecology	24
Chris Jones	Principal Associate	Project management, NEPA documentation	J.D.; B.A., Sociology	17
Chris Sequeira	Senior Noise and Air Quality Analyst	Air quality and greenhouse gas analysis	M.S. and B.S. Aeronautics and Astronautics, M.S. Technology and Policy	11
Doug DiCarlo	Aviation Program Manager	Proposed Project, aviation activity forecast, alternative analysis, and cumulative effects	M.B.A and B.S. Airway Science Management	29
Jeffrey Covert	Aviation Specialist	NEPA documentation.	M.S., Environmental Science; M.P.A.; B.S., Ecology and Environmental Biology; B.A., Spanish	10
Joseph Halisky	Aviation Planner	Proposed Project, aviation activity forecast, alternatives analysis, cumulative effects, mapping, and QA/QC	B.S. Aviation Management	6
Julie Sullivan	Regional Director	Project Director. project management, QA/QC, and agency coordination.	M.S. Biology and B.S. Zoology	25
Mike Arnold	Sr. Vice President	QA/QC	B.S. Civil Engineering.	32
Patrick Hickman	Managing Planner	NEPA documentation.	M.U.R.P., Urban and Regional Planning; B.L.A., Landscape Architecture	14
Sean Burlingame	Senior Airport Specialist	Noise and air quality analysis	B.S. Aviation Management	16
Stephen Goetzinger	Managing Associate	Nose and air quality analysis	M.S., Air Quality; B.S., Chemistry	15
Susan Shaw	Program Manager / Senior Scientist	Habitat and listed species evaluations, technical writing, and QA/QC	B.S. Limnology	23

5.3 CECOS

Name	Title	Project Responsibility	Education	Years Experience
Wendy Cyriacks	President/CEO	Biological Assessment	M.S., Marine Biology; B.S., Biology.	30
Mark Clark	Vice President	Biological Assessment	M.S., Entomology; B.S., Biology	30
Shannon Kelley	Senior Environmental Scientist	Biological Assessment	B.S., Marine Biology	14

5.4 AID

Name	Title	Project Responsibility	Education	Years Experience
Mohsen Mohammadi	Senior Consultant and Engineer	Preliminary Design/ Alternatives Development	Ph.D., Civil/Structural Engineering; M.S. Civil/Structural Engineering; B.S. Civil Engineering	30
Timeka Carter	Airport Planner	Preliminary Design/ Alternatives Development	B.S. Aviation Management	7

In addition to the list of preparers and reviewers provided in this chapter, the document was prepared under the supervision of the FAA. The FAA also provided input, conducted reviews of preliminary and draft materials, and conducted agency consultations.